

Financial Accounts: History, Methods, the Case of Italy and International Comparisons



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Papers presented at the conference held in Perugia, 1-2 December 2005

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Indirizzo Via Nazionale, 91 00184 Roma – Italia

Telefono +39 0647921

Sito internet http://www.bancaditalia.it

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INTRODUCTION

Salvatore Rossi^{*}

I would like to extend a very warm welcome to all the participants in the symposium taking place over the next two days in the traditional venue of the Bank of Italy's staff training centre. The formula we have chosen for the symposium is the same one that the Bank has adopted on similar occasions: if a topic comes to our attention that we feel concerns us as central bank, and if we know that we already have to hand writings and analytical research on the topic, then we assemble all the material, including unfinished studies, in the form of a seminar programme and submit it to the scientific community for a preliminary evaluation. According to this formula, all the papers for discussion are written by staff of the Bank of Italy, while all the discussants and even the session moderators are academics or members of other research centres. This system has evident advantages, which I am sure need no explanation. A review by the scientific community prevents us from becoming self-referencing, even though the topics relate directly to our everyday research activity and to our institutional role.

The subject of financial accounts is a case in point. It is a topic dear to central banks throughout the world and has been so for many decades. The reason is obvious: it is essential to have a clear picture of flows of funds among an economy's institutional sectors in order to formulate monetary policy. Monetary policy is impossible without up-to-date knowledge of the nature and operation of allocative mechanisms. Financial accounts are, of course, part of the general statistical framework of a country's economy: they can only be drawn up and analyzed in collaboration with national statistical institutes. They represent a typical borderline area between the duties and natural concerns of the central bank and those of the national statistical institute of the country concerned. In Italy, financial accounts have long been an area of close collaboration between the central bank and Istat, and are even more so today; the presence here of experts from our national institute for statistics bears witness to this.

The Bank of Italy has paid close attention to the country's financial accounts from the very start, at the beginning of the 1960s. In those years the first seeds of Keynes' school of thought were finding their way into Italy, along with portfolio theories and the work of Tobin. The ambassadors who brought these ideas to the Bank of Italy were Franco Modigliani and Albert Ando. Both worked in the Bank as consultants for many years, Modigliani less than Ando, who contributed his expertise until his death a few years ago. It was in that period, in the midst of that cultural ferment, and from those ideas that the Bank developed an interest in financial accounts. That was the beginning of Italy's financial accounts.

It was therefore an excellent choice on the part of the organisers, Riccardo de Bonis in the first place, along with Grazia Marchese and Luigi Federico Signorini, to begin this meeting with a session on history. The history of statistics in general, not just that of financial accounts, is often intertwined with the development of economic analysis. As frequently happens in economic history it is also linked with the role of the institutions and their evolution.

The intermingling of statistical analysis and economic analysis is apparent in the very manner in which the Bank of Italy's Economic Research Department is organised. In the very early stages, up to about twenty years ago, the two were bound very tightly together. Briefly, one could say that at that time every person built their own statistics, in much the same way as craftsmen of old forged their own tools and sourced their own materials. This blending of roles was deemed a

^{*} Bank of Italy.

merit: it was believed that only the person intending to build a sound economic analysis on those statistics could undertake the labour of love needed to ensure their quality.

With the passage of time and change in thinking we discovered what might, in current political language, be termed the 'conflict of interest' of the combined economist and statistician. At the Bank we were among the first to realise this. Against the economy of purpose underlying the fact that a same person builds a statistic and then analyses it, one must set the remote but not inexistent risk that the person might be tempted to build a 'convenient' datum for the purposes of an analytical 'a priori'. We brought up this problem and discussed it at length, finally opting for a middle-of-the-road solution that would achieve a trade-off. Our answer was to unite the construction of statistical data, in which the whole of the Economic Research Department was involved at the time, within an independent unit, today's Statistical analysis and economic analysis as close as possible so as not to lose entirely the cross-fertilisation effect. I witnessed this reorganisation, and indeed was partly responsible for it. I was then head of the Balance of Payments Office, in which the mingling of the two functions I mentioned earlier was especially evident. When the Statistics Sector was set up, my office was moved from the Real Economy Sector to the new unit. It was a difficult and controversial decision, but in the end, I believe, a wise one.

The Balance of Payments Office and all the rest of the Statistics Sector – from the offices in charge of monetary and financial statistics, to those handling data from banks and other intermediaries, the offices conducting the sample surveys, and those managing the databases – have perfected their craft over the intervening years. They have developed the profession of statistician to the highest standards of today without ever ceasing to produce sound economic analysis, which has indeed constantly gained in quality from the proximity of the source of the data.

The symposium is divided into four sessions. As I mentioned at the beginning, the first session is a historical one and revolves around two papers: one on the origins of financial accounts, the American experience and the first steps in the Bank of Italy; the second on financial accounts in Europe and on the long process leading up to their harmonisation.

This is followed by a session on methodology, in which several papers are presented. One describes the reconstruction of financial accounts with annual data since 1950; the second discusses the estimation of quarterly financial accounts; the third tackles the thorny question of how pension liabilities can be incorporated in financial accounts; and the fourth paper compares data derived from financial accounts with data from the Bank's sample survey of household income and wealth.

The third session focuses on Italy, with a first paper on the financial wealth and debt of the Italian economy from 1950 to date, providing contemporary historians with, I believe, a very useful tool; the second paper examines how taxation affects portfolio decisions; the third is on the impact of monetary policy shocks on flows of financial assets and liabilities, demonstrating, were it necessary, their importance for understanding monetary conditions and formulating monetary policy.

The closing session is dedicated to international comparisons and focuses on the topic of integration, a process that is well under way in Europe and has important implications. The first paper gives an overview of the individual industrial countries; the second focuses on Europe and the problem of empirically verifying the theory of convergence of European financial structures, which is central to the debate on European integration and on the past and present role played by the construction of the monetary system.

These are the papers that will be the object of discussion during the symposium. The time allowed to each speaker and each discussant will be strictly rationed. I therefore take this as my cue to end this speech of welcome by wishing you all some very enjoyable discussions.

Session 1

HISTORY

THE ORIGINS OF FINANCIAL ACCOUNTS IN THE UNITED STATES AND ITALY: COPELAND, BAFFI, AND THE INSTITUTIONS

Riccardo De Bonis and Alfredo Gigliobianco^{*}

1. Introduction

Thomas Kuhn has made us aware how difficult it is, when talking of scientific revolutions, to answer questions of the type 'When did it happen?' or 'Where did it take place?' Although the invention of financial accounts, which completely by-passed most of the world's population, can aspire at most to the qualification of 'minor revolution', the methodological precautions advised by Kuhn apply nonetheless. If we were to stretch the truth of the records and answer those questions, 'In the 'fifties!' and 'In the United States!', we would run into another problem. Scientific revolutions are rarely the product of individual genius, whatever the romantic myth of the lone inventor implies. More often they are the fruit of the efforts of several scholars, who may arrive at the same conclusion by different routes. Moreover, it is unlikely that those scholars would be able to achieve anything without the support of organisations equipped with the necessary means. Therefore, we must examine how the motives of scholars converge with those of organisations if we are to understand the progress of knowledge.

In this essay we show that the invention of financial accounts was the culmination of a complex process undertaken by economists and statisticians, which began almost independently in several countries. That process, although it responded to a series of common theoretical questions and practical concerns, cannot be ascribed to a single cause. It gave rise to similar, but separate, systems and conceptual frameworks. That said, there is no doubt that the greatest statistical organiser of accounts was Morris A. Copeland (1895-1989), who published a preliminary study in 1947 and then, in 1952, the fundamental text *A Study of Moneyflows in the United States*.

We begin by describing Copeland's work, from the origins of his ideas, which we date during the Second World War, to the publication of his book in 1952 and the subsequent intervention of the Federal Reserve, more or less at the end of the 1950s (Section 2). We then look at parallel developments in Italy (Section 3) before closing with some later lines of research on financial accounts (Section 4).

One thread runs throughout our essay: it is the importance of the institutions for the development of statistics. Financial accounts have had their own Royal Society and *Accademia dei Lincei*:¹ central banks, semi-public research organisations such as the National Bureau of Economic Research, central statistical institutes, and international bodies.

The slightly unbalanced structure of this essay is due in part to the subject-matter itself. While the section on the United States, in which we have to analyse a complex theoretical construction, deals at length with the history of doctrines, the part devoted to Italy seeks to explain how economic policies, and the debates surrounding them, were able to determine the very structure of financial accounts tables.

Bank of Italy. The paper is dedicated to the memory of Curzio Giannini. Riccardo De Bonis wrote Sections 2 and 4 and Alfredo Gigliobianco, Section 3. Giuseppe Acito, Roberto Barbato and Maurizio Castellani prepared the tables. The authors wish to thank Franco Cotula and Eugenio Gaiotti for useful suggestions and Elisabetta Loche, of the Bank of Italy's historical archives (ASBI), for help with research. The paper covers the 1940s and 1950s and does not describe in detail the development of financial accounts during the 1960s. All translations of original material in Italian are ours.

¹ The role of institutions in the history of modern science is highlighted by Clericuzio (2005) and by Gemelli (1997).

2. Copeland's moneyflows and the Federal Reserve's flow of funds

2.1 What are moneyflows?

In 1944, Copeland was commissioned by the National Bureau of Economic Research (NBER) to create a statistical framework for the money circuit. The project was carried out in collaboration with the Federal Reserve, in particular the Board's Division of Research and Statistics. After the First World War, Wesley Mitchell had built annual estimates of national income while working at the NBER.² Copeland started from an unpublished memo that Mitchell had written in 1944, in which the economy was divided into four groups of units. Each group makes payments to and receives payments from the others. In double-entry accounts, the payments made by each group are recorded on one side and the payments received on the other. All payments appear among the liabilities of one group and the assets of another.

Copeland's work was first published in 1947, in an article in the *American Economic Review*. His principal work, published in 1952, analysed the moneyflows of U.S. institutional sectors from 1936 to $1942.^3$ The initial project envisaged two sectors – households, and an aggregate of the other sectors – and six types of moneyflows. The analysis was later extended to eleven sectors: households; farms; industrial corporations; business proprietors and partnerships; the federal government; state and local governments; banks and US monetary funds; life insurance companies; other insurance carriers; other financial intermediaries not included in the above categories; and the rest of the world.

Copeland identifies four origins of moneyflows, or motivations: households' distributive shares, households' product transactions, secondary distribution (*i.e.* transfer payments), and flows through financial channels. There are fourteen types of moneyflows, all of which can be traced to one of these four motivations. Four moneyflows can be attributed to households' distributive shares: wages and salaries, cash dividends, cash interest, and net owner take-outs. A further four are the result of production transactions: customers' payments to firms for goods and services; rents; instalments to contractors; payments for real-estate sales. Five moneyflows – insurance premiums, insurance benefits, taxes collected, tax refunds, and public purpose expenditures – fall into the category of transfer payments. The fourteenth moneyflow consists in financial transactions and constitutes the fourth motivation.

The statistics built by Copeland provide information on the distribution of moneyflows between production transactions, transfer payment transactions, and transactions through financial channels. Every sector has its own balance sheet, with its own assets and liabilities. A distinction is maintained throughout between aggregates measured on a cash basis and those on an accrual basis, although Copeland himself prefers the first method. Moneyflows are presented as an extension of the national accounts, on which Copeland had written extensively since the end of the 1920s; moneyflows are constantly compared with the concept of national income, underlining analogies and differences. Copeland states that both his approach and the national income one are based on the notion of the economy as a circuit. The moneyflows approach makes it possible to analyse debit and credit movements that are not part of the concepts of production and income distribution.

² See Fabricant (1984) and Rutherford (2003) on the history of the NBER and the role played by Mitchell.

³ Kuhn's conviction – that scientific revolutions are never brought about by one scholar only – is borne out by Copeland himself, who wrote in the preface to his work: 'Mention should be made, too, of a study that to some extent parallels the present attempt to organise debt and credit information and relate it to gross national product information, Raymond Goldsmith's study of saving and capital markets in the United States. Had some of the results of Goldsmith's study become available a year or so earlier, my task would have been easier.' Copeland was referring to Goldsmith's research, which eventually became part of the monumental work, *A Study of Saving in the United States*. Goldsmith's use of the balance sheets of institutional sectors and of flow of funds falls outside the scope of our work and merits specific treatment.

Copeland describes his work as an extension of 'social accounting to moneyflows measurement',⁴ highlighting the advantages of his approach over the equation of exchange. In particular, the disaggregate approach produces 'money inflows' and 'money outflows' for each sector. Despite the different definition given to the institutional sectors, Copeland maintains that Leontief's work is similar to his own.⁵ Moneyflows go from one sector of the economy to another, with liabilities financing assets. Leontief talks of inputs producing outputs. There is a visual similarity between the two approaches, as the phenomena are measured by constructing large double-entry matrices.

In addition to moneyflows, Copeland also considers stocks, which are measured by loanfunds, that is financial assets and liabilities of institutional sectors. He cites Irving Fisher's *The Nature of Capital and Income* of 1906, which draws a distinction between stocks and flows. Copeland stresses the importance of using financial statements in economics, following an approach already adopted by Robertson, Mitchell, Hawtrey, Lutz, Hicks and others.⁶ He recalls the difficulty of communication between accounting and statistics, principally because of the different conventions they employ.

Copeland makes a sharp distinction between consolidated statements, in which positions between sectors are net of reciprocal transactions, and combined statements, which include all transactions between sectors. He examines issues on which economists and statisticians are still working, such as the differences between real accounts and financial accounts, and, in the case of business proprietors, the distinction between assets belonging to the business and assets of the proprietor's family. He points to the difficulties of 'balancing' the total assets and liabilities of the economy caused by three differences: in the timing of entry of transactions; in their classification of identical items; and in the evaluation criteria applied to assets and liabilities.⁷

2.2 *Copeland's monetary theory*

After making a statistical reconstruction of moneyflows, Copeland looks at contemporary monetary theory. He argues that the economy is based on exchanges among economic subjects through a system of prices and the operation of different institutions. Money is one of the institutions that enables an economy to function. One of its functions is to keep track of moneyflows; it is a medium of exchange and a storehouse of value that cushions the imperfect coincidence between the institutional sectors' collections and payments by adding to or drawing down loanfunds. Money performs its functions with the aid of financial assets and liabilities, as well as of trade debts and credits.

Copeland studies how money influences the business cycle. Regarding the link between expansions and contractions of money, on one hand, and the performance of production, on the other, he proposes 'a partial reformulation of economic theory'. He criticises the quantity theory of money, particularly the aggregate version, according to which money flows to the whole economy indistinctly. Copeland contrasts this 'hydraulic analogy' of economic activity with his version of the economy as an electric circuit, in which several sectors exchange money (Table 1). Although the electric circuit analogy sometimes becomes confused and over-stretched,⁸ its purpose is to

⁴ 'The moneyflows accounts are in a sense an extension of the national income accounts, an extension that provides more detail by sectors', Copeland (1952), 41.

⁵ 'The Leontief set of measurement resembles the set of moneyflows measurement presented here', Copeland (1951), 2.

⁶ In his principal work of 1935, Hicks said 'we shall have to draw up a sort of generalised balance sheet, suitable for all individuals and institutions'. Furthermore, 'monetary theory needs to be based ... upon a similar analysis, ..., not of an income account, but of a capital account, a balance sheet.' Giannini (2004) underlines the importance of Hicks's contribution in guiding monetary theory towards an interpretation of money as a store of value instead of a means of exchange. On Hicks, see also the article by Massaro in this volume.

⁷ See Copeland (1952), Chapter 8 in particular.

⁸ See Baumol's (1954) review of Copeland's work.

underline that every sector has two poles, to and from which money flows, and that the transmission of funds occurs virtually instantaneously.

The sectors make discretionary decisions regarding the size and composition of moneyflows. Each sector's balance depends partly on its choices and partly on those of the other sectors. The equation of exchange does not tell us which sectors 'were advancing or returning money through financial channels and which sectors were obtaining money by financing'. Copeland's circuit has at least four sectors (general government, households, enterprises, and financial intermediaries) that produce income, receive and make transfers, and create financial flows. Some sectors need external funds to finance their spending, while others supply these funds. According to Copeland, Keynes's view is similar, but he takes an aggregate perspective. Keynes was interested in how adjustments between saving and investment affect the level of income. The moneyflows approach links changes in output to changes in money balances and to the structure of the economy's debts and credits. The behaviour of the sectors affects changes in production; some institutional sectors may reduce their financial assets and increase their expenditure; others may build up their financial resources instead.

Copeland examines the banks' role in the business cycle, comparing Fisher's position – that banks influence fluctuations – with Hansen's – that banks cannot influence the cycle.⁹ The most important flows for banks are changes in the volume and composition of deposits and of credit to the economy, which is given by the sum of loans and securities held in their portfolio. Banks do not set the supply of credit autonomously; it is affected by the decisions of the Federal Reserve through the supply of liquidity, the purchase and sale of securities, and the setting of minimum reserves. The Federal Reserve's influence over the banking system allows the banks to be considered in aggregate terms, disregarding the differences that exist within the category.

Copeland believes that the behaviour of banks is asymmetrical during the four phases of the business cycle, *i.e.* depression, recovery, peak of expansion, and recession. In the midst of a depression, the banks' willingness to increase credit can have a positive effect, but they are unable to bring about an economic recovery on their own. Once the recovery gets under way, it can be assisted by a greater availability of loans. If the expansionary phase is close to peaking, higher interest rates and tighter lending policies can have negative effects on moneyflows and cause an economic slowdown. When the economy is in recession, banks can make matters worse by adopting restrictive policies, although 'easier' lending policies alone cannot halt the recession. Briefly, banks do influence moneyflows and economic fluctuations, but mainly during expansionary phases. These positions are close to the view that monetary policy cannot 'push on a string'.

Copeland concludes with a suggestion of directions for future efforts of research. He calls for the construction of statistics that separate the balance sheets of poor households from those of rich ones, an objective that is pursued to this day. He hopes that eventually quarterly data on the activity of enterprises and regional analyses of moneyflows in the United States will become available. Above all, he considers the use of statistics that identify not only the issuer of financial instruments, but also their holder; this principle, known as 'from whom to whom', appears in only a few instances in his book owing to the lack of statistics; it was introduced in the United States and Italy between the 1950s and 1960s, but it was only used systematically in European financial accounts when the European System of Accounts was introduced in 1995. Copeland ends by recalling Keynes's emphasis on the role that demand plays in triggering variations in national income. He believes that his own approach, based on the discretionary nature of the sectors' decisions, also helps to highlight the importance of demand. When demand increases, so does the general price level, but relative prices move differently and their variations can be analysed by examining the money circuit.

⁹ The two theories are set out respectively in Fisher (1935) and Hansen (1941).

2.3 An interpretation of Copeland's work

As mentioned earlier, Copeland's work ties in with various lines of analysis, which are themselves linked to one another. The first connection is with the developments in national accounts that followed Keynes's General Theory. As Federico Caffè recalled, Keynes invented not only a discipline, but also the words to describe it, setting the national accounts on a new basis. The process was not an easy one. Blanchard described macroeconomics before the Second World War as 'an age of confusion'. After Keynes, progress in national accounts can be attributed mainly to Kuznets, Stone, and Hicks (the first edition of *The Social Framework* is dated 1942); a major effort of organisation produced the United Nations' *System of National Accounts* (SNA) of 1947. Copeland had already studied the national accounts before the Second World War, publishing papers in the NBER series *Studies in Income and Wealth*. His essays of 1935 ('National Wealth and Income – An Interpretation') and 1937 ('Concepts of National Income') were cited by Richard Stone in the preparatory work for the SNA. Afterwards, when the concepts of real national accounts.

Another inspiration for moneyflows was the debate on the business cycle, in particular Mitchell's efforts to collect relevant statistics. Mitchell and Copeland were very close and the moneyflows project was the last Mitchell undertook before retiring. Moneyflows are part of the American tradition of institutionalism – stretching from Veblen to Commons and from Ayres to Mitchell himself – which stresses the importance of an empirical approach to the interpretation of economic phenomena and the need to build statistics based on time series.¹⁰ It is not an obvious approach: Koopmans's cutting verdict, 'measurement without theory', appeared in 1947 in a review of Burns and Mitchell's book on the measurement of economic cycles.¹¹

Copeland's approach was also predominantly empirical. He reproaches Keynes that the latter's theoretical approach was one of the reasons the General Theory had been assimilated in the Neoclassical Synthesis.¹² Copeland had already attacked the abstraction of the neoclassical approach in 1931, causing Frank Knight to express several reservations.¹³ However, it would be wrong to classify Copeland's contribution as empirical only, and to level against him the same accusation that Koopmans made against the Burns-Mitchell duo. Copeland has in mind not only the work of Keynes, but also that of Hicks, notably Value and Capital, which was first published in 1939, and in particular Chapter 14 on the difficulties of defining and measuring an economy's income, and Chapter 19 on the demand for money. He asserts that a similarity exists between his ideas and those put forward in Value and Capital, underlining that Hicks focuses only on households and firms. Basically, Copeland has a vision of an economic system with a wealth of specialised and interconnected activities that is co-ordinated by institutions of the law: property rights, regulations governing contracts and negotiable instruments, rules on compensation and bankruptcy, and freedom of association. Money and other 'pecuniary institutions' are further elements that allow an economy to function.¹⁴ After the essays on moneyflows he remained interested in money, particularly the origin of monetary economies and the development of bank

¹⁰ For a similar need to build statistical series in Italy see Rey (2004) and Ciocca (2004). McCloskey's (1985) challenge should not be forgotten: '...the Keynesian revolution in economics would not have happened under the modernist legislation for science. The Keynesian insights were not formulated as statistical propositions until the early 1950s, fifteen years after the bulk of younger economists had become persuaded they were true. By the early 1960s the Keynesian notions of liquidity traps and accelerator models of investment, despite repeated failures in their statistical implementations, were taught to students of economics as matters of scientific routine. Modernist methodology would have stopped all this cold in 1936: where was the evidence of an objective, controlled and statistical kind ? ' Patinkin (1982) analysed the interactions between Keynesian revolution and statistical progress in the interwar years.

¹¹ Some defence of Mitchell can be found in Kydland and Prescott (1990). See Della Torre (1993) and (2000) on the links between institutionalism, national accounts developed at the NBER, Mitchell's work, and theory of the business cycle.

¹² See Millar (1991).

¹³ The debate is summarised in Asso and Fiorito (2001).

¹⁴ On Copeland the institutionalist see Rutherford (2002).

money. His interest in all the institutional sectors of the economy led him to study the US general government debt, with strong emphasis on relations between the federal government, on one side, and state and local bodies, on the other.¹⁵

2.4 Moneyflows after Copeland: the Federal Reserve in 1955 and 1959

The history of scientific revolutions is made of adjustments, adaptations and the assimilation of new discoveries. First there was the passage from moneyflows to flow of funds. Copeland's work was followed by two economists at the Federal Reserve: Winfield Riefler, who wrote the introduction to Copeland's book, and Ralph Young, manager of the Research and Statistics Division. It was Young who carried on Copeland's work within the Federal Reserve during the 1950s, joined by Dan Brill, who had been Copeland's chief assistant in the reconstruction of statistics.¹⁶ In 1955 the Federal Reserve produced the first version of flow of funds, containing annual flows from 1939 divided by institutional sector and by instrument; statistics on stocks of financial assets and liabilities for banks and other financial intermediaries were also provided. The change of name, from moneyflows to flow of funds, was made for several reasons. First, the expression 'moneyflows' caused ambiguities because it could be confused with changes in the stock of money. Second, Copeland used 'moneyflows' as one word to distinguish his system from business accounting, in which 'money flows' is used to denote cash flows. The Federal Reserve wanted greater clarity to avoid any possibility of confusion with the terminology used by enterprises.

The Federal Reserve, like Copeland, makes flow of funds part of a triad that includes national accounts and input-output tables, highlighting the differences between the three systems. In national accounts the emphasis is on the production and distribution of goods and services. Input-output tables concentrate on relationships between different industries. Flow of funds has two specific features: the economy is divided into sectors and financial transactions are taken into consideration alongside the non-financial transactions typical of national accounts. Flow of funds records transactions entailing the transfer of a credit and/or of money; the production of new goods is taken into consideration, as in the GDP account, as well as transactions involving existing goods, such as the sale of houses and land. The Federal Reserve underlines the differences between flow of funds and the production and distribution of income account: the classification of transactions and sectors, offsetting criteria, consolidation methods, timing of entries, evaluation rules, and estimation methods.

The 1955 version of flow of funds focuses not only on the links between financial and nonfinancial transactions, but above all on the latter's composition (Table 2). In the case of households, non-financial transactions give rise to the following main uses of funds: purchases of goods and services, purchases of houses and durable consumer goods, and payments of insurance premiums and taxes. The non-financial sources of funds are wages and salaries, sales of houses and durable goods, tax refunds, pensions and other public payments. Financial transactions contain information on monetary circulation and deposits, federal government securities, mortgages for house purchases, and securities issued by enterprises and local authorities.

After 1955, the Board of the Federal Reserve asked for the frequency of the statistics to be increased. In 1959 quarterly flow of funds were published in the *Federal Reserve Bulletin*, with a revision of the statistics from 1949. The system adopted for non-financial transactions was simplified (Table 3). Many items, such as wages and salaries, were not available on a quarterly basis and were therefore left out, as was much of the data for which Copeland had provided estimates. Compared with the 1955 version, many details regarding non-financial transactions, of

¹⁵ See Copeland (1961), with a preface by Kuznets.

¹⁶ See Taylor (1991).

households and enterprises alike, were excluded in order to focus on the relation between saving and investment.¹⁷ Briefly, the Federal Reserve set out, for each sector and for the economy as a whole, the relation between saving, investment, and acquisition of financial assets and liabilities. The emphasis shifted onto the financial variables, which were broken down into greater detail than in 1955, with some loss of information regarding the real aggregates, for which the Department of Commerce produced statistics. For the first time, information was included on savings accounts and fixed-term deposits, insurance companies and pension funds, consumer credit, and shares. The integration of flow of funds with the general system of national accounts remained a central concern.¹⁸ Debate widened on the links between money and banking statistics and flow of funds.

Flow of funds became an established tool of analysis of the economy and the economic situation. The volume of funds obtained by government, enterprises, and households and the supply of funds from banks and other intermediaries were studied in the same way as today. In the case of enterprises, the volume of investments was compared with not only the amount but also the type of financing received; in the case of households, the composition of financial assets was examined. The analysis of stocks was based above all on an examination of the debt of the institutional sectors. Data for the rest of the world were compared with the balance of payments statistics, which often contained more detailed information but were not integrated with the other financial statistics. Countries' financial accounts were compared with the *Monetary Survey* of the International Monetary Fund's *International Financial Statistics*, a classic source for this purpose, in order to study the respective advantages and disadvantages of the two sets of statistics.

3. The beginnings of financial accounts in Italy

There is no doubt that Copeland was a pioneer, but not before the middle of the 1950s, when his method was suddenly propelled forward by a force stronger than the purely scientific value of his work. That force was the central bank of the leading country of the western world, the United States, which adopted his method and put it into practice with tools suited to the magnitude of the task. Before then, despite the common intellectual roots we mentioned in the introduction, academics and institutions from various countries, and first and foremost the central banks, had moved harphazardly in that direction. This section describes the 'Italian route' to financial accounts and explains some of its peculiar features.

3.1 Paolo Baffi

Paolo Baffi is a central figure for understanding Italy's experience. Before and especially during the Second World War, Baffi, influenced by Giorgio Mortara, his teacher, and by Wesley Mitchell, whose work he had translated,¹⁹ examined the problem of drawing up financial statements for the various categories of operators. He wanted to predict more accurately the impact of the central bank's monetary measures and, more generally, the reactions to cyclical or structural changes in interest rates, costs, and productivity. Baffi's scientific programme, which he had already outlined during the war, was to highlight the link, or set of links, including those of a statistical nature, between real phenomena and financial phenomena. The problem was defined clearly in a letter written in January 1941 to the head of the Bank of Italy's Research Office, when Baffi, then in his thirties, was at Pola, having just been called up:

¹⁷ Young (1957) provides an economic application of US flow of funds to the years 1953-1955. See also Taylor (1958). The passage from the 1955 flow of funds to the 1959 system is summarised in Ritter (1963).

¹⁸ Sigel (1962) discusses the integration of US flow of funds with the national accounts. For a recent presentation of the integration of US macroeconomic accounts see Antoniewicz *et al.* (2005).

¹⁹ W.C. Mitchell, 'Fenomeni e fattori dei cicli economici', in Mortara (1932). The text that Baffi translated was the first chapter of Mitchell's book *Business Cycles*.

Dear Commendatore,

At the Research Office, where we follow and analyse statistics, principally of a monetary and financial nature, we find ourselves poorly equipped to understand the movements of non-monetary aggregates, barring those associated with foreign trade and the manufacture of some products. Yet such movements are among those at the root of financial phenomena: to give an example, the money obtained to underwrite public debt issues or deposited in bank accounts may have been previously invested in inventories, which could not or would not be renewed; or it may have represented the amortisation of plant and tangible assets, which will not be renewed in the present circumstances (ships or buildings).

We are at a similar disadvantage as regards our knowledge of the problems encountered by business enterprises: yet the data of such problems determine the situation of whole 'branches' of industry. For example, it is possible that in one industry the plant is not utilised at full capacity (whereas, on first impression, one might conclude that in wartime it should be); why is this so? Is it because low-cost enterprises win against co-existing high-cost enterprises, forcing them to become idle? Is manpower lacking, or are raw materials? (And, incidentally, why, vice versa, does some manpower not find employment?) Have profitable outlets abroad disappeared? Is the market unable to absorb goods produced at the increased costs?²⁰

Baffi's programme reflected the theoretical interests of the group of 'statisticianseconomists' of the 1930s and 1940s, academics who, as we saw in the previous section, believed that the measurement of economic phenomena could play a key role in understanding them. We can include in this group not only the Italian, Mortara, and the American, Mitchell, but also Kondratiev in the Soviet Union and Beveridge in England, whose lessons at the London School of Economics were attended by Baffi in 1931.²¹

Immediately after the war Baffi found himself acting head of the Bank of Italy's Research Department, from which position he wielded great power to determine the direction of research, not least because no other institution except IRI (Institute for Industrial Reconstruction) could field such a strong team of economists. The post-war monetary situation offered many opportunities for reflection on the liquidity of the various sectors, particularly because for a long time the household sector had hoarded large amounts of banknotes, which remained idle until, with the change of economic climate in the summer of 1946, they fuelled the sharpest inflation in the country's history. In fact, the Bank of Italy's Annual Reports for 1945, 1946 and 1947 - the first two written under Einaudi's governorship, the third, under Menichella's - make mention of the problem. However, it was not until the 1948 Report that a table of flows was published, called the 'national monetary balance sheet' (see Table 4 below, taken from the English version of the Report). It divided the economy into two sectors, 'public sector' (Tesoro) and 'private sector' (economia). The liabilities of these sectors (short- and long-term debts and securities, but not the Treasury's debt vis-à-vis the central bank) were offset by 'collections from the public' (current and savings accounts, and again securities, this aggregate being absolutely identical to its counter-item) owned by the economy (essentially households) and by a so-called 'residual' item, containing mainly central bank financing of the economy. Below the line were entered the central bank's transactions with the Treasury and with the foreign sector. A further line of totals revealed the overall creation of central bank money, as well as total financial asset and liability formation during the period.

²⁰ Banca d'Italia, personal file.

²¹ See the short biography of Baffi in Gigliobianco (2006).

3.2 An analysis of the 'national monetary balance sheet'

In this section we discuss the 'national monetary balance sheet', as we believe it was the embryo of the financial accounts that appeared in the Bank's Report for the year 1964. Before doing so, however, we must show that one actually derives from the other. First, to avoid confusion, we must explain that the use of the word 'monetary' should not be taken to indicate that the first statistics were only monetary statistics and that those introduced later were also financial: in practice, they all attributed the same importance to medium- and long-term financial assets, as is apparent from rows 25, 26 and 27 of the table of the monetary balance sheet. No changes of significance occurred between 1948 and 1960, except one, which we will discuss later. The table published in the Annual Report for 1960 (Table 5 of this essay) adopted a very different form from its predecessor, although it was still called (in the Italian version) 'sources and uses of monetary and financial assets' (Relazione Annuale, 1960, page 286, not translated in the abridged English version). The link with the previous table was openly acknowledged: 'In this Report, the aforementioned tables have been replaced by others that reproduce the main lines of the monetary balance sheet and the tables mentioned earlier, but with the addition of some variations' (*Relazione* Annuale, 1960, page 276). The line of reasoning was maintained, and apart from the manner of presentation the data were the same. A further innovation was introduced in the Annual Report for 1964, which at last adopted the expression 'Financial Accounts' (Abridged English Version of the Report for the year 1964, page 114), still in use today, and contained a large double-entry table entitled 'National Financial Assets and Liabilities' (Table 6 of this essay). Although the change was a significant one, mainly because the from-whom-to-whom principle was established, the line of thinking was the same (particularly as regards the 'statistical motivation', a concept we will explain later)²² and most of the data were taken from an ongoing and partially completed research project (on insurance companies, social security institutes and the national accounts). The continuity of the line of research – from 1948 to 1964 – is our first conclusion.

We now return to the 1948 table (our Table 4), which will be our main focus of study. What first strikes today's reader is the fact that it combines elements of what is for us, now, a classic financial accounts table with elements of a table of the sources and uses of monetary base. One explanation is that the table was not developed in an academic institution but in a hierarchical one, which was by nature wary of any radical innovation. The origin of monetary circulation (the term 'monetary base' only entered the language fifteen years later) had long been a subject of study in the Bank, a tradition that arose from the fact that notes originating from Treasury financing received a different tax treatment – normally, less favourable – from those originating from the 'economy' and 'foreign' sectors (which were not separate). In its annual reports the Bank had always distinguished between 'monetary circulation on behalf of the Treasury' and 'monetary circulation on behalf of trade'.

It should also be pointed out that since the table is a table of flows and does not distinguish between households and enterprises, it would not have been of much use in an analysis designed to predict or contain an episode of inflation such as the one that happened in 1947. Other factors, in addition to the intention to analyse inflation, must therefore have been at play in order to bring about the construction of a table of that type, one not evidently useful for calculating sectoral liquidity. The first of these factors was the difficulty of distinguishing, within the item bank deposits, those of households and those of enterprises. This was due not only to the presence of a large volume of bearer deposit accounts, but also to the confusion in the books of small businesses

²² The 'statistical motivation', in terms of the 1964 table, emerges clearly in the research paper published by two of its main authors. See Ercolani and Cotula (1969).

between the enterprise's finances and those of its owner. Another difficulty was how to separate, in the banks' books, lending to enterprises from lending to households.²³

Alongside these two negative elements, or obstacles, we must add two positive elements, that had a motivational effect. They are mentioned in the Bank's Annual Report for 1948, in which the table appeared for the first time. It is worthwhile quoting from the Report which, after a brief description of investment by the various sectors of the economy during the year, continues:

The borrowing requirement associated with the total gross investment mentioned above was evidently met, albeit in a not accurately quantifiable amount, both with funds drawn from resources flowing to the market and with funds derived from depreciation allowances (and hence included in the sale price of goods) and, finally, also by true self-financing out of undistributed profits. Unfortunately, it is not possible, with the data available, to effect a direct comparison between investment, on the one hand, and monetary saving and self-financing, on the other. It is possible, however, to give fairly clear details of the resources flowing to the market and the lending operations of the banking systems, both to the Treasury and to the economy. This table, moreover, by considering the residual effect on monetary circulation of the individual sectors' sources and uses of funds, makes it possible to capture the overall effect of the whole set of fund-raising and lending or investment operations on the monetary circulation.²⁴

This alludes to the two motivations mentioned earlier without fully explaining them. The first is to identify the sources of finance of investment; the mention of the impossibility of making a direct comparison between investment and saving with the data available indicates that the long-run objective is indeed to match the measurement of investment to that of the sources that help to finance it. This intention, which we call 'statistical', is confirmed in a short internal memo dated October 1949, in which Baffi gives an outline of the Bank's Annual Report to be presented the following year:

For the next annual report it would be useful to examine the possibility of drawing up a national balance on investment by branch of activity using financial data, that is [bank loans, share issues, government investment expenditure, loans from abroad]. There should be a connection between this framework and the national monetary balance sheet, and a comparison can be made between the results and those obtained by Guidotti²⁵ for the 'real' sector.²⁶

This document sets out in clear terms the ambitious programme, only a small part of which was achieved during the 1950s, to balance the real aggregates against the financial aggregates in the national accounts.²⁷

The second motivation can be broadly defined as an attempt to incorporate the monetary and financial aggregates within a clear quantitative framework: since the accounts have to balance, this will encourage efforts to refine the data. On closer examination we note that the desire to balance the accounts is expressed, rather surprisingly, as an intention to compute 'the overall effect of the whole set of fund-raising and lending or investment operations on the monetary circulation' (meaning the change in monetary circulation obtained via the banks and the private sector) 'by

²³ Both difficulties are well known and were mentioned by Baffi himself, who acknowledged that progress since 1948 had been slow (Baffi 1957, p. 316).

²⁴ Annual Report for the year 1948, Banca d'Italia, pp. 189-192.

²⁵ Salvatore Guidotti was a manager in the Research Department dealing with the real sector. In 1956 he became head of the department.

²⁶ Archivio Storico della Banca d'Italia (ASBI), Studi, cart. 343, fasc. 1, last page.

²⁷ See, in this regard, Guidotti (1954) and for a more sophisticated view also Giannone (1961).

considering the residual effect on monetary circulation of the individual sectors' sources and uses of funds' (meaning the sum of the differences between investments and deposit accounts observable in the various sectors). This method of presentation, not so much because it uses the word 'residual' (which we also find in the table, in the heading of the last column) as because of the accompanying reasoning in the body of the Report and above all in its Concluding Remarks, gives credit to the concept of a central bank that plays a largely passive role in money creation, almost as if constrained within the framework of a posthumous gold standard system.

This second motivation calls for further investigation. It ties in with a more general problem affecting the very task of the central bank during the period of reconstruction and catching up, as it was perceived by the Governor, Donato Menichella, and the political leaders of the time. There was a very strong 'rhetorical' need – probably in part to counter repeated outcries against policies descried as timid, deflationary and suchlike by politicians and trade unionists and occasionally international institutions as well – to prove that the banking system has 'done its duty' in respect of the obligation to ensure economic growth. More precisely, we can say that in the Concluding Remarks of those years two typical points regarding the financial system were central to the structure of the discourse.

The first point was a demonstration that the system had done 'everything' it could do. This is one of the first instances, taken from the Report for 1948: 'The entire amount of these assets was used to finance both the private sector and that part of the requirements of the government for which it was obliged to resort [...] to the banking system in order to avoid greater recourse to the central bank. [...] the banking system performed its duty fully, unconditionally and fearlessly'.²⁸ The next example, taken from the Report for 1949, emphasises how important was the issue of the financial system's contribution: 'By demonstrating, as we believe we have done [...], that the banking system has effectively promoted, in the past and more particularly in the last year, the orderly growth of production, and by measuring the scope of its action and the results achieved, we deem our institutional task to have been completed.'²⁹ (This extract is followed by a further eight pages of explanation that the failure to draw down reserves – in other words, their accumulation – is a guarantee for the future, *i.e.* that the best 'use' is made of those resources as well.)

The second point was the demonstration that the resources had been channelled increasingly towards the private sector rather than the Treasury. According to the Annual Report for 1949, 'Nor did the existence of the compulsory bank reserve prevent a shift of the money supply toward the private sector during the last year. [...] In 1948, resorting to the banking system as well as to the financial system in general, the Treasury raised 445 billion [lire] and the private sector 504; whereas in 1949 the Treasury reduced this to 376 billion; and the private sector instead obtained 586 billion, an increase of 82 billion with respect to the previous year.'³⁰ In a speech on credit to agriculture given in Sassari in 1953, Menichella remarked, 'There is only one way in which part of the saving that is collected today through Post Office savings accounts can in future reach the banks, and in particular the ordinary savings banks, and thus be channelled into subsidising agriculture, and that is to ensure that the government is able to meet its requirements better with taxes and dues than with debt'.³¹ Furthermore, 'of the 500 billion [lire] of increased revenue of the savings market between 1950 and 1953, the government obtained only 56 billion and the private sector, 444'.³²

²⁸ Menichella's 'Concluding Remarks' have been reprinted in Cotula, Gelsomino and Gigliobianco (1977), Vol. ii. The original quotation appears on page 24.

²⁹ Ibid. p. 48.

³⁰ Cotula, Gelsomino and Gigliobianco (1997), Vol. ii, page 38.

³¹ Cotula, Gelsomino and Gigliobianco (1997), Vol. i., page 473.

³² Menichella (1954), p. 507.

These points are entirely consistent with Menichella's view of the Italian economy. This view can be described very briefly as follows: the objective to be pursued is growth; growth depends on investment (while consumption is not recognised as having any role); investment depends positively on saving and negatively on the funds taken up by the Treasury and not allocated to investment. Given these sole determinants of investment, we must banish all money or credit illusion, which will only have the effect, through inflation, of altering inequitably the distribution of income.

A crucial element in this argument is the decision to present the liquidity created by the central bank through its refinancing of banks as a 'residual' effect on monetary circulation of the economy's sources and uses of funds via the market and the banking system. To give an example, 'The exceptional growth in the formation of monetary assets has made it possible to reduce the rise in monetary circulation from 283 billion in 1947 to 175 billion in 1948'.³³ This bears out the concept of a 'natural' economy that progresses at a pace it would be impossible to modify with monetary devices: basically, money is a lubricant. An 'active' monetary policy was not contemplated (although monetary policy, however crude, was by no means non-existent). Alongside issues that we now recognise as being typical of monetary policy (although, it is important to note, with almost no reference to interest rates), the Concluding Remarks dealt extensively with the distribution of credit, financial resources, and 'monetary assets' (and, had it not been for Baffi's purist attitude, Menichella would have willingly mentioned the distribution of saving, a concept that does make an appearance here and there in the Concluding Remarks nonetheless). Such distribution is regarded as the result of collective behaviour on the part of bankers, rather than of their individual decisions. The prevailing view of the financial system is still a corporative one: it transmits, or at least should transmit, public objectives, not so much by means of the regulatory instruments envisaged by the law (discount rate, compulsory reserves, ceilings on lending, etc.) as because these objectives are fully appropriated by bank executives. The central bank enters the scene because it sets down the written rules, and the unwritten ones, becoming shepherd of the flock of banks. Evidently, each member of the flock is free to graze a bit further here and there at will, but mass movements must depend on the authorities.

Interestingly, it was also decided to place central bank financing of banks and the private sector (changes in which were added to changes in deposits) above the first line of totals while central bank financing of the Treasury was placed below it. Baffi explains this decision in 'Monetary Analysis in Italy' as 'the area covered by this row of totals is coterminous with the jurisdiction of the monetary authorities under the Bank Act and the statutes regulating the issue of securities.'³⁴ This explanation was clearly intended as a 'defence': the line was drawn to indicate what happens in the area for which the Bank is responsible; money created via the Treasury and the foreign sector is outside the Bank's control. However, this method, too, of presenting the data can facilitate and justify an argument centred on the structure and behaviour of a 'natural economy'. Of course, it was universally acknowledged that 'all' the new monetary circulation played a role in the multiplier process³⁵ and yet there was no insistence on this point. The focus was instead on the 'revenue' (the use of this term, with its tax associations, was intentional) of resources obtained from operators (in essence, households) and distributed between the economy and the Treasury.

In addition to these two particular features of the presentation, Baffi himself noted a third, which he re-assessed many years after his studies of the monetary balance sheet in an essay, 'Via Nazionale e gli economisti stranieri', written in 1985.

³³ Cotula, Gelsomino and Gigliobianco (1997), Vol. ii, p. 21.

³⁴ Baffi (1957), p. 318, later translated into Italian, with some amendments, in *L'analisi monetaria in Italia* (1965).

³⁵ See, for example, the Bank's Annual Report for 1949 in Cotula, Gelsomino and Gigliobianco (1997), Vol. ii, p. 38.

perhaps it was inappropriate ... to configure the change in monetary circulation as a residual amount; that approach, on closer examination, was backward looking, because the newly created monetary base becomes firmly part of monetary circulation when the upward movement of prices and incomes has already taken place: when the 'crime' has already been committed. In a forward looking approach the residual amount should have been banks' excess reserves, that is the store from which the expansion of credit and monetary circulation was fed.³⁶

In other words, as the public demands notes and coins when prices have already risen, the datum 'monetary circulation' tells us what has already happened: the most meaningful indicator of the likelihood of inflation (or, if we wish, of the stance of monetary policy) is not monetary circulation but bank reserves.

The form adopted by Baffi must not mislead us: what appears to be self-criticism is in reality criticism, a posthumous criticism of Menichella. Baffi, in 1948, certainly did not fail to perceive that the representation provided by the monetary balance sheet was inadequate: he had already applied a very similar reasoning to that of the 1985 essay in an internal memo dating as far back as October 1944:

The present time is, given the current market liquidity and the limited scope of State action, highly favourable not only for stabilisation, but also for the reduction of monetary circulation. It is a moment that will not occur again because (even disregarding the forthcoming resumption of financial requirements [...] for reconstruction) if the money flowing to the banks is put back into circulation it will eventually unfold its full effect on incomes and prices; and this, by augmenting the need for monetary circulation, will retain it permanently within the circulation.³⁷

Further evidence of Baffi's opinion is provided by the existence of a table used for internal purposes and kept in the Bank's historical archives. It contains, next to the column 'monetary circulation' (or 'currency' in the modern definition), the column 'bank reserves' (which, by convention, were deducted from deposits in the published table).³⁸

Although there is no absolute proof, there are many signs pointing to the conclusion that the failure to show bank reserves can be attributed to Menichella, who was not over-keen to reveal the 'kitchen' of monetary policy. Antonio Fazio recalls that before the shareholders' meeting of 1969 Menichella, then honorary governor, was shown the chapter of the annual report dealing with the monetary base; his comment was, 'a very nice chapter, but why do you want to tell every outsider these facts concerning the internal life and balance sheet of the Bank of Italy?'³⁹ Changes in bank reserves were finally incorporated in the monetary balance sheet in 1951 (*Relazione annuale*, 1950, pp. 296-297), but not in a separate column: the format adopted certainly did not facilitate analysis.

The history of the 1948 table leads us to our **second conclusion**: the Bank's 'rhetorical' needs determined in several ways the manner of presentation of the data. This confirms the validity of a new school of historiography of statistics, which considers the significance of the discipline in terms of culture and communication and not just the purely technical aspect. According to the

³⁶ Baffi (1985), § 11.

³⁷ The typewritten memo is entitled "La situazione monetaria italiana e il problema del cambio" (*The monetary situation in Italy and the problem of the exchange rate*) and can be found in ASBI, Carte Baffi, cart. 75, fasc. 'Relazione sul 1950'.

³⁸ The tables for the years 1950 and 1951 can be found in ASBI, Carte Baffi, cart. 75, fasc. 'Relazione sul 1950'.

³⁹ Conference in memory of Guido Carli organised by Banca Nazionale del Lavoro and Associazione Bancaria Italiana in Rome on 11.11.1993 and published in *Ricordo di Guido Carli* (1994). The same episode is mentioned in Ossola (1986), p. 359.

authors of this school statistics do not merely reflect reality, they 'build' reality, *i.e.* they have a profound influence on the way that problems are identified and tackled.⁴⁰ The Bank of Italy, like the majority of organisations, does not have only a policy 'of things', but also a policy of communication, including statistical communication, and had one before and irrespective of the 1980s and 1990s debate on the link between the credibility of central banks and their communication strategies.

Our conclusion is borne out by the fact that what we described as the peculiar features of data presentation ended with the Report for the year 1960, the first issued under the new governor, Guido Carli: the data are virtually the same (although additional tables provide greater detail), but their presentation has been radically altered. Whereas in another part of the Report a distinction is obviously made between central bank financing of the Treasury and financing of the banks,⁴¹ in the financial accounts table money creation is consolidated and the concept of 'residual' referring to refinancing of the banking system disappears. A table of the sources and uses of monetary base appeared three years later, in the Annual Report for 1963, under the title '*Andamento della liquidità bancaria*' (p. 286), only to become regrettably more muddled the following year 1964 (p. 348; p. 86 in the English version).

Our examination of the 1948 table led us to set aside momentarily the source of Baffi's inspiration, associated with the conduct of monetary policy. We find some trace of it in Via Nazionale e gli economisti stranieri: 'Despite these and other possible defects, the "monetary balance sheet" constituted the first attempt to give an overall view of financial flows (albeit of net amounts) and to identify the forces pushing towards expansion or contraction that stemmed from the sources of monetary base creation (Treasury, economy, and foreign sector) and was extremely useful for analysing the reciprocal links between these sources and the uses of the monetary base.⁴² (This assertion confirms that originally there was more than one inspiration for the table). The 1957 essay 'Monetary Analysis in Italy' gives some examples of how the table can be used: 1) to relate the flow of funds to the volume of investment, from which indications can be obtained regarding the evolution of self-finance in relation to the business cycle: in periods of inflation (or, rather, of overheating) profits increase and the ratio of flow of funds to investment decreases; 2) to observe (having acknowledged that banknotes are held mainly by households and that households react slowly to price increases) that 'The public absorbs cash in a manner which exerts a dampening influence on the inflationary process, for, by decreasing to this extent the liquidity of the banks, the public in effect lowers the coefficient of expansion applying to the funds available to the banking system at the central bank. The use of average coefficients of expansion [*i.e.* deposit multiplier] therefore seems inappropriate in the analysis of the credit cycle, whenever currency is an important part of the money supply;⁴³ 3) to be cautious when interpreting cyclical deviations from trend in the volume of deposits.

3.3 The intellectual framework of the monetary movements

Let us now consider the broader intellectual context in which studies of monetary movements developed. We have shown the link between Baffi and Mitchell before the Second World War (though Mortara and the translation of Mitchell), but there is no trace of any contacts with Copeland after the War, although naturally it is possible, and probable, that Baffi had read his 1947 article. The first documented contact with foreign academics working in the field of flow of

⁴⁰ See Desrosières (1993) and Tooze (2001).

⁴¹ The distinction appears in Annual Report for the year 1960, Table 109 (and in English in the Abridged Version of the Report for the year 1960, Table 34).

⁴² This passage is a continuation of the one cited earlier.

⁴³ Baffi (1957), p. 322.

⁴⁴ Ibid.

funds dates from June 1953, by which time the Italian system was in place: it was then that Baffi visited Holland as a guest of the Dutch central bank, which was a leader in this field.⁴⁵ Meetings then took place in 1956-57 with the group organised by the International Monetary Fund, led by Earl Hicks, who promoted the February 1957 issue of Staff Papers, mainly dedicated to the topic.⁴⁶ In an article written for the issue, Holtrop says that 'The purpose of the method of monetary analysis [...] is to provide the Bank with a tool to help it in unraveling the mechanism of inflationary and deflationary disturbances and thus to aid the Bank in framing its policies.⁴⁷ Earl Hicks was of the same opinion: 'Monetary Analysis [...] is an inquiry into the sector origins of changes in the quantity of money made for the purpose of trying to understand the forces pushing towards expansion or contraction.⁴⁸ Baffi's article, the previously mentioned 'Monetary Analysis in Italy', which was also published in the 1957 issue of Staff Papers, takes much the same line. J.J. Polak, perhaps the group's leading economist, seems slightly more biased towards real issues: 'we want to isolate autonomous spending, that is, spending that does not constitute a mere passing on in the next round of income received in the previous round of the income stream. Fluctuations of the expenditure not associated with fluctuations in income by the same sector are precisely want financial statistics focus on.⁴⁹ This is wholly consistent with Copeland's own approach, as described in Section 2.2.

In view of the series of scientific contacts, or lack of contacts, revealed by the documents found so far, we can conclude that the original version of the monetary balance sheet was entirely the result of interaction between Baffi and Menichella, and that it can be ascribed basically to four factors: 1) remodelling the central bank's traditional balance sheet (monetary circulation on behalf of trade and monetary circulation on behalf of the Treasury); 2) the willingness to fill the knowledge gaps that Baffi and his entourage, partly due to the influence of Mitchell and Mortara, spotted during and after the War (economic cycle, monetary policy, statistical motivation); 3) difficulties in obtaining the data; 4) Menichella's political and rhetorical requirements. This is the **third conclusion**, which confirms the 'multiple' nature of the financial accounts (their many origins and many uses) mentioned in the introduction and in connection with the experience of America.

Having almost come to the end of our essay, we can now trace at least one of the directions that could have been taken but were not, *irrespective* of the fact that Menichella had an evident interest in the matter. There does not appear to have been any attempt to develop financial accounts in the way they were originally developed in the United States (the 1955 flow of funds), that is, with emphasis on the flows created by real transactions in order to capture the sources of operators' self-financing. This would have served a certain type of argument that the Bank was often called on to support: on several occasions Menichella answered specific categories of operators who complained of the lack of financial assistance by pointing to the sector's aggregate resources resulting from the evolution of relative prices. In 1955 he told farmers and savings banks that 'if the volume of credit flowing to agriculture has been proportionally smaller than the volume of credit flowing to agriculture has been proportionally smaller than the volume of agriculture has been provided by us, by you, by me, paying prices that were much higher than the average of other prices.'⁵⁰

⁴⁵ Documents regarding this trip, including correspondence between Menichella and Holtrop, Governor of De Nederlandsche Bank, can be found in ASBI, Studi, cart. 383, fasc. 2, sfasc. 83.

⁴⁶ The correspondence is in ASBI, Carte Baffi, cart. 346.

⁴⁷ Holtrop (1957), p.303.

⁴⁸ Hicks (1957) in ASBI, Carte Baffi, cart. 346/2.

⁴⁹ Polak (1959), pp. 1-8.

⁵⁰ Menichella (1955), p. 589.

3.4 The modernisation of the format propounded by Guido Carli: a short account

Guido Carli's arrival in the Bank of Italy marked a change of policy and mentality, and a new relationship with the public. The major event on the policy front, from our point of view, was the partly successful attempt to create a money market, which had not existed beforehand: the main instrument was the new system of Treasury bill placement launched in 1962. There began to be scope for a less rudimentary monetary policy. Regarding the change of mentality, new impetus was given to research, which received a substantial endowment of resources, and old approaches and traditions were put aside. Although much could be said about this evolution, we will simply recall a minor event that is emblematic of the advent of a new generation. Only a few months after taking up his post, Carli decided to remove at last from the Bank's balance sheet the asset item 'Gold deposits abroad owned by the State', which represented the gold deposited in London at the beginning of the First World War as collateral for a loan that Italy had never repaid in full: as that item vanished so did the anxieties and fears of the ruling élite brought up at the time of the gold standard and its collapse during the War. As far as public relations went, the amount of communication increased dramatically and the central bank's 'teaching' role was enhanced.

The new system of accounts introduced in 1960 to replace the monetary movements reflected the changed needs, both material and 'rhetorical', of the central bank. Although considerable interest was still focused on the uses of financial resources, under Carli monetary policy could and did come into the open: this created a need for a theory based on aggregate money supply. The central bank could stop depicting itself as a passive subject: the concept of residual disappeared.

A few years later the main reform was enacted, the one culminating in the large matrix appearing in the Report for the year 1964. This was a double-entry table in which each sector (economy, banks, special credit institutes, market, and Treasury) had a row and a column. Every XY cell contained, instrument by instrument (currency, deposits, bonds ...), the financial flows from sector X to sector Y.

This system of accounts, which was very similar to the present format (except that the presentation adopted then was later abandoned), was first introduced, as explained in the report and in the methodological notes published in the Bank's *Bollettino*,⁵¹ as part of a convergence of methodologies within the EEC⁵² (and no doubt following the experience of the Federal Reserve mentioned earlier), and satisfied the new exigencies of the central banker. While the discussion of monetary policy relied on the liquidity table and the analysis of investment financing also had a new and substantial statistical apparatus, the financial accounts matrix served a debate geared to developing the financial market. A mature and deep financial market – this was Carli's argument – is necessary because without it small changes in the supply of bonds cause large changes in securities prices (and interest rates), forcing the central bank to intervene by issuing currency, which may have an inflationary effect.⁵³ From those years on, the financial accounts, although they retained and considerably refined their original 'statistical function' (some very interesting work was done to link them to the national accounts, which finally produced concrete results in 1968⁵⁴), also became the testing ground for international comparisons of the development of markets and intermediaries.

The most serious defect, the failure to make a distinction between households and enterprises (see Section 3.2) was rectified in the 1965 Annual Report. Since then, academics and operators

⁵¹ Banca d'Italia (1965), pp. 107-125 (the point we are interested in is on p. 122).

⁵² The reference is to the working party that finally produced the ESA70.

⁵³ Banca d'Italia, Annual Report for the year 1964, 'Considerazioni finali', p. 493.

⁵⁴ In the Annual Report for 1967 the first explicit attempt – *i.e.* not confined to internal memos – was made to link the financial accounts to the capital account. For the precedents to this line of research see the previously cited studies by Guidotti and Giannone.

have had sounder material on which to base their study of households' propensity to save and firms' indebtedness. Moreover, it finally became possible to make the attempt, until then only possible in theory, to identify the sector of origin of forces pushing towards expansion or contraction by means of sectoral financial analysis (basically, a resumption of Holtrop's and Polak's theories mentioned above).⁵⁵

This last section relating to the 1960s is deliberately brief because it was not our intention to recount the history of financial accounts in their 'maturity' (as we regard it). However, the points made so far already allow us to carry forward the second conclusion that we reached earlier: the 'rhetorical' needs of a central banker always accompany the evolution of the format of the financial accounts. This is not meant as a criticism of the validity of the statistics, but as a reminder that statistical work is, now as in the past, conditioned and stimulated not only by the theoretical tools available and the difficulties encountered in gathering data, but also by the particular 'world views' of those who commission it. In fact, once statistics have been produced and published they acquire a power that should not be underrated, the power to consolidate, and even to block, the lens through which both public and experts view reality.

4. Rise, fall and revival of financial accounts

During the 1960s the study of the financial accounts moved into other directions, interacting with economic theory and policy applications. We describe only two developments, each of which would really merit separate and lengthy discussion: Tobin's emphasis on the study of the links between financial and real sector of the economy, and the use of financial accounts in econometric models and for economic forecasts.

According to Keynes, the demand for money depends on income instead of wealth; in the speculative motive the individual chooses to hold either money or securities only. Tobin progresses from demand for money to demand for financial assets, where the tools are chosen according to the risk/return ratio: this is the theory of portfolio choices.

Wealth consists of money, other financial assets and real assets. Tobin looks not so much at the link between the money demanded and income as at the way operators distribute wealth between financial and real assets. The emphasis is shifted onto the capital account in the balance sheet of individual operators, partly because of the importance of the wealth effect debate taking place in those years. The stock of the various forms of wealth influences not only the demand for new financial assets, but also aggregate demand: consumption and investment do not depend on income alone (Tobin, 1952 and 1961). An examination of the total financial assets exchanged in an economy prompted Tobin to ponder the differences between banks, on the one hand, and non-bank intermediaries, on the other. Together with the work of Gurley and Shaw, that of Tobin (1963) is one of the first contributions on the specific or non-specific role of banks, an issue often examined by the Yale school.⁵⁶

In 1962 Duesenberry remarked that the Keynes of flow-of-funds analysis had not yet made an appearance.⁵⁷ The flow of funds was an accounting system, but there was no complete body of behavioural equations that used the statistics. In the following years Tobin presented stock-flow models of the financial sector and its interactions with the real sector.⁵⁸ In particular, Tobin (1969)

⁵⁵ On this point again see Ercolani and Cotula (1969), p. 20.

⁵⁶ Hester and Tobin (1967a), (1967b) and (1967c) collected the school's most important contributions in three volumes, published by the Cowles Foundation.

⁵⁷ 'The national income analysis had Keynes...[but] the Keynes flow-of-funds analysis has not yet revealed himself', Duesenberry (1962).

As Buiter (2003) noted, 'Tobin's mistrust of the representative agent approach and his relaxed attitude towards micro foundations are consistent with his decision to pursue the empirical implementation of complete systems of portfolio balance and flow-of-funds models using asset demand specifications that were eclectic or ad-hoc as regards the selection of arguments.'

centres his analysis on the capital account of the institutional sectors. An economy's relationships are summarised in a table that is the same as the normal financial accounts table, with different sectors appearing in the columns and financial instruments in the rows. Tobin stresses that the financial sector and the real sector are interdependent. Initially, the real variables and the stocks of financial assets are assumed to be exogenous and determine the financial instruments that each sector wishes to hold. According to the typical logic of a general economic equilibrium model, the financial input to the real sector must have the same values as the initial real inputs to the financial sector.

Let us now look as the use of the financial accounts in econometric models and financial forecasts. One of the first approaches sought to build tables of the financial sector of the economy, which were sometimes incorporated in the large macro-econometric models.⁵⁹ This approach was boosted by the paper by Brainard and Tobin (1968); they presented a scheme of the financial sector in which the flows, stocks and yields of financial assets were determined, the policy variables or real aggregates were assumed to be exogenous.⁶⁰

Another line of research, linked to the first and mainly undertaken by central banks, used financial accounts to predict future flows of funds. The starting point was the forecasts for real variables. Once these had been taken as given, in particular assuming the saving and investment of the various sectors to be exogenous, the flows of financial assets and liabilities of households, enterprises, general government and the rest of the world were estimated. One aspect that differentiated between national experiences was the form of the feedback from financial sector to real sector. A strong point of the forecasts was the consistent behaviour of the various sectors.⁶¹ The forecasts were used in the programming of financial flows, which many industrialised countries, including France and Italy, attempted with varying degrees of success.⁶²

A third category of models stressed the connection between sources and corresponding uses of funds. An economic system can be summarised in input-output tables, taking a certain financial instrument as input for production of a given output. The amount of each input required to produce one unit of output is a fixed technical coefficient of the system. Stone was probably the most prolific builder of such models, based on the idea that in an economy, stable relations exist between financial liabilities, on the one hand, and financial and real assets on the other, in terms of both stocks and flows (see Stone, 1966). The main problem with this approach was that in advanced economies the technical coefficients were in reality not fixed because financial innovation, principally in the methods of financing business and general government, and international activity altered the balance between financial assets and liabilities. This financial input-output approach was thought to be more promising in planned or developing economies, in which regulation and public intervention, not capital market developments, determined the allocation of financial flows.

The fourth group of models relates to forecasts of interest rates by private institutions in the United States and Canada. The models were based on flow-of-funds statistics and hypotheses about the future behaviour of the monetary authorities. By comparing the economic sectors' demand for finance with the supply of funds it was possible to obtain estimates of interest rates.

The three surveys we draw on – Cohen (1979), Roe (1973) and Bain (1973) – list some 250 works on flow of funds published in the twenty or so years since Copeland. In the middle of the

⁵⁹ The applications were heterogeneous, a feature they shared with the Keynesian macroeconomic models (see Visco, 2005).

⁶⁰ One Italian application is Modigliani and Cotula (1973). Regarding the incorporation in the Bank of Italy's econometric model see Fazio *et al.* (1970). A summary of stock-flow models can be found in Gnesutta (1992).

⁶¹ Regarding the United States, '... we see more and more clearly one of the ways in which everything depends on everything else ... as Bob Solow once put it', Taylor (1963). As far as the United Kingdom is concerned, 'The whole is reasonable only if the parts are', Bank of England (1972).

⁶² For an evaluation of the results and limits of Italy's experience of programming financial flows see Vaciago (1983). Caranza (1981) underlined the potential uses of the financial accounts to forecast flows, but recalled the difficulties of prediction due to the instability of the real variables in the 1970s.

1970s the interest in financial accounts slackened, and no survey of recent developments is available. Factors such as the abandonment of Keynes's approach; the growing emphasis on the microeconomic foundations of the macro economy; the difficulties encountered by macro-econometric models, including in assessing the interactions between financial and real sectors; the justified disappearance of economic planning and programming of financial flows; the due abandonment of administrative monetary policy controls and the growing role of prices in market equilibrium, compared with the aggregates considered in the financial accounts; the unsuccessful empirical application of flow-of-funds models, partly because of co-linearity of yields on financial instruments used as independent variables in the demand functions of financial assets;⁶³ the growing role of monetary and credit aggregates as tools for the conduct of monetary policy; the progressive focus of central banks on the objective of price stability, sometimes to the detriment of a general analysis of the financial system; the difficulties of achieving international harmonisation of statistics, partly because the process of European integration stalled until the middle of the 1980s; and the lack of transparency of data producers in the dissemination and use of statistics, are some of the causes of the decline in importance of financial accounts until a few years ago.

The history of ideas is a history of suddenly vanishing of lines of research that later resurface, in a new form like underground rivers. The recent revival of interest in financial accounts, which we hope is not just a flash in the pan, is due not so much to theoretical developments as to the efforts of Eurostat, national statistical institutes, the Eurosystem, and the OECD. It is confirmation of the role that the institutions play in the history of science⁶⁴ but it also reminds us of our duty not to lose sight of the theoretical approach. One of our aims in these pages has been to recall the great economists on whose shoulders rests the present-day work on financial accounts.

⁶³ Other problems of estimating the demand for financial assets are highlighted by Walsh (1981).

⁶⁴ On this point see also Massaro's essay in this volume.



Table. 1

Tav. 2

SUMMARY OF FLOW-OF-FUNDS ACCOUNTS FOR 1953 S=Sources of Funds, U=Uses of Funds

(Annual flows, in billions of dollars)

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1Phancial sources of funds represent net changes in liabilities; financial uses of funds represent net changes in financial assets. Norg.--For contents of each line, see notes to summary tables, pp. 39-40.

Tav. 3

SUMMARY OF PLOW-OF-PUNDS ACCOUNTS FOR PURST QUARTER, 1958 The solution of datased

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Table 4

Table 5

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Public sector	293.3	369.7	143.2	- 7.4	- 125.1	49.2	226.5
of which: short-term credits	295.3	44.1	- 16.6	- 124.8	- 132.9	54.5	186.6
securities (1)	- 2.0	325.6	159.8	117.4	7.8	- 5.3	39.6
Private sector	1,223.2	1,741.5	2,824.3	428.7	685.6	705.5	1,004.5
of which: short-term credits	202.7	677.8	1,186.2	48.2	289.1	273.0	575.9
loans and mortgages	580.0	691.3	879.9	199.4	181.5	216.1	282.9
securities	440.5	372.4	758.2	181.1	215.0	216.4	145.7
Foreign sector	459.0	517.9	273.0	- 8.5	76.0	168.9	36.6
Total money supply and finance funds (1+4+8)	1,975.5	2,629.1	3,240.5	412.8	636.5	923.6	1,267.6
By types:						Sundra .	
Gross liquid assets	1,233.0	1,532.6	1,625.4	- 103.5	346.3	561.6	821.0
Other non-security assets	211.1	431.1	521.7	175.2	74.8	120.9	150.8
Securities	531.4	665.4	1,093.4	341.1	215.4	241.1	295.8

Financial assets and liabilities of Italy

(changes in billion lire)

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Table 6

Table 6 - continued

Financial assets and liabilities of Italy (changes in billion lire)

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FINANCIAL ACCOUNTS IN EUROPE: BEGINNINGS, DEVELOPMENT AND HARMONISATION

Riccardo Massaro*

In the case of monetary science there is a special reason why statistics are of fundamental importance to suggest theories, to test them and to make them convincing. (Keynes, *A Treatise on Money*, vol. II, p. 408)

1. Introduction

Present-day financial accounts are a set of interrelated statistics that give information on the financing patterns across all sectors in the economy. Financial accounts are complex and demanding, but this is inherent in their nature, as they span the entire economy.

The history of such a wide-ranging topic is in itself complex and multifaceted. It is therefore necessary to isolate some strands within it. In my opinion, the main strands that contributed to the development and standardisation of financial accounts in Europe are the following:

- 1) the reflections on the financing of aggregate investment by Keynes and major post-Keynesian economists;
- 2) requests for improvements in financial statistics made by economists belonging to the above tradition;
- 3) the work done in the United States by Copeland and the Federal Reserve;
- 4) analysis and discussions at international institutions and conferences;
- 5) data collection and diffusion by international institutions.

The treatment of items 1) and 2) will be short, as a fuller account is under preparation. I will deal only briefly with item 3), as it is one of the topics of the paper presented to this conference by De Bonis and Gigliobianco. The focus of this paper will thus be on items 4) and 5). In the conclusions I will provide an assessment of the progress made in the compilation of financial accounts in Europe.

^{*} Bank of Italy. I am grateful for constructive criticism to Alberto Baffigi, Federico Barbiellini Amidei, Elio Cerrito, Filippo Cesarano, Franco Cotula, Robert Gadsby, Alfredo Gigliobianco, Matteo Gomellini, Juan Carlos Martinez Oliva and Sabrina Pastorelli.

2. Keynes and some post-Keynesian economists on financing

2.1 *Economic theory*

2.1.1 Booms and slumps in Keynes' Treatise on Money

The main argument of the *Treatise* is a theory of the price level, however Keynes devotes several pages to fluctuations in business activity.¹ He argues in many places that investment and saving decisions are taken by different people.² For example he suggests that:

It is not surprising that Saving and Investment should often fail to keep step. In the first place [...] the decisions which determine Saving and Investment respectively are taken by two different sets of people influenced by different sets of motives, each not paying very much attention to the other. (Keynes, 1930, vol. I, p. 279)

This separation between saving and investment decisions is his main explanation of the trade cycle, and it entails a certain degree of external financing of investment made by corporations.

The need for external financing becomes especially intense when there is an increase in the level of economic activity. For Keynes, the early phase of a boom is accompanied by a financing gap:

the development of an investment boom certainly does not mean that the entrepreneurs who initiate it have deliberately decided that the public are going to save out of their incomes on a larger scale than before. (Keynes, 1930, vol. I, p. 279)

This financing gap will be filled by the intervention of banks, insofar as they accept to do so. Keynes expresses his views in these terms:

it is the facilities allowed by the banks which are the marginal factor determining the precise degree to which entrepreneurs will be in a position to carry out their enterprises. (Keynes, 1930, vol. I, p. 279)

2.1.2 Keynes on financing after the General Theory

Keynes in the General Theory did not devote much attention to the financing of investment.³ But the topic was raised by Ohlin.⁴ Keynes in his replies to Ohlin develops his ideas, and *ex ante* financing of investment is not any longer a prerogative of banks as in the Treatise. In fact, new issues of securities also play a role. In his reply to Ohlin, Keynes argues as follows:

Planned investment-*i.e.* investment *exante*--may have to secure its "financial provision" before the investment takes place; that is to say, before the corresponding saving has taken place. [...] There has, therefore to be a technique to bridge this gap between the time when the *decision* to invest is taken and the time when the correlative investment and saving actually occur. This

¹ The analysis of the general price level had been one of the main topics of monetary theory for some decades. Keynes himself acknowledges that his treatment is somehow similar to that of Wicksell. But Wicksell's theoretical construct included a spontaneous tendency toward full employment. The possibility of severe fluctuations in general economic activity is instead acknowledged in some parts of the *Treatise*.

² The definition of Saving and Investment in the *Treatise* is not the same as that in the *General Theory*. The difference is due to the definition of income in the *Treatise*: "the definition of income, which I there employed, differed from my present definition by reckoning as the income of entrepreneurs not their actually realised profits but (in some sense) their 'normal profit'" (Keynes, 1936, p. 77).

³ Schumpeter in 1954 noticed a different treatment by Keynes in the *Treatise* and in the *General Theory* of the view that bank loans create deposits: "The deposit-creating bank loan and its role in the financing of investment *without any previous saving up of the sums lent* have practically disappeared in the analytic schema of the *General Theory*" (Schumpeter, 1954, p. 1114).

⁴ Ohlin distinguishes between plans and realised outcomes, or between *ex ante* and *ex post* variables. He then discusses the financing of investment and financing constraints: "Of all the possible investments which seem profitable, only some are planned for the next period and actually begun. [...] it is clear that the cash and credit resources, which the firm has at its disposal at the beginning of a period and acquires during the period, provide an upper limit for its ability to buy." (Ohlin, 1937, p. 61).

service may be provided either by the new issue market or by the banks. (Keynes, 1937a, p. 246)

In a later article, Keynes distinguishes between short-term and long-term "finance" and suggests that the pre-financing of investment may also be made with cash in the hands of companies:

The entrepreneur when he decides to invest has to be satisfied on two points: firstly, that he can obtain sufficient short-term finance during the period of producing the investment; and secondly, that he can eventually fund his short-term obligations by a long-term issue on satisfactory conditions. Occasionally he may be in a position to use his own resources or to make his long-term issue at once. (Keynes, 1937b, p. 664)

2.1.3 Hicks 1935 on liquid assets and financing

Hicks in A Suggestion for Simplifying the Theory of Money starts his analysis from the existing stocks of money in the hands of individuals or companies.⁵ He then argues that an individual can use his holdings of money in three ways. The first is a transaction in goods versus money (buying something). The other two are financial transactions: (a) lending money to someone else; (b) paying off debts (Hicks, 1935, pp. 4-5). Hicks later notices that lending can also be done by decreasing the holdings of liquid assets, which he calls "safe investments" (Hicks, 1935, p. 10).

The lending ability of individuals equipped with surplus cash, or liquid assets, gives all sectors a feature usually associated with banks. In the words of Hicks:

my suggestion can be expressed by saying that we ought to regard every individual in the community as being, on a small scale, a bank. (Hicks, 1935, p. 12)

This theoretical position has several implications for the study of the credit mechanism. For example a description of credit flows in the economy cannot be limited to the lending done by banks, but will require information on the actions taken by many sectors.

2.1.4 Kahn, Kaldor and Sayers on financing

On the occasion of the economic debate promoted by the Radcliffe Committee in the late 1950s,⁶ Kahn, Kaldor and Sayers gave great emphasis to the fact that the financing of investment is related to *overall liquidity*. Overall liquidity is determined by two main factors: existing easily realisable assets and the expected availability of credit (Kaldor, 1960b, p. 15; Sayers, 1960, p. 712).

These authors share the view that the study of the level of activity of an economy requires a comprehensive view of the web of financing in that economy. For them, bank advances retain an important position in financing investment, but this is mostly due to the fact that, except for "the really large companies" (Kahn, 1960, p. 140), the issuance of ordinary shares is difficult. Other financial institutions can also be a source of short-term credit, for example hire-purchase finance houses (Kahn, 1960, p. 146). The extension of trade credit between companies is also considered a crucial financing channel (Kaldor, 1960a, p. 148; Sayers, 1960, p. 713). Attention is then paid to the credit obtainable in capital markets. Finally it is suggested that it is necessary to integrate the analysis of credit and capital markets as sources of finance (Sayers, 1960, pp. 713-14).

⁵ Hicks at the beginning of the article presents his position on money as strongly influenced by Keynes' *Treatise* ("I am being more Keynesian than Keynes's").

⁶ The Radcliffe Committee was appointed in early 1957 "to inquire into the working of the monetary and credit system, and to make recommendations". It was composed of nine members, two of them, Cairncross and Sayers, from the academic world. The Committee asked several written memorandum to representatives of institutions and to academic economists. Then, during many meetings, it heard oral evidence from several individuals.

Along the lines of Hicks 1935, it is suggested that liquid assets, as those corresponding to the liabilities of non-monetary financial institutions, can be used to extend credit (Kaldor, 1960b, p. 19; Sayers, 1960, p. 722).

This group of authors argues that for the purposes of monetary analysis, and especially for its link to the general level of economic activity, it is necessary to have a full picture of the financing that takes place in the economy, both across sectors and through different financial instruments. So it is not surprising that the opinions of these authors favoured the position taken by the Radcliffe Committee on the need to improve the collection of financial statistics beyond banking returns.

2.2 Requests for statistics

2.2.1 Hicks 1935 on balance sheets

In the article already referred to above, Hicks suggests building monetary theory around balance sheet values. To do this, he considers it necessary to draw up a standardised balance sheet "suitable for all individuals and institutions" (Hicks, 1935, p. 12). He also suggests a balance sheet consisting of the following financial assets:⁷

- money,
- bank deposits,
- short-term debts,
- long-term debts,
- stocks and shares.

His list of financial liabilities is instead shorter (and alas incomplete):

- short term debts,
- long term debts.

With his idea of a standard balance sheet for all institutions, Hicks in 1935 made a big step towards contemporary financial accounts. However, his suggestion produced no practical response for many years.

2.2.2 The Radcliffe Committee on statistics

The Radcliffe Committee invited several institutions and economists to prepare memorandums. It later discussed some of them with many officials and economists. The more theoretical chapters of the *Report* of the Radcliffe Committee accepted many of the ideas of Kahn and Kaldor, which we have summarised above. Sayers himself was a Member of the Committee. The Committee made few concrete recommendations. Most of them were on the collection of statistics.

That statistics were considered important also emerges from the fact that the *Report* devotes an entire chapter to them. At the beginning it is noted that in the previous thirty years there had been uneven improvements in statistics:

While there has been a steady improvement in the collection and publication of statistics of national income and output, the statistical coverage of financial assets and liabilities has not

⁷ The full list of assets includes goods and productive equipment.

received the same attention either from the monetary authorities or from outside commentators. (Committee on the Working of the Monetary System, 1959, p. 281)

In trying to understand the reasons for such a state of affairs, the Committee observes that two important factors limit the production of statistics by financial institutions: (a) "reluctance to disclose their private affairs more than is necessary"; and (b) "the wish to avoid undue expenditure of time and trouble on providing information" (Committee on the Working of the Monetary System, 1959, p. 281). As the Committee intends to redress the situation, it requires improved "financial and monetary statistics" along these general lines:

we take these to be statistics of financial assets and liabilities, not merely banking statistics or statistics relating to the money supply. (Committee on the Working of the Monetary System, 1959, p. 284)

The suggested shift from banking statistics to a set of statistics on the financial sector reflects the partial role played by banks in financing (Committee on the Working of the Monetary System, 1959, p. 285). The Committee then calls for financial information on sectors other than financial institutions. And there is a list of these additional sectors:

the financial sector would [...] take its place alongside the other sectors of the national economy, and it would be one of the principal objects of monetary analysis to examine the interactions of these sectors on one another through financial transactions. These sectors, in terms of which financial and monetary statistics would have to be organised, include the public sector, the overseas sector, and such sub-divisions of the private sector as companies, unincorporated businesses and private individuals. (Committee on the Working of the Monetary System, 1959, p. 286)

The requests of the Radcliffe Report concerning financial statistics were thus sufficiently specific:

- 1) financial assets and liabilities;
- 2) six sectors spanning the entire economy.

In its effort to render the requests operational, the Radcliffe Committee takes the further step of charging one institution, the Bank of England, with a special role in gathering and publishing financial statistics (Committee on the Working of the Monetary System, 1959, p. 303).⁸

3. International standpoints on sector finance

3.1 International organisations

3.1.1 The role of the OEEC

The Organisation for Economic Co-operation (OEEC) was constituted in Paris in 1948 by a group of European countries.⁹ A group of experts was soon convened to define a system of national accounts, in order to assist in comparing the economies of the OEEC countries. A number of meetings took place in Cambridge as early as 1949, coordinated by Richard Stone. A memorandum on the subject was then published in 1951 by the OEEC. Economic activity is described by distinguishing the rest of the world and three domestic sectors: enterprises, government agencies

⁸ The Bank of England responded with a very short delay to the requests. In fact, the publication of its *Quarterly Bulletin* started at the end of 1960. Data and comments on the financial surplus of the private sector appear in the first number of this new publication. Fuller financial accounts were made available in 1963.

⁹ The OECD, Organization for economic Co-operation and Development, became the successor of the OEEC in December 1960. The OECD had an enlarged mandate, and its members were western European countries as well as the US and Canada. Participation in the OECD was extended to other countries in the following years.

and households, which include private non-profit institutions (OEEC, 1951, p. 17). The sector enterprises includes the central bank, other banks and the Post Office Savings Bank. Each sector has a current account, with entries such as current sales, compensation of employees and taxes. A gross saving and investment account is defined, under the name of Resting Account. There is a single Resting Account for the whole economy, as it is suggested that:

In practice [...] it is frequently found that little information is available about the lending and borrowing activities of the domestic sectors with one another or, individually, with the rest of the world. (OEEC, 1951, p. 14)

In other terms, financial accounts by sector were still premature in Europe in 1951.¹⁰ Borrowing and lending between domestic sectors is acknowledged, but not explored.¹¹

In 1960 the OEEC published a volume on money and credit across sectors, in which the integration between finance statistics and national accounts was achieved to some extent. The volume was entitled "*Statistics of sources and uses of finance, 1948-1958*", and was designed by Robert Triffin and Geer Stuvel. The accounts were presented in two separate tables for 'banks' and 'domestic non-bank sectors'.

A systematic analysis of the published tables leads to the conclusion that the important OEEC project was only partly fulfilled. For example, in Austria the domestic non-bank sector is subdivided, as required, into three sectors but the data are all from the income accounts.¹² Data on banks are not provided. A similar situation applies to many other countries. The countries that provide broad financial information are just four: France, Germany, Italy and Norway. But, even for these few countries, the usefulness for comparative purposes of the data presented is doubtful. For France we do not have banks and non-banks but 'financial institutions' and 'other domestic sectors'. For Italy the non-bank sub-sectors are just two: 'central government', 'local government, enterprises and households'. In Germany the non-bank sector is split into two sub-sectors, but they are 'central and local government' and 'enterprises and households'. Only in Norway are the subdivisions of the non-bank sector the required ones. Moreover, the periods provided do not overlap very much. For example, for the table on non-bank sectors we have: France 1954-57, Germany 1952-58, Italy 1955-58, Norway 1953-56.

The merging of corporations and households into one sector in this publication cannot be considered satisfactory. As a first point it is in contrast with the attempt made in 1951 by the OEEC to produce a system of national accounts. Secondly, in the Technical Appendix to the volume, the compilers show uneasiness on the issue:

It would clearly have been desirable to have [the sector enterprises and households (E.H.)] further subdivided into enterprises on the one hand and households on the other. [...] Unfortunately, at the present stage of statistical development this cannot be done, except perhaps for one or two countries. In particular, information on lending and borrowing between enterprises and households is, for practically all O.E.E.C. countries, almost entirely lacking, or at least far from complete. As a matter of fact the entries of in the E.H. column in Table 2 have in good many cases been arrived residually. (OEEC, 1960, p. 157)

The last sentence suggests that the tables presented were basically a rearrangement of existing statistics on balance of payments, banks and government finance.

¹⁰ In the United States the situation was more advanced, thanks to the work done by Morris Copeland for the NBER. A synthesis of Copeland's work on *money flows* had already been published in 1947 (Copeland 1947). More details are available in the article presented to this conference by De Bonis and Gigliobianco.

¹¹ A few years later Richard Stone led another group of experts, working for United Nations. In 1953 A System of National Accounts and Supporting Tables was published. The project was more ambitious, as for each of the same three domestic sectors of the OEEC System of 1951 there was now a capital account (Capital Reconciliation Account).

¹² The three sectors are: 'central government', 'local government', 'enterprises and households'.

3.1.2 Exchanges of ideas at the BIS

The Annual Reports of the Bank for International Settlements make it possible to follow the evolution and diffusion of economic ideas on monetary matters and the supporting statistics. As the governing council of the BIS was largely composed of governors of central banks, we can assume that the Annual Report of the BIS influenced the opinions of officials in national central banks, and that it incorporates some of the reactions of national central bank staff. In the following we summarise about a decade of BIS Annual Reports for the parts concerning our topic.

The Annual Report published in 1950 shows attention to macroeconomic concepts and to the use of financial statistics beyond banking statistics. For the United Kingdom we have information on savings by three domestic sectors (households, corporations and the public sector) and aggregate domestic investment over the years 1947-1949 (p. 66). For corporations Germany presents both investments and some details on financing ('capital markets', 'medium and long term credit from financial institutions', p. 69). Information on trade credit is provided for eight European countries (p. 187). For Belgium and France the relative importance of bank credit and trade credit is commented upon. For Italy there are two tables on money funds received by the central government and the rest of the domestic economy (years 1947-1949). The first table contains the credit which the banking system granted; the second table adds the funds obtained on capital markets (pp. 191-192).

In the Annual Report of 1951, the credit given by British banks to the private domestic economy is presented for two sectors: 'industry and commerce', 'financial institutions and households' (p. 185).

In the Annual Report of 1952, the Italian table on money funds supplied is rearranged and gives additional detail.

In the Annual Report of 1953 a section on the financing of investment appears which explicitly refers to the *General Theory* of Keynes. It is suggested that in the post-war economy a high rate of saving will be necessary (pp. 37-39). For the United States there is a table in which the financing of investment by corporations is detailed into three sources: 'retained earnings and depreciation', 'long term credits' and 'net short term credits'. The last item being short term credits netted of liquidity invested in treasury bills (p. 172).

In the Annual Report of 1954 the importance of high domestic savings for a robust economic expansion is stated once again (p. 50). The attention is then brought to personal saving and there is a long section on saving accumulated through insurance companies. The increase in the reserves of life insurance companies is studied for four countries: Belgium, the United Kingdom, Switzerland and the United States. A comparison is then made with the accumulation of other types of financial assets. This shows that contractual saving is about one third of financial saving in Belgium, Switzerland and the United States. In the United Kingdom, in 1952, only contractual saving made a positive contribution to financial saving (p. 56). Insurance companies represented instead just 5 per cent of financial saving in Germany, Italy and France.

In 1957 the structure of the Annual Report is revised. It now has a chapter on economic expansion and savings, which contains new ideas. There is in fact an introduction to some concepts of financial accounts and to their links to accumulation accounts. It is then stated that the study of savings and investment is greatly helped by subdividing the domestic economy into sectors. The list of sectors suggested is: central government, local government, private companies, public corporations, and the personal sector.¹³ A link is also made between the financial surplus of a sector in a period and the increase in its financial assets at the end of the period (p. 34).

¹³ We note that the financial sector does not appear in this ideal list.

The most complete partitioning into sectors of national income accounts is that of the United Kingdom (p. 35). However, the table given has savings data for five UK sectors but investment only for the whole domestic economy. The BIS staff then takes a very courageous step and presents its own estimates of savings and investment by sector for the United Kingdom (p. 40).

For Germany we have savings, capital transfers and investment for three domestic sectors (government, enterprise and households) and a breakdown of the financial surplus into six categories of financial instruments (p. 51). This table on Germany is thus an important step towards modern financial accounts.¹⁴

Regarding the Netherlands we have a table of savings and investment by sector with four sectors: 'central government', 'local government', 'institutional investors and capital markets', 'enterprises and households' (p. 60). Interestingly enough, we have two different estimates of the financial surplus of each sector, a cash figure and an income account figure.

In the Annual Report of 1958 new financial information is available for France. We have four sectors (households, enterprises, government and financial institutions) and the financial surplus is divided into several categories (p. 37). A reference is also made to the *flow of funds* statistics in the United States, and some data are presented (pp. 52-53).

In the Annual Report of 1960 there is new information on Germany. Financial institutions appear as a separate sector and this is further subdivided into three sub-sectors ('banks', 'insurance companies' and 'building societies') (p. 84).

In 1961 the previous table on the United Kingdom is discontinued, and a new table is presented on the private sector. This sector includes households and companies (p. 72).

In the Annual Report of the BIS of 1962 there is again a section dealing with financial accounts, similar in content to that of the previous year. After 1963 no tables on financial accounts appear in the Annual Report of the BIS.¹⁵

3.1.3 Contributions by the IMF

The thinking at the IMF on financial accounts is documented in a number of articles that appeared in the IMF Staff Papers in the mid 1950s. The first article is that of Dorrance, a Canadian economist working in the Statistics Division of the IMF, in 1955. He acknowledges that his ideas on the subject originate in large part from a privately circulated paper of three Dutch authors (Lips, Schouten and Bosman). The article also incorporates comments by Professor Sayers.¹⁶

Dorrance suggests using the term "financial account" of a sector for the sources and uses of funds arising from "borrowing and lending" and the "purchase and sale of financial obligations" (Dorrance, 1955, p. 319). And he proposes that the economy be divided into seven sectors: households, enterprises, public corporations, local governments, central government, foreigners and monetary system. He then comments on the absence of the monetary system in SNA 53 in this terms:

If only national income accounts are considered, the monetary system is not especially important. If, however, the development of additional forms of social accounting are considered, the monetary system immediately assumes enormous importance because of the relative size of its activities in asset transfers and because the purposes for which the monetary system holds assets are so different from those of any other sector. (Dorrance, 1955, p. 320)

¹⁴ Some parts of the table are still very condensed however.

¹⁵ There is renewed interest in financial accounts in 1970, but no comment is offered on the silence on the subject over several years.

¹⁶ Professor Sayers was to be a member of the Radcliffe Committee (1957-59).

Dorrance then focuses his attention on the difference between the savings and investment of

a sector, as this gives a measure of the financing that it provides to other sectors (Dorrance, 1955, p. 321). His suggestion is to study the lending of each sector to each other sector.

This article by Dorrance anticipates what is nowadays called *from-whom-to-whom* reporting. However it is suggested in its crudest form, with all transactions with another sector lumped together. In his list of sectors, the suggestion to isolate the monetary system can be considered as a first step towards a financial institutions sector.

The interest in financial accounts remains alive at the IMF and in 1956, as an appendage to the Annual Meeting of the Board of Governors, an informal session was arranged on "Recent Development in Monetary Analysis". The papers presented at the session were published in the following year. The first paper is by Marius W. Holtrop, Governor of the Netherlands Bank. It presents a study of the economy considering five sectors and focuses on the most liquid financial instruments (money, bank deposits and treasury bills). The second paper is by Paolo Baffi, then economic adviser to the Bank of Italy. It presents a statement on the flow of savings and the money supply. It is a scheme which provides limited information on sectors, but in which all financial instruments are considered.¹⁷ The third article is by Ralph A. Young, director of the Division of Research and Statistics at the Fed, and describes the *Federal Reserve Flow-of-Funds Accounts*. The article is short on technical detail, but gives considerable space to comments on the quarterly data on the consumer sector and the business sector.

In a fourth paper, Earl Hicks, of the Research and Statistics Department of the IMF, gives an overview of various possible types of monetary analysis, linking them to the production of specific groups of statistics. In the section *Matrices of Intersector Finance* it surveys some still unresolved problems, especially the integration of national income accounts and financial accounts. The article has a very lengthy Appendix which covers 41 countries.¹⁸ For each country we have at least a table on monetary or financial statistics; however the formats of the tables are very heterogeneous (Hicks, E., 1957).¹⁹

3.2 International conferences

In this section we review the contributions made by some European economists and statisticians in international conferences in the late 1950s. These conferences can be seen as a prelude to a major revision of the United Nations manual on national accounting and as contributing to improvements in national compilations practices. An article by the Canadian economist Dorrance is also referred to, as it gives a snapshot of the national formats of financial accounts in Europe in 1959-1960.

3.2.1 IARIW, 1957

Bjerve and Selsjord, of the Central Bureau of Statistics of Norway, wrote the article "Financial Accounting within a System of National Accounts" for a conference organised by the International Association for Research in Income and Wealth and held in the Netherlands in 1957. The authors discuss how to develop a comprehensive system of accounting that integrates traditional national accounts, financial variables and statistics on money and credit. Their suggestion is to develop systematic sector accounts on financial transactions. The complete system would be made up of five accounts for each sector: (a) an income account; (b) a real capital

¹⁷ The article by Baffi is considered at great length in the article presented to this conference by De Bonis and Gigliobianco.

¹⁸ The Appendix was prepared by Dorrance and Aubanel.

¹⁹ Both Dorrance and Earl Hicks continued to work on sector finance accounts in the following years. Dorrance wrote on financial balance sheets. Earl Hicks participated in the Expert Group charged with writing SNA 68. Other economists at the IMF were also interested in these topics (Polak, 1959).

account; (c) a financial capital account; (d) a revaluation account for financial capital; and (e) a revaluation account for real capital (Bjerve and Selsjord, 1959, pp. 63-65).

Bjerve and Selsjord suggest a system with seven domestic sectors: (a) public administration; (b) financial institutions; (c) public productive enterprises; (d) private corporations; (e) private noncorporate enterprises; (f) wage and salary earners, pensioners, etc.; and (g) non-profit-making organizations (Bjerve and Selsjord, 1959, pp. 69-70). Then they suggest distinguishing five types of financial transactions: means of payment, discountable objects, marketable objects, nonnegotiable objects, and other financial objects.

The last part of the article gives a summary of the work done in Norway that had led to figures published in 1955. This accounting system was much simpler, with four sectors (public administration, financial institutions, other domestic sectors, and rest of the world).

3.2.2 IARIW, 1959

Denizet, a French economist, presented a paper in 1959 which discusses several technical problems to be solved before starting the compilation of financial accounts: (1) conceptual framework; (2) valuation; and (3) coordination between financial accounts and national accounts. Under the first heading, Denizet discusses the principle of homogeneity of behaviour. This leads to the need to create a sector of financial intermediaries (Denizet, 1961, p. 67). The same principle of homogeneity of behaviour brings him to discuss the desirability of two further breakdowns of non-financial corporations: (a) by legal characteristics; and (b) by size. On financial transactions, Denizet criticises the idea of having only a matrix of financial dependence across sectors (Denizet, 1961, p. 75), and prefers a long list of financial transactions.

A long section of the article is devoted to the problems of data collection. Denizet seems sceptical about the possibility of overcoming the practical difficulties as both companies and households are very hesitant in disclosing information on their financial affairs (Denizet, 1961, p. 97).

3.2.3 Conference of European Statisticians, 1959

Another article that led the way to the United Nations' *System of National Accounts* of 1968 is that of Poul Høst-Madsen, a Danish economist working at the IMF. The article had been prepared for the *Expert Group on Statistics and Changes in Financial Assets and Liabilities*, in the *Conference of European Statisticians* held in Geneva in February 1959.

The article discusses the integration of sector finance accounts and national income statistics. To clarify the main issues, Høst-Madsen uses an indirect approach. In the first place he links national income statistics to the balance of payments, and then connects financing statistics and balance-of-payment concepts. This allows him to discuss the consolidation of sector accounts in national accounts, and to draw a similarity between foreign assets in the balance of payments and inter-sector claims in financing accounts.

He makes a lucid contribution on sectoring. According to Høst-Madsen, the economy can be divided into two types of sectors: (a) those whose major activity is the production of goods and services; (b) those whose major activity is the creation of financial assets for other sectors and the acceptance of liabilities of other sectors. The traditional division of sectors in national income statistics is functional rather than institutional, *i.e.* the sectors are chosen by type of activity rather than as groups of economic decision-making units. In financial statistics the sectors are instead usually defined institutionally. Høst-Madsen then points out that to integrate financing statistics with national income statistics, the sectoring of the two parts of the system must be coordinated beforehand (Høst-Madsen, 1960, p. 341).

3.2.4 Conference on Research in Income and Wealth 1959

In a conference organised by the NBER in 1959, Dorrance surveys financial accounts in countries other than the United States and Canada. His list of financial accounts published by official national organizations contains nine European countries: Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, the United Kingdom and Yugoslavia. Dorrance suggests classifying these statistics according to various criteria. He presents the results with a neutral tone, but problematic areas emerge especially for international comparisons. For example, we note that businesses and individuals appear as two sectors in some statistics (France, Germany, the Netherlands, and the United Kingdom) but as one combined sector in other cases (Finland, Italy, the Netherlands, Norway, and Sweden).²⁰ Similarly in some cases there is a separate financial institutions sector (Italy, Norway, Sweden, and the Netherlands), and in other cases there is not (Finland, Germany, the Netherlands, and the United Kingdom) (Dorrance, 1962).

3.3 The main features of SNA 68

We have shown above that in the late 1950s and early 1960s the statistics on sector financing were very far from being homogeneous across countries. But we have also documented the rich exchange of views that was going on at the international level, both in institutions and through conferences. These discussions culminated in the revision of the *System of National Accounts*, coordinated by the United Nations in the mid 1960s and published in 1968.

One of the new features of SNA 68 was the introduction of much expanded financial information. Moreover the framework provided a way to integrate financial information with data on production, income and capital formation. SNA 68 also contains a complete view of the process by which the economy moves from its position at the beginning of the period (opening balance sheet) to its position at the close of the period (closing balance sheet).

The many discussions we have seen before on sectoring and the classification of financial assets, the opinions of the Expert Group created by the United Nations,²¹ and the comments on the draft of SNA, such as those made in a conference held in 1966,²² were condensed into this list of institutional sectors and sub-sectors:

- 1. Non-financial enterprises, corporate and quasi-corporate:
 - a. private enterprises
 - b. public enterprises
- 2. Financial institutions:
 - a. the central bank
 - b. other monetary institutions
 - c. insurance companies and pension funds
 - d. other financial institutions
- 3. General government:
 - a. central government

²⁰ In that period two sets of financial accounts were prepared in the Netherlands by two different institutions. The two data sets diverged in many respects.

²¹ The chairman of the Expert Group was Richard Stone. The Group included Earl Hicks, of the Statistical Bureau of the IMF.

²² The classification of financial claims in the draft of SNA was not the same as that agreed for SNA 68. For example the financial liabilities of firms were grouped in "corporate debt and equity", and for households there was the item "consumer credit" (Tice, 1967).

- b. state and local government
- c. social security funds
- 4. Private non-profit institutions serving households
- 5. Households, including private non-financial unincorporated enterprises

The transactions in financial claims were classified in this way:

- 1. Gold
- 2. Currency and transferable deposits
- 3. Other deposits
- 4. Bills and bonds, short-term
- 5. Bonds, long-term
- 6. Corporate equities, including capital participations
- 7. Short-term loans n.e.c.
- 8. Long-term loans n.e.c.
- 9. Net equity of households in life insurance reserves and in pension funds
- 10. Proprietors' net addition to the accumulation of quasi-corporate enterprises
- 11. Trade credits and advances
- 12. Other accounts receivable and payable
- 13. Other

SNA 68 also contains a very ambitious table, which suggests a more detailed breakdown of financial transactions by adding, in some cases, additional dimensions: national/foreign currency; domestic/non-resident sector; cross classification by institutional sector; quoted/unquoted shares (pp. 199-200).

In summing up this section, we note that the new parts of SNA 68 on financial transactions were the outcome of more than a decade of discussions and permitted the achievement of three ambitious results:

- a) a unified system that integrated income accounts and financial accounts;
- b) institutional sectors that were meaningful for different types of economic analysis;
- c) a clear articulation of financial transactions.

At this point a rapid convergence of the national schemes on sector financing towards a unified scheme could have been expected. However, as we will see in the next section, this did not occur in Europe for quite a long time.

4. The delayed convergence

4.1 OECD Financial Statistics

The OECD was quick in taking up the new opportunities offered by SNA 68 for international financial statistics. In 1967 it created a group of official statisticians from member countries to devise a regular publication on financial statistics. This group of experts adopted the structure of SNA 68; however a number of simplifications were made in the model table that countries were asked to compile.

The link with income accounts was obtained through a table on capital operations, with information on non-financial transactions (gross saving, gross physical investment, capital transfers) and on financial transactions (net financial saving, financial assets, indebtedness). The list of financial instruments was similar to that of SNA 68. However, for sectoring we have a level of aggregation that considerably reduced the potential uses of financial accounts. In fact, under 'other financial institutions' we have two SNA 68 sub-sectors: 'insurance companies and pension funds' and 'other financial institutions'. And the sector 'others' groups together three sectors of SNA 68: 'non-financial enterprises', 'households' and 'private non-profit institutions serving households'. As regards the reasons for both aggregations, we have to live with the following general statement:

The process of standardizing the concepts and the methods of calculation and presentation has been carried as far as it seemed possible to go without blurring the distinctive institutional features of each country. (OECD, 1970, pp. 9-10)

The statement is surprising, as one would have expected that the general definitions of SNA 68 would have been applicable to all countries. On the other hand the OECD publications were successful in many respects:

- *a*) they were the outcome of a great effort of coordination;
- b) they presented tables that had had a limited circulation before;
- *c)* the publication was in two internationally widespread languages, English and French.

If we go into the detail of what was published for individual European countries, we have both positive and negative elements. Frequently the positive thing is that the detail of a country is more than that required in the model table, but, on the other hand, international comparisons become harder. For Germany on the positive side we have a breakdown of other financial institutions (OFIs) into 'insurance companies' and 'building and loan associations'. Another positive element is the breakdown of the sector 'others' into 'business except housing', 'housing', 'and households'. Unfortunately, the separation of building activity is a feature of Germany alone, and the chosen statistical treatment leads to fictitious capital transfers from 'households' to 'housing'. Furthermore the business sector is not defined according to SNA 68, as it contains all types of enterprises. For Spain the sector 'others' is divided into: 'Caisse des Dépôts' and 'OFIs'. We have some very limited information on enterprises and households, as data on securities are grouped together. For Italy the sector OFIs contains only 'special credit institutions' and the sector enterprises is a mixture of financial and non-financial enterprises. Moreover households' medium and long-tem loans are considered as indebtedness of enterprises.

Information on the three sub-sectors of the sector 'other' is available for Norway only for holdings of bonds and shares. For Finland the sector 'others' has no further subdivision. For the Netherlands there is a unique residual sector 'others' and it also contains some financial institutions. For the United Kingdom the sector OFIs is just one sector. On the other hand we have more detail on 'Others': public corporations, private companies, personal sector. In this case, along the lines of SNA, unincorporated business is in the personal sector.

If we add the availability of some financial accounts information on Yugoslavia, we have the complete list of European countries that contributed financial accounts data to the OECD in 1970, which makes a total of nine countries. The list almost coincides with that in the survey of Dorrance, which was updated to 1960.²³

The timeliness of the data was still modest: only two countries gave data as recent as 1969 (Germany and the United Kingdom), five others gave data on 1968 (France, Italy, the Netherlands,

²³ In Dorrance's survey Sweden was included. In the 1970 OECD Financial Statistics it was not, but Spain was.

Finland, and Yugoslavia), the remaining two gave earlier periods (Norway 1967, and Spain 1966).²⁴

4.2 Two textbooks on financial accounts

To the best of our knowledge, the first two textbooks to make extensive use of financial accounts appeared in the mid-1970s. The topic of both books is the British financial system. In both cases the work done by the OECD in collecting financial accounts data was used for international comparisons. These textbooks were a milestone in the diffusion and use of financial accounts.

The first book to appear was that by Sandra Mason, an economist teaching at the London Business School. The book is intended as an introduction to financial markets and is based on the framework of financial accounts. To start with , the groups of users of the financial system are presented: individuals, commercial and industrial companies, financial companies, the government, and the overseas sector. Then the markets in different financial instruments are described: bills and deposits, loans and mortgages, securities, and life insurance funds. Finally financial institutions are studied in more detail, to arrive at a complete picture of the British financial system.

Very interestingly, an entire chapter is devoted to comparisons with other countries, using data collected on current flows of funds. Seven countries are studied: four European countries (France, Germany, the Netherlands and the United Kingdom) and three other countries (the United States, Canada and Japan). To investigate the importance of the financial system in each country, total new borrowing is compared with total sources. A first conclusion reached is that, in the years ending in 1972, the contributions of the financial system had been particularly important in the United Kingdom and Japan. Instead in Germany savings had been very high (Mason, 1976, p. 166). Mason also studies the relative importance across countries of different sectors in borrowing and lending.

In Mason's opinion international comparisons are useful to isolate the special features of the UK financial system (Mason, 1976, p. 165). This line of reasoning is equivalent to stating that the comparability of financial accounts produced in different countries is important from a national point of view as well.

The second textbook is that written by Christopher Johnson, an economist who had been working as a journalist for the *Financial Times*. The book has a chapter for each of the main sectors of the UK economy: the personal sector, industrial and commercial companies, the banking sector, other financial institutions, the public sector and overseas. Most of these chapters end with international comparisons.

Johnson is aware of the limited comparability of the financial statistics collected by the OECD, but this does not prevent him from using them.²⁵ On households, he looks at data on five countries: the United Kingdom, Germany, France, the United States and Japan. For the three European countries, the net acquisition of financial assets by households, as a percentage of disposable income, was highest in Germany (12.4 per cent) in 1974. Both the United Kingdom and France had much lower levels (respectively, 7.3 per cent and 5.2 per cent).

Industrial and commercial companies are compared for the same countries. Johnson also considers self-financing ratios, obtained as undistributed income including depreciation as a percentage of capital expenditure. In 1973 self-financing ratios were much higher in the United

²⁴ SNA 68 was the basis for the first two editions of the European System of National Accounts (ESA), published respectively in 1970 and 1979, which provided the basis for a collection of financial accounts data on flows by Eurostat. However the circulation of this collection of data was more limited than that of the OECD.

²⁵ When examining the data on households, Johnson expresses this opinion: "Each country does its statistics in a different way, and it is impossible to put them on an identical basis for comparison purposes. But the figures are sufficient to demonstrate enormous divergence in saving habits and trends between countries which are so often lumped together as examples of 'advanced industrial civilisation'." (Johnson, 1976, p. 31).

Kingdom (95 per cent) than in the two other European countries (France 75 per cent, Germany 68 per cent). And a similar pattern holds true in the years 1970-72. As a result of lower self-financing ratios, industrial sectors in countries other than the United Kingdom took on a larger amount of corporate debt, in the form of bonds or long-term bank loans. This was confirmed by balance-sheet figures. Johnson then discusses the suggestions that Britain should change the structure of its corporate finance, towards a continental model with higher investment and persistent industrial and commercial sector financial deficits. He is in favour of such a development but considers it unlikely owing to the difficult labour relations in the United Kingdom in that period (Johnson, 1976, p. 61).

4.3 Conference at the Bank of France, 1977

The uses of financial accounts in central banks were discussed in a meeting organised by the Bank of France in 1977. The topic to which most space was devoted was that of financial forecasts. Below we give details on the Western European countries which took part in the conference.²⁶

In Belgium the financial deficits of the main sectors were estimated, thus the total debt in the economy was obtained. As this corresponds to total financial saving, estimates were then made of its likely distribution among different categories of financial assets. The forecasting exercise permitted a picture to be obtained of the relative importance in the medium term of financing through banks and through financial markets (Lambert and Verplaetse, 1978).

In Finland it was thought that "the main benefit from flow-of-funds has no doubt come from its use as a background framework in forecasting framework". The starting points of a forecast were business inquiries and other appraisals of economic data. Then the elements of the forecast were incorporated in the flow-of-funds framework, and the general consistency of the forecast was assessed. The procedure continued with some rounds of iteration. Emphasis was on sectoral behaviour as regards liquidity and indebtedness ratios. A figure for credit expansion was one of the main outcomes of the final financial forecast (Kostiainen and Korhonen, 1978).

In France there were still many problems in the coordination of national accounts and financial accounts, as they were produced almost simultaneously by two different institutions, and published without any effort at reconciliation to avoid delays. Other problems were that financial accounts had shorter back data and that quarterly financial accounts had been prepared only on an experimental basis. The outcome of these various factors was that in official documents there was a preponderance of national income projections over financial projections (Alvernhe and Ponsot, 1978).

A part of official economic forecasts was produced in the United Kingdom by the Treasury and the Bank of England using the framework of financial accounts. The procedure relied largely upon informed judgement; however it had "the merit of imposing internal consistency upon the forecasters and of helping them to identify possible points of pressure in the financial system."

An initial set of interest-rate assumptions was fed to the first round of the national income forecast. The national income forecast gave the starting data for the financial forecast of the surpluses and deficits of each sector. Separate forecast were made of the public sector borrowing requirement and of external capital flows. The main outputs of the forecast were: (1) the financing and liquidity positions of the private sector; and (2) the domestic financing of the public sector (Hewitt, 1978).

As can be seen, the uses of financial accounts in some central banks in Europe in the mid-1970s were sophisticated and time consuming.²⁷ Although they shared a similarity of intent, these uses did not require harmonised financial accounts across countries.

²⁶ Two papers on Yugoslavia and Czechoslovakia were presented at the Conference. Only that of Yugoslavia was related to financial accounts.

4.4 The bleak 1980s

We do not have much to say on the convergence towards a common accounting standard in the 1980s in Europe, except perhaps that harmonisation of financial accounts in most countries was not a national priority.

The remarks that Philip Turnbull, senior statistician at the Central Statistical Office, made in 1993 on UK experience apply probably to other countries as well. According to Turnbull the UK system was both unique and not readily adaptable to the international standards of SNA. The reasons he gives for this situation are two: (1) the establishment of the system before the international systems were agreed; and (2) the desire to link the system to important UK policy aggregates, such as the money supply and the public sector borrowing requirement (Turnbull, 1993, p. 111).

On the other hand compilers of financial accounts continued to work on definitions and methodological issues, and several advances were made at the national level.²⁸ To name a few: the division between non-financial enterprise and households in Spain; and the detail of "insurance companies" and "other financial institutions" in France and Italy. Moreover, additional European countries produced financial accounts and sent them to the OECD: Belgium, Portugal and Sweden.²⁹

4.5 Eurostat and the drive to harmonise

In the years after the signing of the Maastricht Treaty the interest of European countries in each other increased considerably, and national agendas were modified to take an international dimension into account. In the words of Turnbull:

In recent years, greater international cooperation and integration in economic matters, including developments in the European Community, have raised the importance of using international standards and classifications in the UK accounts. (Turnbull, 1993)

This change in national agendas gradually led to noticeable benefits in the field of financial statistics and financial accounts. Eurostat played an important coordinating role in this process.

ESA 95 was drawn up between 1992 and 1995, to produce an interpretation of SNA 1993 that would make it more operational. The chapters dealing with financial accounts were drafted and discussed in the Financial Accounts Working Party (FAWP) of Eurostat, in which experts from all the Member States participated. Representatives of the European Monetary Institute, the precursor of ECB, also took part in the meetings.

ESA 95 was adopted in 1996 as an EU Council Regulation. It has two annexes: one is a methodological manual; the other has important practical implications as it contains the precise format of the tables to be transmitted, the first year of transmission, the transmission lag, the length of back data, and country derogations. As a Council Regulation is legislation that applies directly to member states, it required the EU countries to do substantial statistical work to redefine elementary data sources and revise their estimation procedures. The ESA 95 Regulation significantly accelerated the move towards harmonised financial accounts in Europe.

²⁷ The same remarks apply to financial forecasts made in Italy in those years, in which the focus was on the Treasury, non-financial corporations and households (Fazio, Cotula and Lo Faso, 1975).

As innovations in financial markets are frequent, a heavy burden on national compilers is that of being constantly faced with new issues. Each of them going through various stages: conceptual analysis; revision and extension of primary statistics; validation and incorporation of the more detailed primary data in the general framework.

²⁹ This information is derived from the methodological notes of the OECD published in 1992. This was the last year in which the methodological notes appeared. At the end of the 1990s, for a variety of reasons, the activity of the OECD in the field of financial accounts was considerably curtailed. After some reorganisation, the OECD is now again active in the field.

The work done at Eurostat in recent years was not restricted to the collection of financial accounts data from countries. An important event was the publication in 2002 of the "Manual on Sources and Methods for the compilation of ESA95 Financial Accounts". The Manual addresses issues related to the practical compilation of annual financial accounts. It lists detailed sources by sector and financial instrument, and gives recommendations on how to deal with difficult issues. In this way it renders a service to several groups of people:

- 1) economists using financial accounts data, who obtain a better grasp of the content of data and are informed on the existence of opaque areas;
- 2) current compilers, who have approved recommendations that complement the ESA 95 Manual;
- 3) statistics committees in institutions, which have a list of areas in which further progress is required;
- 4) trainees in financial statistics.

The *Manual on Sources* was thus a major step in increasing transparency in the compilation of statistics in the financial field.³⁰

After the publication of the *Manual on Sources*, it was agreed to do additional methodological research on unquoted shares, an area in which the quality of the data produced seemed uncertain and the comparability across countries questionable. In May 2002 work in this area started, with the first meeting of the Working Group on Unquoted Shares (WGUS). This was followed by various activities, including a questionnaire on current methodologies, theoretical discussion and the collection of relevant data on quoted companies in some countries. In May 2003 the WGUS was able to submit new proposals to the FAWP, summarised in fourteen recommendations. The basic idea was that of a pan-European data base of aggregate data on quoted companies, grouped in 11 branches after the exclusion of the largest quoted companies. This would have produced reference values to be used in the valuation of shares of unquoted companies. The approach was flexible, as countries were allowed to adopt just a few of the recommendations.³¹ Refinements to the basic ideas took place in 2003. The collection of data, with participation on a voluntary basis, for the pan-European data base started in 2004.

Another important element has been the cooperation between Eurostat and the ECB. The first interactions took place when ESA 95 was being prepared. The cooperation has continued since then, with benefits for the work programs of the two institutions and those of member states as well.³²

5. Conclusion

In this essay we have seen that studies made by some economists in the 1930s on the mechanisms by which aggregate investments are financed have led over time to an enlarged analysis of the financial position of the business sector: flows of various classes of financial

³⁰ An additional important feature of the Manual on Sources is that it contains methodological information on the then Candidate Countries. These countries at the time did not have an obligation to send data, but were building up their systems.

³¹ The main ideas developed in the WGUS are presented in Durant and Massaro (2004).

³² For some years now the ECB has been considering the possibility of compiling a full set of quarterly financial accounts for the euro area. The EMI had already shown interest in financial accounts, but it became apparent "that, at least for some time, a full set of financial accounts for the euro area in the detail laid down in the ESA 95 would not be possible" (Bull, 2004, p. 109). So it was decided to develop partial financial accounts of the euro area. This led to the creation of the Monetary Union Financial Accounts Task Force, with the mandate of defining an intermediate product and collecting the relevant data. The outcome of this work are the Tables of Financing and Investment, which appear regularly in the ECB Monthly Bulletin. In this field further improvements are to be expected (Bull, 2004, p. 209, p. 221).

liabilities, the stock of debt, and the stock of short term liquid assets. As each financial liability of the business sector is an asset of another sector, this has also led to the necessity of understanding the financial behaviour of other sectors: banks, other financial institutions and households.

The interest of some economists in the credit flows across sectors would have remained frustrated if a number of public bodies had not started to collect appropriate sets of financial statistics. For many years the data on financial statistics in each country had their own peculiarities. However the exchange of views in international fora contributed to frequent revisions of the methods of preparing and presenting national data in the late 1950s and early 1960s. The discussion of statistical concepts came to a head in 1968, when an international reference system of accounts emerged. However the convergence towards a uniform system of accounts across countries was very slow.

In Europe a uniform system of accounts was widely applied in each country only at the end of the 1990s. However, taking into account the absence for a long time of a strong form of coordination, the building up of financial accounts in Europe has certainly been a success story. We have in fact witnessed enormous progress in:

- 1) coherence;
- 2) clarity of concepts;
- 3) accessibility of data.

The European Monetary Union poses new challenges for these statistics:

- 1) aggregation;
- 2) intra-area consolidation;
- 3) timeliness;
- 4) quarterly frequency.

The adoption of the ESA 95 formats across countries solves the problem of aggregation for most sectors. But intra-area consolidation will require much work.

As regards timeliness and quarterly frequency, some euro-area countries are more advanced than others. And their practical expertise is likely to prove beneficial for other countries as well. But one has to keep in mind that both timeliness and quarterly frequency are crucial for the effective use of financial accounts as a tool for monetary policy decisions.

Financial accounts will however keep a national dimension in certain analyses, for example to follow the evolution over time of insurance and pension funds or to study the diversification of households' portfolios. For these analyses, the comparability of financial accounts over time remains an unsolved issue for most European countries.

Illiquidity risks and over-indebtedness were problems at the heart of the reflections of a handful of economists in the 1930s, but no adequate statistical support was then available. In the post-war era the BIS and the Radcliffe Committee, as well as other public bodies, encouraged the development of sector financial accounts. In a framework in which active economic policies to stimulate economic growth were pursued, the monitoring of finance flows across sectors would have permitted a better design of these policies. Now we seem to have come full circle, as the slowdown in the euro area in recent years may bring to the fore analyses of the financial stability of sectors.

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Session 2

METHODS

ITALY'S FINANCIAL ACCOUNTS SINCE 1950

Riccardo Bonci and Massimo Coletta*

1. Introduction

The financial accounts supplement a country's national economic accounts, representing the stocks and flows of financial assets and liabilities of the main institutional sectors of the economy. This is important for the knowledge of the financial structure and its development. The stock data give an idea of the changes of institutional balances over time as a consequence of decisions on investments (the flow of financial assets) and borrowing (the flow of financial liabilities) and of variations in the value of stocks owing to changes in interest rates or the general price level. Given the relative slowness with which the financial structure evolves, a lengthy period of observation is needed to trace the tendencies, identify the driving forces and explore the links with other economic variables, both macro – e.g. output and interest rates – and micro – e.g. economic agents' propensity for risk in their saving and investment decisions.

The Bank of Italy has published the financial accounts for Italy annually since the early 1960s and quarterly since 1990.¹ At present, we do not have available for years prior to 1963 time series of the financial accounts with sectoral breakdown and degree of detail comparable to those now in use. The only exception is some data for the sector called "the economy" (households and firms), for which we have estimates starting in 1950 (Caron and Cotula, 1971). Furthermore, the data available after 1963 are affected by problems due to the different methodologies used. Over the years, with adaptation to the various editions of the European System of Accounts produced by Eurostat (1970, 1979, 1995), the definitions of sectors and of financial instruments have changed, as have the standards for valuing the components of financial wealth.

This paper reconstructs the main items in the Italian financial accounts since 1950, providing unconsolidated end-of-year stocks. For meaningful observation of variations of the series over time, we have harmonized as far as possible the definitions of the institutional sectors and the classification of financial instruments. The data from 1950 to 1962 are given in tabular form, similar to that of the first table of stocks published in the Bank of Italy's Annual Report for 1965.

The paper is organized as follows. Section 2 describes the construction of the financial accounts for the period 1950-1962. Section 3 reconstructs those from 1963 to 2004, illustrating the main methodological discontinuities and the definitions of institutional sectors and financial instruments. Section 4 presents the conclusions. The tables, finally, show the financial accounts from 1950 to 1962 and the time series for all sectors and instruments from 1950 to 2004.

2. A reconstruction of the financial accounts for the years 1950-1962

In constructing the financial accounts for the period 1950-1962 we have used four different statistical sources.

The series on the financial wealth of the "economy", in Cotula and Caron (1971), have been used to estimate the stocks of financial instruments held by households and firms, the latter defined

^{*} Bank of Italy. We thank Riccardo De Bonis, Antonio Di Cesare and Luigi Federico Signorini for helpful suggestions, Fabio Farabullini and Miria Rocchelli for their indispensable assistance in constructing, respectively, the financial account of banks and that of the central bank. We are also grateful to the colleagues who have preceded us in producing the financial accounts of the Bank of Italy, and in particular Franco Cotula, who also read our work with the closest attention and offered countless pointers.

¹ For an examination of the earliest efforts to construct financial accounts for Italy, see R. De Bonis and A. Gigliobianco's contribution to this volume. For an excellent analysis of the role of the financial accounts within the national accounts, see Yanovsky (1973).

as non-financial corporations. For the remaining institutional sectors we have used other sources: the financial statements of Bank of Italy and Italian Foreign Exchange Office for various years, the Bank's *Statistical Bulletin* and Annual Report for various years, Istat's *Annuario statistico italiano* (various years) and *Sommario di statistiche storiche* (1926-1985), Italian Foreign Exchange Office statistics, and various government statistics (Della Torre, 1984).

The data have been reworked for time consistency, which was often lacking. Consistent with the data available, we have tried to reproduce the aggregation and classification of the data on which the present-day production of the statistics is based.²

To achieve internal consistency of the financial accounts from 1950 to 1962, for these years too we have defined an unidentified sector, "not allocated items", already present over the years 1963-1994. The requirement of equality between the asset and liability sides for each type of financial instrument is fulfilled by adding the stocks for this fictitious sector to the values of the resident sectors and of the rest of the world. An analysis of the quality of the data sources revealed that it was preferable to use the data underlying the liability estimates. The discrepancies, which in some cases were negative in sign, have accordingly been attributed to the various asset instruments in the "not allocated items" sector.³ For 1950-1962 the incidence of this sector on total financial assets of the "economy" was limited, averaging 1 per cent, in line with the 1.5 per cent average observed for 1963-1994.

The figures for 1950-1962 were reconstructed in two stages:

- 1) we estimated financial assets and liabilities of households and of firms, thus breaking down the aggregate previously classified as "the economy";
- 2) we estimated, for the first time, end-of-year stocks of the financial assets and liabilities of the other sectors (banks, other financial companies, general government, rest of the world), taking as reference the current structure of the financial accounts.

To break the financial instruments held by the "economy" down into the household and firm components, auxiliary information was used: (i) the data for 1963-1970, on which Caron and Cotula have published both the series for the economy and complete financial accounts; (ii) some national accounts series, such as statistics on private consumption, for the estimate of households' bank deposits, and on investment in plant and equipment, for the estimate of firms' borrowing.

The sections that follow provide additional information on the estimate of the financial accounts for the 1950s.

2.1 From the "economy" to households and firms

To produce an estimate of the stocks of financial assets and liabilities of households and firms starting from the data for the sum of the two sectors, we proceeded in two stages: (i) the data on the economy were reclassified in line with the present classification of the financial accounts; (ii) the stocks held by households and firms were estimated by disaggregating the data obtained in the first stage.

² The tables from 1950 to 1962 are less detailed, as it was not possible to apply the "from whom to whom" principle to identify the sectors issuing or holding a particular financial instrument.

³ As in the estimate of the financial accounts as produced today, the main constraints in the reconstruction up to 1962 include the lack of statistics on the entire population of institutional units making up the sectors, errors of measurement of the base data, inconsistency between data from different sources, lack of data on some specific phenomena, and the availability of only nominal values for economic variables.

Details available Financial accounts classification (bold) (Caron-Cotula, 1971) FINANCIAL ASSETS FINANCIAL ASSETS WITH RESIDENTS **Currency** (a) Liquid assets Currency (1)Currency (1)**Deposits** (b) Transferable deposits (2)transferable deposits (2)bank current accounts saving deposits with banks (3)post-office current accounts deposits with the post-office (4) deposits with the Treasury other dep. and saving certificates (6)others Securities (c) Saving deposits and short-term securities Short-term securities (5) deposits with banks (3) Fixed-rate securities (7)(4) deposits with the post-office Foreing securities (*) (part of 10) short-term securities (5)Loans (d) Other deposits and saving certificates (6) *Loans to non-residents* (*) (part of 10) Fixed-rate securities (7)Shares (e) Government bonds Shares and other equity (8) Bonds issued by Special credit (part of 10) Foreign shares (*) institutions corporate bonds and other bonds **Technical reserves** (f) (9) Shares and other equity (8) Other liabilities (g) Other assets with non residents (*) (part of Other financial assets (9) 10) WITH NON-RESIDENTS (10)FINANCIAL LIABILITIES FINANCIAL LIABILITIES WITH RESIDENTS Securities (h) (13) Short-term debt (11)Bonds Medium and long-term debt Foreign securities (*) (part of 15) Loans (i) Loans (12)Bonds (13) Short-term debt (11)Shares and other equity (14)Loans (12)WITH NON-RESIDENTS (15) Loans from the r.o.w. (*) (part of 15) Shares (1) Shares and other equity (14)Foreign shares (*) (part of 15)

The re-classification of the Economy's financial assets and liabilities

 $(\ast)\,$ our estimates, based on the shares of assets and liabilities with non-residents.

Table 1

To begin with, the series published by Caron and Cotula, with their high degree of disaggregation by instrument (except for external liabilities and assets), were reorganized consistent with the present-day classification of financial instruments, arranging a representation that can be called the "financial accounts" of the economy.

The economy's "other assets (Table 1, item 9) are considered as consisting entirely in technical reserves⁴ (Table 1, item f), because in the financial accounts for 1963 mathematic reserves were the sole component of "other assets and liabilities".

"External assets" (Table 1, item 10), published without an instrument-by-instrument breakdown, have been distributed among the various items on the basis of the disaggregated data available in the financial accounts table for 1963, from which it emerges that the external assets of households and firms were broken down as follows: 19 per cent loans, 24 per cent shares, 56 per cent other assets.⁵ In the classification of the financial accounts used in the present work, this component forms part of the item "other assets" (Table 1, item g).

On the liabilities side, since the 1963 table does not show "other external liabilities" of households and firms, we concluded that the economy's "external liabilities" (Table 1, item 15) had to be entirely distributed among the specific financial instruments. This distribution was obtained from the dealings of households and firms with non-residents: in 1963, 1 per cent consisted of securities ("other bonds" held by the rest of the world), 21 per cent of loans ("foreign credits" as liabilities of households and firms), and the remaining 78 per cent of equity ("shares and other equity" as assets of the rest of the world). These percentages were used to distribute "external liabilities" of the economy between securities (Table 1, item c), loans (Table 1, item d) and shares (Table 1, item e) from 1950 to 1962.

Having reclassified the items originally forming part of a financial account for the economy, we allocated the various asset and liability items so as to estimate separate financial accounts for the household and firm sectors.

For the stock of currency, originally assigned to the economy (Table 1, item a), to be assigned to assets of households, we estimated a linear trend of the portion possessed by households between 1963 and 1970. We then calculated the pre-1963 portions as a backward projection of that trend. The remainder was assigned to firms.⁶

The economy's bank deposit assets (Table 1, item b) were assigned to households based on their observed ratio to private consumption.⁷ Consumption was almost twice as great as household deposits in 1963 (180 per cent) but fell to 95 per cent of that aggregate in 1979. The decline in the ratio between consumption and deposits was uniform, falling an average of 5 percentage points per year. A linear trend line almost fully explains the variability of the data (the R-square is 0.96). As in the estimate of currency, we extrapolate the ratio of consumption to deposits backward to estimate households deposit assets for 1950-1962 (multiplying the ratio by private consumption, for which data are available from 1950). As in the case of currency, the deposits of the economy not held by households were assigned to firms.

⁴ The other component of "other assets/liabilities" in the financial accounts tables for 1963-1970 was "external assets and other". That is, in defining "other domestic assets" of the economy (Table 1, item 9) as coextensive with mathematical reserves, we are assuming that the domestic portion ("other") of this second component is negligible.

⁵ External holdings of banknotes and coins (0.3 per cent) and bank deposits (0.2 per cent) were negligible. The data on stocks of these instruments thus consider only the domestic component.

⁶ The share of the economy's banknotes and coins held by households increased, on average, by 1 percentage point per year between 1963 and 1970. Despite the small number of observations, the uniformity of this rise persuaded us that backward extrapolation of this linear trend was better than other criteria, such as average share in the 1963-1970 period; in any case, the results from these alternative procedures are quite similar.

⁷ Source: Istat, *Sommario di statistiche storiche*: from 1963 to 1970 "private consumption"; from 1971 to 1979, "final consumption of households"; all data in current prices.

Securities (Table 1, item c) were divided between households and firms according to the average weight of the two sectors in the 1963-1970 period. That is, virtually all (99 per cent) of the securities originally registered as assets of the economy were attributed to households.⁸

Loans as assets of the economy (Table 1, item d) have been attributed entirely to firms. They refer only to the external component (estimated, as said before, starting from the aggregate of external assets), as no loans from the economy to domestic sectors were observed.⁹

Among equities (Table 1, item e) we distinguish between shares issued by residents and foreign shares. Shares issued by residents held by households are estimated at 48 per cent of the equity assets originally attributed to the economy (Table 1, item 8), which is the average value observed between 1963 and 1970. Foreign shares held by the economy, estimated starting with total foreign assets, are apportioned between households' and firms' portfolios according to the percentages observed in 1963, namely 26 and 74 per cent respectively.

During the period under examination here, stocks of investment fund units held as assets by households and firms are nil. Investment funds were not envisaged in Italian law until Legislative Decree 77/1983.

Other assets of the economy (Table 1, item g), finally, are assigned entirely to households. As noted above, these correspond to "external financial assets" (Table 1, item 10) not identified as securities, loans or equity. They thus include the external components of currency in circulation and of bank deposits, which are in any case very modest in amount.

As to technical reserves, firms' assets under this head have been estimated at 10 per cent of insurance companies' mathematical reserve liabilities.¹⁰ Subtracting this value from the economy's stock of assets (Table 1, item f) we have estimated the stock of reserves held as household assets. This amount includes the portion of the insurance companies' stock of liabilities not assigned to firms, and households' stocks of mathematical reserves with social security institutions. The first component being known, the second is calculated by subtraction. The estimate thus obtained is recorded among the financial liabilities of general government, of which social security institutions are part.

On the liability side, using the stock of the economy's domestic loans (short and mediumlong term loans granted to residents; Table 1, item *i*), first we estimated the values to assign to firms. Then we calculated the stock of household debts from 1950 to 1962 by subtraction. The stock of domestic loan liabilities of firms was estimated using their ratio to investment. Loans were regressed on gross fixed investment¹¹ from 1963 to 1970. Pre-1963 loans were then calculated on the basis of the estimated coefficients. The economy's external loan liabilities (enucleated, as noted, from total external liabilities) were attributed entirely to firms.¹² In 1963, in fact, households had only domestic liabilities.¹³ The domestic and external components were then summed into a single item, households' and firms' loan liabilities.

⁸ The portion of securities held by households has always been very high compared to that held by firms, and the situation today is not much different. In 2003 the ratio was 13-to-1.

⁹ Even today, non-financial firms lend only to non-residents. These are loans to foreign subsidiaries.

¹⁰ In the data for 1963, relationships in the form of "mathematical reserves" occurred only between households and firms (on the asset side) and insurance companies and social security institutions (on the liability side). While we have assumed that the stock of social security institutions' liabilities (estimated as a difference) is held entirely by households, the stock of insurance companies' reserve liabilities (reported in Istat's *Annuario statistico italiano*) is apportioned between households and firms according to the percentages observed in 1963, respectively 90 and 10 per cent.

¹¹ Istat, *Sommario di statistiche storiche (1926-1985)*; series are at current prices.

¹² Stocks of trade credits were not recorded in the years 1950-1962.

¹³ Even today, Italian households' debt is very low by international standards.

All of the economy's securities liabilities (Table 1, item h) have been recorded as firms' liabilities; in addition to bonds, the item includes securities issued by the economy and held abroad (estimated as described above).

Like securities, all the economy's share liabilities (Table 1, item l) have been assigned to firms; to this amount has been added the amount of shares and other equity elements held by foreign units (see above).

In this first stage of reconstruction, the definition of the household sector implicitly reflects that used in the financial accounts for 1963-1970 (see Section 3.2), which we have largely used as the source of data for disaggregating the "economy".

2.2 Financial corporations

In the years from 1950 to 1962 the aggregate "financial corporations" includes the Bank of Italy, the Italian Foreign Exchange Office (UIC), banks, special credit institutions and insurance companies. The stocks of assets and liabilities of these units have been calculated by aggregating the items of their balance sheets, so as to obtain a classification of instruments consistent with the definitions of the financial accounts. Details are provided on the the aggregations performed in order to construct the financial accounts of insurance companies (table 2), central bank (Bank of Italy plus UIC), and banks (ordinary banks and special credit institutions) (table 3).

For the insurance companies, in addition to balance sheets we have used data from the Bank of Italy's *Statistical Bulletin* for 1968 to estimate their holdings of shares.¹⁴ The insurance companies have no securities liabilities. For the central bank we have used the data on the asset/liability positions of the Bank of Italy and UIC *vis-à-vis* the external sector, the Treasury, banks, special credit institutions, other entities and individuals. For the assets and liabilities of banks and special credit institutions we have used the data published by the Bank of Italy.¹⁵

¹⁴ The balance sheets are given in Istat, *Annuario statistico italiano*, in the table entitled "Situazione patrimoniale delle imprese assicuratrici a fine esercizio".

¹⁵ See the "Statistiche storiche" section of the Bank of Italy website (<u>www.bancaditalia.it</u>), tables "Attivo (passivo) delle aziende di credito" and "Attivo (passivo) degli istituti di credito speciale".

Insurance corporations' financial accounts						
Financial instruments Balance-sheet items considered						
FINANCIAL ASSETS						
Currency	Currency					
Deposits	Bank deposits					
Securities	Treasury bonds, others (net of shares)					
Loans	Total loans					
Shares	Shares (*)					
Total assets	Sum of the instruments					
LIABILITIES						
Loans	Total loans					
Shares	Capital, reserves					
Technical reserves	Prepayments and other claims					
Total liabilities	Sum of the instruments					

Aggregations for the

(*) Source: Bollettino del Servizio Studi della Banca d'Italia, 1968, table 1: "Valori mobiliari: consistenze ed emissioni annuali nette suddivise per gruppi di investitori" (p. 614).

Table 2

Table 3

Aggregations for the financial accounts of banks

Financial	Balance sheet items						
instruments	Banks	Special credit institutions (ICS)					
ASSETS							
Currency	Currency	_					
Deposits	Deposits with other institutions, current accounts with other banks	Cash and deposits with other banks					
Securities	Securities other than shares	Securities other than shares					
Loans	Total loans	Loans, loans to Ferrovie and to the Treasury					
Shares	Shares and other equity	Equity					
Total	Sum of the instruments	Sum of the instruments					
LIABILITIES							
Deposits	Deposits	Deposits and saving certificates					
Securities	_	Bonds (other than those issued by Ferrovie)					
Loans	Interbank accounts, refinancing operations with the Bank of Italy	Banks accounts, Treasury's account and other liabilities					
Shares	Net worth	Net worth					
Total	Sum of the instruments	Sum of the instruments					

2.3 Public finance

To work out the financial accounts of general government for the years 1950-1962, we have reconstructed the financial assets and liabilities of the units of which the aggregate is composed: central government, including Cassa Depositi e Prestiti, local government, social security institutions and autonomous government agencies. The composition of these units' assets and liabilities is given in Table 4.

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Financial instruments	Central government	Local government	Social security	Autonomous gov. agencies				
FINANCIAL ASSETS								
Secutities	Fixed-rate securities held by Cassa Depositi e Prestiti (CDP) ^(a)	_	Fixed-rate securities ^(a)	-				
Loans	Treasury's account with Special credit institutions	_	_	-				
Shares	Equity held by CDP ^(b)	_	Shares ^(a)	-				
Total	Sum of the instruments	-	Sum of the instruments	-				
		LIABILITIES						
Currency	Coins ^(c) , net of those held by the Treasury and the central bank	_	-	-				
Deposits	Current accounts, post-office saving books and saving certificates ^(c)	_	-	-				
Securities	Treasury bills (Bot) ^(g) , medium/long-term securities ^(a)	Securities issued by local government ^(h)	_	Bonds issued by Ferrovie ^(a)				
Loans	Loans granted by Bank of Italy, Italian foreign exchange office and Special credit institutions to the Treasury ^(d) , loans from the rest of the world ^(e)	Debts of the municipalities ^(b) net of securities (from 1958 to 1962)	_	Loans granted by Special credit insitutions to Ferrovie and to the Treasury; loans granted by non- residents and by CDP				
Technical reserves	-	-	Reserves held by households ^(f)	_				
Total	Sum of the instruments	Sum of the instruments	Sum of the instruments	Sum of the instruments				

Financial account of the General government

(a) Source: Banca d'Italia Bullettin, 1968, table "Valori mobiliari: consistenze ed emissioni annuali nette, suddivise per gruppi di investitori" (p. 614-21). – (b) Source: Annuario Statistico Italiano, Istat, various years, table "Situazione dei principali enti di finanziamento"; from 1948 to 1956 data refers to Cassa Depositi e Prestiti (CDP), while for the following years only some data on financing institutions including the CDP are available. – (c) Source: "Sommario di statistiche storiche (1926-1985)", Istat – (d) Source: Banca d'Italia Bullettin, 1963, table "Situazione degli Istituti speciali per il credito all'industria e alle opere pubbliche" (p 508); data only for 1961-1962 – (e) Estimates based on Della Torre (1984); the author, in building the intersectoral matrices, shows the flows between the the public sector and non residents – (f) For the estimates of households reserves with social secutity institutions see paragraph 2.1. – (g) Source: Banca d'Italia Bullettin, 1963, table "Debito pubblico interno" (p. 642); interests are included. – (h) Source: Banca d'Italia Bullettin, various years.

In the absence of specific data on the nationality of counterparties, we have assumed that general government assets *vis-à-vis* non-residents were nil until 1962, so the stock of general government assets consists only of the domestic component.

2.4 Non-residents

The financial account of the rest of the world in 1950-1962 is derived directly from the identification of the external relations of the various resident sectors, given in their respective financial accounts:

- i) the "economy" (households and firms): as in 1963 Italian households held debt solely with residents, the financial assets of non-residents *vis-à-vis* the Italian economy consisted exclusively of the external liabilities of firms in the form of loans, securities and shares. Non-residents' liabilities consisted of loans from resident firms, foreign shares held by households and firms, and other external assets held by households.
- ii) central bank: the assets of the rest of the world consist of deposits with the Bank of Italy and loans to the Italian Foreign Exchange Office. Non-residents' liabilities comprise gold, banknotes and loans.
- iii) banks and special credit institutions: the rest of the world's assets consist only in foreign currency loans to the special credit institutions. Its deposit and loan liabilities with the Italian banking sector have been estimated using the 1963 data.¹⁶
- iv) general government: loans from the rest of the world and Italian government securities in the portfolios of non-residents have been estimated using Della Torre (1984). In 1963 there were no deposits in being with the central government, so the rest of the world's assets in this sector counted only deposits with the central bank. As in subsequent years, through 1962 the rest of the world had no assets *vis-à-vis* Italian general government.

3. The reconstruction of the financial accounts for the years 1963-2004

This section describes the reconstruction of the financial accounts for the years from 1963 to 2004. We analyze the composition of the institutional sectors and the definition of the financial instruments. By data source, the period can be divided into four sub-periods:

- i) 1963-1970: the data are drawn from Caron and Cotula (1971), which just a few years after the first financial accounts table (for 1964) present the tables for 1963-1970 together with statistics on the sector called "economy". The two datasets are thus directly comparable.
- ii) 1971-1988: the data are taken from the tables of the Bank of Italy's annual reports, in the latest available version.¹⁷
- iii) 1989-1994: the data series are those of the electronic financial accounts date-base. The data conform to ESA79.
- iv) 1995-2004: these are the present financial accounts. The series are produced according to ESA95 and the data refer to the June 2005 update.

From 1963 on, unlike the years 1950-62, we have publications similar to today's financial accounts, so that rather than produce a set of financial accounts from scratch using the basic data,

¹⁶ We have assumed that deposits abroad corresponded to the item "other deposits" of banks. In 1963 this item was equal to 10 per cent of the sub-sector's total deposits. This percentage was used to estimate the external component of deposits for previous years. As to loans by banks and special credit institutions, in 1963 the external component accounted for about 3 per cent of the total; this percentage was used to estimate foreign lending for 1950-1962.

¹⁷ In 1989 the issue of these data was suspended to permit thorough revision, and in 1991 a new set of financial accounts was published, in which the institutional sectors and the classification of financial instruments were based on the new integrated European System of Accounts (ESA79).
what we do for the period 1963-2004 is essentially to reorganize the statistics already at our disposal. Though they were produced and published within the framework of an internally consistent accounting system, the criteria for classifying institutional sectors and financial instruments varied over the years and were often quite different from those in use at present. Accordingly, the methodological innovations correspond to breaks in the original time series.

In the course of the years the financial accounts have been modified in response to two needs: (i) to adapt to the European System of Accounts, itself in continuous evolution; and (ii) to enhance integration in the sequence of the accounts provided for in the national accounts, in particular with the capital formation account.

The main modifications have involved: (i) changes in the classification of institutional units (*i.e.* the sectors into which they are grouped)¹⁸; use of the balance-of-payments data on a transactions basis (the so-called economic balance of payment) rather than on a cash basis; use of more detailed statistics as they became available, for more accurate assessment of financial phenomena¹⁹; inclusion of the new types of instrument produced by financial innovation.

Given the multiple sources, the main problems in constructing uniform series from 1963 to the present stemmed from differences in the classification of institutional units and financial transactions and from differing criteria for valuing stocks. For the changeover to ESA95, the manual calls for: (i) valuation of listed financial instruments and derivatives at market price; (ii) accounting on an accrual basis. While the first change is not a clear break with the past, at least in principle (instruments traded in a market had always been entered at market prices), the substitution of the accrual for the cash basis may be such as to result in quite different values in some particular cases (securities and long-term loans). Other significant methodological changes in the valuation of accounts items over the years have been: reorganization of the Bank of Italy's accounts; the valuation of unlisted shares; the reclassification of some institutional units from social security institutions (part of general government) to insurance and pension funds (financial companies); the introduction of the sub-sector "financial auxiliaries"; the use of loan and deposit data for all reporting banks rather than for a representative sample.

This essay seeks to make available to the final user a dataset shorn of the original methodological discontinuities while fully exploiting the information content of the original data, yet preserving internal consistency.²⁰ At least in the initial phase we have elected to concentrate, in this work of harmonization, mainly on adjustments to the classification, which we view as the area presenting the greatest difficulties to the outside user of the financial accounts, above all because not all the necessary information is available, being unpublished and available only within the Bank of Italy. The result is that the series, though not always reconstructed at market prices or on an accrual basis,²¹ follow a classification of institutional sectors and financial instruments similar to that now used in the quarterly "Financial Accounts" supplement to the *Statistical Bulletin* and in the tables to the Bank's Annual Report. This choice will facilitate future updating of the series. In the sections that follow we describe the initial situation, choices made and results obtained.

¹⁸ The present division into sectors is as follows: non-financial corporations, financial corporations, general government, households and non-profit institutions serving households, and rest of the world. ESA95 eliminated the sector "not allocated items", which had contained the amounts that could not be assigned to the defined sectors. The elimination required the adoption of a series of specific assumptions. For example, the balance of payments now includes transactions for which the type of instrument or sector is not known.

¹⁹ The financial accounts now number the following instruments: monetary gold and special drawing rights; currency and transferable deposits; other deposits; securities (short-term and medium-long-term); derivatives, loans (short-term and medium-long-term); shares and other equity; mutual fund shares; insurance technical reserves; other assets and liabilities.

²⁰ For each institutional sector, both resident and rest-of-world, the total assets and liabilities in each financial instrument must be equal.

²¹ For a discussion of the possible consequences, see the conclusion.

3.1 Institutional sectors

The classification of institutional sectors used here generally follows that originally used by the statistical sources used, with some exceptions that are set forth below.

3.1.1. Households

Together with firms, the household sector is the one that has undergone the greatest changes in composition over the years. The main cause is differences in the criteria used to define "producer households", which from 1989 onwards have been classified in the household sector together with "consumer households".²²

From 1963 to 1970 the household sector comprises "all units whose typical function in the field of economic activity is the consumption of goods and services and whose source of funds consists mainly in the remuneration of productive factors and transfers."²³ So until 1970 producer households were not part of the sector.²⁴ Non-profit institutions serving households, however, were included. As the financial accounts of households were calculated in some cases as a difference, *i.e.* as a residual once the other sectors have been taken into account, the stocks of the various financial instruments ended up including also the portions held by those institutional unites not explicitly assigned to a sector in the financial accounts.²⁵

In the financial assets and liabilities tables published in the Annual Reports of the Bank of Italy for the years 1971-1988, the household sector consists of households "understood as individuals or groups of individuals as consumers."²⁶

Then, from 1989 to 1994, in concordance with ESA79, the household sector was redefined to include, in addition to consumer households and non-profit institutions serving households, sole proprietorships with at most 20 workers (producer households).²⁷ With ESA95 the border between households and firms, renamed "non-financial corporations", was redrawn. In adapting the indications of ESA95 to the Italian situation, the maximum number of workers with which a *de facto* company or sole proprietorship could be classified in the household sector was cut from 20 to 5. This expanded the firm sector at the expense of the household sector, and is probably the most significant cause of discontinuity in the time series presented here.

3.1.2. Firms (non-financial corporations)

The same goes for the composition of the firms sector up to 1970 as for the household sector. By Ercolani and Cotula's definition (1969, p. 43), firms comprise "the institutional units whose main function consists in producing goods and services that can be sold on the market". This sector therefore includes indifferently public, private and State-owned firms as well as sole proprietorships, some of which, defined as producer households, would later be transferred to the household sector. For lack of direct information, the sector also included loan and finance companies.

²² "Producer households" are sole proprietorships and simple or *de facto* firms whose function is to produce non-financial goods and services for sale on the market.

²³ Ercolani and Cotula (1969, p. 4), to which Caron and Cotula (1971) refer for a summary of the definitions of sectors and financial instruments over the years in the Bank of Italy's *Bulletins* and Annual Reports.

²⁴ Ercolani and Cotula (1969, p. 43) did note, however, that the "isolation of the smallest sole proprietorships and their transfer to the household sector" was planned as soon as the "refinement of the statistical sources" permitted.

²⁵ These units included religious, social work and educational entities whose purposes were cultural, trade-union, political, sporting, recreational and the like. It is reasonable to assume that the amounts held by these units were in any case negligible in size.

²⁶ See the glossary in the appendix to the Bank of Italy's Annual Report, in Italian, for 1983 (Banca d'Italia, Assemblea Generale Ordinaria dei Partecipanti, Rome, 31 May 1984). The appendix to the report for 1988 specifies that households include also nonprofit institutions serving households and not allocated units.

²⁷ The securities liabilities of this sector from 1989 to 1994 consist of the banker's acceptances of sole proprietorships that are subsequently reclassified as non-financial firms.

From 1971 to 1988 the appendixes to the Annual Report of the Bank of Italy divide this category into private firms, public firms (ENEL and state-owned corporations) and other minor public entities not included in the public sector. In the data up to 1988 autonomous agencies form part of general government, moving in the course of the 1980s into the class of non-financial corporations following their transformation into public companies.

In the financial accounts for 1989-1994, in keeping with ESA79 firms (now designated "non-financial corporations") comprise private and public corporations and quasi-corporations,²⁸ including former autonomous State agencies, the State Railways, municipal, provincial and consortium companies, ENEL, state-owned corporations, and other public enterprises. The sector also includes both public and private holding companies.²⁹

As noted, ESA95 redefined the boundary between households and firms. Among the units classed previously as households and now as financial corporations we find: i) limited partnerships and general partnerships with up to 20 workers; ii) simple and *de facto* companies and sole proprietorships with 5 to 20 workers. This reclassification impacted in particular on the sector's loan liabilities.

3.1.3 Financial corporations

The composition of the financial corporations sector in our reconstruction remains basically unchanged until 1984, when it was extended to include – in addition to the Bank of Italy, the Italian Foreign Exchange Office, banks, special credit institutions and insurance companies – Italian investment funds, which had been provided for by Law 77/1983. Starting in 1985 the sector also includes finance companies, *i.e.* leasing, factoring and consumer credit companies.³⁰ Until then, in any case, these intermediaries had been of negligible importance in the credit market.

With the publication of the financial accounts based on ESA79 – *i.e.*, in the data for 1989-1994 – the sector of financial corporations comprised not only the central bank and insurance companies but also banks, special credit institutions,³¹ refinancing institutions, investment funds, financing companies and other financial enterprises.

With ESA95 the sector is called "financial corporations" and consists of all corporations and quasi-corporations which are principally engaged in financial intermediation (financial intermediaties) and/or in auxiliary financial activities (financial auxiliaries). It includes the following sub-sectors: (i) monetary financial institutions, *i.e.* the Bank of Italy, banks and money market funds; (ii) other financial intermediaries³²; (iii) financial auxiliaries³³; (iv) insurance companies and pension funds.

²⁸ "Quasi-corporations", during these years, was understood to mean sole proprietorships, partnerships and *de facto* companies with at least 20 workers.

²⁹ In terms of today's sectoral classification (ESA95), the corporate sector as released up to 1994 included institutional units now classed as non-financial corporations and quasi-corporations, sole proprietorships or financial institutions.

³⁰ The finance granted by leasing and factoring companies is included among the liabilities of firms. The finance granted by consumer credit companies is counted as liabilities of households.

³¹ Legislative Decree 481 of 14 December 1992 and Legislative Decree 385 of 1 September 1993 (the Consolidated Law on Banking), in effect from January 1994, eliminated the distinction between institutions exercising mainly short-term credit (banks) and those exercising medium and long-term credit (special credit institutions). Now all credit institutions are termed "banks".

³² This includes financial intermediaries (other than insurance companies and pension funds) that are principally engaged in financial intermediation by taking liabilities in forms other than cash, deposits and the like (from persons other than monetary financial institutions) and other than insurance company technical reserves. For example, they include securities firms, leasing and factoring companies, and investment funds, and SICAVs.

³³ Comprising the institutional units engaging principally in activities closely related to financial intermediation but which are not themselves financial intermediaries. Included: investment fund management companies, market operating companies (e.g. Monte Titoli S.p.A. and Borsa Italiana S.p.A.), banking associations; and, among financial enterprises and insurance companies, stock brokers, mediators, insurance agents and financial salesmen. Since 1988 the sub-sector has also included the Italian Foreign Exchange Office, previously considered together with the central bank.

The data since 1995 reflect the growing importance of investment funds and, starting in 1999, securitization vehicles, which are classed as "other financial intermediaries". Since 2003, with its transformation into a limited company, the Cassa Depositi e Prestiti is also classified in this sub-sector. Its assets and liabilities were thus shifted from the general government to the financial corporations sector. Another, smaller effect derived from the introduction of the new sub-sector for financial auxiliaries, which brought other institutions previously classified as general government under the head of financial corporations: the Companies and Stock Exchange Commission (Consob), the insurance supervisory authority (Isvap) and the pension fund supervisory authority (Covip).

Considering the central role of credit institutions within the Italian financial system, we provide separate accounts for banks. Up until 1994 they consisted of ordinary credit banks and special credit institutions. The distinction, which depended on the maturity of the credit granted, was eliminated by the Consolidated Law on Banking of 1993, and from 1994 on all credit institutions are grouped within "banks".

In short, the sector of financial corporations is the one displaying the least definitional discontinuities since 1950.

3.1.4. General government

From 1963 to 1970 the institutional units making up general government are the same ones considered from 1950 to 1962: the central government, local governments, social security institutions and autonomous government agencies. The central government also includes Cassa Depositi e Prestiti (CDP), owing to its operational link with the Treasury.³⁴ Local governments are regions, provinces and municipalities. From the financial standpoint these units mainly take funds gathered by the CDP and use them for public works or to cover deficits. The social security institutions, in line with the definitions of ESA68, group the institutional units that engage principally in providing social benefits and whose sources of funding consist mainly in compulsory social security contributions. Their financial role consists in investing their mathematical reserves, which they are required by law to form in performing their institutional function. The financial accounts of the social security institutions include the assets of INPS, INAM and INAIL and of three retirement institutes administered at that time by the Treasury.³⁵ However, the data for other minor institutes are lacking. The autonomous government agencies include departments which, though forming part of the central State, engage in the production of goods and services whose public purpose prevails over profit.

The public sector does not change in composition until 1989, when with the adoption of ESA79 it is renamed "general government".

In the statistics from 1989 to 1994, central government comprises the State administration, constitutional bodies, the Agency for Southern Development, the CDP, the agency for former national forests, the National Road Agency (ANAS) and other agencies. The local government subsector was broadened to include, in addition to regions, provinces and municipalities, other public institutions with limited territorial jurisdiction: these included public hospitals, local health units, local welfare agencies, universities and chambers of commerce. The main change in the definition of the public sector in the course of these years, however, was the progressive elimination of the autonomous agencies, many of which were transformed into public enterprises and thus reclassified

³⁴ The postal current and savings accounts, which generate the assets of the Fund, are managed by the independent Post and Telecommunications corporation, but they are entered in the accounts of the Cassa Depositi e Prestiti, because they are considered as being managed on the latter's account.

³⁵ The national institute for assistance of local government employees (INADEL), the national retirement and assistance agency for State employees (ENPAS), and the national agency for retirement for employees of public-law institutions (ENPDEDP).

among non-financial corporations.³⁶ Exceptions were ANAS and the former national forests agency, which as they did not produce market goods or services remained in the general government sector.

The impact of the adoption of ESA95 on the financial accounts from 1995 takes mainly two forms: (i) some institutional units move into the new sub-sector of financial auxiliaries³⁷; and (ii) social security funds that pay benefits on a funded (rather than pay-as-you-go) basis, capitalizing workers' contributions, leave the general government sector and are reclassified as financial corporations rather than social security institutions (in particular, they go into the sub-sector of insurance companies and pension funds).

The financial statistics for the public sector have benefited from the progressive availability of ever more accurate data over the years. This permitted better identification of the units within the general government perimeter and more appropriate measurement of its assets and liabilities.

3.1.5. The rest of the world

This sector comprises all non-resident economic units³⁸ in their economic dealings with resident units that belong to one of the domestic sectors: households, non-financial corporations, financial corporations or general government. For purposes of the national accounts the rest of the world is treated on a consolidated basis, in that the assets and liabilities whose counterparties are both non-residents, and which accordingly do not alter Italy's external position, are not registered.

3.1.6. Not allocated items

Until the introduction of ESA95, the Italian financial accounts included an extra sector called "not allocated items" grouping assets or liabilities lacking the information necessary to identify the sector that actually held them.³⁹ In our reconstruction we have elected to continue showing, separately, the "not allocated items" sector, to prevent arbitrary choices in the reassignment of initially unidentified items to other sectors from diminishing the information content of the original data.

The items defined as "not allocated" in the earliest part of our reconstruction are of about the same magnitude as those published in later years. From 1950 to 1962 the assets assigned to this sector averaged 1.2 per cent of total financial assets, compared with 1.5 per cent from 1963 to 1994. The tables for these years are thus just as internally consistent as those produced by the compilers of the first financial accounts.

3.2. The financial instruments

Producing as consistent as possible time series for the entire period 1950-2004 required special care in reclassifying financial instruments. The first step was to apply to the past a classification consistent with that used for the Italian financial accounts today. This procedure was also followed in the construction of the financial accounts for 1950-1962, when the basic data,

³⁶ The most important such operations included: the transformation of the State Railways into a company limited by shares (1992), the renaming of the Post and Telecommunications Administration as "Poste Italiane" (1994) and its subsequent transformation into a company limited by shares (1997), and the elimination of the State Agency for Telephone Service, ASST (1992) and the transfer of its capital to Telecom Italia (1994).

³⁷ See Section 3.1.3.

³⁸ In keeping with the IMF balance-of-payments handbook (1993), an institutional unit is defined as "resident" in a country if its centre of economic activity is located in that country or if it effects economic and financial transactions there for a long period (a year or more).

³⁹ Obviously, every financial asset has a corresponding liability. It follows that if the rest of the world is also taken into consideration, for every financial instrument the sum of assets of all sectors must be equal to the sum of all liabilities. However, the use of inconsistent information to detect the phenomena may produce discrepancies.

which were mostly derived from the balance-sheets of the various units, were reorganized and aggregated consistent with what was done in subsequent years.

After the publication of Italy's flows of financial assets and liabilities in the Bank of Italy's Annual Report for 1964, *Bollettino* No. 1 of 1965 called for the development of a table for stocks of assets and liabilities as well, arguing that it would be "most useful to have a construction of the financial accounts based on data for stocks rather than variations. In addition to measuring the shares of national wealth held in financial form, such data would also help clarify the significance of the variations, which for any economic unit and any value cannot be separated from the initial financial structure." The first table of stocks was published in the Annual Report for 1965. The format, based on that used by the Federal Reserve System, was not significantly different from that used today.

In the financial accounts tables, financial instruments are listed by row and sectors by column. In the present work, we give a panel covering ten financial instruments: monetary gold and SDRs; currency; deposits; loans; securities; shares and other equity; mutual fund shares; insurance technical reserves; other assets and liabilities; trade credits (as an "of which" under the preceding item).

The definition of the instruments in the first financial accounts tables published by the Bank of Italy was based on principles still recognized as valid in the main national accounting systems (the *System of national accounts*, 1993, and the European System of Accounts, 1995) and accordingly suitable as a common basis for data covering over half a century. The main standards are:

- i) The financial accounts record transactions that entail variations in the financial assets and liabilities of an economic unit, whether they originate in a transfer of goods and services or in a purely financial transaction.⁴⁰ In the first case the financial wealth of the sector changes, in the second only its composition but not its amount.
- ii) Transactions are entered on a net basis. Purchases of financial assets are net of sales, while liabilities are calculated net of repayments.⁴¹
- iii) Accounts may be consolidated or unconsolidated. In consolidated accounts, the transactions of an institutional unit are given net of those whose counterparty is another unit belonging to the same sector.⁴² The Italian financial accounts have always been published on an unconsolidated basis.⁴³
- iv) The classification of financial transactions and of financial assets and liabilities is based on the degree of liquidity of the instruments. An instrument is more liquid, the more rapidly it can be converted into means of payment and the lower are the transaction costs and capital losses that may be incurred.

Through 1994, the financial accounts were compiled on a cash basis. That is, the transaction was recorded at the time of the counter-payment. With the introduction of ESA95, the accounts were put on an accrual basis. That is, transactions are recorded when they are initiated, transformed or extinguished. Prior to ESA95, moreover, financial instruments were essentially valued at their

⁴⁰ The stock and flow data are linked by a precise relationship: the stock of each financial instrument held at the end of the period is equal to the value held at the beginning of the period plus the transactions effected, changes in volume and value adjustments occurred during the period.

⁴¹ Within a sector, the variation in a category of assets is never calculated net of the variation in a different category of liabilities, even when the former depends on the latter. For example, the purchase of shares is not published net of the funds borrowed to finance the equity investment.

⁴² The consolidated account and the unconsolidated account of a sector show the same balancing items.

⁴³ The only exception was the publication of the central government sub-sector on a consolidated bases from 1989 to 1994. See the Appendix to the Bank of Italy's Annual Report for 1991 (Italian version).

nominal value, as market value was applied only when the sources made this information available. Stocks reflect the standards used in recording flows.

Because of the limited availability of detailed information for the period from 1950 to 1962, here we do not publish, for securities and loans, a disaggregation between short and medium/long term instruments, as we do not distinguish transferable from time deposits. This made it possible to avoid problems of data continuity due to changes in the definition of maturities while safeguarding the validity of the interpretation of economic phenomena.

The stocks of trade credits are given as a sub-item to "other assets and liabilities", consistent with today's practice. This instrument is an example of the concept of recording on an accrual basis and was not shown in the financial accounts tables until recently. We accordingly elected to show it separately.

In what follows we give a detailed description of the financial instruments that appear in the reconstructed tables.

Monetary gold and Special Drawing Rights

The first financial accounts table had a row for monetary gold, *i.e.* the gold held by the various sectors as a reserve of value. Under the methodology laid down by the first version of ESA, this was to cover the gold possessed by all sectors except for gold for industrial uses. The lack of statistical data meant that only the gold held by the central bank was counted.⁴⁴ The rest of the world is named as the counterparty sector. For continuity with the old classification, the tables name the external sector as debtor for the gold, even though ESA95 does not require recording a counteritem for the assets of the central bank.⁴⁵

Special Drawing Rights (SDRs) appear in 1970. They are classed as short-term credits. In the Annual Report for 1991 SDRs are included as a separate item. In the Report for 1998, they are summed with monetary gold. For continuity with today's classification, for the years from 1970 to 1990 SDRs are separated from loans and added to gold. ESA95 defines SDRs as central bank reserve assets. For them, as for gold, the counteritem is recorded as a liability of the rest of the world, even though ESA95 does not call for this. This permits balancing of the accounts.

Currency

Through 2001 this item comprises the lira notes of the Bank of Italy and the coins minted by the Treasury. Starting in 2002 with the cash changeover to the euro, the Italian component of currency in circulation consists of a conventional estimate of the amount of euro cash in circulation in the country based on Italy's quota in the capital of the European Central Bank plus residual lira notes and coins.⁴⁶ Up to 1978 the item also included foreign banknotes circulating in Italy. The cash assets of households and firms are calculated as a residual, deducting the amounts held by the other sectors from the total volume in circulation.

Deposits

The item comprises transferable deposits and other deposits. In addition to bank deposits, the main sub-items are: the Treasury's deposits with the Bank of Italy (Treasury payments account and debt redemption account); postal current accounts, postal savings books and postal savings

⁴⁴ Bank of Italy plus Italian Foreign Exchange Office (UIC). With the complete transfer of the UIC's gold to the Bank and the simultaneous transfer to the Bank of the residual foreign exchange reserves, the justification for classifying the UIC as part of the central bank vanished. The UIC today performs operational tasks in the management of the reserves on behalf of the Bank of Italy.

⁴⁵ The break in the series in 1976 is due to the revaluation of gold under Legislative Decree 867 of 30 December 1976. At the same time, part of the gold was transferred to the UIC.

⁴⁶ The lira notes and coins were eliminated from the count in 2003.

certificates;⁴⁷ certificates of deposit; and banks' compulsory reserve deposits with the Bank of Italy. With the adoption of ESA95, since 1995 deposits have included banks' liabilities in repurchase agreements, formerly classified as loans.

Loans

These are divided into short-term and medium/long-term loans.⁴⁸ Detailed data makes it possible to separate out non-residents' trade credits with resident firms starting in 1972 and trade debts starting in 1984. Up to 1994 domestic trade credits are not found in the Bank of Italy's annual financial accounts (see below). As noted, until 1994 this instrument also included banks' liabilities in repurchase agreements. From then on, they are classed as deposits.⁴⁹

Securities

The item comprises short and medium-long term securities and, since 1995, derivatives.⁵⁰ Together with the bank data on deposits and loans, the statistics on securities issues – commented upon extensively as far back as the Annual Reports of the 1950s and early 1960s – have provided a solid base for constructing the nation's financial accounts. Short-term securities were those with maturity up to 18 months, essentially Treasury bills (BOT).⁵¹ Medium/long-term securities included not only government but also corporate bonds.⁵² These items were recorded at face value.

A major change in the publication of these statistics came with the transition to ESA95. The dividing line between short-term and longer term securities was shifted to 12 months.⁵³ They are at market value and include interest due, *i.e.* interest accrued but not yet paid by the debtor.

Finally, it is worth noting that at the end of the 1990s ordinary government securities (Treasury bills, bonds and credit certificates), Italian corporate and bank bonds and bond issues of the rest of the world were joined by the securities of special purpose vehicles after Law 151/1999.

Shares and other equity

The financial accounts for the 1960s show the equity issues of corporations, banks, insurance companies and the rest of the world. For corporations the estimate was obtained from data published by Assonime (the association of PLCs). In those accounts, shares issued by independent government corporations appear as general government liabilities.

A major methodological innovation was introduced in 1978. The stocks of shares at market prices were revalued sharply with respect to previous estimates, because their calculation had formerly been based on the ratio of market value and corporate book value of the companies in the

⁴⁷ In December 2003, following the transformation of Cassa Depositi e Prestiti into a company limited by shares and its classification as a financial corporation, postal savings book and savings certificate considered as liabilities of the CDP Spa were shifted from general government to financial corporations.

⁴⁸ At first short-term loans were defined as those with less than 18 months maturity. Since 1995, under ESA95, this is shortened to 12 months.

⁴⁹ In 1994 they accounted for 7 per cent of total banks' loans.

⁵⁰ The series on derivatives exchanged between residents are estimated based on supervisory reports. For transactions in derivatives with the rest of the world the data supplied by the UIC are used. The derivative instruments counted included the following types: forward contracts, futures, options, swaps and forward rate agreements.

⁵¹ At first the difference between total Treasury bills issued and the volume held by the banks was attributed to households.

⁵² As to the sectors subscribing the bonds, we had data for the banks, the central bank, insurance companies, general government and the rest of the world. Firms' portfolio was estimated based on surveys of the balance sheets of a sample of public limited companies. The residual amount was attributed to households. Subsequently, the stocks of securities held by the sectors for which direct data were not available were estimated using the data on their securities portfolios in custody with banks, as these data are included in the banks' supervisory reports.

⁵³ ESA95 continued to classify banker's acceptances as securities. In the table for the household sector, securities liabilities consist in this type of instrument. These were banker's acceptances for sole proprietorships, later reclassified by ESA95 as non-financial corporations. This item has been retained for the sake of continuity in the classification of these transactions.

Bank of Italy survey sample. Now they were estimated using all the Milan Stock Exchange listed companies.⁵⁴

In the data for 1979-1988 presented here, however, in place of the original data we have chosen estimates designed for greater continuity, trying to apply today's estimation and classification methodology to these past years as well. The revision has a significant impact on households' assets and on firms' assets and liabilities.

The estimation of data from 1995 was further refined thanks to the availability of new direct sources (Borsa Italiana S.p.A., the statistical reports of banks, and the Ministry of the Economy and Finance, among others) and of balance-sheet data for all limited companies, replacing the sample survey estimates previously used for the equity assets and liabilities of non-financial corporations and non-bank financial intermediaries. For more methodological detail, see Banca d'Italia (2003).

Mutual fund shares

The data on holdings of investment fund units are published starting in 1984, when Law 77/1983 providing for Italian investment funds went into effect. In the tables for the years 1984-1988 the units of investment funds issued by residents and non-residents are held exclusively by Italian households.

In the financial accounts for 1989-1994, no separate figures are given for units of foreign funds placed in Italy; these are included in the item "other" under the instrument "other assets and liabilities". In the present reconstruction, thanks to data that has become available since, the units constituting rest-of-the-world liabilities can be identified and assigned to the assets of the sectors that hold them.

For the data from 1995 on, information on Italian investment funds comes from the statistical reports of fund management companies to the Bank of Italy. These data make possible the disaggregation of holdings of these assets by sector. They include the capital income accruing to the units, which is calculated by Istat; this income is attributed to the subscribers and assumed to be reinvested in the fund. Residents' holdings of foreign mutual fund shares are estimated using data on net purchases from the balance-of-payments statistics.

Technical reserves

From 1963 to 1988 this item, published as part of "Other assets and liabilities" includes the mathematical reserve liabilities of insurance companies and the reserve liabilities of social security institutions. From 1984 on the data also include severance pay funds, estimated using Istat and Bank of Italy data. On the asset side, these amounts are assigned to households.⁵⁵

With the publication of accounts conforming to ESA79, insurance technical reserves first arise as a distinct financial instrument. They do not include the reserve liabilities of social security institutions, which under this system of accounts do not constitute liabilities of the sector. Public social security institutions, in fact, provide benefits on the pay-as-you-go system, using current revenue to pay pensions. They do not, therefore, actually have a fund for setting aside the contributions paid in.⁵⁶

⁵⁴ The methodological note to the Bank's Annual Report for 1979 explains that the change in the calculation base was made because the Bank sample was overweighted towards large corporations that in years previous had suffered share price declines and had effected substantial capital increases.

⁵⁵ The severance pay fund was introduced by Law 297 of 19 May 1982. It replaced the seniority allowance, which was calculated as the last monthly salary multiplied by the number of years of service.

⁵⁶ See Semeraro in this volume.

The classification from 1995 on reflects that of the previous years. The item still excludes social security liabilities, but it now includes the units of private pension funds, created pursuant to Legislative Decree 124/1993 to supplement or replace public pensions.

Trade credits

Through 1994 the financial accounts included under loans only the trade credits of nonfinancial corporations and the rest of the world. From 1995 these items are given as part of the disaggregation of the instrument "other assets and liabilities". For continuity with the present classification, in this reconstruction, through 1994 the stocks of trade credits of firms *vis-à-vis* the rest of the world have accordingly been deducted from loans, starting in 1982 for credits and 1972 for debts.

Since 1995 the data also include an estimate of domestic trade credits within the nonfinancial corporation sector and between it and producer households. Thus we have estimated these credits too starting from 1982, when data drawn from the balance-sheets of a sample of corporations in the files of the Central balance sheet office's (Cerved) database became available for this item.⁵⁷ This made it possible to include under the assets of non-financial corporations and producer households and under the liabilities of non-financial corporations an estimate of domestic trade credits consistent with that published since 1995 (see Banca d'Italia, 2003).⁵⁸

Other assets and liabilities

"Other assets and liabilities" originates as an item into which to place everything that could not be placed among the other instruments. Through 1974 it includes also "not allocated items". The item "other assets and liabilities" originally included also some financial instruments which, in our present reconstruction, have been distinguished for separate presentation, such as mathematical reserves from 1963 to 1978 and mutual fund shares from 1984 to 1994.

4. Conclusion

The importance of the financial accounts has increased in recent years; they are now one of the statistical elements used in designing Eurosystem monetary policy. Their utilization for purposes of cyclical analysis heightens the need for harmonization of the member states' statistics and for more timely availability of the data. The statistics on Italy's financial assets and liabilities are transmitted regularly to the ECB, Eurostat and the OECD. Various working groups have been formed internationally and at the Bank for International Settlements on the issues involved in the production, release and use of the financial accounts.

From a historical perspective, no significant analysis of the evolution of a country's financial structure can be effected without statistics covering a sufficiently long period. Accordingly, we have reconstructed the Italian financial accounts since 1950 in an effort to ensure the continuity of the statistical series, resorting to estimates only when the data available were sufficiently robust.

The various instruments and sectors show a number of differences in the estimation component weights and in statistical continuity. Among instruments, the most reliable and continuous data are those for monetary gold, banknotes, and deposits and loans (bank loans in particular). The data on investment funds also qualify in this respect. Intervention on the original data has involved only the identification of the foreign fund units placed in Italy between 1989 and 1994. For the technical reserves of social security institutions and insurance companies, the nature

⁵⁷ The estimate was only for industrial firms and non-financial holding companies.

⁵⁸ Goldsmith and Zecchini (1999) estimated trade credits for the years 1963, 1971 and 1973. The data have not been used here, for the sake of continuity with the estimates made since 1972.

of this instrument, of the sectors and of the data sources makes the data released over the years suitably reliable.

The items most heavily affected by the non-application of the ESA95 standards of market value and accrual-based accounting to the data before 1995 are the stocks of securities and shares. Nevertheless, the impact of retroactive adjustment to these standards might be limited, considering that: (i) a substantial portion of government securities has always been variable-rate paper, which is not greatly affected by the market-value principle; (ii) the corporate bond market was absent or minuscule for many years; (iii) the data on shares have always been at market value. Over the years refinements in estimation methodology have created some discontinuities that are difficult to remove without fairly arbitrary assumptions. For that reason we have preferred to maintain the accounting consistency of the original statistics.

As to trade credits, changes made to improve the estimate of the domestic component and to isolate the external component have yielded a time series that corresponds much more closely than the original data to the phenomenon at hand. Aside from the lack of estimates prior to 1972, all the estimates, even the most recent, undervalue the actual dimension of the item (on this see Bartiloro and Coletta, 2004). The problem is common to the rest of Europe as well.

As to institutional sectors, an overview of the period treated here shows that the data on households and firms have been especially strongly affected by the changes brought by the successive systems of national accounts. Over the years the definition of the units making up these two sectors has been modified, benefiting from improved data sources to identify them.

The reconstruction of the series of financial accounts can be improved in the future, especially in distinguishing deposits, securities and loans according to maturity and producing a new estimate of trade credit. Constructing the annual flows is more complicated, despite the availability of some information on these too dating back to the 1950s.

In summary, the time series presented here are a useful tool in assessing the long-run trends in the Italian financial structure. Hopefully the availability of these data, which tell a story stretching over more than half a century, will give us new possibilities for studying the evolution of the financial system.

TABLES

Italy's financial assets and liabilities: 1950-1962

Italy's financial assets and liabilities in 1950

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	rance rations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	112	-	-	-	-	-		-
Currency	698	-	418	-	58	1,165	53	-	-	-	0.5	-
Deposits	2,893	-	135	-	555	897	521	2,235	34	28	18	-
Securities	917	-	7	214	317	-	678	-	12	202	55	-
Loans	-	177	48	1,960	1,160	84	1,564	236	685	201	90	65
Shares and other equity	725	-	827	1,950	1	0.3	20	47	0.1	30	10	40
Technical reserves	277	-	14	-	-	-	-	-	-	-	-	138
Other assets/liabilities	145	-	-	-	-	-	-	-	-	-	-	-
Total	5,655	177	1,449	4,124	2,203	2,146	2,835	2,518	732	461	174	243

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1951 Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia institu	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	113	-	-	-	-	-	-	-
Currency	781	-	449	-	82	1,292	66	-	-	-	0.5	-
Deposits	3,082	-	462	-	767	972	691	2,689	52	31	26	-
Securities	989	-	8	220	329	-	790	-	14	254	62	-
Loans	-	219	45	2,410	1,123	77	1,814	290	854	228	112	81
Shares and other equity	948	-	1,071	2,438	1	0.3	22	58	1	36	11	49
Technical reserves	365	-	17	-	-	-	-	-	-	-	-	170
Other assets/liabilities	136	-	-	-	-	-	-	-	-	-	-	-
Total	6,301	219	2,052	5,068	2,415	2,342	3,382	3,036	921	549	212	300

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1952

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ba	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	169	-	-	-	-	-	-	-
Currency	859	-	475	-	87	1,381	67	-	-	-	0.4	-
Deposits	3,514	-	862	-	735	1,230	842	3,336	50	40	25	-
Securities	1,124	-	9	304	379	-	945	-	21	356	72	-
Loans	-	275	44	3,029	1,353	22	2,287	395	1,072	264	145	95
Shares and other equity	1,334	-	1,497	3,352	1	0.3	29	70	0.9	42	12	61
Technical reserves	441	-	20	-	-	-	-	-	-	-	-	204
Other assets/liabilities	135	-	-	-	-	-	-	-	-	-	-	-
Total	7,407	275	2,907	6,685	2,724	2,634	4,170	3,801	1,145	703	255	359

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Τc	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	1				1		I						
-	-	-	-	-	-	-	-	-	112	0	0	112	112
-	11	-	-	-	-	-	-	-	57	6	0	1,233	1,233
-	818	-	-	-	-	-	-	15	53	-141	0	4,031	4,031
76	1,479	-	0	39	-	-	0	6	107	-106	0	2,001	2,001
337	1,010	-	127	-	-	-	89	488	336	-87	0	4,285	4,285
2	-	-	-	1	-	-	-	306	62	236	0	2,129	2,129
-	-	-	-	-	153	-	-	-	-	0	0	291	291
-	-	-	-	-	-	-	-	-	145	0	0	145	145
416	3,318	-	127	40	153	-	89	815	871	-92	0	14,227	14,227

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central g	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Тс	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
· _	_	_	-	_	_	_	-	_	113	. 0	0	113	113
-	13	-	-	-	-	-	-	-	82	8	0	1,386	1,386
-	958	-	-	-	-	-	-	16	71	-376	0	4,720	4,720
85	1,637	-	0	74	-	-	0	6	121	-124	0	2,233	2,233
520	988	-	185	-	-	-	91	471	279	-91	0	4,848	4,848
2	-	-	-	1	-	-	-	323	58	258	0	2,639	2,639
-	-	-	-	-	212	-	-	-	-	0	0	382	382
-	-	-	-	-	-	-	-	-	136	0	0	136	136
607	3,595	-	185	75	212	-	91	817	859	-325	0	16,457	16,457

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	he world	Not alloca	ated items	Τc	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	-	-	-	169	0	0	169	169
-	32	-	-	-	-	-	-	-	84	10	0	1,498	1,498
-	1,162	-	-	-	-	-	-	17	85	-193	0	5,853	5,853
117	1,841	-	0	90	-	-	0	7	100	-163	0	2,601	2,601
701	1,147	-	264	-	-	-	136	458	361	-74	0	5,987	5,987
3	-	-	-	1	-	-	-	416	57	289	0	3,583	3,583
-	-	-	-	-	257	-	-	-	-	0	0	461	461
-	-	-	-	-	-	-	-	-	135	0	0	135	135
821	4,182	-	264	91	257	-	136	898	990	-131	0	20,285	20,285

due to non availability of data on autonomous government agencies.

Italy's financial assets and liabilities in 1953

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	' –	· –	-	-	169	-	-	-	-	-	-	-
Currency	923	-	491	-	112	1,449	67	-	-	-	1.0	-
Deposits	3,912	-	1,185	-	735	1,264	928	3,915	60	51	35	-
Securities	1,285	-	10	354	407	-	1,104	-	30	471	88	-
Loans	-	332	44	3,650	1,411	16	2,743	433	1,312	309	165	115
Shares and other equity	1,398	-	1,567	3,537	1	0.3	37	96	1	52	13	71
Technical reserves	532	-	24	-	-	-	-	-	-	-	-	239
Other assets/liabilities	135	-	-	-	-	-	-	-	-	-	-	-
Tota	8,184	332	3,322	7,541	2,836	2,729	4,879	4,444	1,403	883	302	425

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1954

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	169	-	-	-	-	-	-	-
Currency	995	-	509	-	84	1,538	66	-	-	-	1	-
Deposits	4,169	-	1,510	-	743	1,349	1,103	4,474	74	68	42	-
Securities	1,558	-	13	393	571	-	1,218	-	36	611	111	-
Loans	-	394	44	4,323	1,572	132	3,147	473	1,530	352	199	137
Shares and other equity	1,934	-	2,158	4,708	1	0.3	52	117	1	68	15	107
Technical reserves	630	-	29	-	-	-	-	-	-	-	-	287
Other assets/liabilities	134	-	-	-	-	-	-	-	-	-	-	-
Total	9,421	394	4,262	9,424	3,140	3,019	5,586	5,064	1,641	1,099	367	531

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1955

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	173	-	-	-	-	-	-	-
Currency	1,093	-	536	-	65	1,671	74	-	-	-	1.5	-
Deposits	4,590	-	1,790	-	821	1,532	1,290	5,155	107	80	52	-
Securities	1,852	-	15	424	867	-	1,378	-	38	774	127	-
Loans	-	465	44	5,098	1,608	195	3,666	581	1,899	459	227	152
Shares and other equity	2,512	-	2,794	5,986	2	0.3	52	140	1	81	18	114
Technical reserves	740	-	34	-	-	-	-	-	-	-	-	341
Other assets/liabilities	133	-	-	-	-	-	-	-	-	-	-	-
Total	10,919	465	5,214	11,508	3,535	3,399	6,461	5,876	2,045	1,394	425	606

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Τc	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	-	-	-	169	0	0	169	169
-	52	-	-	-	-	-	-	-	106	13	0	1,607	1,607
-	1,426	-	-	-	-	-	-	26	94	-131	0	6,750	6,750
125	2,063	-	0	126	-	-	0	8	84	-211	0	2,973	2,973
873	1,278	-	349	-	-	-	179	450	297	-40	0	6,958	6,958
3	-	-	-	1	-	-	-	479	57	312	0	3,812	3,812
-	-	-	-	-	317	-	-	-	-	0	0	556	556
-	-	-	-	-	-	-	-	-	135	0	0	135	135
1,001	4,819	-	349	127	317	-	179	962	941	-57	0	22,959	22,959

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	To	otal
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	-	-	-	1 169	0	0	169	169
-	62	-	-	-	-	-	-	-	79	24	0	1,679	1,679
-	1,520	-	-	-	-	-	-	26	112	-145	0	7,522	7,522
135	2,400	-	0	148	-	-	0	9	167	-228	0	3,571	3,571
1,027	1,444	-	442	-	-	-	186	579	342	129	0	8,225	8,225
3	-	-	-	3	-	-	-	537	57	355	0	5,057	5,057
-	-	-	-	-	372	-	-	-	-	0	0	659	659
-	-	-	-	-	-	-	-	-	134	0	0	134	134
1,165	5,425	-	442	151	372	-	186	1,150	1,060	134	0	27,017	27,017

due to non availability of data on autonomous government agencies.

r			0										
			General g	overnment									
Central g	overnment	Local go	vernment	Social instit	security utions	Auton govern.	omous agencies	Rest of	he world	Not alloca	ated items	Τα	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	-	-	-	173	0	0	173	173
-	70	-	-	-	-	-	-	-	58	30	0	1,799	1,799
-	1,639	-	-	-	-	-	-	29	133	-140	0	8,539	8,539
133	2,712	-	0	163	-	-	0	10	376	-296	0	4,286	4,286
1,181	1,573	-	622	-	-	-	274	740	343	398	0	9,761	9,761
3	-	-	-	3	-	-	-	611	57	382	0	6,378	6,378
-	-	-	-	-	433	-	-	-	-	0	0	774	774
-	-	-	-	-	-	-	-	-	133	0	0	133	133
1,317	5,994	-	622	165	433	-	274	1,389	1,273	374	0	31,844	31,844

due to non availability of data on autonomous government agencies.

Italy's financial assets and liabilities in 1956

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	179	-	-	-	-	-	-	-
Currency	1,193	-	562	-	74	1,818	93	-	-	-	1.6	-
Deposits	5,168	-	1,997	-	907	1,627	1,311	5,816	139	104	51	-
Securities	2,074	-	17	499	950	-	1,563	-	44	926	145	-
Loans	-	544	96	5,959	1,661	192	4,242	626	2,150	536	263	175
Shares and other equity	2,625	-	2,949	6,286	2	0.3	53	166	1	94	23	114
Technical reserves	873	-	40	-	-	-	-	-	-	-	-	400
Other assets/liabilities	292	-	-	-	-	-	-	-	-	-	-	-
Total	12,225	544	5,661	12,744	3,773	3,637	7,263	6,607	2,334	1,661	484	689

Note: deposits assetts of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1957

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fii corpoi	rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	235	-	-	-	-	-	-	-
Currency	1,267	-	573	-	85	1,914	98	-	-	-	1.4	-
Deposits	5,619	-	2,264	-	1,057	1,846	1,496	6,497	136	113	52	-
Securities	2,317	-	19	607	1,035	-	1,708	-	51	1,085	159	-
Loans	-	602	95	6,604	1,593	79	4,709	689	2,374	621	291	180
Shares and other equity	3,083	-	3,454	7,518	2	0.3	63	189	2	131	28	115
Technical reserves	1,028	-	46	-	-	-	-	-	-	-	-	464
Other assets/liabilities	289	-	-	-	-	-	-	-	-	-	-	-
Total	13,603	602	6,451	14,729	4,006	3,838	8,074	7,376	2,563	1,950	530	759

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1958

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fir corpor	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	646	-	-	-	-	-	-	-
Currency	1,390	-	602	-	104	2,061	105	-	-	-	1.3	-
Deposits	6,139	-	2,993	-	1,642	2,675	2,234	7,553	171	140	53	-
Securities	2,606	-	21	835	1,068	-	2,161	-	58	1,325	186	-
Loans	-	652	100	7,164	1,523	18	4,992	1,020	2,711	771	331	209
Shares and other equity	3,445	-	3,856	8,406	7	0.3	87	218	1	163	31	121
Technical reserves	1,190	-	53	-	-	-	-	-	-	-	-	525
Other assets/liabilities	303	-	-	-	-	-	-	-	-	-	-	-
Total	15,072	652	7,625	16,405	4,989	4,754	9,579	8,791	2,941	2,400	603	855

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Τc	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	-	-	-	179	0	0	179	179
-	41	-	-	-	-	-	-	-	64	-1	0	1,923	1,923
-	1,788	-	-	-	-	-	-	52	138	-153	0	9,473	9,473
131	2,951	-	0	181	-	-	0	11	450	-290	0	4,827	4,827
1,373	1,577	-	794	-	-	-	277	782	417	526	0	11,095	11,095
3	-	-	-	3	-	-	-	713	124	413	0	6,785	6,785
-	-	-	-	-	513	-	-	-	-	0	0	913	913
-	-	-	-	-	-	-	-	-	292	0	0	292	292
1,507	6,357	-	794	184	513	-	277	1,559	1,663	495	0	35,486	35,486

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	To	otal
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	-	-	-	235	0	0	235	235
-	37	-	-	-	-	-	-	-	79	5	0	2,029	2,029
-	1,916	-	-	-	-	-	-	68	155	-165	0	10,527	10,527
128	3,126	-	0	204	-	-	0	13	511	-304	0	5,329	5,329
1,555	1,601	-	957	-	-	-	284	768	416	646	0	12,031	12,031
6	-	-	-	5	-	-	-	814	123	621	0	8,077	8,077
-	-	-	-	-	610	-	-	-	-	0	0	1,074	1,074
-	-	-	-	-	-	-	-	-	289	0	0	289	289
1,689	6,680	-	957	210	610	-	284	1,663	1,807	803	0	39,592	39,592

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central g	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Τc	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
-	-	-	-	-	-	_	-	_	646	0	0	646	646
-	50	-	-	-	-	-	-	-	94	3	0	2,204	2,204
-	2,111	-	-	-	-	-	-	41	228	-565	0	12,707	12,707
134	3,454	-	8	211	-	-	178	14	553	-107	0	6,352	6,352
1,836	1,555	-	1,306	-	-	-	295	766	482	1,214	0	13,474	13,474
7	-	-	-	5	-	-	-	914	129	684	0	9,037	9,037
-	-	-	-	-	717	-	-	-	-	0	0	1,242	1,242
-	-	-	-	-	-	-	-	-	303	0	0	303	303
1,977	7,171	-	1,314	217	717	-	473	1,734	2,434	1,228	0	45,965	45,965

due to non availability of data on autonomous government agencies.

Italy's financial assets and liabilities in 1959

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fir corpor	ancial ations	Bank of I	taly - UIC	Ba	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs		-	-	-	1,203	-	-	-	-	-	-	-
Currency	1,536	-	638	-	76	2,237	110	-	-	-	1.3	-
Deposits	6,586	-	4,228	-	2,323	3,607	2,331	8,823	271	201	64	-
Securities	3,021	-	24	955	1,029	-	2,673	-	72	1,604	216	-
Loans	-	746	107	8,226	1,445	18	5,763	1,012	3,144	871	318	200
Shares and other equity	6,018	-	6,696	14,190	7	0.3	139	308	1	186	36	116
Technical reserves	1,379	-	60	-	-	-	-	-	-	-	-	596
Other assets/liabilities	326	-	-	-	-	-	-	-	-	-	-	-
Tota	18,866	746	11,753	23,371	6,083	5,862	11,015	10,143	3,488	2,861	635	912

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1960

Stocks in billions of lire

Institutional sectors								Financial co	orporations			
	House	eholds	Non-fir corpor	nancial rations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	1,549	-	-	-	-	-	-	-
Currency	1,695	-	674	-	84	2,424	116	-	-	-	1	-
Deposits	6,984	-	5,453	-	1,433	2,693	2,217	10,178	273	245	80	-
Securities	3,605	-	29	1,214	793	-	3,111	-	88	2,034	265	-
Loans	-	902	125	9,905	1,504	19	7,023	1,192	3,762	948	318	210
Shares and other equity	7,784	-	8,654	18,118	8	0.3	167	377	3	231	39	121
Technical reserves	1,529	-	68	-	-	-	-	-	-	-	-	682
Other assets/liabilities	379	-	-	-	-	-	-	-	-	-	-	-
Total	21,977	902	15,002	29,237	5,371	5,136	12,634	11,746	4,126	3,459	703	1,012

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

Italy's financial assets and liabilities in 1961

Stocks in billions of lire

Institutional sectors								Financial c	orporations			
	House	eholds	Non-fir corpor	ancial ations	Bank of I	taly - UIC	Ва	nks	Specia instit	al credit utions	Insur corpor	ance ations
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
Monetary gold and SDRs	-	-	-	-	1,561	-	-	-	-	-	-	-
Currency	1,975	-	750	-	125	2,779	122	-	-	-	1.4	-
Deposits	8,223	-	6,233	-	1,867	3,281	2,503	11,915	247	322	109	-
Securities	4,186	-	34	1,455	1,031	-	3,575	-	108	2,572	316	-
Loans	-	1,078	174	11,901	1,765	23	8,276	1,290	4,677	1,122	338	242
Shares and other equity	8,058	-	8,984	19,545	13	0.3	209	420	3	275	52	137
Technical reserves	1,740	-	79	-	-	-	-	-	-	-	-	789
Other assets/liabilities	528	-	-	-	-	-	-	-	-	-	-	-
Total	24,710	1,078	16,254	32,901	6,362	6,084	14,686	13,624	5,035	4,292	817	1,167

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

			General g	overnment									
Central go	overnment	Local go	vernment	Social : institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Τc	ıtal
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	_	_	_	_	_	_	_	_	1 203	0	0	1 203	1 203
-		_	-	-	-	_	-	-	1,200	-	0	1,200	1,200
-	62	-	-	-	-	-	-	-	65	3	0	2,364	2,364
-	2,240	-	-	-	-	-	-	163	247	-846	0	15,119	15,119
151	4,040	-	13	215	-	-	230	17	671	93	0	7,511	7,511
2,027	1,469	-	1,570	-	-	-	359	906	556	1,318	0	15,027	15,027
7	-	-	-	5	-	-	-	1,171	138	858	0	14,939	14,939
-	-	-	-	-	843	-	-	-	-	0	0	1,439	1,439
-	-	-	-	-	-	-	-	-	326	0	0	326	326
2,184	7,811	-	1,582	220	843	-	589	2,258	3,206	1,425	0	57,928	57,928

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central go	overnment	Local go	vernment	Social : institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	To	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
_	-	-	-	-	-	-	-	-	1,549	0	0	1,549	1,549
-	78	-	-	-	-	-	-	-	74	6	0	2,576	2,576
-	2,461	-	-	-	-	-	-	168	237	-794	0	15,814	15,814
168	4,124	-	12	223	-	-	270	19	481	-165	0	8,135	8,135
2,257	1,570	-	1,886	-	-	-	416	998	597	1,656	0	17,644	17,644
7	-	-	-	7	-	-	-	1,265	161	1,074	0	19,008	19,008
-	-	-	-	-	915	-	-	-	-	0	0	1,597	1,597
-	-	-	-	-	-	-	-	-	379	0	0	379	379
2,433	8,233	-	1,898	230	915	-	686	2,450	3,478	1,776	0	66,702	66,702

due to non availability of data on autonomous government agencies.

			General g	overnment									
Central go	overnment	Local go	vernment	Social institu	security utions	Auton govern.	omous agencies	Rest of	the world	Not alloca	ated items	Τc	ital
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	I						1					4 504	4 504
-	-	-	-	-	-	-	-	-	1,561	0	0	1,561	1,561
-	89	-	-	-	-	-	-	-	112	7	0	2,980	2,980
-	2,734	-	-	-	-	-	-	67	261	-737	0	18,513	18,513
186	4,325	-	24	256	-	-	299	25	665	-376	0	9,341	9,341
2,588	1,704	-	2,239	-	-	-	466	1,202	729	1,773	0	20,793	20,793
8	-	-	-	10	-	-	-	1,749	224	1,515	0	20,601	20,601
-	-	-	-	-	1,030	-	-	-	-	0	0	1,819	1,819
-	-	-	-	-	-	-	-	-	528	0	0	528	528
2,782	8,852	-	2,262	266	1,030	-	765	3,043	4,081	2,183	0	76,137	76,137

due to non availability of data on autonomous government agencies.

Italy's financial assets and liabilities in 1962 Stocks in billions of lire

Institutional sectors			Non-financial		Financial corporations								
	House	eholds	Non-fir corpor	nancial ations	Bank of I	taly - UIC	Bar	nks	Special credit institutions		Insurance corporations		
Financial instruments	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	
Monetary gold and SDRs	-	-	-	-	1,573	-	-	-	-	-	-	-	
Currency	2,283	-	828	-	122	3,234	193	-	-	-	2	-	
Deposits	9,544	-	7,584	-	2,249	3,960	2,969	14,165	344	387	95	-	
Securities	4,476	-	36	1,720	1,484	-	4,073	-	121	3,337	380	-	
Loans	-	1,325	294	14,589	2,047	24	10,215	1,646	5,968	1,308	409	289	
Shares and other equity	7,462	-	8,397	18,168	26	0.3	249	464	4	367	55	138	
Technical reserves	1,981	-	91	-	-	-	-	-	-	-	-	910	
Other assets/liabilities	893	-	-	-	-	-	-	-	-	-	-	-	
Total	26,638	1,325	17,230	34,478	7,502	7,219	17,701	16,275	6,438	5,398	941	1,336	

Note: deposits assets of Special credit institutions include currency. Deposits with Central government are under-estimated

	General government												
Central go	overnment	Local go	vernment	Social security institutions		Auton govern.	omous agencies	Rest of	he world	Not alloca	ated items	Total	
Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
_	-	-	-	-	-	_	-	-	1.573	0	0	1.573	1.573
-	96	-	-	-	-	-	-	-	110	12	0	3,441	3,441
-	3,075	-	-	-	-	-	-	89	315	-973	0	21,902	21,902
302	4,524	-	23	338	-	-	341	28	836	-456	0	10,782	10,782
2,972	1,968	-	3,005	-	-	-	526	1,287	948	2,435	0	25,628	25,628
12	-	-	-	10	-	-	-	1,976	379	1,325	0	19,516	19,516
-	-	-	-	-	1,163	-	-	-	-	0	0	2,072	2,072
-	-	-	-	-	-	-	-	-	893	0	0	893	893
3,286	9,664	-	3,029	348	1,163	-	867	3,381	5,054	2,343	0	85,807	85,807

due to non availability of data on autonomous government agencies.

TABLES

Italy's Financial Accounts: 1950-2004

Households

Financial assets - Stocks in billions of lire

				Shares and	Mutual fund	Technical	r		
Years	Currency	Deposits	Securities	other equity	shares	reserves	Other assets	Trade credits	Total
1950	698	2 893	917	725		277	145	_	5 655
1951	781	3 082	989	948	_	365	136	_	6 301
1951	859	3,514	1 124	1 334		441	135		7 407
1952	023	3,014	1,124	1,334	_	532	135	=	8 184
1953	923	3,912	1,200	1,390	-	532	133	-	0,104
1954	995	4,169	1,556	1,934	-	630	134	-	9,421
1955	1,093	4,590	1,052	2,512	-	740	133	-	10,919
1956	1,193	5,168	2,074	2,625	-	873	292	-	12,225
1957	1,267	5,619	2,317	3,083	-	1,028	289	-	13,603
1958	1,390	6,139	2,606	3,445	-	1,190	303	-	15,072
1959	1,536	6,586	3,021	6,018	-	1,379	326	-	18,866
1960	1,695	6,984	3,605	7,784	-	1,529	379	-	21,977
1961	1,975	8,223	4,186	8,058	-	1,740	528	-	24,710
1962	2,283	9,544	4,476	7,462	-	1,981	893	-	26,638
1963	2,641	11,128	4,613	7,186	-	2,227	1,454	-	29,249
1964	2,849	12,223	4,875	5,022	-	2,549	1,746	-	29,264
1965	3,118	14,091	5,693	6,116	-	2,864	1,867	-	33,749
1966	3,458	16,197	7,106	6,782	-	3,295	2,123	-	38,961
1967	3,886	18,577	8,486	6,065	-	3,756	2,504	-	43,274
1968	4,075	21,358	9,880	6,155	-	4,235	3,065	-	48,768
1969	4,689	23,936	11,025	7,616	-	4,737	4,313	-	56,316
1970	5,108	27,894	11,787	6,586	-	5,247	4,814	-	61,436
1971	5,703	34,717	13,973	5,406	-	5,968	5,011	-	70,778
1972	6,934	40,865	16,521	6,027	_	6,654	5,869	-	82,870
1973	7,767	50,484	18,084	7,965	_	7,210	6,085	-	97,595
1974	8,727	63,266	15.566	4.852	_	8.261	6.615	_	107.287
1975	10,137	79,660	17.834	3,406	_	9,492	7.005	_	127,534
1976	11,505	96,942	20.021	2,946	_	11.045	7.085	-	149.544
1977	13.010	119.582	23.674	2.342	_	12,922	7.090	_	178.620
1978	15 254	143 951	32,330	11 651	_	14 901	7 082	_	225 169
1070	17 213	171 673	42 418	54 705	_	17,060	7 080	_	310 149
1980	19 454	197 027	58 109	97 393	_	20 140	8 685	_	400 808
1081	22 840	225 421	87 956	132 985		23,140	9,000		501 911
1002	25,040	271 550	100,000	165 8/8		23,472	2,500	1 226	602 432
1002	29,201	205 376	160 356	105,040	_	27,003	2,000	1,220	715 258
1903	20,303	235,570	214.060	212 102	- 6 000	02,007	2,302	1,402	200.094
1005	34 882	378 017	214,900	215,105	28.455	103 723	3,025	2 027	1 132 080
1900	34,002	370,917	200,001	192 405	26,400	103,723	3,925	2,027	1,132,900
1900	37,302	419,041	310,000	402,490	70,013	117,079	4,151	2,104	1,447,996
1907	40,012	400,214	595,795	410,949	70,037	152,272	4,210	2,397	1,522,295
1988	44,170	517,217	500,015	452,599	62,436	100,030	4,723	2,079	1,730,090
1989	61,119	645,515	597,764	604,147	55,624	164,584	3,564	3,443	2,132,318
1990	62,846	733,870	691,558	577,978	52,112	187,463	3,970	3,849	2,309,797
1991	69,082	838,370	782,602	674,183	60,780	214,242	4,360	4,215	2,643,620
1992	77,487	928,367	838,620	592,105	66,571	242,647	4,807	4,688	2,750,607
1993	81,303	984,647	913,890	667,873	116,431	263,902	6,769	6,073	3,034,816
1994	87,075	991,529	982,484	683,029	136,963	293,082	6,573	6,528	3,180,736
1995	83,164	1,244,718	871,338	486,236	131,817	332,713	32,558	7,178	3,182,545
1996	84,690	1,291,127	1,014,167	498,036	206,543	370,181	36,623	7,209	3,501,368
1997	90,855	1,235,731	1,084,640	683,404	381,699	420,434	37,795	7,539	3,934,558
1998	97,404	1,180,660	1,006,146	890,465	721,883	476,757	38,480	8,079	4,411,795
1999	109,151	1,172,802	852,571	1,377,636	939,471	559,580	41,519	8,566	5,052,730
2000	115,075	1,199,428	986,978	1,495,295	890,220	638,105	39,501	8,035	5,364,602
2001	95,270	1,293,741	1,099,398	1,325,807	762,565	716,076	29,885	8,514	5,322,741
2002	92,668	1,349,774	1,220,775	1,260,876	646,624	798,622	31,199	10,259	5,400,538
2003	110,994	1,406,664	1,233,510	1,266,266	690,675	905,094	32,761	10,282	5,645,965
2004	129,223	1,465,266	1,358,504	1,478,354	664,656	1,011,228	33,590	10,306	6,140,820

Households Financial liabilities - Stocks in billions of lire

Years	Securities	Loans	Technical reserves	Other liabilities	Total
1950	_	177	_	_	177
1951	_	219	_	_	219
1952	_	275	_	_	275
1953	_	332	_	_	332
1954	-	394	_	_	394
1955	-	465	-	_	465
1956	-	544	-	_	544
1957	-	602	-	_	602
1958	-	652	-	_	652
1959	-	746	-	_	746
1960	-	902	-	-	902
1961	-	1,078	-	-	1,078
1962	-	1,325	-	-	1,325
1963	-	2,121	-	_	2,121
1964	-	2,319	-	-	2,319
1965	-	2,569	-	-	2,569
1966	-	2,904	-	-	2,904
1967	-	3,350	-	-	3,350
1968	-	3,896	-	-	3,896
1969	-	4,348	-	-	4,348
1970	-	4,989	-	-	4,989
1971	-	5,837	-	-	5,837
1972	-	6,950	-	-	6,950
1973	-	9,552	-	-	9,552
1974	-	9,825	-	-	9,825
1975	-	12,129	-	-	12,129
1976	-	13,175	-	-	13,175
1977	-	14,828	-	_	14,828
1978	-	10,043	-	_	16,843
1979	-	19,930	_	_	19,950
1900		23,234		574	25,294
1987	_	31 719	_	787	20,501
1983	_	36 575	_	970	37 545
1984	-	42 634	-	1 233	43 867
1985	_	54.087	_	1.523	55.610
1986	-	66,410	_	2,115	68,525
1987	-	76,832	-	2,350	79,182
1988	-	93,426	-	2,409	95,835
1989	2	202,975	32,248	15,932	251,158
1990	96	233,521	35,408	18,173	287,199
1991	282	265,199	38,892	20,557	324,929
1992	288	285,456	42,312	24,321	352,377
1993	682	292,082	45,673	29,346	367,783
1994	425	302,218	48,699	36,253	387,594
1995	-	333,316	29,430	45,059	407,805
1996	-	354,574	31,829	59,426	445,828
1997	-	377,623	34,520	73,686	485,829
1998	-	412,111	37,118	94,149	543,377
1999	-	471,412	39,935	107,679	619,026
2000	-	514,415	42,991	124,858	682,264
2001	-	545,006	46,311	129,240	720,557
2002	-	597,800	49,918	136,813	784,531
2003	-	004,342	53,842	151,435	059,019
2004		143,359	50,112	150,949	902,420

Non financial corporations

Financial assets - Stocks in billions of lire

					i i					
Years	Currency	Deposits	Securities	Loans	Shares and	Mutual fund	l echnical	Other	Trade	Total
					other equity	Slidles	Teserves	d55615	credits	
1950	418	135	7	48	827	-	14	-	-	1,449
1951	449	462	8	45	1,071	-	17	-	-	2,052
1952	475	862	9	44	1,497	-	20	-	-	2,907
1953	491	1,185	10	44	1,567	-	24	-	-	3,322
1954	509	1,510	13	44	2,158	-	29	-	-	4,262
1955	536	1,790	15	44	2,794	-	34	-	-	5,214
1956	562	1,997	17	96	2,949	-	40	-	-	5,661
1957	573	2,264	19	95	3,454	-	46	-	-	6,451
1958	602	2,993	21	100	3,856	_	53	-	_	7,625
1959	638	4,228	24	107	6,696	_	60	_	-	11,753
1960	674	5,453	29	125	8,654	_	68	-	-	15,002
1961	750	6.233	34	174	8,984	_	79	-	-	16.254
1962	828	7,584	36	294	8.397	_	91	-	-	17.230
1963	907	8 249	156	503	7 832	_	100	55	-	17 802
1964	957	8 935	207	574	6 049	_	115	63	_	16,900
1965	1 027	10 528	250	898	7 878	_	140	70	_	20 791
1000	1,027	12,026	200	1 177	9,055		170	70		20,707
1900	1,057	12,070	203	1,177	9 157	-	210	79	-	23,737
1907	1,107	15,003	324	1,100	8 140	-	210	00	-	24,733
1968	1,127	15,105	341	1,304	0,149	_	243	90	-	20,427
1969	1,207	10,022	342	1,688	9,738	-	278	111	-	29,980
1970	1,277	18,644	360	2,030	9,028	-	305	126	-	31,770
1971	1,337	19,933	360	2,371	8,342	-	368	135	-	32,846
1972	1,412	26,354	405	3,452	10,064	-	448	149	-	42,284
1973	1,682	28,003	669	3,336	13,411	-	533	657	-	48,291
1974	1,872	29,254	563	2,942	11,343	-	613	1,147	-	47,734
1975	2,167	33,804	475	2,939	11,924	-	703	1,529	-	53,541
1976	2,449	44,188	984	1,316	12,556	-	818	1,566	-	63,877
1977	2,770	48,839	1,853	2,265	11,115	-	980	1,548	-	69,370
1978	3,280	57,245	2,868	2,124	35,915	-	1,140	1,555	-	104,127
1979	3,788	71,569	5,170	5,306	18,451	-	1,360	1,676	-	107,320
1980	5,091	77,427	5,727	13,495	28,146	-	1,660	1,593	-	133,139
1981	5,999	85,117	8,106	12,817	39,549	-	2,071	260	-	153,919
1982	7,028	95,387	11,173	16,087	49,234	-	2,578	60,376	60,081	241,863
1983	7,893	115,796	14,925	17,849	59,137	-	3,048	69,028	68,699	287,677
1984	8,755	129,303	22,766	2,195	72,455	-	3,693	126,424	126,060	365,591
1985	8,848	140,093	29,987	7,331	91,217	-	4,403	138,311	137,917	420,190
1986	9,477	153,458	38,598	8,618	138,657	-	5,241	144,026	143,574	498,076
1987	10,345	160,733	50,694	7,782	129,424	-	6,134	161,066	160,514	526,178
1988	11,200	169,700	64,617	12,077	161,328	-	7,462	184,047	183,394	610,431
1989	6,288	84,479	52,287	11,554	179,163	373	5,628	215,165	214,908	554,938
1990	6,460	84,770	62,730	13,896	221,923	484	6,488	240,393	240,127	637,145
1991	7,106	87,975	72,437	19,954	255,983	481	7,388	259,944	259,933	711,267
1992	7.979	89.047	69.818	23.222	275.276	581	8,633	290.280	287.053	764.837
1993	8.371	97,798	69.524	32,462	321,944	679	9,433	362,852	358,483	903.063
1994	8,966	107.167	73.026	39,329	342.517	932	10.375	397.099	390.994	979.411
1995	14,446	177.521	60,256	22,416	339,117	9.455	22,588	503,187	430.815	1.148.987
1006	14 702	174 002	65 417	23 379	383 834	12 490	24 914	501 227	433 748	1 199 965
1997	15 774	188 160	70 131	30,669	480 517	19 132	26,343	523 842	454 308	1 354 568
1998	16 974	100,100	78 096	30,009	628 373	30 764	20,040	5/17 655	470 502	1 550 000
1000	10,074	106 000	10,000	10 100	020,073	20,704	21,009	520 570	501 0E0	1 060 250
1999	20,000	212 754	104 600	42,409	304,710	30,526	29,010	567 022	500 226	2 200,239
2000	20,009	212,104	104,090	51,733	1,200,009	30,050	31,270	500,932	509,320	2,290,447
∠∪∪1	16,529	208,275	105,594	55,951	1,122,896	29,434	32,586	064,035	531,781	2,153,824
2002	15,753	227,619	105,288	40,001	905,687	26,649	33,559	664,375	612,820	2,018,931
2003	18,960	245,355	97,392	48,789	1,003,132	26,353	34,775	663,782	613,416	2,138,540
2004	22,095	274,878	116,908	93,598	1,051,309	25,921	38,594	673,838	617,251	2,297,142

Non financial corporations

Financial liabilities - Stocks in billions of lire

Years	Securities	Loans	Shares and other equity	Technical reserves	Other liabilities	Trade credits	Total
1950	214	1,960	1,950	-	_	-	4,124
1951	220	2,410	2,438	_	_	_	5,068
1952	304	3,029	3,352	_	-	-	6,685
1953	354	3,650	3,537	-	-	-	7,541
1954	393	4,323	4,708	-	-	-	9,424
1955	424	5,098	5,986	-	-	-	11,508
1956	499	5,959	6,286	-	-	-	12,744
1957	607	6,604	7,518	-	-	-	14,729
1958	835	7,164	8,406	-	-	-	16,405
1959	955	8,226	14,190	-	-	-	23,371
1960	1,214	9,905	18,118	-	-	-	29,237
1961	1,455	11,901	19,545	-	-	-	32,901
1962	1,720	14,589	18,168	-	-	-	34,478
1963	2,112	17,255	17,463	-	-	-	36,830
1964	2,663	18,353	13,402	-	-	-	34,418
1965	3,351	19,800	16,845	-	-	-	39,996
1966	3,687	22,408	18,938	-	-	-	45,033
1967	4,113	25,614	17,661	-	-	-	47,388
1900	4,000	28,480	17,978	-	-	-	51,113
1909	5 239	36 919	19 731	_	_	_	61 889
1971	5 947	42 441	18,325	_	_	_	66 713
1972	6 763	48 453	21 736	_	422	422	77 374
1973	7,583	55.327	28.363	-	404	404	91.677
1974	7,697	68,447	24,023	_	697	411	100,864
1975	9,192	77,802	24,342	_	795	509	112,131
1976	10,279	89,972	25,707	_	3,203	788	129,161
1977	11,688	104,518	23,055	-	1,078	785	140,339
1978	12,913	110,884	54,011	-	8,786	8,522	186,594
1979	13,674	130,073	81,775	-	10,347	10,038	235,869
1980	15,148	161,663	114,236	-	13,084	11,772	304,131
1981	16,499	195,823	153,683	-	28,629	16,297	394,634
1982	20,564	219,569	206,145	-	91,169	77,301	537,447
1983	22,058	248,927	247,949	-	106,384	89,390	625,318
1984	23,459	311,020	272,839	39,694	131,257	110,644	778,269
1985	25,008	344,666	360,007	42,999	150,162	125,452	922,842
1986	30,353	371,619	491,344	45,796	160,668	132,377	1,099,780
1987	34,737	410,114	467,942	50,329	179,727	147,730	1,142,849
1988	34,832	476,104	504,130	54,652	206,932	173,021	1,276,650
1989	34,050	467,013	600,477	52,663	221,978	201,758	1,376,180
1990	31,997	551,347 622,202	721 750	59,051	248,533	220,998	1,539,669
1991	30,390	707 712	731,750	60,514	209,939	244,013	1,723,404
1992	34 522	737.615	700,295	73 /88	290,397	338 315	2 016 371
1995	32 673	740 420	858 867	76 474	420 645	368 138	2,010,071
1995	32 331	941 305	837 815	103 328	419 701	406 351	2,334,479
1996	39.656	946.789	952,199	110.605	415,785	403.108	2,465,034
1997	41,530	973,780	1,166,858	118,716	438,308	424,914	2,739,192
1998	48,432	1,004,162	1,431,670	126,768	468,578	447,759	3,079,609
1999	39,148	1,100,935	2,038,301	135,368	508,899	482,071	3,822,651
2000	46,638	1,232,981	2,322,725	144,553	492,359	460,861	4,239,256
2001	78,217	1,308,315	2,159,906	154,365	512,119	481,018	4,212,922
2002	96,753	1,371,503	2,011,114	164,845	593,284	562,720	4,237,499
2003	113,756	1,447,268	2,018,931	176,038	594,284	563,132	4,350,278
2004	127,524	1,511,960	2,246,154	187,995	595,778	564,683	4,669,411

Financial corporations

Financial assets - Stocks in billions of lire

Years	Monetary gold and SDR	Currency	Deposits	Securities	Loans	Shares and other equity	Mutual fund shares	Technical reserves	Other assets	Total
1950	112	111	1 129	1 062	3 499	31	_	_	-	5 944
1951	112	149	1,120	1,002	3 903	35	_	_	_	6 930
1952	169	154	1,653	1,417	4,857	43	-	_	_	8,292
1953.	169	180	1,759	1.630	5.631	52	-	_	_	9,420
1954.	169	151	1.962	1,936	6.447	68	-	_	_	10.734
1955	173	140	2.271	2,410	7.399	73	-	-	-	12,465
1956	179	169	2,409	2,703	8,317	78	_	-	-	13,855
1957	235	184	2,741	2,952	8,967	94	_	-	-	15,173
1958	646	210	4,100	3,473	9,558	125	-	-	-	18,112
1959	1,203	187	4,988	3,990	10,669	183	-	-	-	21,221
1960	1,549	201	4,003	4,257	12,607	217	-	-	-	22,835
1961	1,561	248	4,726	5,030	15,057	277	-	-	-	26,899
1962	1,573	317	5,658	6,058	18,641	335	-	-	-	32,581
1963	1,464	242	4,675	5,720	23,087	583	-	-	0	35,771
1964	1,317	195	5,620	7,142	24,427	637	-	-	20	39,358
1965	1,502	233	6,882	8,558	27,659	730	-	-	0	45,564
1966	1,509	231	7,872	10,321	31,659	882	-	-	0	52,474
1967	1,500	290	8,866	11,644	36,764	1,063	-	-	0	60,127
1968	1,827	352	9,720	13,503	42,095	1,202	-	-	136	68,835
1969	1,848	364	10,069	16,065	48,816	1,418	-	-	108	78,688
1970	1,852	392	13,596	18,566	55,815	1,595	-	-	66	91,882
1971	1,945	406	17,248	23,886	64,565	1,692	-	-	0	109,742
1972	2,015	565	22,541	28,320	79,539	1,985	-	-	0	134,965
1973	2,018	719	24,787	39,980	97,478	2,570	-	-	0	167,552
1974	1,948	705	32,026	54,133	104,867	3,050	-	-	419	197,148
1975	1,870	721	43,614	73,787	122,905	4,414	-	-	0	247,311
1976	8,235	761	55,994	90,598	141,879	5,389	-	-	2,118	304,974
1977	9,940	873	64,933	118,283	155,628	4,607	-	-	3,239	357,503
1978	12,137	1,144	83,784	142,356	177,184	4,837	-	-	4,303	425,745
1979	16,616	1,621	97,627	153,313	212,805	6,433	-	-	7,991	496,406
1980	34,788	1,730	121,984	167,422	254,660	9,780	-	-	7,162	597,526
1981	35,732	1,749	142,837	186,668	264,208	12,193	-	-	11,349	654,736
1982	33,556	1,884	162,083	228,062	302,785	15,465	-	-	13,704	757,539
1983	44,493	2,069	189,582	270,256	345,498	21,086	-	-	16,800	1 062 120
1904	43,234	3,041	209,914	200,070	472,903	20,097	-	-	21,000	1,003,120
1905	40,409	3,064	222,040	332,227	545,645	41,120	-	-	20,490	1 254 796
1900	41.066	3,409	242,500	202 705	644 906	66 291	-	-	25 770	1,334,780
1988	38 481	3 236	268 536	386.029	749 694	79 204	_	_	37 407	1 562 587
1989	34 931	3 912	379.003	417 323	857 727	88 217	_	_	34 665	1 815 778
1990	31 751	5,389	376 179	445 426	990 622	89 480	-	_	39 021	1,010,770
1991	30,355	5 803	366 587	523 828	1 158 588	111 720	-	_	44 682	2 241 564
1992	30,294	5,330	429,925	604,941	1,320,686	119,102	-	_	56.545	2,566,824
1993.	37.320	5,471	443,178	659.844	1.401.481	177.124	-	_	73.305	2,797,724
1994	41.542	5,761	422.567	835,646	1.298.820	187.820	-	-	99.310	2.891.466
1995	40.257	7.579	475.911	892,246	1.545.694	235.720	7.230	1.380	11.759	3.217.774
1996	38,411	8,690	562,937	1,030,150	1,629,471	261,346	9,228	1,493	9,112	3,550,836
1997	37,696	9,490	623,319	1,165.896	1,774,413	407,443	15.672	1,566	4,757	4,040,251
1998	41,112	10,690	562,426	1,470,429	1,875,925	639,174	29,272	1,591	2,031	4,632,649
1999	44,514	11,221	653,401	1,554,766	2,059,623	945,767	52,032	1,678	439	5,323,441
2000	45,218	12,866	679,675	1,532,244	2,298,621	978,177	81,217	1,764	1,204	5,630,985
2001	48,730	15,792	664,663	1,668,307	2,435,075	818,834	123,140	1,825	1,283	5,777,650
2002	50,084	17,368	895,072	1,623,306	2,556,754	638,600	137,110	1,897	2,648	5,922,839
2003	50,664	17,378	950,464	1,725,210	2,816,382	779,028	146,726	1,962	3,576	6,491,390
2004	49,287	16,727	986,847	1,805,719	2,950,085	820,665	158,375	2,177	4,898	6,794,781

Financial corporations Financial liabilities - Stocks in billions of lire

Years	Currency	Deposits	Securities	Loans	Shares and other equity	Mutual fund shares	Technical reserves	Other liabilities	Total
1950	1 165	3 161	202	586	117	_	138	_	5 360
1950	1,105	3,101	202	676	142	_	130	_	6 227
1957	1,202	4 606	356	776	174	_	204	_	7 497
1953	1,449	5,230	471	873	218	_	239	_	8,481
1954	1,538	5.890	611	1.094	292	_	287	_	9.712
1955	1,671	6,767	774	1,386	335	-	341	-	11,275
1956	1,818	7,547	926	1,528	375	-	400	-	12,595
1957	1,914	8,456	1,085	1,568	436	-	464	-	13,923
1958	2,061	10,367	1,325	2,019	502	-	525	-	16,799
1959	2,237	12,631	1,604	2,101	610	-	596	-	19,779
1960	2,424	13,116	2,034	2,369	729	-	682	-	21,353
1961	2,779	15,518	2,572	2,677	832	-	789	-	25,167
1962	3,234	18,512	3,337	3,266	969	-	910	-	30,227
1963	3,698	20,700	4,169	4,339	1,183	-	928	1,257	36,274
1964	3,914	23,061	4,963	4,263	1,272	-	1,058	1,363	39,894
1965	4,283	27,536	5,690	4,508	1,452	-	1,226	1,478	46,173
1966	4,595	31,596	6,635	5,435	1,687	-	1,420	1,///	53,145
1967	5,125	35,662	7,722	6,794 7.057	1,924	-	1,648	2,017	60,892
1966	5,390	40,701	9,038	10 522	2,200	_	2 103	2,497	70 728
1909	6,100	43,070	10,455	10,522	2,329	_	2,103	2,949	93,720
1970	7 281	64 445	14 705	14.075	2,000		2,303	4 623	111 157
1972	8 748	78 635	17,705	20 232	3 898	_	3 117	4 524	136 630
1973	10.029	95,121	24.329	25,669	5.050	_	3,596	5.426	169,220
1974	11,159	116,205	26,930	26,409	6,045	_	4,129	8,382	199,259
1975	12,921	146,316	33,432	30,404	9,688	-	4,757	0	237,518
1976	14,590	185,155	38,750	34,911	11,650	-	5,532	0	290,588
1977	16,507	218,470	44,221	40,120	11,035	-	6,415	14,583	351,351
1978	19,551	269,199	49,889	40,130	14,751	-	7,312	15,080	415,912
1979	22,592	313,168	55,087	45,830	19,219	-	8,481	20,397	484,774
1980	26,317	360,044	61,540	56,086	48,795	-	9,954	44,174	606,910
1981	30,659	405,756	69,692	30,310	63,616	-	11,905	326	612,264
1982	34,242	478,458	78,074	34,042	63,206	-	14,346	413	702,781
1983	38,443	546,109	85,913	52,214	72,877	_	16,918	396	812,870
1984	43,198	611,191	90,289	124,525	86,633	1,163	35,210	555	992,764
1985	46,995	673,413	95,559	152,316	151,369	19,784	40,983	5/1	1,181,090
1986	50,528	730,498	102,535	160,107	259,995	65,079 50,454	49,396	739	1,418,877
1987	58 953	833.053	122 180	202 547	200,032	51 565	69 740	821	1,442,032
1989	70 022	1 066 792	131 457	162 055	341 098	49 165	85 301	25 925	1,007,707
1990	73.376	1,135,282	136.805	213.031	308.896	47,379	99,492	28,493	2.042.754
1991	80,491	1.261.654	153,745	287.748	370.298	56,191	117.763	29.087	2.356.980
1992	89,222	1,455,987	166,791	345,363	320,460	60,663	139,454	30,139	2,608,080
1993	93,508	1,536,515	194,778	365,472	392,761	110,093	154,174	25,318	2,872,620
1994	100,025	1,546,307	215,970	344,370	374,790	130,168	178,285	25,474	2,915,389
1995	103,249	1,790,953	192,764	322,540	312,385	126,802	234,115	4,168	3,086,976
1996	106,106	1,850,479	320,581	320,477	315,630	197,544	266,332	4,154	3,381,303
1997	114,073	1,836,000	444,791	389,479	504,728	368,432	308,581	2,439	3,968,524
1998	122,411	1,770,545	575,669	424,367	768,226	720,823	356,623	1,316	4,739,979
1999	136,728	1,937,460	591,921	458,784	874,186	920,311	437,528	1,798	5,358,716
2000	145,344	2,050,218	747,927	531,016	1,064,447	871,188	508,041	1,180	5,919,360
2001	125,230	2,042,754	873,106	628,731	770,420	781,651	576,480	1,873	5,800,244
2002	121,666	2,291,889	1,010,390	650,182	620,968	698,136	647,706	2,541	6,043,478
2003	142,911 163,017	2,477,943 2,659,622	1,127,314 1,311,692	692,458 655,582	788,037 917,449	733,423 693,750	741,879 841,032	4,172 5,272	6,708,135 7,247,417

Shares and Mutual fund Technical Other Currency Deposits Securities Loans Total Years other equity shares reserves assets 1950..... 53 556 690 2,249 20 3,567 1951..... 66 743 804 2,668 22 4,303 3,359 1952..... 67 893 966 30 _ _ 5.314 _ 1953..... 67 988 1,135 4.055 38 _ _ _ 6.282 1954..... 66 1,177 1,254 4,677 52 _ 7,227 _ _ 1955..... 74 1,398 1,416 5,565 53 _ 8,506 6.392 _ 1956..... 93 1.450 1.608 54 _ _ 9.597 _ 1957..... 98 1,632 1.759 7,083 65 _ _ 10,637 1958..... 105 2,405 2,219 7,703 88 _ 12,520 _ _ 1959..... 110 2,602 2,745 8,906 140 14,503 170 1960..... _ 116 2,491 3,199 10,785 _ _ 16,761 _ 1961..... 122 2.750 3.683 12.954 213 _ _ 19.721 193 3,314 4,194 16,184 254 _ _ _ 24,139 1962..... 1963..... 235 4.353 4,478 19,672 435 _ _ 29,173 20 5.286 5.061 21,199 438 _ _ 32,195 1964..... 191 1965..... 229 6,508 6,493 23,809 526 _ _ 0 37,565 1966..... 206 7,451 7,977 27,463 636 _ _ 0 43.733 _ _ 262 8,335 9,068 31,902 769 0 50,336 1967..... 334 _ _ 1968..... 9.005 10.840 37.046 881 136 58.242 1969..... 349 9,464 12,027 43,364 1,060 _ _ 108 66,372 13,206 50,442 1,216 _ 1970..... 378 12,523 _ 66 77,831 1971..... 389 15,936 16,821 59,123 1,273 _ _ 0 93,542 _ _ 546 20.697 71.887 1.537 115.938 1972..... 21.271 0 _ 1973..... 688 23,418 27,936 88,817 2,018 _ 0 142,877 1974..... 2,458 _ 685 30,600 34,684 94,604 _ 419 163,450 1975..... 700 42,097 46,031 110,253 3,644 _ _ 0 202,725 4.559 _ 2.118 1976..... 733 53.513 52.234 128,713 _ 241.870 1977..... 842 61,229 77,809 142.614 4.058 _ _ 3,239 289.791 98,425 162,782 4,092 _ _ 4,303 1978..... 1.104 78.014 348.720 _ 1979..... 1,586 85,881 112,509 192,137 5,459 _ 7,991 405,563 125,540 8.079 _ 474.406 1980..... 1,690 104.438 227,497 _ 7,162 1981..... 1,694 122,442 135,655 228,994 19,770 _ _ 11,349 519,904 1982..... 1,817 143,148 175,704 257,243 22,436 _ 13,704 614,052 _ _ 2.013 163.463 206.837 293.583 33.883 _ 16.800 716.579 1983..... _ 1984..... 3 000 179 740 215 497 410 443 27 550 _ 21 655 857 885 1985..... 3,033 199,384 229,171 457,005 36,521 _ _ 26,490 951,604 1986..... 3,380 217,779 238,043 494,127 68,044 _ 31,058 1,052,431 223,473 _ 1987..... 2,981 246,213 534,532 54,098 _ 35,770 1,097,067 1988..... 3.212 228.626 237.499 623.020 59.015 _ _ 37.407 1.188.779 1989..... 3,878 308,912 235,033 701,810 21,338 _ _ 33,000 1,303,971 236,055 21,920 _ _ 37,398 1990..... 5.363 295.294 814.102 1.410.133 5,776 1991..... 299,935 285,549 944,514 39,432 _ _ 43,040 1,618,247 1992..... 5,311 366,733 346,808 1,075,882 37,846 _ _ 51,085 1,883,665 1993..... 5,462 380,739 354,808 1,160,266 52,571 _ 66,718 2,020,565 _ 1994..... 5,749 352,782 402,447 1,131,287 40,312 90,804 2,023,382 422,426 106 1995..... 7.559 352.991 1.423.800 49.563 1.380 11.744 2.269.567 1996..... 8.675 403.325 473.350 1.496.365 56.251 633 1 4 9 3 9.112 2.449.205 1997..... 9,458 437,682 466,912 1,583,514 83,490 1,080 1,566 4,758 2,588,459 1998..... 10,651 436,693 493,409 1,659,884 142,777 3,404 1,591 2,029 2,750,438 516.559 1999..... 11.182 418.553 1.795.227 205.312 6.059 1.678 422 2.954.993 2000..... 12,727 461,456 492.528 2,001,517 234.040 8.742 1.764 1.166 3.213.939 2001..... 15,701 445,153 524,499 2,100,639 209,461 11,842 1,825 1,226 3,310,346 2002..... 17,316 659,778 485,518 2,235,756 194,737 15,858 1,897 409 3,611,269 2003..... 686,958 495,621 2,401,889 18,368 1,276 3,887,318 17,331 263,914 1,962 2004..... 16.674 742.313 553.304 2,537,814 287.233 22.519 2.177 3.278 4,165,312

Banks Financial assets - Stocks in billions of lire

Banks Financial liabilities - Stocks in billions of lire

Years	Deposits	Securities	Loans	Shares and other equity	Technical reserves	Other liabilities	Total
1 950	2,263	202	437	77	-	-	2,979
1951	2,720	254	518	93	-	-	3,586
1952	3,376	356	659	112	_	_	4,504
1953	3,966	471	742	147	_	_	5,327
1954	4,541	611	825	185	_	_	6,162
1955	5.235	774	1.040	221	_	-	7.270
1956	5,920	926	1,162	260	_	_	8,268
1957	6,610	1,085	1,310	321	_	_	9,326
1958	7,693	1,325	1,791	382	_	_	11,190
1959	9,024	1,604	1,883	494	_	_	13,005
1960	10,423	2,034	2,140	608	_	_	15,205
1961	12,237	2,572	2,412	695	-	-	17,916
1962	14,552	3,337	2,953	831	-	-	21,673
1963	18,819	4,169	4,249	1,044	_	892	29,173
1964	20,956	4,963	4,183	1,131	-	962	32,195
1965	25,069	5,690	4,466	1,311	-	1,029	37,565
1966	28,885	6,635	5,408	1,535	-	1,270	43,733
1967	32,660	7,722	6,748	1,751	-	1,455	50,336
1968	37,374	9,038	7,879	2,066	-	1,885	58,242
1969	41,046	10,455	10,446	2,317	-	2,108	66,372
1970	48,684	12,127	11,724	2,636	-	2,660	77,831
1971	58,475	14,705	13,867	3,056	-	3,439	93,542
1972	71,670	17,476	19,937	3,594	-	3,261	115,938
1973	84,634	24,329	25,339	4,618	-	3,957	142,877
1974	102,250	26,930	22,420	5,495	-	6,355	163,450
1975	127,436	33,432	23,499	7,344	-	0	191,711
1976	157,913	38,750	25,464	9,153	-	0	231,280
1977	190,968	44,221	31,255	9,763	-	4,862	281,069
1978	235,383	49,889	35,498	12,915	-	3,044	336,729
1979	277,767	55,087	42,837	12,043	-	0	387,734
1980	321,221	61,422	54,056	17,978	-	0	454,677
1981	358,959	69,368	27,057	21,840	-	0	477,224
1982	429,035	77,792	30,637	22,346	-	0	559,810
1983	488,808	85,730	45,204	34,805	-	0	654,547
1984	545,116	90,159	118,216	49,596	9,811	0	812,898
1985	591,881	95,488	133,880	59,574	10,949	0	891,772
1986	643,103	102,512	137,517	71,116	13,003	0	967,251
1987	680,058	113,919	146,378	73,922	14,368	0	1,028,645
1988	727,696	122,084	170,720	83,182	15,350	0	1,119,032
1989	951,527	131,451	88,208	176,137	17,617	14,518	1,379,458
1990	1,010,197	136,636	109,908	156,886	18,456	17,046	1,449,129
1991	1,132,708	153,432	164,058	198,440	21,175	16,875	1,686,688
1992	1,327,663	166,407	206,536	156,870	22,417	19,918	1,899,811
1993	1,400,597	194,225	225,527	173,495	23,628	18,858	2,036,329
1994	1,393,881	215,720	224,381	173,654	25,688	18,428	2,051,753
1995	1,643,271	189,429	150,184	161,924	28,176	2,697	2,175,681
1996	1,720,364	316,943	137,826	172,012	29,163	2,708	2,379,018
1997	1,691,620	440,022	171,795	325,513	29,455	2,083	2,660,488
1998	1,712,000	570,250	180,629	521,668	27,994	468	3,013,008
1999	1,827,243	566,574	193,349	630,937	28,143	600	3,246,845
2000	1,961,104	690,725	224,526	713,978	28,787	77	3,619,197
2001	1,975,787	745,931	282,592	459,251	24,293	32	3,487,887
2002	2,218,705	838,690	277,205	399,820	23,838	321	3,758,578
2003	2,271,512	916,639	306,608	527,128	23,388	437	4,045,711
2004	2,408,023	1,058,974	289,289	586,990	22,949	1,202	4,367,427

General Government

Financial assets - stocks in billions of lire

Years	Currency	Deposits	Securities	Loans	Shares and other equity	Mutual fund shares	Technical reserves	Other assets	Total
1950	_	_	115	337	3	-	_	-	456
1951	_	-	159	520	3	-	_	_	682
1952	_	-	208	701	4	-	_	_	912
1953	_	-	251	873	. 5	-	_	_	1 129
1954	_	-	283	1 027	6	-	_	_	1,316
1955	_	_	295	1 181	6	_	_	_	1 482
1956	_	-	312	1 373	6	-	_	_	1 692
1957	_	_	333	1.555	11	_	_	_	1.899
1958	_	_	345	1.836	12	_	_	_	2,193
1959	_	_	366	2.027	12	_	_	_	2.405
1960	_	_	391	2,257	14	_	_	_	2,662
1961	_	_	442	2,588	18	_	_	_	3,048
1962	-	-	640	2,972	22	-	-	-	3,634
1963	26	1,843	1,069	5,895	1,066	-	-	6	9,905
1964	39	2,020	1,631	6,624	1,152	-	-	5	11,471
1965	43	2,258	1,638	7,159	1,414	-	-	7	12,519
1966	49	1,998	1,602	7,525	1,554	-	-	4	12,732
1967	57	2,096	1,559	9,008	1,838	-	-	9	14,567
1968	56	2,338	1,527	10,003	2,307	-	-	6	16,237
1969	69	2,751	1,481	11,270	2,635	-	-	8	18,214
1970	86	2,601	1,450	12,295	2,960	-	-	6	19,398
1971	92	3,335	1,470	13,057	3,751	-	-	7	21,712
1972	115	3,205	1,454	15,940	4,533	-	-	11	25,258
1973	159	7,339	1,522	19,346	5,590	-	-	15	33,971
1974	177	8,955	1,524	28,856	6,120	-	-	21	45,653
1975	243	10,271	2,177	38,770	7,210	-	-	43	58,714
1976	271	11,037	2,328	49,489	9,000	-	-	25	72,150
1977	297	14,411	2,505	68,375	11,014	-	-	39	96,641
1978	463	25,843	2,795	78,180	15,201	-	-	9	122,491
1979	646	37,643	3,515	89,490	17,184	-	-	3	148,481
1980	772	47,075	5,268	112,213	23,392	-	-	42	188,762
1981	877	54,143	5,816	139,366	29,630	-	-	40	229,872
1982	937	59,622	5,922	168,800	37,923	-	-	2	273,206
1983	1,078	31,100	6,875	62,331	47,098	-	-	0	148,482
1984	1,277	31,510	10,166	66,100	56,137	-	-	0	165,190
1985	1,272	37,677	11,396	76,512	63,708	-	-	0	190,565
1986	1,364	35,666	14,583	85,624	69,177	-	-	0	206,414
1987	1,462	37,185	17,101	89,762	72,813	-	-	0	218,323
1988	1,596	39,203	19,313	103,310	76,220	-	-	0	239,642
1989	43	44,914	22,689	127,724	76,278	-	-	15,017	286,665
1990	111	46,990	26,388	140,196	80,215	-	-	14,596	308,497
1991	30	50,293	28,318	149,860	83,557	-	-	14,648	326,707
1992	57	54,490	31,012	155,394	90,351	-	-	11,590	342,895
1993	82	88,462	31,953	168,004	100,479	-	-	8,841	397,823
1994	52	120,643	32,798	184,787	96,620	-	4 054	5,708	440,610
1995	25	140,866	22,906	205,635	180,523	397	1,251	64,099	615,702
1996	79	125,388	27,714	224,434	207,862	608	1,389	74,797	710,022
1009	148	120,717	31,091	220,353	234,471	1,134	1,505	90,013	710,932
1998	0	115,018	32,909	208,558	232,811	2,129	1,624	122,743	715,791
2000	0	133 040	43,302	211,032	215 170	2,109	1,776	140,937	706 125
2000	0	133,949	40,410	210,000	210,1/0	1,031 11 1E0	2 1/1	170,043	707 020
2001	0	130,449	22 054	201,104	193,400	14,400	2,141	104 766	131,320
2002	0	124,816	22,051	240,780	104,744	10,377	2,347	200 224	100,000
2003	0	116 517	23,073	100,128	1/0,201	10,007	ר∪ס,∠ דפפ כ	200,324	733 635
2004	0	110,517	23,200	190,002	100,070	12,907	2,007	200,004	133,025

General Government

Financial liabilities - stocks in billions of lire

Years	Currency	Deposits	Securities	Loans	Shares and other equity	Technical reserves	Other liabilities	Total
1950	11	818	1.479	1.226	· · ·	153		3.686
1951	13	958	1.637	1,264	_	212	_	4.084
1952	32	1,162	1,841	1,546	-	257	-	4,839
1953	52	1,426	2,063	1,806	-	317	-	5,664
1954	62	1,520	2,400	2,072	-	372	-	6,426
1955	70	1,639	2,712	2,469	-	433	-	7,323
1956	41	1,788	2,951	2,648	-	513	-	7,940
1957	37	1,916	3,126	2,842	-	610	-	8,531
1958	50	2,111	3,640	3,157	-	717	-	9,674
1959	62	2,240	4,282	3,398	-	843	-	10,826
1960	78	2,461	4,406	3,871	-	915	-	11,732
1961	89	2,734	4,649	4,408	-	1,030	-	12,909
1962	96	3,075	4,889	5,499	-	1,163	-	14,722
1963	110	4,865	4,649	6,745	-	1,399	61	17,829
1964	118	5,371	5,123	7,826	-	1,606	68	20,112
1965	127	6,086	5,910	8,914	-	1,778	77	22,892
1966	190	6,191	7,681	9,086	-	2,045	83	25,276
1967	206	6,806	8,744	10,368	-	2,318	97	28,539
1968	209	7,374	10,326	11,899	-	2,602	104	32,514
1969	218	8,220	12,122	12,558	-	2,912	119	36,149
1970	230	8,400	13,209	15,797	-	3,247	132	41,015
1971	245	9,498	17,075	17,566	-	3,635	142	48,161
1972	258	10,905	20,519	22,492	-	3,985	160	58,316
1973	283	13,695	26,009	30,732	-	4,147	172	75,038
1974	299	16,346	34,211	38,569	1	4,745	198	94,369
1975	323	19,640	49,651	51,315	1	5,438	239	126,607
1976	367	22,383	61,432	67,812	2	6,331	232	158,559
1977	418	26,973	83,940	81,969	3	7,487	228	201,018
1978	574	36,757	110,246	94,085	133	8,729	205	250,729
1979	661	56,201	128,961	106,024	10	9,939	320	302,116
1980	717	70,805	152,807	131,659	16	11,846	276	368,126
1981	790	90,981	194,451	102,105	15	13,038	300	462,340
1902	004	71 020	231,014	190,007	15	10,901	297	500,072
1965	960	71,030	407 250	129,000	15	20 970	1 202	554,565
1984	1,041	83 496	516 620	168 750	15	20,079	1,393	795 974
1985	1,071	95,490	615.876	177 306	15	24,144	1,070	010 521
1987	1,004	110 043	703 638	195 008	59	30.676	2,552	1 043 618
1988	1,107	124 851	808 628	217 140	59	33 706	2 763	1 188 396
1989	1,210	112 530	933 325	215 223	103		59	1 262 581
1990	1,429	125.266	1.062.201	235,938	106	_	46	1.424.986
1991	1,530	136.954	1.197.805	264.584	108	_	41	1.601.022
1992	1,632	144,775	1,352,476	292,001	110	-	49	1,791,043
1993	1,720	152,464	1,541,031	310,589	112	-	466	2,006,383
1994	1,830	170,182	1,798,838	238,612	113	-	863	2,210,439
1995	1,966	246,072	1,774,390	286,866	116	-	111,035	2,420,444
1996	2,055	266,079	2,016,237	295,223	118	-	104,544	2,684,256
1997	2,193	283,267	2,149,816	295,564	129	-	110,541	2,841,510
1998	2,557	301,937	2,306,186	274,301	145	-	107,044	2,992,169
1999	2,600	332,731	2,228,307	299,259	160	-	113,922	2,976,980
2000	2,607	349,202	2,275,706	291,009	173	-	107,333	3,026,029
2001	2,362	387,904	2,353,465	295,556	187	-	93,515	3,132,989
2002	4,122	407,013	2,402,754	292,705	200	-	95,328	3,202,123
2003	4,421	306,417	2,418,673	327,635	225	-	97,882	3,155,253
2004	5,029	311,229	2,537,038	357,136	234	-	102,242	3,312,908

Rest of the world

Financial assets - Stocks in billions of lire

							0.1		 I
Years	Deposits	Securities	Loans	Shares and other equity	Mutual fund shares	l echnical reserves	Other	Trada aradita	Total
				outor oquity	0.1101.000	10001100	400010	Trade credits	
1050	45		400	200	1				045
1950	15	6	488	306	-	-	-	-	815
1951	10	7	471	323	_	_	_	_	808
1953	26	, 8	450	479	_	_	_	_	962
1954	26	9	579	537	_	_	-	_	1.150
1955	29	10	740	611	-	-	-	-	1,389
1956	52	11	782	713	-	-	-	-	1,559
1957	68	13	768	814	-	-	-	-	1,663
1958	41	14	766	914	-	-	-	-	1,734
1959	163	17	906	1,171	-	-	-	-	2,258
1960	168	19	998	1,265	-	-	-	-	2,450
1961	67	25	1,202	1,749	-	-	-	-	3,043
1962	89	28	1,287	1,976	-	-	-	-	3,381
1963	103	33	2,928	2,362	-	-	-	-	5,426
1904	20	50	2,999	2,340	_	-	-	_	5,401
1966	33	53	3,430	2,072	_	_	_	_	6 677
1967	33	44	3.942	3.234	-	_	_	-	7,253
1968	16	62	4.576	3.392	_	_	-	_	8.046
1969	113	62	6,322	4,095	-	-	-	-	10,592
1970	22	62	9,176	4,169	-	-	-	-	13,429
1971	61	77	11,173	4,262	-	-	-	-	15,573
1972	58	90	15,482	5,084	-	-	422	422	21,136
1973	237	100	22,098	5,798	-	-	404	404	28,637
1974	243	119	21,557	6,328	-	-	697	411	28,944
1975	335	85	23,963	7,363	-	-	795	509	32,541
1976	503	59	30,319	7,368	-	-	1,085	788	39,334
1977	604	157	35,875	7,816	-	-	1,078	785	45,530
1978	658	675	29,900	10 048	_	_	0,700 10 347	0,522 10,038	47,102 55,843
1980	749	720	55 215	13 191	_	_	12 078	11 772	81 953
1981	740	950	41,738	14,842	-	-	16,297	16,297	74,567
1982	890	1,543	53,893	15,612	-	-	17,014	15,993	88,952
1983	821	1,704	75,693	17,618	-	-	20,501	19,289	116,337
1984	893	2,760	184,846	24,986	-	-	23,016	23,016	236,501
1985	485	5,361	191,473	38,013	-	-	24,093	24,093	259,425
1986	354	10,386	191,409	39,645	-	-	23,194	23,194	264,988
1987	1,108	9,990	206,035	40,258	-	-	27,869	27,869	285,260
1988	1,034	14,067	239,892	57,429	-	-	29,072	29,072	341,494
1989	141,929	50,562	127,240	62,506	3,100	_	30,007	29,031	425,312
1990	147,230	88 582	211 717	67 803	2,400	_	44,432	34,529	497,974 583 / 00
1997	222 920	115 104	270,960	64 591	2,455	_	59 116	35 237	734 849
1993	219.361	200.808	280,154	95,400	3.006	_	64,964	34,689	863.693
1994	230,423	264,456	266,505	98,949	3,124	-	73,282	41,714	936,739
1995	244,645	329,425	282,184	107,941	2,935	8,940	47,459	47,459	1,023,528
1996	268,884	444,600	262,458	138,231	3,252	10,788	42,650	42,650	1,170,863
1997	297,536	591,583	284,947	225,801	5,401	11,967	47,951	47,951	1,465,187
1998	313,811	770,307	268,171	329,526	7,955	12,547	43,794	43,794	1,746,112
1999	372,813	925,866	332,288	370,268	7,955	20,287	54,961	53,778	2,084,438
2000	414,424	1,039,129	361,854	396,136	7,955	22,509	60,553	59,120	2,302,560
2001	351,920	1,121,626	416,093	354,457	7,968	24,527	60,370	55,299	2,336,961
2002	319,176	1,232,520	416,797	317,872	7,960	26,043	55,705	49,776	2,376,073
2003	321,553	1,338,392	438,891	343,571	7,955	27,326	52,418	49,051	2,530,107
2004	344,200	1,440,846	433,004	415,607	1,900	32,232	49,026	49,372	2,120,022
Monetary Shares and Mutua Other gold and other Years Currency Deposits Securities Loans Total fund liabilities Trade credits SDR equity shares 1950..... 112 57 53 107 336 62 145 871 1951..... 113 82 71 121 279 58 _ 136 _ 859 1952..... 169 84 85 100 361 57 _ 135 _ 990 1953..... 169 106 94 84 297 57 _ 135 _ 941 1954..... 169 79 112 167 342 57 _ 134 _ 1,060 1955..... 173 58 133 376 343 57 _ 133 _ 1,273 1956..... 179 64 138 450 417 124 _ 292 _ 1,663 1957..... 235 79 155 511 416 123 _ 289 _ 1,807 1958..... 646 94 228 553 482 129 _ 303 _ 2,434 1959..... 1.203 65 247 671 556 138 _ 326 _ 3.206 1960..... 1,549 74 237 481 597 161 _ 379 _ 3,478 1961..... 1,561 112 261 665 729 224 _ 528 _ 4,081 1962..... 1.573 110 315 836 948 379 _ 893 _ 5,054 1963..... 1.464 8 563 661 1.386 656 _ 1.454 _ 6.192 1964..... 1,317 8 532 1,143 1,398 728 _ 1,746 _ 6,872 1965..... 1,502 11 476 1,238 2,814 835 _ 1,867 _ 8,743 1966..... 1,509 10 653 1,362 3,695 878 _ 2,123 _ 10,230 1,500 1967..... 9 743 1,478 4.232 1,170 _ 2.504 _ 11,636 1968..... 1,827 11 910 1,294 5,270 1,414 _ 3,065 _ 13,791 1969..... 1,848 11 839 1,211 7,154 1,760 _ 4,313 _ 17,136 1970..... 1,852 14 1,282 1,650 8,945 2,262 _ 4,814 _ 20,819 1971..... 1,945 12 1,487 2,039 10,684 2.296 _ 5,011 _ 23,474 1972..... 2.015 20 1,616 2.032 15 328 2 9 1 7 _ 5.869 _ 29.797 1973..... 2,018 15 893 2,472 19,926 2,952 _ 6,585 _ 34,861 1974..... 1,948 23 945 3,067 13,117 3,271 _ 7,585 _ 29,956 1975..... 1,870 24 788 2,083 15,482 3,394 _ 8,338 _ 31,979 1976..... 8.235 29 1.374 3.529 15.205 3.542 _ 8.444 _ 40.358 1977..... 9,940 25 2,552 6,623 17,742 3,603 _ 8,449 _ 48,934 1978..... 12,137 16 3,688 7,466 23,457 6,086 _ 8,441 _ 61,291 1979..... 16,617 15 9,000 7,369 31,671 5,817 _ 8,439 _ 78,928 1980..... 34,788 13 14,720 7,869 45,482 8,856 _ 9.038 _ 120,766 35,732 16 17,012 9,549 16,464 11,886 _ 7,759 _ 98,418 1981..... 1982..... 33,556 4 15,137 6,223 21,377 14,716 _ 423 _ 91,436 1983..... 44,493 0 22,328 12,441 27,493 20,291 411 127,457 1984..... 43.234 0 25.914 15,321 84,806 33.971 5.737 40,185 40.185 249,168 1985..... 40.409 0 20.133 8.645 97.380 38.892 8,671 38.585 38 585 252.715 1986..... 36,288 0 21,753 9,788 94,855 48,591 10,734 36,575 36,575 258,584 1987..... 41,066 0 28,392 14,879 91,263 51,132 10,583 43,050 43,050 280,365 1988..... 38,481 0 35,972 25,201 105,138 63,653 10,873 42,324 42,324 321,642 1989..... 34.931 0 131,060 49,396 30,266 71,788 10,475 46.251 46.223 374,166 1990..... 31,751 0 139,485 73,818 35,626 74,250 8,067 51,512 51,508 414,509 1991..... 30,355 0 123,794 114,147 51,215 91,089 7,576 53,699 53,383 471,875 1992..... 30,294 0 134,708 117,778 87,057 114,560 8,026 72,833 57,318 565,257 1993..... 37,320 0 165,526 129,690 130,167 175,574 8,291 84,275 60,929 730,844 1994..... 41,542 0 184,147 146,289 106,279 175,166 8,556 106,729 71,098 768,709 1995..... 40,257 0 246,636 176,686 171,901 199,221 25,032 79,100 79,100 938,833 1996..... 38,411 0 305,779 205,574 222,679 221,362 34,577 80,499 80,499 1,108,882 1997..... 37,696 0 352,196 307,204 273,935 359,921 54,605 84,885 84,885 1,470,442 1998..... 41,112 0 289,765 427,590 277,639 520,308 71,180 83,617 83,617 1,711,211 1999..... 44,514 0 275,683 605,817 315,841 934,092 112,382 103,137 101,536 2,391,466 2000..... 45,218 0 240,809 636,185 361,353 977,450 146,092 119,002 115,620 2,526,109 2001..... 48,730 0 226,390 728,773 360,644 886,968 155,907 114,979 114,576 2,522,392 2002..... 50.084 0 217.555 705.041 347,149 675.496 133.585 110.728 110,135 2.239.640 2003..... 50,664 0 248,612 757,834 340,487 760,065 151,587 113,090 109,617 2,422,340 2004..... 49,287 0 216,916 773,931 399,260 782,968 176,156 114,515 112,246 2,513,033

Rest of the world Financial liabilities - Stocks in billions of lire

Mutual Shares and Technical Other Currency Deposits Loans Securities Total Years fund other equity assets reserves shares -141 -87 -106 -92 1950..... -376 1951..... -91 -124 -325 1952..... -193 -74 -163 -131 1953..... -131 -40 -211 -57 1954..... -145 -228 -140 -296 1955..... -1 -153 -290 1956..... 1957..... -165 -304 1958..... -565 1,214 -107 1,228 1959..... -846 1,318 1,425 -794 1,074 1,776 1960..... 1,656 -165 1961..... -737 1.773 -376 1.515 2.183 2.435 1.325 2.343 -973 -456 1962..... 1963..... 1,257 2,368 1964..... 1,363 2,454 1965..... 1,478 2,829 3,330 1966..... 1,777 1,165 2,017 3,800 1967..... 4,498 1968..... 1,334 2,497 2,949 5,364 1969..... 1,684 1970..... 1,564 3,792 6,266 1971..... 1,491 4,623 6,961 1972..... 1,879 4,524 7,427 1,031 5,426 7,798 1973..... 1,984 8,382 12,170 1,647 1974..... 3.108 1975..... 4.199 1976..... 2,579 3,642 6,243 1977..... 2,111 14,583 18,272 2,542 -172 15,080 17,710 1978..... 5,357 20,397 25,800 1979..... 8.242 3.696 44.174 56.230 1980..... 14.952 1,776 17.828 1981..... 1982..... 14,642 15.348 1983..... 14,409 14,896 3,199 8,567 11,766 1984..... 4,585 8,839 13,424 1985..... 8,526 5.245 13.771 1986..... 7.876 10.489 1987..... 2.613 1988..... 3.578 6,975 10,553 1989..... 14,542 7,606 1,074 23,801 10,965 -547 9,807 21,845 1990..... 1,257 1991..... 10,226 -232 6,810 1,472 18,349 1.094 11.557 -621 11.879 34.629 10.721 1992..... 4,709 1993..... 21 059 24 683 -1 732 16 272 64 991 1994..... 28,309 -807 5,785 -2,294 22,675 53,668 1995..... 1996..... 1997..... 1998..... 1999..... 2000..... 2001..... 2002..... 2003..... 2004.....

Not allocated items

Financial assets - Stocks in billions of lire

Years	Currency	Deposits	Loans	Securities	Shares and other equity	Mutual fund shares	Technical reserves	Other liabilities	Total
1050	0	0	0	0		0	0	. I	0
1950	0	0	0	0	0	0	0	0	0
1951	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0
1961	0	0	0	0	0	0	0	0	0
1962	0	0	0	0	0	0	0	0	0
1963	0	5/5	700	0	0	0	0	0	1,275
1964	0	504 602	687	0	0	0	0	20	1,233
1965	0	734	649	0	0	0	0	0	1,209
1967	0	1 191	764	0	0	0	0	0	1,955
1968	0	884	761	0	0	0	0	136	1,781
1969	0	1,046	1,244	0	0	0	0	108	2,398
1970	0	1,189	1,154	0	0	0	0	66	2,409
1971	0	1,355	915	0	0	0	0	0	2,270
1972	0	3,746	1,127	0	0	0	0	0	4,873
1973	0	1,948	1,548	0	0	0	0	0	3,496
1974	0	2,232	2,012	0	0	0	0	419	4,663
1975	0	1,837	1,639	0	0	0	0	0	3,476
1976	0	2,331	1,950	0	0	0	0	0	4,281
1977	0	2,485	3,742	0	0	0	0	3,239	9,466
1978	0	4,417	2,255	0	0	0	0	4,303	10,975
1979	0	6 935	19 095	0	0	0	0	7,391	33 192
1981	0	9,461	27.416	0	0	0	0	0	36.877
1982	0	10,085	35,992	0	0	0	0	1,021	47,098
1983	0	6,809	6,638	0	0	0	0	1,212	14,659
1984	0	5,789	15,508	0	0	0	0	0	21,297
1985	0	7,363	12,599	0	0	0	0	0	19,962
1986	0	10,203	10,543	0	0	0	0	0	20,746
1987	0	3,105	12,192	0	0	0	0	0	15,297
1988	0	5,392	17,593	0	0	0	0	0	22,985
1989	0	0	46,763	0	0	0	0	-3,853	42,910
1990	0	0	46,895	0	0	0	0	-3,087	43,808
1991	0	0	48,937	0	0	0	0	-4,202	44,735
1992	0	0	50 884	0	0	0	0	17 226	68 110
1993	0	0	56 736	0	0	0	0	14 685	71 420
1995	0	0	00,100	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0

Not allocated items Financial liabilities - Stocks in billions of lire

Total financial assets

Stocks in billions of lire

Years	Non financial	Households	Financial		General	Rest of the	Not allocated	Total
	corporations		corporations	Banks	government	world	items	
1950	ا 1.449	5.655	5.944	3.567	456	815	-92	14.227
1951	2 052	6 301	6,930	4 303	682	817	-325	16 457
1952	2,002	7 407	8 292	5 314	912	898	-131	20 285
1052	3 322	8 184	9,202	6 282	1 1 2 9	962	-57	22,200
1954	4 262	9.421	10 734	7 227	1,120	1 150	134	27,000
1055	5 21/	10 010	12 465	8 506	1,010	1,130	374	21,017
1955	5,214	10,313	12,405	0,500	1,402	1,509	405	25 496
1950	5,001	12,223	15,000	10 627	1,032	1,555	490	20,400
1957	7 625	15,003	10,173	12,037	2 103	1,003	1 228	45 965
1950	11 753	18,866	21 221	14 503	2,105	2 258	1,220	57 928
1955	15,002	21 977	22,835	16 761	2,403	2,250	1,425	66 702
1061	16 254	21,377	26,800	10,701	2,002	2,430	2 183	76 137
1062	10,234	24,710	20,035	24 120	3,040	2 2 2 4 3	2,103	95 907
1902	17,230	20,030	32,301	24,139	3,034	5,301	2,343	100 521
1903	16,002	29,249	30,771	29,173	9,905	5 401	2,300	100,521
1904	20,300	23,204	45 564	32,135	12 510	6 210	2,404	104,040
1905	20,791	29.061	40,004 52 474	42 722	12,313	6,210	2,023	127,002
1900	23,797	42 274	52,474	43,733	14 567	7 252	3,330	157,971
1069	24,733	43,274	68 835	58 242	14,307	8.046	3,000	172 811
1900	20,427	56 316	78 688	66 372	18 214	10 592	5 364	199 160
1909	23,300	61 436	91 882	77 831	10,214	13 429	6 266	224 181
1071	32.846	70 778	109 742	93 542	21 712	15,423	6 961	257 612
1972	42 284	82 870	134 965	115 938	25 258	21 136	7 427	313 940
1972	48 291	97 595	167 552	142 877	33 971	28,637	7 798	383 844
1974	47 734	107 287	197 148	163 450	45 653	28,007	12 170	438 936
1975	53.541	127.534	247.311	202,725	58,714	32,541	4,199	523.840
1976	63,877	149,544	304.974	241.870	72,150	39.334	6.243	636,122
1977	69.370	178.620	357,503	289,791	96.641	45,530	18.272	765,936
1978	104,127	225,169	425,745	348,720	122,491	47,102	17,710	942,344
1979	107,320	310,149	496,406	405,563	148,481	55,843	25,800	1,143,999
1980	133,139	400,808	597,526	474,406	188,762	81,953	56,230	1,458,418
1981	153,919	501,911	654,736	519,904	229,872	74,567	17,828	1,632,833
1982	241,863	602,432	757,539	614,052	273,206	88,952	15,348	1,979,340
1983	287,677	715,258	889,784	716,579	148,482	116,337	14,896	2,172,433
1984	365,591	899,984	1,063,120	857,885	165,190	236,501	11,766	2,742,153
1985	420,190	1,132,980	1,211,609	951,604	190,565	259,425	13,424	3,228,192
1986	498,076	1,447,998	1,354,786	1,052,431	206,414	264,988	13,771	3,786,033
1987	526,178	1,522,295	1,441,398	1,097,067	218,323	285,260	10,489	4,003,943
1988	610,431	1,738,598	1,562,587	1,188,779	239,642	341,494	10,553	4,503,305
1989	554,938	2,132,318	1,815,778	1,303,971	286,665	425,312	23,801	5,238,812
1990	637,145	2,309,797	1,977,868	1,410,133	308,497	497,974	21,845	5,753,126
1991	711,267	2,643,620	2,241,564	1,618,247	326,707	583,499	18,349	6,525,006
1992	764,837	2,750,607	2,566,824	1,883,665	342,895	734,849	34,629	7,194,640
1993	903,063	3,034,816	2,797,724	2,020,565	397,823	863,693	64,991	8,062,110
1994	979,411	3,180,736	2,891,466	2,023,382	440,610	936,739	53,668	8,482,630
1995	1,148,987	3,182,545	3,217,774	2,269,567	615,702	1,023,528	0	9,188,536
1996	1,199,965	3,501,368	3,550,836	2,449,205	662,272	1,170,863	0	10,085,304
1997	1,354,568	3,934,558	4,040,251	2,588,459	710,932	1,465,187	0	11,505,496
1998	1,559,999	4,411,795	4,632,649	2,750,438	715,791	1,746,112	0	13,066,346
1999	1,960,259	5,052,730	5,323,441	2,954,993	747,970	2,084,438	0	15,168,838
2000	2,298,447	5,364,602	5,630,985	3,213,939	796,425	2,302,560	0	16,393,019
2001	2,153,824	5,322,741	5,777,650	3,310,346	797,928	2,336,961	0	16,389,104
2002	2,018,931	5,400,538	5,922,839	3,611,269	788,888	2,376,073	0	16,507,269
2003	2,138,540	5,645,965	6,491,390	3,887,318	689,624	2,530,107	0	17,495,626
2004	2,297,142	6,140,820	6,794,781	4,165,312	733,625	2,728,822	0	18,695,190

Total financial liabilities Stocks in billions of lire

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Years	Non financial	Households	Financial		General	Rest of the	Not allocated	Total
	corporations		corporations	Banks	government	world	items	
1950	4,124	177	5,369	2,979	3,686	871	0	14,227
1951	5,068	219	6,227	3,586	4,084	859	0	16,457
1952	6,685	275	7,497	4,504	4,839	990	0	20,285
1953	7,541	332	8,481	5,327	5,664	941	0	22,959
1954	9,424	394	9,712	6,162	6,426	1,060	0	27,017
1955	11,508	465	11,275	7,270	7,323	1,273	0	31,844
1956	12,744	544	12,595	8,268	7,940	1,663	0	35,486
1957	14,729	602	13,923	9,326	8,531	1,807	0	39,592
1958	16,405	652	16,799	11,190	9,674	2,434	0	45,965
1959	23,371	746	19,779	13,005	10,826	3,206	0	57,928
1960	29,237	902	21,353	15,205	11,732	3,478	0	66,702
1961	32,901	1,078	25,167	17,916	12,909	4,081	0	76,137
1962	34,478	1,325	30,227	21,673	14,722	5,054	0	85,807
1963	36,830	2,121	36,274	29,173	17,829	6,192	1,275	100,521
1964	34,418	2,319	39,894	32,195	20,112	6,872	1,233	104,848
1965	39,996	2,569	46,173	37,565	22,892	8,743	1,289	121,662
1966	45,033	2,904	53,145	43,733	25,276	10,230	1,383	137,971
1967	47,388	3,350	60,892	50,336	28,539	11,636	1,955	153,760
1968	51,113	3,896	69,716	58,242	32,514	13,791	1,781	172,811
1969	59,401	4,348	79,728	66,372	36,149	17,136	2,398	199,160
1970	61,889	4,989	93,060	77,831	41,015	20,819	2,409	224,181
1971	66,713	5,837	111,157	93,542	48,161	23,474	2,270	257,612
1972	77,374	6,950	136,630	115,938	58,316	29,797	4,873	313,940
1973	91,677	9,552	169,220	142,877	75,038	34,861	3,496	383,844
1974	100,864	9,825	199,259	163,450	94,369	29,956	4,663	438,936
1975	112,131	12,129	237,518	191,711	126,607	31,979	3,476	523,840
1976	129,161	13,175	290,588	231,280	158,559	40,358	4,281	636,122
1977	140,339	14,020	301,301	201,009	201,018	40,934	9,400	705,930
1978	235 860	10,043	415,912	330,729	200,729	78 028	10,973	942,344
1979	200,009	25 294	606 910	454 677	368 126	120 766	22,505	1,144,000
1981	394 634	28 301	612 264	477 224	462 340	98 418	36 877	1 632 834
1982	537 447	32 506	702 781	559 810	568 072	91 436	47 098	1 979 340
1983	625 318	37 545	812 870	654 547	554 583	127 457	14 659	2 172 432
1984	778,269	43.867	992.764	812.898	656,788	249.168	21.297	2,742,153
1985	922.842	55.610	1.181.090	891.772	795.974	252.715	19.962	3,228,193
1986	1,099,780	68,525	1,418,877	967,251	919,521	258,584	20,746	3,786,033
1987	1,142,849	79,182	1,442,632	1,028,645	1,043,618	280,365	15,297	4,003,943
1988	1,276,650	95,835	1,597,797	1,119,032	1,188,396	321,642	22,985	4,503,305
1989	1,376,180	251,158	1,931,815	1,379,458	1,262,581	374,166	42,910	5,238,811
1990	1,539,869	287,199	2,042,754	1,449,129	1,424,986	414,509	43,808	5,753,126
1991	1,725,464	324,929	2,356,980	1,686,688	1,601,022	471,875	44,735	6,525,005
1992	1,815,837	352,377	2,608,080	1,899,811	1,791,043	565,257	62,046	7,194,639
1993	2,016,371	367,783	2,872,620	2,036,329	2,006,383	730,844	68,110	8,062,110
1994	2,129,079	387,594	2,915,389	2,051,753	2,210,439	768,709	71,420	8,482,630
1995	2,334,479	407,805	3,086,976	2,175,681	2,420,444	938,833	0	9,188,537
1996	2,465,034	445,828	3,381,303	2,379,018	2,684,256	1,108,882	0	10,085,303
1997	2,739,192	485,829	3,968,524	2,660,488	2,841,510	1,470,442	0	11,505,497
1998	3,079,609	543,377	4,739,979	3,013,008	2,992,169	1,711,211	0	13,066,345
1999	3,822,651	619,026	5,358,716	3,246,845	2,976,980	2,391,466	0	15,168,839
2000	4,239,256	682,264	5,919,360	3,619,197	3,026,029	2,526,109	0	16,393,018
2001	4,212,922	720,557	5,800,244	3,487,887	3,132,989	2,522,392	0	16,389,104
2002	4,237,499	784,531	6,043,478	3,758,578	3,202,123	2,239,640	0	16,507,271
2003	4,350,278	859,619	6,708,135	4,045,711	3,155,253	2,422,340	0	17,495,625
2004	4,669,411	952,420	7,247,417	4,367,427	3,312,908	2,513,033	0	18,695,189

Total instruments

Stocks in billions of lire

	Monotony								Othor		
Voore	and and		Donocite	Loone	Soci iritiae	Shares and	Mutual fund	Technical	accets and	Treada	Total
Tedis	SDR	Currency	Depusits	LUdi IS	Securities	other equity	shares	reserves	liabilities	Trade	TOLO
	SDIN								liabilities	credits	
							1				
1950	112	1,233	4,031	4,285	2,001	2,129) –	291	145	-	14,227
1951	113	1,386	4,720	4,848	2,233	2,639) –	382	136	-	16,457
1952	169	1,498	5,853	5,987	2,601	3,583		461	135	-	20,285
1953	169	1,607	6,750	6,958	2,973	3,812		556	135	-	22,959
1954	169	1,679	7,522	8,225	3,571	5,057	' –	659	134	-	27,017
1955	173	1,799	8,539	9,761	4,286	6,378		774	133	-	31,844
1956	179	1,923	9,473	11,095	4,827	6,785		913	292	-	35,486
1957	235	2,029	10,527	12,031	5,329	8,077	· –	1,074	- 289	-	39,592
1958	646	2,204	12,707	13,474	6,352	9,037	· –	1,242	303	-	45,965
1959	1,203	2,364	15,119	15,027	7,511	14,939) _	1,439	326	-	57,928
1960	1,549	2,576	15,814	17,644	8,135	19,008		1,597	379	-	66,702
1961	1,561	2,980	18,513	20,793	9,341	20,601	-	1,819	528	-	76,137
1962	1,573	3,441	21,902	25,628	10,782	19,516	;	2,072	893	-	85,807
1963	1,464	3,816	26,703	32,546	11,591	19,302	- !	2,327	2,772	-	100,521
1964	1,317	4,040	29,528	34,808	13,892	15,402		2,664	3,197	-	104,848
1965	1,502	4,421	34,700	39,292	16,189	19,132	- !	3,004	3,422	-	121,662
1966	1,509	4,795	39,174	44,177	19,365	21,503		3,465	3,983	-	137,971
1967	1,500	5,340	44,402	51,122	22,057	20,755	;	3,966	4,618	-	153,760
1968	1,827	5,610	49,869	58,263	25,313	21,647	' –	4,480	5,802	-	172,811
1969	1,848	6,329	55,175	68,301	28,975	26,028		5,015	7,489	-	199,160
1970	1,852	6,863	64,321	79,715	32,225	24,849) _	5,552	8,804	-	224,181
1971	1,945	7,538	76,785	91,518	39,766	23,948		6,336	9,776	-	257,612
1972	2,015	9,026	94,902	114,579	46,790	28,551	-	7,102	10,975	422	313,940
1973	2,018	10,327	111,657	142,754	60,393	36,365	;	7,743	12,587	404	383,844
1974	1,948	11,481	135,728	158,379	71,905	33,340) _	8,874	17,281	411	438,936
1975	1,870	13,268	168,581	188,771	94,358	37,425	i –	10,195	9,372	509	523,840
1976	8,235	14,986	211,243	223,025	113,990	40,901	-	11,863	11,879	788	636,122
1977	9,940	16,950	250,480	262,919	146,472	37,696	; –	13,902	27,577	785	765,936
1978	12,137	20,141	314,061	287,654	180,514	74,981	-	16,041	36,815	8,522	942,344
1979	16,616	23,268	384,527	341,762	205,091	106,821	-	18,420	47,494	10,038	1,143,999
1980	34,788	27,047	452,504	439,279	237,364	171,902	- !	21,800	73,734	11,772	1,458,418
1981	35,732	31,465	523,210	459,905	290,191	229,199) _	25,543	37,588	16,297	1,632,833
1982	33,556	35,130	604,174	541,566	356,475	284,082	! –	30,247	94,110	77,301	1,979,340
1983	44,493	39,403	647,084	501,447	454,116	341,133		35,055	109,702	89,390	2,172,433
1984	43,234	44,239	712,977	734,611	536,328	393,458	6,900	95,783	174,623	150,829	2,742,153
1985	40,409	48,066	784,405	829,798	645,832	550,282	28,455	108,126	192,819	164,037	3,228,192
1986	36,288	51,612	857,544	880,930	758,552	799,945	75,813	122,920	202,429	168,952	3,786,033
1987	41,066	55,621	918,621	956,261	867,285	727,725	70,037	138,406	228,921	190,780	4,003,943
1988	38,481	60,202	999,268	1,111,948	990,841	826,780	62,438	158,098	255,249	215,345	4,503,305
1989	34,931	71,363	1,310,382	1,124,294	1,148,231	1,013,467	59,640	170,212	306,292	247,981	5,238,812
1990	31,751	74,805	1,400,032	1,316,358	1,304,916	1,032,192	55,447	193,951	343,669	278,506	5,753,126
1991	30,355	82,021	1,522,401	1,539,887	1,502,576	1,193,244	63,767	221,630	369,122	298,196	6,525,006
1992	30,294	90,854	1,735,469	1,771,357	1,671,052	1,141,425	68,689	251,280	434,218	326,979	7,194,640
1993	37,320	95,227	1,854,504	1,886,809	1,900,703	1,362,821	118,384	273,335	533,003	399,244	8,062,110
1994	41,542	101,855	1,900,637	1,788,634	2,194,195	1,408,935	138,724	303,457	604,648	439,236	8,482,630
1995	40,257	105,214	2,283,661	2,055,929	2,176,171	1,349,537	151,833	366,871	659,062	485,452	9,188,536
1996	38,411	108,161	2,422,338	2,139,742	2,582,048	1,489,309	232,121	408,765	664,409	483,607	10,085,304
1997	37,696	116,266	2,471,464	2,310,382	2,943,341	2,031,636	423,037	461,815	709,858	509,798	11,505,496
1998	41,112	124,968	2,362,248	2,392,579	3,357,877	2,720,349	792,003	520,508	754,703	531,375	13,066,346
1999	44,514	139,328	2,545,872	2,646,232	3,465,194	3,846,739	1,032,694	612,831	835,434	583,607	15,168,838
2000	45,218	147,950	2,640,230	2,930,773	3,706,457	4,364,795	1,017,279	695,585	844,733	576,481	16,393,019
2001	48,730	127,591	2,657,048	3,138,253	4,033,561	3,817,482	937,557	777,155	851,727	595,594	16,389,104
2002	50,084	125,789	2,916,457	3,259,338	4,214,940	3,307,779	831,720	862,468	938,693	672,855	16,507,269
2003	50,664	147,332	3,032,972	3,462,190	4,417,577	3,567,258	885,010	971,758	960,861	672,749	17,495,626
2004	49,287	168,045	3,187,768	3,667,299	4,750,185	3,946,805	869,905	1,087,138	968,756	676,929	18,695,190

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OBTAINING QUARTERLY SERIES FROM THE ANNUAL FINANCIAL ACCOUNTS

Giuseppe Bruno^{*}

1. Introduction

One of the main difficulties in constructing financial accounts is the necessity of reconciling different sources and complying with the aggregation constraints that make this a difficult task.

The Italian financial accounts are available on an annual basis from 1950 to 2004 (see Bonci and Coletta in this volume). Quarterly series are available from 1990 onwards, but not for the earlier years. Information on a quarterly basis is of interest both for short-term univariate analysis and for use in econometric models.

The objective of this paper is to explore the feasibility of constructing a database containing quarterly information. It is achieved by presenting some examples of temporal disaggregation of financial accounts series using methods based on available quarterly indicators.

The paper is divided into six sections. This introduction is followed by a section summarizing the characteristics of the Bank of Italy's financial accounts databases. The third section presents the methods currently used at the Bank of Italy and the Federal Reserve Board to compile quarterly statistics. The fourth section describes the methods and tools available for estimating the quarterly values of a series available only on an annual basis. The fifth section contains some examples of the application of the main tools to the household and corporate sectors. Some conclusions are put forward in the last section.

2. The Bank of Italy's financial accounts database

Financial accounts are produced at the Bank of Italy using Speakeasy/Modeleasy+, a software environment that combines the functionalities of a statistical database with those of a sophisticated tool for statistical processing.

The special nature of financial accounts makes the use of classic relational databases inadvisable for two reasons: first, since they are based on the set theory concept of relation, they are not suitable for storing information structures based on graphs, such as financial accounts; second, they do not permit the complex statistical processing necessary for operations such as temporal disaggregation.

By exploiting the characteristics of openness of the Speakeasy/Modeleasy+ package, it was possible to create an integrated environment for inquiring about the metadata (information on functional dependences, units of measurement, etc.) and for statistical processing commands. The financial accounts database contains approximately 10,000 time series used to publish 1,200 quarterly flow series and as many quarterly stock series. Most of the series are quarterly or monthly. A few are nonetheless annual for a variety of reasons, above all the impossibility of obtaining data with a higher frequency. The elementary series are checked for revisions of earlier values and the presence of outliers. Ex post checks are made on the final series for negative stock values. Lastly, the consistency of stocks and flows is verified by checking the plausibility of the financial balances in the light of the past behaviour of the time series and the presence of seasonal components (for more details, see Banca d'Italia, 2002).

^{*} Bank of Italy. The author thanks Riccardo De Bonis, Tommaso Di Fonzo and Federico Signorini for their comments and helpful suggestions.

3. Current techniques for obtaining quarterly financial accounts

Short term economic analysis and the econometric modeling of behavioural relationships require quarterly series. Most of the Italian financial accounts series are available on a quarterly basis from 1990 onwards. A few, such as the annual financial statements of non-financial corporations, insurance companies and pension funds, are available only on an annual basis. For these series, quarterly data are estimated using indicators correlated with the annual figures. In the absence of such indicators, quarterly data are obtained by means of linear interpolation.

The Federal Reserve has published flow-of-funds statistics on a quarterly basis going back to the late 1950s; some of the information is obtained through interpolation. In particular, two methods of linear interpolation are used (see Board of Governors of the Federal Reserve System, 2000). The first method was proposed by Kaitz and Lieberberg, two statisticians of the US Department of Commerce. With this method the quarterly values of flows are obtained as a fixed-weight linear combination of the annual values for the periods t-1, t and t+1. Stocks are obtained by cumulating successive flows.

The second method, known as the ratio method, consists in calculating the unknown quarterly values by reproportioning the information of a base series with known quarterly data.

Using $x_{t,h}$ h = 1,...,4 t = 1,...,N to denote the base series whose quarterly values are known and y_t t = 1,...,N to denote the series to be disaggregated, the procedure involves the followings steps:

1) calculate the ratio
$$R_{t,h} = \frac{x_{t,h}}{\sum_{h=1}^{4} x_{t,h}};$$

2) for each quarter, calculate $y_{t,h} = R_{t,h} \cdot y_t$

The two steps are repeated for each year. Both the Fed methods are easy to use and satisfy the temporal aggregation constraints. However, they produce quarterly series that do not take into account the possible dynamic characteristics of the unknown quarterly series. Moreover, the second method is affected by the *step problem*, which is well known to specialists in the sector.

4. Methods for the temporal disaggregation of time series

This paper evaluates the results of applying methods of temporal disaggregation adopted in compiling quarterly national accounts and based on the use of quarterly indicators. In order to have an instrument that is simple and integrated in the Speakeasy/Modeleasy+ environment, it was decided to use the command DISAGGR, which has recently been updated and enriched with new algorithms by the Istat committee charged with revising the procedures for the temporal disaggregation of national accounts series.

One feature common to all the methods described here is the absence of a true econometric analysis. In fact behavioural models with direct causal relationships between the variables are not examined, but autoregressive structures are assumed that summarize exclusively statistical links with the indicators.

A key reference to the literature is Chow and Lin (1971). Although this work dates back more than 30 years, the method proposed is still the one most widely used by statistical institutions and central banks.

Chow and Lin proposed an indirect estimation approach for the temporal disaggregation of data. The method uses indicators observed at the higher frequency and assumes a structural relationship between the variable to be disaggregated (the target variable) and these indicators.

Ideally such indicators should be highly correlated with the target variable (see Friedman, 1962)) and they and this variable should have a common stochastic trend if they are all I(1), *i.e.* integrated of order one.

In particular, having a series with N annual observations Y_k k = 1, ... N and a quarterly indicator x_i $t = 1, ... 4 \cdot N$, Chow and Lin hypothesize the following linear model:

(1)
$$y_{t} = \alpha + \beta' \cdot x_{t} + u_{t} \qquad u_{t} = \rho \cdot u_{t-1} + \varepsilon_{t} \qquad |\rho| < 1$$
$$\varepsilon_{t} \sim NID(0, \sigma_{\varepsilon}^{2}) \qquad E[u \cdot u'] = V_{h}$$

where:

 $t = 1, 2, ..., 4 \cdot N$ indicates the high-frequency (quarterly) period, y_t is the unknown value of the high-frequency target variable at time t, α, β, ρ and σ_{ε}^2 are the model parameters to be estimated, u_t is a random disturbance process with a probability distribution dependent on two parameters: the autocorrelation coefficient ρ and the variance of the memoryless process ε_t . Putting all the observations in vector format, model 1 becomes:

(2)
$$\vec{y} = \alpha + \beta' \cdot \vec{x} + \vec{u}$$

Model 1 cannot be estimated because the *target* variable y_t is observed only at annual frequency. However, it is possible to derive a model that can be estimated by temporally aggregating the equation of model 2. This aggregation is achieved by premultiplying each term of model 2 by the matrix $C = I_N \otimes c$ where I_N is the order N identity matrix while c is the 1x4 matrix containing, depending on the nature of the series to be disaggregated, one of the following sets of values:

$$c = \begin{cases} 1 & 1 & 1 & 1 & \\ \frac{1}{4} & \frac{1}{4} & \frac{1}{4} & \frac{1}{4} & \\ 1 & 0 & 0 & 0 & beginning of period aggregation \\ 0 & 0 & 0 & 1 & end of period aggregation \end{cases}$$

With these definitions it is possible to construct the estimable model:

(3)
$$C \cdot \vec{y} = C \cdot \alpha + \beta C \cdot \vec{x} + C \cdot \vec{u}$$

which, after premultiplying by C becomes:

(4)
$$Y = \alpha_1 + \beta' \cdot X + U \qquad E[U \cdot U'] = C \cdot V_h \cdot C'$$

where Y is the vector of the N available annual observations of the *target* variable, X is the (k,N) matrix containing the annual observations of the indicators and U is the vector of N annual residuals.

At this point, the following minimum variance linear estimator of the parameter vector β can be derived immediately by using the Generalized Least Squares (GLS) method:

(5)
$$\hat{\beta} = \left[X' \left(C \cdot \hat{V}_h \cdot C' \right)^{-1} X \right]^{-1} X' \left(C \cdot \hat{V}_h \cdot C' \right)^{-1} Y$$

and the values of the disaggregated series can be obtained by means of:

(6)
$$\hat{y}_t = \hat{\beta}' \cdot x_t + \hat{V}_h \cdot C' \left(C \cdot \hat{V}_h \cdot C' \right)^{-1} \cdot \left(Y_t - \hat{\beta} \cdot X_t \right)$$

This estimate is made up of two additive terms. The first one, $\hat{\beta}' \cdot x_t$, is the linear combination of the indicators available at quarterly frequency with the regression coefficients estimated using the aggregate model. The second one distributes the residuals of the annual regression among the four quarters using the information on the variance of the annual error and its covariance with the quarterly error.

This methodology can be applied under the assumption that the time series are stationary or in the event of cointegration between the series to be disaggregated and the yearly aggregated indicators. For the cases in which there is no cointegration, the methods proposed by Fernández (1981) and Litterman(1983) can be used.

Fernández postulates an error process that follows a random walk. The model hypothesized at a quarterly frequency is:

(7)
$$y_t = \alpha + \beta \cdot x_t + u_t \qquad u_t = u_{t-1} + \varepsilon_t$$

Litterman puts forward an extension of the preceding case by hypothesizing a second-order autoregressive error process with a unit root:

(8)
$$u_t = u_{t-1} + a_t$$
 $a_t = \phi a_{t-1} + \varepsilon_t$ $|\phi| < 1 \quad \varepsilon_t \sim NID(0, \sigma_\varepsilon^2)$

Litterman's method nests the model proposed by Fernández in equation (7) as the special case with $\phi = 0$. The presence of a unit root in the error process of equations (7) and (8) permits the effective treatment of cases in the absence of cointegration between the series to be disaggregated and the indicator(s).

Any of the three methods described above can be used in the case of static models. However, when modeling time series, it is often necessary to introduce dynamic elements in the specification. Santos Silva and Cardoso (2001) propose a simple dynamic extension of the Chow and Lin method by considering the following quarterly-frequency model:

(9)
$$y_{t} = \phi y_{t-1} + \beta' \cdot x_{t} + \varepsilon_{t} \quad |\phi| < 1$$
$$\varepsilon_{t} \sim NID(0, \sigma_{\varepsilon}^{2}) \qquad t = 1, \dots, n$$

This model makes it possible to specify the dynamic structure of the relationship between the series to be disaggregated and the indicators. In addition, equation (9) includes both the case of autoregressive disturbance and the error-correction specification once the lagged terms for the indicators are inserted. This formalization can be used for the treatment of cointegrated time series (see Engle and Granger, 1987).

To estimate this model, it is best to solve equation (9) by recursively substituting the values of y_t , to obtain:

(10)
$$y_{t} = \left(\sum_{i=0}^{t-1} \phi^{i} x_{t-i}'\right) \beta + \phi^{t} \cdot y_{0} + \left(\sum_{i=0}^{t-1} \phi^{i} \varepsilon_{t-i}\right)$$

Assuming that the initial condition y_0 and the values y_t t > 0 are generated by the same stochastic process, we can define the expectation of y_0 conditioned on the past values of the indicators as $\eta = E\left(y_0|x_0, x_{-1}...\right) = \left(\sum_{i=0}^{\infty} \phi^i x'_{-i}\right)\beta$. Substituting this expression in (10) gives:

(11)
$$y_{t} = \left(\sum_{i=0}^{t-1} \phi^{i} x_{t-i}'\right) \beta + \phi^{t} \cdot \eta + \left(\sum_{i=0}^{\infty} \phi^{i} \varepsilon_{t-i}\right)$$

which can be rewritten bearing in mind that the last term is a first-order autoregressive process: $v_t = \left(\sum_{i=0}^{\infty} \phi^i \varepsilon_{t-i}\right) = \phi \cdot v_{t-1} + \varepsilon_t$. This brings us back to model (1): For each value of ϕ it is possible to estimate the parameters β and η and the disaggregated values of the series y_t using the Chow and Lin methodology introduced earlier for the static models.

The last temporal disaggregation procedure inserted in the DISAGGR command is that put forward by Guerrero (1990), who proposed a data driven method that, given a preliminary estimate, provides a minimum variance linear estimator (BLUE). In his 1990 paper, Guerrero proposed an

ARIMA approach. The idea is to use a preliminary estimate, w_t ,¹ to derive an ARIMA model, $\phi(B)d(B)w_t = \theta(B)a_{w,t}$, which is assumed to be applicable to the series to be disaggregated as well. Starting from the ARIMA model, the forecasting error can be represented in terms of a moving average:

(12)
$$y_t - w_t = \sum_{i=0}^{t-1} \theta_i \cdot a_{w,t-i} \qquad E(a \cdot a') = \sigma^2 P$$

where y_t and w_t are respectively the unknown values of the target series and the preliminary estimates of these values. The values θ_i are the coefficients of the moving average representation of w_t . In turn $a_{w,t}$ and P represent respectively the innovation and the variance covariance matrix defining the data generation process of the preliminary estimate. Starting from this premise, the minimum variance linear estimator of $y = y_1, y_2, \dots, y_t$ that satisfies the temporal aggregation relationship $Y = C \cdot y$ is given by:

(13)
$$y = w + \hat{A}(Y - C \cdot w) \qquad \hat{A} = \theta P \theta' C' (C \theta P \theta' C')^{-1}$$

Expression (13) can be interpreted in exactly the same way as equation (6), which calculates the quarterly values in the Chow and Lin model: the first term corresponds to the preliminary estimate, likely consisting in the fit of a linear regression; the second term distributes the annual residuals according to a matrix that takes account of the covariance between the annual and the quarterly errors. The TRAMO/SEATS software (see Gomez e Maravall (1998)) has been used for the ARIMA identification of the quarterly series that constitutes the preliminary estimate. In practice a routine has been developed that reads the regular and seasonal parameters produced by TRAMO/SEATS and makes them available for subsequent use by the DISAGGR command.

5. Empirical applications

This section outlines some empirical applications using the temporal disaggregation techniques described above. In particular, some criteria for choosing between the different techniques available are explained. The examples refer to the reconstruction of quarterly series for some household assets and corporate liabilities in the period from 1980 to 2004.² The time series of the assets and liabilities of households and corporations are taken from the database of the financial accounts and those of the indicators are derived from the database of the Bank of Italy's Economic Research Department.

Comparing different temporal aggregation methods is possible only when the true high-frequency values are available. Here, in the absence of quarterly data, it is only possible to evaluate the reasonableness of the results and the goodness of the fit of the annual regression carried out by the DISAGGR command. In the empirical applications the value of the square of the coefficient of correlation between the observed values and those estimated is used to guide the choice of indicators.³ In the following exercises preference has been given to comparison between the

¹ Obtainable as the fit of a linear estimate on a set of indicators.

² In some cases the observations go back to 1960.

³ This is the statistic denoted by R^2 in the summary tables of the regressions.

statistics of the annual regressions, which are based exclusively on observed data and a hypothesis regarding the random structure of the unobserved disturbance component. This hypothesis stems from the decision to rely on statistical regularities rather than a particular economic theory.

For the national accounts series it is standard practice to use certain variables as indicators in obtaining quarterly series from annual data. For example, industrial production is used to estimate quarterly GDP figures. In the case of the variables of the financial accounts there are no aggregates that have traditionally been used as benchmarks. It has therefore been necessary to select a set of indicators and to show the best specifications on the basis of statistical considerations with reference to the regression carried out on the observable model coherent with the temporal disaggregation method chosen. The choice of indicators is the critical factor in this paper and is a preliminary attempt that needs to be verified empirically case by case.

5.1 Assets of the household sector

Among the assets held by households, three of the most important series are considered here: shares, deposits and total assets.

The quarterly series from among which a set of indicators has been chosen are:

- 1) the consumer price index (base 1980, 1960:1 2005:2);
- 2) the stock market index (1950:1 2005:3);
- 3) the M2 money supply (the sum of currency in circulation and bank deposits 1980:1 2005:1);
- 4) household final consumption (1970:1 2005:2);
- 5) the interest rate on government securities (1950:1 2005:2).

The annual series of the price index, the stock market index and the interest rate on securities are strongly correlated with all the household assets considered. The money supply follows deposits closely. Household consumption at current prices, assuming equilibrium between consumption and saving, will grow with financial assets. The descriptive statistics of the series used in the exercises concerning household assets are summarized in Table 1.

Tables 2, 3 and 4 report the results of the annual regressions of the stock of shares held by households on the variables considered. In all the econometric specifications the stock market index is the only variable whose coefficient is systematically positive and significant. In some cases M2 and household consumption (CONFINA) also have a positive and significant coefficient. The graphs for the six disaggregations obtained using the Chow and Lin and Fernández methods are also reported (Figures 1 and 2). They show a substantial similarity both for the levels and the turning points obtained with the various models which have a systematically high value of R^2 .

Tables 5, 6 and 7 report similar regressions for the deposits held by households. In this case, except for the specifications denoted by mod_5 and mod_6, the coefficient of the stock market index is negative and significant. Household consumption exerts a positive influence for the mod_2 and mod_4 models with the Chow and Lin and SSC methods. With the mod_6 specification M2 has a positive and significant effect on deposits with the Chow and Lin and Fernández methods. Tables 8, 9 and 10 complete the analysis for the household sector by considering total assets. The coefficient of the stock market index is again systematically significant and positive. M2 and household consumption have a positive effect on the total assets of the household sector.

In short, the empirical analyses show that the stock market index has a stable relationship not only with the shares and the total assets held by the household sector but also with the sector's deposits (with a negative sign).⁴

5.2 *Liabilities of the corporate sector*

In the exercise on corporate liabilities, the following time series were used: shares issued; loans received; and total corporate liabilities.

The quarterly series used as indicators are:

- 1) the interest rate on loans (1962:1 2005:2);
- 2) the stock market index (1950:1 2005:3);
- 3) gross fixed investment at current prices (1964:1 2005:2);
- 4) gross domestic product at current prices (1960:1 2005:2);
- 5) the interest rate on government securities (1950:1 2005:2).

The interest rates on loans and securities and the stock market index are likely to influence firms' financing decisions. Investment and GDP are aggregates that determine firms' growth decisions.

Table 11 shows the descriptive statistics of the series used for the exercises on corporate liabilities.

Tables 12, 13 and 14 show the results of the annual regressions of the stock of shares issued by firms. In all the econometric specifications examined the stock market index is the only variable whose coefficient is systematically positive and significant. In the specification denoted by mod_6 investment also has a positive and significant influence on the shares issued by firms.

Tables 15, 16 and 17 show the regressions for corporate loans. In this case no dominant indicator was identified. Investment and GDP have a positive and significant influence on loans.

Tables 18, 19 and 20 conclude the corporate sector analysis by examining total liabilities. The stock market index has a positive and significant influence once more, while investment and GDP continue to have the positive and significant influence found when obtaining the quarterly data for loans.

6. Concluding comments

When compiling the financial accounts, it is difficult to obtain quarterly data directly for some sectors and/or instruments, especially for the past.⁵

In this paper we have examined a possible solution to the problem of completing the database by means of indirect methods based on the use of correlated indicators observed at quarterly frequency. Although the work is at an initial stage, it shows the need to identify indicators having a significant and stable relationship with the *target* variables. In this preliminary exercise we have temporally disaggregated some of the most important variables for households and firms. The main results of the analysis are as follows:

⁴ For the years after 1980, Caruso (2006) finds that the movements in share prices have a negative influence on the demand for money.

⁵ For example between 1950 and 1990.

- 1) for the household assets examined, the stock market index is the most stable indicator for obtaining quarterly data;
- 2) for corporate liabilities, in addition to the stock market index, the real variables such as investment and GDP are important.

The empirical application of these methods showed the need for a preliminary specification search to identify the indicator(s) that provide the best results at annual level in terms of the goodness of the fit.

This paper is a first step of a research project aimed at estimating quarterly values of all the financial accounts time series. The latter exercise, in addition to the temporal aggregation constraints, will require satisfaction of aggregation constraints between different financial instruments and institutional sectors. Another direction for the development of this work concerns the possibility of using these methods to make forecasts along the year of the most important financial aggregates.

Descriptive Statistics for indicators and series to be disaggregated

Descriptive Statistics										
		mean	std. dev.	min	max					
consumer price index	CPI80	279.58	91.959	100	415.4					
stock market index	INDBORSA	11.9	7.84	1.24	30.73					
money stock	M2	409623	161269	133472	712495					
household Final consumption	CONFINFA	430.96	202.05	105.32	784.68					
residential dwellings	STOCKAB	2294	1187.2	442.98	4847.2					
interest rate on Gov. bonds	GBRATE	11.2	4.7	3.4	21.2					
households' share	AZIFAM	334876	214745	50299	772255					
households' deposits	DEPOFAM	422407	217570	101756	729455					
households' total assets	TATTFIN	1438210	897794	207000	2909046					

Note: levels are expressed in billions of euro.

Table 2

Yearly regressions for the stocks held by households

		CHOW-LIN method AZIOFAM							
explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6			
CPI80	-841.16 (-3.1)	-362.72 (-1.5)	244.297 (4.5)	-457.069 (-1.8)	-	-			
INDBORSA	22.29 (7.7)	15.946 (6.2)	18.783 (8.2)	16.283 (6.4)	19.477 (9.6)	18.118 (7.3)			
M2	1.4472 (4.1)	-	-	-	-	0.52438 (4.2)			
CONFINFA	1.0291 (0.6)	4.0271 (2.6)	-	4.6528 (2.8)	-	-			
GBRATE	6152. (1.7)	-	79.64 (.1)	2913.4 (1.0)	1605.4 (0.7)	-			
Constant	-45900. (4)	6201.4 (0.1)	58470. (-1.6)	-19301 (4)	88002 (1.0)	-98034 (-1.8)			
Р	.792	.911	.931	.911	.99	.911			
N. Obser.	25	35	45	35	55	25			
R^2	.975	.963	.959	.967	.947	.944			
\overline{R}^{2}	.968	.959	.956	.962	.944	939			

		FERNÁNDEZ method AZIOFAM							
explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	Mod_6			
CPI80	-1129.48 (-2.1)	-605.407 (-1.4)	229.847 (1.4)	-616.872 (-1.4)	-	-			
INDBORSA	19.778 (6.9)	15.944 (6.3)	18.151 (8.2)	16.177 (6.3)	18.606 (9.2)	18.61 (7.1)			
M2	1.4555 (3.2)	-	-	-	-	.70624 (2.63)			
CONFINFA	2.7563 (0.9)	5.459 (2.0)	-	5.5222 (2.1)	-	-			
GBRATE	4916.9 (1.4)	-	1580.3 (.6)	1795.7 (0.6)	1660.1 (0.7)	-			
Constant	-6995.2 (1)	4446.1 (0.1)	-54880 (-1.4)	-9621.3 (2)	-16465. (-0.5)	-101092 (-1.7)			
ρ	1.	1.	1.	1.	1.	1.			
N. Obser.	25	35	45	35	55	25			
R^2	.971	.956	.956	.960	.947	.940			
\overline{R}^{2}	.963	.952	.952	.955	.945	.934			

Yearly regressions for the stocks held by households

Note: t-statistic in parentheses.

Table 4

Yearly regressions for the stocks held by households

	S	SANTOS SILVA e CARDOSO method – AZIOFAM								
Explanatory variables	mod 1	mod 2	mod 3	mod 4	mod 5	mod 6				
CPI80	N.A.	-28.232 (-0.8)	24.646 (2.5)	-89.261 (-1.7)	-	-				
INDBORSA	N.A.	4.4434 (6.5)	4.3373 (7.5)	5.1614 (7.0)	4.4526 (24)	N.A.				
M2	N.A.	-	-	-	-	N.A.				
CONFINFA	N.A.	.44438 (1.7)	-	.91674 (2.5)	-	-				
GBRATE	N.A.	-	-18.929 (1)	1218.9 (1.3)	454.4 (1.4)	-				
Constant	N.A.	-2310.3 (-0.4)	-7604.1 (-1.5)	-12456. (-1.2)	-7436. (-2.1)	N.A.				
φ		.792	.832	.752	.871					
N. Obser.	25	35	45	35	55	25				
R^2		.973	.978	.975	.979					
\overline{R}^{2}		.969	.976	.970	.978					

Comparison among different temporal disaggregation carried out with Chow-Lin method



Fig. 2

Comparison among different temporal disaggregation carried out with Fernández method





Fig. 1

Yearly regressions for the households' deposits

		CHOW-LIN method – DEPOSITI							
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	Mod_6			
CPI80	450.19 (1.7)	181.777 (1.0)	684.929 (15)	176.507 (1.1)	-	-			
INDBORSA	-4.9124 (-2.5)	-4.8841 (-3.3)	-3.7937 (-3.0)	-5.3335 (-3.6)	38105 (2)	1.2933 (7)			
M2	0078 (0.0)	-	-	-	-	1.0562 (9.6)			
CONFINFA	2.1619 (1.3)	3.2967 (2.9)	-	3.319 (3.1)	-	-			
GBRATE	-738. (3)	-	-2228.2 (-1.5)	-2059.8 (-1.3)	-1242 (5)	-			
Constant	-127627 (-1.4)	-34323. (-1.0)	-46527 (-1.4)	-9316. (-0.3)	299912. (3.6)	-44188. (-0.8)			
ρ	.911	.95	.97	.931	.99	.95			
N. Obser.	25	35	45	35	55	25			
R^2	.979	.980	.966	.984	.15	.950			
\overline{R}^{2}	.973	.979	.963	.981	.12	.946			

Note: t-statistic in parentheses.

Table 6

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		FERNÁNDEZ method – DEPOSITI							
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6			
CPI80	569.46 (1.6)	403.416 (1.6)	712.407 (8.2)	412.549 (1.7)	-	-			
INDBORSA	-4.115 (-2.2)	-4.4707 (-3.1)	-3.9282 (-3.2)	-4.6562 (-3.2)	-2.3959 (-1.4)	-2.1056 (-1.2)			
M2	0074 (-0.2)	-	-	-	-	.86541 (4.7)			
CONFINFA	1.0492 (.5)	2.014 (1.3)	-	1.9636 (1.3)	-	-			
GBRATE	-483.33 (2)	-	-1506.2 (-1.1)	-1430.4 (9)	-1250 (6)	-			
Constant	-114253. (-1.4)	-23899. (9)	-20241. (-1.)	-12693. (-0.4)	9890.4 (0.3)	-25964. (-0.6)			
ρ	1.	1.	1.	1.	1.	1.			
N. Obser.	25	35	45	35	55	25			
R^2	.978	.973	.963	.976	.802	.947			
\overline{R}^{2}	.972	.970	.960	.973	.794	.942			

Yearly regressions for the households' deposits

	S.	SANTOS SILVA e CARDOSO method – DEPOSITI						
Explanatory variables	mod 1	mod 2	mod 3	mod 4	mod 5	mod 6		
CPI80	N.A.	N.A.	1348.7 (11.5)	11.184 (.5)	-	-		
INDBORSA	N.A.	N.A.	-3.0069 (-1.2)	-1.4213 (-4.2)	.5950 (5.7)	N.A.		
M2	N.A.	-	-	-	-	N.A.		
CONFINFA	N.A.	N.A.	-	.6160 (3.7)	-	-		
GBRATE	N.A.	-	-3902 (-1.4)	-9.2338 (-0.1)	720.76 (4.)	-		
Constant	N.A.	N.A.	-162406 (-1.6.)	-1393.87 (3)	-4511.6 (-2.3)	N.A.		
ф			-0.97	0.87	.99			
N. Obser.	25	35	45	35	55	25		
\underline{R}^2			.968	.990	.960			
\overline{R}^{2}			.965	.988	.957			

Note: t-statistic in parentheses.

Table 8

Yearly regressions for the households' total assets

	CHOW-LIN method – TATTFIN						
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6	
CPI80	-1884.678 (-6.7)	-1844.242 (-12.)	2023.192 (10.)	-1755.98 (-8.9)	-	-	
INDBORSA	22.463 (7.6)	14.14 (5.6)	24.874 (6.7)	14.158 (5.4)	34.921 (5.9)	31.54 (9.5)	
M2	1.7033 (4.7)	-	-	-	-	3.4781 (15.)	
CONFINFA	18.266 (9.8)	24.867 (24.)	-	24.265 (18.)	-	-	
GBRATE	-528.76 (-0.1)	-	-6077.4 (-1.4)	-2003.7 (-0.7)	-4937.4 (-0.7)	-	
Constant	-43152. (4)	40127. (1.6)	-162290. (9)	55451 (1.5)	854578. (3.4)	-432867. (-3.4)	
ρ	.792	.713	.99	.752	.99	.97	
N. Obser.	25	35	45	35	55	25	
R^2	.998	.998	.955	.998	.893	.987	
\overline{R}^{2}	.998	.998	.952	.998	.889	.986	

Yearly regressions for the households' total assets

	FERNÁNDEZ method – TATTFIN							
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6		
CPI80	-1633.64 (-3.0)	-1052.51. (-1.9)	1933.59 (7.4)	-1021.49 (-1.9)	-	-		
INDBORSA	23.295 (8.2)	18.244 (5.8)	24.59 (6.8)	17.614 (5.7)	28.678 (6.0)	30.18 (9.4)		
M2	2.2498 (4.9)	-	-	-	-	3.1947 (9.7)		
CONFINFA	14.323 (4.7)	19.458 (5.9)	-	19.286 (6.1)	-	-		
GBRATE	-1204. (-0.3)	-	-5504.2 (-1.3)	-4857.9 (-1.4)	-4711.5 (-0.8)	-		
Constant	-70991. (6)	-4580.6 (-0.1)	-118794 (-1.9)	33476. (0.5)	20660. (0.2)	-352531. (-4.9)		
ρ	1.	1.	1.	1.	1.	1.		
N. Obser.	25	35	45	35	55	25		
R^2	.998	.997	.955	.997	.890	.987		
\overline{R}^{2}	.997	.996	.952	.996	.885	.986		

Note: t-statistic in parentheses

Table 10

Yearly regressions for the households' total assets

	S	SANTOS SILVA e CARDOSO method – TATTFIN						
Explanatory variables	mod 1	mod 2	mod 3	mod 4	mod 5	mod 6		
CPI80	N.A.	-700.056 (-13.)	108.266 (9.0)	-594.768 (-8.7)	-	-		
INDBORSA	N.A.	6.0305 (6.1)	2.2253 (3.2)	5.4602 (5.8)	3.2878 (12.)	N.A.		
M2	N.A.	-	-	-	-	N.A.		
CONFINFA	N.A.	9.8718 (26.)	-	8.6759 (18.)	-	-		
GBRATE	N.A.	-	-1460.5 (-2.6)	-683.62 (-0.6)	1168.4 (2.6)	-		
Constant	N.A.	13442. (1.5)	102.07 (0.)	17185. (1.3)	-8949.6 (-1.8)	N.A.		
ф		0.594	0.95	0.634	0.99			
N. Obser.	25	35	45	35	55	25		
R^2		.999	.997	.999	.990			
\overline{R}^{2}		.998	.996	.998	.990			

Descriptive Statistics for indicators and series to be disaggregated

Descriptive statistics										
mean std. dev. min. max										
Nominal GNP	PILD	115123	113729	3037	344852					
Gross fixed investment	IMATD	13572	12058	482.64	37468					
Loans interest rate	NTAIL	12.01	5.4	4.5	23.77					
firms' loans	PRESTITI	333724	433245	1960	1468737					
shares issued by firms	AZIONI	418831	643998	1950	2322725					
firms' total liabilities	TOT_PAS	943044	13308834	4299768	4299768					

Note: levels are expressed in billions of euro.

Table 12

Yearly regressions for the stocks issued by the firms

	CHOW-LIN method – AZIONI						
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	Mod_6	
NTAIL	-1864.9 (-0.8)	-7711.3 (-1.2)	-	-9086.3 (-1.3)	-1046.4 (-0.4)	-2393. (-1.0)	
INDBORSA	19.255 (7.7)	-	23.268 (9.1)	-	22.788 (7.8)	19.996 (7.9)	
IMATD	10.364 (1.9)	12.943 (1.5)	-	-	-	17.815 (6.4)	
PILD	1.034 (1.6)	1.858 (1.9)	-	-	-	-	
GBRATE	-	1972 (0.3)	1016.2 (.3)	5305.9 (0.6)	-		
Constant	-58862. (-0.9)	-5821.4 (-0.1)	191215. (1.8)	492897. (2.6)	232775. (1.701)	-26298 (-0.4)	
ρ	.97	.950	.99	.99	.99	.97	
N. Obser.	41	41	55	43	43	41	
R^2	.958	.924	.946	.197	.940	.963	
\overline{R}^{2}	.953	.915	.943	.157	.937	.960	

Yearly regressions for the stocks issued by the firms

	FERNÁNDEZ method – AZIONI							
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	Mod_6		
NTAIL	-1290.9 (-0.6)	-7554.2 (-1.3)	-	-8850. (-1.3)	-1017. (-0.4)	-1728.7 (8)		
INDBORSA	19.095 (7.9)	-	21.568 (8.9)	-	21.228 (7.7)	19.535 (8.0)		
IMATD	10.281 (1.9)	10.88 (1.3)	-	-	-	15.337 (4.0)		
PILD	1.1596 (1.4)	2.1487 (1.6)	-	-	-	-		
GBRATE	-	4524.2 (0.6)	1163.2 (.4)	5782.9 (0.7)	-	-		
Constant	-18220 (-0.4)	23386. (0.4)	-13938. (-0.3)	38316. (0.5)	-26075 (-0.6)	-12264. (-0.3)		
ρ	1.	1.	1.	1.	1.	1.		
N. Obser.	41	41	55	43	43	41		
R^2	.956	.914	.945	.194	.940	.964		
\overline{R}^{2}	.951	.904	.943	.154	.937	.961		

Note: t-statistic in parentheses

Table 14

	SANTOS SILVA CARDOSO method – AZIONI						
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6	
NTAIL	N.A.	N.A.	-	-789.67 (-0.4)	40.776 (0.1)	-524.07 (-1.3)	
INDBORSA	N.A.	-	4.9482 (26.)	-	4.9514 (20.)	4.6808 (6.9)	
IMATD	N.A.	N.A.	-	-	-	1.3018 (2.9)	
PILD	N.A.	N.A.	-	-	-	-	
GBRATE	-	N.A.	45.096 (0.1)	49.886 (0.)	-	-	
Constant	N.A.	N.A.	-5051.7 (-1.4)	18906. (2.9)	-5062.8 (-0.9)	-1539.6 (2)	
φ			.911	.99	.911	.871	
N. Obser.	41	41	55	43	43	41	
R^2			.983	.618	.983	.983	
\overline{R}^{2}			.982	.588	.981	.981	

Yearly regressions for the firms' loans

	CHOW-LIN method – PRESTITI						
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6	
NTAIL	995.65 (1.0)	3678.2 (2.2)	-	2853.6 (0.8)	680.89 (0.3)	7.5474 (0.)	
INDBORSA	66612 (-0.6)	-	3.0066 (1.6)	-	3.0525 (1.5)	.56819 (0.4)	
IMATD	.79794 (0.3)	1.5444 (0.6)	-	-	-	13.556 (6.0)	
PILD	2.2865 (6.8)	2.0952 (7.2)	-	-	-	-	
GBRATE	-	-4509. (-2.1)	-788.33 (-0.4)	-4334.3 (-1.0)	-	-	
Constant	-34133 (-0.6)	-29312. (-1.0)	260164. (3.4)	323063. (3.6)	282134. (3.1)	106386. (1.4)	
ρ	.99	.97	.99	.99	.99	.99	
N. Obser.	41	41	55	43	43	41	
R^2	.972	.979	.823	.030	.845	.970	
\overline{R}^{2}	.969	.977	.817	019	.837	.968	

Note: t-statistic in parentheses

Table 16

Yearly regressions for the firms' loans

	FERNÁNDEZ method – PRESTITI						
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6	
NTAIL	1063.1 (1.0)	3755.7 (2.3)	-	3007.5 (1.1)	682.18 (0.4)	190.04 (0.1)	
INDBORSA	67364 (-0.6)	-	1.1589 (0.7)	-	1.4139 (0.8)	.20375 (0.1)	
IMATD	.7982 (0.3)	1.483 (0.6)	-	-	-	10.88 (4.6)	
PILD	2.3122 (6.0)	2.1935 (5.9)	-	-	-	-	
GBRATE	-	-4081.4 (-2.0)	-736.66 (-0.4)	-4051.6 (-1.2)	-	-	
Constant	-9711.2 (-0.5)	-8025.2 (-0.4)	5012.2 (0.2)	8273. (0.3)	238.51 (0.)	2163.8 (0.1)	
ρ	1.	1.	1.	1.	1.	1.	
N. Obser.	41	41	55	43	43	41	
R^2	.972	.977	.729	.006	.791	.969	
\overline{R}^{2}	.969	.975	.719	044	.781	.966	

	SANTOS SILVA CARDOSO method – PRESTITI						
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6	
NTAIL	N.A.	N.A.	-	-2197. (-2.7)	259.92 (1.8)	-230.29 (-1.6)	
INDBORSA	N.A.	-	.7766 (11.)	-	.75532 (8.0)	30365 (-1.2)	
IMATD	N.A.	N.A.	-	-	-	1.7833 (11.)	
PILD	N.A.	N.A.	-	-	-	-	
GBRATE	-	N.A.	407.47 (3.4)	2358.3 (2.5)	-	-	
Constant	N.A.	N.A.	-2975.1 (0.)	10821 (4.3)	-1984.7 (-0.9)	2204.1 (-0.9)	
φ			.99	.99	.99	.931	
N. Obser.	41	41	55	43	43	41	
R^2			.992	.819	.990	.995	
\overline{R}^{2}			.991	.805	.989	.994	

Yearly regressions for the firms' loans

Note: t-statistic in parentheses

Table 18

	CHOW-LIN method – TOT_PAS					
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6
NTAIL	-1928. (-0.7)	-4368.2 (-0.7)	-	-7076.2 (-0.6)	-2139.4 (-1.2)	-4045.7 (-1.1)
INDBORSA	16.94 (5.6)	-	27.19 (5.7)	-	26.574 (4.9)	19.585 (5.1)
IMATD	10.781 (1.6)	12.919 (1.4)	-	-	-	38.124 (7.0)
PILD	4.9004 (5.3)	5.5384 (5.0)	-	-	-	-
GBRATE	-	-2646.2 (-0.3)	-2085.6 (.538)	-703.92 (-0.1)	-	-
Constant	-82187 (-0.5)	-50111. (-0.5)	626110. (3.1)	1023075 (3.5)	711426 (3.0)	218976 (1.2)
ρ	.99	.97	.99	.99	.99	.99
N. Obser.	41	41	55	43	43	41
R^2	.972	.965	.912	.161	.902	.976
\overline{R}^{2}	.968	.960	.908	.119	.897	.974

Note: t-statistic in parentheses

Yearly regression for the total firms' liabilities

Yearly regression for the total firms' liabilities

	FERNÁNDEZ method - TOT_PAS					
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6
NTAIL	-1747. (-0.6)	-4163.1 (-0.7)	-	-6595.4 (-0.7)	-2122.2 (5)	-3599.6 (-1.1)
INDBORSA	16.904 (5.7)	-	22.478 (5.5)	-	22.335 (4.8)	18.765 (5.1)
IMATD	10.825 (1.7)	12.249 (1.4)	-	-	-	32.219 (5.5)
PILD	4.9064 (4.7)	5.6759 (4.1)	-	-	-	-
GBRATE	-	-959.21 (-0.1)	-1864.6 (-0.4)	211.91 (0.)	-	-
Constant	-19892. (-0.4)	20933. (0.3)	5046.2 (0.1)	60131. (0.6)	-12578 (-0.2)	5306.3 (0.1)
ρ	1.	1.	1.	1.	1.	1.
N. Obser.	41	41	55	43	43	41
R^2	.971	.962	.911	.163	.901	.976
\overline{R}^{2}	.968	.958	.907	.121	.896	.974

Note: t-statistic in parentheses

Table 20

Yearly regression for the total firms' liabilities

	SANTOS SILVA CARDOSO method - TOT_PAS					
Explanatory variables	mod_1	mod_2	mod_3	mod_4	mod_5	mod_6
NTAIL	N.A.	N.A.	-	-3923.5 (-1.4)	702.38 (1.7)	-433.08 (-1.0)
INDBORSA	N.A.	-	4.4796 (21.)	-	4.4583 (16.)	2.9852 (3.9)
IMATD		N.A.	-	-	-	3.2671 (6.8)
PILD	N.A.	N.A.	-	-	-	-
GBRATE	-	N.A.	941.11 (2.6)	3431.4 (1.0)	-	-
Constant	N.A.	N.A.	-9475.9 (-2.4)	35349. (4.0)	-8572.1 (1.3)	-495.46 (-0.1)
ф			.97	.99	.97	.931
N. Obser.	41	41	55	43	43	41
R^2			.992	.732	.991	.994
\overline{R}^{2}			.991	.710	.990	.992

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SHOULD FINANCIAL ACCOUNTS INCLUDE FUTURE PENSION LIABILITIES?

Gabriele Semeraro^{*}

1. Introduction

In current national and financial accounts, based on the *System of National Accounts 93* (SNA93), the most important categories of future pension liabilities are not considered. In particular, commitments by social security funds, as well as unfunded employer schemes, are not included.

The rationale underlying this treatment relates to how the pension scheme works. Pension relations of a private kind are recognised by SNA93, since the insured subject pays contributions, while his counterparty sets apart corresponding reserves, devoted to financing future pension payments. The commitment is therefore similar to underwriting a private life insurance policy, foreseeing a lump sum at death or retirement time, or to purchasing mutual funds shares: such forms of investment are both recognised in the system of accounts. In each period before payments, the insured individual position can be determined, in a non ambiguous way.

Similar properties do not hold in the case of unfunded schemes, in which current pensions payments are financed by current contributions and transfers, rather than returns on previously accumulated and invested assets. Thus, the debtor commitments are not incorporated in corresponding reserves or segregated assets, and therefore are not analogous to traditional financial instruments. In the accounts it just appears the possible cash imbalance resulting from the gap between contributions received in the current period and pensions paid in the same period, regardless of any commitments relating to future periods.

Under current rules, if an unfunded system faces structural disequilibrium (*i.e.* is accumulating pension commitments not covered by corresponding contributions), but contributions received in the current year equate paid pensions, there is no visible effect on the net borrowing. Even though, in economic terms, it was apparent today, the imbalance would enter national accounts in the future only. In more general terms, the imbalance visible today on a cash basis might underestimate the real imbalance, which would result from appropriate, accrual based, measurement.

A proposal for enlarging pension liabilities recording into the system of national accounts has been launched by a discussion group, in the context of the SNA93 revision process (see United Nations, 2002, Pitzer, 2002), and discussed within international working groups (IMF, OECD, Eurostat, ECB and CMFB). The new treatment would imply consistent changes into the financial accounts and general government deficit.

This paper purpose is to investigate the possible implementation of the ideas so far discussed, with specific reference to the accounting of *flows*, studying the implications from the viewpoint of statistical consistency as well as perspective economic incentive problems. *In what follows, the central point is relating not to stocks, but to flows, as well as to the opportunity to change the current notion of deficit.*

In the next section we discuss the main economic, statistic and accounting reasons to change current recording criteria, and the status of the decision process. It follows a more detailed

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exposition on how pensions are recorded into the current system of national and financial accounts, and on what methods might be used in order to make the proposals effective. (Section 3).

In the next section the new method's robustness is examined, from the point of view of statistical consistency, dependence on uncertain parameters, sensitivity to non-significant operations, and opportunities of manipulations. Even though several arguments have a more general nature, specific attention is paid to points of greater interest for the European countries, in the context of the Excessive Deficit Procedure foreseen by the Stability and Growth Pact. In Section 5 is discussed the ability of the new rules – assuming proper implementation – to capture pension imbalances and provide appropriate incentives for fostering structural reforms. Section 6 summarises this paper's main findings.

2. Why to introduce future pensions into the system of accounts?

2.1 Teaching from the crisis of the employer defined benefit schemes

Proposals to measure future pension liabilities are *not* a new phenomenon of recent years (for an example in each of the previous decades, see Franco, 1995; Castellino, 1985 and Feldstein, 1974), at least in the context of expenditure projections and *stock* of debt (but not in the context of national accounts flows)¹. The debate was mainly referring either to incorporating future pension in one unique current stock (to be added, possibly, to the debt), or to foreseeing future flows of expenditure without discounting them at a single date (avoiding problems of choice for the interest rate). Therefore, current flows recorded by national accounts (in particular, the net borrowing) were not involved. What is new in recent year proposals is the attempt to record future pensions in the system of national and financial accounts, developing an appropriate accounting for flows, in which the implicit cost for future pensions is added to current deficit (Lequiller, 2004; Oksanen, 2004; OECD, 2004).

To better understand recent developments, a previous exam is needed, about what happened on recent years to employer pension schemes of major corporations in the Anglo-Saxon countries. In the USA, almost 40 per cent of employer pension schemes are defined benefit, *i.e.* such that risks relating to future pensions are borne by the employer. This percentage is even greater in the UK (Spadafora, 2004), in spite of recent efforts of "winding-up" towards defined contributions schemes, in which the financial risk is entirely borne by the employees. Since 2001, the negative trend in stock market, compared to given pension commitments, has significantly worsened the corporations' solvability and risks incurred by the creditor banks. In addition, refinancing pension deficit has decreased resources available for productive investments, with consequences of macroeconomic scale. In the previous years, the opposite had happened: the favorable trend in the stock market, causing a significant pension scheme surplus, had induced corporations to decrease pension allowances ("contribution holidays"). Looking at the elements which could have encouraged this under-estimation, many agree on the role played by the previous accounting rules inability to properly evaluate future pension commitments.

Since 2001, introduction of accounting standards FRS 17 and IAS, foreseeing harmonized and pessimistic methods for employers' commitments, has clarified the real financial fragility of several enterprises in the USA and the UK. Should they have already been in force, IAS on pension liabilities would provide investors, as well as employer corporations, with more realistic evaluation, less dependent on temporary improvements in the cash movements. In the same period, not only in the context of pensions, a new approach by statisticians and national accountants started

¹ See Kotlikoff (1984) e Van den Noord e Herd (1993).

to develop, in order to harmonize as far as possible the national accounting rules with the new standards in good business practices.

With this background, it is reasonable asking whether the accounting methods for future pension liabilities might be extended to cases where the debtor is the government, rather than a firm (H.M Treasury, 2002; Blake, 2003). In the extent to which pre-IAS business accounting tended to underestimate the real increase in firms' liabilities, national accounts might likely underestimate the deficit of the government, either regarded as employer, or as guarantor of social security. Actually, the analogy provided by IAS and estimation errors for employer commitments, relating to biased signals based on simple cash-based balances, can be regarded as one of the most appealing elements of pressure in favor of changing the current treatment of pensions in national accounts.

2.2 Sustainability, budgetary surveillance and accrual basis, extraordinary operations

Leaving apart consistency with firms employer schemes, and focusing only on public accounts, a significant role is being played by the increasing concern about themes of ageing economics. In several European countries, such concern is linked to the constant decrease in the ratio between labor force and number of pensioners, in systems already experiencing an imbalance on a cash basis (with some exceptions, notably the UK).² In the USA, where the pension system is balanced on a cash basis (actually, it is in surplus), the concern relates to how to react to deficits foreseen for the next decades, starting from the time of retirement for the "baby boomers" of the end of the fifties (Diamond e Orszag, 2004). In this context the increasing demand for harmonized statistics able to capture future liabilities reflects, on the one hand, uncertainty on *the overall impact of ageing* (Disney, 2001), and on the other hand the need *to evaluate the effects of pension reforms*.³

In European countries, concern for long-term sustainability is accompanied by constant attention to effectiveness of budgetary surveillance, even in the short run. Concerning statistics used for this latter purpose, flow data are based on national accounts, both capital and financial. In this context, efforts to measure future pensions may be regarded in the more general attempt to extend the field of application of the accrual principle. The importance of this principle is linked to the need to avoid advantages for governments just *rescheduling* payments for already made commitments. Actually, many of the most recent (and most discussed) Eurostat's decisions may be considered, after all, as decisions on implementing accrual principles (see European Commission-DG ECFIN, 2005; Council of the European Union – Ecofin, 2005). Recording future pensions may be regarded as an extreme case of accrual accounting, not allowed by current rules, but desirable in the process of revision of the rules.

A strictly related argument concerns the treatment of extraordinary transfers. The most known cases are France-Telecom in France, Daiko Henjo in Japan and Belgacom in Belgium (Lequiller, 2004, Eurostat, 1997 and 2004). Apart of different technicalities, the three transfers have in common the transaction between assets recognized in the system of accounts, and assets which are not. For example, in order to facilitate a privatization campaign, the government assumes pension commitments of the firm versus the employees, receiving as a counterpart a lump-sum payment. In each of the three above cases, a purely financial transaction occurred, in which acquired pension liabilities are the counterpart of an actuarially equivalent lump-sum payment.

² For a detailed discussion about the European situation, see Castellino and Fornero (2003); Economic Policy Committee (2003).

³ Worries about future pension expenditure is strengthened in authors arguing a *trade-off* between pensions and other welfare expenditure that, under budget constraints, may induce severe limitation for weaker groups of people (Boeri e Perotti, 2002).

However, current rules recognized just one side of the transaction (cash payments). That would imply a fictitious improvement in the net borrowing (deficit) for the sector that assumes the "hidden liabilities" (as a counterpart of a "visible" cash payment; see Lequiller, 2005). The only way to avoid such artificial improvements in government accounts would be recognizing *all* pension liabilities in the system of accounts.

Several other reasons of interest exist, for measuring future pensions. For example, introducing pension wealth into the regressors may improve the estimation of households' consumption function. Intentional exclusion of such arguments allows us to clarify one of this paper's main aspects. Advantages arising from some measurement for pension wealth are unquestionable (Attanasio and Brugiavini, 2003, Blake, 2002 e Blake e Orszag, 1999). This paper purpose is to establish if, and how, it is necessary to use such measurements *even in national accounts and government deficit*.

2.3 Evolution in the rules

In the SNA93 review process, on request by the United Nations Intersecretariat Working Group on National Accounts (ISWGNA), the IFM has coordinated an Advisory Expert Group (AEG), that supported the proposal for new rules on pension treatment, prepared by a dedicated Electronic Discussion Group (EDG).

According to the proposal, obligations of employer retirement pension schemes should be recognized as liabilities, whether or not the scheme is funded, even when the employer is the government (De Rougemont, 2003). Such pension liabilities should be measured using actuarial amounts. The recognition of pension liabilities would be based on the concept of "constructive obligation", foreseen by IAS19. This latter refers to the acceptance, by past practices or explicit statement, of responsibilities versus other parties, able to create valid expectations. The proposal so far illustrated would not change anything in the treatment of funds operated by government in the context of social security. Therefore, the proposal was regarded as a first step, taking for granted that it was "too early" for extension to social security.⁴

In the European context, the *Committee on monetary, financial and balance of payments statistics* (CMFB) mandated Eurostat to investigate implications for government finance statistics (GFS) and multilateral fiscal surveillance, considering that GFS are fully integrated in the system of national accounts (subject to revision) and are the basis for the Excessive Deficit Procedure foreseen by the Stability and Growth Pact. From the beginning, the task force coordinated by Eurostat agreed on the importance to keep ESA95, on which European GFS are based, aligned with SNA: as a practical consequence, this means that including pension liabilities into the SNA would eventually change, accordingly, the ESA95 deficit used for the EDP. No consequence has ever been proposed or envisaged for the stock of Maastricht Debt (a practical concept not directly derived from the system of national accounts).

As a further step, the OECD elaborated a proposal in order to treat equally unfunded employer schemes and social security schemes, preparing a detailed scheme for the inclusion of all pension liabilities in the system of accounts, next to standard core accounts. It should be stressed that items referring to unfunded pensions would be recorded not into a separate, satellite account, but directly into the sequence of accounts leading to net borrowing. As a result, two notions of net borrowing would be presented: the current one, and a new one, taking into account unfunded

⁴ For a more official reason: "As a first step, the EDG proposal is restricted to employer schemes, because the benefit provided is clearly of a nature of a deferred compensation (in contrast to other pension schemes, such as those by social security) (...)" Eurostat (2004).

pensions commitments (and corresponding imputed transactions). Thus, such a proposal may be regarded as the second step for recording all pension obligations in the net borrowing.

The Financial Accounts Working Group coordinated by Eurostat agreed (on May 2005), not unanimously, on a "European position" (for a clear and comprehensive treatment, see Mink and Walton, 2005), based on recognition of all pension liabilities (including social security obligations) into a mandatory scheme, separated from the core accounts and the sequence leading to net borrowing. This approach was supported by the European Central Bank. Further steps are foreseen, with specific regard to some detailed items (like the borderline between unfunded government employer schemes and social security), before reaching a final decision within year 2007.

3. The new method: statistics and accounting aspects

3.1 Future pension liabilities in the system of accounts

Before entering the new proposal details, it is appropriate to briefly recall and discuss the current treatment of pensions in national accounts. In order to keep exposition simple, we will use only the financial account, without describing the complete sequence of accounts. In fact, the impact on capital accounts (net borrowing) equates the financial account balancing item. The financial account records transactions in financial instruments, on both asset and liability side. The allowed financial instruments are seven: Monetary gold and SDRs (F.1), Currency and deposits (F.2), Securities other than shares (F.3), Loans (F.4), Shares and other equity (F.5), Insurance technical reserves (F.6) and Other accounts receivable/payable (F.7). Each transaction involving one or several financial instruments, held or incurred by a sector, implies therefore recording in its financial account. Purely financial transactions (like an exchange of bonds for a cash payment) move financial instruments only, in equal opposite amounts, and therefore do not impact on the balancing item of the financial account. Conversely, non financial transactions (like an like an exchange of products for a cash payment) do impact on the balancing item.

Current accounting rules foresee that pension commitments be included within financial instruments (as Insurance technical reserves (F.6)) for funded schemes only. Pension commitments of social security are excluded.⁵ Table 1 depicts, as an example, contributions paid to a firm, sponsoring a defined contribution scheme for its employees. Together with the (contribution) cash payment (F.2), the system of accounts recognizes the incurrence of a financial liability (F.6) of the firm, in an equal amount. Therefore, a purely financial transaction occurs, without any impact on the net lending/borrowing.

⁵ When the government acts as an employer, the last version of the IFM *Manual on Government Finance Statistics* (see FMI, 2001) recommends that transactions in unfunded government employer retirement schemes be recognized. However, social security schemes remain excluded.

Financial instrument	Description	Financial account		
		Asset flows	Liability flows	
F.2 (currency and deposits)	Contributions paid by employees	+100		
F.6 (insurance technical reserves)	Creation of pension commitments		+100	
B.9	F.A. Balancing item (=net lending)		0	

Α	defined	contribution	employer	scheme
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Similarly, at the time of pension payment, a new financial transaction shall occur, with exactly opposite entries (*i.e.* cash payment (-), reducing pension liabilities in the same amount). Thus, the impact on net borrowing shall be again zero.

In the case of social security, by contrast, only cash payments (F.2) are recognized. Therefore, contribution payments improve the net borrowing, whereas pension payments worsen it. The balancing item (or net borrowing) shall be zero only if contributions happen to equal paid pensions, in the same year. If a law promises future greater benefits without a corresponding coverage through greater contributions, the imbalance is not immediately visible in the (cash-based) net borrowing.

3.2 Recording future pension liabilities in the financial accounts

On the basis of the results of the electronic discussion group (EDG) on employer schemes operated by government, Lequiller (2004) proposed a generalized method, that would apply, as well, to the government as sponsor of social security.⁶ The main aspects are the following: 1) To abandon the different treatment based on the funded/unfunded nature of the scheme; 2) To use actuarial valuation to measure future, defined benefit, commitments; 3) To allocate the net assets of defined benefit pension schemes to the sponsor (either the employer or the social security fund).

Even though the method is rather complex, an extremely simple and intuitive version can be provided, using the financial account only. Without consequences for the main conclusions, some

⁶ "My proposal is [...] to accept from the start an extension of the borderline to include the liabilities of social security." (Ibid., pag.5).
components considered in the proposals will be assumed to be zero.⁷ Consider first the case of a private firm in a pay-as-you-go pension system. Let the government pay 11 in pensions, and receive 12.5 in contributions. One part (1.5) of contributions is paid by employees, while the remaining part (*i.e.* 11) is paid by the firm. Assume that, in spite of the cash surplus just described, the system be unbalanced, and the contributions be less than the legally recognized increase in pension rights. The notional contributions, able to keep the system in equilibrium, are assumed to be 15.5 (3 more than contributions actually paid).

Cash entries (F.2) for received contributions (A+B) and paid pensions (C) are depicted in the first part of Table 2. All matters for the financial account, according to the current rules, is this set of cash entries. What results is a net lending of +1.5.

The next part depicts the further entries that correspond to the new treatment. As in the previous chapter, recognizing pension liabilities (or "quasi-liabilities") within financial instruments implies that contribution (A+B) and pension (C) payments correspond to purely financial transactions: counterpart entries of the cash movements are now incurrence and cancellation of insurance technical reserves(F.6X).⁸

Table 2

Financial instrument	Description	Financial account	
		Asset flows	Liability flows
F.2	A) Contributions paid by employees	+1.5	
(currency and deposits)	B) Contributions paid by the employer	+11	
	C) Pensions paid	-11	
(B.9)	Memo: balancing item (net lending/borrowing) under the current rules		(+1.5)
F.6X	Incurrence of liabilities vs. employees (=A+B)		+12.5
(insurance	Redemption of liabilities vs. pensioners (=C)		
technical reserves)			-11
	Actuarial additions		+3
(B.9S)	Memo: net pension quasi-liabilitites		(-4.5)
B.9X	Balancing item or net lending (new defintion)		-3
	= B.9+B.9S		

Pension liabilities impact on government net borrowing

⁷ In particular, the item corresponding to "*property income*". Beside simplification purposes, this choice reflects our scepticism about the need to add this further component. In our view, such a treatment would require the implicit existence of "second line reserves" (for an actuarial comment, see the Appendix VI, prepared by John Walton, in De Rougemont, 2003).

⁸ Capital X denotes that it is a memo expansion of item F.6 (this should also clarify the term "quasi-liabilities"). Similar comments hold for B.9X, memo expansion of net borrowing B.9.

Finally, a further increase in liabilities, called "Actuarial additions", depicts the incurrence of other pension liabilities, not covered by corresponding cash contributions. Such an entry is defined as the difference between current contributions and actuarial (*i.e.* able to keep the system balanced) contributions.

An alternative version for this part of the account may depict, directly, the equilibrium total actuarial contribution (assumed to equal 15.5), without this artificial split into three components (several kinds of contributions and, by difference, the actuarial additions). The version in Table 2 has been preferred in order to separate the component of purely financial transaction (*i.e.* contributions or pensions identically compensating corresponding entries in the first part of the account) from the component regarded as non financial transaction.

Adding new quasi-liabilities (F.6X) to pre-existing financial instruments (F.2), a new version of net borrowing is obtained. In the previous example, thanks to the change in definition, the balancing item moves from a net lending of 1.5 to a deficit (or net borrowing) of 3, which seems to better illustrate the underlying imbalance.

3.3 Implementing the reference scheme

The documents prepared by the discussion group coordinated by the IMF do not provide explicit formulas and general computing methods, even though it is very accurate on all conceptual points. Such computations are already taken for granted into the numerical examples. In addition, the examples refer to micro-data, notably a single firm. Similar comments apply to what followed, including the proposal by F. Lequiller (OECD) for extending the results to the social security. However, to facilitate next paragraphs discussion, it is appropriate to develop the method into a more general context, having regard to possible implementation on aggregate data as well.

Consider an unfunded scheme, without detailing whether it belongs to a firm or to social security. Beneficiaries are divided into employees and pensioners.⁹ For a generic employee (j), the

stock of future pension rights E_{t_0} , corresponding to his counterparty's commitments, may be written as:

$$E_{t_0}^{j} = \sum_{h=1}^{\infty} \frac{W_{t_0+h}^{j}}{(1+r)^h} \gamma_{t_0+h}^{j} \alpha_{t_0+h}^{j}$$
(3.1)

 t_0 = current year, w_t^j = pension income for individual j at tme t;

 γ_t^{J} = probability for individual j of receiving a pension at time t;

 α_t^j = prob. for individual j of being alive at time t; r = rate of discount

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⁹ For the sake of simplicity, inflation is ignored.

In the case of already pensioned individuals, the relationship is simpler. Stock P_t^j of future pension benefits for pensioner j is:

$$P_{t_0}^{j} = \sum_{h=1}^{\infty} \frac{W_{t_0+h}^{j}}{(1+r)^h} \,\alpha_{t_0+h}^{j}$$
(3.2)

Let N_E denote total number of employees, and let N_P denote total number of pensioners participating in the scheme. Denote by $\alpha \in \gamma$ the two arrays of actuarial coefficients from which sequences of values $\alpha_t^j \in \gamma_t^j$ per each individual are obtained. For the given population of employees and pensioners, the total stock S_{t_0} of future pensions at time t_0 shall be therefore:

$$S_{t_0}(r, w, \alpha, \gamma) = \sum_{j=1}^{N_E} \left(\sum_{h=1}^{\infty} \frac{w_{t_0+h}^j}{(1+r)^h} \, \gamma_{t_0+h}^j \alpha_{t_0+h}^j \right) + \sum_{j=1}^{N_P} \left(\sum_{h=1}^{\infty} \frac{w_{t_0+h}^j}{(1+r)^h} \, \alpha_{t_0+h}^j \right)$$
(3.3)

where $w_t = (w_t^1, w_t^2, \dots, w_t^{N_E}; w_t^1, w_t^2, \dots, w_t^{N_P})$, and $w = (w_1, w_2, \dots, w_t, \dots)$

It should be stressed that, in the above formulas, future pension income (as expected today) may or may not take into account probable future promotions and future increases in real wages. The first approach is referred to as "Projected benefit obligation" method (or PBO); whereas the second method (in which no projection is made for future promotions etc) is referred to as "Accrued benefit obligation" (or ABO). Both methods are used by the actuaries, and present some pros and cons. However, the ABO seems to be closer to the national accounts approach.

The value obtained in (3.3) is the stock of pension wealth for households. To obtain the corresponding flow – to be recorded into the financial accounts – it is necessary to identify and isolate the components to be excluded from simple changes in stocks (the Other economic flows, or OEF).¹⁰ For example, the effect of a change in the disocunt rate can, according to (3.3), be

$$\frac{\partial S_{t_0}(r,w,\alpha,\gamma)}{2} \cdot \Delta r$$

approximated through the expression ∂r , whereas similar expressions hold for the impact of other parameters. However, elaborating on conclusions reached by the EDG (pp. 38-42), the flow can be directly obtained by comparing two successive values in (3.3), by imposing constancy in the actuarial parameters. For example, in the case of discount rate changes, the following formulas are easily obtained for change of stock, flow and revaluation:

¹⁰ In national accounts, "*Other economic flows*" (OEF) are changes in stock not explained by fows (transactions). The OEF include *revaluations* and *Other changes in volume*.

$$\Delta S_{t_0+1} = S_{t_0+1}(r_{t_0+1}, \cdot) - S_{t_0}(r_{t_0}, \cdot)$$
(3.4)

$$FL_{t+1} = S_{t+1}(r_{t-1}) - S_{t-1}(r_{t-1})$$
(3.5)

$$OEF_{t_0+1} = \Delta S_{t_0+1} - FL_{t_0+1}$$
(3.6)

The flow defined as in (3.5) measures exactly the increase in future benefits earned by employees and pensioners during the accounting period.¹¹ The procedure to obtain the flow is similar in case of simultaneous change of several parameters: as a first step, the flow is computed assuming no change in all actuarial parameters; the OEF is therefore obtained by difference.

Summing up, before the statistical job there are starting data (3.1, 3.2) similar to those used in models for forecasting of government expenditure, whose results are used and published in several countries. As far as the actuarial parameters remain unchanged, all is needed for statisticians is a single stock, and the corresponding flows is simply determined by its change over time. If – by the law or by the actuaries – a decision to change some parameters is made, what is needed by statisticians is, in addition, a second stock; this latter is derived from the model by computing the new year data just using old parameters. Comparing the two stocks allows for isolating OEF of the year.

4. Statistics and measurement problems

4.1 How to overcome difficulties relating to the discount rate

Several doubts about efficacy of the new method have been mainly related to uncertainty on the main occupational and income data involved in formula (3.5). Nevertheless, the argument that seems to have been most widely accepted refers to dependence of the results on the rate of discount. On this regard, two kinds of problems can be identified: on the one hand, arbitrariness in the choice of the initial rate; on the other hand, volatility induced by rate movements over time, even in absence of creation or redemption of commitments. In the case of private firms, both effects were magnified by pre-IAS accounting practices, allowing for discounting of liabilities by means of an average rate based on the expected returns on the firm's assets (with degrees of freedom in evaluating returns, weights and expectations). Once determined such a rate, the second problem was relating to ample movements in the scheme's commitments, induced by changes in asset prices.

By contrast, the new accounting standards foresee discounting based on the return rate of a "double A", long term, debt security, with further specific restrictions. This dramatically decreases both discretional power and sensitivity to market trends. Even though not all researchers, actuaries included, have regarded such a method like superior, this can today be considered largely agreed, and however "exogenous" with respect to statistics: the results of discounting would not depend on arbitrary choice by the statistician.¹²

¹¹ Even though no formulas are used, what in Lequiller's paper is called "*Actuarial addition*" does not correspond to the flow defined in formula (3.5). It should necessarily correspond to the difference $FL_{t_0+1} - \sum_{j=1}^{N_E} C_j^E(t_0+1) - \sum_{j=1}^{N_F} C_j^F(t_0+1)$, between the present value of new commitments (3.5) and contributions paid in the current year (N_E and N_F , denote the number of employees and employers; C^E and C^F denote contributions paid by employees and employers).

¹² It is not clear why a different rate should be used for social security. See however Mink e Walton (2005), p. 6.

This latter discussion does not eliminate all doubts about the impact of the discount rate on stock data but, in our view, the criticisms seem significantly weakened for flow data, thanks to the specific, proposed method. When adopting the accounting scheme developed in the previous section, it can be easily checked that the flow derived by (3.5) cannot be influenced by volatility in the discount rate. Robustness to rate movements should be regarded as a main characteristic of the new method. The impact of rate movements is deleted from flow data and included into the "Other Economic Flows". As a result, all main flows (income, saving and net lending) would be unaffected by problems of rates volatility (De Rougemont e Lequiller, 2004, pp. 3-4).¹³

Actually, arguments based on rates continue providing excellent reasons to exclude future pension liabilities from (the stock of) Maastricht debt.¹⁴ However, any attempt to adapt the same arguments to measurement of national accounts flows is, in our view, in contrast with the new method's characteristics.

4.2 Possible inconsistency in the "accrued-to-date" method

A similar answer holds for other reactions,¹⁵ that have been related to hypotheses on population trends (considered, however, the less difficult data to be foreseen, see Mink and Walton, 2005), as well as to difficulties in forecasting its employed components and the corresponding income.

Actually, the new method does not rely on hypotheses and forecasts on population trends. In some senses, valuation of pension commitments at any date starts from the past, by considering only rights that have been accruing up to that time, for a given number of individuals registered in the social security system. The flow is thus obtained as "present value of additional rights accrued (actuarially estimated) due to the work service delivered during the period" (De Rougemont e Lequiller, 2004, p. 3). It corresponds, exactly, to the definition of "accrued-to-date liabilities" (Franco *et al.*, 2004, p. 17).

Other two aspects exist, not well developed in the international discussions, but deserving further analysis. They both refer to the treatment of contributions. It is clear from our re-exposition of the OECD proposal (par. 3.3) that the method takes into account the commitment to pay for future pensions, but ignores the right to receive future contributions. If the rationale for the new method is to recognize in the system of accounts the notion of "constructive obligation" (par. 2.3), it is not clear the reason for this asymmetric treatment. The two obligations (for pensions and contributions) are often foreseen by the same law, and share the same nature. Moreover, being forced to make a choice between the two, the commitment about contributions appears to be more binding, due to the asymmetric positions of the two parties. Unlike their counterparty, the contribution payers have no means to unilaterally change the law.

A counterargument may be found in the view expressed by economists, in other contexts. For example, Disney (2001) indirectly expressed a view consistent with the new method, by arguing that future contributions should not be subtracted from pensions of the same period. Such contributions are the basis for further liabilities, referring to later future periods. In this view,

¹³ Of course, we are referring to the accounting effect of rate changes for actuarial evaluation, not to direct effects of rate changes on returns (for those schemes that hold assets too).

¹⁴ For a list of arguments against inclusion of pension liabilities in debt, see Fenge e Werding (2003), Franco (1995), Bohn (1992).

¹⁵ "While population forecasts may to some extent be reliable, it is extremely difficult to make appropriate employment and income forecasts by institutional sector over a (very) long time horizon. The compilation of future entitlements based on such assumptions may have to be revised continuously and substantially. As a consequence, fiscal variables such as government deficit and debt would be surrounded by a high degree of uncertainty and be prone to manipulation." (Mink e Walton, 2005, p. 6). We disagree on the "deficit" part of the last sentence, and totally agree with the "debt" part.

unfunded systems are implicitly assimilated to funded systems, in which any increase in future pensions is the exact counterpart of what happens to current contributions. The price to be paid for implementing this analogy is a major deviation from cash basis.

Even though no problems arise from the point of view of internal consistency, some consequences of this approach may appear questionable or not desirable when attempting to capture and describe imbalances. Taking from granted that none of the two methods is always superior, we describe an example of conflict, in order to better illustrate some characteristics. In the example in Table 3, a defined benefit scheme is described, where the fund statute foresees an obligation to keep cash balance in equilibrium and the legal power to change the contribution level accordingly (this situation is common for the so-called "privatized schemes"). Assume that (a) paid pensions and accrued rights grow in the same amount and (b) contributions are constantly updated, in order to cover current pension payments.

Table 3

Annual increase in pensions perfectly financed by a corresponding increase in contributions (a privatised scheme):

Financial instrument	Description	Financial Account	
		Asset flow	Liability flow
F.2	Contributions received	+10	
	Pensions paid	-10	
(B.9)	Memo: net lending/borrowing (old definition)		(0)
F.6X	Incurrence of liabilities		+10
	Redemption of liabilities		-10
	Actuarial additions		+1
(B.9S)	Memo: net pension quasi-liabilities		(-1)
B.9X	Net lending (new definition)		-1
	= B.9+B.9S		

Year t

Table 3 (contin.)

Annual increase in pensions perfectly financed by a corresponding increase in contributions (a privatised scheme):

Financial instrument	Description	Financial Account	
		Asset flow	Liability flow
F.2	Contributions received	+11	
	Pensions paid	-11	
(B.9)	Memo: net lending/borrowing (old definition)		(0)
F.6X	Incurrence of liabilities		+11
	Redemption of liabilities		-11
	Actuarial additions		+1
(B.9S)	Memo: net pension quasi-liabilities		(-1)
B.9X	Net lending (new definition)		-1
	= B.9+B.9S		

Year t+1

The old method (balancing item B.9) shows in each period a zero net borrowing, that seems to appropriately reflect the economic situation. The new method, by contrast, shows a deficit in each year, not easily interpretable (not only in terms of sustainability). Such a deficit seems to relate to not taking into account the double equilibrium between benefits and contributions (both current and future; in both cash and legal terms).

The informative content of such a deficit seems questionable. The same deficit may be easily obtained for a fund imbalanced in cash terms, requiring continuous external financing, and such that there are neither obligations, nor attempts, to achieve balancing. The very fact that the new method may treat in the same way such different situations could rise doubts on the advantages of the new definition of deficit.

4.3 Other expenditure components

Other points deserving specific attention are arbitrariness of the separating line between contributions and taxation, and possible inconsistencies with the treatment of other expenditure components.

In pay-as-you-go systems, classification of paid amounts as contributions, rather then taxes, is largely discretional. When a direct link between payments received and made by the government does not exist, and in addition both contributions not used for pension payments, and pensions not entirely financed through contributions are observed, separating contributions from taxes may be a fictio iuris, able to change at any time without any real or economic reason. For example in Italy, in 1995, a reclassification of about 4.5 points between taxes and contributions occurred (leading the latter to 23.81 per cent of the salary). This left both total labor cost for the employers and, of

course, sustainability, unchanged. If similar changes impacted on the net borrowing, then governments could easily improve their accounts without any real counterpart.

The net borrowing corresponding to the old definition does not depend, of course, on such "cosmetic" changes. It seemed that the new treatment could be affected (this point was raised in international working groups). However, it is shown in the appendix that the new method is robust with regard to such operations, and that the new definition of net borrowing, like the old one, does not allow for an impact from reclassification within taxes and contributions.

Discussion on consistency within several components of expenditure is based on a simple fact: no significant difference exists between pension obligations of a pay-as-you-go system and obligations relating to public health expenditure (the point was mentioned, but not entirely developed, in the OECD workshop: "Accounting for implicit pension liabilities"; see Lequiller, 2004). In both cases:

- The government assumes the obligation to provide benefits in the future years.
- The "insured" individuals pay some amounts, without a direct link with benefits.
- In principle, a "notional contribution" exists, corresponding to the amount that a private insurance would receive for the same benefits.

If, based on the principle of "constructive obligations", unfunded pensions were recognized in the system, a serious inconsistency would arise with other significant components of public expenditure. However, if health liabilities (like pensions, lacking any link with corresponding, explicit assets) were recognized, it would no longer be clear where the stopping point might be. Some criticisms consistent with this view were expressed in the discussion of the Panel of external fiscal experts of the Internation Monetary Fund (Aaron *et al.*, 2003).

5. Incentive problems

5.1 Rights accrued before the change of method

So far we have been discussing measurement aspects only, in order to test the new method statistical consistency regardless of incentive problems. In this section, regardless of statistical and measurement problems, we shall consider both method as applicable, and compare them with regard to different incentives that are provided. As sketched in sections 1-2, the comparison refers to the following use of pension liabilities: to compute flow data in order to change the current notion of net borrowing, adopted in the context of a threshold-based fiscal rule (like the three per cent rule foreseen by the Stability and Growth Pact). In fact, a change in the definition of net borrowing may impact on the flow data only (net borrowing or deficit), whereas no change is envisaged for the Maastricht debt (a concept that does not depend on the revision of national accounts).

Denote by K(t) the new pension rights accrued during year t, by P(t) and C(t), respectively, cash pensions and contributions paid in the same year; by B.9(t) e B.9X(t) the corresponding balancing items, according to the old and to the new definition. The following formulas can be easily derived (see Appendix):

- The impact of the pension system on B.9(t) is C(t)-P(t);
- The impact on the new B.9X is C(t)-K(t)

• Therefore, the difference between B.9X(t) and B.9(t) equates P(t)-K(t)

As an example, consider two identical countries (A and B), in which two generations exist, with different pension systems: 1) a young generation, of people at the beginning of working life; 2) an old generation, of people, whose age is just before the retirement age. For the old generation, once the retirement age is reached, pensions are determined by the last wage (without a direct link with the individual's complete contribution history). In the years before retirement, the new method already recognizes pensions liabilities in favor of this generation, on the basis of current wages. For the young generation, a formula links the individual pension to all previously paid contributions. This implies a pension liabilities increase in each year as a consequence of contribution payments.

In the past, previous to introducing the new statistical method, both countries implemented a pension reform, by increasing the retirement age for both generations. In comparison to B, country A limited more the pensions for the old generation. A positive component of K shall exist, depending on successive contribution payments by young workers. Therefore, the total flow K shall be positive. Since contributions are assumed to be the same in both countries, this flow K shall be the same too.

It follows that P(t)-K(t) is greater in country B, which faces the same K(t) but pays more pensions. From the third relation recalled above, this means that in country B the new definition ensures a lower deficit. A first, direct conclusion follows: the change in method created an accounting advantage for the less virtuous country. Therefore, the analogy with the introduction of IAS in business accounting does not apply. In that case, introducing the new method implied non ambigous worsening in the accounts of the firms that have been less prudent in previous years.

It should be noticed that what just described implies that deficit alone is not able to capture a part of the relevant information included in the stock data. However, if the proposal to change SNA93 was adopted, within the two indicators subject to a threshold fiscal rule, the deficit would be the only one to change (without any impact on the Maastricht stock of debt).

5.2 Scheduling

Consider now the case of a single country under constant, new method rules. The country has to compare the deficit impact of two alternative pension reforms. We shall show that a permanent incentive may exist, to postpone the reform efficacy.

Assume one young generation whit components at the beginning of working life, and one older generation, with components closer to retirement age, but not just before. Thus, the old generation may continue acquiring pension entitlements. The new generation rights are acquired together with contribution payments.

The two reforms foresee an overall similar cut in pension rights, with different distribution over time. The first reform foresees a similar cut in rights for the two generations, whereas the second reform puts most of the cost on the younger generation, postponing the reform efficacy. Assume that, in the year in which the reform is implemented, the cut in older people's rights is able to keep deficit under the threshold of the fiscal rule, for both reforms.

Table 4 shows an example relating to any of the years that follow the introduction, provided that some old generation pensioners are still alive. The right-hand columns show the financial

account, computed in each of the three hypotheses (no reform, the first reform, and the second reform). In comparison to status quo, Reform 1 foresees less pensions,¹⁶ as well as less growth in future rights (K moves from 13 to 12), while paid contributions remain the same. Reform 2 leaves pensions paid to the old generation almost unchanged (from 16 to 15), by reducing more the growth in future pension rights for younger people (this results in a lower K), for given paid contributions. In comparison to the other, Reform 2 foresees greater pensions today in counterpart of poorer pensions tomorrow. In spite of delaying effects to the future, Reform 2 does not worsen net borrowing B.9X: actually, this latter results improved. Of course, similar inequalities would never apply under the old (cash-based) definition of B.9.

The main reason why Reform 2, while foreseeing greater cash disbursement, does not worsen deficit B.9X is shown in the central rows of Table 4 (the account for pension quasiliabilities). In such a section, a greater current pension payment implies an accounting benefit, since it is interpreted as greater cancellation of liabilities. Other things being equal, paying more in current pensions improves the pension account (B.9S).¹⁷

Table 4

Postponing the reform effects

Instrum.	Description	No reform		Reform 1		Reform 2	
		Α	L	Α	L	Α	L
F.2	C) Contributions received	+10		+10		+10	
	P) Pensions paid	-16		-12		-15	
B.9)	Memo: net lending/borrowing (old definition)		-6		-2		-5
F.6X	Incurrence of liabilities vs employees=C		+10		+10		+10
	Redemption of liabilitites vs pensioners =P		-16		-12		-15
	(Memo: actuarial contribution (K))		(13)		(12)		(11)
	Actuarial additions = K-C		+3		+2		+1
B.9S)	(Memo: net pension quasi- liabilities)		+3		0		+4
B.9X	Net lending/borrowing (new		-3		-2		-1
	Definition = B.9+B.9S)						

¹⁶ Effects on *P* e *K* may be equivalently interpreted in terms either of lower income, or greater retirement age.

¹⁷ This does not imply any problem of internal consistency for the new method, but may create incentive problems. Doubts on this regard were expressed by Franco *et al.*, (2004), in case of extension to flow accounts of the *accrued-to-date* method "*Pensions would be considered as loan repayment* (...) An increase in contribution rates would, ceteris paribus, have no effect either on current or future deficits. (Ibid., p. 27)".

In the same section, a second aspect is shown, resulting from the attempt to make extreme the application of the accrual principle. It is the possibility to exchange current cash with future promises, leaving the pension account (B.9S) unchanged.¹⁸ For countries in which a pension imbalance already exists and a fiscal rule on deficit holds, it seems that such properties of the new method may allow greater freedom of action rather than prompt the immediate adoption of rigorous measures.

More accurate measurements may be obtained trough a specific, account for pensions, including forecasts for pension expenditure in future years (a concept outside the range of national accounts). In absence of such a specific account, however, if we were forced to use a single, imperfect indicator, a stock data would be by far a better choice. In both the examples above, a stock measurement would provide more reliable information: it would remain higher in the less virtuous country (in the first example) and would contrast the misleading information on deficit in the choice between reforms (in the second example).

The conclusion is that, in the specific context of the European fiscal rules, the attempt to include pension liabilities in one of the two indicators seems to pose more problems than solutions. The above examples show how the inclusion of pension liabilities only in one indicator are far from being a compromise solution, able to move things in the "right" direction. Actually, such a partial inclusion may do strictly worse than both the extreme cases (*i.e.* pension liabilities in both the indicators or in none). Chances of manipulation easily excluded in any of the two extreme cases may become available in the mixed regime.

5.3 *Consequences*

In previous paragraphs, examples have been shown in order to discuss the general ability of the new method to properly illustrate pension imbalances through the national accounts net borrowing, and to provide incentives for adopting structural reforms (see Fenge e Werding, 2003).¹⁹

Taking into account the supporting examples in Section 3, as well as the above counterexamples, the new deficit seems more efficacious in capturing pension imbalances while they are being created, without waiting for impact visible in cash terms. By contrast, it may not be so efficacious in countries where the imbalance already occurred in cash terms. One intuitive explanation may be found by observing that the new method, beside its complexity, boils down to a change in the time of recording for the same flows. On this point, the authors and supporters of the new method seem to agree too:

"In the long-term, and taking into account a whole cycle of pension debt creation and extinction, the cumulated deficit of the previous account and of this one are equal. The timing is however different, the last one giving a better picture in terms of structural deficit." (De Rougemont e Lequiller, 2004, p. 6).

¹⁸ In addition, with a counterintuitive *trade-off*: if current pension payments increase, it is necessary increasing (instead of reducing) the future rights, in order to the keep pension account balancing item (B.9S unchanged.

¹⁹ In a different context, referring to stock measurements, Franco *et al* (2004) noticed that the size of unfunded pension liabilities might not imply univocal consequences about sustainability or future imbalances (Ibid., p. 21 e sgg.). A case is discussed, in which a difference arises in pension liabilities to GDP, but sustainability is the same. A second example refers to a demographic shock, causing a significant change in sustainability, without any corresponding change in pension liabilities to GDP.

A key to understand the view expressed in the last sentence is provided by pension situation in the USA, where the social security system is currently facing cash surplus, and this surplus shall be continuing for the next two decades. Nevertheless, many economists are worried about cancellation of the social security system when, in successive decades, cash deficits will occur (Diamond e Orszag, 2004). The new method seems conceived and designed in order to deal with this problem. If applied, it would immediately change the current surplus in deficit, providing therefore a picture more consistent with economists' worries.

The point is that, considering what just observed about time of recording, it may be the case that no method exists, able to simultaneously penalize the USA and European countries -i.e. who is in the step of creation of the imbalance, and who is in the step of recovery - and able to provide better incentives to both, in comparison to simple cash accounting.

On this regard, it should be stressed that our counterexamples do not show that the old method is better than the new one. They just show that cases exist where imbalances are better depicted and penalized by the old method, and cases where the opposite is true. Indeed, what could be deducted is the general impossibility to capture in one current data (either B.9 or B.9X) all the information that would result from the time series of forecasts for pension expenditure. This series would allow for better understanding of pension reforms, without deleting information on the dates of actual implementation of real effects.

Incentive bias, as well as measurement problems, seem to arise from the attempt to summarize too many pieces of information into one data (general deficit). If the aim is to better measure pension imbalances, without creating artificial bias or errors, it is not necessary to remain into the range and limits of national accounts. What really matters is harmonising methodologies used in the various countries to report pension outlays and forecast future public spending, as well as defining common standards as to the frequency of expenditure forecasts and the length of the forecast horizons. Keeping this in mind, development of specific, harmonized pension accounts may provide better results, in comparison to reshuffling the definition of deficit.

6. Conclusions

After reviewing, in the first part, the rationale underlying current statistical rules, and discussed the main reasons to change, a first conclusion is that valid reasons do exist to evaluate the revision of current national and financial accounts.

After drawing a formal treatment and exam of the new method proposed by OECD and IFM, many objections so far put forward do not seem entirely justified. The proposed method seems to efficaciously deal with problems of arbitrariness as well as volatility of parameters and rates, and its practical implementation would not require entirely new pieces of information (in comparison to what is already used in model for pension expenditure forecast). In addition, the new deficit does not directly depend on long term forecasts on population or employment, thanks to using the accrued-to-date formulas.

Beside such advantages, however, the method suffers from problems of sensitivity to non significant operations. It is of course less sensitive to extraordinary operations (e.g. like Belgacom), but it is also able to create, starting from similar situations, entirely different effects on net borrowing. Other doubts refer to asymmetry in treatment with regard to health expenditure and legally binding future contributions. In addition, the accrued-to-date formula may be well defined for employees close to retirement age, but noticeable uncertainty may be faced for all others.

Together with such problems of measurement and statistical consistency, the new proposal raises economic questions, related to potential incentive effects. On the one hand, if already in force at the right time, the new method would allow to discover imbalances while their causes are created: for countries facing deficit-based fiscal rules, this would generate a useful counterincentive to place the cost on younger generations. On the other hand, results may dramatically change if the method, far from being in force at the right time, had to be introduced in economies already facing pension system crisis. Moving to the new method may worsen the position for countries that are increasing the coverage of pensions through contributions. Second, the change in method may create an accounting advantage for countries less virtuous in the past (*i.e.* previous to the adoption of new accounting rules, unlike what happened in the IAS case). Finally, under constant (new) rules, a country that is postponing effects of pension reforms may face a comparative advantage for deficit.

We recalled, in paragraph 2.3, the common opinion according to which it is "too early" for extending the new method to social security. From the above analysis, the new method would seem to provide appropriate incentives during the first part of pension imbalance: e.g., in cases that are similar to the USA system, where the cash deficit will occur after the next twenty years. By contrast, the method seems to provide opposite results in systems were cash pension imbalance already occurred. It may be said that, for most European countries, it is indeed "too late" rather "too early".

One estimation, even rough, of pension liabilities, would undoubtedly be useful in many contexts (for a list of applications, see Franco 1995, p. 11). Doubts concern the opportunity to link such estimates to the calculation of net borrowing, used in European fiscal rules. In such a context, on the basis of the examples discussed above, the ability of the new method to provide appropriate incentives is not clear too. Creating a separate account for pensions, and improving other indicators like forecasts for pension expenditure to GDP or equilibrium contribution quotas (concepts external to the context of national accounts) would ensure better elements for judgment. By contrast, an aggregated indicator like overall net borrowing, subject to a fixed threshold fiscal rule, seems to be a shortcut attempt not able to provide efficacious and well founded results.

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FINANCIAL WEALTH IN ITALY'S FINANCIAL ACCOUNTS AND SURVEY OF HOUSEHOLD INCOME AND WEALTH

Riccardo Bonci, Grazia Marchese and Andrea Neri*

1. Introduction

The main sources for estimates of the financial wealth of Italian households and its components are the financial accounts and the *Survey of Household Income and Wealth* (SHIW), which at present provide independent and not directly comparable information.

The financial accounts of the institutional sectors are published quarterly by the Bank of Italy¹ and adopt the definitions and methods set out in the European System of Accounts (ESA95); series complying with ESA95 are available from 1995. The basic data used to compile the financial accounts of households, which do not draw up their own balance sheets, are mostly taken from the statistical reports sent to the supervisory authorities by banks and other financial intermediaries. For some financial instruments, however, no direct quarterly information is available, and households' stocks are therefore estimated, principally by the so-called 'residual method'. A typical example is that of 'shares and other equity: given the total on the liability side, which is derived from corporations' balance sheets, and other sectors' holdings, also deduced from balance sheets or other direct sources such as statistics on net foreign capital for the 'rest of the world', the stock held by households is obtained as a difference.² The same applies to public debt securities and corporate bonds: only a part of those constituting households' assets -i.e. the part in the safe keeping of banks and other financial intermediaries – can be deduced from the statistical reports without making estimates; the part actually in the possession of households must be calculated in the same way as for shares, assigning the sector all securities on the market not in the hands of the other sectors. Inevitably, these estimates based on 'residuals' contain larger measurement errors as they reflect the approximation in the data relating to all the remaining institutional sectors.

The Bank of Italy has conducted the SHIW every two years since 1965 on a sample of some 8,000 households drawn in two stages (municipalities and households), with the stratification of the primary sampling units (municipalities) by region and demographic size. Under the sampling design, each household is assigned a weight inversely proportional to its probability of inclusion in the sample. The weights are then modified to increase the precision of the estimators (by overcoming any problems of inclusion and non-response) and to align the structure of the sample with that of the population in terms of certain characteristics.³ A large proportion of the sample (45 per cent in 2002 survey) consists of panel households, which have already been interviewed for previous surveys. The main objective is to obtain a detailed picture of the financial situation of Italian households, as well as of the relationship between economic status and socio-demographic characteristics and its evolution over the years.

The data used in this paper are taken from the Bank's historical archives (release 3.2, December 2004) and can be found on its website (<u>www.bancaditalia.it</u>). Once the financial

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¹ "Financial Accounts", quarterly Supplement to the Statistical Billetin.

² This is the standard procedure that many other countries also use in their financial accounts to estimate households' portfolio of shares and securities.

³ The results reflect the alignment of the data to the structure of the population in terms of Istat data on gender, age group, professional status, size of municipality and geographical area of residence.

instruments considered by the two sources have been adjusted to allow for comparison, we analyse the causes of the wide discrepancies between the respective estimates. Our initial effort to harmonise the data is a key feature of this study, which reflects a recent trend in the literature to compare the results of sample surveys with the corresponding macroeconomic estimates. For example, Antoniewicz (2000) and Eymann and Börsch-Supan (2002) have carried out research similar to ours, respectively for the United States and Germany.⁴

In principle, the differences between macro estimates and survey estimates of financial wealth can be put down to a number of factors, whose role and relative importance we will examine. A primary cause is differences of definition -i.e. the diverse definitions of the relevant sector and/or between the various financial instruments considered and the different evaluation criteria applied to each aggregate. Moreover, as far as the sampling sources are concerned, every survey inevitably produces errors due to the nature of the process of statistical inference (sampling errors). Errors of this type are evaluated by measuring the precision of the estimators.

Other errors may stem from the measurement and estimation procedure (non-sampling errors). In general, these are separated into the following categories (see Cicchitelli, Herze and Montanari, 1992):

- non-coverage errors, caused by drawing the units from incomplete lists;
- non-response errors caused by the failure to participate of some of the units drawn;
- measurement errors in the broad sense, *i.e.* discrepancies between observed and actual data. This may arise when the interviewees do not remember (memory effect) or do not wish to say what financial instruments they possess (non-reporting) and/or the amount (underreporting).

Specific studies have been carried out to assess, in particular, the effect of these factors on the estimates of the main variables recorded in the SHIW.⁵ They confirm that the survey aggregates underestimate both the components of real wealth and those of financial wealth, markedly so in the case of the latter.

In the financial accounts the principal errors are measurement errors, and these are mainly potential errors in allocating stocks of financial assets among the institutional sectors. Of course, the importance of such errors varies according to the instrument concerned, to the characteristics of the basic data, and to differences in the statistical methods used; for instance, it is likely to be greatest when the estimate is obtained by the 'residual' method. Macro estimates may also be affected by sampling errors, as not all the sources used for the financial accounts are of the census type. In theory, therefore, the variability of such estimates should be taken into account. In practice, however, because of the complex structure of the financial accounts and the diversity of the databases used this would be extremely complicated, if not impossible, to carry out. Nonetheless, we have attempted to quantify the reliability of macro data by taking as proxy the stability of estimates published in various issues of the financial accounts (that is, the absence of major revisions to published data), as described in Section 4.

Another major cause of divergence, although outside the scope of our study, relates to the informational objectives of the two sources. The SHIW is designed to provide representative estimates of the portfolio of the median household in respect of the distribution of wealth; the financial accounts serve to measure, among the others, the aggregate value of each item of the sector's financial wealth. Thus, in the macro estimates the wealthiest households have a greater

⁴ Antoniewicz (200) compares data from the Survey on Consumer Finance, which the Federal Reserve conducts every three years, with data from the Flow of Funds for 1989, 1995 and 1998. Eyman and Börsch-Supan (2002) compare data from the Income and Expenditure Survey run by Statistiches Bundesamt with the Bundesbank's aggregate estimates for 1993.

⁵ See also Cannari and D'Alessio (1990,1992 and 1993), Brandolini *et al.* (2002) and Biancotti, D'Alessio and Neri (2004).

weight than in the survey data.⁶ If the investment decisions of the wealthiest households differ significantly from those having a median value of wealth, this is bound to be reflected in a different representation of the portfolio in the two sources.

This difference does not wipe out the potential advantages of reconciling the financial accounts and the SHIW. The financial accounts could be used, at least in the case of assets measured with a small margin of error, as additional information to improve the survey estimates, for instance through calibration techniques (modifying the weights used to expand sample results). The SHIW estimates, on the other hand, could be used to fill at least some of the gaps in the aggregate data on the household sector.

The paper is organised as follows. First we map the correspondence between the financial accounts (ESA95) definitions and concepts and those of the survey. We are thus able to identify a set of instruments that are common to both sources and can be brought to homogenous evaluation criteria (Section 2). We then examine the differences between the aggregate estimates and the survey estimates of each instrument (Section3). This is followed by a presentation of the results of an experiment to weight the causes of differences in estimates from the two sources (Section 4). The process followed to arrive at a comparison sheds light on some of the aspects of the SHIW and the financial accounts that are open to improvement. We make some suggestions in this direction and point out the advantages of integrated use of the two sources (Section 5). Our main conclusions are summarised in Section 6.

2. Financial wealth in the financial accounts and the survey of household income and wealth

A first step towards comparing the estimates of households' financial wealth provided by the SHIW and the financial accounts is to align the definitions of the sector and of the financial instruments. The valuation criteria applied to the latter also need to be standardised. In general, the method adopted to reconcile the two sources is to adjust the financial accounts data until they meet the criteria of the SHIW. The direction of adjustment is determined by the fact that the most detailed information, which is required in order to effect the reconciliation, is only available in the financial accounts. The definition of household sector has to be adjusted both ways, however: the SHIW data are brought closer into line with the official national accounts definition, from which in turn we exclude non-profit institutions serving households.

We describe in detail in the following pages the method employed to standardise the sectors, the financial instruments and the evaluation criteria.

2.1 Standardising the sector

In the financial accounts (consistently with ESA95 and according to Istat's recommendations) the household sector includes consumer households, producer households and non-profit institutions serving households.⁷ Producer households are those with an activity that is not organised in the form of a company and in which no more than five people are engaged. In the SHIW, on the other hand, the sector includes not only consumer households but all households engaged in a production activity, whether or not in the form of a company and regardless of the number of employees. The starting point and subsequent adjustments are summarised in Table 1.

⁶ See Cannari, D'Alessio and Paiella (2004).

⁷ See Appendix II.

Source	Consumer households	Producer households		Non-profit
		Up to 5 employees	Over 5 employees	(NPISHs)
Financial accounts	Yes	Yes		Yes
SHIW	Yes	Yes	Yes	
Present comparison	Yes	Yes		

Table 1

The household sector in the financial accounts and the SHIW

In the financial accounts the data are cleaned of components imputable to non-profit institutions using estimates that vary from case to case: for bank deposits, bonds and Italian government securities (on the asset side) and bank loans (on the liability side) we use direct information on the amount held by non-profit institutions deduced from statistical reports to the supervisory authorities (although only available since 1998). For 1995, the proportion of non-profit institutions in the total (institutions and households narrowly defined) is assumed equal to the average for the years 1998-2002 (calculated per instrument).⁸

Since direct information is lacking, for some aggregates we apply the non-profit institutions' weight in similar financial instruments (reported in brackets) for which the data are known. This method is used for post office deposits (which are likened to bank deposits), post office savings certificates (Treasury bills), shares and Italian mutual fund shares, foreign bonds (Italian bonds) and foreign government bonds (Italian government bonds). Finally, because non-profit institutions do not make money, any foreign assets they hold other than government bonds, trade credits, and insurance reserves (that is, shares and other equity, and other securities issued by non-residents) are assumed to be nil. The results are given in Table A2 and show that the importance of non-profit institutions is marginal: they represent less than 2 per cent of the total (households and non-profit institutions) considering total financial assets, and slightly more (around 3 per cent) for deposits and liabilities.

The SHIW, on the other hand, gives direct information on the number of employees and we are therefore able to exclude the amounts of the financial instruments owned by producer households with more than five employees, bringing the aggragates closer to the financial accounts definition without resorting to estimates.

2.2 Selecting financial instruments for comparison

The components of financial wealth available in each of the two sources and their valuation criteria are summarised in Table A1 in the Appendix. As can be seen, the classifications contain different levels of details and in some cases cover different phenomena. The financial instruments compared in the paper are listed in Table A3.

Wealth in the form of cash (notes and coin) has been left out of the study because it is impossible to derive from the survey an amount directly comparable with the one in the financial

⁸ This choice was backed by our observation that the weight of non-profit institutions in the single instruments was fairly stable over the years for which a detailed breakdown is available.

accounts.⁹ Other instruments have been left out because no figure is available in either source: this is the case of loans to co-operatives and severance pay¹⁰ on the asset side and of trade debt and debt to other households on the liability side. Further adjustments have been made for life insurance, pension funds and managed portfolios.

In the SHIW the interviewees are not actually asked to indicate the full amount of pension and insurance funds. They are, however, asked to state the amount of their yearly premiums and the year in which payments began. The amount at a given date could be calculated from this information.

Figures for managed portfolios, which are the subject of an explicit question in the SHIW, are not published separately in the financial accounts, the various items being included in the single investments. The survey estimate is therefore attributed to the instruments according to the average portfolio composition of the asset management companies recorded in various years (data published in the Bank of Italy's Statistical Bulletin).

2.3 Reconciling evaluation criteria

The general criteria followed to record financial instruments in the financial accounts are the market value (except for deposits and loans) and the accrual basis (as opposed to cash basis). Market value means that the valuation of the financial assets must at all times reflect their actual quotation and thus take account of price movements, such as those due to interest rate changes (this happens, in particular, in the case of government securities and bonds). Recording items on an accrual basis, that is at the time the economic entitlement arises, regardless of whether it is actually associated with a cash movement, also entails computing interest when it matures in the form of reinvestment in the financial instrument.¹¹

Table 2

Evaluation of financial instruments in the two sources (grouped by category)

Instruments	Financial accounts	SHIW
		(and used in comparison)
Deposits	nominal value + accrued interest	nominal value
Gov.t securities	market value + accrued interest	nominal value
Bonds	market value + accrued interest	nominal value
Shares	market value	market value
Loans	nominal value + accrued interest	nominal value

⁹ The part of the questionnaire that could be used to estimate the amount of notes and coin held by households is the one in which they are asked 'How much cash do you usually keep at home for everyday needs?' However, this question produces an average estimate of the amount held during the year, which is not directly comparable with the financial accounts estimate for the end of the year. Other studies have also decided to exclude notes and coin from the study of household wealth (see Brandolini *et al.*, 2003; Guiso, Haliassos and Japelli, 2002).

¹⁰ It is difficult to estimate the amount of severance pay from the survey because this calculation requires information for each employee on the number of years in their last job and the gross salary received in that period. The survey instead records net income. In addition, there is no record of the severance pay households have disbursed to domestic help.

¹¹ With government securities, in particular, maturing coupons and issue discounts are entered on an accrual basis.

The two criteria are followed only partially in the SHIW. Table 2 summarises the evaluation methods applied to some macro categories of financial instruments in the two sources and compares them. The valuation of financial assets and liabilities is standardised by adjusting the amounts in the financial accounts to bring them into line with the SHIW evaluation criteria.

Since annual data are used, for some instruments, such as bank deposits (current and savings), post office current accounts and savings accounts, the evaluation on a cash basis is the same, in principle at least, as the evaluation on an accrual basis. Interest is computed at the end of the year and the interviewees should include it in the amounts reported. On this assumption no adjustments are made to the amounts in the financial accounts. By contrast, for certificates of deposit and post office interest-bearing certificates interest is computed only at maturity: financial accounts data are therefore adjusted by deducting accrued interest in order to bring the valuation criteria into line with those of the SHIW. In the case of government securities and bonds, the market based evaluation of the financial accounts is changed to nominal value. It is probably reasonable to assume that when interviewees answer the questionnaire they assess such assets at nominal value and net of any accrued interest not yet credited, which they would find difficult to calculate.¹² For the value of shares and mutual fund shares we assume the SHIW valuation, like that of the financial accounts, to be at market prices: there is therefore no need to adjust either of the sources. Finally, the value of loans in the financial accounts is changed to nominal value by deducting accrued interest.

3. A comparison of the components of net financial wealth

The aggregate estimates and survey estimates are compared from two perspectives: (i) in Section 3.1 we calculate the differences, in value and as a the coverage ratio of the micro estimate with respect to the macro, between the stocks of the various financial instruments at the end of the year according to the two sources, after adjusting for definitions and valuation criteria; (ii) in Section 3.2 we compare the portfolio composition (considering the relative weights of the various instruments in total assets/liabilities) and its evolution during the period considered.

3.1 A comparison of estimates of stocks

Deposits

The category 'deposits' includes bank accounts, certificates of deposit, repos, post office savings accounts and interest-bearing savings certificates. In the financial accounts the estimate is based on the statistical reports sent to the supervisory authorities by banks,¹³ money market funds and non-bank financial intermediaries, on the Bank of Italy's balance sheet, and on reports of the Italian Exchange Office and Poste S.p.A. (regarding post office savings accounts). The availability of sectoral information on this category of financial assets means that data on households is not affected by particular estimation hypotheses. From 1998 the survey estimate of bank accounts amounts to almost 70 per cent of the corresponding macro estimate (Table A3). Taking sampling variability into account, in the same period the difference between the two estimates is around eight times the standard error of the SHIW estimates (Table A4).

¹² The questionnaire asks households to state the amount of each financial instrument held at the end of the year. Although in theory this value should be close to the market value, in our study we assume that households' answers tend to reflect the purchase price (nominal value).

¹³ Since September 2000 the items relating to bank accounts and loans are calculated for the universe of banks. Previously, the estimate was made on a representative sample of around 92 per cent of bank accounts and about 95 per cent of loans.

Looking at the various categories of deposits, the narrowest gap is recorded for current accounts with banks: since 1998 the coverage of the micro estimates is about three-quarters that of the financial accounts estimates. We find the widest gap in certificates of deposit and repos, with the SHIW 2002 estimate for the latter 10 per cent lower than in the financial accounts. In 2002, the last year of available information, post office accounts in the SHIW estimates are equal to one-third of those in the financial accounts; the gap is even wider in the case of post office interest-bearing certificates, with the survey estimates amounting to 14 per cent of the macro estimates.

Government securities

Government securities include short-term and medium-to-long-term securities issued by central government (BOTs, CCTs, BTPs, CTZs, etc.) and local government. In the financial accounts the stock of government securities on the market is calculated from sources inside the Bank of Italy (data collected in the course of auctions), supplemented with information from the MTS screen-based secondary market. As mentioned in the introduction, the estimate of this item contains a residual component: the stock of securities in the portfolio of households is estimated using information on the part held in safekeeping by the banks (supervisory information), on the stock in circulation (liabilities of the public sector) and on holdings of these securities by sectors that draw up a balance sheet.

The micro/macro coverage ratio ranges between 30 and 57 per cent (see Table A3). The estimates for BOTs, which have the smallest adjustment for differences in valuation criteria, are very close in 1998 and 2002; in 2000 the SHIW value is instead almost twice that of the financial accounts. The gap between the estimates widens in the case of instruments that are less popular with households, in particular BTPs, for which the SHIW value is about one-fifth that of the financial accounts.

Bonds and mutual fund shares

As with government securities, the financial accounts estimate of bonds held by households contains a residual component. Total bonds on the market, minus those included among the assets of other sectors, are obtained from information provided by Borsa Italiana S.p.A. (for trades on the MTS), from statistical reports to the supervisory authorities (for bank bonds), and from the Italian Exchange Office's register of securities (for issues by non-financial companies, other financial intermediaries, insurance companies and local authorities). The aggregates are calculated at market value, taking into account the increased/decreased value of the securities (including those due to changes in interest rates) and the issue discounts. Non-profit institutions are estimated to account for 1 per cent. There are substantial differences with respect to the SHIW: the estimates of bonds in the sample survey represent close to 16 per cent of the macro estimates (Table A3). The sampling variability alone is not enough to account for the gap.

Unlike wealth invested in bonds, the aggregate value of households' mutual fund shares is recorded directly in the financial accounts from the statistical reports supplied by the management companies (including information on the owner of the units). This aggregate includes investment income from the units, estimated by Istat. The information provided by the two sources again differs significantly: on average the values recorded by the survey amount to around 30 per cent of the macro estimates (Table A3).

Shares and other equity

According to the ESA95 definitions the item 'shares and other equity' contains all financial assets, except mutual fund shares representing a right of ownership over a corporation or quasi-corporation, that are held by the household sector. In particular, it should include:

- the value of holdings in family businesses, sole proprietorships, informal associations and *de facto* partnerships with more than five employees;¹⁴
- the value of holdings in partnerships;
- the value of holdings in corporate enterprises (listed or otherwise).

The overall value of businesses classified with producer households (sole proprietorships, informal associations and *de facto* partnerships with up to five employees) must not be included in the item 'shares and other equity'. In fact, by convention it is impossible to distinguish between 'business' and 'household' because the first cannot decide independently and does not have a separate balance sheet from the household (or one that can be reconstructed); therefore it does not have its own market value. The financial accounts record only the financial components of the business's hypothetical financial statements, attributing them to the owner family. The other components, such as the stock of fixed assets, inventories and goodwill (also attributed to the household), are instead regarded as components of real wealth (see Table A8 in the Appendix).

In the financial accounts the total of shares and other equity on the market is estimated from information on the balance sheets of limited companies stored in the Cerved database, which is a sort of census of this category of enterprises. The value attributed to households is obtained as a residual, subtracting from the total stock in circulation the amounts held by the other institutional sectors, for which direct information is instead available. By contrast, at the moment there are absolutely no estimates of the value of quasi-corporations with more than five employees and partnerships (components 1 and 2 in the classification used above).

In the SHIW investment in shares and other equity is divided (maintaining the terminology used to compile the balance of payments) into 'direct investment', consisting of holdings in companies in which the household owns a controlling interest or enough to play an active role in its management, and 'indirect investment', which covers the remaining equity in households' financial portfolio.

In order to make a comparison with the financial accounts, the SHIW estimate is computed as the sum of the value of indirect investments in the shares of listed and unlisted companies and holdings in limited companies (as in Part C of the questionnaire)¹⁵ and of the value of holdings in business enterprises that the household owns or manages to the extent of its interest (as in Appendix B4 of the questionnaire).¹⁶ To bring the survey estimates into line with the financial accounts, the value of activities with more than five employees that are not business enterprises and the value of partnerships have been excluded. The questionnaire (Appendix B3)¹⁷ identifies another type of productive activity, called 'family business'. Any family businesses set up as corporate enterprises should be included in the estimates; however, because of the lack of information on legal status and the value of the holding, this is not possible at the moment.

In the period examined, the SHIW estimates amount to around 23 per cent on average of the corresponding aggregate estimates. Differences are smallest in the case of holdings in listed

¹⁴ In the national accounts, the five-person threshold is used to distinguish 'companies and quasi-companies' from households. Sole proprietorships, *de facto* companies and informal associations with more than five employees are conventionally considered to make decisions independently of the families that own them. Although the choice of five as the threshold is consistent with the general principles of ESA95 it is peculiar to Italy (Istat).

¹⁵ The question is as follows: 'What is the value of shares in listed companies (at market value), shares in unlisted companies (at their probable realisation value) and holdings in limited companies (at their probable realisation value) owned by the household (at the end of the year in question)?'

¹⁶ The value of a holding is calculated from the following question: 'What is the market value of the company in respect only of the household's actual holding?'

¹⁷ The SHIW questionnaire can be found in the Appendix of the Bank of Italy's *Supplemento al Bolletino Statistico*, 'Note metodologiche e informazioni statistiche - I bilanci delle famiglie italiane nell'anno 2002', also available, in Italian only, on the Bank's website (www.bancaditalia.it).

companies, averaging in the period considered around 30 per cent of the value reported in the financial accounts (Table A3). The comparison is strongly affected by the fact that these financial instruments are not widespread, tending to be concentrated among the wealthier households, which are less likely to take part in the survey or to reply truthfully. According to the survey, the proportion of households with shares in listed companies is less than 10 per cent in the period considered, while around 2 per cent are partners/managers of business enterprises.

Foreign securities

This item includes government securities and bonds issued by foreign governments, shares and other equity in foreign companies and other securities issued by the rest of the world. The macro statistics are based mainly on sectoral information from the Italian Exchange Office. SHIW estimates cover some 3 per cent of aggregate values, the widest gap of all the financial instruments considered (Table A3).

Life insurance and pension funds

This item includes the sum accumulated by households as a result of investments in insurance policies and pension funds. The figure in the financial accounts is based on statistics obtained from the balance sheets of insurance companies and pension funds (supplied by Isvap, the supervisory authority for the insurance industry, and Covip, the supervisory authority for pension funds), supplemented by information from Istat. It includes amounts set aside for employees' severance pay and assimilated to pension funds.

Since the aggregate cannot be estimated from the SHIW, severance pay is excluded from the macro estimates in the comparison of the two sources. The survey estimate of the remaining components (life insurance policies and pension funds) is based on information on the yearly premium and the year in which each member of the household began payments.¹⁸

The gap between the two sources increases in the years considered. For 1995 the SHIW value amounts to about 80 per cent of the financial accounts estimate, falling to less than 40 per cent in 2002 (Table A3).

Trade credit

It is not possible to compare aggregate data on trade credit and data from the SHIW, even using the same definition of the instrument. Despite the additions made with the changeover to ESA95, which was completed in 2000, the financial accounts estimates are still incomplete. At that time the first estimate of trade credit and trade debt within the sector of non-financial companies and between that sector and (producer) households was published; previously only transactions between non-financial corporations and non-residents were recorded (source: balance of payments).¹⁹ Data on the other institutional sectors, notably general government, are still lacking.

The estimates currently published in the financial accounts are obtained by aggregating data from the Cerved database on the balance sheets of business enterprises and present a number of problems. (i) As mentioned earlier, these estimates do not include activities that are not corporate enterprises; (ii) the Cerved database does not contain information on trade credit and trade debt for

¹⁸ The estimate of the total assumes a 3 per cent revaluation rate. Moreover, a further reconstruction is necessary for the 2000 SHIW because only total payments made by the household as a whole are recorded for that year. The final estimate is obtained in two stages: first, the panel is used to reconstruct the total amount per household for households included in the other editions of the SHIW. For the remainder the value is estimated on the basis of the age of the household head and geographical area (which a preliminary study defines as the most important variables).

¹⁹ Trade credit is included under loans until 1998.

around 60 per cent of businesses drawing up an abridged balance sheet; (iii) the component attributed to households as the counterpart of the debts of non-financial companies (households are assumed not to have liabilities in the form of trade credit and not to engage in transactions with non-residents) is calculated as a residual, subtracting from the liabilities of enterprises the part financed by the rest of the world.

The corresponding estimate in the survey in theory includes, in principle, all lending by producer households, without excluding *a priori* any of the counterparty sectors. The estimate is obtained from the trade credit reported by free-lance professional workers, business owners and family businesses with up to five employees. The survey estimate in the period considered is 3 to 4 times that of the financial accounts.

Financial liabilities

For the purpose of comparing the SHIW and the financial accounts we include among financial liabilities loans (short-term as well as medium/long-term) granted to households by banks, insurance companies and other financial companies.²⁰ On the other hand, loans to other members of the household sector, such as friends and relations, are excluded as they are not recorded in the financial accounts.

In the financial accounts the estimate is obtained from statistical reports to the supervisory authorities, which specify the sector of destination of the loans. Non-profit institutions account for around 3 per cent. After deducting their share, the survey estimate comes to about half the aggregate estimate.

3.2 A comparison of portfolios and their evolution over time

Since the respective totals differ, differences in portfolio composition between the two sources do not necessarily reflect the discrepancies observed between the amounts in value. Generally speaking, households' portfolio is 'lower risk' according to the survey data than in the financial accounts. This finding reflects in part the fact that high risk instruments are also concentrated among wealthier households, which are less likely to participate in the survey (as observed in connection with the comparison of stocks of shares and other equity).

If we classify bank and post office accounts and government securities as 'low risk' assets and (corporate) bonds, mutual fund shares, shares and other equity, and foreign securities as 'high risk' assets, a very different risk profile emerges from the two sources (see Table A5). While in the survey low risk assets account for over 50 per cent of the portfolio in 2002, compared with 31 per cent for high risk assets, in the financial accounts the percentages are virtually inverted, with almost half the portfolio invested in 'high risk' assets. For 1995, on the other hand, the percentage of low risk assets is similar in both sources (around 30 per cent). Table A6 shows that the gap that emerges later is mainly due to much larger growth of the stock of deposits (especially with the post office) according to the SHIW than in the financial accounts. The proportion of government securities instead evolves in a similar way in both sources: the percentage of the portfolio invested in these assets decreases from 30 to 9 per cent according to both the survey and the financial accounts, while the value of stocks falls by half between 1995 and 2002.

Differences also emerge in the case of high risk assets. While the share of mutual fund shares is similar in both sources (increasing from about 5 per cent to about 12 per cent in the period considered), the proportion of wealth invested in shares and bonds is about twice as large in the financial accounts as in the survey. In both sources, although more so in the financial accounts, shares and bonds increase significantly in proportion to total assets in the period considered,

²⁰ These are loans, mortgages and consumer credit.

peaking in 2000 at 28 and 18 per cent respectively in the financial accounts and the SHIW, before declining in the following two years. Foreign securities, which do not account for even 1 per cent of the portfolio in 2002 according to the SHIW, represent more than 8 per cent in the financial accounts. The trend, which is rising until 2000 and then declining, is similar in the two sources.

Finally, the trend of financial liabilities is consistent in the two sources, both in direction and intensity, during the period and is rising. Between 1995 and 2002 households' indebtedness increases by 65 per cent in the SHIW and by 78 per cent in the financial accounts.

4. Determinants of the disparities between the two sources

Our analysis so far has highlighted the significant differences between the survey estimates and the aggregate estimates of the components of households' financial wealth. Once we have eliminated, as far as possible, the causes of divergence associated with the definitions and evaluation criteria of the variables, the remaining differences can be attributed to estimation and measurement errors affecting the two sources. The main types of errors are:

- *i*) sampling errors, which can be assessed from the precision of the estimators;
- *ii)* non-sampling errors, including, in order of importance:
 - *ii.a)* non-participation: this error mainly affects the SHIW and is caused by the negative correlation between the likelihood of participation and the level of household income/wealth;
 - *ii.b*) measurement errors due to under-reporting: these may be caused by 'memory effects' or by reticence on the part of interviewees. In the survey, for example, we can reasonably expect the wealthiest households to be more reticent to give truthful answers;
 - *ii.c*) measurement errors due to estimation hypotheses: these mainly affect the financial accounts and may occur when the value of a given instrument is broken down between the various institutional sectors (in fact, in some cases the breakdown is based on estimated coefficients);
 - *ii.d*) other measurement errors due to the methods of gathering and producing the data: this category includes a large range of errors that can affect both sources. Examples are: errors due to the questionnaire; errors caused by the interviewer; errors in data input; in the case of the main sources of the financial accounts, *i.e.* supervisory reports, errors in classifying operations and/or in identifying the customer's institutional sector, etc.

In the financial accounts the estimate of households' assets and liabilities is based on multiple sources and methods, which make it extremely complex, and effectively impractical, to identify and quantify the various errors. In the SHIW, on the other hand, this can be done for sampling errors and for the first two types of non-sampling errors (non-participation and under-reporting), mainly thanks to previous studies of the problem. As a consequence, we identify the weight of the components by means of a simulation based on the survey estimates. The idea is to assess how the value of households' financial assets according to the micro data would change if some of the causes of distortion are removed.

4.1 Non-participation in the survey and under-reporting

The core of the process is the correction of the bias due to non-participation in the SHIW and under-reporting. We tackle the problem of non-participation by using the method proposed by D'Alessio and Faiella (2002). This is based on the idea that the households with the highest probability of non-response are under-represented in the sample and their weight in relation to the universe should therefore be increased. The two authors estimate the probability of non-

participation in the survey of various types of households (divided according to certain socioeconomic and demographic variables) using a logistic model and classifying as 'non-respondent' all households that had to be contacted several times to obtain an interview. The hypothesis on which the model rests is therefore that the behaviour of non-respondents is similar to that of the respondents that are hardest to contact (for example, the ones that initially refused to be interviewed). In this paper, we try to obtain correct estimates of households' financial assets by first adjusting the original weights in relation to the universe for the probability of non-participation in the survey (calculated by applying D'Alessio and Faiella's model) and then realigning them to the known characteristics of the population.

The undesirable consequences of under-reporting are overcome by using the procedure to adjust financial assets developed by Cannari *et al.* (1990) and later revised in Cannari and D'Alessio (1993). The method consists in integrating the SHIW data with data gathered during an *ad hoc* survey of customer characteristics and financial decisions carried out in 1987 by Banca Nazionale del Lavoro. The assumption is that because of the closer relationship between interviewer and interviewee, the replies to the BNL survey are more reliable than in the SHIW and can therefore be used to adjust the latter's results. Adjustment is carried out in two stages. First, the BNL data are used to estimate each type of household's probability of possessing a specific financial instrument; these probabilities are then used to impute the possession of various instruments to all Italian households. In the second stage, the value of the stock of each asset owned is calculated by deducing it from the average value of the corresponding BNL data.

The outcome of the adjustments for non-participation and under-reporting are summarised in Table A9. Owing to limitations on the availability of the BNL data, the experiment involves only on four financial 'macro aggregates': deposits, government securities, other securities (shares and other equity, bonds and mutual fund shares; managed assets are not included as they are not recorded for 1987) and financial liabilities. In the case of shares, however, the survey data can only be adjusted for the component relating to *indirect* investment (Part C of the questionnaire) and not for holdings in owned or managed businesses as well. Therefore, in order to base the comparison on more homogeneous data we also remove the *direct* investment component from the financial accounts using an estimate of its weight derived from the SHIW.

The first and second columns of Table A9 show the relation between the survey estimates and the aggregate estimates before and after only the adjustments to the definitions and valuation criteria, the effects of which are described in the previous section. The third and fourth columns show how the relation changes after adjusting, respectively, for non-participation and for underreporting. The last column shows the confidence interval of the final survey estimates: when the interval contains the value 100 (cases marked with an asterisk) the residual gap between the two sources can be imputed to sampling variability (and the two estimates are therefore statistically equivalent). The process has some limitations, however, which make it advisable to interpret the final results with considerable caution. First, as we have already mentioned, the item 'other securities' is not perfectly comparable in the two sources.²¹ Moreover, the coefficients used to correct for under-reporting have not changed since the study (on 1987 data) in which the method was first adopted. Finally, this adjustment is not made to financial liabilities because of the lack of information.

Adjusting the findings of the survey to take account of non-participation only eliminates part of the gap with respect to the financial accounts. To give an example, in 2002 the ratio between the micro estimates and the macro estimates rises by around 9 percentage points in the case of deposits,

²¹ For the sake of clarity, in the table we prefer to use a definition of the instruments that conforms as closely as possible with that of Table A3. However, in the last two columns the adjustments are made to aggregates with slightly different definitions. The SHIW estimates of government securities and other securities do not include managed portfolios (which are included in Table A3). This is because the survey did not record this financial instrument in 1987.

6 points for government securities and around 3 points for total financial liabilities and other securities. This should be regarded as the maximum possible adjustment with the available data. Since there is no information on the non-participants, the only assumption possible is that the wealth of non-respondents is similar to that of the respondents that were difficult to contact. However, there are various types of non-response. One category of non-respondents that the process certainly fails to capture is that of extremely wealthy households, which are not only very unlikely to be part of the sample (because there are so few of them in the population), but also very difficult to contact. Their financial wealth appears in the financial accounts but is not captured by the survey.

The second stage in the adjustment process, which adds the correction for under-reporting, allows us to narrow considerably the gap between the estimates of the two sources. Again, the best results are obtained for deposits and government securities: from 1998, with the sole exception of the second aggregate in 2000, the macro estimates fall within the confidence interval of the survey estimates. In the case of 'other securities', too, despite the large gap between micro and macro estimates, especially in recent years, the adjustment brings the two estimates very close. If, for the purpose of the comparison, the financial accounts figure is adjusted for *direct* investments, the coverage ratio comes to about 90 per cent in 1998, although it then falls to 55 per cent in 2002. As we explained earlier, there is no adjustment for under-reporting in the case of financial liabilities. However, observing the average effect of the correction on the other items, it would appear that the gap with the macro estimates (taking the sampling variability into account as well) can be eliminated.

To evaluate the consistency of the 'adjusted' SHIW estimates and the macro estimates we must consider that the first are influenced by the particular structure of households' portfolio at the end of the 1980s, which is very different from its structure in the period of the comparison.²² The greater is the weight attributed to a given financial instrument during adjustment of the SHIW results for a given year in comparison with the true weight in the population, the more the process will tend to over-expand the original results of the survey, and vice versa. At the same time, however, the comparison with the financial accounts might also be affected by any bias caused by the limited diffusion of certain instruments and their concentration in the hands of the wealthiest households, which are less likely to participate in the survey. Naturally, this distortion tends to tone down the SHIW estimates. In the case of instruments such as deposits, which we can assume are not much affected by such as possibility, the results clearly reflect the first factor. In fact, the ratio between the estimates of the SHIW and the financial accounts rises sharply between 1995 and 1998 (when it is actually over 1 per cent), while the ratio of deposits to total financial assets (as defined in Table A9) declines sharply in the financial accounts (from 31.3 to 22.5 per cent). The ratio increases again in 2000, when deposits amount to less than 20 per cent in the financial accounts, and then decreases in 2002 as deposits pick up again as a proportion of financial accounts estimates of total financial assets.

4.2 Other measurement errors

A further cause of discrepancy between the estimates of the survey and the financial accounts is the measurement errors listed at points ii.c) and ii.d) above. Only qualitative information is available regarding these, however. In the financial accounts much of the basic information used for the components of net financial wealth comes from the accounts matrix forming part of the statistical reports that supervised entities (primarily banks) send to the Bank of

²² As we mentioned earlier, the adjustment process estimates the likelihood of owning a given financial instrument and the median value owned on the basis of BNL customer data for 1987. A similar experiment to the one run in collaboration with BNL is now being carried out also in the hope of overcoming many of the limitations of the present exercise.

Italy,²³ or from reports of foreign financial transactions made to the Italian Exchange Office. Combined, these sources account for around three-quarters of the preliminary data for the financial accounts and the Bank subjects them to stringent quality checks.²⁴ However, the remaining sources include some extremely large data sets, such as the Cerved database (of balance sheets for the universe of Italian business enterprises), on which it is difficult to run exhaustive quality checks; in other cases, the preliminary data are themselves the result of estimates.²⁵ Other major reasons for reviewing the aggregate estimates stem from the process of methodological fine-tuning that may follow the arrival of new sources or, more generally, of additional information entailing changes to the estimation models or the inclusion of previously unrecorded phenomena. Finally, revisions may be made as a result not of 'errors' but of reclassification due to changes in the functions of institutional entities or decisions by the competent international organisations on the accounting treatment of certain transactions.

As a proxy for the reliability of financial accounts data we have built a descriptive indicator of their variability that will help identify the cases in which it is more plausible to take the aggregate estimates as a benchmark for the survey ones. In Table A10, therefore, we show the number of significant revisions (greater than 5 per cent in absolute value), the average of revisions to annual data (in value and as percentage changes with respect to the previously published data) and the coefficient of variation (ratio of the standard deviation of published data to their average) for the financial instruments considered in the study.²⁶

The situation that emerges is a fairly heterogeneous one. In the case of instruments whose source is direct information taken from the statistical reports of banks and financial intermediaries – such as bank accounts, mutual fund shares and financial liabilities – the adjustments are small (less than 3 per cent, on average, in the period 1995-2003). The situation is the same for the main foreign assets (securities and shares), which are based on reports sent to the Italian Exchange Office directly or via the banking system, and for insurance reserves.

Whenever the components estimated from indirect sources and/or calculated as residuals have greater weight, the size and variability of the adjustments are also greater. This is the case of short-term government securities, with BOTs and CCTs fluctuating respectively by 6 and 15 per cent with respect to the average in the period considered, and of shares and other equity. The coefficient of variation of estimates of the latter instrument is already high for listed shares (6.3 per cent) – the stock outstanding and the stock in the portfolio of institutional investors are known with a small margin of error – and even greater (8 per cent) for unlisted shares and shares in limited companies, for which the circulating stock itself is the result of an estimation procedure. Although computed 'as residuals', the variability of estimates of other government securities (mainly BTPs)

²³ Banks and financial intermediaries send the Bank of Italy, in compliance with the latter's regulations and on a voluntary basis, periodical reports containing the information needed to perform the functions of banking and financial supervision, monetary policy and payment system oversight.

²⁴ Data from the accounts matrix, for example, undergo various checks by the Bank of Italy before becoming available for internal use. Briefly, these consist in (i) database entry checks, to comply with technical protocols; (ii) formal checks to ensure that the data comply with the characteristics of the observed phenomena; (iii) checks on the consistency of the various parts of each report and on the consistency of each report with other reports concerning related phenomena; and (iv) statistical (or performance) checks to ensure the data are also dynamically congruent. As a rule, therefore, the data are incorporated in the financial accounts in adjusted format. In the case of specific phenomena, such as securities in safekeeping, it is nonetheless possible that the data may reflect regulatory updates and/or problematical reports by some intermediaries.

²⁵ Although it is not unusual for the performance and economic plausibility checks of the time series, which are carried out routinely during the production of the financial accounts, and of the input information on the final aggregates for publication to lead to the discovery of residual errors, they do not rule out the likelihood of subsequent revisions of the preliminary data.

²⁶ However, in interpreting the results we should not forget that the producer of the statistics has some discretion whether or not to accept the revisions and to what extent: this decision may also be affected by considerations regarding the magnitude of the phenomenon compared with the other items and the impact of the revision on the other statistics (the division of many financial instruments by counterparty sector means that in the financial accounts the data are heavily interdependent). It follows that revisions of the past cannot be attributed solely to the arrival of new and/or different information, which is rather what is required to build a good measure of reliability (or robustness) by this method.

and bonds is less marked (respectively 2 and 3.5 per cent), probably because the analytical information on which they are based is of better quality.

The SHIW also includes a set of quality checks on the information recorded, which are carried out by the interviewer, the survey company, and the Bank of Italy's Economic Research Department.²⁷ Although quality checks limit the number of measurement errors they cannot eliminate them entirely. We can obtain an indication of their frequency (Table A11) using the Heise index (1969), which, if we have at least three surveys of the same panel units and do not make overly restrictive assumptions, allows us to separate the actual variation in the observed aggregate over time from the measurement errors (see Biancotti, D'Alessio and Neri, 2004).²⁸ Heise's index ranges from a minimum of zero to a maximum of one; the higher the values, the greater the reliability of the estimates.

Among financial assets (which in total have an index of 0.68), government securities are more reliable than other securities, deposits and financial liabilities (0.74 against, respectively, 0.64, .038 and 0.54). On the one hand, this order reflects households' perception that government securities, which they tend to hold onto until maturity, are not subject to market fluctuations like shares or mutual fund shares, and are quoted at their face value, which is fairly easy to remember. On the other hand, deposits of various kinds may entail problems of recollection owing to their liquidity and the frequency of withdrawals.

These results allow us to add some qualifications to our earlier considerations regarding the closeness of 'adjusted' micro estimates and financial accounts estimates (Table A9). To give an example, in the case of the aggregate 'deposits', the fact that the financial accounts estimate appears extremely reliable reinforces the hypothesis that the correction process for under-reporting, being based on a composition of households' portfolio (in 1987) that is very different from the present one, causes the instrument to be overestimated in the SHIW estimate.

The aggregate 'government securities' has good reliability in the survey and in the financial accounts. Again, it is very likely that the weights used to correct for under-reporting lead to an even greater over-adjustment of the SHIW data than in the case of deposits. In the last decade, the share of government securities in households' financial assets has declined dramatically: according to the financial accounts it drops from over 30 per cent in 1995 to 7 per cent in 2000 (when the 'adjusted' micro estimate is 1.7 times the macro estimate), before increasing slightly in the following years. Moreover, since government securities are not widespread among households (9.4 per cent in 2002 according to the SHIW, compared with 78 per cent for bank accounts and 17 per cent for post office accounts), we cannot rule out that the micro data are also affected at source by a non-negligible negative bias. If this is so, the overestimate due to the correction for under-reporting will be even greater than according to the data in Table A9.

The aggregate 'other securities', in which shares predominate, is that with the least reliable measurements in both sources. As a consequence, any attempt to bring the survey estimates and macro data into line will prove more difficult. We can hypothesise, however, that in this case the

²⁷ The data are collected mainly using the Computer-Assisted Personal Interviewing program (CAPI). When the interviewer records an anomalous datum or notes an inconsistency between the answers to different questions, the interviewee is asked to explain, if possible, and a note is made on the interview form. The survey company checks every questionnaire during coding before uploading the data. Questionnaires that do not meet minimum quality requirements are rejected. During the next stage the company checks for anomalous data and inconsistencies; if the error originates during the internal process (*i.e.* during coding or typing up of data) it is removed; if it appears in the questionnaire, the household is contacted, usually by telephone, to explain the real situation. The Bank of Italy's Economic Research Department runs additional quality checks; anomalous data are brought to the attention of the company, which checks them with the household.

²⁸ The method is based on the consideration that when measurement errors occur independently regardless of time and irrespective of the observed variable, the absolute value of the estimated autocorrelation coefficients is lower than in the case of error-free variables; the magnitude of the under-estimation is a function of the measurement error. Assuming that the variables observed at the three times are linked by first-order autoregressive models, the method derives an estimate of the reliability of the measurement by comparing the product of the correlations between adjacent periods with the correlation between the first and third periods.

adjustments to the micro estimates were insufficient: in fact, the weight of this aggregate in households' financial portfolio is much greater than that used to adjust the data (according to the financial accounts, the aggregate's weight increases from 33 to 65 per cent in the five years 1995-2000).

Finally, in the case of liabilities, the marked stability of the financial accounts estimates allows us to regard them as a benchmark for the SHIW estimates, which cannot be corrected for under-reporting. They can be used as inputs for an alternative method of calibrating the micro data.

5. Some suggestions for improving integration

Our analysis of the differences of definition and classification between the survey and the financial accounts has highlighted several areas for improvement in the methodology of both. In this section we outline some suggestions, to be developed and experimented in future research projects.

In the case of the survey, a crucial aspect of the link with the financial accounts aggregates is the measurement of the value of businesses.²⁹ What is important for the purpose of our study is the share of the value of the business, likened to direct investment, that is included in households' financial wealth. In the questionnaire this information is contained in three separate sections, respectively regarding: 1) heads of household who run a business; 2) free-lance professional workers, sole proprietors, independent workers and similar; 3) family businesses. While the first group reports directly the market value of the holding, the other two groups are asked about the hypothetical value of the business in the event of sale, although it is not specified directly whether this is gross or net of financial liabilities. The measurement of this aggregate can be improved in two ways. First, the question could be re-phrased to make it clearer by explicitly excluding liabilities. Second, the structure of the corresponding two sections of the questionnaire, which already record the main balance sheet items of the business owned or managed, could be expanded by including severance pay among the liability items, as it is the only one missing. This would give us, as the difference between total assets and total liabilities, the total net equity,³⁰ *i.e.* the value of the business to be included among households' financial assets.

In addition, in the section relating to family businesses it is impossible to tell how many should be included with households and how many with enterprises. This is because there is no information on the legal status of the business, which is a key variable, alongside the number of employees, for the purpose of classification in accordance with ESA95. It would be useful, therefore, to add a question to distinguish at least between informal associations and *de facto* companies, partnerships and business enterprises. Thus, by cross-referencing this with the information on the number of employees, which is already available, it would be possible to assign each unit to one institutional sector or another and so include among households' assets any equity capital in entities classifiable as enterprises.

A further problem of the survey concerns the reporting of life insurance and pension funds. Over the years the survey estimates of these instruments have diverged progressively more from the aggregate estimates. It could be useful to make a clearer distinction in the questionnaire between different types of policy and/or supplementary pension plans offered on the market.

²⁹ For an analysis of the differences between the definitions and methods used in the national accounts and the SHIW to define business wealth see Bonci *et al.* (2005).

³⁰ This information could also be used during checks to assess congruence with the answer regarding the assumed value of the business.

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As far as the financial accounts are concerned, we have shown in the foregoing paragraphs that the present format does not include: 1) equity capital in activities that are not corporate enterprises; 2) trade credits of producer households other than those vis-à-vis non-financial companies;³¹ 3) loans to cooperatives by members and shareholders. If improvements were made to the survey along the lines suggested, it could provide an estimate of these items, although not as often or as promptly as publication of the financial accounts requires.³² On the first point, we have suggested adapting the survey questionnaire to allow an estimate of the net equity of non-businessenterprises³³ and hence of the corresponding financial assets held by households (equity capital). To illustrate this we try to make a very rough estimate of the aggregate after replacing the missing information on the severance pay fund in the firm's balance sheet with information from alternative sources.³⁴ The estimate we obtain at the first attempt is then calibrated to minimise the bias caused by non-participation in the survey or under-reporting, using for additional information the number of employees of such firms in the population, obtained from the national census. For 2002 the final estimate for households' equity capital in non-business-enterprises is around 6.1 per cent of households' total financial assets (at market price) published in the financial accounts, with a confidence interval of 4.3 to 9.3 per cent.

The result of the survey could be used directly to make an aggregate estimate of the value of producer households' trade credits and debts (point 2). In fact, the survey, which records the main components of the owned or managed business's financial statements, includes trade credits/debt *vis-à-vis* all possible counterparties.³⁵ The distortions due to non-response and/or under-reporting could be reduced by adjusting the survey value using the financial liabilities from the financial accounts, which we have seen are highly reliable. With this method, for example, in 2002 trade credits would amount to about 2.3 per cent of the gross financial wealth recorded in the financial accounts, compared with the present 0.2 per cent. Similarly, households' trade debts would account for some 4 per cent of total financial liabilities. Finally, a similar solution could be used in the case of loans to cooperatives (point 3). The estimate provided by the SHIW could be adjusted using the stock of bank accounts recorded in the financial accounts, which is also a very reliable figure. In 2002, for example, this solution would produce an estimate of the aggregate of 0.2 per cent of households' total assets. Overall, the adjustments in these examples could raise the value of households' financial assets and liabilities published in the financial accounts³⁶ by respectively 8 per cent and 4 per cent.

³¹ In reality, the trade credits and trade debts of consumer households are not included in the financial accounts and need to be quantified; however, there is no source of information on these financial instruments.

³² The financial accounts are published quarterly, about four months after the last month of the reference quarter.

³³ In particular, the components of the financial statements to be considered are: a) stock of fixed assets, inventories and value of intangible fixed assets, recorded in Appendices B2 and B3 of the questionnaire by means of the following question: 'How much do you think your business/firm would be worth if you wanted to sell it and stop engaging in that activity, considering any equipment used, inventories and goodwill but excluding the value of property?'; b) value of non-residential buildings (Appendix D1); c) trade credits and trade debts and financial liabilities (Appendices B2 and B3); d) value of the severance pay fund, not recorded at present in the survey.

³⁴ Using the Cerved database, which contains the balance sheets of the universe of Italian business enterprises, we calculate the average value per employee of the severance pay fund and apply it as coefficient to surveyed businesses using the information on the number of employees.

³⁵ The various papers that examine this problem focus largely on the estimate of trade credits and debt of total non-financial enterprises. They agree that the figure published underestimates the real value by some 37 per cent (Bartiloro and Di Giacinto, 2001; Beretta and Del Prete, 2001; Bronzini and Cannari, 2003); some papers also propose new methods of estimation (Bronzini and Cannari, 2003; Bartiloro and Coletta, 2004). The trade credits and debts of households are not limited to non-financial enterprises but also concern the other institutional sectors (particularly general government and the rest of the world).

³⁶ The value of financial assets is that used in the study and does not include the severance pay fund.

6. Conclusions

The survey estimates of the financial wealth of Italian households and those published in the financial accounts are not comparable as they stand, and they initially produce widely dissimilar results. Our study begins with a detailed reconciliation of the data from the two sources. We then identify the causes of the large discrepancies that remain, tracing them to the various types of sampling and measurement errors that affect the estimates, and we attempt to quantify their relative importance. The following is a summary of our preliminary results.

Reconciling the sector definition and the valuation criteria of the instruments used by the two sources increases the coverage ratio between the survey estimates and aggregate estimates of total financial assets by a minimum of 5 and a maximum of 9 percentage points in the years considered; for financial liabilities the improvement ranges from 2 to 4 per cent. The adjustment is greater in the case of post office accounts and government securities than for the other financial instruments, mainly due to the subtraction of accrued interest from the financial accounts estimate. The proximity of the two estimates nonetheless remains low, reaching a maximum of 36 per cent for assets (in 1998) and 49 per cent for liabilities (in 1995).

One of the main reasons for the residual discrepancy is probably the difficulty encountered by the survey in correctly measuring the amount of less popular financial instruments (such as foreign securities, repos, interest-bearing post office certificates, corporate bonds, shares and other equity, and increasingly in recent years, BTPs); these tend to be the preserve of wealthier households, which are less likely to participate in the survey. Households with much greater than average wealth are not only less willing to 'negotiate' the interview, but are also the most difficult to contact. In the *Survey of Consumer Finances* conducted among US households, despite similar difficulties the wealthiest households are over-sampled thanks to fiscal information, so that the problem becomes less important. We do not look at this aspect in our study as to do so would entail running *ad hoc* surveys or using additional information to re-weight the estimates. Instead we assess the effect of non-participation by assuming the wealth of non-respondents to be similar to that of the respondents who are most difficult to interview. The phenomenon has an apparently modest impact: adjusting the data for this factor, the coverage ratio with respect to the macro estimates increases in 2002 by 9 percentage points for deposits, 6 points for government securities and around 3 points for total financial liabilities and other securities.

The greatest impact on the estimates is without doubt that of under-reporting. Adjusting the micro data to rectify the effects of this factor in respect of deposits and government securities, which in both sources are least subject to other types of measurement errors, the residual differences between the SHIW and the aggregate figure become compatible with the confidence interval of the survey estimates. The differences are still considerable for other securities, including shares and other equity, bonds and mutual fund shares; the fact that the measurement of this aggregate is less reliable nonetheless means that the comparison lacks a sound basis and the results of the exercise for this instrument are more uncertain.

During the course of our analysis it has also emerged that when the hypotheses of portfolio composition behind the process of adjustment for under-reporting are far from the actual composition in the population, they can create significant distortions in the survey estimates. It would be useful therefore to repeat at fairly close intervals experiments similar to the one carried out by BNL in 1987, the results of which were taken as reference for this paper.

The attempt to reconcile the survey estimates and those of the financial accounts has also highlighted some aspects of both that are open to improvement. Suggestions are made in this regard that can be taken up for development in future studies. The most important aspect is the estimation of households' equity capital in activities that are not corporate enterprises. Although the financial accounts do not contain an estimate for this item at present, it can be computed with the aid of the survey. This would entail expanding the parts of the questionnaire relating to the main balance sheet items of the family business or non-business-enterprise owned or managed by the household head in order to deduce the amount of net equity as the difference between assets and liabilities, obtaining the value to enter among the household sector's financial assets. The information from the survey on the balance sheet items can also be used to estimate the trade credits and debts of producer households, for which at present only the amount *vis-à-vis* non-financial corporations is recorded in the financial accounts.
APPENDIX I

TABLES

HOUSEHOLD FINANCIAL WEALTH: INSTRUMENTS AVAILABLE AND EVALUATION CRITERIA IN THE SURVEY ON HOUSEHOLD WEALTH AND INCOME AND IN THE FINANCIAL ACCOUNTS

	Survey on Household Income and Wealth	n (SHIW)	Financial	Accounts (FC)
AF	Financial instruments	Evaluation criteria	Financial instruments (stocks)	Evaluation criteria
A A1 A2 A3	Bank accounts, certificates of deposit, repos Current account with a bank Savings account with a bank (tied or otherwise) - registered	face value	Currency and deposits with MFIs with other residents with the Rest of the World	Banknotes and coins at face value; deposits at face value including interest accrued
A4 A5 A6	- bearer Certificates of deposit Repos Post office accounts		Other deposits with MFIs with other residents with the Best of the World	Face value including interest accrued
B1 B2 C	PO current account or savings account PO savings certificates Italian government securities	face value	Short-term securities (other than shares) Issued by general goverment Issued by other residents	Market value including interest accrued
C1 C2 C3 C4 C5	BOTs (T-bills) CCTs (T-certificates) BTPs (T-bonds) CTZs (zero coupon) Other (CTEs, CTOs etc.)	face value	Issued by other residents Issued by Rest of the World Long-term securities (other than shares) Issued by MFIs Issued by central government: CCT Issued by central government: others	Market value including interest accrued (securities issued by Central
D D1 D2	Bonds, shares of italian investment funds Bonds Investment funds	face value market value	Issued by local government Issued by other residents Issued by Rest of the World	government are at face value)
E E1 E3 E4 E5	Italian shares Shares in listed companies Shares in unlisted companies Shares in private companies - srl Shares in partnerships	market value	Shares and other equità Issued by residents Of which: quoted shares Issued by Rest of the World	Market value

Table A1 (contd)

HOUSEHOLD FINANCIAL WEALTH: INSTRUMENTS AVAILABLE AND EVALUATION CRITERIA IN THE SURVEY ON HOUSEHOLD WEALTH AND INCOME AND IN THE FINANCIAL ACCOUNTS

	Survey on Household Income and Wealth (SHIW)	Financial Accounts (FC)				
AF	Financial instruments	Evaluation criteria	Financial instruments (stocks)	Evaluation criteria			
F	Managed portfolios	market value	Mutual fund shares Issued by residents Issued by Rest of the World	Current reimbursement value			
			Insurance technical reserves	Current value of the policy			
G	Foreign securities (issued by non- residents)		Life insurance and pension fund reserves	holders' rights on capital or			
G1	Bonds, govt. securities and investment funds	face value	Prepayments of insurance premiums and reserves	annuities			
G2	Shares	market value	Other accounts receivable				
G3	Other		Trade credits	Face value			
Н	Loans to cooperatives		Other				
Ι	Insurance technical reserves	face value					
L	Trade credits						

PF	Debts	Evaluation criteria	Debts (stocks)	Evaluation criteria
PF1	Liabilities vis-a-vis banks and fin. corporations		Short-term loans	Face value including interest
PF2	Trade debts	face value	Granted by MFIs	accrued
PF3	Liabilities vis-a-vis other households		Granted by other Financial institutions	
			Long-term loans	
			Granted by MFIs	Eace value including interest
			Granted by other Financial institutions	accrued
			Granted by General goverment	
			Insurance technical reserves	Current value of the policy
			Life insurance and pension fund reserves	holders' rights on capital or annuities

Table A2

IMPORTANCE OF NON PROFIT INSTITUTIONS SERVING HOUSEHOLDS

Share of NPISHs holdings over the original Financial Accounts value (percent)

	Financial instruments	1995	1998	2000	2002
AF	Financial assets	1.8	1.4	1.6	1.6
А	Bank deposits	2.8	2.6	3.9	3.3
В	Postal deposits	1.5	1.3	1.5	1.8
С	Govt. securities	2.1	2.4	3.0	2.4
D	Bonds and investment funds	1.1	1.0	1.2	1.2
Е	Italian shares	1.1	0.9	1.2	1.2
G	Foreign securities	0.4	0.3	0.3	0.4
Н	Insurance technical reserves	0.0	0.0	0.0	0.0
PF	Financial liabilities	3.6	2.7	2.0	2.8

Weight of the different valuation criteria, including interest accrued (percent)

	Financial instruments	1995	1998	2000	2002
AF	Financial assets	6.7	11.1	9.5	9.2
А	Bank deposits	0.6	0.2	0.1	0.1
В	Postal deposits	26.4	30.6	31.4	30.6
С	Govt. securities	2.3	10.2	11.0	8.8
D	Bonds and investment funds	27.7	6.0	3.4	1.2
Е	Italian shares	0.0	0.0	0.0	0.0
G	Foreign securities	0.2	0.5	0.5	0.7
Н	Insurance technical reserves	0.0	0.0	0.0	0.0
PF	Financial liabilities	0.0	0.0	0.0	0.0

1995 1998 2000 2002 Codice Financial instruments IBF IBF CF % IBF CF IBF CF % IBF CF % % Financial assets (= AF1+AF2+AF3+G+AF4) 1,309,452 33.4 667,400 1,837,583 36.3 786,150 2,365,497 33.2 AF 437,258 744,961 2,396,453 31.1 152,799 409,480 37.3 412,579 60.3 469,782 59.9 557,851 57.4 AF1 Deposits (= A+B)..... 248,796 281.634 320,351 Bank accounts, certificates of deposit, repos. ... 138,553 332,316 41.7 229,708 319,480 71.9 241,822 360,241 67.1 421,467 65.0 274,120 Α Current account with a bank 84.310 169.017 49.9 161.946 210,745 76.8 204,312 246,012 83.0 217,502 296,704 73.3 A1 Savings account with a bank (tied or otherwise). 25,467 40.856 62.3 48.563 43,490 111.7 23.877 49.756 48.0 45,733 53,236 85.9 A2 26,030 28.7 A5 Certificates of deposit 18,469 75,790 24.4 14,037 34,175 41.1 7,480 6,372 24,217 26.3 10,307 46,653 22.1 31,071 16.6 6,153 38,443 16.0 4,513 47,312 9.5 A6 Repos 5,162 77.165 18.5 93.099 20.5 136,383 33.9 В Post office accounts 14.246 19.088 39.812 109,541 36.3 46.231 27,106 23.5 30,205 35.9 40,717 69.4 59,689 59.4 B1 PO current account or savings account 6,380 10,858 28,263 35,432 PO savings certificates..... 50,059 15.7 62.894 13.1 11.549 68,824 16.8 10.799 76,694 14.1 B2 7.866 8,230 397,541 33.3 AF2 Govt. securities (= C)..... 132,437 93,672 222,121 42.2 96,274 167,476 57.5 66,924 212,926 31.4 С 397,541 33.3 222,121 42.2 167,476 57.5 212,926 31.4 BOTs (T-bills) 132,437 93,672 96,274 66,924 C1 CCTs (T-certificates) 75.837 167,283 45.3 42,629 46,542 91.6 46,825 24,809 188.7 30,356 32,094 94.6 C2 BTPs (T-bonds) 60.450 35.2 34,849 40.8 30.763 116.445 26.4 21,261 19.135 39.193 48.8 14.214 CTZs (zero coupon)..... C3 99,777 20.4 99,052 21.3 93,437 26.4 136,492 13.3 20,373 21,107 24,653 18,216 C4+C5Other (CTEs, CTOs etc.) 5,464 14,036 38.9 8,675 16,077 54.0 5,661 10,037 56.4 4,138 9,492 43.6 AF3 Other securities (= D+E+F) 84,958 430,467 19.7 228,424 1,081,019 21.1 296,637 1,541,437 19.2 240,670 1,371,269 17.6 D Bonds, shares of italian investment funds..... 32.111 129,071 24.9 106,134 515,846 20.6 142,300 620,376 22.9 598,537 22.0 131,640 D1 Bonds..... 11.143 67,567 16.5 27.676 163,610 16.9 31.656 216,179 14.6 45,020 292,999 15.4 D2 Investment funds..... 20,968 61,504 34.1 78,458 352,235 22.3 110,644 404,197 27.4 86,620 305,538 28.3

HOUSEHOLD FINANCIAL WEALTH: A COMPARISON BETWEEN MICRO AND MACRO ESTIMATES

Table A3 (contd)

Codice	Eingnoigl instruments		1995			1998			2000			2002	
IBF	rmanetai msu uments	IBF	CF	%	IBF	CF	%	IBF	CF	%	IBF	CF	%
Е	Italian shares	50,720	222,533	22.8	115,680	395,569	29.2	145,000	656,107	22.1	102,786	577,108	17.8
E1	Shares in listed companies	12,109	50,649	23.9	37,197	139,292	26.7	56,907	190,511	29.9	41,696	116,850	35.7
E3+E4	Shares in unlisted companies or in private companies - srl	38,611	171,885	22.5	78,483	256,277	30.6	88,093	465,597	18.9	61,090	460,258	13.3
G	Foreign securities (issued by non- residents)	2,127	78,863	2.7	6,610	169,605	3.9	9,337	264,953	3.5	6,244	195,624	3.2
G1	Bonds, govt. securities and investment funds	1,382	30,283	4.6	4,609	56,456	8.2	3,203	73,390	4.4	3,714	89,310	4.2
G2	Shares	345	26,086	1.3	1,834	60,588	3.0	2,780	108,450	2.6	1,995	67,269	3.0
G3	Other	399	22,494	1.8	167	52,561	0.3	3,355	83,113	4.0	535	39,045	1.4
Н	Insurance technical reserves	55,386	68,257	81.1	83,824	117,692	71.2	92,825	182,653	50.8	93,675	249,140	37.6
AF4	Trade credits	11,678	3,707	315.0	12,683	4,173	304.0	18,780	4,150	452.6	23,341	5,267	443.1
PF	Financial liabilities (= PF1)	80,793	163,504	49.4	86,456	202,034	42.8	109,782	252,265	43.5	127,622	290,011	44.0
PF1	Granted by banks or other financial companies	80,793	163,504	49.4	86,456	202,034	42.8	109,782	252,265	43.5	127,622	290,011	44.0

HOUSEHOLD FINANCIAL WEALTH: A COMPARISON BETWEEN MICRO AND MACRO ESTIMATES

Table A4

HOUSEHOLD FINANCIAL WEALTH: DIFFERENCES BETWEEN MACRO AND MICRO ESTIMATES AFTER THE RECONCILIATION

Financial instruments	1995		1998		200	00	2002	
	FC-SHIW	Std. error	FC-SHIW	Std. error	FC-SHIW	Std. error	FC-SHIW	Std. error
Financial assets	872,194	15,519	1,170,18	41,157	1,579,346	50,537	1,651,492	36,549
Bank deposits	193,763	4,417	89,772	12,101	118,418	17,129	147,347	22,802
Postal deposits	62,918	867	74,010	1,383	69,729	7,269	90,152	7,850
Govt. securities	265,104	6,324	128,449	9,096	71,202	16,023	146,002	7,526
Bonds	56,424	2,560	135,934	4,489	184,523	5,505	247,979	5,827
Investment funds	40,536	2,259	273,777	9,360	293,553	12,676	218,918	7,764
Italian shares	171,813	9,977	279,889	25,590	511,107	26,050	474,322	14,840
Foreign securities	76,737	401	162,995	1,313	255,616	3,324	189,380	1,105
Insurance technical reserves	12,871	2,634	33,868	4,058	89,828	5,039	155,465	4,246
Trade credits	-7,971	1,427	-8,510	2,290	-14,630	3,029	-18,074	5,692
Financial liabilities	82,711	4,166	115,578	6,457	142,483	6,984	162,389	9,142

(millions of euro)

Table A5

COMPOSITION OF HOUSEHOLD FINANCIAL PORTFOLIO

Financial instruments	19	95	199	98	20	00	200	2
	SHIW	FC	SHIW	FC	SHIW	FC	SHIW	FC
Bank deposits	31.7	25.7	34.4	17.6	30.8	15.6	36.8	17.9
Postal deposits	3.3	5.9	2.9	5.1	5.1	4.6	6.2	5.7
Govt. securities	30.3	30.5	14.0	12.2	12.2	7.2	9.0	9.0
Total	65.3	62.1	51.3	34.9	48.1	27.4	52.0	32.6
Bonds	2.5	5.1	4.1	8.9	4.0	9.1	6.0	12.2
Investment funds	4.8	4.7	11.8	19.1	14.1	17.0	11.6	12.7
Italian shares	11.6	16.9	17.3	21.4	18.4	27.6	13.8	24.0
Total	18.9	26.7	33.2	49.4	36.5	53.7	31.4	48.9
Foreign securities	0.5	5.9	1.0	9.1	1.2	11.1	0.8	8.1
Insurance technical reserves.	12.7	5.1	12.6	6.3	11.8	7.6	12.6	10.2
Trade credits	2.7	0.3	1.9	0.2	2.4	0.2	3.1	0.2
Financial assets	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Financial liabilities ⁽¹⁾	18.5	12.9	14.2	11.4	15.1	11.1	17.8	12.6

(percentages)

(1) as a share of total financial assets (percent)

Table A6

DYNAMICS OF HOUSEHOLD FINANCIAL PORTFOLIO

Financial instruments		SF	HW			F	^z C	
i manorar motramonto	1995	1998	2000	2002	1995	1998	2000	2002
Bank deposits	100.0	165.8	174.5	197.8	100.0	96.0	109.6	127.5
Postal deposits	100.0	134.0	279.5	324.5	100.0	120.3	141.9	177.3
Govt. securities	100.0	70.7	72.7	50.5	100.0	56.0	42.5	53.7
Bonds	100.0	248.4	349.2	283.3	100.0	241.8	320.3	434.2
Investment funds	100.0	374.2	443.2	410.0	100.0	571.6	657.7	497.1
Italian shares	100.0	228.1	285.9	202.7	100.0	177.4	295.0	259.5
Foreign securities	100.0	310.8	439.1	293.6	100.0	214.9	335.5	248.2
Insurance technical reserves	100.0	151.3	167.6	169.1	100.0	172.4	267.6	365.0
Trade credits	100.0	108.6	160.8	199.9	100.0	112.6	111.9	142.1
Financial assets	100.0	152.6	179.8	170.4	100.0	139.7	180.2	182.6
Financial liabilities	100.0	116.9	147.0	164.1	100.0	123.9	154.7	178.5

(indexes: 1995=100)

OWNERSHIP OF FINANCIAL INSTRUMENTS (SHIW)

(percentages)

SHIW Code	Financial instruments	1995	1998	2000	2002
AF	Financial assets (= AF1+AF2+AF3+G+AF4)	86.7	8 6.8	86.1	86.3
AF1	Deposits (= A+B)	85.4	86.0	85.4	85.8
А	Bank accounts, certificates of deposit, repos	81.3	82.2	79.7	77.9
A1	Current account with a bank	68.9	73.2	73.2	73.0
A2	Savings account with a bank (tied or otherwise)	26.7	28.0	17.7	13.5
A5	Certificates of deposit	5.3	3.7	2.0	1.2
A6	Repos	1.2	0.7	0.6	0.5
В	Post office accounts	14.6	15.0	16.6	18.6
B1	PO current account or savings account	9.6	11.5	13.8	16.9
B2	PO savings certificates	7.4	5.9	5.4	4.8
AF2	Govt. securities (= C)	26.4	11.8	11.7	9.4
С	BOTs (T-bills)	26.4	11.8	11.7	9.4
C1	CCTs (T-certificates)	22.4	8.7	9.5	7.1
C2	BTPs (T-bonds)	7.8	4.4	3.3	2.0
C3	CTZs (zero coupon)	4.4	2.5	1.9	2.0
C4+C5	Other (CTEs, CTOs etc.)	1.2	0.8	0.7	0.6
AF3	Other securities (= D+E+F)	11.7	16.0	19.2	20.5
D	Bonds, shares of italian investment funds	5.9	12.5	14.4	14.0
D1	Bonds	2.6	5.1	5.7	6.0
D2	Investment funds	4.2	9.6	11.6	10.2
Е	Italian shares	7.4	7.8	9.7	11.3
E1	Shares in listed companies	4.2	7.1	9.2	9.0
E3+E4	Shares in unlisted companies or in private companies (srl)	1.8	2.3	1.8	1.8
G	Foreign securities (issued by non- residents)	0.4	0.8	1.2	1.1
G1	Bonds, govt. securities and investment funds	0.3	0.4	0.6	0.7
G2	Shares	0.1	0.5	0.6	0.4
G3	Other	0.1	0.1	0.2	0.1
Н	Insurance technical reserves	27.9	29.2	27.6	24.0
AF4	trade credits	4.5	3.5	4.2	4.7
PF	Financial liabilities (= PF1)	24.7	22.6	22.6	21.1
PF1	Issued by banks or financial companies	24.7	22.6	22.6	21.1
PF1	Trade debts	3.8	2.9	3.2	1.5

Table A8

HOUSEHOLD WEALTH IN BUSINESS ACTIVITIES

Firm composition

			Firms	
	Sole-proprieto and de-facto independent et employees ≤ 5	rships, simpler parternships, professional, c. employees > 5	Other partnerships	Corporations (quoted or unquoted)
ESA95 Classification	Producer households		orporations	

Wealth measurement in the National accounts and in the SHIW

National	Real assets	Financial assets						
accounts (Balance sheet account)	Value of: capital stock, inventories and goodwill	Value of total equity	Value of t	otal equity	Value of to	tal equity		
SHIW	Value of: capital stick, inventories and goodwill	Value of: capital stick, inventories and goodwill	Value of controlling interests	Value of portfolio participations	Value of controlling interests	Value of portfolio participations		

Definition of "shares and other equity" in the two sources

SHIW	yes	Yes	Yes		Yes	
Financial accounts (ESA95)		Yes	Yes	Yes	Yes	yes

Data availability in the two sources

SHIW	yes	yes	yes	yes	yes	yes
Financial accounts	(*)				yes	yes
Comparison					yes	yes

(*) macro estimates not available (but some estimation is possible using flow data).

EFFECTS OF THE ADJUSTMENT PROCEDURE

Financial instruments	Unadjusted estimates	Adjusted for difference in definitions	Adjusted for non response	Adjusted for under- reporting	Sampling variability (conf. interv. at 95%)
	(a)	(b)		(c)	(c)
	1995				
Deposits	33.8	37.2	39.3	67.7	57.9 - 77.4
Govt. securities	33.4	33.3	36.6	80.5	63.0 - 97.9
Other securities	20.9	19.7	22.2	78.7	60.6 - 96.7
Financial liabilities	47.1	49.4	60.2	n.d.	50.5 - 69.9
	1000				
			1998		
Deposits	50.7	60.3	67.1	121.4	* 93.7 - 149.2
Govt. securities	37.0	42.2	50.0	96.2	* 74.2 - 118.2
Other securities	21.1	21.1	28.0	89.9	* 56.3 - 123.5
Financial liabilities	40.6	42.8	48.7	n.d.	40.9 - 56.5
	2000				
			2000		
Deposits	52.4	59.9	68.9	139.9	* 98.9 - 180.8
Govt. securities	49.6	57.5	64.6	173.9	119.4 - 228.3
Other securities	18.8	19.2	22.4	66.0	36.3 - 95.6
Financial liabilities	41.3	43.5	52.1	n.d.	44.4 - 59.9
	2002				
Deposits	50.2	57 4	667	110 5	* 96 9 152 1
	50.3	57.4	00.7	119.5	* 60.8 - 152.1
Govt. securities	33.4	31.4	37.2	100.7	* 71.8 - 129.6
Other securities	17.3	17.6	20.0	54.9	38.0 - 71.7
Financial liabilities	41.9	44.0	47.8	n.d.	41.3 - 54.3

(ratio between micro and macro estimates)

(a) The two sources differ for both the definition of the Household sector and for the valuation criteria of the financial instruments. The only re-conciliation carried out regards the level of aggregation reported. – (b) Data are consistent both as regards the sector and the valuation criteria adopted. – (c) Financial liabilities are reported unadjusted. Among "Other securities" only shares, bonds and mutual fund shares were adjusted. For seek of homogeneity, an estimate of indirect participation held by households has been deducted from the Financial accounts figures. Managed accounts are not present in the SHIW 1987 data, while they are included in the Financial accounts.

Table A10

REVISIONS IN THE HOUSEHOLD FINANCIAL ACCOUNTS ^(A)

(changes relative to the r	prior value r	oublished: millions	of euros and	percent)
(/

Instruments	Number of revisions > 5%	Mean value of revisions in absolute terms	Mean value of revisions in relative terms	Coefficient of variation (%)
Financial assets	3	34,520	1.4	2.4
Bank accounts, certificates of deposit, repos	2	2,201	0.5	1.5
Current account with a bank	2	1,249	0.5	1.7
Savings account with a bank	2	405	1.0	2.9
Certificates of deposit	2	116	0.5	1.6
Repos	2	384	1.1	3.8
PO current account or savings account	7	830	2.1	4.8
PO savings certificates	0	26	0.0	0.1
Govt. securities	6	3,401	1.2	3.5
BOTs (T-bills)	2	622	4.2	6.4
CCTs (T-certificates)	9	3,849	4.4	14.6
BTPs (T-bonds)	2	240	0.2	0.8
CTZs (zero coupon) and others	4	226	1.4	2.0
Other securities	4	30,954	2.0	3.5
Bonds	5	2,983	1.5	3.5
Investment funds	0	85	0.0	0.1
Italian shares	8	4,357	4.2	6.3
Shares in listed companies	12	14,784	5.3	7.7
Foreign bonds, govt. securities and investment funds	. 0	13	0.0	0.0
Foreign shares	0	94	0.1	0.2
Other foreign securities	7	1,579	3.2	6.3
Insurance technical reserves	1	933	0.4	0.5
Trade credits	3	43	0.9	1.6
Financial liabilities	0	113	0.0	0.1

(a) For each item we compared, over the years 1995-2002, the estimates published in the different Financial accounts releases (up to that of 2003Q4). The various financial intruments are presented consistently with the rest of the paper, which differs from that of the original publication. All revisions are taken in absolute value, to avoid upward/downard changes counter-balancing. – (b) The magnitude of revisions on BOT and CCT is due to a significant variation occurred in 2002, resulting from a change in classification of such amount between the two instruments (see note to table aB80 in the Appendix to the 2003 Annual Report). Disregarding this change, the average of percentege revisions and the coefficient of variation for BOT decrease to 0,3% e 0,9%, respectively; the same measures for CCTs decrease to 3% e 12%.

Table A11

Variables	1989, 1991, 1993	1995, 1998, 2000
Net wealth (= AR+AF-PF)	0.83	0.82
Non financial assets (AR)	0.82	0.79
Buildings	0.82	0.86
Of which principal residence	0.83	0.90
Businesses	0.67	0.56
Financial assets (AF)	0.85	0.68
Bank and posta deposits	0.50	0.38
Gov. Securities	0.99	0.74
Other securities (shares, bonds, inv. funds,)	0.74	0.64
Financial liabilities (PF)	0.59	0.54
for the purchase or renovation of buildings	0.63	0.54
for the purchase of motor vehicles	0.37	0.72
for the purchase of furniture, household appliances, etc	-	0.11
for the purchase of non-durable goods	0.04	0.16

HEISE INDEX FOR SAMPLE ESTIMATES

Source: Biancotti, D'Alessio and Neri (2004).

APPENDIX II

METHODOLOGICAL NOTES

Households in the financial accounts

In the financial accounts the two sectors 'households' and 'non-profit institutions serving households' are aggregated.

Households. – The sector includes individuals or groups of individuals in the role of consumers, and possibly in the role of entrepreneurs producing non-financial goods and services and also producing marketable financial services if their economic and financial behaviour does not characterise them as quasi-corporations. Their main sources of income are payroll employment, investment, transfer payments from other sectors, revenues from the sale of production, or imputed revenues from products for own consumption.

The household sector consists of production workers, clerical workers, payroll employees, pensioners, rentiers, recipients of other transfer payments. Also included are informal associations, *de facto* companies and sole proprietorships with up to five employees and whose main role is the production of marketable non-financial goods and services.

Although not required by ESA95, Italy makes a distinction between the financial assets and liabilities of consumer households, on the one hand, and those of sole proprietorships (or producer households), on the other. At present this information is not published separately.

Non-profit institutions serving households. – The sector comprises non-profit institutions serving households with legal personality or recognised as having economic importance, which produce non-marketable goods and services. Their main sources of income, apart from occasional sales, are voluntary donations in cash or in kind by households in the role of consumers, payments by general government, and investments.

The sector conventionally includes the following institutions, even though they do not have the above requisites: church or religious institutions and agencies; political parties and associated organisations (e.g. youth organisations associated with a political party); trade unions and associations with mainly labour-related objectives; professional associations.

The households in the survey

For the purposes of the survey, 'household' means all persons living permanently together in the same dwelling, who pool all or part of their income (a household may consist of only one person).

A household includes people who are temporarily absent, such as members on holiday, members temporarily absent for reasons of study or ill health, as well as non-relations living permanently with the household and pooling all or part of their income. Not included are all persons who, although living under the same roof, keep their income and expenditure separate from those of the rest of the household (e.g. domestic help, tenants, paying guests, etc.).

The definition of household includes both producer and consumer households but does not include non-profit institutions.

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Session 3

THE CASE OF ITALY

ITALY'S FINANCIAL WEALTH AND INDEBTEDNESS

FROM 1950 TO 2004

Riccardo De Bonis^{*}

1. Introduction

In 1951 Italy was an agricultural country. Income per person was 50 per cent that of England and 70 per cent that of France. Financial assets amounted to one and a half times GDP (Figure 1). Assets vis-à-vis non-residents were 10 per cent of GDP (Figure 2). The country became industrialised after the Second World War. Per capita income is now about 90 per cent that of England and 96 per cent that of France, although at times in the past the comparison has been more favourable to us. Financial assets are seven times GDP. External assets are equal to GDP.

This paper looks briefly at Italy's financial growth since 1950, using as main source the stocks of financial assets and liabilities reconstructed by Bonci and Coletta in this volume. I analyse the changes in household saving, corporate indebtedness, and the balance sheet structure of financial institutions, especially banks. I spend less time on the role of general government, as there are already a large number of studies on the long-term evolution of the public debt,¹ and on relationships with the rest of the world, which would require a separate treatment.

The evolution of the financial structure is connected with the performance of the real economy, in particular of the business cycle, investment and inflation. It is affected by changes in the regulation of banking and financial activities,² and influenced by the stance of monetary policy and by fiscal innovations, as demonstrated in Ricotti and Sanelli's paper, also included in this volume. Without wishing to minimise these links, they will be discussed only shortly, mainly for reasons of space. I have concentrated, instead, on the main financial instruments available in the economy: coins and currency in circulation, deposits, securities, loans, shares and other equity, investment fund units, insurance reserves, and pension fund units (see Table 1 and Eurostat, 1996 for the definitions). Following the traditional usage in the Italian financial accounts, the statistics in this paper are not consolidated.

The introduction is followed by five sections, covering the five decades since 1950; the first years of the new millennium have been collapsed into the 1990s. Section 7 summarises the main long-run trends.

2. The 1950s: success and uncertainty

Against a background of monetary stability (the annual rise in the cost of living averaged 3.5 per cent) and strong economic growth (average annual GDP growth was over 6 per cent), during the 1950s the monetary authorities focussed on strengthening the banking system after the

^{*} Bank of Italy. The author wishes to thank Massimo Coletta, Franco Cotula, Giuseppe Della Torre, Giuseppe Marotta, Federico Signorini, and Ignazio Visco for comments on an earlier draft of the paper. Miria Rocchelli and Maria Paola Ferraresi prepared the figures and tables. All translations of original material in Italian are mine.

¹ See Artoni and Biancini (2003). In the financial accounts the liabilities of general government are not the same as the public debt. They are computed at market value, while the public debt is usually expressed in nominal terms. Moreover, in the financial accounts general government liabilities include instruments such as derivatives that are not included in the usual definition of debt.

² A summary of the transformation of the financial system that examines these aspects can be found in Onado (2003).

collapses of the 1930s.³ The number of bank branches was increased in order to step up the collection of deposits. At the start of the decade deposits represented around 50 per cent of households' total financial assets, while currency exceeded 10 per cent (Table 2).

During the decade shares and bonds played an important role in financing business. Bonds represented 6 per cent of the flow of funds to business between 1951 and 1953, 10 per cent in 1954-59, and 9 per cent in 1960-62,⁴ values recorded only on rare occasions in the twentieth century. Bonds also accounted for a by no means negligible proportion of the stock of corporate liabilities. Shares played an even greater role in corporate financing. At no time between 1950 and 1960 did they drop below 35 per cent of total balance-sheet liabilities (Table 3). Households progressively increased their holdings of shares, simultaneously reducing their deposits, which represented 32 per cent in 1960, almost 20 percentage points less than ten years earlier.

The monetary authorities believed that in addition to strengthening the banking system their objectives should include encouraging corporate issues of shares and bonds as a complement to bank financing. The banks were sceptical about this strategy because of fear of competition and disintermediation by the markets. Issues of bonds and, above all, of shares began to encounter difficulties at the beginning of the 1960s. Share issues were affected not only by the negative attitude of the banks, but by other factors as well: firms' reluctance to become listed for fear of losing control and having to adopt more transparent accounts; tax reforms discouraging supply and demand of shares; failure to reform the stock market; the economic slowdown that followed the 1958-63 boom; the rise in subsidised credit, reducing the need for external funds; growing pressure on the financial markets from general government; and, finally, the lack of protection for investors and minority shareholders, which has only recently been remedied.⁵

Turning to the other institutional sectors, in the 1950s the assets and liabilities of the rest of the world represented a small proportion of residents' and non-residents' total assets and liabilities (Table 4), and were also low in relation to GDP. After the middle of the decade Italy's trade surpluses generated a net external creditor position, which persisted for many years. General government, like the rest of the world, accounted for a small part of issues and holdings of financial instruments; the sector's liabilities amounted to 30-40 per cent of GDP.

3. The 1960s: the engine falters

It is easy to see the 1960s as a 'short decade'. The first three years belonged to the period of accelerating growth beginning in 1958 and following a decade of expansion. The 1960s then ended prematurely in the turbulent autumn of 1969 that heralded the even greater troubles of the 1970s. This 'short decade' began in October 1963 with the monetary restriction enacted to counter inflationary tensions present since 1962. The measures were successful: the rise in the cost of living slowed from 7.6 per cent in 1963 to 4.7 per cent in 1965. GDP growth also slackened, from 7.1 per cent in 1963 to 3.9 per cent in 1964. Nonetheless, growth remained satisfactory throughout the remainder of the decade.

³ On the banking system in the 1950s see Albareto and Trapanese (1999). Goldsmith and Zecchini (1999) discuss the trend of financial assets in relation to GDP.

⁴ See Cotula (1999), Table 2.

⁵ In the time frame proposed by Barbiellini Amidei and Impenna (1999) 1949-55 is when the stock market probably came on stream; 1956-61 is the period of missed opportunities, while 1961-64 is the time of crisis and structural decline. See also Pagano's comment (1999). As Vicarelli (1979) pointed out: 'It was only towards the end of the 1950s that increased cash flow, on the one hand, and some growth in the capital market, on the other, created the conditions for a potential disintermediation of the banks. However, events in the 1960s – notably the rapid expansion of the public sector's borrowing requirement and of subsidised credit – ruled out this risk for the system of banks and other intermediaries as a whole, partly because of the equally rapid development of the medium and long-term credit institutions.' Aganin and Volpin (2005) do not believe that the performance of Italy's stock market was linked to changes in the level of investor protection, but was negatively correlated to the number of listed State-owned companies.

In 1963 Italy's financial structure entered a phase, lasting until the end of the 1970s, that led to a decline in the role of the stock market. As a result of the development of share issues during the 1950s, at the beginning of the 1960s this instrument accounted for a large proportion of the corporate sector's balance-sheet liabilities. Fiscal measures (the introduction of dividend tax 'on account' in 1962 to make the registration of shares compulsory) and economic policy (the nationalisation of electricity in 1962) had an adverse effect on demand and supply of quoted shares. Households replaced shares with deposits, which rose to 45 per cent of their financial assets in 1970, a similar proportion to that recorded at the beginning of the 1950s (Table 2).

The difficulties of the stock market – the price index fell steadily from 1963 to 1970 – led to a reduction in equity financing. Bank loans began to represent a growing proportion of corporate liabilities. These problems were not confined to Italy. In other European countries as well businesses had to cope with decreased cash flow, difficulties with share issues, and growing indebtedness with the banks.⁶ A specific feature of Italy, though, which aggravated the situation of the corporate sector, was the crowding out of private equity by bond issues of general government and state-owned corporations.

The special credit institutes (SCIs) pressurised the financial market to issue more and more bonds. The banks became their channel of finance, creating the mechanism of dual intermediation, which gained momentum in the 1970s. In the 1960s the priority of economic policy, for the monetary authorities as well, was economic growth, which Italy needed to close the persistent gap with the wealthier European countries. The central issue, as in the 1950s, was capital accumulation. It was essential that there should be enough credit to finance the expansion of investment and the development of infrastructure. These loans needed to be on a medium or long-term basis and had to be granted by the SCIs. That this was no hypothetical exigency is borne out by the fact that in 1963 the Interministerial Committee for Credit and Saving passed a resolution setting, for the first time, 18 months as the break-off point between short-term and medium-to-long-term credit; the Banking Law had not established any such threshold. In fact, since the passage of the Law in 1936 the leading banks had made several attempts to increase the provision of long-term finance to the corporate sector. The problem was solved in the 1960s by imposing a clear division between shortterm and medium-to-long-term finance and reinforcing the system of specialisation on the basis of loan duration.

The system of dual intermediation increased the share of financial assets and liabilities held by financial institutions – at the time mainly the Bank of Italy and the commercial banks⁷ – in the economy's total financial instruments (Table 5). As far as assets were concerned, the policy of stabilising securities prices pursued between 1966 and 1969 had the effect of swelling the central bank's portfolio. On the liability side, deposits grew steadily (Figure 5; Table 6). Households continued to invest around 9 per cent of their financial assets in notes and coins.

In the second half of the 1960s general government began to put pressure on the capital markets. The ratio of total general government liabilities to GDP rose to 60 per cent towards the end of the decade (Figure 6). On the liability side, the weight of securities increased while that of bank loans remained constant (Table 7). The share of post office deposits fell steadily because the return on them had not kept pace with the rises in the interest rates offered on bank deposits.

⁶ On the question of European financial markets, Lamfalussy (1968) remarked that, 'For various reasons, the funds available for self-financing decreased sharply between 1960 and 1965-66... public and private companies stepped up considerably their recourse to external financing. This coincided with the general decline of European stock markets and hence with growing difficulty in increasing capital. The additional demand for funds therefore shifted almost entirely onto the financial intermediaries, in particular the banks and special credit institutes.'

⁷ Non-bank intermediaries, insurance companies, pension funds, and investment funds were non-existent or poorly developed at the time.

With the liberalisation of foreign exchange regulations and the current balance-of-payment surplus, the rest of the world's liabilities vis-à-vis Italy continued to exceed the corresponding assets throughout the decade. Italy's net foreign creditor position depended on the possibility of acquiring financial instruments issued by non-residents. One cause of the outflows, for instance, was the need to sustain exports by granting financial loans and trade credit. Already in the 1950s, when Italy was engaged in post-war recovery and international integration, the banks had provided important support for the growth of the exporting sectors. The rest of the world's assets and liabilities were to evolve in a dramatically different manner during the 1970s.

4. The 1970s: the turbulent years

The social and political tensions of the 1970s were the worst Italy had experienced since the end of the Second World War. The decade saw two recessions: the first lasting from March 1974 to May 1975, and the second from February to December 1977.⁸ The oil shocks of 1973 and 1979, and particularly the first one, fuelled inflation, which averaged 14 per cent throughout the decade. The lira was devalued on several occasions, with a serious foreign exchange crisis in 1976. The vicious circle of inflation, rising costs, and devaluation of the currency characterised the period. The corporate sector, already hit by the turbulent autumn of 1969, suffered growing costs, declining profits and increased leverage until 1978. The imbalances in the real economy and the high rate of inflation led to some of the largest shifts since the War in the composition of banks', households' and firms' financial assets and liabilities.

The best place to begin is probably with the changes affecting the banks. In the early years of the decade loans began to contract as a percentage of the banks' total assets, and continued to do so for around 15 years. In addition to the economic recessions, this was also due to the restrictive stance of monetary policy and the administrative measures adopted. As in 1963, monetary policy reacted to sudden increases in lending that were thought to be at the root of speculative attacks against the lira.⁹ The ceiling on lending was introduced for the first time in July 1973 and then extended, in different forms, until the beginning of the 1980s.¹⁰ Its consequence was to reduce the banking system's ratio of loans to total assets from 62 per cent in 1972 to 41 per cent in 1983. The loans to GDP ratio began to fall at the beginning of the 1970s.

The other factor that had a decisive influence on the composition of banks' surpluses was the securities investment requirement, also introduced in 1973. Banks were required to augment their portfolio of fixed interest securities, mainly by investing in the issues of industrial credit institutes, state-owned and private companies. The aim of the requirement was to channel the banking system's resources into long-term finance.¹¹ It remained in force, in progressively weaker versions, until 1986. As a consequence of the requirement the ratio of securities to banks' financial assets rose from 18 per cent in 1972 to 28 per cent in 1982-83, the highest value in the period examined (Table 6).

The banks' central role in the economy was strengthened by the dual intermediation process resulting not only from the measures adopted by the authorities, but also from the behaviour of savers. The public's marked preference for liquidity, given rising inflation, led to an increase in deposits owing to the lack of alternative investments. Towards the end of the 1970s households

⁸ The recessions since the 1970s are dated on the basis of Altissimo, Marchetti and Oneto (2000).

⁹ 'Inflationary and balance-of-payments crises were always preceded, both in the last decade and in the preceding period, by an increase in the ratio to GDP of lending to the public and the private sectors. Monetary restriction has always been an effective means of controlling these crises. From 1973 it became absolutely clear that a mechanism was at work, leading, via an increase in the corporate sector's liquid assets, to currency exports, speculative stock-building, depreciation of the external value of the currency, and inflation', Fazio (1979).

¹⁰ On monetary policy between the end of the 1970s and the following decade, see Gaiotti and Rossi (2003).

¹¹ See Coltorti (2005) on the mistakes that the special credit institutes made in financing large state-owned corporations.

kept more than 60 per cent of their financial assets in bank deposits, while the lack of variable-rate instruments caused investments in securities to fall to less than 10 per cent. The growth in deposits continued to benefit from the loss of market share of Post Office liabilities. No real challenge to bank deposits emerged until 1976, when Treasury bills (BOT) were introduced. The increasing importance of bank deposits during the 1970s was part of a long-term trend in Italy's financial system, which had seen the ratio of banks' liabilities to the total liabilities of the economy rising steadily since the 1930s.¹²

The difficulties of the stock market made it hard to raise equity capital. The proportion of shares and other equity in the economy's total financial assets diminished steadily throughout most of the period. Between 1973 and 1977 shares and other equity decreased from 27 to 14 per cent of corporate liabilities, while almost paradoxically, given the existence of the ceiling on lending, the contribution of bank loans increased. In 1977 the percentage of bank loans in total corporate liabilities was the highest of the period 1950-2004. Leverage (bank loans and securities issued over loans, securities, shares and other equity) reached a peak level. In view of the financial weakness of the industrial sector, the Governor of the Bank of Italy Guido Carli, in his 'Concluding Remarks' pronounced on 31 May 1975, made the famous proposal to transform bank loans into shares in the companies. It was the inspiration for Law 787/1978 on corporate financial restructuring, which allowed the banks to consolidate their loans and join syndicates to acquire equity capital of the firms. The law was not a success, and in the years that followed the corporate sector improved its situation by other means. Between 1977 and 1980 the ratio of gross profits in industry to value added began to rise for the first time since the 1960s. Higher profits and increased self-financing prompted firms to repay previous debts, thus reducing their leverage.¹³

Towards the end of the 1970s private issues of securities, which had represented over 6 per cent of total corporate liabilities from 1964 to 1978, encountered serious difficulties, partly due to the existence of the security investment requirement. The public debt brought increasing pressure to bear on the financial markets. While post office deposits and bank lending declined as a share of general government liabilities, securities increased.¹⁴

The process of foreign exchange liberalisation came to a halt during the 1970s. In order to counter the balance-of-payments difficulties and avoid speculative pressures against the lira, measures were introduced in 1972 to control or discourage the acquisition of external financial assets by residents. These included the non-interest deposit in lire of 50 per cent of the sum exported, limits on advance payment of imports, limits on the late collection of export payments, and the criminalisation in 1976 of illegal exports of capital. These measures led to a decrease in the rest of the world's liabilities vis-à-vis Italy in relation to total financial liabilities, to which the prohibition against banks having a net external creditor position also contributed. From 1979, the rest of the world's assets vis-à-vis Italy increased, partly as a result of the country's trade deficits. Italy acquired a net debtor external position.

In sum, the 1970s were the most difficult years for the industrial system since the War. The ailing corporate sector fuelled the debate on the risks of allowing the banking system to play too great a role in Italian finance. The high levels of leverage, together with the growing public debt and stagnant stock market, led to an increase in the share of financial assets and liabilities held by banks. In view of their central importance, a growing literature developed on the structural characteristics and the efficiency of Italy's only intermediaries. Opportunities for holders of

¹² On this point see Biscaini and Ciocca (1979).

¹³ See Barca and Magnani (1989), Chapter 2. The authors propose the following time frame: 1969-73 are the years of 'exogenous shocks, intensive restructuring and decentralisation'; 1974-77 is 'the age of uncertainty'; in 1979-80 'adjustment starts with capital'; from 1981 'adjustment continues with labour'. Spaventa (1987) notes 'a marked recovery of corporate earning capacity and profit margins from 1978 onwards.'

¹⁴ Before 1995, the liabilities of general government include the funded reserves of social security institutes, later incorporated in pension funds.

surpluses (savers) and entities in deficit (government and corporate sector) to meet directly in the markets were few and far between, either because there were no markets or they were extremely inefficient.¹⁵ The creation of new markets and the improvement of existing ones, as well as the introduction of new financial instruments, was to bring about one of the major transformations of later years, with an impact on the composition of financial assets and liabilities.¹⁶

5. The 1980s: improved financial structure progresses and ballooning public debt

Against a background of diminishing inflation and high real interest rates, in the Eighties the banks experienced disintermediation on the liability side as new instruments were introduced and the operation of the financial markets improved. Administrative measures were abandoned as a tool of monetary policy. The 'divorce' between the Bank of Italy and the Treasury encouraged the spread of government securities in the economy, partly aided by the growing use of variable-rate issues. Households began to diversify their financial wealth. The public debt ballooned. The corporate sector rebalanced the composition of its liabilities.¹⁷

The decade started with a long recession, lasting from March 1980 to March 1983. The corporate sector began with a financial deficit, caused by the final repercussions of the industrial crisis of the 1970s and the persistence of high nominal interest rates. Later, a balanced financial situation was restored, with an increase in share issues on the liability side and a containment of lending, which was still curtailed in 1982-83 by the retention of the ceiling and the negative business cycle. Private issues of securities continued to lose importance. Falling inflation led to a decline in nominal interest rates, triggering, as in other countries, a rise in share prices from 1982. The trend gained impetus in 1985, encouraging a spate of issues. Firms decreased their leverage. After the stock market crisis of 1987, the weight of shares diminished once more, although it remained substantial. The financial markets benefited from the advent of investment funds. Firms improved their financial position by exploiting the economic expansion of the second half of the 1980s: between 1986 and 1990 GDP growth averaged 2.9 per cent, compared with 1.7 per cent in 1981-85. Disinflation did much to restore healthy corporate balance sheets: the cost of living increased by an average of 5.7 per cent between 1986 and 1990, compared with 14 per cent in 1981-85.

As far as the banks were concerned, the removal of the ceiling on lending in 1983 was managed by putting in place a temporary system of loan oversight, which was abolished in 1984. However, the ceiling was revived, in an attenuated form, at the time of the exchange crises in the first half of 1986 and from September 1987 to the early months of 1988. Since then the elimination of administrative controls and the measures to deregulate banking activity have encouraged competition among intermediaries and increased the share of loans in banks' total assets, diminishing that of securities. Once the investment requirement had been abolished, securities resumed the old role of buffer stock attributed to them by the theoretical models of banking. Banks sold securities to finance the growth in lending in the second half of the 1980s. The bank loans to GDP ratio, which had fallen steadily since the beginning of the 1970s, began to rise once more.

During the 1980s the banks experienced increasing disintermediation on the liability side. Deposits diminished in relation to GDP, to the economy's total liabilities and to the financial wealth of households. The latter included a growing percentage of shares and central government bonds, partly as a result of the spread of investment funds. Only in the second half of the decade, as the stock market lost impetus, did deposits show signs of picking up. Their revival can be put down

¹⁵ The debate centred on 'the potential instability associated with a structural dissociation between the centre of decision-making regarding saving and investment', Vicarelli (1979).

¹⁶ See Ciocca (2004).

¹⁷ A summary of developments in the 1980s can be found in Signorini and Visco (2002), Chapter 5.

to the spread of a relatively new instrument, the certificate of deposit, which the more efficient banks used to increase their market share. During the 1960s and 1970s, bond issues, the traditional debt instrument of the special credit institutes, fluctuated between 14 and 17 per cent of banks' total liabilities; subsequently, the growth of certificates of deposit reduced them to less than 10 per cent of banks' liabilities in 1989-90.

Between the beginning and the end of the 1980s total general government liabilities increased from 80 to 120 per cent of GDP. The stock of securities issued began to settle at over 70 per cent of that total, while the percentage of post-office deposits and bank loans declined steadily. The gap between general government financial assets and financial liabilities widened.

From 1980 to 1992 flows of non-residents' financial assets were greater than those of the corresponding liabilities. This can be put down to higher interest rates in Italy than abroad, restrictions on exports of capital by Italian residents (not abolished until after 1990), the need to finance the public debt, and the deficit in the current account of the balance of payments. As a result of these flows Italy had a net debtor position with the rest of the world for most of the decade.

6. The 1990s: international openness and booming markets

If we have called the 1960s the 'short decade', then we must call the 1990s the 'long decade' as it did indeed begin in 1990 but, regardless of chronology or arithmetic, it is still under way.¹⁸ What the fourteen years from 1991 to 2004 have in common is a combination of slow growth and low inflation, even if economic performance was especially disappointing between 2001 and 2004.

Set against the unsatisfactory growth of the Italian economy, particularly from 1995 to 2000, was the largest increase in financial assets since 1950. It was due to the increase in operations with non-residents and, above all, to the large gain in the stock market while interest rates were low. The 'financialisation' of the Italian economy is an established fact, which has withstood the stock market difficulties from 2000 to 2003.

In the rest of this section I shall examine, in order, transactions with non-residents, households' financial wealth, the corporate sector, and the banks.

Non-residents' financial assets and liabilities. – The liberalisation of capital movements brought about an exceptionally large increase in the volume of liabilities issued by non-residents in the portfolios of Italians. In 1999 they amounted to almost 16 per cent of total liabilities of residents and non-residents, compared with 7 per cent in 1990. Among the components of their external financial wealth, households and firms increased the proportion of bonds and, above all, of shares. Between 1999 and 2001 Italy had a net external creditor position (Figure 2), partly due to the balance-of-payments surpluses recorded between 1993 and 1998.

The assets of the rest of the world also increased: as exchange risks gradually faded after 1995, non-residents were encouraged to acquire financial instruments issued in Italy. Among the assets held by the rest of the world there was a large increase in subscriptions of securities, mostly public debt instruments, in response to tax advantages: in 2004 securities represented 52 per cent of non-residents' assets, compared with 14 per cent in 1990 (Table 8).

¹⁸ Delimiting periods is always an arbitrary exercise. The one I propose has the defect, among others, of not recording the creation of the euro area as a break-off point. Following this reasoning, a kind reader suggested the following division of the post-war period in Italy: 1948-63 (economic growth – inflation – monetary restriction); 1964-72 (oil shock – inflation – monetary restriction – administrative controls); 1973-82 (high interest rates – disinflation – accumulated debt); 1983-1992 (capital liberalisation – crisis of the European monetary system); 1993-98 (creation of the single market – preparation for the euro); 1999-2004 (single monetary policy – slow growth).

Changes in the composition of households' financial wealth. – In the second half of the 1990s the most important development in the composition of financial wealth was the growing weight of shares, other equity and investment fund units.¹⁹ In the 1980s flows of financial assets were dominated by the build-up of deposits and, from the second half of the decade, of general government securities. The 1990s, on the other hand, were marked, particularly during the period of rising share prices from 1995 to 2000, by small and sometimes even negative annual flows of deposits and securities. In the four years 1996-99, investment fund units were the preferred financial instrument of households. In 1998, when the percentage change in the MIB (share price) index was 41 per cent, investment in securities, mostly central government issues, was negative, for the first time ever, by more than 8 per cent of GDP; disinvestment of securities occurred again, although to a smaller extent, in 1999, when the MIB rose by 22 per cent.

Investment fund units peaked in 1999 at 18 per cent of households' total financial assets, compared with 1.5 per cent in 1990. As a result of privatisations and the growth in stock market values, between 1995 and 2000 listed shares issued by residents doubled as a percentage of households' total financial assets. In 2000 the proportion of shares, other equity and investment fund units held by Italian households was greater than the European average, closing the gap that had existed at the beginning of the 1990s. In 2000 the collapse of stock market prices prompted households to adjust the balance of their portfolio in favour of securities and deposits; the flow of assets invested in investment fund units was negative in 2001, 2002 and 2004.

At the end of 2004, deposits represent 24 per cent of households' total financial wealth, against 40 per cent in 1995. The fall in the proportion of securities has been less marked but their composition has changed dramatically. Bank bonds now exceed general government securities in households' portfolio, whereas in 1995 the respective weights were 2 and 23 per cent. Notwithstanding the disinvestment of recent years, in 2004 investment funds account for 11 per cent, against 4 per cent in 1995. Holdings of listed shares are also up, although stocks of unlisted shares and other equity predominate, a distinctive feature of the Italian economy due to the importance of small firms. Finally, between 1995 and 2004 private pension funds and insurance instruments also increased in households' portfolio.

The corporate sector's financial balance and liabilities. – The corporate sector had large financial deficits at the beginning of the decade owing to the rise in interest rates during the 1992 European monetary system crisis and the recession of 1992-93. During the years that followed corporate cash flow margins were satisfactory as firms took advantage of the rise in the stock market to curtail their indebtedness. After 1995, their financial balances were generally modest, reflecting the satisfactory performance of corporate profits.²⁰ Firms resorted to bank lending to finance major corporate operations such as acquisitions and restructuring.

The strong performance of the stock market in the second half of the 1990s, together with the fiscal reforms to promote capital markets over bank borrowing, led to a rise in the stock of shares and equity capital in the three years 1999-2001; as a percentage of total corporate liabilities they reached the highest level recorded since the years of the economic boom. Flows of listed shares were substantial owing to the privatisation of several state-owned corporations and the increase in stock market values since 1995.²¹

Corporate financial assets have also shifted in recent years towards a prevalence of shares. Between 1995 and 2000 annual flows of investment in securities were often negative, and were

¹⁹ On the stock market and asset management, see Barclays Capital (2992) and Filippa and Franzosi (2001).

²⁰ Torrini (2005) describes how, in the second half of the 1990s, the ratio of capital to value added reached values without precedent since the beginning of the 1970s.

²¹ In recent years, reforms of the pension fund system have led to the cashing in of quotas of the severance pay fund, which has declined as a proportion of total corporate liabilities. On the impact of the tax and pension reforms on corporate financial structure in recent years, see Aronica (2002).

counterbalanced by substantial purchases of listed shares, often exceeding annual flows of deposits. Briefly, from 1995 to 2004 the portion of deposits and securities in corporate financial assets declined while that of listed shares and shares issued by non-residents increased.

By tradition, Italian non-financial companies have always made very few bond issues. Only occasionally in the 1980s (1982, 1986, and 1987) did the volume of funds raised by this means reach substantial proportions.²² Throughout most of the 1990s, net corporate issues had a negative sign. On the contrary in 2001, 2002, and 2004 there was a large flow of bond issues, exceeding even that of listed shares. At the end of 2004 bonds account for 3 per cent of total corporate liabilities.

Banks' financial assets and liabilities. – The 1990s did not begin well for the banks. During the recession lasting from March 1992 to July 1993, the difficulties of the economy led to a fall in their lending/GDP ratio and a renewed increase in their security portfolio. In response to the exchange crisis of September 1992, loan oversight was re-instituted, for the last time, and maintained until the beginning of 1993. After a pause, partly due to the recession between November 1995 and November 1996, lending began to increase once more, after the quality of the financing had improved and the banking system had overcome the profit crisis of 1994 to 1997. At the end of the 1990s banks' stocks of liquid assets began to contract. Today securities account for around 13 per cent of total bank assets, the lowest level of the fifty years considered. In 2004 the ratio of bank loans to GDP rose back to almost 1:1, exceeding for the first time the level recorded in 1972 before the introduction of the ceiling.

As far as the composition of bank liabilities is concerned, as a result of changes to the tax system discouraging the issue of medium and long-term certificates of deposit from 1996 on, the longer average duration of bank loans, new regulations allowing more banks to issue securities, and the issue of subordinated liabilities, by 2004 bonds had come to represent 24 per cent of the banking system's total liabilities, the highest level reached in the period under study (Table 6). The persistent difficulties encountered by certificates of deposit are perhaps the only example of the 'growth, decline and disappearance' of a financial instrument: at the end of 2004 they accounted for just over 3 per cent of total bank deposits, compared with 35 per cent in the middle of 1996.

Banks still hold the lead in bond issues other than by general government. Since 1999, securitisation companies have issued very large volumes of bonds in connection with operations conducted by the banks and by the Ministry of Economic Affairs and Finance. In recent years the value of these securities has at times exceeded that of issues by non-financial corporations.

The banks' efforts to strengthen their capital base were borne out, from the mid-1980s, by the increase in the proportion of shares in their liabilities. Their capital adequacy improved between 1989 and 1991 following the introduction in 1987 of the first compulsory minimum capital requirements. Once the banking system had overcome the difficulties that marked the mid-1990s, when their capital adequacy deteriorated, share issues returned to historically high levels.

In the past, the banks' investments in shares and other equity had always been limited by the traditional separation between banking and business. Since 1993, as a result of the extension of the limits on holdings in industrial enterprises, as well as the steady increase in banking groups, the banks' portfolio of shares and other equity has risen to almost 7 per cent of total their assets.

²² In 1982 the increase was due to the temporary introduction of tax facilities, in 1987, to the downturn in the share market.

7. Conclusions

The evolution of financial assets and liabilities in the past fifty-five years can be broken down, briefly, into seven major trends.

7.1 Financial deepening

The ratio of residents' financial assets to GDP has risen from 1.4 per cent in 1950 to 6.1 per cent in 2004 (Figure 3). There has been a similar trend in the ratio of residents' financial liabilities to GDP. It is possible to assert, although with caution dictated by the wider use of the criterion of market value from the second part of the Nineties than in the past, that the growth in financial instruments during the decade far outpaced anything observed beforehand. The crucial factors at play were the rise in share prices from 1995 to 2000 and the development of asset management.

The growing 'financialisation' of the Italian economy is also borne out by the steady rise, albeit with some cyclical fluctuations, in the ratio of households' financial assets to their real assets (Figure 4). Although there are methodological difficulties involved in measuring households' real assets, the large increases in the ratio can be linked to the rise in stock market prices in the fist half of the 1980s and second half of the 1990s.²³ Major decreases in the ratio were caused by the combination of 'a rise in house prices and a stock market crisis' at the beginning of the 1970s, the end of the 1980s and after 2000.

7.2 The financial system opened up to operations with non-residents

In the 1970s, exchange rate protectionism and limits on capital movements ensured that residents had limited financial assets and liabilities with the rest of the world. In the 1990s, the percentage of assets and liabilities of the rest of the world in the total assets and liabilities of the economy reached unprecedentedly high levels.

7.3 More shares, more securities, fewer deposits, less currency

The spread of means of payment other than currency led to a decrease in the share of notes and coins in total financial instruments. The growing importance of the financial markets was borne out, from the 1980s on, by the growing weight of shares and other equity, securities, investment funds, insurance reserves and pension fund units. The growth was evident, both in relation to GDP (Figure 7) and in relation to the economy's total financial instruments (Figure 8). Shares, other equity and investment funds amounted to 80 per cent of GDP in the period running from the early 1980s to 1995; they now account for 120 per cent of GDP. Bank deposits have diminished as a percentage of total financial assets, to be replaced first by securities and then by shares and investment fund units.

7.4 Corporate leverage grew in the 1970s, then diminished

Despite the methodological issues concerning the evaluation criteria of unlisted shares in corporate liabilities, leverage (banks loans plus securities issued over bank loans plus securities plus shares and other equity) is now lower than in the 1950s (Figure 9). The decrease can be attributed in part to the small volume of securities issued by the corporate sector. None of the numerous reform measures, such as the creation of commercial paper and investment certificates, bore fruit. For many years the fact that issues were limited by the amount of capital played an important role; at the beginning of the new millennium, the default of some large Italian

²³ An index of house prices in Italy can be found in Muzzicato, Sabbatini and Zollino (2002).

corporations has contributed. It is to be hoped that the recent reform of company law for unlisted companies will have some effect.

7.5 After expanding in the 1970s, financial institutions now count for less...

The proportion of financial institutions and banks in the economy can be measured by the financial intermediation ratio as defined by Goldsmith. The ratio of financial assets of financial corporations to liabilities of households, firms, general government and rest of the world peaked at over 80 per cent in the mid-1970s, during the major economic crisis (Figure 10). It then diminished gradually to 50 per cent. After 1995 the growing role of investment funds brought the financial intermediation ratio back to 60 per cent.

7.6 ... but the banks retain a central role

The financial intermediation ratio of the banks has evolved in a similar manner to that of financial institutions as a whole, declining after the peaks of the 1960s and 1970s (Figure 11). Unlike the ratio for total financial institutions, however, that of banks alone decreased in the 1990s as well, only picking up after 2000. This is compatible with Goldsmith's idea that in the long run and in developed countries the banks should lose market share to other intermediaries. In recent years non-bank financial institutions have accounted for 14-15 per cent of the country's total financial assets/liabilities, compared with around 10 per cent in the 1980s. The banks' loss of their central role is only apparent, however, as they control a large part of the non-bank financial intermediaries.

7.7 Rise and fall of general government's liabilities and assets

General government financial liabilities have increased steadily as a share of the economy's total liabilities, from less than 20 per cent in the 1960s to over 25 per cent throughout most of the 1980s and 1990s. The progress of public finance has brought this value back below 20 per cent in recent years.²⁴ The public sector's growing role in the economy in the 1960s and 1970s, which was necessary to tackle the industrial crises, raised the share of private sector financial assets held by general government. After peaking at the beginning of the 1980s (at almost 14 per cent of the country's total financial assets), the government's role in the economy and the spate of privatisations reduced this share to a value similar to that recorded in the 1950s.

²⁴ The reader is referred to Balassone *et al.* (2002).





Total institutional sectors' financial assets (liabilities) over GDP

Figure 2

Non-residents' financial assets and liabilities over GDP



Figure 3



Residents' financial assets and liabilities over GDP

Figure 4

Households' financial assets over real assets (percentages)





Figure 5

Figure 6

General government's financial assets and liabilities over GDP







Main financial instruments over GDP

Figure 8



Main financial instruments over total financial assets



Non-financial corporations' leverage



Figure 10





* Ratio of financial assets of financial corporations to liabilities of the other sectors, including the foreign sector.
Figure 11

Banks' financial intermediation ratio*

(percentages) , 1950 1952 1954 1956 1958 1960 1962 1964 1966 1968 1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004

* Ratio of financial assets of banks to liabilities of the other sectors, including the foreign sector.

Year

1950

1955

1960

1965

1970

1975

1980

1981

1982

1983

1984

1985

3.9

3.4

3.8

3.2

2.7

30.2

29.8

29.0

25.7

24.0

Financial instruments

		(p	ercent	age con	ipositio	n)		
Currency (*)	Deposits	Securities other than shares	Loans	Shares and other equity	Mutual funds shares	Insurance technical reserves	Other accounts receivable/ payable	of which: trade credits
8.8	26.3	13.1	28.0	13.9	n.a.	1.9	8.1	7.2
5.8	25.0	12.6	28.6	18.7	n.a.	2.3	7.0	6.6
5.8	22.2	11.4	24.8	26.7	n.a.	2.2	6.9	6.4
4.6	26.8	12.5	30.4	14.8	n.a.	2.3	8.6	6.0
3.7	27.2	13.6	33.7	10.5	n.a.	2.3	9.0	5.3
2.7	30.6	17.1	34.3	6.8	n.a.	1.9	6.6	5.0
4.0	29.3	15.4	28.5	11.1	n.a.	1.4	10.3	6.2

13.2

14.0

15.3

14.2

16.8

n.a.

n.a.

0.0

0.2

0.9

1.5

1.5

1.6

3.5

3.3

8.0

7.1

7.6

7.5

7.2

26.5

26.7

22.5

26.5

25.4

16.7

17.6

20.3

19.3

19.7

Total

100

100

100

100

100

100

100

100

100

100

100

100

100

6.8

6.3

6.7

6.6

6.3

1986 2.3 22.4 19.8 23.0 20.9 2.0 3.2 6.6 5.7 1987 22.7 23.6 3.4 5.8 100 2.4 21.4 18.0 1.7 6.8 1988 2.2 21.9 21.7 24.4 3.5 5.9 100 18.1 1.4 6.8 1989 2.0 24.7 21.7 21.2 19.1 1.1 3.2 6.9 5.7 100 1990 22.4 22.6 17.7 5.9 100 1.8 24.1 1.03.3 7.1 1991 1.7 23.1 22.8 23.3 18.11.03.4 6.7 5.6 100 23.0 1992 1.7 23.9 15.7 0.9 3.5 5.4 100 24.46.9 1993 1.6 22.9 23.5 23.3 16.8 1.5 3.4 7.0 5.4 100 1994 1.7 22.3 25.7 21.0 16.5 1.6 3.6 7.6 5.7 100 1995 1.6 24.9 23.7 22.4 14.7 1.7 4.0 7.2 5.3 100 1996 1.5 24.025.6 21.2 14.8 2.3 4.1 6.6 4.8 100 1997 1.3 21.5 25.6 20.1 17.7 3.7 4.0 6.2 4.4 100 1998 25.7 18.3 1.3 18.120.84.05.8 4.1 100 6.1 1999 1.2 16.8 22.8 17.4 25.4 6.8 4.0 5.5 3.8 100 2000 17.9 1.2 16.1 22.6 26.6 6.2 4.2 5.2 3.5 100 2001 1.1 16.2 24.6 19.1 23.3 5.7 4.7 5.2 3.6 100 2002 1.1 17.7 25.5 19.7 20.0 5.0 5.2 5.7 4.1 100 2003 2.2 17.3 25.2 19.8 20.4 5.1 100 5.6 5.5 3.8 1.2 25.4 19.6 21.1 5.2 100 2004 17.1 4.7 5.8 3.6

(*) Including monetary gold and SDR

Households: financial assets

Year	Currency	Deposits	Securities other than shares	Shares and other equity	Mutual funds shares	Insurance technical reserves	Other accounts receivable	of which: trade credit	Total
1950	12.3	51.2	16.2	12.8	n.a.	4.9	2.6	0.0	100
1955	10.0	42.0	17.0	23.0	n.a.	6.8	1.2	0.0	100
1960	7.7	31.8	16.4	35.4	n.a.	7.0	1.7	0.0	100
1965	9.2	41.8	16.9	18.1	n.a.	8.5	5.5	0.0	100
1970	8.3	45.4	19.2	10.7	n.a.	8.5	7.8	0.0	100
1975	7.9	62.5	14.0	2.7	n.a.	7.4	5.5	0.0	100
1980	4.9	49.2	14.5	24.3	n.a.	5.0	2.2	0.0	100
1981	4.6	44.9	17.5	26.5	n.a.	4.7	1.8	0.0	100
1982	4.2	45.1	18.2	27.5	n.a.	4.6	0.4	0.2	100
1983	4.0	41.3	22.4	27.4	0.0	4.5	0.4	0.2	100
1984	3.5	37.6	23.9	23.7	0.8	10.2	0.4	0.2	100
1985	3.1	33.4	23.6	27.9	2.5	9.2	0.3	0.2	100
1986	2.6	29.0	21.5	33.3	5.2	8.1	0.3	0.2	100
1987	2.7	30.2	26.0	27.5	4.6	8.7	0.3	0.2	100
1988	2.5	29.7	29.2	26.0	3.6	8.7	0.3	0.2	100
1989	2.9	30.3	28.0	28.3	2.6	7.7	0.2	0.2	100
1990	2.7	31.8	29.9	25.0	2.3	8.1	0.2	0.2	100
1991	2.6	31.7	29.6	25.5	2.3	8.1	0.2	0.2	100
1992	2.8	33.8	30.5	21.5	2.4	8.8	0.2	0.2	100
1993	2.7	32.4	30.1	22.0	3.8	8.7	0.2	0.2	100
1994	2.7	31.2	30.9	21.5	4.3	9.2	0.2	0.2	100
1995	2.6	39.1	27.4	15.3	4.1	10.5	1.0	0.2	100
1996	2.4	36.9	29.0	14.2	5.9	10.6	1.0	0.2	100
1997	2.3	31.4	27.6	17.4	9.7	10.7	1.0	0.2	100
1998	2.2	26.8	22.8	20.2	16.4	10.8	0.9	0.2	100
1999	2.2	23.2	16.9	27.3	18.6	11.1	0.8	0.2	100
2000	2.1	22.4	18.4	27.9	16.6	11.9	0.7	0.1	100
2001	1.8	24.3	20.7	24.9	14.3	13.5	0.6	0.2	100
2002	1.7	25.0	22.6	23.3	12.0	14.8	0.6	0.2	100
2003	2.0	24.9	21.8	22.4	12.2	16.0	0.6	0.2	100
2004	2.1	23.9	22.1	24.1	10.8	16.5	0.5	0.2	100

(percentage composition by instrument)

.../..

Table 2 continued

Households: financial liabilities

(percentage composition by instrument)

Year	Securities other than shares	Loans	Insurance technical reserves	Other accounts payable	Total
1950	0.0	100.0	0.0	0.0	100.0
1955	0.0	100.0	0.0	0.0	100.0
1960	0.0	100.0	0.0	0.0	100.0
1965	0.0	100.0	0.0	0.0	100.0
1970	0.0	100.0	0.0	0.0	100.0
1975	0.0	100.0	0.0	0.0	100.0
1980	0.0	100.0	0.0	0.0	100.0
1981	0.0	98.0	0.0	2.0	100.0
1982	0.0	97.6	0.0	2.4	100.0
1983	0.0	97.4	0.0	2.6	100.0
1984	0.0	97.2	0.0	2.8	100.0
1985	0.0	97.3	0.0	2.7	100.0
1986	0.0	96.9	0.0	3.1	100.0
1987	0.0	97.0	0.0	3.0	100.0
1988	0.0	97.5	0.0	2.5	100.0
1989	0.0	80.8	12.8	6.3	100.0
1990	0.0	81.3	12.3	6.3	100.0
1991	0.1	81.6	12.0	6.3	100.0
1992	0.1	81.0	12.0	6.9	100.0
1993	0.2	79.4	12.4	8.0	100.0
1994	0.1	78.0	12.6	9.4	100.0
1995	0.0	81.7	7.2	11.0	100.0
1996	0.0	79.5	7.1	13.3	100.0
1997	0.0	77.7	7.1	15.2	100.0
1998	0.0	75.8	6.8	17.3	100.0
1999	0.0	76.2	6.5	17.4	100.0
2000	0.0	75.4	6.3	18.3	100.0
2001	0.0	75.6	6.4	17.9	100.0
2002	0.0	76.2	6.4	17.4	100.0
2003	0.0	76.1	6.3	17.6	100.0
2004	0.0	78.0	6.1	15.8	100.0

Non-financial corporations: financial assets (percentage composition by instrument)

			Securities		Shares					
			othor		and	Mutual	Insurance	Other	of	
Year	Currency	Deposits	dhaar	Loans	anu	funds	technical	accounts	which:	Total
			than		other	shares	reserves	receivable	trade	
			shares		equity				credits	
1950	16.4	5.3	0.3	1.9	32.5	n.a.	0.5	43.2	43.2	100
1955	7.2	24.0	0.2	0.6	37.4	n.a.	0.5	30.1	30.1	100
1960	3.5	28.6	0.2	0.7	45.3	n.a.	0.4	21.4	21.4	100
1965	3.8	39.1	0.9	3.3	29.2	n.a.	0.5	23.1	22.9	100
1970	3.1	44.7	0.9	4.9	21.6	n.a.	0.7	24.2	23.9	100
1975	2.9	45.6	0.6	4.0	16.1	n.a.	0.9	29.8	27.8	100
1980	2.5	37.7	2.8	6.6	13.7	n.a.	0.8	35.9	35.2	100
1981	2.4	34.5	3.3	5.2	16.0	n.a.	0.8	37.7	37.6	100
1982	2.5	33.9	4.0	5.7	17.5	n.a.	0.9	35.5	35.4	100
1983	2.4	34.5	4.4	5.3	17.6	0.0	0.9	34.8	34.7	100
1984	2.3	33.2	5.9	0.6	18.6	0.0	0.9	38.5	38.4	100
1985	1.9	30.8	6.6	1.6	20.1	0.0	1.0	38.0	37.9	100
1986	1.8	28.5	7.2	1.6	25.7	0.0	1.0	34.4	34.3	100
1987	1.8	28.6	9.0	1.4	23.0	0.0	1.1	35.1	35.0	100
1988	1.7	25.8	9.8	1.8	24.6	0.0	1.1	35.1	35.0	100
1989	1.0	14.0	8.7	1.9	29.7	0.1	0.9	43.7	43.6	100
1990	0.9	12.2	9.0	2.0	31.9	0.1	0.9	43.0	42.9	100
1991	0.9	11.4	9.4	2.6	33.1	0.1	1.0	41.6	41.6	100
1992	1.0	10.8	8.5	2.8	33.5	0.1	1.1	42.2	41.8	100
1993	0.9	10.5	7.5	3.5	34.6	0.1	1.0	41.9	41.4	100
1994	0.9	10.6	7.2	3.9	33.8	0.1	1.0	42.6	42.0	100
1995	1.3	15.6	5.3	2.0	29.7	0.8	2.0	43.4	37.0	100
1996	1.2	14.6	5.5	2.0	32.3	1.1	2.1	41.2	35.5	100
1997	1.2	14.0	5.2	2.3	35.8	1.4	2.0	38.2	33.0	100
1998	1.1	12.3	5.0	2.6	40.6	2.0	1.8	34.6	30.2	100
1999	1.0	10.1	4.5	2.2	49.6	1.6	1.5	29.5	26.0	100
2000	0.9	9.3	4.6	2.3	56.2	1.3	1.4	24.0	21.5	100
2001	0.8	9.8	4.9	2.6	52.6	1.4	1.5	26.4	24.0	100
2002	0.8	11.4	5.3	2.0	45.3	1.3	1.7	32.2	29.6	100
2003	0.9	11.6	4.6	2.3	47.4	1.2	1.6	30.3	28.0	100
2004	1.0	12.1	5.1	4.1	46.2	1.1	1.7	28.7	26.2	100

..../..

Table 3 continued

Non-financial corporations: financial liabilities (percentage composition by instrument)

	Securities		Shares				
Year	other than shares	Loans	and other equity	Insurance technical reserves	Other accounts payable	of which: trade credits	Total
1950	4.1	37.5	37.3	n.a.	21.1	21.1	100
1955	3.1	37.1	43.5	n.a.	16.4	16.4	100
1960	3.6	29.7	54.4	n.a.	12.3	12.3	100
1965	7.3	42.9	36.5	n.a.	13.4	13.4	100
1970	7.3	51.4	27.5	n.a.	13.9	13.9	100
1975	7.0	58.8	18.4	n.a.	15.8	15.6	100
1980	4.2	44.3	31.3	n.a.	20.2	19.8	100
1981	3.5	41.6	32.6	n.a.	22.3	19.7	100
1982	3.7	39.2	36.8	0.0	20.3	17.8	100
1983	3.4	38.1	38.0	0.0	20.5	17.9	100
1984	2.9	38.1	33.4	4.9	20.8	18.3	100
1985	2.6	35.5	37.1	4.4	20.3	17.8	100
1986	2.6	32.3	42.6	4.0	18.5	16.0	100
1987	2.9	34.4	39.3	4.2	19.2	16.5	100
1988	2.6	35.7	37.8	4.1	19.8	17.2	100
1989	2.4	32.5	41.8	3.7	19.7	18.3	100
1990	2.0	34.2	40.3	3.7	19.9	18.5	100
1991	2.0	34.5	40.6	3.6	19.2	17.8	100
1992	1.8	37.4	37.4	3.7	19.7	18.2	100
1993	1.7	35.8	38.5	3.6	20.5	18.7	100
1994	1.5	33.9	39.3	3.5	21.9	19.5	100
1995	1.4	40.1	35.6	4.4	18.5	18.0	100
1996	1.6	38.1	38.3	4.5	17.5	17.0	100
1997	1.5	35.3	42.3	4.3	16.6	16.1	100
1998	1.6	32.4	46.2	4.1	15.8	15.1	100
1999	1.0	28.6	53.0	3.5	13.9	13.2	100
2000	1.1	28.9	54.4	3.4	12.2	11.5	100
2001	1.8	30.8	50.9	3.6	12.8	12.1	100
2002	2.3	32.1	47.1	3.9	14.6	13.9	100
2003	2.6	33.0	46.1	4.0	14.2	13.5	100
2004	2.7	32.2	47.8	4.0	13.3	12.7	100

Total institutional sectors: total financial assets

Year	Households	Non- financial corporations	Financial corporations	Banks	General government	Rest of the world	Total
1950	36.7	16.5	38.6	23.1	3.0	5.3	100
1955	32.4	22.1	37.0	25.2	4.4	4.1	100
1960	31.6	27.5	32.9	24.1	3.8	4.2	100
1965	26.7	21.3	36.0	29.7	9.9	6.1	100
1970	26.7	18.1	39.9	33.8	8.4	6.9	100
1975	23.3	13.6	45.2	37.1	10.7	7.1	100
1980	27.0	13.8	40.2	31.9	12.7	6.3	100
1981	29.2	14.4	38.2	30.3	13.4	4.8	100
1982	29.9	14.0	37.6	30.5	13.6	5.0	100
1983	32.2	15.1	40.1	32.3	6.7	5.9	100
1984	32.6	14.1	38.5	31.0	6.0	9.0	100
1985	34.8	14.0	37.2	29.2	5.8	8.3	100
1986	37.9	14.1	35.4	27.5	5.4	7.2	100
1987	37.7	13.9	35.7	27.2	5.4	7.3	100
1988	38.2	14.4	34.3	26.1	5.3	7.7	100
1989	40.4	11.4	34.4	24.7	5.4	8.3	100
1990	39.8	12.0	34.1	24.3	5.3	8.8	100
1991	40.2	11.7	34.1	24.6	5.0	9.1	100
1992	38.0	11.4	35.5	26.0	4.7	10.4	100
1993	37.8	11.6	34.8	25.1	4.9	10.9	100
1994	37.5	12.0	34.1	23.9	5.2	11.2	100
1995	34.6	12.4	35.0	24.7	6.7	11.3	100
1996	34.7	11.8	35.2	24.3	6.6	11.8	100
1997	34.2	11.7	35.1	22.5	6.2	12.9	100
1998	33.7	11.8	35.4	21.0	5.5	13.5	100
1999	33.3	12.8	35.1	19.5	4.9	13.9	100
2000	32.7	13.9	34.3	19.6	4.9	14.2	100
2001	32.5	13.0	35.2	20.2	4.9	14.4	100
2002	32.7	12.1	35.9	21.9	4.8	14.6	100
2003	32.3	12.1	37.1	22.2	3.9	14.6	100
2004	32.8	12.2	36.3	22.3	3.9	14.8	100

(percentage composition by sector)

.../..

Table 4 continued

Total institutional sectors: total financial liabilities

Year	Households	Non- financial corporations	Financial corporations	Banks	General government	Rest of the world	Total
1050	1.2	24.1	25.0	10.4	24.1	57	100
1950	1.2	54.1 40.4	35.0 22.1	19.4	24.1 21.5	5.7 2.7	100
1955	1.4	40.4	20.0	21.5	21.5	5.7	100
1900	1.5	40.8	30.0 26.1	21.5	10.5	5.5 8.0	100
1905	2.0	30.0	30.1	29.5	17.9	0.0 10.0	100
1970	2.1	30.7	39.7 42.4	33.2 25.0	17.5	7.1	100
19/5	2.2	24.2	43.4	35.0	23.1	/.1	100
1090	17	24.1	40.2	20.1	24.4	0.6	100
1980	1./	24.1	40.2 26.1	30.1 28.1	24.4	9.0 7.2	100
1981	1.7	27.8	30.1 25.5	20.1	21.2	7.5	100
1982	1.0	28.2	33.3	20.2	26.7	0.0	100
1983	1./	29.4	30.0 26.1	29.5	25.0	1.2	100
1984	1.0	29.7	30.1 26.2	29.5	23.9	8.8	100
1985	1./	29.8	30.3	27.4	24.5	/.6	100
1980	1.8	30.2	37.2	25.4	24.1	6.7	100
1987	2.0	29.5	35.8	25.5	25.9	6.8	100
1988	2.1	29.4	35.2	24.7	26.2	7.0	100
1989	4.8	27.4	36.8	26.3	24.0	7.0	100
1990	5.0	27.9	35.4	25.1	24.7	7.1	100
1991	5.0	27.5	36.0	25.7	24.4	/.1	100
1992	4.9	26.3	36.2	26.4	24.9	1.1	100
1993	4.6	25.7	35.8	25.4	25.0	9.0	100
1994	4.6	25.9	34.5	24.3	26.1	8.9	100
1995	4.4	25.6	33.6	23.7	26.3	10.0	100
1996	4.4	24.6	33.5	23.6	26.6	10.8	100
1997	4.2	24.0	34.5	23.1	24.7	12.6	100
1998	4.2	23.7	36.3	23.1	22.9	12.9	100
1999	4.1	25.4	35.3	21.4	19.6	15.6	100
2000	4.2	26.0	36.1	22.1	18.5	15.2	100
2001	4.4	25.9	35.4	21.3	19.1	15.2	100
2002	4.8	25.8	36.6	22.8	19.4	13.4	100
2003	4.9	25.0	38.3	23.1	18.0	13.7	100
2004	5.1	25.1	38.8	23.4	17.7	13.3	100

(percentage composition by sector)

Financial corporations: financial assets

(percentage composition by instrument)

Year	Monetary gold and SDR	Currency	Deposits	Securities other than shares	Loans	Shares and other equity	Mutual funds shares	Other accounts receivable	Total
1950	1.9	1.9	19.0	17.9	58.9	0.5	n.a.	0.0	100
1955	1.4	1.1	18.2	19.3	59.4	0.6	n.a.	0.0	100
1960	6.8	0.9	17.5	18.6	55.2	0.9	n.a.	0.0	100
1965	3.3	0.5	15.1	18.8	60.7	1.6	n.a.	0.0	100
1970	2.0	0.4	14.8	20.2	60.7	1.7	n.a.	0.1	100
1975	0.8	0.3	17.6	29.8	49.7	1.8	n.a.	0.0	100
1980	5.8	0.3	20.4	28.0	42.6	1.6	n.a.	1.2	100
1981	5.5	0.3	21.8	28.5	40.4	1.9	n.a.	1.7	100
1982	4.4	0.2	21.4	30.1	40.0	2.0	n.a.	1.8	100
1983	5.0	0.2	21.3	30.4	38.8	2.4	0.0	1.9	100
1984	4.1	0.3	19.7	26.9	44.5	2.5	0.0	2.0	100
1985	3.3	0.3	18.4	27.4	45.0	3.4	0.0	2.2	100
1986	2.7	0.3	17.9	28.4	43.3	5.2	0.0	2.3	100
1987	2.8	0.2	17.8	27.3	44.7	4.6	0.0	2.5	100
1988	2.5	0.2	17.2	24.7	48.0	5.1	0.0	2.4	100
1989	1.9	0.2	20.9	23.0	47.2	4.9	0.0	1.9	100
1990	1.6	0.3	19.0	22.5	50.1	4.5	0.0	2.0	100
1991	1.4	0.3	16.4	23.4	51.7	5.0	0.0	2.0	100
1992	1.2	0.2	16.7	23.6	51.5	4.6	0.0	2.2	100
1993	1.3	0.2	15.8	23.6	50.1	6.3	0.0	2.6	100
1994	1.4	0.2	14.6	28.9	44.9	6.5	0.0	3.4	100
1995	1.3	0.2	14.8	27.7	48.0	7.3	0.2	0.4	100
1996	1.1	0.2	15.9	29.0	45.9	7.4	0.3	0.3	100
1997	0.9	0.2	15.4	28.9	43.9	10.1	0.4	0.1	100
1998	0.9	0.2	12.1	31.7	40.5	13.8	0.6	0.0	100
1999	0.8	0.2	12.3	29.2	38.7	17.8	1.0	0.0	100
2000	0.8	0.2	12.1	27.2	40.8	17.4	1.4	0.0	100
2001	0.8	0.3	11.5	28.9	42.1	14.2	2.1	0.0	100
2002	0.8	0.3	15.1	27.4	43.2	10.8	2.3	0.0	100
2003	0.8	0.3	14.6	26.6	43.4	12.0	2.3	0.1	100
2004	0.7	0.2	14.5	26.6	43.4	12.1	2.3	0.1	100

.../..

Table 5 continued

Financial corporations: financial liabilities (percentage composition by instrument)

Year	Currency	Deposits	Securities other than shares	Loans	Shares and other equity	Mutual funds shares	Technical reserves	Other accounts payable	Total
1950	21.7	58.9	3.8	10.9	2.2	n.a.	2.6	0.0	100
1955	14.8	60.0	6.9	12.3	3.0	n.a.	3.0	0.0	100
1960	11.4	61.4	9.5	11.1	3.4	n.a.	3.2	0.0	100
1965	9.3	59.6	12.3	9.8	3.1	n.a.	2.7	3.2	100
1970	7.1	57.4	13.0	12.8	3.1	n.a.	2.5	4.1	100
1975	5.4	61.6	14.1	12.8	4.1	n.a.	2.0	0.0	100
1980	4.3	59.3	10.1	9.2	8.0	n.a.	1.6	7.3	100
1981	5.0	66.3	11.4	5.0	10.4	n.a.	1.9	0.1	100
1982	4.9	68.1	11.1	4.8	9.0	n.a.	2.0	0.1	100
1983	4.7	67.2	10.6	6.4	9.0	0.0	2.1	0.0	100
1984	4.4	61.6	9.1	12.5	8.7	0.1	3.5	0.1	100
1985	4.0	57.0	8.1	12.9	12.8	1.7	3.5	0.1	100
1986	3.6	51.5	7.2	11.3	18.3	4.6	3.5	0.1	100
1987	3.8	53.9	7.9	11.8	14.5	4.1	4.0	0.1	100
1988	3.7	52.1	7.6	12.7	16.2	3.2	4.4	0.1	100
1989	3.6	55.2	6.8	8.4	17.7	2.5	4.4	1.3	100
1990	3.6	55.6	6.7	10.4	15.1	2.3	4.9	1.4	100
1991	3.4	53.5	6.5	12.2	15.7	2.4	5.0	1.2	100
1992	3.4	55.8	6.4	13.2	12.3	2.3	5.3	1.2	100
1993	3.3	53.5	6.8	12.7	13.7	3.8	5.4	0.9	100
1994	3.4	53.0	7.4	11.8	12.9	4.5	6.1	0.9	100
1995	3.3	58.0	6.2	10.4	10.1	4.1	7.6	0.1	100
1996	3.1	54.7	9.5	9.5	9.3	5.8	7.9	0.1	100
1997	2.9	46.3	11.2	9.8	12.7	9.3	7.8	0.1	100
1998	2.6	37.4	12.1	9.0	16.2	15.2	7.5	0.0	100
1999	2.6	36.2	11.0	8.6	16.3	17.2	8.2	0.0	100
2000	2.5	34.6	12.6	9.0	18.0	14.7	8.6	0.0	100
2001	2.2	35.2	15.1	10.8	13.3	13.5	9.9	0.0	100
2002	2.0	37.9	16.7	10.8	10.3	11.6	10.7	0.0	100
2003	2.1	36.9	16.8	10.3	11.7	10.9	11.1	0.1	100
2004	2.2	36.7	18.1	9.0	12.7	9.6	11.6	0.1	100

Banks: financial assets

			Securities		Shares	Mutual	Incurance	Other	
X 7	G	D ''	other	-	and	wititual		Other	T (1
Year	Currency	Deposits	than	Loans	other	funds	technical	accounts	Total
			shares		equity	shares	reserves	receivable	
1950	1.5	15.6	19.3	63.0	0.6	n.a.	n.a.	0.0	100
1955	0.9	16.4	16.7	65.4	0.6	n.a.	n.a.	0.0	100
1960	0.7	14.9	19.1	64.3	1.0	n.a.	n.a.	0.0	100
1965	0.6	17.3	17.3	63.4	1.4	n.a.	n.a.	0.0	100
1970	0.5	16.1	17.0	64.8	1.6	n.a.	n.a.	0.1	100
1975	0.3	20.8	22.7	54.4	1.8	n.a.	n.a.	0.0	100
1980	0.4	22.0	26.5	48.0	1.7	n.a.	n.a.	1.5	100
1981	0.3	23.6	26.1	44.0	3.8	n.a.	n.a.	2.2	100
1982	0.3	23.3	28.6	41.9	3.7	n.a.	n.a.	2.2	100
1983	0.3	22.8	28.9	41.0	4.7	0.0	0.0	2.3	100
1984	0.3	21.0	25.1	47.8	3.2	0.0	0.0	2.5	100
1985	0.3	21.0	24.1	48.0	3.8	0.0	0.0	2.8	100
1986	0.3	20.7	22.6	47.0	6.5	0.0	0.0	3.0	100
1987	0.3	20.4	22.4	48.7	4.9	0.0	0.0	3.3	100
1988	0.3	19.2	20.0	52.4	5.0	0.0	0.0	3.1	100
1989	0.3	23.7	18.0	53.8	1.6	0.0	0.0	2.5	100
1990	0.4	20.9	16.7	57.7	1.6	0.0	0.0	2.7	100
1991	0.4	18.5	17.6	58.4	2.4	0.0	0.0	2.7	100
1992	0.3	19.5	18.4	57.1	2.0	0.0	0.0	2.7	100
1993	0.3	18.8	17.6	57.4	2.6	0.0	0.0	3.3	100
1994	0.3	17.4	19.9	55.9	2.0	0.0	0.0	4.5	100
1995	0.3	15.6	18.6	62.7	2.2	0.0	0.1	0.6	100
1996	0.4	16.5	19.3	61.1	2.3	0.0	0.1	0.4	100
1997	0.4	16.9	18.0	61.2	3.2	0.0	0.1	0.2	100
1998	0.4	15.9	17.9	60.3	5.2	0.1	0.1	0.1	100
1999	0.4	14.2	17.5	60.8	6.9	0.2	0.1	0.1	100
2000	0.4	14.4	15.3	62.3	7.3	0.3	0.1	0.1	100
2001	0.5	13.4	15.8	63.5	6.3	0.4	0.1	0.1	100
2002	0.5	18.3	13.4	61.9	5.4	0.4	0.1	0.1	100
2003	0.4	17.7	12.7	61.8	6.8	0.5	0.1	0.1	100
2004	0.4	17.8	13.3	60.9	6.9	0.5	0.1	0.1	100

(percentage composition by instrument)

.../..

Table 6 continued

Banks: financial liabilities

(percentage composition by instrument)

		Securities		Shares	T		
T 7	n .	other		and	Insurance	Other	m / 1
Year	Deposits	than	Loans	other	technical	accounts	Total
		shares		equity	reserves	payable	
1050	76.0	(9	147	2.6		0.0	100
1950	70.0	0.8	14.7	2.0	n.a.	0.0	100
1955	72.0	10.7	14.5	5.0	n.a.	0.0	100
1900	08.0	15.4	14.1	4.0	n.a.	0.0	100
1905	00.7	15.1	11.9	5.5	n.a.	2.7	100
1970	62.6	15.0	15.1	3.4 2.9	n.a.	3.4	100
1975	66.5	17.4	12.3	3.8	n.a.	0.0	100
1000	70.6	12.5	11.0	4.0		0.0	100
1980	70.0	13.5	11.9 5 7	4.0	n.a.	0.0	100
1981	75.2	14.5	5.7	4.6	n.a.	0.0	100
1982	/6.6	13.9	5.5	4.0	n.a.	0.0	100
1983	/4./	13.1	6.9	5.3	0.0	0.0	100
1984	67.1	11.1	14.5	6.1	1.2	1.2	100
1985	66.4	10.7	15.0	6.7	1.2	1.2	100
1986	66.5	10.6	14.2	7.4	1.3	1.3	100
1987	66.1	11.1	14.2	7.2	1.4	1.4	100
1988	65.0	10.9	15.3	7.4	1.4	1.4	100
1989	69.0	9.5	6.4	12.8	1.3	2.3	100
1990	69.7	9.4	7.6	10.8	1.3	2.4	100
1991	67.2	9.1	9.7	11.8	1.3	2.3	100
1992	69.9	8.8	10.9	8.3	1.2	2.2	100
1993	68.8	9.5	11.1	8.5	1.2	2.1	100
1994	67.9	10.5	10.9	8.5	1.3	2.2	100
1995	75.5	8.7	6.9	7.4	1.3	1.4	100
1996	72.3	13.3	5.8	7.2	1.2	1.3	100
1997	63.6	16.5	6.5	12.2	1.1	1.2	100
1998	56.8	18.9	6.0	17.3	0.9	0.9	100
1999	56.3	17.4	6.0	19.4	0.9	0.9	100
2000	54.2	19.1	6.2	19.7	0.8	0.8	100
2001	56.6	21.4	8.1	13.2	0.7	0.7	100
2002	59.0	22.3	7.4	10.6	0.6	0.6	100
2003	56.1	22.7	7.6	13.0	0.6	0.6	100
2004	55.1	24.2	6.6	13.4	0.5	0.6	100

General government: financial assets

(percentage composition by instrument)

			Securities		Shares	Mutual	Other	
\$7	C	Densite	other	T	and	Mutual	Other	T - 4 - 1
y ear	Currency	Deposits	than	Loans	other	Tunas	accounts	Total
			shares		equity	shares	receivable	
1050	0.0	0.0	25.3	74.0	0.6	na	0.0	100
1955	0.0	0.0	10.0	74.0	0.0	n.a.	0.0	100
1960	0.0	0.0	17.7	84.8	0.4	n a	0.0	100
1965	0.0	18.0	13.1	57.2	11.3	n a	0.0	100
1970	0.5	13.4	7.5	63.4	15.3	n a	0.0	100
1975	0.4	17.5	3.7	66 0	12.3	n a	0.0	100
1775	0.4	17.5	5.7	00.0	12.5	n.u.	0.1	100
1980	0.4	24.9	2.8	59.4	12.4	n.a.	0.0	100
1981	0.4	23.6	2.5	60.6	12.9	n.a.	0.0	100
1982	0.3	21.8	2.2	61.8	13.9	n.a.	0.0	100
1983	0.7	20.9	4.6	42.0	31.7	0.0	0.0	100
1984	0.8	19.1	6.2	40.0	34.0	0.0	0.0	100
1985	0.7	19.8	6.0	40.2	33.4	0.0	0.0	100
1986	0.7	17.3	7.1	41.5	33.5	0.0	0.0	100
1987	0.7	17.0	7.8	41.1	33.4	0.0	0.0	100
1988	0.7	16.4	8.1	43.1	31.8	0.0	0.0	100
1989	0.0	15.7	7.9	44.6	26.6	0.0	5.2	100
1990	0.0	15.2	8.6	45.4	26.0	0.0	4.7	100
1991	0.0	15.4	8.7	45.9	25.6	0.0	4.5	100
1992	0.0	15.9	9.0	45.3	26.3	0.0	3.4	100
1993	0.0	22.2	8.0	42.2	25.3	0.0	2.2	100
1994	0.0	27.4	7.4	41.9	21.9	0.0	1.3	100
1995	0.0	22.9	3.7	33.4	29.3	0.1	10.6	100
1996	0.0	18.9	4.2	33.9	31.4	0.1	11.5	100
1997	0.0	17.8	4.4	31.0	33.0	0.2	13.6	100
1998	0.0	16.1	4.6	29.1	32.5	0.3	17.4	100
1999	0.0	20.2	5.8	28.3	25.2	0.4	20.1	100
2000	0.0	16.8	5.5	27.4	27.0	1.0	22.3	100
2001	0.0	17.4	4.8	29.0	24.5	1.8	22.5	100
2002	0.0	15.8	4.2	31.2	23.4	1.7	23.7	100
2003	0.0	15.8	3.3	22.9	25.4	1.9	30.6	100
2004	0.0	15.9	3.2	26.0	24.6	1.8	28.6	100

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Table 7 continued

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100

General government: financial liabilities

Securities Shares Mutual Other other and Year Currency **Deposits** funds Total Loans accounts than other shares payable shares equity 1950 0.3 22.2 40.1 33.3 0.0 4.1 0.0 100 1955 0.9 22.4 37.0 33.7 0.0 5.9 0.0 100 1960 0.7 21.0 37.6 33.0 0.0 7.8 0.0 100 1965 0.6 26.6 25.8 38.9 0.0 7.8 0.3 100 1970 0.6 20.5 32.2 0.0 7.9 100 38.5 0.3 15.5 39.2 1975 0.3 40.5 0.0 4.3 0.2 100 1980 19.2 0.2 41.5 35.8 0.0 3.2 0.1 100 1981 19.7 2.9 0.2 42.1 35.1 0.0 0.1 100 1982 17.7 35.0 0.2 44.3 0.0 2.8 0.1 100 1983 0.2 13.0 60.2 23.4 0.0 3.3 0.1 100 1984 0.2 10.7 62.0 23.8 0.0 3.2 0.2 100 10.5 1985 0.1 64.9 21.2 0.0 3.0 0.2 100 1986 0.1 10.3 67.0 19.3 0.0 3.0 0.3 100 1987 0.1 10.5 67.4 18.7 0.0 2.9 0.3 100 1988 0.1 10.5 68.0 18.3 0.0 2.8 0.2 100 17.0 1989 0.1 8.9 73.9 0.0 0.0 0.0 100 1990 0.1 8.8 74.5 16.6 0.0 0.0 0.0 100 1991 0.1 8.6 74.8 16.5 0.0 0.0 0.0 100 1992 0.1 8.1 75.5 16.3 0.0 0.0 0.0 100 1993 0.1 7.6 76.8 15.5 0.0 0.0 0.0 100 1994 0.1 7.7 81.4 10.8 0.0 0.0 0.0 100

(percentage composition by instrument)

Rest of the world: financial assets

(percentage composition by instrument)

		Securifies		Shares					
		other		and	Mutual	Insurance	Other	Of	
Year	Deposits	thon	Loans	othor	funds	technical	accounts	which:	Total
		unan v		other	shares	reserves	receivable	trade	
		snares		equity				credit	
1950	1.8	0.7	59.9	37.6	n.a.	n.a.	0.0	n.a.	100
1955	2.1	0.7	53.3	44.0	n.a.	n.a.	0.0	n.a.	100
1960	5.8	0.6	34.4	43.6	n.a.	n.a.	15.7	15.7	100
1965	0.6	0.6	44.4	34.5	n.a.	n.a.	19.9	19.9	100
1970	0.1	0.4	57.6	26.2	n.a.	n.a.	15.7	15.7	100
1975	0.9	0.2	61.6	18.9	n.a.	n.a.	18.4	17.7	100
1980	0.8	0.8	58.6	14.0	n.a.	n.a.	25.9	25.5	100
1981	0.9	1.1	50.3	17.9	n.a.	n.a.	29.7	29.7	100
1982	0.9	1.5	53.7	15.5	n.a.	n.a.	28.4	27.4	100
1983	0.6	1.3	58.1	13.5	0.0	0.0	26.5	25.6	100
1984	0.4	1.1	74.7	10.1	0.0	0.0	13.8	13.8	100
1985	0.2	2.0	71.0	14.1	0.0	0.0	12.8	12.8	100
1986	0.1	3.8	69.6	14.4	0.0	0.0	12.1	12.1	100
1987	0.4	3.4	69.6	13.6	0.0	0.0	13.1	13.1	100
1988	0.3	4.0	68.2	16.3	0.0	0.0	11.2	11.2	100
1989	32.5	11.6	29.1	15.0	0.7	0.0	11.1	9.5	100
1990	28.8	13.5	33.7	12.3	0.5	0.0	11.2	9.2	100
1991	28.3	14.8	35.5	11.4	0.4	0.0	9.7	8.0	100
1992	29.7	15.4	36.2	8.6	0.3	0.0	9.8	6.7	100
1993	25.0	22.9	31.9	10.9	0.3	0.0	9.1	5.6	100
1994	24.2	27.7	27.9	10.4	0.3	0.0	9.5	6.1	100
1995	23.5	31.7	27.2	10.4	0.3	0.9	6.9	6.1	100
1996	22.6	37.4	22.1	11.6	0.3	0.9	6.1	5.2	100
1997	20.1	39.9	19.2	15.2	0.4	0.8	5.3	4.5	100
1998	17.8	43.6	15.2	18.7	0.5	0.7	4.3	3.6	100
1999	17.7	43.9	15.8	17.6	0.4	1.0	4.7	3.7	100
2000	17.8	44.6	15.5	17.0	0.3	1.0	4.8	3.7	100
2001	14.9	47.4	17.6	15.0	0.3	1.0	4.8	3.5	100
2002	13.3	51.2	17.3	13.2	0.3	1.1	4.7	3.4	100
2003	12.6	52.2	17.1	13.4	0.3	1.1	4.3	3.2	100
2004	12.5	52.4	15.7	15.1	0.3	1.2	4.1	2.9	100

.../..

Table 8 continued

Rest of the world: financial liabilities

(percentage composition by instrument)

Year	Monetary gold and SDR	Currency	Deposits	Securities other than shares	Loans	Shares and other equity	Mutual funds shares	Other accounts payable	Of which: trade credit	Total
1050	12.0	6.5	6.1	12.2	38.6	7.1	n 0	16.6	no	100
1950	13.6	0.5 4.6	10.4	29.6	26.9	4.5	n a	10.0	n.a.	100
1960	39.4	1.0	6.0	12.2	15.2	4.1	n a	21.2	11.0.	100
1965	14.6	0.1	4.6	12.2	27.4	8.1	n a	33.1	15.0	100
1970	79	0.1	5.5	7.1	38.4	9.7	n a	31.3	10.7	100
1975	4.8	0.1	2.0	5.4	39.9	8.7	n.a.	39.1	17.7	100
1570		0.11				017		0,11	1,1,	100
1980	24.0	0.0	10.2	5.4	31.4	6.1	n.a.	22.9	16.6	100
1981	29.0	0.0	13.8	7.8	13.4	9.7	n.a.	26.3	20.0	100
1982	28.2	0.0	12.7	5.2	18.0	12.4	n.a.	23.5	23.1	100
1983	27.7	0.0	13.9	7.7	17.1	12.6	0.0	21.0	20.7	100
1984	17.8	0.0	10.7	6.3	34.9	14.0	2.4	14.0	14.0	100
1985	16.3	0.0	8.1	3.5	39.2	15.6	3.5	13.9	13.9	100
1986	14.2	0.0	8.5	3.8	37.2	19.0	4.2	13.0	13.0	100
1987	14.9	0.0	10.3	5.4	33.1	18.5	3.8	14.0	14.0	100
1988	12.1	0.0	11.3	7.9	33.0	20.0	3.4	12.3	12.3	100
1989	9.5	0.0	35.5	13.4	8.2	19.4	2.8	11.2	11.2	100
1990	7.7	0.0	34.0	18.0	8.7	18.1	2.0	11.5	11.5	100
1991	6.5	0.0	26.6	24.5	11.0	19.5	1.6	10.3	10.2	100
1992	5.4	0.0	24.1	21.1	15.6	20.5	1.4	11.7	8.9	100
1993	5.2	0.0	23.0	18.0	18.1	24.4	1.2	10.1	6.9	100
1994	5.5	0.0	24.4	19.3	14.1	23.2	1.1	12.5	7.7	100
1995	4.4	0.0	26.7	19.1	18.6	21.6	2.7	6.9	6.9	100
1996	3.5	0.0	28.1	18.9	20.4	20.3	3.2	5.6	5.6	100
1997	2.6	0.0	24.3	21.2	18.9	24.8	3.8	4.6	4.6	100
1998	2.4	0.0	17.1	25.3	16.4	30.8	4.2	3.8	3.8	100
1999	1.9	0.0	11.6	25.6	13.3	39.5	4.7	3.3	3.3	100
2000	1.8	0.0	9.6	25.5	14.5	39.1	5.8	3.6	3.5	100
2001	2.0	0.0	9.1	29.3	14.5	35.6	6.3	3.4	3.4	100
2002	2.3	0.0	9.8	31.9	15.7	30.6	6.0	3.7	3.7	100
2003	2.1	0.0	10.4	31.7	14.2	31.8	6.3	3.5	3.4	100
2004	2.0	0.0	8.7	31.2	16.1	31.5	7.1	3.4	3.3	100

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FINANCIAL ACCOUNTS AND TAXATION: A HISTORICAL ANALYSIS

Giacomo Ricotti and Alessandra Sanelli*

1. The evolution of the taxation of financial income: an overview

Analysis of the effects of taxation on the volume and allocation of saving is a traditional strand of public finance studies. Economic literature and empirical analyses have shown that changes in the different forms of taxation tend to have ambiguous effects on the overall level of saving, while their impact on the allocation of financial resources can be significant.

This paper reconstructs the evolution of tax law regarding financial income in Italy since the 1960s. It seeks to ascertain whether and to what extent taxation influenced, on the one hand, choices in the allocation of savings and, on the other, the financing decisions of the sectors with a structural deficit of resources – firms and general government – and, indirectly, the characteristics of the banking and financial industry. The study is based on data reported in the financial accounts, supplemented where necessary by more detailed information drawn from the annual reports, *Economic Bulletin* and statistical publications of the Bank of Italy. The reconstruction focuses exclusively on the effects of direct taxation.¹

The analysis uses stylized facts, examining the impact of the individual changes in tax law on the financial markets, with special attention to the composition of savers' portfolios and to the financial structure of intermediaries and firms; the decisions made by monetary authorities during the period under review are taken into account. Alterations in agents' behaviour in concomitance with the adoption of measures by the tax authorities and consistent with expectations, constituting "reactions" to such measures, confirm the thesis of the influence of tax policy on the structure of the financial markets (Guerra, 1989).

At least three phases can be distinguished in the relationship between taxation and the financial markets since 1960.

In the *first phase*, spanning the 1960s and 1970s, tax law played a *proactive role* with respect to the market, guiding the choices made by the sectors having a surplus or deficit of financial resources. Tax rules played a part in establishing a regime of double intermediation, in which savers (mainly households) entrusted their resources to banks and the latter in turn purchased bonds issued by special credit institutions (SCI), which used the funds so raised to grant loans to firms, often in the form of subsidized credit at medium and long term. This arrangement promoted the growth of businesses and the creation of infrastructure, while it discouraged firms from raising capital directly in the market.

In the *second phase*, from the turn of the 1980s to the early 1990s, tax policy in regard to financial assets was marked by a *reactive stance* in two respects. In the first place, the growing need for revenue led to a reconsideration of the financial sector. Whereas previously tax law had implicitly forgone maximizing revenue from the taxation of financial income in exchange for the desired allocation of resources, by the end of the 1970s – and even more decidedly from the mid-

^{*} Bank of Italy. The authors thank S. Giannini and the participants in the conference "I conti finanziari: la storia, i metodi, l'Italia, i confronti internazionali", V. Ceriani and A. Magliocco for helpful comments on different versions of this paper, and S. Manestra for historical and bibliographical observations and suggestions. Although the essay is the product of a joint effort and continual exchange of ideas between the authors, Giacomo Ricotti wrote Sections 2, 4.2, 5.2 and 5.3.2 and Alessandra Sanelli Sections 3, 4.1, 5.3.1 and 5.4, while both took part in writing Sections 1 and 6. The authors alone are responsible for any errors. They dedicate this paper to the memory of Guido Ancidoni, friend and teacher.

¹ For a study of the effects of indirect taxation on the allocation of savings and the functioning of the financial markets, see Ancidoni *et al.* (1987). Ciocca (2000) offers an overview of the effects of indirect and direct taxes on finance.

1980s onwards – increasing attention was paid to the scope for increasing revenue; the upshot was a rise in the overall level of withholding tax rates. Secondly, with the advent and rapid development of techniques of financial innovation aimed at avoiding the tax and supervisory regimes, tax law as well as the monetary authorities had to strive continually to keep up with market developments.

In the same period the expanding borrowing requirement led the Treasury to play an ever greater role on the capital market. It became necessary to confront the question of the taxation of government securities, both from the standpoint of the allocative distortions deriving from their tax-exempt status and with regard to the net effects on the government budget.

A feature in common to the two phases was the explicit use of taxation in order to guide the choices of savers, intermediaries and firms, often in concert with monetary policy. This involved differentiating taxation according to the nature of the borrower and the instrument. Until the end of the 1980s tax neutrality and fairness were secondary objectives or even irrelevant to the taxation of financial income.

Starting in the *early 1990s* the liberalization of capital movements and growing integration of markets, in part spurred by rapid technological innovation, led the tax authorities progressively to *forgo the pursuit of allocative objectives*. Neutrality and the effects of taxation on the efficiency of markets became the central concerns, within the limits permitted by the need for revenue.

These objectives were pursued first by introducing mechanisms to reduce the administrative and financial costs connected with the taxation of assets (the flat-rate withholding tax system inaugurated by Legislative Decree 239/1996) and subsequently by adopting a homogeneous and all-inclusive system of taxation extending to all types of financial instrument and income (including capital gains).

The paper is organized chronologically. Section 2 briefly describes the tax system in place before the 1973 reform and examines the taxation of the financial income in the period 1960-73, indicating its effects on the allocation of savings. Section 3 illustrates the treatment reserved to financial income under the reform and goes on to trace the evolution of the relationship between taxation and financial assets up to the early 1980s, while Section 4 looks at the relationship between taxation and financial innovation in the 1980s and the decision to tax government securities. Section 5 describes the principal reforms of the 1990s, evaluating their effects on financial instruments and on the decisions of issuers and investors. Section 6 concludes.

2. The period preceding the reform: from 1960 to 1973

2.1 The pre-reform system: the main taxes on $income^2$

At the beginning of the 1960s the Italian tax system had a multiplicity of taxes levied on income. The system's structure dated back to the nineteenth century for in rem taxes and to the 1920s for personal taxes.

In rem taxes (tax on income from land, tax on income from buildings, tax on agricultural income, tax on income from movable wealth) applied to the different sources of income of individuals and companies. These taxes were mutually independent; losses under one category of income could not offset taxable income from a different source.

In particular, the tax on income from movable wealth was levied on incomes not subject to other in rem taxes, deriving from capital or labour or both, including capital gains (D'Amati, 1968). It was divided into: category A, pure capital income; category B, mixed income from capital and labour (entrepreneurial and business income); category C/1, income from self-employment; and

² General reference works for this section are Gangemi (1967) and Tremelloni (1964).

category C/2, income from salaried employment (including pensions). There were different tax rates for each category, proportional for category A, progressive for the others. Income from government securities was exempt from this tax.

Personal taxes were levied on the taxpayer's total income, including income not subject to in rem taxes.

The income of individuals was subject to both a "complementary tax", paid to the central government, and a household tax, paid to municipalities. Unlike in rem taxes, personal taxes, and especially the complementary tax, never generated revenues up to their potential, owing to numerous exemptions and the difficulties of assessment.

The tax base of the *complementary tax* (D'Amati, 1967) consisted of all income received by the taxpayer during the year, including that not subject to in rem taxes (for example, income from government securities and income from shareholding). In short, the complementary tax was added to in rem taxes, serving to an extent to realize the progressivity required by Article 53 of the Constitution. The tax rates, progressively higher by bracket, ranged from 2 to 65 per cent.

The *household tax*, personal and progressive, was levied on the entire household's "affluence" as derived from indicators of income or wealth; it also varied directly with the population of the taxpayer's municipality of residence, provision being made for larger deductions from the tax base for residents of the largest municipalities (Bernardino, 1961). The tax rates ranged from 2 to 12 per cent.³

The *corporate tax* was levied on both equity, at a rate of 0.75 per cent, and income, at 15 per cent, but only for the part exceeding 6 per cent of equity (Uckmar, 1976; Montuori, 1960). Lower rates were set for banks and holding companies: equity was taxed at 0.5625 per cent and the excess of income at 11.25 per cent (for state-controlled companies these rates were further reduced to 0.45 and 9 per cent respectively). As with the complementary tax, the corporate tax base included not only income already subject to the tax on capital and labour income but also income exempt from the tax on income from movable wealth, such as interest from government securities and dividends.

Introduced in 1954, the corporate tax replaced the stock transfer tax levied on every transfer of corporate securities (shares and bonds) and the tax on the capital of foreign companies.⁴ To avoid discrimination in fund-raising on the market, the corporate tax, which indirectly hit transfers of shares, was accompanied by the *tax on bonds*. The latter was levied annually on the market value (or, if it was not available, the face value) of corporate bonds at a rate of 0.5 per cent; a reduced rate of 0.125 per cent applied to the securities of certain issuers, including banks and issuers taxed at the reduced corporate tax rate. The tax on bonds, non-deductible from other taxes, was paid by issuers, who were entitled to recoup the amounts from subscribers (Giorgi, 1968).

Lastly, entrepreneurial, trading and professional income was subject to a local *tax on industries, trade, crafts and professions*, levied by municipalities and provinces on incomes produced in their territory, including those exempt from the tax on income from movable wealth, at maximum rates of 3.5 per cent for category B and 2.8 per cent for category C/1 at municipal level and 1.75 and 1.4 per cent respectively at provincial level.

Five per cent **surtaxes** were applied to the benefit of the municipal welfare agencies and "for Calabria" to all the above taxes except the tax on bonds (and the corporate tax in the case of the "Calabria" surtax). The municipal welfare agency surtax was raised to 10 per cent in 1962. An

³ The overlap between the tax base of the complementary tax and that of household tax was evident as soon as the complementary tax was introduced in 1923. Although a decision was consequently made to repeal the household tax, the apprehension voiced by municipalities at seeing one of their major revenue sources vanish convinced lawmakers to desist.

⁴ The corporate tax was introduced to raise additional revenue and for reasons of equalization, the latter connected both with the possibility of shareholders of corporations, unlike members of partnerships, to avoid direct taxation of retained profits and with avoidance of the stock transfer tax on shares.

extraordinary 10 per cent "flood relief" surtax was enacted in November 1966 and raised to 15 per cent in 1971 (20 per cent for the income of taxpayers other than firms in excess of 10 million lire).

On the **revenue** side, tax receipts averaged 16.2 per cent of GDP in the period 1960-73. Two thirds of the total came from indirect taxes.⁵

Among the taxes on income and wealth (Table 1), the largest receipts came from the tax on income from movable wealth, more than double those from the corporate tax, the tax on bond and the complementary tax combined; 56 per cent of the receipts from the movable wealth income tax came from category B, 28 per cent from category C/2 and barely 11 per cent from category A (financial income).

Table 1

	Share of total
Turnover taxes	37.5%
Taxes on income and wealth	29.9%
Tax on income from movable wealth	11%
Corporate tax and tax on bonds	3%
Complementary tax	2%
Other taxes	32.6%

General government tax revenue - 1960

Source: Based on data from Tremelloni (1964).

At local level, in 1960 the household tax generated 17 per cent of total municipal tax receipts, second only to consumption taxes.

In summary, incomes were taxed according to their source (in rem taxation) essentially in a proportional fashion, while the redistributive tasks typical of progressive taxation were entrusted – with poor results, as the revenue data show – to the complementary tax and the household tax (Di Majo and Frasca, 1975).

2.2 The taxation of financial income: evasion and exemption

The taxation of financial income was especially complicated under the pre-reform system. In theory, income from financial investments had always been taxable, the amount of tax due depending on the income recipient. In reality, however, owing to the jungle of exemptions and reliefs (varying with the type of issuer and instrument) and widespread evasion (especially of the complementary tax), the effective taxation of financial income was exceedingly uneven, and this affected the demand for and supply of financial assets.

2.2.1 The taxation of interest

Several different taxes applied to interest on bonds. In theory, these included the tax on income from movable wealth (category A) and the tax on bonds, collected at source from the issuers, who could recover the amount from subscribers. In addition, recipients of bond interest

⁵ Calculation based on data in Ceriani *et al.* (1992b). The figures cited subsequently are based on data in Tremelloni (1964).

were subject to complementary tax (in the case of individuals) or corporate tax. During the period under review, the category A tax rate rose from 24.2 to 36.45 per cent in just over a decade.⁶

In practice, the levy was not uniform owing to numerous exemptions, instituted, according to the doctrine of the time, with a view to facilitating the raising of funds and their employment in financing the productive system (Pietrafesa,1966). The following were exempt: government securities, post office savings certificates, municipal and regional bonds, and bonds issued by IRI,⁷ Società Autostrade, ENEL,⁸ and some international entities (the European Investment Bank, the European Bank for Reconstruction and Development, and the European Coal and Steel Community).

Bonds issued by ENI were exempt from tax on income from movable wealth, as ENI paid a subscription tax, equal to 0.1 per cent of its issued capital, which also covered other minor taxes. Likewise, bonds issued by special credit institutions were exempt from category A tax on income from movable wealth, as these issuers paid a subscription tax of 0.15 per cent on the amount of their medium and long-term loans (*i.e.* with a maturity of at least three years) outstanding at the end of every financial year (Table 2).⁹

Table 2

Tax Issuer	Tax on income from movable wealth Category A	Tax on bonds	Subscription tax
Government, international bodies, Soc. Autostrade	Exempt	Exempt	
SCI	Exempt	0.125%	0.1-0.15%
IRI	Exempt	0.5%	
ENEL	Exempt	Exempt	
ENI	Exempt	0.5%	0.1%
Financial companies	36.45 %	0.125%	
Other companies	36.45%	0.5%	

Bond taxation by issuer

The 1973 reform did not lessen the advantages in place at the time of transition. Outstanding bonds continued to be subject to the previous treatment if this was more favourable; in effect, all exempt bonds purchased before the reform's entry into force remained exempt.

As regards *deposits*, interest on savings accounts was subject to tax on income from movable wealth (category A), but since banks did not recover the tax from the recipients, as with bonds, for the recipients this income enjoyed *de facto* exemption (Bianchi, 1975a). Interest on current accounts was not initially subject to the same tax, on the presumption that these accounts were held

⁶ The statutory rate was raised from 22 to 23 per cent with effect from 1 July 1959. It was increased to 26 per cent at the start of 1962 and 27 per cent in November 1964. Taking into account the surtaxes, the overall tax rate was 24.2 per cent until 1959, then 25.3 per cent (up to November 1962), 29.9 per cent (up to November 1964), 31.05 per cent (up to 1967) and 33.75 per cent (up to 1971). From 1971 it was equal to 35.1 per cent on the first 10 million lire of taxable income and 36.45 per cent on the amount above that.

⁷ The exemption did not cover the tax on bonds.

⁸ ENEL paid a tax on the electricity it generated in lieu of the tax on income from movable wealth, corporate tax, the tax on bonds and some other taxes.

⁹ The rate was reduced to 0.10 per cent for some special credit institutions, including IMI, Mediocredito Centrale and Isveimer. See Adonnino (1967).

by firms and that the interest accrued would therefore be included in the amounts subject to the taxes on entrepreneurial income. The difference in tax treatment caused a transfer of funds from savings to current accounts, which the tax authorities countered by making current accounts subject to category A tax, up to fixed amounts (Valiani, 1976).

Interest received by individuals was also included in the base of the complementary tax. In this case taxation was homogeneous across financial instruments, there being no exemptions, but the assessment mechanisms were inadequate to prevent widespread evasion of this tax. Taxes on bond interest were easily evaded because bonds were bearer instruments, those on deposit interest because of banking secrecy (Merlino, 1960).

Interest income received by companies was included in the corporate tax base. By contrast, entrepreneurial income figured in the category B income from movable wealth tax base only if it was not already subject to category A tax. Consequently, interest on securities was not subject to category B tax, being either exempt or subject to category A tax (Montuori, 1960; Bosisio, 1970).

To compete successfully on the capital market by offering savers after-tax yields equal to those provided by tax-exempt issuers, firms were forced to refrain from exercising the right to recoup the tax on income from movable wealth and the tax on bonds. This meant taking on an additional financing cost, higher than that borne by the state or by special credit institutions and augmented, moreover, by the non-deductibility of these taxes from category B income subject to the tax on movable wealth (Montuori, 1960).

Given an after-tax yield of 5 per cent for the saver, the effective cost of borrowing was 5 per cent for the state and other exempt issuers, 5.3 per cent for special credit institutions and 5.8 per cent for other companies required to pay subscription taxes on bonds, but it rose to 7.8 per cent for financial companies and 8.3 per cent for non-financial companies, taking account of the decision not to recoup the tax on category A income from movable wealth and the tax on bonds, and of the non-deductibility of these taxes from the tax on category B income.¹⁰

In terms of the overall tax wedge (Table 3), the difference between the financing cost for the issuer and the rate of return for the income recipient reveals more clearly still the tax advantage enjoyed by public-sector securities and special credit institution bonds.

Table 3

	Tax wedge on issuers	Tax wedge on subscribers		Overall tax wedge	
Issuer		Individual	Company	Individual	Company
Government, international bodies, Soc. Autostrade	0.00%	0.00%	18.75%	0.00%	18.75%
SCI	5.99%	0.00%	18.75%	5.99%	23.62%
IRI	12.41%	0.00%	18.75%	12.41%	28.83%
ENEL	14.53%	0.00%	18.75%	14.53%	30.55%
ENI	35.56%	0.00%	18.75%	35.56%	47.64%
Financial companies	39.69%	0.00%	18.75%	39.69%	51.00%

Tax wedge on issuers and subscribers

N.B. Calculations are based on following assumptions: a) issuers did not recover tax collected at source from subscribers; b) individual subscribers evaded complementary tax.

¹⁰ These calculations were made using 1971 tax rates (tax on category A income from movable wealth of 36.45 per cent and on category B income of 41.658 per cent for companies with taxable income of more than 100 million lire; corporate tax of 18.75 per cent on taxable income); collection fees were not taken into account.

2.2.2 The taxation of dividends

Profits were subject to corporate tax and the tax on income from movable wealth (category B) and the recipients of dividends paid complementary tax (if individuals) or corporate tax, so that distributed profits came under double taxation.

Initially, investors managed to escape this double taxation. Legislation was adopted in 1942 requiring that all shares be registered in the owner's name and transfers of ownership be reported,¹¹ but the tax revenue it produced was negligible as investors avoided being reported through recourse to continuously extended stock-exchange repos. To counter this form of evasion it became mandatory in 1956 to report forward transactions on a monthly basis, but share owners managed to circumvent this rule by entering into weekly repos (Bianchi, 1975b; Valiani, 1976).

It became much harder to escape tax on distributed profits when a withholding tax on dividends (so called "imposta cedolare") was introduced in 1963.¹² Paying agents were required to withhold 15 per cent of the amount. For most investors the tax was an advance payment, deductible from the recipient's complementary tax or corporate tax liabilities, but in the case of tax-exempt institutions and non-residents it was a final levy.¹³

In 1964 taxpayers were given a choice between a final withholding tax of 30 per cent (by which they also obtained fiscal anonymity) and a 5 per cent advance withholding tax. This choice was abrogated in 1967, but the final 30 per cent withholding tax was left for non-residents and otherwise untaxed residents.

Shares remained registered even after the final dividend withholding tax was introduced and this was true fiscal difference between equity investment and bond investment, debt securities being unregistered and thus enjoying *de facto* exemption. The fact that entries were made in the register only at the time dividends were paid reduced the cost to intermediaries and also eliminated complications for the forward market. Still, the tax disadvantage of equity investment was aggravated.

The new system drastically increased the tax falling on dividends received by individuals. With the withholding tax, dividends could not escape progressive taxation under the complementary tax, which, taking surtaxes into account, ranged between 2.7 and 87.75 per cent. The option between the final withholding tax and progressive taxation under the complementary tax meant that the tax falling on dividends ranged between 2.7 per cent (minimum complementary tax rate) and 30 per cent (final withholding tax).

The desirability of equalizing the tax treatment of bonds and shares was a recurrent theme of the debate on tax policy. Three routes could be taken to reach this objective: a) abrogating the registration of shares, already promised as compensating measure when the corporate tax was introduced (Gangemi, 1967); b) extending registration to bonds; c) allowing taxpayers to opt to pay final withholding tax on both dividends and interest (Berliri, 1969).

Taxation heavily penalized investment in equities compared with bonds. Companies were discouraged from raising net capital by the corporate tax, which was levied not only on income but also on equity. To redress the increasing undercapitalization of firms, a 1970 law¹⁴ offered incentives to companies that listed on the stock exchange and to already listed companies that carried out capital increases: for the former, the corporate tax liability was reduced by 10 per cent for five financial years; for the latter, the capital increase was not subject to corporate tax on net worth for five financial years.

¹¹ Royal Decree Law 1148 of 25 October 1941; Royal Decree 239 of 29 March 1942.

¹² Law 1745 of 29 December 1962. See Piazza (1968).

¹³ Provision was also made for a final 8 per cent tax on the profits of bearer shares issued under legislation passed in special-statute regions.

¹⁴ Law 1034 of 18 December 1970.

2.2.3 The taxation of capital gains

In theory, **capital gains** were subject to tax on income from movable wealth if they were realized on transactions carried out "with speculative intention". Since the burden of demonstrating speculative intention lay with the tax authorities and there were no absolute or relative parameters for assuming speculation, capital gains in fact were rarely taxed (Falsitta, 1966).

2.3 The effects on the financial market: the circuit linking savers, banks, special credit institutions and firms

The pre-reform tax system provided for differences in tax treatment not only between debt and equity capital, but also between the different forms of debt. These disparities did not fail to affect the structure of the Italian financial market.

In the choice between debt and equity financing, firms preferred the former, given the higher tax cost of equity capital (Cosciani, 1972; Di Majo, 1974; Valiani, 1976; Rossi, 1979). But savers too progressively withdrew from investment in equities, especially after the withholding tax made it impossible to avoid taxes on dividends. Between 1961 and 1970 the percentage of Italian shares held by individual investors fell from 36.2 to 30.5 per cent, while that held by non-resident investors, motivated in part by tax avoidance, rose from 9.9 to 22.6 per cent (Cosciani, 1972). The tax-induced transfer of shareholdings from residents to non-residents after the introduction of the dividend tax was also one of the drivers of abnormally high exports of capital in the form of banknotes in the period 1960-69 (Vicarelli, 1970).

Firms found it more advantageous, for tax reasons, to take out loans from special credit institutions, which could raise funds at lower costs (Valiani, 1976), than to resort directly to the capital market. Corporate bonds had accounted for 8.2 per cent of total fixed-income securities in 1950; by 1970 this portion had dropped to 3.9 per cent and by 1975 to 1.4 per cent (Bianchi, 1980). The preference for borrowing from special credit institutions was noted at the time: "In the period 1959-70 the prevalent method used by firms for explicitly medium and long-term financing was that of borrowing from special credit institutions, (. . .) which accounted for 41 per cent of medium and long-term debt" (Bank of Italy, Annual Report for 1970). "Firms used medium and long-term loans from special credit institutions instead of direct financing on the market through bonds. A factor in this choice may have been the greater tax burden on bonds issued by private firms with respect to those issued by special credit institutions" (Bank of Italy, Annual Report for 1971).

Companies made bond issues mainly in the periods when tax incentives were provided in the form of exemptions from or temporary reductions in category A tax on income from movable wealth. An analysis of net issues on the domestic bond market in the period 1959-73 (Table 4) shows that those of private-sector companies — that is, excluding IRI, ENI, ENEL and Autostrade — peaked between 1960 and mid-1962, in correspondence with the halving of the tax on income from movable wealth for bonds issued between 16 December 1959 and 30 June 1962. Net issues by private-sector companies averaged 19 per cent of total bond issues in 1960-62; this portion fell to nil in 1963-73. So important were the issues made in response to tax reliefs that two thirds of the stock of corporate bonds outstanding at that end of 1973 had been issued between the end of 1959 and mid-1962 (Bianchi, 1975b).¹⁵

The announcement effect of temporary measures also influenced the distribution of issues within calendar quarters. In 1959, for example, the execution of planned bond issues was delayed pending the entry into force of tax reliefs: 40 per cent of 1959 issues were concentrated in the second half of December (Bank of Italy, Annual Report for 1959). The effect of the delay in

¹⁵ A similar phenomenon had been observed at the end of 1949, when, thanks to the exemption from the tax on category A income for bonds subscribed between 4 December 1947 and 31 December 1949, corporate bonds accounted for 17 per cent of total fixedincome securities outstanding, compared with just 4 per cent two years earlier (Bianchi, 1980).

issuance was felt the following year, when 83 per cent of all issues fell in the first half (Bank of Italy, Annual Report for 1960).

Table 4

(billions of lire)								
Issuer Year	Government	SCI	IRI-ENI-ENEL- AUTOSTRADE	Companies	Others	Total amount of bonds	Shares	
1959	343.5	262.8	82.9	30.0	0.0	719.2	225.0	
1960	162.0	412.1	59.4	192.4	0.0	825.9	495.7	
1961	135.3	514.0	115.4	137.4	15.0	917.1	514.6	
1962	62.0	718.2	60.0	205.4	30.0	1,075.6	715.5	
1963	-71.3	774.7	275.3	93.9	14.6	1,087.2	397.5	
1964	228.6	714.4	474.4	32.5	0.0	1,449.9	554.8	
1965	662.3	646.5	656.2	-7.6	13.9	1,971.3	406.2	
1966	1,576.3	860.7	313.9	2.9	72.2	2,826.0	470.1	
1967	1,009.6	986.6	440.9	-38.0	14.6	2,413.7	395.6	
1968	1,343.8	1,188.6	549.8	-33.6	43.6	3,092.2	472.7	
1969	1,552.1	1,284.2	554.1	-59.8	12.4	3,343.0	681.1	
1970	1,084.4	1,483.8	86.3	-42.5	-1.6	2,610.4	996.6	
1971	2,260.5	2,229.1	551.8	-43.1	35.8	5,034.1	976.7	
1972	2,660.2	2,446.3	822.1	-65.1	106.1	5,969.6	1,241.1	
1973	3,202.5	6,438.2	794.0	3.1	38.3	10,476.1	1,983.2	

Net issues of bonds and shares on the domestic market

Table 4 continued

Issuer

Year

Net bond issues on the domestic market

(percentage allocation)								
Government	SCI	IRI-ENI-ENEL- AUTOSTRADE	Companies					
48%	37%	12%	4%					

Others

1959	48%	37%	12%	4%	0%
1960	20%	50%	7%	23%	0%
1961	15%	56%	13%	15%	2%
1962	6%	67%	6%	19%	3%
1963	-7%	71%	25%	9%	1%
1964	16%	49%	33%	2%	0%
1965	34%	33%	33%	0%	1%
1966	56%	30%	11%	0%	3%
1967	42%	41%	18%	-2%	1%
1968	43%	38%	18%	-1%	1%
1969	46%	38%	17%	-2%	0%
1970	42%	57%	3%	-2%	0%
1971	45%	44%	11%	-1%	1%
1972	45%	41%	14%	-1%	2%
1973	31%	61%	8%	0%	0%
Average 1959-1973	32%	48%	15%	4%	1%
Average 1960-1962	14%	58%	9%	19%	1%
Average 1963-1973	36%	46%	17%	0%	1%

Source: Bank of Italy, Annual Report, 1959-1973.

N.B. The sum per row may differ from 100 per cent owing to rounding.

The influence of taxation on the markets was again evident in 1967. Issuance almost came to a halt in the second quarter¹⁶ "owing to the worries aroused among the public, in the middle of April, concerning the future tax treatment of bond income" (Bank of Italy, Annual Report for 1967).

In 1970 legislation was passed to facilitate fund-raising by firms on the equity market and abroad, in order to redress Italian firms' undercapitalization and in view of the strains on the domestic capital market.¹⁷ Convertible bonds issued by listed companies were exempted from the tax on income from movable wealth (these securities were also exempt from the tax on bonds); similar exemption was also granted to interest on securities denominated in foreign currency and on loans contracted abroad, including those in the form of bonds. The tax relief had immediate effects and Italian firms' fund-raising abroad, which had been nil in the previous years, rose swiftly, at the expense of their fund-raising on the domestic market, where net issues had been negative since 1965 (Table 5).

¹⁶ Issues in that quarter amounted to only 6.5 per cent of the total for the year (Bank of Italy, Annual Report for 1967, Table 78).

¹⁷ Law 1034 of 18 December 1970.

Net bond issues of private companies on domestic and foreign markets

Year	Domestic market	Foreign market	Total
1968	-33.6	0	-33.6
1969	-59.8	0	-59.8
1970	-42.5	89.5	47.0
1971	-37.0	260.0	223.0

(billions of lire)

Source: Bank of Italy, Annual Report for 1971.

The same pattern does not hold for other non-financial corporations (IRI, ENI, ENEL and Autostrade), whose net issues were always positive thanks to special tax reliefs. In 1965 they accounted for fully one third of total domestic bond issues; in the period 1959-73 their share was about 15 per cent, or nearly four times the volume of funds raised by other companies (Table 4).

Special credit institutions were the leading issuers in the period under review, accounting for an average of 48 per cent of net issues, compared with only 32 per cent for the state (Table 4). The importance of special credit institutions grew in 1959-73: in the first four years (1959-62) special credit institution bonds made up 37 per cent of the average stock of outstanding securities, compared with 42 per cent for government securities; in the last four years (1970-73) the respective portions were 44 and 38 per cent; at the end of 1973, 47 and 38 per cent (Table 6).

Table 6

Bonds and other fixed-income securities: overall amount

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Issuer Year	Government	SCI	Others	Total				
1959	2,425.0	1,603.0	956,0	4.984,0				
1960	2,613.0	2,034.0	1,214.0	5,861.0				
1961	2,768.0	2,572.0	1,439.0	6,779.0				
1962	2,846.8	3,337.0	1,696.0	7,879.8				
Average 1959-1962	2,663.2	2,386.5	1,326.3	6,376.0				
Percentage allocation of average amount 1959-1962	42%	37%	21%	100%				
1970	10,715.7	12,127.2	5,605.8	28,448.7				
1971	13,236.0	14,705.0	6,205.6	34,146.6				
1972	16,068.4	17,476.1	7,115.1	40,659.6				
1973	19,457.7	24,342.6	7,990.5	51,790.8				
Average 1970-1973	14,869.5	17,162.7	6,729.3	38,761.4				
Percentage allocation of average amount 1970-1973	38%	44%	17%	100%				
Percentage allocation of average amount 1973	38%	47%	15%	100%				

Source: Bank of Italy, Annual Report, 1959-1973.

N.B. The sum per row may differ from 100 per cent owing to rounding.

Special credit institution bonds were purchased by individual savers and by banks (Bianchi, 1975b). In the fifteen years examined, 36 per cent of the funds raised by special credit institutions came from banks; bond issues accounted for more than 80 per cent of all the funds they raised between 1960 and 1973 (Table 7).

Table 7

Banks: contribution of funds to special credit institutions

(billions of lire)

Year	Total contribution	Contribution made with bonds	Bonds / contribution (%)	Bank contribution / SCI total fund raising (%)	SCI bonds bought by banks / SCI total fund raising (%)
1960	210.0	170.4	81.1	32.8	26.6
1961	214.6	143.5	66.9	27.7	18.5
1962	513.3	382.1	74.4	49.3	36.7
1963	356.2	330.2	92.7	29.0	26.9
1964	305.5	210.9	69.0	27.8	19.2
1965	435.3	315.6	72.5	41.4	30.0
1966	522.7	425.4	81.4	39.0	31.7
1967	763.1	514.2	67.4	44.7	30.1
1968	647.1	473.5	73.2	29.9	21.9
1969	818.7	722.3	88.2	40.9	36.1
1970	985.8	842.6	85.5	37.3	31.9
1971	909.6	770.3	84.7	23.8	20.2
1972	1112.9	1124.7	101.1	28.4	28.7
1973	4924.2	4897.7	99.5	51.6	51.3
Average 1960-1973	908.5	808.9	81.3	36.0	29.3

Source: Bank of Italy, Annual Report, 1960-1973.

Tax rules therefore worked to channel private savings to securities issued by the government (or quasi-governmental entities), banks and special credit institutions, creating "double intermediation" through the circuit: savers \rightarrow banks \rightarrow special credit institutions \rightarrow firms. We have the following analysis: "Between 1959 and 1970 an average of 48 per cent of households' total financial saving was channeled to banks. In the same period, for medium and long-term financing firms relied prevalently on loans from special credit institutions, often obtaining them on subsidized terms and conditions. Special credit institutions were financed above all through the issue of debt securities (mortgage bonds). In the absence of full correspondence between the credit instruments supplied and the financial assets demanded by the economy (households and firms), given existing rates of return and expectations, a great part of the short-term funds raised by banks in the form of deposits was invested in medium and long-term securities issued by special credit institutions, giving rise to maturity transformation on a large scale and the so-called 'double intermediation of saving" (Bank of Italy, Annual Report for 1970). Moreover, "during the 1950s and 1960s lending by special credit institutions as a share of total loans granted by the credit system rose constantly, increasing from 25.4 per cent at the end of 1951 to 36.4 per cent at the end of 1971. This was due both to the growing importance of subsidized credit in the financing of the economy and to insufficient recourse to risk capital on the part of firms" (Bank of Italy, Annual Report for 1971). In its various passages, double intermediation was marked by tax advantages; in particular, banks' preference for investing in special credit institution bonds rather than making loans directly to firms was dictated in part by the fact that interest income from investment in securities was exempt from category B tax on income from movable wealth while interest income from loans was not.

Equity fund-raising too was influenced by tax considerations. Share issuance decreased perceptibly following the introduction of the flat-rate withholding dividend tax (Table 4). It started growing again only at the end of 1960s, thanks both to the fading away of the negative impact of the withholding tax on dividends and to the subsequent amendments to the tax (Bank of Italy, Annual Report for 1969) and as a consequence of the indirect tax reliefs for share capital increases and tax incentives for stock exchange listing.

3. The taxation of financial income in the tax reform of the 1970s

3.1 Overview of the reform

The tax reform of the early 1970s¹⁸ excluded returns on financial assets from progressive personal income tax (Irpef), despite the theoretical construction of Irpef as a comprehensive tax on income.¹⁹ The exception to the reform's guiding principle of a comprehensive personal income tax (PIT) was justified at the time mainly by pointing to the difficulties of assessing financial income: in a context where bonds were mainly issued in bearer form and the tax authorities' access to banking data was limited, making financial income subject to progressive taxation would have resulted in its *de facto* exemption. Further, it was argued that more effective assessment with a view to including interest income in the progressive PIT base would have been unduly disadvantageous compared with the previous regime, possibly touching off capital flight (Ceriani *et al.*, 1992b). The decision was also considered acceptable on grounds of equity, given that financial investments of savings, particularly in debt instruments, were chosen mainly by taxpayers with medium-low incomes, whereas "none of the great fortunes or high incomes consists of bonds, government securities and bank deposits".²⁰

Most income from capital was subject to substitute, proportional taxation. Issuers had to withhold tax from payments to investors, at different rates according to the type of instrument and investor. For individuals, the withholding tax was a final tax; for companies, it represented an advance payment of corporate income tax (Irpeg). Interest on government securities was excluded from substitute tax, so that these were now exempt *de jure*, not just *de facto* as before. The decision to levy substitute tax on capital income received by individuals, a solution not too different from the pre-existing regime, was partly due to the need to avoid market disruptions during the reform's entry into force, but it aimed above all at creating a flexible tax system with which the authorities could monitor and channel savings.

Unlike other capital income, dividends originally were included in the PIT base. The 10 per cent advance withholding tax was confirmed, but no tax credit for corporate taxes levied upstream

¹⁸ Enabling Law 825 of 9 October 1971.

¹⁹ In its report to Parliament in 1967, the committee appointed to study the question, chaired by Bruno Visentini, had suggested including all incomes in taxable personal income and reducing the provision of separate, flat-rate taxes to a minimum (Visentini, 1969).

²⁰ Report on Law 825/1971.

was recognized: thus, the classical system of double taxation of corporate income was adopted. However, Law 216/1974 soon extended substitute, proportional taxation to dividends too, though on an optional basis; it allowed taxpayers to choose a final 30 per cent withholding tax, returning in effect to the flat-rate dividend withholding tax of the early 1960s. Given the structure of PIT rates introduced with the reform and the distribution of incomes in 1974, the final withholding tax ought to have interested relatively few investors.²¹ However, the anonymity it ensured prompted many savers to opt for it even though it offered no objective economic advantages.

Lastly, capital gains realized by individuals not in the course of entrepreneurial activity remained taxable only if "speculative intention" could be proven and were therefore practically tax-free.

A rather wide spectrum of capital income withholding tax rates was initially established. The ordinary rate (30 per cent) applied in reality only to income from bonds issued by non-financial corporations other than those owned by the state and (on an optional basis) dividends. Other instruments, and particularly the different forms of bank fund-raising, were subject to reduced rates, set according to the relative advantage that policymakers intended to assign to each type of asset. Apart from the exemption of government securities, bonds issued by special credit institution were taxed at 10 per cent, bank and postal current accounts and deposits at 15 per cent and bonds issued by state-owned companies at 20 per cent. Essentially, the differentiation of rates reproduced the scale of tax advantages that had been accorded to different instruments and issuers under the pre-reform regime through a combination of exemptions and different taxes.

Some features of the new regime for capital income, like the previous system, were intended to orient the allocation of saving and affect the equilibrium of the financial markets:

a) a strong bias in favour of public-sector issuers. This was evident in the exemption for publicsector securities regardless of subscriber (whether an individual or a company), but also in the reduced withholding tax rate for bonds issued by special credit institutions;

b) preferential treatment of bank and postal deposits, aimed at encouraging the formation of saving in all forms and, in particular, the most liquid types of investment — an approach that under the pre-reform regime had fostered the double intermediation of saving;

c) a strong bias against equity investment, which was penalized *vis-à-vis* bond investment by the double taxation of dividends and the different tax treatment of interest and dividends for corporate income tax purposes (only the former was deductible from income).

3.2 Subsequent developments up to the early 1980s

Beginning in the second half of the 1970s the need to finance mounting budget deficits²² and administrative controls on bank assets (a ceiling on the growth in bank loans and a securities investment requirement) fueled a gradual disintermediation of bank deposits in favour of public debt securities and the direct purchase of special credit institution bonds. The phenomenon intensified in the period between 1978 and 1981, which saw an increase in direct placements of short-term government securities — Treasury bills (BOTs) and special credit institution bonds with households and firms. Net issues of BOTs rose from 9,822 billion lire in 1979 to 33,783 billion in 1981, those of special credit institution bonds from 4,656 billion to 7,508 billion (Table 9). In the same period the annual growth of deposits slowed from 19.4 to 12.3 per cent (Bank of Italy, Annual Report for 1981).

²¹ The final withholding tax was advantageous only for investors with incomes above 9 million lire, whose marginal rate was 31 per cent in 1974. The incomes of these taxpayers accounted for a small fraction of total incomes subject to Irpef.

²² In the years following the first oil crisis of 1973-74, the government budget deficit rose to around 10 per cent of GDP in the second half of the 1970s and 11 per cent in the 1980s. Together with the rise in interest rates, this produced an exponential growth of the public debt, which by the end of the 1980s was close to 100 per cent of GDP (Morcaldo, 1992).

Changes in tax law amplified the trend. Between 1976 and 1983 the withholding tax rate on bank deposits was progressively raised from 15 to 25 per cent, helping to augment the yield spread between two substitute products, deposits and BOTs. Between 1978 and 1985 the interest rate spread between BOTs and demand or time savings and current account deposits of at least 20 million lire widened from an average of 3.26 percentage points gross of tax to around 6 points net of tax. In 1981 it reached a maximum of 5.81 and 8.59 points respectively gross and net of tax.²³

Special credit institutions' fund-raising was stimulated from the end of the 1970s onwards by regulatory changes, notably an easing of the securities investment requirement, accompanied however by the maintenance of the ceiling on the growth of bank loans, and authorization for them to issue savings certificates and certificates of deposit (CDs). ²⁴ But it truly boomed in the early 1980s with the opening of a series of "windows" of tax exemption for securities issued by special credit institutions between 1980 and 1982.²⁵ After the exemption expired the volume of net issues by special credit institutions fell by one half, with an especially sharp drop for CDs, the fastest-growing component of special credit institution funding in 1982.²⁶ At the same time, tax rules contributed to bank disintermediation with respect to special credit institution issues. In 1981, for the first time since 1973, banks purchased less than 50 per cent of these issues; in 1982 they purchased only 9-10 per cent of the CDs issued by special credit institutions. The growing role of direct fund-raising by special credit institutions was encouraged by the different tax treatment of individuals and firms: while interest on CDs was totally tax exempt for the former, for firms (and thus, also for banks) the benefit was much lower because tax-exempt interest income limited the deductibility of their interest expense.

Whereas in the 1970s the differentiation of withholding tax rates across debt instruments had discouraged direct recourse to the debt capital market by private-sector firms, favouring the taking out of loans from special credit institutions and double intermediation, in the early 1980s the closer alignment of tax rates on the securities of different issuers, initially achieved through the abovementioned "windows of exemption" and then through more uniform taxation of bonds, produced the desired result of fostering medium and long-term investment, bringing private-sector firms back to the market. Like special credit institution issues, bond issues by private-sector firms and state holding companies reached significant levels in 1981-82 in correspondence with the windows of exemption.

The increase was particularly sharp for convertible bonds. Pursuant to Law 216/1974, since April 1974 the withholding tax on convertible bonds was half that on other corporate bonds: 15 per cent up to 5 December 1975 and 10 per cent subsequently.²⁷ Alongside this advantage, returns on convertible bonds consisted largely of the capital gains realized upon their conversion into shares, which were not taxable for individuals. Presumably, these tax benefits explain the substantial volume of convertible bonds placed on the market between 1974 and 1980, when issues of other fixed-income securities by firms were discouraged by unfavourable tax treatment as well as by high

²³ It remained wide (more than 4 percentage points) even after the introduction of the withholding tax on government securities in the autumn of 1986 (initially 6.25 per cent, raised to 12.5 per cent in 1987), owing in part to the further increase in the withholding tax rate on deposits from 25 to 30 per cent starting in 1988 (Guerra, 1989).

²⁴ Industrial, agricultural and real estate credit institutions and sections were authorized to issue CDs by a ministerial decree dated 23 December 1981 implementing Law 23 of 10 February 1981.

²⁵ Decree Laws 288/1980 and 503/1980, whose effects were preserved by Law 687/1980, gave tax-exempt status to bonds and similar securities of whatever maturity issued by special credit institutions between 3 July and 30 September 1980. Decree Law 693/1980, ratified by Law 891/1980, gave tax exemption to securities with a maturity of more than 3 years issued by special credit institutions, state holding companies and listed companies between 1 October 1980 and 30 September 1981. Decree Law 540/1981, ratified by Law 676/1981, extended exemption to the same securities issued between 1 October 1981 and 30 September 1982 with a maturity of more than 18 months.

²⁶ Special credit institution issuance staged a relative recovery in 1985, in part the indirect effect of the tax measure of November 1984 that made firms' interest expense non-deductible up to the amount of their exempt interest income, thereby bringing their income from government securities into the tax net.

²⁷ For issuers, convertible bonds had the additional advantage that the interest payments were deductible, unlike share dividends.

interest rates (Guerra, 1989).²⁸

Similar observations hold for savings shares, which allowed subscribers to opt for a final 15 per cent withholding tax with total fiscal anonymity, and issuers to deduct dividend payments in an amount up to 5 per cent of the face value of the shares (the latter benefit was abolished with effect from 1 December 1983).²⁹

Ordinary shares continued to be penalized by the classical system of double taxation of dividends, left intact by the 1973 reform. The system strongly discouraged the distribution of profits. Individual investors preferred profits in the form of non-taxable capital gains, while for dividends on corporate shareholdings double taxation (or multiple taxation in the case of subsequent transfers) could constitute a significant cost, moderated by a lower corporate income tax rate only in the case of holding companies, provided certain conditions were met (see Box 3.1).

Moreover, issuers could deduct interest payments but not dividends from taxable income. Given high rates of corporate taxation (due in part to local income tax on top of corporate income tax) and high inflation (and interest rates), the different tax treatment of dividends and interest often translated into a subsidy for highly leveraged firms (Ciocca, 2000).

The double taxation of dividends was eliminated in 1977 by a tax credit mechanism (see Box 3.1) that did away with duplications of tax for dividends paid to other companies and made those paid to individuals subject exclusively to progressive PIT. This lessened the disadvantage of dividends with respect to interest payments. There remained the bias due to the different treatment for the issuer of the two types of disbursement; nevertheless, the gross dividend paid being equal, the tax credit increased the net return to the recipient by about 30 per cent, and the net dividend received by the shareholder being equal, decreased the cost to firms of remunerating capital by 25 per cent.³⁰

The effects of the measure, adopted in parallel with the establishment of "second markets" and other steps designed to make the share market deeper and more transparent, are difficult to evaluate. Recourse by private-sector companies (other than banks) to equity financing did not rise significantly, especially in relative terms. Between 1977 and 1982 new share issues persistently ranged between 10 and 11 per cent of total new external financing, lower even than the 12.4 per cent average for the period 1974-76.³¹

In the years immediately following the introduction of the tax credit companies distributed more generous dividends, though dividend yields remained relatively low compared with the levels in the leading industrial countries.³² It is difficult to determine whether the more generous dividend policy was a consequence of the tax change or ascribable instead to improved corporate profitability. The tax credit made it immaterial whether profits were distributed or retained in intragroup relations, helping to increase the degrees of freedom in group dividend policies. *Vis-à-vis* individual investors it only attenuated the disincentives to distribute dividends: the maintenance of tax-exempt status for capital gains realized on shares by individuals still meant that the latter were better off if companies retained earnings.

²⁸ For example, in 1977 net issues of convertible bonds amounted to 140 billion lire, or 80 per cent of firms' total net bond issues (Bank of Italy, Annual Report for 1977).

²⁹ Cooperative bank shares also gained ground during the 1980s thanks in part to favourable tax treatment, contributing to the growth of the "second markets" established at the end of the 1970s. Purchasers of these shares were guaranteed fiscal anonymity and dividend payments were not subject to withholding tax (Bank of Italy, Annual Report for 1979).

³⁰ Bank of Italy, Annual Report for 1977.

³¹ After decreasing between 1973 and 1977, the stock of shares increased constantly, rising from 0.3 to 0.9 per cent of GDP and from just over 7 to more than 20 per cent of the total value of financial assets (Bonci and Coletta, 2006). Gross share issues grew from 2,251 billion lire in 1977 to 6,892 billion in 1982. However, except in 1980 and 1982, over 50 per cent of the new issues came from state-controlled companies (Bank of Italy, Annual Report, various years). More than an increase in private firms' recourse to equity capital, the rise in share issues essentially reflected increases in the endowment funds of state-controlled companies to cover their losses.

³² Bank of Italy, Annual Report for 1983.

Box 3.1

The taxation of dividends: from the "classical system" to the tax credit

In the reform of 1973, the approach originally adopted for the tax treatment of dividends and other distributions of corporate profits was that of the "pure" classical system of double taxation of corporate earnings, first as profits with the corporate income tax (Irpeg) and then as part of the shareholder's taxable income with Irpef for individuals and Irpeg for companies. In addition, distributions were subject to a 10 per cent advance withholding tax.

On 9 April 1974 (Law 216/1974) the option for a 30 per cent final withholding tax was reintroduced for both individuals and companies. Between 11 October 1976 and 31 December 1978 the rate was raised to 50 per cent. The option in favour of final withholding tax was newly repealed in 1979. Much later, in 1994, it was introduced again, but only for individuals.

In order to attenuate the double taxation of intra-group dividends, the reform of 1973 provided for favourable treatment of financial holding companies and entities, reducing their corporate tax rate to 7.5 per cent. This relief, reserved to companies and entities whose corporate purpose was the acquisition of shareholdings in other companies and whose equity holdings were equal to at least 60 per cent of their total balance sheet assets, was eliminated by Law 904/1977 (called the Pandolfi Law).

The Pandolfi Law replaced the classical system with a mechanism of full imputation by introducing, with effect from 1 January 1977, a tax credit equal to one third of the dividend distributed (gross of the 10 per cent withholding tax). All resident investors (individuals, members of partnerships, corporations) could claim the tax credit, provided the distributed profits were included in their taxable income. The credit could not be claimed in respect of distributed profits subject to final withholding taxes (as in the case, for example, of savings shares, whose dividends were subject to a final withholding tax of 15 per cent). Nor could it be claimed by non-resident investors, whose dividends were subject to a final withholding tax of 30 per cent (32.40 per cent from 1 January 1986).³³

The tax credit was raised to 9/16 of the dividend distributed when the corporate income tax rate was raised from 25 to 36 per cent (Law 649 of 25 November 1983). Both the corporate tax and the level of the tax credit were confirmed by the Income Tax Code of 1986.

³³ However, subsequently the credit was awarded, subject to reciprocity, to investors resident in some countries (France and the United Kingdom, among others) through the inclusion of specific clauses in bilateral double taxation treaties.

4. The 1980s: financial innovation and the taxation of government securities

During the 1980s fiscal policy concerning financial income was marked by a general increase in the average level of taxation, in line with the general trend of growing taxation to cope with expanding public expenditure. Withholding tax rates were raised virtually across the board (see tables in the Appendix), with that on short-term and sight funds (bank and post-office deposits and current accounts) ratcheted up from 15 per cent initially to 30 per cent by 1988. At the same time, there was a gradual reduction of the differences between the withholding rates on bonds according to type of issuer, and government securities lost their tax-exempt status. These changes resulted in a basically bipartite structure of withholding tax rates in which the tax treatment of capital income was a function of the duration of the investment, favouring, in a high-inflation environment, long-term over short-term investment (Guerra, 1989).

Under the pressure to raise revenue, legislation was passed in the 1980s to fill the gaps that made it possible to circumvent tax rules and banking regulations through the use of innovative financial instruments. Among the steps taken, withholding tax on banker's acceptances was introduced (1981), an *ad hoc* tax regime for so-called atypical securities established (1983), withholding tax extended to the issue discount of bonds (1983) and the concept of "securities similar to bonds" specified (1983).

4.1 The birth of new financial instruments: the tax determinants

Financial innovation can in part be explained by the attempt of agents to avoid regulation and exploit tax loopholes. After the reform of the 1970s, the Italian tax system was still based on a detailed, compulsory listing of taxable cases and events, leaving no room for analogical or supplementary interpretation (Guerra, 1989). With the passage of time, the cropping up of cases of avoidance that exploited the rigidities of tax law and regulations made it necessary to take increasingly stringent action to close loopholes.

Banker's acceptances were among the first innovative instruments to gain ground by exploiting the inconsistencies in the legislative and regulatory framework (Box 4.1). First appearing in Italy in 1974, these short-term corporate financing instruments recorded appreciable growth in the period 1979-81, first favoured and then limited by monetary and fiscal measures.

Box 4.1

Banker's acceptances

Banker's acceptances were money-market instruments for the direct financing of firms. Ordinarily they were issued in the form of bills drawn by a customer on a bank, which in signing the instrument for acceptance became the principal obligor. The acceptances thus issued were included in the bank's guarantee commitments; only those acquired by banks gave rise to an actual disbursement of funds by the banking system.

Acceptances were placed on the market by financial intermediaries, not necessarily the same as the accepting banks. Issuing firms undertook to supply to the bank the amount necessary to repay the security at maturity.

Acceptances were sold to investors at a price below face value, obtained by discounting the face value at the predetermined rate of return. Consequently, the security's yield, equal to the difference between the value at repayment (or selling price) and the purchase price, could be treated as a capital gain and hence non-taxable for individual investors.
The measure that most assisted the spread of banker's acceptances was the reduction in 1978 of the applicable stamp duty from 8 to 0.1 per mille provided the features of the instrument satisfied certain requirements, including an original maturity of not more than 12 months. Virtually in parallel, in 1979 the Bank of Italy excluded acceptances from the ceiling on the growth in bank lending. With these obstacles removed, the stock of banker's acceptances outstanding soared from 2 billion lire at the end of 1979 to 1,134 billion a year later and 1,847 billion at the end of 1981 (Guerra, 1989). Uncertainty concerning tax treatment contributed to this expansion. Since the return on banker's acceptances consisted of the difference between the repayment value and the subscription price, it was not clear whether this should be treated as interest (and hence as capital income subject to the "residual" withholding tax of 15 per cent pursuant to Article 26, last paragraph, of Presidential Decree 600/1973) or as a capital gain, tax-exempt for individual investors. Exploiting this situation of uncertainty, banks did not withhold tax, thereby giving exemption in the case of natural persons and avoiding the formation of tax credits in the case of legal persons.

The acceptances market slumped when the monetary authorities introduced a ceiling on their growth in March 1981. It collapsed in October of that year, when acceptances were made subject to a 15 per cent withholding tax, levied as a final levy for individuals and as an advance payment of income tax for firms (Decree Law 546/1981, ratified by Law 692/1981).³⁴

An especially widespread tax avoidance technique consisted in configuring income from financial products as non-taxable capital gains, often through the use of zero-coupon securities. With a view to reining in the use of this stratagem, in 1983 the *"issue discount"*, *i.e.* the "difference between the amount paid to the holders of securities at maturity and the issue price", was made taxable (Decree Law 512/1983, ratified by Law 649/1983).³⁵

The attempt to exploit the non-taxability of financial capital gains and the loopholes in tax law also distinguished another type of innovative instrument: *atypical securities* (see Box 4.2). These made their appearance in Italy in the mid-1970s and enjoyed considerable popularity particularly in the period 1980-82 as a vehicle for channeling the savings of individual investors towards "hedge goods" (land and buildings) in a context of high inflation. The market swiftly shrank in 1983-84 in concomitance with the abatement of inflation and the fall in real estate prices, but above all as a consequence of changes in tax law.

Atypical securities raised supervisory problems for the protection of investors: the complicated contracts used were often an impediment to a clear reconstruction of the subscribers' rights and of the fairness of the guarantees offered. In addition, it was feared that the growth of an unregulated market in atypical securities could lessen the efficiency of monetary policy (Bianchi *et al.*, 1982).

Atypical securities made it possible to avoid taxation entirely. The multiplicity of forms and ways in which income could be paid resulted in the non-application of the 15 per cent advance withholding tax provided for in the loophole-closing last paragraph of Article 26 of Presidential

³⁴ Commercial notes (*polizze di credito commerciale*) were another money-market instrument whose spread was affected by the rigidities of banking regulation and tax law. In 1987, following the reintroduction of a ceiling on the growth of banks' lira lending, there was a jump in guarantee commitments, accompanied by a large increase in commercial notes. These short-term financial instruments were comparable to commercial paper in the US market except that they were not in the form of a bill of exchange. To issue commercial notes, a firm took out a loan collectable on a fixed date and backed by a bank guarantee. Tax law was among the factors that fostered the growth of commercial notes. Since the transactions were settled through the exchange of commercial correspondence, investors were able to avoid the stamp duty levied on other short-term financing instruments such as banker's acceptances or, later, commercial paper (*cambiali finanziarie*). From the standpoint of direct taxation, the inclusion of income from commercial notes in the PIT base for individuals, together with the high minimum transaction amount, resulted and still results in these instruments being placed prevalently with firms and institutional investors.

³⁵ The first issues of zero-coupon securities on the Italian market were launched by IMI and Interbanca in 1981 and 1982, but their popularity was very limited, owing in part to the prompt change in tax rules. By contrast, zero-coupon securities enjoyed great success on the international markets in the 1980s, thanks to the possibility in many tax systems of configuring income from them as tax-exempt capital gains (Guerra, 1989).

Decree 600/1973 and the consequent exemption of the income for individuals in all cases in which the nature, amount and time of payment were uncertain. In general, the arrangement called for income to be paid in the form of capital gains, so that individuals could enjoy total exemption and firms would not be subject to withholding tax.

Box 4.2

Atypical securities³⁶

Atypical securities developed as instruments whose legal nature was uncertain and that were sold outside the official markets and without the intervention of institutional intermediaries.

A first group, consisting of participation certificates, were based on the contract of association in participation provided for in Article 2549 of the Civil Code. The associating party was the firm that conducted the business (sale/purchase or management of properties, financing of entrepreneurial initiatives, operation of farms, etc.). The associated party was a company that financed the operation. In return for its funds, the associated party received small-denomination credit instruments representing the rights of the associated party on a pro-quota basis. The associated party saw to placing the securities on the market directly or through intermediaries. The income received by the investor could take the form of participation in periodic profits (rents or leasing payments, interest on loans, business profits) and/or final earnings such as capital gains. In many cases participation certificates combined the features of shares and bonds in various ways. The duration of the securities depended on the time horizon of the underlying deal and could be indeterminate. Depending on the deal financed, these instruments were divided into financial certificates, real estate certificates, agricultural certificates, and so forth.

A second group comprised real estate investment fund units. In general, these did not give rise to periodic distributions, so that the investor received all the income in the form of capital gains upon redemption or sale of the units.³⁷

A third group consisted of securities issued by "trust management institutes" referred to in Article 45 of Presidential Decree 449/1959 (the Consolidated Law on Private Insurance Companies), which engaged in quasi-bank fund-raising. In return for the "grantor"-saver's contribution of capital earmarked for the execution of a given investment, the management company issued securities whose type depended on whether the remuneration was in the form of profits or interest. In the former case, rare in practice, the securities were called capital certificates and were broadly comparable to shares. In the latter, more common case, the securities were called investment notes or capital notes and were considered similar to bonds.

³⁶ The reconstruction below is based on information from Guerra (1989), De Nova *et al.* (1984), and the Bank of Italy's Annual Report (various years).

³⁷ The two real estate investment funds operating in Italy in the early 1980s were liquidated in 1984 in the wake of the crisis of the property market.

In 1983 the worries of the monetary and supervisory authorities prompted lawmakers to intervene. It was made compulsory to notify the Bank of Italy and the Companies and Stock Exchange Commission (Consob) respectively of issues and purchases/sales of securities of whatsoever nature that were to be offered to the public. At the same time, tax rules were amended for distinctly "regulatory" purposes: *securities similar to bonds*, a category relevant for tax purposes, were introduced and made subject to the same treatment as bonds,³⁸ while an 18 per cent withholding tax was established for any form of income from atypical securities, a residual category comprising financial instruments issued in the form of fungible securities or certificates different both from shares, bonds and the like and from securities or certificates representing units of collective investment undertakings.³⁹ The withholding tax, applied as a final levy for all subscribers, was raised to 30 per cent in 1989.⁴⁰

From the fiscal standpoint proper, however, the category of atypical securities has continued to be of some consequence. In the course of time it has performed the function of "loophole closer", making it possible by interpretation to bring income that cannot be classed as capital gains from non-standard fungible securities or certificates into the tax net. A recent instance is the case of *reverse convertibles*, which cannot be treated as bonds because they lack a guarantee of full repayment of the principal. Until the first half of the 1990s, moreover, the rules on atypical securities still performed the primary function for which they had been introduced: that of an "indirect" regulatory instrument by which to dissuade operators from introducing financial products with non-standard features.

The relationship between innovation on the one hand and supervisory regulation and tax law on the other went beyond the creation of financial instruments designed to avoid controls or taxation and the response of the authorities to these attempts at circumvention. On the contrary, in some cases product innovation was a desired result of policy action aimed at removing constraints or introducing specific incentives (Guerra, 1989). The most cogent example in this sense is that of *certificates of deposit* (CDs). In the 1980s the progressive growth in placements of government securities with firms and households was accompanied by a fall in the ratio of bank deposits to total financial assets. Given the relatively stability of lending, especially at medium and long term, special credit institutions first, and banks subsequently, were prompted to innovate in the supply of liabilities, introducing a greater diversity of fund-raising instruments by maturity and yield conditions (Focarelli and Tedeschi, 1993). The supervisory authorities supported the process, encouraging the use of innovative instruments such as indexed and floating-rate bonds, savings certificates and CDs. In an environment of high inflation and uncertainty in the financial markets, which favoured the shortening of the maturities of financial instruments, fixed-rate bonds were considered unsuitable, not least in view of the losses investors had suffered in previous years owing

³⁸ Securities similar to bonds were defined as fungible credit instruments with a fixed maturity of at least 18 months containing the obligation to pay at maturity an amount not lower than that specified in them, which differed from shares in that they did not give the holders any right of participation or control on the operation of the issuing firm or the deal for which they were issued. Securities similar to bonds also included savings certificates and certificates of deposit with a maturity of not less than 18 months issued by special credit institutions or banks' special credit sections or by motor vehicle instalment sales companies (historically, certificates issued by such companies had been treated as bonds). The measure was aimed at extending the same treatment envisaged for bonds to a group of securities, identified on the basis of common economic features (funds to be used for long-term investment, obligation of full repayment of principal, no right of participation in or control on the issuer's operations). The specification of the concept of similarity to bonds was functional to the subsequent identification of atypical securities as securities "different from shares and bonds or similar securities in circulation (see Bianchi *et al.*, 1982) that influenced the lawmakers in defining the concept of similarity. It was found that atypical securities could have a maturity of less than 18 months, that their maturity was not always fixed, that the repayment obligation was uncertain, and that they could give the subscriber rights of participation and control. The definition of atypical securities was given then in purely negative terms, with the sole positive requirement of fungibility.

³⁹ Decree Law 512/1983, ratified by Law 649/1983.

⁴⁰ Decree Law 69/1989, ratified by Law 154/1989.

to high inflation. In such circumstances, CDs and savings certificates, offering more flexible duration and remuneration, were a more suitable instrument.⁴¹

CDs were issued first by special credit institutions and a boom soon developed in concomitance with two simultaneous measures by the monetary and fiscal authorities. A ministerial decree of 23 December 1981 implementing Law 23/1981 authorized all special credit institutions to issue both savings certificates, both registered and bearer, and CDs with a maturity of between 18 months and 5 years. Meanwhile, Law 676/1981 extended the tax exemption for interest on bonds and similar securities with a maturity of more than three years to securities with a maturity of between 18 months and 3 years, thus including most CDs, for the period from 1 October 1981 to 30 September 1982. The stock of 18-60 month CDs issued by special credit institutions grew from 6,695 billion lire in 1979 to 18,060 billion in 1982; in the latter year CDs supplied 38 per cent of the funds raised by special credit institutions.

Banks were authorized to issue CDs starting in January 1983 by a ministerial decree dated 28 December 1982. Initially, bank CDs struggled to compete with special credit institution CDs, which were not subject to reserve requirements and benefited from a lower rate of withholding tax (12.5 against 25 per cent) because of their longer maturity (18 months minimum, compared with 6-18 months). Soon, however, the Bank of Italy acted to stimulate issuance of bank CDs by offering a higher rate of interest on reserves for securities with a maturity of between 6 and 18 months than for deposits (9.5 per cent instead of the normal 5.5 per cent). Beginning in 1987 bank issuance of CDs was stimulated further by a combination of factors, not least of which was tax treatment. In 1986 the higher rate of interest on compulsory reserves⁴² was extended to CDs with a maturity beyond 3 months. In 1987 banks of all categories were authorized to issue CDs with a maturity of between 18 months and 5 years, which were subject to withholding tax of 12.5 rather than 25 per cent and eligible for the higher return on reserves. It was also in 1986 that government securities lost their tax-exempt status, becoming subject to withholding tax initially set at 6.25 per cent and then, from September 1987, at the 12.5 per cent rate applied to bonds (see Section 4.2). As a consequence of these tax changes and thanks to banks' possibility of offering more advantageous conditions on CDs, the after-tax interest rate differential narrowed between government securities — Treasury bills (BOTs) in particular — and CDs. The stock of bank CDs rose from 3,257 billion lire in 1983 to 291,186 billion at the end of 1992 and reached a peak of 399,079 billion in June 1996, before the withholding tax rate on interest on deposits and CDs was unified at 27 per cent (see Section 5.2.3). The spread of these instruments enabled banks to achieve relative stability in their funding from the mid-1980s onwards, despite the growing share of government securities directly held by households. In effect, CDs primarily functioned as substitutes for traditional savings deposits rather than for other money-market instruments, such as Treasury bills (Caranza and Cottarelli, 1986). From the end of the 1980s onwards the bulk of CDs were issued with maturities of more than 18 months, in part owing to the more favourable tax treatment.

4.2 The taxation of government securities

Conditions that had been created in the 1970s fueled the public debt's explosive growth in the 1980s. The volume of government securities issues expanded in relative as well as absolute terms, rising from 66 per cent of total net securities issues on the domestic market in 1975 to 93 per cent in 1985 (Table 8).⁴³ The increase in supply was accompanied by changes on the demand side. With the so-called divorce between the Bank of Italy and the Treasury, starting in 1981 debt issues had to be placed entirely on the market, for purchase by resident and non-resident banks, firms and savers (Sarcinelli, 1987). During the 1980s the monetary authorities grew increasingly reluctant to

⁴¹ In its Annual Report for 1981 the Bank of Italy explained that the goal of allowing special credit institutions to raise funds with a greater variety of instruments was to help make their operations more adaptable in periods of bond market instability.

⁴² Meanwhile reduced from 9.5 to 8.5 per cent.

⁴³ These figures include issues of BOTs. Excluding BOTs, government securities rose from 47 to 93 per cent of net issues.

place administrative constraints on banks' activity (Bernareggi, 1986). The changes on the demand side made the terms of issue increasingly onerous for the Treasury.

Table 8

(billions of lire) Other Total issues BOT Issuer IRI-ENI-ENEL-Total governexcluding SCI and Corporations Others Shares AUTOSTRADE issues BOT and ment Year BTE BTE securities 5,221 7,71 1974 6,703 2,974 2,153 214 -118 -2 11,924 5,410 1975 6,991 6,042 1,327 16 21 12,816 19,807 1,672 1976 7,905 3,509 4,163 879 76 -13 8,614 16,519 1,872 1977 4,795 15,324 4,413 -13 20,960 1,846 1,061 175 25,755 1978 5,881 19,816 4,762 797 177 -13 25,539 31,420 2,985 1979 9,822 9,302 4,656 466 16 -19 14,421 24,243 2,732 1980 25,500 -1,927 5,648 121 72 33 3,947 29,447 3,085 1981 33,783 7,498 7,508 112 708 -13 15,813 49,596 7,186 1982 32.604 23,626 8.147 778 36,343 68,947 3,811 -19 6,004 1983 11,071 69,942 7,640 1,333 1,060 -19 79,956 91,027 10,899 1984 9,300 63,797 4,315 1,239 667 129 70,147 79,447 9,774 94,308 1985 13,181 5,178 1,002 509 101,682 114,863 12,220 685 749 1986 9,697 88,043 6,805 4,405 917 100,919 110,616 18,872 1987 27,482 58,146 11,012 3,254 435 348 73,195 100,677 10,433 42.013 61.837 7,966 452 70,512 1988 81 176 112,525 9.697 1989 43,042 65,546 8,205 215 -393 213 73,786 18,369 116,828 1990 40,569 76,184 5,985 -1,523 -1,185 117 79,578 120,147 21,246 1991 11,641 115,492 15,939 4,425 -843 230 135,243 146,884 18,363 1992 46,674 89,763 10,848 -2,110 -930 -424 97,147 143,821 16,194

Net bond issues on the internal market

Table 8 continued

Net bond issues on the internal market

(percentage allocation)

Issuer Year	BOT and BTE	Other government securities	SCI	IRI-ENI-ENEL- AUTOSTRA-DE	Corporations	Others
1974	56%	25%	18%	2%	-1%	0%
1975	35%	31%	27%	7%	0%	0%
1976	48%	21%	25%	5%	0%	0%
1977	19%	59%	17%	4%	1%	0%
1978	19%	63%	15%	3%	1%	0%
1979	41%	38%	19%	2%	0%	0%
1980	87%	-7%	19%	0%	0%	0%
1981	68%	15%	15%	0%	1%	0%
1982	47%	34%	12%	6%	1%	0%
1983	12%	77%	8%	1%	1%	0%
1984	12%	80%	5%	2%	1%	0%
1985	11%	82%	5%	1%	1%	0%
1986	9%	80%	6%	4%	1%	1%
1987	27%	58%	11%	3%	0%	0%
1988	37%	55%	7%	0%	0%	0%
1989	37%	56%	7%	0%	0%	0%
1990	34%	63%	5%	-1%	-1%	0%
1991	8%	79%	11%	3%	-1%	0%
1992	32%	62%	8%	-1%	-1%	0%

Table 8 continued

Net bond issues on the internal market excluding BOT and BTE

(percentage allocation)									
Issuer Year	Other government securities	SCI	IRI-ENI-ENEL- AUTOSTRADE	Corporations	Others				
1974	57%	41%	4%	-2%	0%				
1975	47%	42%	10%	0%	0%				
1976	41%	48%	10%	1%	0%				
1977	73%	21%	5%	1%	0%				
1978	78%	19%	3%	1%	0%				
1979	65%	32%	3%	0%	0%				
1980	-49%	143%	3%	2%	1%				
1981	47%	47%	1%	4%	0%				
1982	65%	22%	10%	2%	0%				
1983	87%	10%	2%	1%	0%				
1984	91%	6%	2%	1%	0%				
1985	93%	5%	1%	1%	1%				
1986	87%	7%	4%	1%	1%				
1987	79%	15%	4%	1%	0%				
1988	88%	11%	0%	0%	1%				
1989	89%	11%	0%	-1%	0%				
1990	96%	8%	-2%	-1%	0%				
1991	85%	12%	3%	-1%	0%				
1992	92%	11%	-2%	-1%	0%				

11

Source: Bank of Italy, Annual Report, 1974-1993.

N.B. The sum per row may differ from 100 per cent owing to rounding.

The debate on the public debt in the mid-1980s centred on three questions (Sarcinelli, 1987): Was it better to consolidate the debt or instead to lengthen its average residual maturity, which had contracted from more than nine years in 1972 to one year in 1980? Would the debt be unsustainable in the long run?⁴⁴ Should government securities be taxed or remain exempt? Although the discussion below only concerns the last question, treatment of the topic must necessarily take into account all the terms of debate.

The public debt rose from an average of 56 per cent of GDP in the period 1973-81 to 96.3 per cent in 1985 (Sarcinelli, 1987).

4.2.1 The taxation of government securities held by firms

Contrary to the widely held view, Decree Law 556/1986 did not make government securities taxable for the first time in the history of unified Italy. The tax on income from movable wealth had been levied on interest from government securities until 1894, when new issues were exempted from in rem direct taxation. Nevertheless, government securities interest remained subject to personal taxation and was supposed to be included in the tax base of the complementary tax (Sarcinelli, 1987). In practice, however, because the securities were bearer instruments such income was impossible to assess (see Section 2.2.1). The 1973 reform simply legalized the status quo.

Even after 1973, the exemption was not absolute. Government securities were subject to indirect taxation ("oblique taxation") if they were held by persons whose entrepreneurial income included tax-exempt income. The drafters of the 1973 reform, confirming a provision of the 1958 Consolidated Law on the Tax on Income from Movable Wealth, aimed to prevent a form of arbitrage: borrowing, with the interest expense deductible, in order to invest in tax-exempt securities. The tax rules on entrepreneurial income therefore established a coefficient of non-deductibility of interest expense and general expenses, equal to the ratio of taxed income to total income.⁴⁵ The actual taxation of government securities varied from firm to firm and depended on the composition of the profit and loss account (ratio of taxed income to exempt income, incidence of interest expense on other costs, existence of general expenses); the income remained exempt for companies with interest expense and general expenses equal to zero (the most important case involved insurance companies).

Thanks to the (partial) deductibility of interest expense, arbitrage remained possible even if the interest rate earned on government securities,⁴⁶ purchased mainly by banks and special credit institutions, was lower than the cost of borrowing.⁴⁷ Moreover, as a consequence of the tax credit introduced in 1977 (see Section 3.2), taking into account the total taxation falling on the

$$a = \frac{R_t + \frac{1}{2}R_v}{R_t + R_v + \frac{9}{10}R_{es} + R_{ee}}$$

where R_t was taxed earnings, R_v interest on securities, other than government securities, purchased before the reform (half of this income was included in the corporate income tax base, while it was totally exempt from local income tax), R_{es} income from government securities, and R_{ee} other tax-exempt income. See Di Majo (1980), Di Majo *et al.* (1981), and Di Majo and Franco (1987a).

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$$a = \frac{R_t + \frac{1}{2}R_v}{R_t + R_v + R_{es} + R_{ee}}$$

- ⁴⁶ Arbitrage could also involve other exempt securities, for example bonds issued by special credit institutions between July 1980 and September 1982 and those issued by non-financial corporations between January 1981 and September 1982.
- ⁴⁷ The arbitrage condition was equal to $r_{TS} r_P (1 ta^2)$, where r_{ts} was the rate of interest earned on government securities, r_P (1- ta^2), where r_{ts} was the rate of the coefficient of deductibility (Matteuzzi, 1985).

⁴⁵ At the time corporate income tax (Irpeg) was introduced, the coefficient of non-deductibility was:

Income from government securities still received favourable treatment compared with other exempt income, because only 90 per cent of it was counted in computing the non-deductibility coefficient. According to Di Majo (1980), the inclusion of only nine tenths of the exempt income mitigated the cost deriving from the inclusion of the part of the return on government securities realized in the form of capital gains, like all other capital gains, in taxed income, which limited the benefit of holding exempt government securities as opposed to taxed securities. Law 626/1981 established that the entire amount of income from exempt government securities was to be included in the coefficient of non-deductibility, which was changed to:

shareholders and the company, shareholders realized arbitrage profits even more easily than the company. 48

The arbitrage possibilities, together with the return to positive real yields on government securities, led to an increase in purchases by firms other than banks and special credit institutions. Their holdings rose from 2.9 per cent of the total in 1977 to 4.7 per cent in 1983 (Matteuzzi, 1985). The profitability of the operation is shown by the fact that between 1981 and 1984 arbitrage was always possible if tax-exempt income was less than 30 per cent of total revenues (Matteuzzi, 1985).

Two counter-measures were taken. In 1983 exempt profits were made subject to corporate income tax if they were distributed (so called "maggiorazione di conguaglio"). The following year interest expense was made deductible only for the portion exceeding the amount of exempt income from newly purchased government bonds. Together, these measures annulled the profits from arbitrage (Piscitelli, 1986). Most of the onus of the latter measure, which Treasury Minister Giovanni Goria called "crude but necessary", fell on the banks: since the cost of the funds they raised was lower than the return on government securities, the non-deductible interest payments on borrowings exceeded the cost of the funds raised to buy government securities; hence, part of the non-deductible interest payments related to funds used for loans that generated taxed earnings.

Still, these actions did not solve the main problem, namely, that a firm's average taxation continued to depend on the composition of its profit and loss account. Since the measures only applied to newly purchased securities, the effective *marginal* rates on income from newly issued exempt securities gradually approached those on taxed earnings, so that the choice of securities to purchase no longer depended on the tax variable.⁴⁹ On the other hand, until the holdings of exempt securities were entirely replaced by taxed securities, the effective *average* rate continued to depend on the structure of the profit and loss account.

Until tax-exempt securities disappeared, individual investors "specialized" in holding exempt securities, leaving taxed bonds to companies. The causes of this segmentation of the bond market lay both in the simultaneous presence of investors subject to different tax regimes (with companies, mainly banks, taxed, and individual investors exempt) and in the existence of administrative rules requiring banks to buy certain securities. The combined operation of these provisions contributed to interest rate equilibria on the two markets that depended largely on the structure of banks' financial statements; the resulting yield differentials between taxed and tax-exempt securities were insufficient to attract individual investors to the market for taxed bonds (Di Majo, 1980).

4.2.2 The taxation of government securities held by individuals

As things stood in the mid-1980s, then, it is not true that there was total exemption of government securities; rather, only those held by individual investors,⁵⁰ just under half of the total, were entirely tax-exempt.⁵¹ This changed with Decree Law 556/1986, which put a 6.25 per cent withholding tax on new issues of government securities as of 20 September 1986 and provided for the rate to increase to 12.5 per cent, in line with the rate on private-sector bonds, for securities

⁴⁸ Matteuzzi (1985) demonstrates that in the period 1981-84 shareholders could realize arbitrage profits whatever the cost of borrowing, the interest rate on government securities and the coefficient of deductibility, provided their own tax rate was lower than that of the company.

⁴⁹ Di Majo and Franco (1987b) show that for a sample of banks the difference between the marginal taxation on taxed and exempt government securities, due to "oblique" taxation, still remained nil for companies whose interest income from government securities exceeded their interest expense; this happened above all for insurance companies.

⁵⁰ Government securities held by investment funds also were not exempt from tax, since funds' net worth was taxed, at a rate ranging from 0.10 to 0.25 per cent.

⁵¹ According to the financial accounts for 1985 (Bank of Italy's Annual Report for 1986; Table aD36), households held 47 per cent of the stock of government securities, banks and special credit institutions 30 per cent, the Bank of Italy 13 per cent, other companies 7 per cent, investment funds 2 per cent and non-residents the remaining 1 per cent.

issued from 20 September 1987 onwards.⁵² The withholding tax was applied as a final levy for individuals and partnerships⁵³ and on account for corporations. Even this measure did not abolish the exemption of government securities entirely, as new issues placed on the international market continued to be tax-exempt until 1992.

Different reasons were given for the decision to tax government securities (Sarcinelli, 1987; Zatterin, 1989): the need for greater tax neutrality regarding financial portfolio decisions; the desire to avoid copycat demands for less tax on other financial instruments; the goal of making the system more equitable, in part through the redistributive effects of the tax burden; the urgency of eliminating the uncertainty engendered by rumours about the Government's intentions, with a consequent increase in the volatility of government security prices; the necessity of satisfying the demands of business and labour; and, last but not least, the possibility of eliminating a major distortion in the Italian tax system, paving the way for a comprehensive revision of the taxation of financial assets.

The debate turned primarily on what the effects would be on the Treasury's *net* receipts; in other words, whether the additional revenue produced by the withholding tax would be greater than the additional interest payments made by the Treasury in order to give purchasers unchanged after-tax returns. It was possible that for the State the measure could result in "self-offsetting", the term Einaudi (1913) had used in analyzing the introduction of a tax on public debt securities in the early 1900s: in the absence of financial illusion, purchasers would be influenced solely by the net interest earnable on an investment in government securities, and would therefore demand an increase in gross interest equal to the tax due. The increase in the Treasury's receipts would be exactly equal to the increase in its interest payments. But Einaudi's conclusions held only if all interest on government securities was subject to a single tax rate for all subscribers, whereas in Italy the method of taxing government securities varied according to holder. The introduction of withholding tax on income received by individuals implied a redistribution of the overall tax burden on government securities in favour of companies, or, more precisely, a lessening of the advantage implicitly accruing to individuals from the exemption of government securities.

Analyses conducted at the time of the change of tax regime showed that the risk Einaudi had pointed to was quite remote (Bernareggi, 1986; Bernareggi, 1987; Denicolò, 1987; Spaventa, 1987; Frasca and Paladini, 1988). The complete shift of the tax "backwards", onto the borrower, depended both on the breakdown of demand between subscribers subject to final withholding tax (individuals) and subscribers taxed on the basis of their financial statements (companies) and on the elasticity of the demand of these two groups. In particular, "self-offsetting" would occur in the following cases: a) securities held exclusively by individuals; b) nil elasticity of the demand on the part of companies; c) infinite elasticity of the demand on the part of individuals. In general, the change in the interest rate due to the introduction of the tax depended both on the breakdown of demand of the two groups of subscribers and on the breakdown of demand between them.⁵⁴ On the basis of the values of these variables in the mid-1980s, an increase in the net burden for the Treasury — equal to the algebraic sum of the increase in interest expense,

⁵² The increase was later put forward to 31 August 1987.

⁵³ The final withholding tax for partnerships left room for arbitrage. Partnerships' interest income was taxed at 12.5 per cent, but they deducted interest expense from their entrepreneurial income, which was taxed as a component of the partner's income. The problem was not resolved until the end of 1988, when Decree Law 550/1988 brought the treatment of partnerships into line with that of corporations (Matteuzzi, 1988).

⁵⁴ Denicolò (1987) shows that the equilibrium on the market (and consequently the effects on the net cost for the Treasury) depends not only on the elasticities of the demand curve, but also on the relationship between the complements to one of the tax rates on government securities in force for the two groups of subscribers.

additional receipts from individuals and change in corporate income tax receipts — was quite improbable (Spaventa, 1987).⁵⁵

Other studies (Bernareggi, 1995), employing a partial equilibrium analysis only taking account of the impact of the tax on the government securities market, found that the Treasury could make a net gain only by taxing the set of subscribers characterized by lower elasticity at a higher rate; otherwise, the net effect on tax revenues would be negative.

The conclusions described above, obtained through comparative statics, were based on the assumption that the new system had been fully phased in. Measuring the dynamics of the introduction of the tax in the transition period in which different tax regimes coexisted proved more complicated, since these analyses also had to take account of the tax capitalization effects occurring in the changeover from one system to another. In any case, the conclusion reached was that the tax shift was still partial (Di Majo and Franco, 1987a; Franco and Sartor, 1988).

4.2.3 The bond market: effects of the taxation of securities

The succession of changes to the tax treatment of securities had diverse effects on the capital markets.

The measures passed during the 1980s, up to the full taxation of government securities, were aimed at reducing the segmentations discussed earlier (Section 4.2.1) and enhancing the efficiency of the markets (Ceriani *et al.*, 1992a). Nevertheless, the techniques with which the changes in tax rules were implemented helped to create new segmentations.

With regard to government securities specifically, the various measures that affected companies led to a progressive "freezing" of assets. Since the transitional provisions often established a more favourable treatment for securities already held or issued before the amendment of tax law, those who owned them preferred holding them to maturity.⁵⁶

An analysis of the composition of purchasers of government securities in the period 1975-87 only partly shows the changes connected with the tax changes (Table 9). In particular, there was an increase in the portion held by firms in the period (1981-84) in which arbitrage profits were obtainable, while following the introduction of the anti-avoidance measures banks reduced their relative holdings of government securities, as had been forecast by microeconomic analyses (Di Majo *et al.*, 1981; Di Majo and Franco, 1987b). On the other hand, individual investors' appetite for government securities was not curbed by the new withholding tax.

⁵⁵ Opposite conclusions were reached by general equilibrium analyses, which also took account of the behaviour of the banks. In particular, assuming that (a) the banking market was oligopolistic, (b) banks' demand for securities was rigid, and (c) lending and deposit rates were set on the basis of a mark-up on the *gross* rate on Treasury bills, the likely outcome was "self-defeating" for the state (Sylos Labini, 1989).

⁵⁶ To cite several examples of the favourable treatment accorded to government securities already held or issued before the modification of tax law: a) securities issued before the 1974 reform attracted a reduced rate of local income tax; b) not all tax-exempt interest was fully non-deductible from interest expense, but only tax-exempt interest on securities purchased after the entry into force of the anti-avoidance measure in 1984; c) government securities issued before 1986 remained exempt up to maturity.

	Household	Corporations	Central bank	Banks	SCI	Mutual funds	Foreign holders	Others
1974	8%	1%	49%	40%	1%	0%	0%	1%
1975	8%	0%	53%	35%	2%	0%	0%	2%
1976	11%	1%	57%	27%	1%	0%	0%	2%
1977	13%	2%	39%	42%	2%	0%	0%	2%
1978	18%	2%	32%	44%	2%	0%	0%	2%
1979	24%	3%	24%	44%	2%	0%	0%	2%
1980	31%	3%	20%	42%	2%	0%	0%	2%
1981	38%	4%	19%	34%	2%	0%	0%	2%
1982	37%	4%	16%	37%	4%	0%	0%	2%
1983	42%	4%	13%	36%	4%	0%	0%	2%
1984	47%	5%	11%	31%	4%	0%	0%	2%
1985	47%	5%	13%	26%	4%	2%	1%	2%
1986	46%	6%	12%	23%	3%	6%	1%	3%
1987	51%	6%	10%	21%	2%	5%	1%	3%

Table 9

Government securities: percentage allocation of stock by holders

Source: Calculations based on financial accounts, Bank of Italy, Annual Report, 1975-1988. N.B. The sum per row may differ 100 per cent owing to rounding.

5. The reforms of the 1990s

In the early 1990s tax law continued to play catch-up with financial innovation. At the same time, such developments as the liberalization of capital movements⁵⁷ and innovations in information and communications technology made it increasingly difficult for tax law and the supervisory authorities to intervene on the market with a view to guiding the allocation of savings and the financing of investment. Access to foreign financial markets offered resident investors new scope for portfolio diversification, and they exploited it abundantly: between 1990 and 2001 financial liabilities issued by non-residents rose from 7 to 16 per cent of total liabilities of residents and non-residents (De Bonis, in this volume).⁵⁸ Not least among the attractions of foreign

⁵⁷ Directive 88/361 of 24 June 1988 provided for the elimination of all foreign exchange controls in the countries of the Community from 1 July 1990. In Italy, the liberalization had been launched in 1987 by the "Sarcinelli Decree" (Ministerial Decree of 13 May 1987), which abolished the required non-interest bearing deposit equal to 50 per cent of the value of the investment in foreign assets. It was completed by a decree issued by the Minister of Foreign Trade and the Minister of the Treasury on 27 April 1990 and the subsequent communication of the Italian Foreign Exchange Office (UIC) dated 2 May. These measures dismantled the foreign-exchange monopoly and gave residents the right to hold foreign currencies, securities and other foreign instruments in Italy and abroad without having to transfer them or deposit them with the system of "authorized banks". The compulsory channeling of all transactions involving foreign exchange through the banking system was also abolished.

⁵⁸ The effects of the foreign-exchange liberalization were already felt in the first year of the new system: in 1991 net acquisitions of foreign financial assets by households rose more than four-fold to 16 trillion lire (Bank of Italy, Annual Report for 1991).

investment was the possibility to enter into transactions that in the domestic market were penalized by especially severe tax or regulatory provisions. In the absence of other measures, the growth of investment in foreign financial assets made it necessary to adopt a system of "fiscal monitoring" of such transactions with a view to assessing and taxing the related income.

Consequently, the hallmark of developments in tax law during the decade was the resolute abandonment of the goal of guiding the allocation of savings. Under pressure to generate more revenue and in the context of international competition between systems ushered in by the liberalization of capital movements and integration among economies, increasingly the basic objectives of the taxation of financial assets became tax neutrality and efficiency of the markets.

What is more, the authorities were quick to see that the placement of increasing quantities of public securities with non-resident investors could, under certain conditions, reduce the cost of the debt considerably (see Section 5.4.1). The administrative obstacles and transaction costs faced by foreign investors were lowered, while at the same time steps were taken to prevent the use of the external channel by residents purely for purposes of tax avoidance (the so-called "foreign investiture" of savings).

In the pursuit of these objectives, the tax breaks and exemptions that determined market segmentations and permitted arbitrage for tax avoidance purposes were steadily eliminated. Taxation was gradually extended to the new types of financial instrument, and in July 1998 the "Visco reform" (named for Finance Minister Vincenzo Visco) introduced a comprehensive system of taxation for all financial income received by individuals, including capital gains. The number of tax rates was reduced in a series of steps to the two levels of 27 and 12.5 per cent established by the Visco reform. The system of collection was rationalized by reducing advance withholding taxes as much as possible for firms, so as to avoid the financial costs connected with the formation of tax credits, and introducing general exemption for non-resident investors, so as to withstand the competition of other systems in attracting foreign capital (Giannini and Guerra, 2000).

5.1 The early 1990s: financial innovation and foreign-exchange liberalization

New financial products continued to be introduced in the early 1990s. A highly significant instance was that of repurchase agreements (repos) in lire and foreign currency, which grew swiftly starting in 1991. Although their use was initially connected with the mobilization of compulsory reserves in May 1991, the sharp rise recorded in 1991-92 was mainly due to the fact that income from repos was not taxed for individuals, being treated as capital gains on bonds, and in fact the household sector was counterparty to some 80 per cent of repos. The volume of repos fell sharply at the end of 1992 following the inclusion of income from repos in capital income and the introduction of a 12.5 per cent withholding tax. However, the subsequent years saw temporary sales of securities (generally for three months) return as a significant component of bank fundraising. Although lower than in 1991-92, the share of repos with households remained substantial, in part owing to a lower withholding tax rate than on such other short-term fund-raising instruments as deposits (12.5 per cent as against 30 per cent).⁵⁹

Among the new opportunities offered to issuers and investors by the liberalization of capital movements, considerable use was made of Eurobond and particularly Eurolira issues. The absence of tax on interest payments — together with the complete anonymity of subscribers, the other distinctive feature of the Eurobond market — allowed issuers to cut their borrowing costs considerably. This opportunity was seized by the Italian Treasury, which sold growing proportions of public debt securities to non-residents (see Section 5.2). For Italian investors, Eurobonds provided fresh scope for diversification. In particular, the Eurolira market, inaugurated in 1984 but

⁵⁹ At the end of 1996 nearly 67 per cent of banks' repos with customers were with consumer households (Bank of Italy, Annual Report for 1996).

growing mainly in the wake of foreign-exchange liberalization, made it possible to purchase securities issued abroad by the Italian Republic and by some supranational entities without running exchange-rate risk and with exemption from taxation.⁶⁰ Resident investors' interest in Eurolira market securities (and Eurobonds in general) diminished in 1992, when a flat 12.5 per cent withholding tax was placed on income from securities issued abroad.⁶¹ Intended to equalize the taxation of income from government securities issued on the domestic market and abroad for resident investors, the measure caused net Eurobond issues in lire (purchased mainly by residents) to fall from 12.3 trillion lire in 1991 to 9.1 trillion in 1992 (Bank of Italy, Annual Report for 1992).

Another effect of the liberalization of capital movements was that foreign-exchange controls could no longer be used to apply taxes on foreign-source financial income. In the absence of other controls on cross-border capital transfers, for non-corporate persons (not subject to accounting requirements) it became necessary to find a means of recording cross-border financial transactions for the purpose of assessing and taxing the related income. Accordingly, the "fiscal monitoring" system introduced in 1990 required that cross-border transfers of cash and financial instruments made by individuals be recorded and reported to the tax authorities.

Like similar systems elsewhere, the monitoring system proved to be less than fully effective. The inclusion of foreign assets in savers' portfolios reflected the low probability of assessment of foreign income; this, together with exemptions on withholding at source in the issuers' countries of residence, resulted in a very modest taxation.

5.2 From withholding by issuers to withholding by intermediaries: Legislative Decree 239/1996

At the beginning of the 1990s the Italian State, as borrower, was forced to contend with radical changes (Giovannini, 1997; Scarpelli, 2001). The liberalization of capital movements was making it possible at least in theory for resident savers and intermediaries to invest abroad. Among other things, this meant that to an increasing degree the cost of the public debt depended on the international markets. The Italian State, up to then prevalently a price-maker, became a price-taker, and this just as the debt was spiraling upwards to exceed 100 per cent of GDP in 1991. The currency crisis of 1992 made public debt management more difficult still, with the yield spread between Bunds and BTPs exceeding 700 basis points.

In order to reduce the cost of the debt, steps were taken to increase the liquidity of government securities. The first, actually dating back to 1988, was the creation of a secondary market in government securities. However, discrepancies of tax treatment across investors and securities caused the market to be segmented both by type of investor and by category of instrument.⁶² Investors included resident entities taxed on the basis of their annual financial statements (banks and other companies, which paid advance withholding tax and could only recover it when they filed their corporate income tax return), non-residents (who could request a refund of the tax withheld), and savers subject to final withholding tax (individual investors and investment funds). Moreover, banks and companies were also taxed on capital gains realized, which were non-taxable for individual investors. The instruments traded on the secondary market included tax-exempt and non-exempt securities.

⁶⁰ Up to 1992 Italian government securities issued abroad, international bond placements by some Italian public-sector entities (State Railways, ENEL, ANAS, Crediop) and the bonds of some supranational issuers (the World Bank, European Investment Bank, European Coal and Steel Community, Euratom) enjoyed tax-exempt status. By contrast, payments to Italian residents from bonds placed by private-sector corporations, whether Italian or foreign, were subject to an "entry" withholding tax of 30 per cent, applied by the Italian bank that collected the payments.

⁶¹ The withholding tax rate on corporate bonds issued abroad was reduced from 30 to 12.5 per cent at this time.

⁶² Another cause of the market's fragmentation (and consequent scant liquidity) was the lack of standardization of the securities in circulation.

The different tax characteristics created valuation problems. The effective yields on the secondary market sometimes converged on the net-of-tax theoretical yields, at other times on the gross theoretical yields, depending on which "marginal" investor prevailed on the market. For each investor and each instrument there were different effective tax rates, with arbitrage possibilities (Di Majo, 1980; Penati, 1993; Codogno and Zorzi, 1996; Marseglia and Rizzo, 1997). The fragmentation of investors and securities and the valuation problems diminished the market's depth, liquidity and overall efficiency.

Further, the existence of a tax withheld at source by the issuer hindered the development of innovative financial products and techniques such as securities lending (Consiglio di Borsa, 1996) and coupon stripping, which could have boosted the liquidity of the secondary market (Caleffi and Pecchi, 1995).

The scant liquidity of the government securities market was also due to the composition of demand. In particular, non-resident investors were not present in force, holding 5.6 per cent of the stock of government securities outstanding at the start of the 1990s (Scarpelli, 2001).⁶³ Studies found that foreign investors' portfolios were underweight in Italian government securities by comparison with the indications derived from the capital asset pricing model (Drudi and Majnoni, 1993).

The tax variable was soon identified as one of the determinants of this situation. In particular, more than the level of tax, what counted was the procedure for taxing non-residents. Interest payments to non-residents were subject to 12.5 per cent withholding tax, refundable under treaties against double taxation. The refund procedures, though sped up in 1994, remained inefficient; obtaining restitution of the tax overpayment remained so complicated and onerous that only one non-resident in three applied (Penati and Alworth, 1995). Since refunds were made 30-45 days after the coupon payment date, non-residents had to wait an average of four months for refund payments (Caleffi and Pecchi, 1995).

The above-mentioned obstacles also affected the cost of the debt. The financial costs connected with the refund procedure translated into an increment of the spread demanded on Italian bonds. Estimates made at the time found that "up to 100 basis points of the yield on Italian Treasury bonds" depended on the manner in which tax was withheld and refunded (Giovannini and Piga, 1993).⁶⁴ In other words, on top of a premium for exchange-rate risk and a premium for default risk, non-residents were demanding an additional spread for the contingency of the withholding tax refund. The problem was important enough to induce some intermediaries to propose contracts that covered a portion of that risk (Favero *et al.*, 1996).

Analyses employing different methodologies concurred that changes in withholding tax for non-residents would help to attract foreign investors and reduce yields.

5.2.1 Legislative developments

The main drawback of the system put in place by the reform of the early 1970s for taxing financial income, interest in particular, lay in the fact that tax was withheld by the issuer and thus was levied on all interest payments regardless of the nature of the beneficiary. In the arrangements existing in the financial markets there were often a number of intermediaries interposed between issuers and securities purchasers. Since the issuer generally did not know the identity of the ultimate beneficiary of interest and other payments, it was not possible to establish different procedures for taxing different types of recipient.

⁶³ The scarcity of foreign demand for Italian government securities did not mean that these were absent from foreign markets. As noted earlier, the Treasury had begun to issue securities on the Euromarket in 1984 and soon become one of its main players.

⁶⁴ Estimates of the tax component of the spread demanded on Italian government securities were also performed by Codogno and Zorzi (1996) and Favero *et al.* (1996).

For companies, for which the amounts withheld at source constituted an advance payment of corporate tax, the system could result in the accumulation of substantial tax credits (especially in the case of banks), with a significant impact on financial charges and consequent changes in balance sheet structures. Withholding at source also represented a major obstacle to placing Italian financial instruments, especially government securities, with non-resident investors. Although in many cases non-residents were entitled to withholding tax refunds under the treaties against double taxation, the administrative difficulties connected with ascertaining the actual holding period and the investor's residence and long waits for refunds discouraged applications, so that the levy often became a final charge, and this impacted negatively on foreign demand for Italian securities (Giovannini, 1996).

In 1991 a *manual procedure* using specially prepared forms was set up for refunding the taxes withheld on government securities. It overcame the problems of documentation, but waiting time for refunds remained long (at least five years) because of the recurrent shortage of resources and the Treasury's lack of units assigned specifically to the task. The implementation in 1994 of an *automated procedure*, limited to government securities, cut the waiting time very substantially, to about 30-45 days from the time interest was paid.

At all events, these procedures were open only to investors resident in countries that had tax treaties with Italy that provided for the waiving or reduction of withholding tax on government securities. This was the case of nearly all the European Union countries, while the situation was disadvantageous for investors resident in several major non-EU countries whose treaties with Italy contemplated no refund at all, such as the United States (treaty withholding rate: 15 per cent), or a very limited one, such as Japan (treaty withholding rate: 10 per cent).

A radical change of course was marked by the entry into force on 1 January 1997 of Legislative Decree 239/1996. In place of withholding at source by issuers, the decree introduced a substitute tax of 12.5 per cent on government securities and bonds issued by "large issuers" (banks, listed companies and public-sector economic entities transformed into companies limited by shares). The tax was withheld by banks and other financial intermediaries upon the payment of income or transfer of securities. The application of the levy by intermediaries in direct contact with the ultimate beneficiaries made it possible to differentiate the taxation of payments according to the nature of the recipient: individual investors, companies and non-resident investors. For individual investors the substitute tax essentially continued to be a final levy, like the previous withholding tax.⁶⁵ For companies the change did away with withholding at source, thereby eliminating one of the causes of the accumulation of tax credits. In short, a regime in which the issuer applied withholding tax to all payment beneficiaries was replaced by a system in which the intermediary levied substitute tax only on some. This was made possible by the fact that the intermediary, as paying agent in direct contact with the beneficiary, was in possession of the tax characteristics of the ultimate beneficiary. The paying-agent system has been adopted by an increasing number of other countries as well and also at international level: the European directive on the taxation of savings provides that the withholding of tax on interest payments to non-residents is to be performed by the intermediaries appointed to make payment, based on the nature of the beneficiary.66

⁶⁵ For income paid to an individual investor in the conduct of business, the substitute tax represented an advance payment of personal income tax.

⁶⁶ The paying-agent system introduced with Legislative Decree 239/1996 was not entirely new in Italian law. For foreign-source capital income the 1973 reform had introduced the "entry withholding", applied by the resident intermediaries that intervened in the collection of the payments. Unlike the system adopted in 1996, however, this withholding tax was applied to all beneficiaries, without distinguishing between individuals, for whom it was a final tax, and companies, for which it was merely an advance payment of income tax (Ancidoni *et al.*, 1987; Capomassi *et al.*, 1989). Still earlier, Law 1745/1962 had made it compulsory for banks that intervened in the payment of inbound dividends to apply a 15 per cent advance withholding tax to such payments.

But perhaps the most significant aspect of the measure was the introduction of a regime of exemption for all foreign investors except those resident in tax havens or countries that had not signed a treaty against double taxation with Italy permitting the tax authorities to exchange information. Unlike the refund procedures of the early 1990s, the exemption applied even when not expressly contemplated by treaty provision: only specific documentary requirements had to be met.⁶⁷ In line with the experience of other countries that had adopted similar exemption systems earlier, the change contributed substantially to the placement of increasing portions of new public debt issues with non-resident investors, making it possible to reduce the cost of the debt considerably.

Legislative Decree 239/1996 also marked an important passage in the procedures for assessing and monitoring financial income, initiating a process of "channeling" savings towards intermediaries, who were assigned a central role in the management of tax compliance. Application of the substitute tax and the related regimes of exclusion (for companies) and exemption (for non-residents) was made subject to the depositing of the securities with a bank or another resident financial intermediary, designated by the tax authorities as "responsible for paying in the tax" and other formalities.⁶⁸ The intervention of intermediaries made it possible for the tax to be levied only on the portion of interest income accrued during the actual period of ownership by the beneficiary rather than on the entire coupon. Also, with a view to preventing the "foreign investiture" of investments on the part of residents, intermediaries were required to send periodic electronic named-based reports to the tax authorities on the payments made to non-resident investors enjoying exemption.

5.2.2 The effects on the government securities market

The new system solved the problems described earlier. Trades on the secondary market were no longer net but gross of tax, making for more transparency and greater comparability of the yields on different securities.⁶⁹ With withholding tax no longer levied by issuers, an obstacle to financial innovation was eliminated, leading among other things to the start-up of BTP strips market in mid-1998.

The announcement that a reform was in the works was enough to make the BTP-Bund spread fall in May 1995 below 600 basis points, the level at which it had stood at the end of 1994 (Flaminio, 1995). The progress of the reform through Parliament also influenced market expectations and hence the size of the "tax premium": in December 1995 the yield spread contracted by another 20 basis points when an amendment was approved extending the exemption not only to investors resident in countries for which interest payments were already subject to zero withholding, but also to those in other countries (e.g. the United States and Japan) that were not tax havens (Olivieri, 1995).

⁶⁷ To be able to benefit from the exemption, non-residents had to provide the Italian tax authorities (through financial intermediaries) with their identification data together with a residence certificate, issued by their home-country tax authorities, valid for one year. In recent years the substantive and documentary requirements for exemption have been gradually reduced, bringing new types of beneficiary within the scope of the measure. In particular, in 1997 exemption was awarded to supranational entities. In 2001 it was extended to the central banks of countries that did not have a treaty against double taxation. With effect from 1 January 2002 direct access to the exemption regime was given to all foreign institutional investors, including those not liable to tax (for example, pension funds), provided they were established in countries (other than tax havens) that permitted an adequate exchange of information between tax authorities. In 2004 a further simplification eliminated the condition of residence in a country other than a tax haven, leaving as the sole requirement that of residence in a country that permitted an adequate exchange of information between tax authorities.

⁶⁸ Where the securities were deposited with a non-resident intermediary, exemption from the substitute tax depended on the intervention of a resident ("second-level") intermediary.

⁶⁹ The changeover to "gross-of-tax" trading, in line with the system already in place in the most advanced foreign and international markets, also involved private-sector bonds of so-called large issuers (banks, listed companies, etc.).

Foreign demand also followed the legislative developments. An analysis can be made on the basis of the financial accounts, considering both the quarterly changes in the stock of financial assets held by the "rest of the world" and the breakdown of the stock between residents and non-residents.

Figure 1

Government securities: stock variations

(quarterly data, 1991-1996)



Source: Bank of Italy, Statistical database "BIP on-line", Financial accounts.

For the changes, we examined quarterly data for the period 1991-99, *i.e.* from the liberalization of capital movements up to membership of the Economic and Monetary Union, comparing them with the changes in the stock held by "domestic" sectors. Figure 1 shows the performance of the two aggregates in the period up to the entry into force of Legislative Decree 239/1996. From 1991 to 1993 the net investment inflow was marginal, though consistently positive. A peak occurred at the end of 1993, with the start-up of the accelerated refund procedure. However, investment from the rest of the world ceased growing as early as the second quarter of 1994, perhaps because of disappointment with the results of the new procedure. The interest of foreign investors revived in the second half of 1995, as rumours about exemption of non-residents from withholding tax began to spread. The far-from-brilliant results for the first quarter of 1996 can be explained by uncertainty about the entry into force of the reform (Bufacchi, 1996). Starting with the second quarter of 1996, with the approval of Legislative Decree 239/1996, net investment by non-residents was consistently positive. This trend continued after the decree entered into force (Figure 2): from 1997 to 1999 net investment by the rest of the world was consistently positive, in contrast with the trend of investment by residents.

Figure 2



Government securities: stock variations

(quarterly data, 1997-1999)

Source: Bank of Italy, Statistical database "BIP on-line", Financial accounts.

The composition of demand also reflects the growth in non-resident investors' interest in the market for Italian government securities. The financial accounts show that the share of government securities held by the rest of the world rose from 6.4 per cent in 1991 to 47.3 per cent in 2004 (Figure 3). Non-residents became the leading holders of Italian government securities in a little over a decade.

Figure 3



Non-residents' share of government securities

Source: Bank of Italy, Statistical database "BIP on-line", Financial accounts.

In the light of the above, Legislative Decree 239/1996 contributed to lowering the cost of the public debt. The tax variable, influencing the composition of the demand for securities and helping to reduce the segmentations of the market, boosted the growth of the Italian government securities market, which became one of the world's pre-eminent markets thanks to the great liquidity of the securities traded, a result of a combination of factors connected with the efficiency of the primary and secondary markets and the changes in the composition of demand (Scarpelli, 2001).

5.2.3 The effects of taxation on banks' assets and liabilities

The effects of taxation on the banking sector have been manifold and are open to diverse interpretations. Both explicit taxation and implicit taxation have played a role in shaping the banking system.⁷⁰

In this paper we shall focus on the changes in banks' assets and liabilities due to changes in the taxation of financial instruments. In particular, we shall examine, on the lending side, the effects of the withholding tax levied on interbank deposits and government securities and, on the funding side, the consequences of the increase in the withholding tax on CDs.

⁷⁰ For an in-depth examination of these aspects, see Ciocca (2000).

The withholding tax on interbank deposits and government securities

Since 1973 banks are required to withhold tax on interest paid on deposits. The tax is a final levy for individuals and an advance payment for companies. Up to 1992 it also applied to interest on interbank deposits.

The advance withholding tax contributed to banks' accumulating a huge amount of tax credits from the 1970s onwards. These credits exceeded the amount that could be offset against banks' corporate income tax liabilities, in part because some of their income was tax-exempt.

The portion of tax credits in excess of corporate income tax liabilities could not be offset with other taxes, but was refunded by the tax authorities after a very long wait, earning interest that was below the market rate and thus saddling banks with implicit financial costs. It was not until 1988 that banks were allowed to choose between receiving a refund of their tax overpayments or offsetting them with tax liabilities in the subsequent years.

The implicit cost of the tax credits for banks affected the functioning of the interbank market — not just its liquidity and efficiency, but also in terms of the way funds were employed. Since the overall return of each transaction had to take tax credits into account, the preferred form of employment was the sight deposit, which involved the accumulation of a smaller amount of tax credits because interest was credited only once a year. By contrast, banks tended to shun tied or time deposits, on which interest was paid when the deposit matured.⁷¹

The accumulation of tax credits brought about a change in banks' assets. The ratio of interbank deposits to total assets began to diminish in 1988, when the increase in the withholding tax rate from 25 to 30 per cent led to the accumulation of more tax credits and consequently to a decline in the profitability of investing funds on the interbank market. Starting in 1990, the withholding-tax exemption for transactions with foreign banks and foreign-exchange liberalization fueled an increase in Italian banks' activity on the interbank segment of the Euromarket, drawing funds away from the domestic market.

The tax credit problem was aggravated by the introduction of withholding tax on government securities in 1986; the financial costs connected with the formation of tax credits now weighed on the effective rate of return on investments in government securities too.

To quantify the phenomenon, as early as the turn of the 1980s banks were said to have "trillions of lire" of tax credits due to the withholding tax on interest (Di Majo, 1980). The refunds accrued up to 1983 were consolidated, when banks were assigned 5 trillion lire of government securities in exchange for tax credits (Ceriani and Ferri, 1991), but the credits began to mount again: between 1984 and 1986 banks accumulated credits worth 2.9 trillion lire, a figure that reached 11.5 trillion at the end of 1991. From 1989 onwards more than half of the credits were due to withholdings on securities (Ceriani *et al.*, 1992a).

Altogether, the withholding taxes on securities and interbank deposits triggered a reallocation of banks' portfolios between the late 1980s and early 1990s, with a reduction in lending on the interbank market, a diminution in securities holdings relative to total assets and a shift in the supply function of loans, the effect of which tended to push down lending rates.

The problems created by tax credits were solved with several steps. First, in 1992 the withholding tax on interest on interbank deposits was abolished⁷² and banks were allowed, like other companies, to offset corporate tax credits with local income tax payments. Then, in 1997,

⁷¹ The debtor bank also sustained a financial cost: the levy on deposits led to the amounts paid in on account being larger than that withheld during the year. The difference could only be recouped subsequently, upon settlement of the balance (Ceriani and Ferri, 1991).

⁷² This considerably shortened the time for banks to recover withholdings on government securities interest payments, which were no longer added together with those of deposit interest, and resulted in a higher rate of return net of the financial costs connected with recovering tax levied at source.

with Legislative Decree 239/1996, banks were included in the category of "gross-of-tax" subscribers, to which withholding taxes on government securities and bonds issued by "large issuers" did not apply. Lastly, a rule introduced in 1998 allowed "horizontal" offsetting between tax and social-security-contributions credits and liabilities.

The components of banks' fund-raising: the switch from certificates of deposit to bonds

In a decade marked by renewed stress on the neutrality of taxation with respect to financial instruments, an exemplary case is that of CDs. After growing exponentially in the 1980s and early 1990s thanks to favourable tax treatment, CDs were rapidly replaced by bonds as an important component of bank funding as a result of a tax change (Section 4.1; Focarelli and Tedeschi, 1993).

At the start of the 1990s more than 15 per cent of banks' funding consisted of CDs (Figure 4). CDs continued to expand in the first half of the decade and by 1995 they accounted for 21 per cent of banks' borrowed funds, equal to the share raised abroad, while deposits had fallen to below 40 per cent and bonds and repos covered the remaining 20 per cent. In every year of the first half of the decade more funds were raised with CDs than with bonds (Figure 5); issues of CDs with a maturity of more than 18 months were consistently larger than those with shorter maturities (Figure 6).

In mid-1996, the Prodi government, as part of its "mini-budget" set a single withholding tax rate of 27 per cent for bank CDs and deposits of all maturities, while leaving that for bank bonds unchanged at 12.5 per cent. ⁷³ Several months later the Bank of Italy amended its regulations on bank bonds, considerably expanding the scope for using these instruments.⁷⁴

The impact on banks' fund-raising was immediate. In the short run, sales of short-term CDs, on which the tax rate had been cut from 30 to 27 per cent, recovered slightly. At the end of 1997 the stock of CDs with a maturity of more than 18 months was less than half the amount outstanding a year earlier (Figure 6), while the amount of bonds outstanding exceeded that of CDs for the first time (Figure 5). The trend strengthened in the subsequent years (Figure 4): at the end of 2004 bonds accounted for more than a quarter of banks' borrowed funds, compared with just 2 per cent for CDs (of which the long-term component had practically disappeared).

⁷³ Decree Law 323/1996, ratified by Law 425/1996, thus eliminated comparability of long-term CDs (over 18 months) with bonds.

⁷⁴ In particular, all banks were allowed to issue bonds with a minimum denomination of 5 million lire, provided the bonds had certain "market characteristics" (issues in an amount of at least 300 billion lire or satisfying the requirements for listing); in other cases the minimum denomination was lowered from 100 to 20 million lire. Bonds could have an original term to maturity of less than three years, but the maturity of a bank's bond issues outstanding was not allowed to fall below 24 months. If bonds were callable, this had to be specified in the issue terms and conditions and the option could not be exercised before 18 months elapsed from the time of issue.



The components of banks' fund-raising

Source: Bank of Italy, Statistical database "BIP on-line", Monetary Financial Institutions: Banks and Money Market Funds.

CDs and bonds: year-end stocks



Source: Bank of Italy, Statistical database "BIP on-line", Monetary Financial Institutions: Banks and Money Market Funds.



Figure 4

Figure 5



Figure 6

CDs: year-end stocks by maturity

Source: Bank of Italy, Statistical database "BIP on-line", Monetary Financial Institutions: Banks and Money Market Funds.

5.3 The Visco reform: all-inclusive taxation

5.3.1 The salient features of the reform

Decree 461 of 21 November 1997, part of a package of measures addressing many aspects of the tax system, globally changed the tax treatment of saving income, which – apart from changes in the tax rates – had remained essentially the same since the reform of the early 1970s.⁷⁵

The reform's pivotal principles were the neutrality and simplicity of taxation. Accordingly, it instituted all-inclusive tax on income from financial assets for the first time, embracing together with capital income (as earlier, defined as non-aleatory fruit of an investment of capital) all financial capital gains (defined as profits which, though deriving from an investment of capital, are of uncertain amount and even existence). Unlike the previous system (see Box 5.1), capital gains tax applied not only to shareholdings, but also to bonds, foreign currencies, precious metals and derivative financial instruments.⁷⁶ In addition, the reform included provisions that closed loopholes, to prevent avoidance and arbitrage, and extended taxation to the types of income not previously subject to specific rules.

Two tax rates were established for interest income: 12.5 per cent for government securities and other bonds and for finance bills, and 27 per cent for bank and post-office deposits and current accounts, CDs, bonds with a maturity shorter than 18 months, banker's acceptances and atypical securities. The eventual unification of tax rates was contemplated.

⁷⁵ On the reorganization of the taxation of finance achieved with the Visco reform, see Ciocca (1998a), Ciocca (1998b) and Guerra (1998).

⁷⁶ Previously, profits on derivatives were taxed in very limited cases (e.g. financial futures), primarily owing to the difficulty of assigning them to expressly regulated categories.

The taxation of dividends was simplified through the abolition of the 10 per cent advance withholding tax applied to all investors. Resident individuals would continue to include income from dividends and the associated tax credit in their personal income returns, unless they opted for the new alternative of paying 12.5 per cent final substitute tax (but only for dividends on non-qualifying holdings). For companies, the taxation of dividends remained unchanged except for the abolition of withholding tax.⁷⁷

Capital gains were taxed through a new proportional tax that substituted for personal income tax and was applied at the ordinary rate of 12.5 per cent. Capital gains on qualifying holdings were taxed at the higher rate of 27 per cent.

Box 5.1

The taxation of capital gains in the 1990s

Both before and after the 1973 tax reform, financial capital gains realized by individuals were subject to tax only if the investment had been made with a "speculative intention". The presumption of such an intention, with the consequent inclusion of capital gains in the personal income tax base, became absolute with the bull market of 1985-86,⁷⁸ at first only in very limited cases (substantial shareholdings held for less than five years). The 1986 Direct Income Tax Code defined the cases in which the taxation of capital gains was compulsory and eliminated the criterion of speculative intention.

Generalized taxation of capital gains on shares and other equity realized outside the course of entrepreneurial activity was introduced in the early 1990s.⁷⁹ There were two possible systems: in the ordinary system, which was mandatory for capital gains on qualifying holdings,⁸⁰ realized gains were determined analytically as the difference between the price at which the shareholding was sold and its acquisition cost, revalued on the basis of the actual inflation; the tax (25 per cent) was then applied to the capital gains net of any capital losses⁸¹ and paid in the annual tax return. In the flat-rate system, applicable only for sales of non-qualifying holdings carried out through intermediaries, a withholding tax of 15 per cent was applied to a theoretical capital gain estimated with special coefficients on the basis of the selling price. In the latter case, the tax essentially translated into a form of tax on net worth or transaction tax and was equal to between 0.3 and 1.05 per cent of the value of the disposal.

The government intended these systems to be transitional, having designed them with a view to reducing the scope for avoidance (through the transformation of capital income into capital gains) pending a sweeping revision of the taxation of financial income that was to be implemented by 1992.⁸² This revision, however, did not take place, and under pressure from financial intermediaries the taxation of capital gains on non-qualifying holdings in listed companies was suspended on 10 November 1992. Consequently, until the Visco reform of 1997-98 only capital gains on qualifying holding and on unlisted shares and other equity remained taxable.

⁷⁷ For non-resident investors, the rate of withholding at source was reduced from 32.4 to 27 per cent (12.5 per cent for savings shares) and a procedure was introduced permitting the lower rates set by treaties against double taxation to be applied directly.

⁷⁸ The rise in share prices was the joint effect of the limited depth of the Italian stock exchange and the structural change deriving from the introduction of investment funds. See Sartor (1993).

⁷⁹ Capital gains on bonds and investment fund shares were excluded in any case.

⁸⁰ Defined as holdings exceeding 2, 5 and 15 per cent of the capital, respectively, for listed shares, unlisted shares and other equity.

⁸¹ Capital losses in excess could be carried forward for five years.

⁸² The revision was supposed enacted under the mandate contained in Law 408/1990, but these delegated powers were never exercised.

Virtually alone in the international panorama, Italian legislation chose to tax capital gains on the "accrual" principle: tax was levied on the gain accrued during the tax period, calculated according to the mark-to-market criterion. This choice was intended to avoid the "lock-in effect", *i.e.* postponement of disposals in connection with taxation of gains at the time of realization, since accrual taxation neutralizes the financial benefit deriving from tax deferral.

The taxpayer was allowed to choose from among three different tax regimes except in specific cases, such as gains on qualifying holdings and foreign currencies, which had to be included in the personal income tax return (Box 5.2).⁸³

Box 5.2

The taxation of financial assets in the Visco reform

The three regimes for the taxation of financial assets introduced by the Visco reform differ mainly in the way capital gains are taxed and in the tasks entrusted to intermediaries.

The principle of accrual taxation is fully applied in the managed assets regime, reserved to individually managed portfolios and completely aligned with the new system for the taxation of securities investment funds (see Box 5.3). In this regime, the substitute tax is applied annually at a rate of 12.5 per cent to the "net portfolio result", calculated as the difference between the value of the portfolio under management at the end of the calendar year, gross of the substitute tax, and the portfolio's value at the beginning of the calendar year.⁸⁴ Since capital income is included in the net portfolio result, provision is made for non-application of taxation at source of some types of income.⁸⁵

In the case of assets entrusted to financial intermediaries (banks, investment firms and other authorized entities) for safekeeping, administration or deposit, taxpayers can opt instead for the administered assets regime, in which the intermediary applies the tax on individual capital gains as they are realized and on capital income (dividends and interest) at the time it is received.

Lastly, there is the income tax return regime, in which savers themselves perform the tax formalities for the capital gains they have realized during the years, indicating their amount and applying the substitute tax.

Unlike the managed assets regime, in which the portfolio result calculation method allows realized and unrealized capital losses to be offset both with capital gains and with capital income (dividends and interest), in the other two regimes capital gains realized in the tax year and in the four previous years can be offset with capital gains but not with capital income.⁸⁶

⁸³ On the capital gains tax regimes introduced by the Visco reform, see Ancidoni (1999) and Hamaui and Quarantini (1998).

⁸⁴ This amount is increased by withdrawals from and decreased by assets added to the account during the year and by exempt incomes, those which are taxed at source (e.g. units of Italian collective investment undertakings subject to substitute tax) or those whose inclusion in the personal income tax return is mandatory (e.g. dividends and gains on qualifying holdings). If the net portfolio result is negative, it can be deducted from the net portfolio result in up to four subsequent years.

⁸⁵ In particular, the following are not applied: the substitute tax on interest on government securities and private-sector bonds; the "entry withholding tax" on income on securities issued abroad; and the withholding tax on dividends and on interest on bank and post-office deposits and current accounts, provided the average balance on these items does not exceed 5 per cent of the average assets under management.

⁸⁶ Whereas in the income tax return regime offsetting extends to all capital gains and losses, even those realized with different intermediaries, in the administered assets regime it only includes the capital gains and losses realized with the intermediary that has the account.

In order to implement the principle of accrual taxation of capital gains and eliminate the lock-in effect under the administered assets and income tax return regimes, the reform created an adjustment mechanism, the "*equalizer*", that brought the tax on realized gains under these two regimes into line with that which would have been paid on an accrual basis under the managed assets regime. However, the equalizer, not adopted until 2000, was abrogated the following year,⁸⁷ and so the accrual principle is currently in force only for individually managed portfolios and Italian investment funds; in all other cases, gains are taxed upon realization. The lack of *ex post* equivalence between taxation on accrual and realization and the presence of two tax rates (whose unification was contemplated) constitute the principal distortions at work in the taxation system designed by the Visco reform (Alworth *et al.*, 2003).

The reform also completely revised the taxation of Italian collective investment undertakings and so-called former Luxembourg funds.⁸⁸ Taxation of the fund's net assets (at different rates depending on the type of asset) was replaced by an annual 12.5 per cent tax on the net portfolio result, similar to that for individually managed portfolios. The same criteria were adopted in 2000 for taxing the return on contributions paid into supplementary pension plans (see Section 5.3.2).

Financial intermediaries play a pivotal role in the new system, in which they are entrusted with performing tax formalities on a significant scale. In general, savers can still opt to apply the tax due directly, in which case intermediaries are required to send reports to the tax authorities for auditing purposes. Alternatively, in most cases the saver can appoint the intermediary to apply tax, with considerable advantages in terms of administrative simplicity and anonymity (no reports to the tax authorities). Consequently, the Visco reform has given additional impetus to the concentration of tax formalities in the hands of intermediaries, a process begun by Legislative Decree 239/1996 with the substitute tax on bond interest and carried further by the simultaneous demateralization of financial instruments.

The Visco reform also intervened on many other fronts, among them that of corporate taxation, where it reversed the long-standing tax advantage of debt capital with respect to equity.⁸⁹ The dual income tax, introduced in 1997, stimulated the capitalization of companies by setting a reduced corporate income tax rate on the share of profits corresponding to the "normal" return on capital increases (Ricotti, 2000). At the same time, the new regional tax on productive activities (Irap) made borrowing less attractive, as both interest and dividend payments were equally non-deductible for purposes of the tax. The repeal of the tax on companies net worth (introduced in 1992) and local income tax (eliminated at the time Irap took effect) removed other penalties that had been placed on equity capital. Between 1996 and 2000 non-financial firms' leverage ratio (ratio of financial debt to shareholders' equity) fell from around 100 to 56 per cent; the ratio turned upwards in 2001, when the dual income tax was repealed, and rose to nearly 70 per cent in 2002 (Figure 7).

⁸⁷ The mechanism went into effect on 1 January 2001 and lasted for just seven months. It was suspended on 4 August 2001 by an ordinance of the Lazio Administrative Court and subsequently repealed as a consequence of Decree Law 350/2001, ratified by Law 409/2001. The reform had envisaged a similar mechanism for zero-coupon bonds, whose interest payment structure allows a significant tax deferral effect. Introduced in 1998, the equalizer for zero-coupon bonds was repealed in 2004.

⁸⁸ The latter were foreign funds whose distribution in Italy was authorized before the entry into force of law 429/1992 transposing the UCITS Directive (85/611/EC), subsequently amended by Directive 88/220/EC.

⁸⁹ See Giannini (1997), Panteghini (1998), Bordignon et al. (1999), Giannini and Guerra (1999), and Ciocca (2000).

Non-financial firms' leverage ratio



Figure 7

Source: P. Ciocca, 2003.

5.3.2 The influence of taxation on the growth of asset management

The asset management industry grew rapidly in Italy following the introduction of open-end investment funds in 1984; mutual fund shares rose from 0.6 per cent of total financial assets in 1985 to more than 6 per cent at the end of the 1990s (and to 12 per cent of those held by households and firms). Pension funds have not experienced similar growth. Below we will discuss the main stages in the evolution of the taxation of investment funds, pension funds and life insurance policies, which represent interesting case studies concerning the connection between taxation and the growth of asset management.

Investment funds⁹⁰

The initial tax treatment of investment funds in 1984 differed in certain respects from that of other financial assets. In Italy, final taxes have always been levied on the fund itself, allowing investors to avoid all administrative and tax formalities and to enjoy tax anonymity. By contrast, other EU countries, such as France and Germany, follow the "no veil" principle, with tax on income from the fund levied on investors under the same rules as those applying to direct investment.⁹¹

⁹⁰ The discussion here only covers open-end securities investment funds, given the limited development in Italy of other types of fund (closed-end, reserved, hedge, etc.). At the end of 2004 the 1,385 funds operating in Italy comprised 1,167 funds of the open-end type, 81 closed-end funds and 137 hedge funds. The open-end funds other than hedge funds managed 95 per cent of total Italian investment fund assets (Bank of Italy, Annual Report for 2004). For a historical and comparative analysis of the taxation of closed-end funds, see Magliocco and Sanelli (2004).

⁹¹ For the taxation of investment funds in other countries, see Magliocco *et al.* (1999) and Ricotti and Sanelli (2004).

At the time Italian investment funds were introduced in 1984,⁹² the tax levied depended on their net assets, with different rates applied according to the composition of the fund's portfolio.⁹³ However, the funds' interest and dividend income was subject to final withholding taxes, as for individuals. All else being equal, therefore, the tax falling on an investment made through a mutual fund was always greater than that on an investment made directly by purchasing the securities on the market (Mignarri, 1992).

Box 5.3

The taxation of collective investment undertakings: the Visco reform

For Italian investment funds and former Luxembourg funds the Visco reform introduced a system of taxation of the operating result accrued by the fund during the year, similar to that established for individually managed portfolios. The operating result is calculated on the basis of the annual change in the value of the fund's assets. Where the operating result is negative, it can be carried forward without a time limit or, alternatively, offset with the positive results of other funds of the same management company. With the elimination of source withholding taxes, funds too are "gross-of-tax" investors, like companies and non-residents.

Income paid to individuals as a result of their investment in funds is not taxed, tax having already been levied on the fund. In the case of companies, income from the fund is included in taxable income but accompanied by a 15 per cent tax credit. Non-resident investors may request a refund equal to 15 per cent of the profits distributed by the fund or received upon redemption or disposal of the units.⁹⁴

By contrast, the reform did not fundamentally change the taxation of foreign funds, regulated for the first time in 1992 as part of the transposition of the UCITS Directive. These funds' income and profits on Italian financial assets are taxed using the same procedures as those established for other non-resident investors. For individuals resident in Italy, income from investment in foreign funds complying with the UCITS Directive (so-called harmonized funds) received upon distributions, redemptions and disposals is subject to a 12.5 per cent withholding tax. The tax is applied by the intermediary appointed to distribute the fund in Italy.⁹⁵

The same withholding tax rate applies to payments from non-harmonized funds, but it is applied on account, not in settlement, as these payments are subject to progressive personal income tax. For companies, payments are always included in taxable income and any amounts withheld are always on account.

⁹² Foreign funds, mainly Luxembourg funds, had been distributed in Italy since the 1970s. Authorization to market their shares in Italy was issued by the Foreign Trade Ministry, provided that at least half of the fund's assets consisted of Italian securities. Up to 1983 only 10 open-end securities investment funds had been authorized (Pisanti and Mastrangelo, 2003).

⁹³ Initially the tax was equal to 0.25 per cent of the net value of the fund, reduced to 0.10 per cent if at least 55 per cent of the assets under management consisted of Italian industrial shares. From 1992 on, the tax was applied in proportion to the composition of the fund, at a rate of 0.05 per cent on the part consisting of government securities, current accounts and deposits, bonds and units of other investment funds, 0.10 per cent on that consisting of Italian industrial shares and 0.25 per cent on the rest of the portfolio.

⁹⁴ The law also provides for the creation of funds reserved to non-resident investors that are exempt from the substitute tax on the operating result, but intermediaries have not availed themselves of this possibility until now.

⁹⁵ When the income payments are made directly abroad, the investor must report them in his annual income tax return and pay 12.5 per cent tax on them.

The Visco reform lessened the tax disadvantage of investment in Italian mutual funds compared with direct investment. Although substitute tax continued to be levied on the fund, it was no longer based on the fund's net assets but on its *accrued* result.

Owing to the subsequent elimination of the "equalizer", taxation on the accrued result has translated into a possible tax disadvantage for Italian funds compared with other forms of financial investment. In the case of rising asset prices this holds true both for direct investment and for investment in harmonized foreign funds should the investor opt for taxation at the time of realization (under the "administered assets" and "income tax return" regimes), since for holding periods of more than one year the possibility of tax deferral allowed by the two regimes permits higher returns to be made on the investment, all else being equal.⁹⁶

Tax and regulatory factors have also affected competition between Italian and harmonized foreign funds. Within the EU the largest volume of net assets is managed by Luxembourg funds, followed by French and UK funds (Figure 8). However, measured by the ratio of funds' assets under management to the GDP of their country of residence, there is an extraordinary concentration of the fund industry in Luxembourg and Ireland (Figure 9).

Figure 8



UCITS – Assets at 31st December 2004

Source: EFAMA (2005).

⁹⁶ Taxation on the accrued result has had another consequence for Italian funds *vis-à-vis* harmonized foreign funds: the formation of "tax savings", *i.e.* the reduction in their future tax liabilities due to accrued capital losses, which are recorded among assets. All else being equal, this enables an Italian fund to show a higher net asset value per unit than a foreign fund, since that of the Italian fund includes the expected tax savings. On the other hand, this also means that the fund's assets include illiquid, non-earning assets that can be recovered only by being offset with subsequent capital gains or with taxes owed by other funds managed by the same company. In the years immediately following 2000 these tax credits reached very high levels (some €10 billion as estimated by the Italian asset management trade association) in connection with the collapse of equity prices worldwide.



UCITS – Assets to GDP ratio (data at 31.12.2004)

Source: Based on data from EFAMA (2005).

This is partly the consequence of the incidence of taxation on the different components of the investment fund industry. Lighter taxation of management companies in Luxembourg and Ireland has been an incentive to locating this "phase" to those countries, also in view of the fact that the tax advantage enjoyed there by management companies can be transferred to parent companies resident in another EU country thanks to the "Parent-Subsidiary Directive" (Ricotti and Sanelli, 2004).

The lack of a mechanism to offset the tax deferral effect and the tax incentives for management companies established in other EU countries, together with forms of regulatory competition, help to explain the growth of foreign funds in Italy, from 9 per cent of mutual fund units held by residents in 1998 to 20 per cent in 2004 (Table 10).

Figure 9

Table 10

Mutual fund shares issued by resident and foreign funds between 1998 and 2004

Year	Mutual fund shares issued by resident funds	Mutual fund shares issued by foreign funds	Total	Mutual fund shares issued by resident funds	Mutual fund shares issued by foreign funds
1998	372,274	36,761	409,035	91%	9%
1999	475,301	58,041	533,342	89%	11%
2000	449,931	75,450	525,381	86%	14%
2001	403,689	80,519	484,208	83%	17%
2002	360,557	68,991	429,548	84%	16%
2003	378,781	78,288	457,069	83%	17%
2004	358,292	90,977	449,269	80%	20%

(amounts in millions of euros)

Source: Bank of Italy, Statistical database "BIP on-line",, Financial Accounts.

N.B. The table reports year-end stocks of mutual fund shares outstanding.

Our analysis shows that the growth of investment funds cannot be ascribed to particular direct fiscal advantages.⁹⁷ Yet one should not underestimate two factors that have indirectly assisted (or at least not hindered) the development of this segment of the asset management industry: the system of taxation based on intermediaries has freed investors from all administrative concerns, while the decision to tax funds at the same rate as government securities from 1998 on has prevented "unfair competition" between the two instruments and made it easier for households' financial savings to be shifted from government securities to more sophisticated forms of investment (Ciocca, 2000).

Retirement saving: pension funds and life insurance policies

Retirement saving, whether in the form of individual insurance policies or pension funds, has generally enjoyed tax incentives, but only the former have experience appreciable growth. The underdevelopment of pension funds is a distinctive trait of the Italian financial system. At the end of 2004 supplementary pension funds managed just 0.9 per cent of households' total financial assets in Italy, compared with 18 per cent in the United States; at the same date, pension fund assets accounted for barely 2.5 per cent of the total under management by Italian institutional investors (investment funds, insurance companies, pension funds and individually managed portfolios).

Especially in more recent years, the tax treatment of retirement saving products has sought to foster their growth.⁹⁸ Systematic provisions governing pension funds were laid down in Italy with Legislative Decree 124/1993, which established the tax rules for the three phases of a pension fund's life cycle: paying in of contributions, management of resources and paying out of benefits.

Like other countries, Italy granted tax incentives to supplementary pension funds.⁹⁹ In particular, contributions paid by both the worker and the employer were made deductible starting in 1993, within limits that would change in the course of time. For the worker, contributions are deductible from wages and salaries for purposes of progressive income tax; for the employer, they

⁹⁷ On the factors that have spurred the growth of asset management in Italy, see, among others, Banfi and Di Battista (1998), Ciocca (2000), Pisanti and Mastrangelo (2003) and Onado (2004).

⁹⁸ For an analysis of the influence of tax incentives on retirement saving, see Whitehouse (1999) and Guerra (2001).

⁹⁹ For a comparison with the tax treatment of pension funds in other countries, see Panzeri and Ancidoni (2003) and Guerra (2004).

are included among the costs deductible from entrepreneurial income. In addition, starting in 1995 companies were permitted to set aside 3 per cent of the staff severance pay devolved to the fund in a balance sheet provision on which tax was suspended. Lump-sum benefits are subject to separate taxation, periodic benefits to progressive taxation, but provision is made for reductions of the tax base.

The tax treatment of contributions and benefits generates a tax deferral effect that has made investment in a pension fund particularly advantageous compared with other financial instruments.

The taxation of the fund itself has been brought broadly into line with that of other forms of financial investment. At first it was like that applied to investment funds, centred on a tax on net assets,¹⁰⁰ but with the penalizing addition of a 15 per cent tax on the contributions paid in. This levy represented a tax credit of the pension fund in respect of the benefits paid out, but it lowered the fund's rate of return (Minotti, 1993).

The disadvantages of this treatment were eliminated in mid-1995 by repealing the 15 per cent tax on contributions and replacing the proportional tax on net assets with a fixed-amount levy of 10 million lire.¹⁰¹ The resulting tax regime was more favourable than that of investment funds but remained disadvantageous compared with that of severance pay, as the annual revaluation of severance pay was not taxed annually but separately, together with the amounts set aside each year, upon disbursement of the employee's total accumulated severance pay.

Subsequent legislation, in force since 2001, brought the taxation of pension funds' returns into line with that established for investment funds by the Visco reform. It introduced a substitute tax on the accrued result for the year, but at a lower rate than for investment funds (11 against 12.5 per cent). Further, it established that the portion of pension fund benefits deriving from the fund's returns was not to be taxed at the time the benefits were paid. Lastly, it made the annual revaluation of staff severance pay funds subject to taxation at the same rate as pension funds.¹⁰²

In summary, the approach adopted for pension funds was the so-called ETT system: Exemption (of contributions), Taxation (of fund returns), Taxation (of pension benefits). It accorded a tax advantage to pension funds compared with other forms of financial investment, an advantage that tended to grow over time. The latest reform proposals, contained in the pension system reform enabling law, also go in the same direction: higher ceiling on deductibility of contributions, breaks on the taxation of returns and favourable tax treatment of pension payments. Nevertheless, the efforts made in the field of tax law have not been sufficient for the take-off of pension funds, which still must clear hurdles such as the choices employees can exercise in allocating accruing severance pay and disagreements on the portability of contributions.

Individual retirement saving in Italy has mainly taken the form of life insurance policies. At the end of 2004 life insurance reserves accounted for 9.4 per cent of households' financial assets, compared with the 0.9 per cent share ascribed to pension fund reserves (Bank of Italy, Annual Report for 2004). Most of these life policies are of the "mixed" type: the policyholder pays a periodic premium and receives life and disability coverage during the contract period and an annuity or lump sum at its maturity. From the standpoint of financial structure, "*with-profit*" policies are the most common type of contract. Launched in the 1970s, they promise the investor a financial return at least equal to that stipulated in the contract, depending on the performance of insurance company's separate investment portfolio (Corinti and Cucinotta, 1998; Corvino and Gandolfi, 2001). In the 1990s *unit-linked* and *index-linked* policies were launched. In essence, these policies

¹⁰⁰ Assets were taxed at the same rates as were established for investment funds in 1993 and at a rate reduced to 0.125 per cent for 1994 and the first half of 1995. As with investment funds, pension funds' capital income was subject to final withholding tax.

¹⁰¹ Reduced to 5 million lire for the first five years of the fund's life.

¹⁰² On the current tax regime for pension funds and the effects of the different forms of tax relief granted to retirement saving, see Guerra (2004).

are close substitutes for other asset management products, with the financial component, decided by investors, of equal or even greater important than the insurance component (Fornero, 1993).

Tax law has always provided incentives for these products. The complementary tax on income made insurance life premiums fully deductible from income, a status confirmed by the 1958 consolidated law on direct taxes and again by the 1973 reform (Persano Adorno and Mattei, 1998). In addition, the returns on the investment of the premiums¹⁰³ and the amounts paid out when the policy matured were also exempt. In short, it was an "EEE" system in which savings invested in life insurance policies escaped taxation altogether.

The tax break on the payment of premiums was cut back for the first time in 1977 with a ceiling of deductibility set at 2 million lire (raised to 2.5 million in 1980). At the same time, a minimum contract duration of 5 years was established for entitlement to deductibility. In 1992 deductions from income gave way to tax credits equal to 27 per cent of premiums up to 2.5 million lire; the percentage was reduced to 22 per cent in 1995 and 19 per cent in 1998.

Lump-sum benefits were not taxed until 1985; from 1 October of that year a withholding tax of 12.5 per cent was levied on the difference between the amount collected and the premiums paid.¹⁰⁴ Lump-sum death benefits were exempt.

By contrast, annuities were always included in income subject to progressive taxation. Before the 1973 reform they were included in income from movable wealth, category C/2, with the insurance company paying the tax and entitled to recoup the amount from the taxpayer. With the reform they were treated in the same way as income from employment and subject to progressive personal income (Irpef). The difference in treatment with respect to lump-sum payments was mitigated in 1988 by making only 60 per cent of the annuity subject to progressive taxation.

The taxation of life insurance policies was radically altered in 2001 in connection with the reform of pension funds. Policies signed after 1 January 2001 no longer qualify for the 19 per cent tax credit in respect of premiums, and a tax equalization mechanism was introduced for insurance policy benefits to eliminate tax deferral of returns and bring the taxation of these instruments into line with that of other financial and retirement saving products, as envisaged by the Visco reform.

5.4 Developments since 2000

The legislative powers delegated to the government under Law 80/2003 for the reform of state taxation included the revision of the taxation of financial income, but this legislative mandate expired unexercised in May 2005^{105} . However, the taxation of dividends and capital gains on shareholdings was modified as part of the new corporate income tax (Ires) introduced with effect from 1 January 2004 pursuant to the same law (Box 5.4)¹⁰⁶.

¹⁰³ The absence of taxation during the investment phase is due to the system used for taxing insurance companies' income. For insurance companies, allocations to technical reserves are fully deductible, and in the case of the contracts in question these correspond essentially to the returns that will accrue to policyholders from investment of the premiums.

¹⁰⁴ For every year elapsing beyond the tenth between the time the policy was signed and the lump-sum payment collected, the tax base was reduced by 2 per cent.

¹⁰⁵ For an overview of the legislative mandate, see Panzeri (2002).

¹⁰⁶ Ires was introduced by Legislative Decree 344 of 12 December 2003.

Box 5.4

The taxation of dividends and capital gains on shareholdings

For companies, the participation exemption regime that entered into force on 1 January 2004 makes realized capital gains on shareholdings in resident and foreign companies 100 per cent exempt (and capital losses correspondingly non-deductible). Variants of this system have been used by other European countries for some time as a means of encouraging multinational holding companies to establish in their jurisdictions.

The adoption of participation exemption has also led to new rules for the taxation of capital gains realized by non-business individual investors:

- capital gains on qualifying holdings¹⁰⁷ are no longer subject to proportional taxation of 27 per cent, but a share equal to 40 per cent of their amount is included in income subject to progressive personal taxation;

- capital gains on non-qualifying holdings continue to be subject to 12.5 per cent substitute tax, applied in accordance with the three regimes described in the text.

With the adoption of Ires, the new corporate income tax, the tax credit on dividends has been abolished. For companies, this mechanism has been replaced by the non-taxability of up to 95 per cent of the amount of dividends deriving from shareholdings of whatever type.¹⁰⁸ For individuals, two different regimes have been established:

- dividends deriving from qualifying holdings and equity interests held in the exercise of a business are included in income subject to progressive personal taxation, within a limit of 40 per cent. This is identical to the tax treatment of capital gains on qualifying holdings;

- profits from non-qualifying holdings are subject to substitute tax of 12.5 per cent. Taxpayers no longer can request non-application of taxation at source and opt to include the profits in taxable personal income.

¹⁰⁷ These are defined as holdings that exceed 5 per cent of the share capital of listed companies or 25 per cent of the share capital of other companies. In any case, a shareholding is considered a qualifying holding if it constitutes more than 2 per cent of the voting shares of a listed company or 20 per cent of the voting shares of an unlisted company.

¹⁰⁸ The percentage, taken over from the Parent-Subsidiary Directive, was chosen in order to take account of the costs of managing the holding, deducted by the holder and deemed for this purpose to be equal to 5 per cent of dividends.

6. Conclusion

Examining the evolution of the relationship between the financial accounts and the taxation of financial assets in the last forty years, we have identified several basic trends.

Over the period as a whole, the use of taxation primarily to channel savings towards priority areas of investment and fill the gaps in the public finances gave way to a more neutral approach that left the allocative function to the market. Among the main determinants of this new course were the opening up of international capital markets, the increasing importance of tax competition between jurisdictions and financial innovation.

The use of taxation for purposes of resource allocation was evident in the 1960s and 1970s. Both before and after the 1973 tax reform, frequent use was made of exemptions or reliefs for categories of assets or issuers. Especially after the reform, the differentiation of tax rates operated as a means of steering savings towards certain forms of investment. In many cases tax law was used as a supplement to banking regulation to achieve key economic policy objectives. The prime example of this is the creation of a "double intermediation" circuit (savers – banks – special credit institutions – firms).

Beginning in the late 1970s the pressure exerted by an expanding public-sector budget acted in two directions. On the one hand, the need for more receipts led tax law to drop the function of resource allocation and focus both on countering the tax avoidance and arbitrage stratagems made possible by the advent of innovative financial instruments and on increasing the taxation of deposits. On the other, the placement of ever greater portions of public debt securities with households, firms and banks was greatly facilitated, at least up to the mid-1980s, by the favourable tax treatment accorded to such issues. Jointly, these factors fostered a gradual process of bank disintermediation.

In the 1980s the distortions that the tax exemption of income from government securities had on the resource allocation choices of intermediaries, companies and individual investors grew increasingly evident. A series of measures adopted during the decade led to the taxation of government securities.

In the 1990s the opening up of markets on the heels of foreign exchange liberalization and advancing economic globalization raised the challenge of tax competition for the entire tax system. The challenge was felt most keenly in the field of financial taxation, given the great mobility of capital.

The response of Italian tax law was characterized by the rationalization of the system of taxation and the pursuit of tax neutrality for financial investment decisions. First, steps were taken to reduce withholding taxes as much as possible for firms, with the aim of sparing them the financial expense connected with the formation of large volumes of tax credits, and to introduce exemptions for non-resident investors, in part with a view to competing with other jurisdictions in attracting foreign capital. These objectives were achieved with the changeover from a regime in which issuers applied withholding tax to all categories of investor to one in which intermediaries, in the role of paying agents, levied the tax only on some types of investor. Subsequently, the goal of neutrality was pursued by reducing the number of tax rates and extending the scope of taxation to all types of financial income.

Throughout the period under review, the elements of the tax system that probably spurred the development of finance most strongly were the absence of administrative formalities for individual savers and the anonymity these same savers were granted in respect of most financial income in exchange for a (moderate) final levy at source.

Companies' financial structure and their direct recourse to the capital market were also influenced by tax law. The different tax treatment of dividends and interest payments for issuers, in
a context marked at times by high inflation and high corporate tax rates, contributed to the undercapitalization of Italian companies. In raising debt capital, direct recourse to the market was impeded up to the 1980s by exemptions and reliefs for the securities of other issuers (the state, special credit institutions and state holding companies). These disadvantages were eliminated during the 1990s, which also saw a reversal of trend in tax advantage traditionally enjoyed by debt with respect to equity.

The tax variable influenced the structure of banks' balance sheets and their role in the financial system. The composition of banks' assets and liabilities was directly affected by the taxation of financial instruments, shaping resource allocation (e.g. the large volume of investment in tax-exempt securities in the 1970s) and decreeing the success or demise of specific forms of fund-raising (for example, the rise of CDs at the expense of deposits in the early 1980s and their nearly complete replacement by bonds in the late 1990s). The taxation of financial income with substitute levies at source rather than through its inclusion in the taxpayer's income tax return facilitated the flow of savings towards intermediaries.

APPENDIX

Historical Tables

The changes in tax rates on financial income

Date of application	Financial instrument affected	Effect	Law	
1/1/1974	Bank / postal deposits and current accounts	Introduced R 15%	Art. 26, para. 2, D.P.R. no. 600/73	
1/1/1974	Certificates of deposit; post office savings certificates	Introduced R 15%	Art. 26, para. 2, D.P.R. no. 600/73	
1/1/1974	Government securities and similar bonds	E	Art. 31, para. 1, D.P.R. no. 601/73	
1/1/1974	Bonds issued by SCI, special credit branches and banks	Introduced R 10%	Art. 26, para. 1, D.P.R. no. 600/73	
1/1/1974	Bonds issued by Government bodies and State shareholdings companies	Introduced R 20%	Art. 26, para. 1, D.P.R. no. 600/73	
1/1/1974	Bonds issued by listed, unlisted and non resident companies	Introduced R 30%	Art. 26, para. 1, D.P.R. no. 600/73	
1/1/1974	Atypical securities	Introduced R 15%	Art. 26, para. 5, D.P.R. no. 600/73	
1/1/1974	Dividends	Introduced RA 10%	Art. 27, para. 1, D.P.R. no. 600/73	
1/1/1974	Capital gains	Not taxable ¹⁰⁹	Art. 76, para. 1. D.P.R. no. 597/73	
9/4/1974	Dividends from ordinary shares	Option between RA 10% and R Art. 7 D.L. 8/4/74, no. 95, rational state 30% 216/74		
23/6/1974	Dividends from savings shares	Introduced R 15%	Art. 20, para. 2, L. 7/6/74, no. 216	
23/6/1974	Convertible bonds issued by listed companies	Reduced R to 15%	Art. 9 L. 7/6/74, no. 216	
6/12/1975	Straight bonds issued by listed companies	Reduced R to 20%	Art. 12, para. 1, L. 2/12/75, no. 576	
6/12/1975	Convertible bonds issued by listed companies	Reduced R to 10%	Art. 12, para. 1, L. 2/12/75, no. 576	
6/12/1975	Bonds issued by unlisted companies	Reduced R to 20%	Art. 12, para. 1, L. 2/12/75, no. 576	
18/3/1976	Bank / postal deposits and current accounts	Increased R to 16%	D.L. 18/3/76, no. 46	
18/3/1976	Certificates of deposit; post office savings certificates	Increased R to 16%	D.L. 18/3/76, no. 46	
1/1/1978	Bank / postal deposits and current accounts	Increased R to 20%	D.L. 23/12/77, no. 936; reiterated: D.L. 26/5/78, no. 216	

¹⁰⁹ Capital gains were taxable only if they were realized on transactions carried out "with speculative intention", but the burden of demonstrating speculative intention lay with the tax authorities.

1/1/1978	Certificates of deposit; post office savings certificates	Increased R to 20%	D.L. 23/12/77, no. 936; reiterated: D.L. 26/5/78, no. 216
1/1/1979	Dividends from ordinary shares	RA 10%	Art. 5, para. 2, L. 16/12/77, no. 904
3/7/1980	Certificates of deposit and post office savings certificates with a maturity beyond or equal to 18 months	Е	Art. 20 D.L. 3/7/80, no. 288
3/7/1980	Bonds issued by SCI, special credit branches and banks	Е	Art. 20 D.L. 3/7/80, no. 288
31/12/1980	Bonds issued by Government bodies and State shareholdings companies	Е	L. 22/12/80, no. 891
31/12/1980	Bonds issued by listed companies	Е	L. 22/12/80, no. 891
3/10/1981	Banker's acceptances	Introduced R 15%	D.L. 2/10/81, no. 546, ratified by L. 1/12/81, no. 692
1/1/1982	Bank / postal deposits and current accounts	Increased R to 21.6%	D.L. 22/12/81, no. 787, ratified by L. 26/2/82, no. 52
1/1/1982	Certificates of deposit; post office savings certificates	Increased R to 21.6%	D.L. 22/12/81, no. 787, ratified by L. 26/2/82, no. 52
1/1/1982	Bonds issued by unlisted companies	Increased R to 21.6%	D.L. 22/12/81, no. 787, ratified by L. 26/2/82, no. 52
1/1/1982	Banker's acceptances	Increased R to 16.2%	D.L. 22/12/81, no. 787, ratified by L. 26/2/82, no. 52
1/10/1982	Certificates of deposit and post office savings certificates with a maturity beyond or equal to 18 months	Increased R to 10.8%	End of exemption: art. 1 D.L. 28/9/81, no. 540, ratified by L. 27/11/81, no. 676; 8% surtax on R ex art. 26 D.P.R. 600/73: D.L. 22/12/81, no. 787, ratified by L. 26/2/82, no. 52
1/10/1982	Bonds issued by SCI, special credit branches and banks	Increased R to 10.8%	See above
1/10/1982	Bonds issued by Government bodies and State shareholdings companies	Increased R to 10.8%	See above
1/10/1982	Bonds issued by listed and unlisted companies	Increased R to 10.8%	See above
1/10/1983	Bank / postal deposits and current accounts	Increased R to 25%	Art. 1 D.L. 30/9/83, no. 512, ratified by L. 25/11/83, no. 649
1/10/1983	Certificates of deposit; post office savings certificates	Increased R to 25%	Art. 1 D.L. 30/9/83, no. 512, ratified by L.

			25/11/83, no. 649
1/10/1983	Atypical securities	Introduced R 18%	Art. 5 D.L. 30/9/83, no. 512, ratified by L. 25/11/83, no. 649
1/1/1984	Certificates of deposit and post office savings certificates with a maturity beyond or equal to 18 months	Increased R to 12.5%	Art. 10, para. 2, D.L. 30/9/83, no. 512, ratified by L. 25/11/83, no. 649
1/1/1984	Bonds issued by SCI, special credit branches and banks	Increased R to 12.5%	Art. 11, para. 2bis, D.L. 30/9/83, no. 512, as modified by L. 25/11/83, no. 649
1/1/1984	Bonds issued by Government bodies and State shareholdings companies	Increased R to 12.5%	See above
1/1/1984	Bonds issued by listed and unlisted companies	Increased R to 12.5%	See above
1/1/1984	Banker's acceptances	Reduced R to 15%	End of applicability of 8% surtax introduced by D.L. 22/12/81, no. 787, ratified by L. 26/2/82, no. 52
20/12/1984	Capital gains on qualifying shareholdings ¹¹⁰	P (Introduced absolute presumption of speculative intention)	Art. 3, para. 11, D.L. 19/12/84, no. 853, ratified by L. 17/02/85, no. 17
1/10/1985	Amounts received from life-insurances	Introduced R 12.5%	Art. 6, L. 26/9/1985, no. 482
20/9/1986	Government bonds issued in Italy	Introduced R 6.25%	Art. 1, D.L. 19/9/1986, no.556, ratified by L. 17/11/1986, no. 759
1/9/1987	Government bonds issued in Italy	Increased R to 12.5%	Art. 3, D.L. 27/8/1987, no. 348, not ratified;art. 1, L. 21/11/1987, no. 477
1/1/1988	Bank / postal current accounts and sight or time deposits with a maturity of less than three months	Increased R to 30%	Art. 4, D.L. 29/12/1987, no. 533; art. 2, D.L. 13/1/1988, no. 3; decrees not ratified; art. 7, L. 11/3/1988, no. 67
1/1/1988	Bonds issued by non resident companies	Increased R to 30%	Art. 4, D.L. 29/12/1987, no. 533; art. 2, D.L. 13/1/1988, no. 3; decreees not ratified; art. 7, L. 11/3/1988, no. 67
1/1/1989	Bonds issued by unlisted companies	Increased R to 30%	Art. 32, para.2, D.L. 30/12/1988, no. 550, not ratified by law; art. 32, c .2, D.L. 2/3/1989, no. 69, ratified by L. 27/4/1989,

¹¹⁰ Until 31.12.1987 qualifying shareholdings were defined as holdings exceeding 2%, 10% and 25% of the capital, respectively, for listed shares, unlisted shares and other equity. From 1.1.1988 qualifying shareholdings were defined as holdings exceeding 2%, 5% and 15%. From 30.12.1993 the 15% per cent threshold was reduced to 10%.

	1		
			no. 154
1/1/1989	Atypical securities	Increased R to 30%	Art. 32, para.1, D.L. 30/12/1988, no. 550, not ratified; art. 32, para. 1 D.L. 2/3/1989, no. 69, ratified by L. 27/4/1989, no. 154
28/9/1990	Capital gains on shares	Introduced R 12.5%-20%	D.L. 28/9/1990, no. 267, not ratified; D.L. 27/11/1990, no. 350, not ratified; D.L. 28/1/1991, no. 27, ratified by L. 25/3/1991, no. 102
28/1/1991	Capital gains on qualifying shareholdings	Increased R to 25%	Art. 2, D.L. 28/1/1991, no. 27, ratified by L. 25/3/1991, no. 102
1/4/1991	Capital gains on non-qualifying shareholdings	Increased R to 15%-25%	Art. 3, D.L. 28/1/1991, no. 27, ratified by L. 25/3/1991, no. 102
3/10/1991	Bank / postal three to twelve months time deposits and accounts	Increased R to 30%	Art. 1, D.L. 1/10/1991, no. 307, ratified by L. 29/11/1991, no. 377
3/10/1991	Certificates of deposit and post office savings certificates with a maturity of between 3 and 12 months	Increased R to 30%	Art. 1, D.L. 1/10/1991, no. 307, ratified by L. 29/11/1991, no. 377
10/9/1992	Government bonds issued abroad	Introduced R 12.5%	Art.1, D.L. 9/9/1992, no. 372, ratified by L. 5/11/1992, no. 429
10/9/1992	Bonds issued by non resident companies	Reduced R to 12.5%	Art.3, D.L. 9/9/1992, no. 372, ratified by L. 5/11/1992, no. 429
9/11/1992	Capital gains on non-qualifying shareholdings in listed companies	Е	Art. 7, D.L. 9/9/1992, no. 372, ratified by L. 5/11/1992, no. 429
13/1/1994	Finance bills	Introduced R 15%	Art.3, L. 13/1/1994, no. 43
12/6/1994	Dividends from ordinary shares in listed companies	RA 10% - R 12.5%	Art. 4, D.L. 10/6/1994, no. 357, ratified by L. 8/8/1994, no. 489
1/1/1995	Bonds issued by unlisted companies	Reduced R to 12.5%	Art. 5, para. 1, L. 23/12/1994, no. 725
1/1/1995	Dividends from savings shares	Reduced R to 12.5%	Art. 5, para. 2, L. 23/12/1994, no. 725
20/6/1996	Bank / postal deposits and current accounts	Increased / Reduced R to 27%	Art. 7, D.L. 20/6/1996, no. 323
20/6/1996	Certificates of deposit; post office savings certificates	Increased / Reduced R to 27%	Art. 7, D.L. 20/6/1996, no. 323
30/8/1996	Bonds with a maturity of not less than 18 months	Increased R to 27%	Art. 14, D.L. 30/8/1996, no. 449,

			reiterated by D.L. 23/10/1996, no. 547, not ratified; L. 23/12/1996, no. 662
1/7/1998	Finance bills	Reduced R to 12.5%	Art. 12, para.1, D.Lgs. 21/11/1997, no. 461
1/7/1998	Banker's acceptances	Increased R to 27%	Art. 12., para. 9, D.Lgs. 21/11/1997, no. 461
1/7/1998	Atypical securities	Reduced R to 27%	Art. 12, para. 8, D.Lgs. 21/11/1997, no. 461
1/7/1998	Dividends	R 12.5%	Art. 12, para.4, D.Lgs. 21/11/1997, no. 461
1/7/1998	Capital gains on qualifying shareholdings ¹¹¹	Increased R to 27%	Art. 5, para. 1, D.Lgs. 21/11/1997, no. 461
1/7/1998	Capital gains on non-qualifying shareholdings in listed companies	Increased R to 12.5%	Art. 5, para. 2, D.Lgs. 21/11/1997, no. 461
1/7/1998	Capital gains on non-qualifying shareholdings in unlisted companies	Reduced R to 12.5%	Art. 5, para. 2, D.Lgs. 21/11/1997, no. 461
1/7/1998	Capital gains on bonds and other financial securities	Introduced R to 12.5%	Art. 5, para. 2, D.Lgs. 21/11/1997, no. 461
1/1/2004	Dividends and capital gains on qualifying shareholdings	P on 40% of income	D. Lgs. 12/12/2003, no. 344

Legend: R = final withholding tax; RA = advance withholding tax (settled against personal income tax); E = exemption; P = income included in the tax base subject to progressive personal income tax (Irpef). D.L. = Decree Law; D. Lgs. = Legislative Decreee; D.P.R.: Decree of President of Republic; L. = Law.

¹¹¹ Holdings that exceed 5 per cent of the share capital of listed companies or 25 per cent of the share capital of other companies. In any case, a shareholding is considered a qualifying holding if it constitutes more than 2 per cent of the voting shares of a listed company or 20 per cent of the voting shares of an unlisted company.

Withholding tax rates applied to financial income for individuals:

some representative periods

	1.1.1974 – 22.6.1974	1.10.1983 – 31.12.1984	1.4.1991 - 3.10.1991	1.7.1998 – 31.12.2003	1.1.2007 onwards
INTERESTS ON:					
Bank / postal deposits and current accounts					
a) current accounts and sight or time deposits with a maturity of less than three months	15	25	30	27	27
b) others	15	25	25	27	27
Certificates of deposit; interest- bearing bonds					
a) with a maturity less than 18 months	15	25	25	27	27
b) with a maturity beyond or equal to 18 months	15	12.5	12.5	27	27
Government securities and similar bonds					
a) issued in Italy	Е	Е	12.5	12.5	12.5
b) issued abroad	Е	Е	Е	12.5	12.5
Bonds issued by:					
a) SCI, special credit branches and banks	10	10.8	12.5	12.5	12.5
b) Government bodies and State shareholdings companies	20	10.8	12.5	12.5	12.5
c) listed companies	30	10.8	12.5	12.5	12.5
d) unlisted companies	30	10.8	30	12.5	12.5
e) non resident companies	30	30	30	12.5	12.5
Finance bills				12.5	12.5
Banker's acceptances		16.2	15	27	27
Atypical securities	15	18	30	27	27
Amounts received from life- insurances	E	Е	12.5	12.5	12.5

Legend: where not specified, the tax represents a final levy; A = advance withholding tax; E = exemption; P = income included in the tax base subject to progressive personal income tax (Irpef).

Withholding tax rates applied to financial income for individuals:

some representative periods

(continued)

	1.1.1974 – 22.6.1974	1.10.1983 – 31.12.1984	1.4.1991 – 3.10.1991	1.7.1998 – 31.12.2003	1.1.2007 onwards
DIVIDENDS FROM:					
a) ordinary shares					
- qualifying shareholdings	10 A	10 A	10 A	12.5	Р
- non-qualifying shareholdings	10 A	10 A	10 A	12.5	12.5
b) savings shares		15	15	12.5	12.5
CAPITAL GAINS ON:					
a) listed companies' shares					
- qualifying shareholdings			25	27	Р
- non-qualifying shareholdings			15/25	12.5	12.5
b) other companies' shares					
- qualifying shareholdings			25	27	Р
- non-qualifying shareholdings			15/25	12.5	12.5
c) bonds and other securities				12.5	12.5

Legend: where not specified, the tax represents a final levy; A = advance withholding tax; E = exemption; P = income included in the tax base subject to progressive personal income tax (Irpef).

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MONETARY POLICY EFFECTS: NEW EVIDENCE FROM THE ITALIAN FLOW OF FUNDS

Riccardo Bonci and Francesco Columba*

1. Introduction

After Sims (1980) a vast literature assessed the effects of exogenous monetary policy shocks with vector auto-regression models (VAR). Nevertheless, the impact of such shocks on the flows of borrowing and lending of the economic agents, such as firms, households and the public sector, has been less investigated. Following Christiano, Eichenbaum and Evans (1996) (CEE, 1996, hereinafter), we make use of Italian flow-of-funds data to shed light on the behaviour of financing and investment decisions of the sectors of the economy in response to unexpected variations of the policy interest rate.

CEE (1996) studied the effects of U.S. monetary policy with a VAR model applied to the flow-of-funds data from 1961 to 1991. The dataset chosen allowed an analysis of the variations of the financial assets and liabilities of each economic sector, and, within those two aggregates, of the different classes of financial instruments. Despite the promising start, though, the literature, to our knowledge, did not pursue further this research line, probably due to the absence of historical time series of adequate length, frequency and level of detail. The recent availability of newly reconstructed quarterly flow-of-funds time series for Italy as of 1980, made possible for the first time to analyse the effects of monetary policy on the choices of financing and investment of the Italian economic sectors (namely non-financial firms, households, general government, financial corporations, plus the foreign sector) with a VAR model. As a result, we find new empirical evidence on the heterogeneous responses to the different sectors to monetary policy shocks.

Our results for the main macroeconomic aggregates (our VAR model also includes variables such as output and the price level) are consistent with the literature and do not seem to be affected by the empirical puzzles that plagued a number of previous empirical works. Moreover, new features of the transmission of monetary policy shocks are provided through the flow of funds responses. Non-financial firms decrease both acquisition of new financial assets and issuance of liabilities, up to a year after the shock; there is no strong evidence in favour of financial frictions which would prevent firms from adjusting their nominal expenditures promptly. Households, in the first quarter after the shock, increase short-tem liabilities, diminish the acquisition of liquid assets and of shares and increase the amount of securities in their portfolio. The public sector increases net borrowing (in other words, public deficit rises) until almost two years after the shock. Financial corporations decrease the amount of funds borrowed (*i.e.* the Italian net external position improves).

This evidence gathered observing the response of Italian flow of funds, in particular that of firms and households, to a restrictive monetary shock provides new insights into the behaviour of

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financial variables that may be usefully taken into consideration in the assessment of the effects of monetary policy on the economy.

The paper is organized as follows. Section 2 explains how we measure monetary policy shocks in our VAR model. In section 3 the Italian flow-of-funds dataset is described. Section 4 reports findings on the new features of the transmission of monetary policy obtained with the present analysis. Conclusions are drawn in Section 5.

2. Measures of monetary policy shocks

2.1 Identification

To identify monetary policy shocks we adopt a recursive VAR (vector auto regression) approach, following CEE (1999).¹ Our model includes the industrial production index (IP), the consumer price index (P), the import price of raw materials² (P_IMP), the nominal exchange rate of the Italian lira *vis-à-vis* the German Mark³ (EXR), a policy interest rate, namely the repo rate⁴ (R), and a monetary aggregate (M2). All variables, except *EXR* and *R*, are seasonally adjusted.

The endogenous variables vector in our VAR specification (see Appendix 2 for methodological details) is

(1)
$$y'_t = (IP, P, P_IMP, EXR, R, M2)$$

where variables are ordered from the most exogenous (to the left) to the most endogenous (to the right) one, reflecting our identifying assumption according to which policy shocks (*i.e.* shocks to R) have only lagged effects on the first four variables in brackets in equation (1).

On the other hand, industrial production, the price level, the price of imported raw materials, and the exchange rate are assumed to be in the information set of the central bank at the time the interest rate level is set, so that monetary policy reacts contemporaneously to the non-policy variables ordered before our monetary policy measure (the repo rate, R).

We include the exchange rate in our specification in line with the consideration that Italy can be regarded as a small open economy over the period observed. In particular, the exchange rate, not the focus of this work, is regarded as a non-policy variable because of the difficulties for monetary policy to influence such variable contemporaneously, particularly in the first half of the Eighties. Moreover, as explained in the next section, we did not find compelling evidence in favour of the inclusion of the exchange rate among the list of policy variables.⁵

As a result, we consider the monetary aggregate M2 to be the only policy variable in our VAR specification, that is, the only variable reacting contemporaneously (within the same quarter)

¹ Details on the model are provided in Appendixes 1 and 2.

² In local currency.

³ The exchange rate since January 1999 is a constant because of the adoption of the single currency.

⁴ From 1980 to 1981: average interest rate on fixed term advances; from 1982 to 1998: auction rate on repurchase agreements between the Bank of Italy and credit institutions; from 1999 onwards: interest rate on main refinancing operations of the ECB. This latter interest rate does not present a particular break at the beginning of stage three of EMU with respect to the Italian repo rate, even if the convergence of interest rates, begun since 1993, accelerated in 1998 (circumstance that we acknowledge with a dummy variable).

⁵ We also checked for a treatment of the exchange rate as a policy variable without detecting significant changes in the results (see also note 13 and Neri, 2004).

to the monetary policy shock. On the other hand, monetary policy is assumed to respond to variations in M2 only with a lag.⁶

Our choice of the non-policy variables parallels that of Kim and Roubini (2000), who study the effects of monetary policy innovations on the G7 countries with a SVAR (structural vector auto regression) model and seems to deal successfully with the empirical puzzles that troubled much of the rest of the literature.

We chose the interest rate as an indicator of monetary policy in line with the approach of Bernanke and Blinder (1992) and of De Arcangelis and Di Giorgio (2001), who argue that interest rate indicators outperform the ones based on monetary aggregates in identifying Italian monetary policy shocks. In particular, we decided to use the interest rate on repurchase agreements between the central bank and the credit institutions which, also according to Gaiotti (1999) and Gambacorta and Iannotti (2007), better describes the monetary policy operating procedures adopted at the Bank of Italy.⁷

We included four lags in our VAR model, driven by the selection criteria reported in Table 1 (LR and final prediction error), in line with most quarterly VARs in the empirical literature. The VAR residuals show no autocorrelation (see LM test results in Table 2). Furthermore, the hypothesis of normality is not rejected at high significance levels for all the variables considered for the single equations of the VAR (see the Jarque-Bera test results in Table 3). Three point dummies were included in the model, in order to obtain well behaved residuals in the six estimated equations.⁸

2.2 Assessing monetary policy shock measures

Our monetary policy shock measure is an orthogonalised shock to the policy interest rate, *i.e.* the repo rate, *R*. Figure 1, where shaded areas correspond to the recessions of the Italian economy as identified by Altissimo, Marchetti and Oneto (2000),⁹ shows that the residuals of the interest rate equation fit quite well with the recessions' chronology. Monetary policy stance is relatively tight in the period before each recession and it gets looser during the recession period.¹⁰ Our measure of monetary policy is also consistent with the period of monetary restriction from 1994 to 1996, during which inflationary pressures arising from the exit of the lira from the European Monetary System (EMS) exchange rate mechanism (in 1992) and the depreciation shock (in 1995) were counteracted (see Gaiotti, 1999).

To further check the proper identification of monetary policy shocks, we controlled for the response to a one standard deviation increase in the monetary policy interest rate of the macroeconomic variables directly affected (though some of them only with a lag) by monetary

⁶ We chose not to perform cointegration analysis, in line with the empirical approach to model the effects of unexpected monetary policy shocks usually employed in the literature. Secondly, according to Sims, Stock and Watson (1990) standard asymptotic tests are still valid if the VAR is estimated in levels, even if the variables are cointegrated.

⁷ We tried to use as alternative monetary policy indicators, like reserve aggregates, in line with CEE (1996). Difficulties in interpretation of these data, particularly at the beginning of the '80s, put us in the same position of De Arcangelis and Di Giorgio (2001) who considered the monetary policy in those years to be not well described by a market-based approach. Therefore we resorted only to interest rate indicators.

⁸ The three dummies are also related to the three more relevant perturbations of the monetary policy in the period observed. The dummy in the third quarter of 1992 accounts for the contraction of monetary policy during the exchange rate crisis of Fall 1992; the second dummy, in the first quarter of 1995, corresponds to the monetary restriction that contrasted inflationary pressures and the exchange rate depreciation; the dummy in the third quarter of 1998 considers the series of interest rate cuts put in place to achieve convergence of the national interest rates to the common level of the new currency area started in 1999.

⁹ The authors identified three recessions, respectively between March 1980 and March 1983, March 1992 and July 1993, November 1995 and November 1996.

¹⁰ With the possible exception of the first period, when the policy rate is highly volatile.

policy: impulse response functions are reported in Figure 2.¹¹ Industrial production declines, though with initial limited significance, for about two years after the shock and then bounces back to the pre-shock level three years later. This result is consistent with existing empirical literature for Italy and for other G7 countries. Prices, as measured by the consumer price index, start declining two quarters after the shock, in accordance with what theory predicts.¹² The exchange rate appreciates (a lower value of EXR means an appreciation of the Italian currency with respect to the German Mark), though with a limited statistical significance, reaching the maximum effect three quarters after the shock.¹³ The monetary aggregate M2 declines immediately, consistently with the presence of a liquidity effect¹⁴ and then bounces back, losing statistical significance after a year. Quite interestingly, this is also the period in which the response of the interest rate is significantly different from zero, *i.e.* the first four quarters following the shock.

To provide further evidence on the quality of our identification of monetary policy shocks, we also examined the responses of other relevant macroeconomic aggregates excluded from our benchmark VAR specification. As reported in Figure 3, the decline of private consumption is slight but persistent, reaching the maximum contraction after 5 quarters. Collective consumption, on the other hand, does not show a significant reaction, in line with the well-known low cyclicality of this variable in Italy. The decrease in gross fixed investments, probably due to the decrease in expected future profitability, is much more marked than that of private consumption, in line with theoretical priors. The unemployment rate also, as expected, has a small positive reaction to the monetary policy shock in the short-run. Real wages react negatively to the increase in the interest rate, coherently with the fall in production and the rise in unemployment; this result reconciles Italian evidence both with the theory and with US stylized facts. All in all, the reaction of these macroeconomic variables supports our identification of the repo rate as the monetary policy shocks in our model.

The forecast error variance decomposition of each variable (both the ones included in the benchmark VAR specification and the other aggregates used to check our identification) at different time horizons is reported in Table 4. Interest rate policy shocks account for more than 20 per cent of fluctuations in industrial production at the peak, while they explain between 5 and 10 per cent of fluctuations in price level, exchange rate and import prices. Observing the results for the other relevant macroeconomic variables we can confirm that monetary policy is an important

¹¹ The responses of the variables to a monetary policy shock were computed with 1000 Monte Carlo simulations over 16 quarters; following Sims and Zha (1999) the confidence bands are one standard error wide, corresponding to a 68 per cent confidence interval, since "[...] for characterising likelihood shape, bands that correspond to 50% or 68% posterior probability are often more useful than 95% or 99% bands, and confidence intervals with such low coverage probabilities do not generally have posterior probabilities."

¹² We don't find what is known in the literature as the "price puzzle", that is an increase in the price level after a monetary restriction, contrary to the theory that predicts instead a decrease (see Kim and Roubini, 2000). The inclusion of the price of imported raw materials among the endogenous variables has properly the scope of tackling the price puzzle. This is in line with CEE (1996) who include the price of commodities, along the conjecture of Sims (1992), to take into account inflation indicators in the reaction function of the central bank that may be missing from the VAR model.

¹³ This result allows our results to be exempt from the "exchange rate puzzle" (also excluding from the sample the last four years when the exchange rate is constant), that is an impact depreciation of the currency after a monetary contraction (see Sims, 1992, and, for Italy, Chiades and Gambacorta, 2004 and De Arcangelis and Di Giorgio, 2001), mainly we believe for the different identification scheme adopted and the inclusion of the price of imported raw material, given that also a restriction of the sample to the years examined in the two quoted works on Italy does not change our results. Since we have no evidence of exchange rate puzzle we did not deem necessary to depart from the recursiveness assumption (which we prefer also for preserving comparability with CEE (1996) results) to allow simultaneous causality between the policy rate and the exchange rate a other authors did to address the puzzle (see Clarida, Galì and Gertler, 1998, Dornbusch, Favero and Giavazzi, 1998, Gaiotti, 1999 and Smets, 1997). Nevertheless for robustness sake we allowed for simultaneous causality between the two rates adopting an identification scheme a la Kim and Roubini (2000) widely considered adequate to deal with the exchange rate puzzle, without detecting any relevant change in the impulse responses (results available on request).

¹⁴ We have no evidence of the liquidity puzzle found when monetary policy shocks are identified as innovations in monetary aggregates and innovations appear to be associated with increases rather than decreases in nominal interest rates.

source of output fluctuations in our framework. Monetary policy shocks account for one third of the 2-years-ahead forecast error of fixed investment, and for about one fifth of private consumption and unemployment rate.

All in all, our results are consistent with the theoretical predictions of the effects of unexpected monetary policy shocks and with the empirical literature on VAR models,¹⁵ without being affected by significant empirical puzzles.

2.3 Robustness

We also explored, motivated by the vast literature, different specifications of the VAR model, but our main results stayed virtually unchanged as for the qualitative and quantitative responses of the model. In particular, we considered different interest rates as policy rate, such as the three-month interest rate, the overnight interest rate and different averages of these rates and of the reportate. In alternative to industrial production, we also considered GDP measures. We tried also, in place of M2, to use other monetary aggregates such as M1 and M3, both raw data and moving averages, and using different definitions of each aggregate.¹⁶ We explored also alternative measures of inflation (the GDP deflator) and of commodities prices (including oil or not) and a number of definitions of the exchange rate: effective, vis-à-vis the German Mark, the US Dollar, real or nominal. We tried to control also for the exogeneity of commodity prices, but we detected a worsening in the quality of the response of the monetary aggregate, without observing improvements in the response of the other variables, hence we preferred to assume commodity prices as endogenous. Finally, even if we are not concerned with structural parameters, we also tried to cut the last four years of the sample, to account for a possible change in the monetary policy regime given by the start of the single currency area, without detecting significant changes in our results¹⁷.

3. Italian Flow of Funds

Flow-of-funds data in general enable us to examine the linkages between the financial positions of the different sectors of the economy, allowing to reconcile the identity of saving and real capital formation in any period, for the economy as a whole, with the fact that at the same time individual spending units (sectors) have the option of investing (in real assets) more or less than they have saved. In fact, for each sector the difference between fixed investment and gross saving results in a change in the net financial position, also called "net lending/net borrowing", towards the rest of the economy (considering both the other domestic sectors and the foreign sector). For sector *i*:

$$I^{i} - S^{i} = FL^{i} - FA^{i} = net funds raised(1)$$

where S is saving, *i.e.* the excess of disposable income over consumption, I is tangible investment (fixed capital formation and changes in inventories), FL and FA are the net incurrence of financial liabilities and the net acquisition of financial assets, respectively. Since any financial asset is necessarily a liability to someone else, for the (world) economy as a whole equation (1) reduces to the well known national accounts identity S = I.

¹⁵ Notably for Italy, Gaiotti (1999) describes in detail the transmission of monetary policy in Italy from 1967 to 1997.

¹⁶ During the period of observation, apart for the major methodological break in 1999 when new monetary aggregates definitions were adopted, M2 witnessed changes in its definition; moreover different definitions of M1 are conceivable. Finally the two monetary aggregates can be considered as evaluated at the end of each period, as (simple or moving) averages, and seasonally adjusted or not.

¹⁷ This fact may be due to the small size of the policy interest rate shock in the four years considered relative to that in the previous part of the sample.

We consider the following sectors: (i) households, (ii) non-financial firms, (iii) financial firms, (iv) general government, (v) the foreign sector.¹⁸ For each sector in turn, besides net funds raised, we look at its transaction in financial assets (new asset acquisitions) and liabilities (new debt issuances), that is *FA* and *FL* respectively. Moreover, in the case of households and non-financial firms we provide further insight also observing the responses of financial transactions at a more disaggregated level. For households we split assets among deposits (and cash), short-term and long-term loans. In the case of non-financial firms we focus mainly on liabilities, distinguishing between short-term and long-term debt, and further splitting the latter into equity and other long-term debt (corporate bonds and long-term loans).

As regards financial assets and liabilities of the various sectors, we exploit a recent reconstruction of quarterly flow-of-funds data for Italy from 1980, done at the Bank of Italy¹⁹. These data are presented in Figure 4, where each graph shows net funds borrowed (positive values) or lent (negative values) by the different sectors over the period 1980-2002. Not surprisingly, at least for the Italian economy, households are net lenders over the whole period; the opposite happens for the general government and, with very few exceptions, for non-financial firms.

4. Effects of monetary policy shocks on flow of funds

The use of VAR models to assess the effects of unexpected monetary policy shocks on the economic system has been very intense²⁰. Here we briefly recall the main results of the works which we think are more relevant for our analysis.

CEE (1996) addressed the empirical evaluation of the response of the borrowing and lending behaviour of different categories of economic agents to monetary policy shocks, using US flow-offunds data. One of their main results is that net funds raised by firms in the financial markets increase for about a year after a monetary policy tightening, and begin to fall later on, when a recession gains momentum. The authors explain this finding with the existence of financial frictions, mainly due to contracts in place, which would prevent firms from adjusting immediately their level of inventories to the new (lower) level of demand, as standard monetary business cycle models would predict. A second result found by CEE (1996) is that households do not adjust their financial position to monetary policy shocks for a number of quarters, in line with the predictions of limited participation models that claim a certain degree of rigidity of households in adapting their financial choices. Finally, there appears to be a (surprising) temporary reduction in net borrowing of the government. The authors themselves deem this latter result to be "puzzling" and point, as a possible explanation for that, to a temporary increase in personal tax receipts, which vanishes after about a year, as the recession takes hold.

Our work aims to extend the analysis of the monetary policy shocks transmission in Italy bringing into the picture the investigation of flow-of-funds variables²¹. Following CEE (1996), we

¹⁸ In the present work we consider a genuine "consumer" household sector, while in the Italian flow of funds the household sector comprises also "producer" households (small unincorporated firms and sole proprietorships with less than five employees). We prefer to include the latter among non-financial firms, so to include all the producer units in the non financial sector, regardless of firm size or of legal form. The other sectors are consistent with the ESA95 (European System of National Accounts) classification, which is also applied in the Italian flow of funds. Financial firms include banks, money market funds, financial auxiliaries and insurance corporations and pension funds (the Bank of Italy is excluded). The general government sector includes central government, local government and social security funds. The foreign sector includes all the non-resident units.

¹⁹ In the former dataset the time series showed a discontinuity in 1995 because of differences in the compilation methodology, in the classification criteria and in the accounting principles introduced with the adoption of the ESA95 (European System of Accounts 1995, Eurostat, 2000).

²⁰ For a review of the literature see, among others, Bagliano and Favero (1998), Bernanke and Mihov (1998), Christiano, Eichenbaum and Evans (1999) (hereinafter CEE, 1999), Kim (1999), Rudebusch (1998) and Walsh (2003).

assess the effects of monetary policy shocks (an unexpected 1-standard-deviation increase in the policy interest rate, corresponding to 92 basis points in our case) on the borrowing and lending activities of the various economic sectors. To this purpose we analyse flow-of-funds series to detect the dynamic responses to such shocks of non-financial firms, households, general government, financial firms and the foreign sector.

In order to achieve this goal we employ the so-called "marginal method", that is, we take our benchmark (6-variable) VAR specification and then add, as the last variable (most endogenous), one flow-of-funds series in turn. This implies that monetary policy does not react in the short run to changes in the patterns of these variables, but that such financial transactions respond to monetary policy shocks within the same quarter it has occurred. In the rest of this section we describe our results on the borrowing and lending behaviour of the sectors of the Italian economy after an unexpected monetary policy restriction.

Non-financial firms. – The accumulation of assets by non-financial firms decreases significantly in the first two quarters after the monetary shock. After that period the variation fades away. Also total financial liabilities diminish, but for a longer time (two years). Among new liabilities issued by firms, shares and other equity (unlisted) decline significantly for only one quarter, while the decrease in bonds issued and in long-term loans is protracted for one year and a half. At the same time, we do not observe a strong reaction to the monetary policy shock of the net funds raised by non-financial firms, as a result of the two counterbalancing responses observed on the asset and on the liability side (see Figure 5).

Following a contractionary monetary policy shock, CEE (1996) observed an increase in both firms' financial assets and liabilities, but in their case the two effects did not completely offset, so that net borrowing eventually rises. As a possible explanation for that, the authors pointed to some degree of inertia in the firms' level of nominal expenditures.²² Our results look different in some respects: except for a slight increase occurring in the same quarter of the shock, the response of net funds raised is never significant in our model. The reduction in the firms' issuance of new debt seems more consistent both with the "money view" (standard IS/LM models) and with the "credit view" (e.g. Bernanke and Blinder, 1988) of the transmission mechanisms of monetary policy, and also with monetary business cycle models (Fuerst, 1994). We do not find evidence in support of costs' inertia, with the possible exception of a small (and non significant) increase in short-term liabilities in the first three quarters following the shock. The fall we observe in the firms' acquisition of new financial assets, on the other hand, also appears to be in line with standard predictions on the effects of a restrictive monetary policy shock. Our findings as regards smaller financial frictions on the firms' assets and liabilities, compared to those found by CEE (1996), may be due to the structural differences between the Italian and the US economies, but also to the diverse time span examined. The 1961-1992 sample used by CEE(1996), in fact, contains the pre-"great moderation" years (namely the '70s), when financial variables displayed a lot of volatility and market mechanisms experienced a substantial deal of frictions (Justiniano and Primiceri, forthcoming, Smets and Wouters, 2005 and 2007). The circumstance that in CEE (1996) the reduction of the firms' incurrence of new debt is concentrated in the short-term component, while it regards more the long-term component in our results, may in fact be due to the role of the above mentioned financial frictions (typically affecting the shorter term response to the restrictive shock) and to the different firms' expectations as to the long-term interest rates patterns after the restrictive shock.

²¹ Quite interestingly for our focus on financing and investment decisions, Dedola and Lippi (2005) found that output responses to monetary policy shocks differ among different industry sectors and are systematically related to the output durability, financing requirements, borrowing capacity and firm size, both in Italy and in other industrialized countries. Gaiotti and Generale (2002) estimated the effects of monetary policy on the investment behaviour of Italian firms with a panel data-set, finding that financial variables do actually matter.

²² See also Bernanke and Blinder (1992) and Gertler and Gilchrist (1993).

Households. – Net funds borrowed by households decline significantly over the first year following the contractionary shock, therefore improving their net financial position, as a result of a smaller debt issuance and a larger amount of funds lent to other sectors (Figure 6).

The strong evidence on net funds raised is the result of two opposite (and weaker) effects observed on the asset and on the liability side. The maximum negative effect on the flows of new financial liabilities is reached in the second quarter, while financial assets increase significantly only in the first quarter and then the positive effect vanishes. It should be noted that the responses of the flows of assets and liabilities of households were much stronger in CEE (1996).

Among financial assets, currency, deposits and shares show a marked decline in the first quarter. Deposits might decrease because of an increase in their opportunity cost,²³ occurring if financial corporations do not adjust passive interest rates as quickly as the adjustment of the rates of alternative liquid instruments on the market, such as Treasury's short-term securities.²⁴ Accordingly, acquisition of short-term securities increases in the first quarter, benefiting from the temporary increase in the interest rate differential with the demand deposits. The following reduction in the acquisition of short-term securities up to the second year after the shock may indeed reflect the return to the pre-shock level of the interest rate differential with demand deposits. Acquisition of bonds (long-term securities), after an initial upsurge, does not react much to the shock, in line with an effect of the interest rate shock only on the short-term part of the interest rate curve, as it is normally believed to be the case. The decrease in the acquisition of shares may be connected to the worsened perspectives for economic activity perceived by households after the restrictive shock.

As for liabilities, short-term loans taken by households increase in the first quarter, pointing to some tensions in their cash needs, nevertheless not impairing the overall result of a decrease in the net funds borrowed after the shock. Long-term loans, on the other hand, decrease significantly up to the third quarter.

Other sectors. – We complete the analysis of the overall effects of an unexpected restrictive monetary policy shock on the net financial flows of the Italian economic sectors looking at the responses of net funds raised by financial corporations, general government and the foreign sector (see Figure 7).

We find that contemporaneously to the initial decrease in the funds borrowed by nonfinancial firms and by households, funds borrowed by the public sector and by the foreign sector increase, as well as those lent by financial corporations.

General government experiences a deterioration of its net financial position, increasing the financial resources borrowed by the other sectors, in line with what one could expect during a slowdown of the economy. Our result is different from that of CEE (1996), who found a decrease in the public deficit following a monetary shock possibly, possibly due to the structure of the US tax system.

Turning to financial corporations, after the impact increase they decrease net funds borrowed up to three quarters after the shock. Nevertheless, due to the low statistical significance of the responses both of assets and liabilities we prefer to play down this result, also taking into account the high volatility of the time series involved (see Figure 4).

²³ Although in the Italian financial accounts there is no distinction between deposits and currency (that add up to M1), we know from monetary statistics that, on average, currency in Italy in the period examined accounted for only one sixth of M1.

²⁴ This could reflect some sluggishness in the response of bank deposit rates as found by Gambacorta and Iannotti (2007), especially before the introduction of the Consolidated Law on Banking in 1993.

The foreign sector increases the amount of funds borrowed until the third quarter after the shock²⁵ (see Figure 7) and then the variation fades away. The increase in the liabilities in the first year after the shock might be attributed to the different timing induced by the restrictive shock in the changes of the demand for funds coming from the Italian economy and from the rest of the world. The contraction of the domestic economy would decrease the internal demand for funds, while the request of funds from the foreign sector would not be equally affected by the shock.²⁶

5. Conclusions

From the analysis of the responses of financial saving and investment decision of the Italian economic sectors to an unexpected one standard deviation increase of the policy interest rate, we reach the following conclusions.

Non-financial firms in the first four quarters following the unexpected monetary tightening decrease both financial assets and liabilities. We do not find evidence in favour of strong financial frictions which would prevent firms from adjusting their nominal expenditures promptly. In our model firms behave as predicted by standard monetary models, reducing their liabilities after the shock. Households in the first quarter after the shock diminish the acquisition of liquid assets and of shares and increase that of securities. The public sector increases net borrowing until almost two years after the shock, due to an increase in the burden of the public debt due to the interest rate increase, and to a fall in tax receipts induced by the economic slowdown. Financial corporations decrease net funds borrowed up to three quarters after the shock, while the foreign sector increases the amount of funds borrowed from the Italian domestic sectors until the third quarter after the shock.

As regards other important macroeconomic variables, the results of the VAR analysis are consistent with most theoretical predictions and with the empirical evidence available in the literature. In the first four quarters after the shock (a 92 basis point unexpected increase in the repo rate) industrial production decreases by around 40 basis points, the price level declines by 11 basis points, while the money stock drops by 34 basis points. Moreover, our results are not affected by any price, liquidity and exchange rate puzzles.

²⁵ The slight decrease observed in the first quarter after the shock is not statistically significant.

²⁶ This could be the case particularly for the restriction in Italian monetary policy between 1994 and 1996.

Appendix 1: data description

VAR endogenous variables:

- IP: log of seasonally adjusted industrial production index (Source: OECD, Units: base 1980:1 = 100).
- P: log of seasonally adjusted consumer price index (Source: IMF, International Financial Statistics, base 1980:1 = 100).
- P_IMP: log of seasonally adjusted import price of raw materials (Source: OECD, index number, in local currency).
- EXR: log of nominal exchange rate (ITL per DM; from 1999 it is a constant) (Source: Banca d'Italia).
- R: short-term interest rate (from 1980 to 1981: average interest rate on fixed term advances; from 1982 to 1998: auction rate on repurchase agreements between the Bank of Italy and credit institutions; from 1999 onwards: interest rate on main refinancing operations of the ECB) (Source: own calculations on Banca d'Italia and ECB data).
- M2: log of seasonally adjusted monetary aggregate M2 (Source: Banca d'Italia).

VAR endogenous variables' graphs



<u>Financial accounts series</u> (converted to billions of 1995 ITL using the gdp deflator, and seasonally adjusted):

- non-financial corporations: total financial assets (NFTAS), total financial liabilities (NFTLI), net funds raised (NFNET=NFTLI-NFTAS), short term liabilities (NFSLI), shares and other equity (NFELI), other long-term debt (NFDLI), long-term liabilities (NFLLI=NFELI+NFDLI);
- financial corporations: total financial assets (FCTAS), total financial liabilities (FCTLI); net funds raised (FCNET=FCTLI-FCTAS);
- households: total financial assets (HTTAS), total financial liabilities (HTTLI), net funds raised (HTNET=HTTLI-HTTAS), currency and deposits (HTDAS), short-term securities (HTSAS), long-term securities (HTBAS), shares and other equity (HTEAS), short-term loans (HTSLI), long-term loans (HTLLI);
- general government: total financial assets (GGTAS), total financial liabilities (GGTLI); net funds raised (GGNET=GGTLI-GGTAS),
- rest of the world:, total financial assets (RWTAS), total financial liabilities (RWTLI), net funds raised (RWNET=RWTLI-RWTAS)

Appendix 2: methodological issues

We assume the economy to be described by a structural form equation like the following:

$$A(L)y_t = u_t \tag{1}$$

where A(L) is a matrix polynomial in the lag operator L, y_t is an n×1 vector containing the variables of interest, and u_t is an n×1 structural disturbances vector. Let Ω be the n×n variance-covariance matrix of the *structural disturbances*; since u_t are assumed to be mutually uncorrelated, the matrix Ω is diagonal, the n diagonal elements being the variances of the n structural disturbances.

Writing (1) in reduced form gives the following representation:

$$y_t = B(L)y_t + e_t \tag{2}$$

which can be estimated using OLS equation by equation. B(L) is a matrix polynomial in the lag operator *L* and the e_t terms in equation (2) are the VAR (reduced-form) *residuals* resulting from the estimation of the n regressions. We call Σ the variance-covariance matrix of the residuals.

The structural disturbances u_t and the reduced form residuals e_t are related by:

$$e_t = A_0^{-1} u_t \tag{3}$$

where the coefficients in the A_0 matrix are those of the contemporaneous relations among the variables in the y_t vector. From eq. (3) and remembering that $var(e_t) = \Sigma$ and $var(u_t) = \Omega$:

$$\Sigma = A_0^{-1} \Omega A_0^{-1} \tag{4}$$

To recover the parameters in the structural form equations (1) from the coefficients estimated in the reduced form equations (2) sample estimates of Σ can be used in order to obtain maximum likelihood estimates of Ω and A_0 . We make use of a Choleski factorisation in order to orthogonalize the residual covariance matrix Σ . In practice, this corresponds to imposing just $n\times(n-1)/2$ restrictions on the matrix A_0 , that is supposed to be lower triangular (all the upper diagonal elements are set to be 0); as a result, the VAR is just identified. **Appendix 3: Figures and Tables**



Figure 2 - Responses to a contractionary monetary policy shock: VAR variables



Note: estimated impulse responses to a one standard deviation increase in the short term interest rate. The dashed lines are ± 1 standard error bands, computed by means of Monte Carlo integration, following Sims and Zha (1999).



Figure 3 – Responses to a contractionary monetary policy shock: other macro variables

Note: the estimated impulse responses were estimated from 7-variable VARs in which we added one of the above variables, in turn, to the original 6-variable VAR, placing it in the last position. The dashed lines are \pm 1 standard error bands, computed by means of Monte Carlo integration, following Sims and Zha (1999).

Figure 4 – Flow of funds data: net funds raised by sectors (converted to billions of 1995 ITL using the gdp deflator and seasonally adjusted)





Figure 5 – Responses to a contractionary monetary policy shock: non-financial firms



Figure 6 – Responses to a contractionary monetary policy shock: households


Figure 7 – Responses of the flow-of-funds data to a contractionary monetary policy shock

Note: the estimated impulse responses were estimated from 7-variable VARs in which we added one of the above variables, in turn, to the original 6-variable VAR, placing it in the last position. Dashed lines are ± 1 Monte Carlo standard error bands.

VAR diagnostic tests:	lag order selection
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Lag	LogL	LR	FPE	AIC
0	325.650	NA	3.33e-11	-7.09766
1	1090.81	1350.27	1.19e-18	-24.2543
2	1128.94	61.9144	1.15e-18	-24.3046
3	1168.47	58.5918	1.11e-18	-24.3875
4	1208.92	54.2555*	1.08e-18*	-24.4923
5	1246.37	44.9327	1.19e-18	-24.5263*
5	1246.37	44.9327	1.19e-18	-24.5263*

(*) indicates lag order selected by the specific criterion. LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion.

Table 2

VAR diagnostic tests: autocorrelation LM test $(H_0: \text{ no serial correlation at lag order } h)$

Lags	LM-Stat	Prob.
1	42.3	0.22
2	36.5	0.45
3	43.1	0.19
4	38.7	0.35
5	23.6	0.94
6	40.0	0.30
7	30.9	0.71
8	31.3	0.69

Probs from chi-square with 36 d.o.f.

Residuals from equation for:	Industrial production	Price level	Import price	Exchange rate	Interest rate	M2
Mean	2.32E-15	-1.25E-15	1.96E-13	3.91E-14	-3.64E-12	-8.03E-15
Median	-0.0007	6.39E-05	0.0013	0.0004	-0.0006	-0.0004
Max	0.0273	0.0083	0.1076	0.0446	2.7194	0.0230
Min	-0.0246	-0.0085	-0.0967	-0.0502	-2.2028	-0.0255
Std. Dev.	0.0090	0.0030	0.0418	0.0177	0.9212	0.0093
Sum	2.00E-13	-1.07E-13	1.69E-11	3.36E-12	-3.13E-10	-6.91E-13
Sum Sq. Dev.	0.0069	0.0007	0.1487	0.0266	72.133	0.0074
Observations	86	86	86	86	86	86
Skewness	0.237	-0.208	0.041	0.063	0.125	0.133
Kurtosis	3.496	3.186	2.821	3.835	3.587	3.469
Jarque-Bera	1.687	0.744	0.139	2.558	1.461	1.046
Probability	0.430	0.689	0.933	0.278	0.482	0.593

VAR diagnostic tests: residual descriptive statistics and normality test

Forecast error variance decomposition due to monetary policy shocks

Variable name	1 quarter	2 quarters	1 year	2 years	3 years
VAR variables					
Industrial production	0.0 (1.2)	0.4 (1.6)	3.5 (4.3)	21.9 (10.1)	22.9 (10.2)
Price level	0.0 (0.7)	0.4 (1.7)	3.4 (4.4)	5.6 (6.7)	9.3 (8.9)
Import price	0.0 (1.2)	0.6 (1.9)	2.5 (3.9)	10.6 (7.8)	10.3 (7.6)
Exchange rate	0.5 (1.3)	0.4 (1.4)	3.2 (3.7)	5.1 (4.2)	4.0 (5.2)
M2	3.6 (4.2)	4.2 (4.8)	6.5 (7.0)	4.7 (6.5)	3.6 (6.1)
Other aggregates (*)					
Unemployment rate	9.2 (6.0)	9.8 (7.0)	13.0 (7.8)	15.7 (9.1)	17.0 (10.1)
Gross fixed investment	0.1 (1.7)	1.3 (2.5)	8.9 (6.9)	28.6 (12.2)	31.5 (12.6)
Real wages	4.4 (3.9)	5.7 (5.0)	7.6 (6.5)	5.9 (5.8)	7.0 (6.4)
Private consumption	0.1 (1.6)	0.3 (2.0)	8.1 (6.2)	15.5 (9.4)	15.8 (9.8)

 (\ast) Each variable was added as the last one to the original 6 variables VAR.

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Session 4

INTERNATIONAL COMPARISONS

THE FINANCIAL STRUCTURES OF THE LEADING INDUSTRIAL COUNTRIES: A MEDIUM-TERM ANALYSIS

Laura Bartiloro, Riccardo De Bonis, Andrea Generale and Irene Longhi^{*}

1. Introduction

Financial structures can be examined from many standpoints. Differences in financial systems are an expression of different types of capitalism; they may be linked to the classic distinction between bank-based and market-based systems; they may have been caused by institutional and regulatory choices, by the heterogeneous nature of economic policy decisions in response to financial crises; and they may have their roots in countries' legal systems.

The differences between financial systems are a key aspect of the literature investigating the link between finance and economic growth, where the direction of causality is hard to discern; they can help to explain asymmetric effects of a single monetary policy in an area made up of different countries; they may influence the financing of innovative activities and the growth in the size of firms; they signal economic agents' different propensities for risk; and they are important for financial stability.

In the light of some of these issues, the paper analyzes financial and real wealth, the role of intermediaries and markets, and the debt of households and firms in the leading industrial countries: the United States, Japan, Italy, the United Kingdom, France, Germany and Spain. Four groups of questions are addressed:

- a) what are the differences between the size of countries' financial systems? What relationship exists between financial assets and real wealth?
- b) are the differences in economies' financial deepening attributable to particular institutional sectors? What is the role of banks and other financial intermediaries?
- c) how have households' financial and real wealth and debt evolved? Has the composition of financial instruments changed with their riskiness?
- d) what are the shares of firms' internal and external financing? How have leverage and the composition of financial liabilities evolved?

In order to verify the persistence of the differences between financial systems, we have analyzed the period from 1995 to 2004, which saw stock markets rise, fall and then rise again. The main statistical sources used are national financial accounts. For the European countries the statistics are based on definitions established by the European System of Accounts (ESA95; see Appendix), whose adoption increased the comparability of the information contained in the financial accounts. There remain differences with respect to the definitions of institutional sectors and financial instruments used by the United States and Japan.

The paper is divided into six sections. This Introduction is followed by a preliminary comparison between financial assets and real wealth (second section). The third section is devoted to intermediaries, the fourth to the composition of households' wealth and debt, and the fifth to firms' financial structure and debt. The sixth section contains the main conclusions.

Bank of Italy. Giancarlo Marra created a procedure for the automatic conversion and aggregation of the data on the United States and Japan. Giuseppe Acito, Cristiana Rampazzi and Stefano Vicarelli cooperated on the preparation of the tables and figures.

2. Financial and real assets

2.1 The recent growth in financial assets

In the last ten years financial assets have expanded very rapidly. Between 1995 and 2004 the stock doubled in Italy, the United Kingdom and the United States, while it grew by 80 per cent in France and 70 per cent in Germany (Table 1). By contrast, it grew by less than 10 per cent in Japan, reflecting the fall in stock market prices and the reduction in the private sector's recourse to external financing at a time of deep and prolonged recession.

The ratio of financial assets to GDP has risen in every country. The increase in financial deepening has been driven by the deregulation of finance, which has led to a broadening of the range of instruments available for the allocation of savings. The progress in telecommunications technology has multiplied the options available to debtors and creditors. Low nominal and real interest rates have encouraged recourse to external financing.

2.2 International opening

The greater integration of financial markets has been reflected in an increase in financial transactions with abroad. In every country except Japan the ratio of financial assets of the rest of the world to GDP has risen. The largest growth over the last ten years occurred in the United Kingdom and Germany.

Although it is difficult to determine the causal links, greater growth of the financial system is likely to be accompanied by a higher degree of openness to international transactions.¹ The dispersion of countries' ratios of assets of the rest of the world to GDP is high and reflects differences in historical traditions, the size of the domestic market, and the forms and timing of exchange liberalization. As things stand today, the United States and Japan appear to be the least open countries. Italy is in an intermediate position, while France and Germany have higher foreign asset ratios. The United Kingdom, where the importance of finance reflects the country's long-standing commercial openness and London's role as a major centre for interbank transactions, continues to have the highest ratio.

2.3 Financial assets vs real assets: Goldsmith's FIR

The ratio of gross financial assets to national real wealth – known as the FIR (Financial Interrelations Ratio) – rose between 1995 and 2000, a period marked by a good performance of stock markets, a decrease in interest rates and a satisfactory economic growth (Table 1). From 2000 onwards, the downturn in equity prices and the increase in property prices led to the FIR falling in France, Italy and the United States. In Japan, by contrast, it continued to rise since the value of real wealth decreased as a consequence of the fall in the value of land.² In Germany the FIR fell only in 2002 and even then only a little, owing to the limited increase in the prices of real assets (see ECB, 2003). In the United Kingdom, where the rise in property prices preceded that in continental Europe, the FIR began to fall, albeit slightly, earlier than in the other countries.

¹ See Rajan and Zingales (2001) and Quy-Toan Do and Levchenko (2004) on the nexus between trade openness and financial integration.

² According to the Statistical Handbook of Japan (2003) "With the collapse of the bubble economy, national wealth followed a downward trend and in 2001 fell by 18 percent [with respect to 1990]. Among the assets, the decline in land prices was particularly sharp, and it reduced the proportion of land in national wealth from 69 percent in 1990 to 50 percent in 2001. Due to the fall in land values and other factors, national wealth at 2001 year-end was 2906.7 trillion yen, down 1.9 percent (56.2 trillion yen) from the figure at 2000 year-end, recording a fourth consecutive year of decline".

Despite the changes that occurred over the period, in 2004 Italy still had the lowest ratio of financial assets to GDP (Table 1) and the highest ratio of real wealth to GDP. Even with the caution made necessary by the absence of harmonized methods of measurement (e.g. in calculating property values), the large proportion of real wealth in Italy can be traced back to a variety of factors: the traditionally high savings rate, the large size of the manufacturing sector, firms' replacement of labour with capital starting in the 1970s, and the smaller range of financial instruments available before the liberalization of markets began.

2.4 A breakdown of the FIR: what do its changes depend on?

Goldsmith (1985) gave a breakdown of the FIR into its fundamental components. The ratio of financial assets to real wealth at a given moment in time depends directly on the amount of financial liabilities issued in the period and the change in the value of the stock of outstanding liabilities and of those newly issued and depends inversely on the ratio of national wealth to GDP.

Even with the caution due to the short time span available for the analysis, which does not allow structural indications to be extrapolated from the results, the evolution of the FIR can be broken down as follows:

$$\begin{split} FIR_t &= FA_{t'}RW_t = \\ & [(\delta_{nf} + \varpi_{nf} + \delta_{fa} + \varpi_{fa} + \delta_{ap} + \varpi_{ap} + \delta_{rm} + \varpi_{rm} + \delta_{sf} + \varpi_{sf})^* \; GDP_t/RW_t \;] + \; FA_{t-n}/RW_t \end{split}$$

where the δs are the issues of new liabilities made by the different institutional sectors between t-n and t (nf=firms; fa=households; ap=general government; rm=rest of the world; sf=financial sector), net of the effects of the changes in the prices of the financial instruments, and the ϖs are the valuation differences. Both the δs and the ϖs are in relation to GDP at time t. GDP_t/RW_t is the ratio of GDP to national real wealth and the ratio of financial assets at the beginning of the period to real ones at the end of the period is a residual.

This breakdown makes it possible to measure the importance of the effects of quantity and price changes on the FIR. In other words, it is possible to evaluate the extent to which the increase in financial deepening is due to the growth in the issues of the various institutional sectors (the quantity effect) and to the revaluation of the financial instruments (the price effect).

Over the period 1996-2004 as a whole, the quantity effect prevailed over the price effect (Table 2); the net issues of new liabilities (the δ s) were larger than the change in the value of the stock due to the change in prices. Restricting the analysis to the years 1996-2000, the years of the stock market boom, the change in prices made a positive contribution to the rise in the FIR in all the countries considered, although the effect was still smaller than that produced by net new liabilities. In short, the quantity effect was greater than the price effect even during the years of the increase in equity prices. In the rest of the period (2001-2004) the fall in the FIR, attributable above all to the rapid growth in the value of real assets, was also due to the negative price effects produced by the fall in stock market prices and, in the countries of continental Europe, by the contraction in new issues.

2.5 The importance of the different sectors in new net issues

Considering the flows of new liabilities net of valuation effects (the δ s) in the period 1996-2004, about half of the new issues were by the financial sector in every country (Table 2). Among the non-financial sectors foreign issues were particularly large in Germany and the United Kingdom, thus confirming, as already seen in Section 2.2, that these two countries are those that in

recent times have most increased their dealings with abroad. In Italy and the United States the debt flows of firms and households were important instead. Japan's case is different, with not only financial companies playing a key role but also general government. In Europe, by contrast, this sector generated a low level of issues compared with the other sectors owing to the public finance constraints in place.

Considering the time profile of new issues (Table 3), between 1998-2000 and the three preceding years the net flows of new liabilities of the non-financial sectors grew as a ratio to GDP in most of the countries. The increase in firms' liabilities was substantial in all the western countries; it was due in part to the need to meet the financial commitments associated with extraordinary corporate actions in a period in which high stock market prices made it possible to limit the rise in the degree of indebtedness. In 2001-03, during the downturn of the capital markets and the slowdown of the economies, the flow of new liabilities decreased compared with the previous three-year period.

3. Financial intermediaries and instruments

3.1 The role of financial institutions

The analysis of the degree of financial deepening has shown that together with countries with a low ratio of financial assets to GDP, in particular Italy and Germany, there are others with a high ratio, such as France, the United States, Japan and above all the United Kingdom. Among other things the differences between the countries in the importance of financial assets reflect the differences in the importance of intermediaries. The breakdown of the Financial Interrelations Ratio has already manifested the importance of financial institutions for its growth. The share of the assets of the various intermediaries points out which particular part of the financial industry is backward compared with the other countries.

In Italy the ratio to GDP of the financial assets of banks, money-market funds, other financial intermediaries, and pension funds and insurance companies rose from 1.7 to 2.6 between 1995 and 2004 (Table 4) but remained lower than in the other countries. This difference, together with the smaller share of non-residents' assets, explains the lower ratio of total financial assets to GDP in Italy, compared with the other European countries. Compared with the United States and Japan, the smaller degree of Italy's financial deepening is due not only to the different importance of its financial sector but also to the lower level of firms' and households' financial assets (analyzed in Sections 4 and 5).

One determinant of the differences between countries in the ratio between the financial assets of the financial sector and GDP is the existence of different pension systems. In 2004 the ratio between the financial assets of the insurance and pension fund sector and GDP was 0.3 in Italy and Spain, compared with about 0.7 in Germany and France. Traditionally, even higher values are found in the United Kingdom and the United States, where public pension schemes are relatively unimportant, so that households are pushed into investing in private pension funds. In Spain and Italy there is a predominance of pay-as-you-go pension systems, whose implicit liabilities do not appear in the financial accounts. The importance of the public pension system has reduced the incentives for households to invest in private pension funds.

In the comparison between European countries and Japan, the ratio between the assets of banks and GDP is found to be lower in Italy, even though the amounts Italian banks lend to non-financial corporations and producer households are in line with or above the European average. The lower ratio of bank assets to GDP in Italy is due to the lower levels of the securities portfolio, consumer credit, loans for house purchase, business with non-residents and interbank positions; as

regards the latter item, this reflects the efficiency of the interbank deposit market, which leads to lower levels of this instrument in both banks' assets and their liabilities.

3.2 The financial intermediation ratio

The financial intermediation ratio (FIN), of which there are several definitions,³ can be measured as the ratio between the liabilities of financial companies (banks, the central bank, other financial intermediaries, and insurance companies and pension funds) and total financial assets. The ratio indicates the degree of "institutionalization" of a country's financial structure and the role played by intermediaries.

The FIN is high in Japan, Germany and the United Kingdom (Figure 1). It has intermediate values in France and the United States. Italy and Spain are the two countries in which financial intermediation is least developed with respect to the assets of the other institutional sectors.

A simple breakdown shows the relationship between the FIR and the FIN.⁴ For given values of total real wealth and of the stock of financial liabilities of the non-financial sectors, the accounting identity implies that a higher FIN is associated with higher values of the FIR. For example, if Italy's FIN rose to the level found in the United Kingdom (from about 0.4 to about 0.5 in 2004), its FIR would rise from 1.03 to more than 1.2, still a very low level by international standards. These indications confirm that there are non-financial factors – such as the large stock of physical capital – that explain the particularly low value of Italy's FIR.

As regards the change in the FIN over the decade, up to 2000 the indicator fell in France, Germany and Spain, whereas it rose in Italy and the United States. In Italy the rise was due to the growth in investment funds. In parallel with the fall in stock market prices and firms' smaller issues of liabilities, in the following years the FIN began to rise again in the other countries, except in Japan, where it declined slightly. Overall, the FIN rose over the decade in Italy, the United Kingdom and the United States and fell in the other countries.

The financial intermediation ratio can be calculated for banks alone, so as to better understand the role they play in different economies. In Germany, the importance of banks, in a system characterized by the universal bank model and traditional equity relationships with firms, is significantly greater than in other countries (Figure 2). Among the other European countries, banking disintermediation has been considerable up to 2000 above all in France and Spain; subsequently, the indicator rises for every country except Spain. The FIN of the banks is particularly low in the United States, confirming the development of financial markets and other intermediaries.

The performance of the FIN reflects the change in the composition of financial assets, between instruments issued directly on the markets and intermediated assets, which is analyzed in the next section.

3.3 A comparison between "intermediated" and "non-intermediated" instruments

Financial systems are frequently classified according to whether they are oriented towards intermediaries, above all banks, or markets. Another classification distinguishes between financial systems marked by close relationships with customers (relationship-based) and those with a high degree of anonymity (arm's length). The latter classification does not coincide entirely with the former: a part of intermediaries' activity uses instruments that are typical of the markets, such as bond issues; on the other hand some instruments commonly found in market-oriented systems

³ See Goldsmith (1969), chapter 7.

⁴ $FIR=(FL_{sf}+FL_{snf})/RW$; where FL_{sf} are financial liabilities of the financial sector and FL_{snf} are the liabilities of the remaining sectors. As $FIN=FL_{sf}/(FL_{sf}+FL_{snf})$ we get $FIR=[FL_{snf}/(1-FIN)]/RW$.

conceal close relationships between intermediaries and firms, such as the participation of venture capitalists in a firm.⁵

The Eurosystem's "Report on financial structures in the euro area" (ECB, 2002) analyzed the relative importance of capital markets and intermediaries. It showed the increase in the role of the markets in the financial system of the euro area; at the same time it confirmed the key role of banks and other financial intermediaries in the allocation of financial resources.⁶ Allen and Gale (2001) examined the evolution of the financial systems in the United States, the United Kingdom, Japan, Germany and France and highlighted the differences between the riskiness of households' financial portfolios – higher for those of the Anglo-Saxon countries – and the greater use made of the capital markets by US and UK firms.

Aggregate statistics make it possible to show the evolution of the relative importance of "intermediated" and "non-intermediated" financial instruments (Table 5). The financial assets of the first category include deposits, investment fund units, technical reserves of insurance companies and pension funds. The "non-intermediated" assets include bonds, shares and other equity. Among financial liabilities loans are considered to be "intermediated" and shares and securities to be "non-intermediated". This is a conventional distinction that makes it easier to understand the recent evolution of financial systems.

In the last ten years "non-intermediated" assets generally grew more than "intermediated" instruments. As a ratio to GDP, the stock of "non-intermediated" assets more than doubled in France and Spain and nearly doubled in Italy. The greater importance of market instruments has been a constant feature of the United States, while in these three European countries total "non-intermediated" assets were significantly larger than the stock of "intermediated" instruments both in 2000 and in 2004. In 1995 instead "intermediated" instruments were still predominant in France and Spain, while in Italy the importance of market instruments reflected the large quantity of public securities. Germany and Japan still have a predominance of "intermediated" instruments due to the central role banks play. Nor is it surprising that "intermediated" instruments predominate in the United Kingdom in view of the importance of insurance companies and pension funds.

3.4 On the composition of financial institutions' portfolios

The different development paths followed by markets and intermediaries are reflected in the composition of financial institutions' balance sheets; the degree of riskiness and liquidity of instruments is important in the analysis of the portfolios of the financial sector.

In Italy the share of loans in the total assets of Monetary Financial Institutions is larger than elsewhere (Table 6). By contrast, the share of deposits is smaller; Italy has a smaller proportion of deposits with agreed maturity and an interbank market that operates more efficiently, which tends to reduce the volume of these assets.

The composition of the assets of other financial institutions (investment funds and other financial companies) varies across countries (Table 6). In France the quota of riskier assets, such as shares, is large, whereas in Germany bonds prevail. In Japan the largest percentage consists of loans granted. In this country there has been an increase in the amount of financing provided by

⁵ Rajan and Zingales (2003) summarise benefits and shortcomings of the two systems: "Relationship-based systems perform better when markets and firms are smaller, when legal protection is weaker, when there is little transparency, and when innovation is mostly incremental, rather than revolutionary. By contrast, arm's length financing delivers superior results when markets and firms are bigger, when firms are more formally organized, when there is better legal enforcement and transparency, and when innovation tends to be more revolutionary. A relationship-based system can provide better forms of insurance, but it does that at the cost of reducing access to financing and curtailing future opportunities."

⁶ On these issues see also Bianco, Gerali and Massaro (1997) and Bartiloro and De Bonis (2005).

public financial companies, which are included among other financial intermediaries,⁷ while there has been a decrease in the amount of credit provided by banks owing to the worsening of their balance sheets. In Italy securities and shares both account for about one third of total assets. In the United Kingdom the largest holdings are those of shares and deposits. In the United States other financial institutions hold mainly shares and loans, while liquid assets such as deposits are of very little importance.

The composition of the assets of insurance companies and pension funds varies across countries too, with riskier assets accounting for a larger percentage in the Anglo-Saxon countries (Table 6). In the United Kingdom shares and other equity are the largest part and account for more than 50 per cent of total assets; in the United States the largest components are shares and securities. In Italy, France, Spain and Japan securities are the prevalent assets, while in Germany both deposits and shares play a major role.

4. Households

4.1 Real and financial wealth

Differences across countries in the level and composition of household wealth are likely to depend on disparities in income dynamics and propensities to save; they can also be linked to institutional factors such as the importance of private pension systems. Differences in the amount of financial saving may also reflect the riskiness of portfolios in the countries examined (Kapteyn and Panis, 2003).

In the last decade households' financial assets grew in relation to disposable income. In the second half of the 1990s the increase in value of financial assets made a decisive contribution to the increase in total net wealth. The process continued up to 2000; in a period marked by economic growth, an increase in corporate earnings and a rise in equity prices, savers turned more towards investments in shares, both directly and via institutional investors. In 2000 financial assets were about five times disposable income in the United Kingdom, the United States and Japan, more than three times in Italy and more than two and a half times in the other European countries.

After 2000, the slump in stock prices and economic stagnation went hand in hand with an upturn in investment in real assets, especially residential buildings. The ratio of financial assets to disposable income declined in most countries. At the end of 2004 it was 3.3 in Italy, which was higher than in Germany and France and lower than in Japan, the United States and the United Kingdom.

Between 1995 and 2004 Italian households' ratio of net wealth (real and financial assets net of financial liabilities) to disposable income rose from 7.5 to 9.2 (Table 7). This is a particularly high value by international standards and reflects the higher ratio of real wealth to disposable income and to a lesser extent the lower Italian households' debt.⁸ The high value of Italian households' real wealth can probably be attributed not only to the reasons given for the high level of real assets in the economy as a whole but also to imperfections in the market for rented property that act as an incentive to buy. The difference with respect to other countries may also be due to different methods of valuing households' real assets and unlisted shares.

⁷ "At the end of 2001 the balance of outstanding loans by public financial institutions was 527 trillion yen, which is approaching the level of loans held by commercial institutions (681 trillion yen)", Statistical Handbook of Japan, 2003. This evidence also explains the high FIN ratio in Japan.

⁸ According to Bank of Italy's new estimates, the ratio of net wealth to disposable income was 8.2 in 2004, confirming but narrowing the gap with the other countries. See the essays collected in Bank of Italy (2008).

Real wealth is about 70 per cent of total real and financial assets in Italy and Germany, 60 per cent in France, about 50 per cent in the United Kingdom and less than 50 per cent of gross wealth in the United States and Japan.⁹

4.2 The composition of financial assets

Between 1995 and 2000 the rise in share prices, privatizations of public enterprises and advances in asset management were coupled with an increase in the proportion of shares and investment fund units in households' portfolios; there were also increases, albeit generally on a smaller scale, in the funds invested in insurance products and private pension funds (Table 8). In the euro area the reallocation of assets and liabilities was accentuated by the fall in real and nominal interest rates and saw a reduction in the proportions of deposits and securities. In 2000 the largest proportion of households' financial assets in Italy consisted of shares and investment fund units, a major change compared with 1995, when the portfolio consisted predominantly of deposits and public-sector bonds.

After 2000 the negative performance of stock markets and the failure of important European and US companies led households to move away from shares and investment fund units. There was a renewal of investments in deposits and to a lesser extent in securities. The growth in insurance products and pension funds continued. In 2003-04 households returned cautiously to shares and investment fund units. Compared with 1995 the shift of portfolios towards riskier assets than deposits and short-term securities was confirmed.¹⁰

The composition of households' financial assets continues to be marked by large differences. Deposits remain substantial in Spain and Germany, reflecting the importance of banks in those countries; they are also of considerable importance in Japan, where the bulk of deposits are with the Post Office. While there was pronounced disintermediation of the banking system in Italy in terms of deposits, investment in bonds remained conspicuous, owing to the size of the public debt and, later, to banks' own large issues. Investment in bank bonds mitigated the disintermediation of the banking system in Italy indicated by the growth in the proportion of "non-intermediated" assets (Table 5).

The largest differences in the composition of households' financial wealth are found for insurance products and pension funds. In the United Kingdom they are equal to more than 50 per cent of households' total financial wealth, whereas in Italy and Spain they are less than 20 per cent.

There is also a high degree of dispersion among the various countries in the proportion of total financial assets consisting of shares, other equity and investment fund units. Among the euroarea countries, Spain and Germany are at opposite extremes. In Germany shares and investment funds play a minor role, confirming the more limited development of markets compared with intermediaries, whereas the proportion is very high in Spain. Among the other countries, the proportion of shares and investment fund units is high in the United States and in Italy.

The reallocation of households' portfolios in favour of riskier instruments is also confirmed by the figures for the flows of financial assets (Table 9), which are not influenced by valuation effects. Between 1995 and 2000 Italian households reduced their holdings of securities and increased those of investment fund units to a much greater extent than their counterparts in the other countries (Filippa and Franzosi, 2001). Subsequently, between 2000 and 2004, Italy and Japan recorded the largest reductions in holdings of investment fund units.

 $[\]frac{9}{10}$ In Italy the new estimates on real wealth presented in Bank of Italy (2008) reduced this ratio to 58 per cent.

¹⁰ See Guiso, Haliassos and Jappelli (2002) e (2003), Paiella (2002) and Norman, Sebastia-Barriel and Weeken (2002) for examples of analyses based on micro data.

4.3 On households' debt

Households' propensity to borrow varies across countries with: cultural attitudes; inflation and interest rates; the tax deductibility of interest payments; the types of loans available according to the different contractual conditions, such as fixed/variable interest rates; the maximum mortgage loan obtainable in relation to the value of the property; and the possibility of refinancing loans if house prices rise. The efficiency of loan guarantee recovery procedures in the event of debtor insolvency is another important factor.

In the period considered here, the ratio between households' financial liabilities and disposable income rose in all the countries in question (Table 7), except Japan, where it remained stable at a high level. In the other countries the increase in financial liabilities was due to the growth in medium and long-term debt in a period of intense activity in the property market.

The rise in the value of assets and the low level of interest rates encouraged the growth in borrowing. In the United Kingdom and the United States loans benefited from the mechanism known as "mortgage equity withdrawal". Households received new loans backed by the increase in value of the house originally acquired.¹¹ The proceeds were not allocated to the purchase of other buildings but to consumption and/or improvements to the property.

Italian households still have the lowest debt in relation to disposable income (Table 7). The ratio is higher for France and Germany but still moderate by international standards. It is particularly high in the United Kingdom, the United States and Japan. Despite the United Kingdom and the United States starting from high levels, they recorded the highest rates of growth in liabilities, together with Italy.

5. Non-financial corporations: self-financing, flow of funds, leverage and composition of liabilities

A vast theoretical and empirical literature has examined how the composition of firms' balance sheet liabilities influences their value and their investment (see Myers, 2000, for a summary). In this section we examine the differences between countries in the breakdown of the sources of firms' financing, leverage and financial structure.

5.1 The flow of funds

In line with the theory of the hierarchy of the sources of financing, in the last ten years self-financing continued to make the largest contribution to firms' resources (Table 10). In most of the countries the expansion of economic activity in the three years 1995-97 was accompanied by high earnings. The degree to which retained earnings covered investment was high. In the three years 2001-03 the ratio of self-financing to investment fell in the euro-area countries, reflecting their economic stagnation; in the United States it was virtually stable; in the United Kingdom and Japan it rose as economic stagnation was coupled with a fall in investment.

The differences between countries concern the contribution of loans, bonds and shares to firms' resources. In Italy, Germany and Spain, where banks continue to play a central role in the financing of firms, loans make a larger contribution than shares or bonds on average. In France equity is the most important source after self-financing, which confirms the progress in the development of the French financial structure, an objective pursued by the French authorities in order to strengthen the country's capital markets. In the United Kingdom both shares and loans

[&]quot;…contributing to the sustained rise in debt has been the willingness of households to access the increased value of their assets through home mortgage loans. The rise in mortgage debt during the current economic expansion has been due in part to increased borrowing via loans for which accumulated home equity is used as collateral" (Federal Reserve Board of Governors, 2001). See Bank of England (2003) on the English experience.

make a large contribution; the flow of corporate bonds is also larger than in the other countries. In the United States bonds are virtually as important as loans, while shares make a negative contribution to firms' resources: the net redemption of shares is due to buybacks and mergers.¹²

As regards the uses of the funds raised, in every country except the United States there was a pronounced fall in the proportion of physical investment, while that of investment in shares rose (Table 11). This is associated with the increase in extraordinary corporate actions, especially among large firms, and the growth in portfolio investment. The financial deepening of the economy is thus a phenomenon that has involved the behaviour of industry. In France and the United Kingdom, the proportion of more liquid assets such as deposits was also high.

For the analysis of firms' flow of funds, Corbett and Jenkinson (1996) suggest that it is preferable to analyze sources net of uses. They give two reasons for this. In the first place, from an economic point of view, as mentioned earlier, the importance of financial investment has increased among the uses of funds; in order to quantify the resources that finance physical investment it is better to analyze the flows of financial liabilities net of the related assets.¹³ The second, perhaps more important, reason is of a statistical nature and concerns the use of different methods of consolidation across countries; the analysis of net flows makes the information more comparable. In the case of net flows the preponderant role of firms' self-financing is confirmed (Table 12). There is also evidence that loans are important even in traditionally market-oriented countries such as the United Kingdom and the United States.

5.2 Firms' financial structure

In the period of rising equity prices (1995-2000), firms increased the share of own funds in their total liabilities and reduced their leverage (the ratio of financial debt to the sum of financial debt and shareholders' equity), which fell to a low at the end of the 1990s (Figure 3). Subsequently, the difficulties of the stock market and the downturn in corporate profits, due to the slowdown in economic growth, contributed to increasing the ratio of bank loans to shareholders' equity. Leverage began to rise again until 2002. In the last few years the recovery in share prices and the reduced flows of new financial debt led to a new fall in the indicator. In 2004 in Italy and France leverage was 10 percentage points lower than in 1995, while the indicator rose in the United Kingdom and the United States.

In 2004 the highest values for leverage were found in Japan and Germany; the values for English and Italian firms were lower and those for Spanish and, above all, France and US firms were even lower.

Several observers have noted that in the last few years corporate debt has reached historically high levels in the main industrial countries.¹⁴ As a ratio to GDP, firms' financial debt is highest in Japan (Figure 4) even though economic stagnation and the banking crisis have reduced the ratio from 1.5 to 1.1. In the other countries the ratio has risen during the last ten years, while remaining below one. The lowest values are found for Italy and Germany.

¹² "Corporations retired an extraordinary volume of equity over 1995-2000 – on net \$819 billion. Although many firms issued equity to finance capital investment and meet other corporate needs, for the sector as a whole the value of shares issued was far surpassed by the value of shares retired in cash-financed mergers and through firms' own-share repurchase programs" (Federal Reserve Board of Governors, 2001).

¹³ Corbett e Jenkinson (1996) note that: "Some of the sources of an enterprise's funds go toward the accumulation of financial, rather than physical assets. To identify financing which is associated with physical investment, one approach is to subtract enterprises' acquisition of financial assets from increases in equivalent liabilities. This approach measures the finance of physical investment in terms of the net finance from various sources."

¹⁴ Jaeger (2003) observes that "The recent boom-bust cycle in equity valuations has left behind a legacy of high corporate indebtedness". See also Sylos Labini (2003).

Considering the outstanding amounts of financial liabilities, shares are the most important instrument in all the countries examined (Table 13). In this respect there were two partial exceptions: Italy in 1995, when bank debts were still predominant, and Japan, where this predominance ceased to exist only recently. Between 1995 and 2000 the proportion of shares grew in all the countries and that of loans contracted. Between 2000 and 2004 the opposite tendency held sway, except in Japan, as share prices fell, thus contributing to an increase in firms' leverage. The data for 2004, the latest available, show that shares retained their importance not only in the United States and the United Kingdom but also in France.

Bank loans granted to firms differ in terms of maturity owing to different levels of inflation, different restrictions on banks' maturity transformation in the past, and the prevalence of particular techniques, such as current account credit, to the detriment of others. At the end of 2005 some 43 per cent of bank loans recorded among firms' liabilities had a maturity of less than one year in Italy, compared with less than 30 per cent in Germany, France, Spain and the United States. Conversely, loans with a maturity of more than five years accounted for 35 per cent of the total in Italy, compared with 66 per cent in Germany and 59 per cent in France.

In some countries, including Italy, the liabilities of firms include a high proportion of unlisted shares owing to the prevalence of small firms. Unlisted shares are about 70 per cent of all shares in Italy, Spain and France, compared with 55 per cent in Germany and 25 per cent in the United Kingdom. Another indication of the limited importance of the stock market in Italy is the low market capitalization: 43 per cent of GDP in 2004, compared with 70 per cent in 2000. The value in Italy in 2004 was in line with that of Germany (40 per cent) and far below those of the United Kingdom (127 per cent) and the United States (139 per cent).

In the euro area, despite the growth in bond issues stimulated by the single currency, liabilities of this type are still of limited importance for firms in Spain, Italy and Germany. They are more important in France, and, above all, in the United Kingdom, Japan and the United States.

Firms' financial structure also differs in terms of the scale of their recourse to trade credit (included under other financial liabilities). Among the European countries, the proportion of such debt is particularly high in Italy, France and Spain.

6. Conclusions

This paper has analyzed the evolution of the financial structures of the leading industrial countries in the last ten years. We now summarize the main indications that have emerged with reference to the four groups of questions raised in the Introduction.

Financial and real assets. In the second half of the 1990s the ratio of financial assets to real assets (the Financial Interrelations Ratio – FIR) rose in all the economies examined, reflecting the accumulation of financial assets, especially shares, in a period of rising stock market prices. The composition of portfolios shifted in favour of riskier assets. In 2000 a period of declining share prices began; the growth in the FIR came to a halt; the shift in portfolios was towards less risky assets until 2003. The negative effect of the decline in stock market prices on total wealth was partly offset by the increase in real wealth, fueled by the rise in property prices that occurred, albeit with different degrees of intensity, in all the industrial countries except Japan.

Despite the stock market difficulties that began in 2000 and lasted until 2003, the financial deepening of the economies has come to stay, as evidenced by the increase in the FIR values of all the countries compared with 1995. A major contribution to this increase came from the growth in new issues of financial liabilities and from the effects of the rise in value of the existing financial assets. Among the sectors of economic activity, the contribution of the issues of the financial sector was particularly important in all the countries.

Notwithstanding the increase of the last ten years, Italy continues to have a lower FIR than the other countries. Albeit with the caution made necessary by the differences between the statistics employed, Italy is in fact the country with the highest levels of real wealth.

The financial deepening of the economies and the role of intermediaries. The different sizes of financial assets in the various countries are primarily due to the different amount of assets vis-à-vis the rest of the world. International opening has increased in every country, but the United States and Japan remain relatively closed while the United Kingdom has the highest ratio. Italy is somewhere in between.

In addition to the different weights of assets vis-à-vis the rest of the world, the differences in the degree of financial deepening are due to the variableness of the financial sector's assets (banks, other intermediaries, pension funds and insurance companies). These are high in the United Kingdom, Japan and the United States, intermediate in Italy, where, as in Spain, insurance companies and pension funds play a minor role. Albeit in different ways, banks are predominant in Germany and the United Kingdom; insurance companies and pension funds play a minor role. Albeit in different ways, banks are predominant in intermediation in the United Kingdom and the United States.

The increase in the degree of financial deepening was accompanied by a greater dissemination of financial instruments traded directly on the markets. The growth of instruments such as shares and bonds was very rapid and led to an increase in the proportion of "market" assets in every country. The shift in portfolio composition in favour of non-intermediated assets was particularly intense up to 2000, in parallel with the positive cycle of world stock markets. Until that year financial intermediation ratios generally fell; subsequently, the shift in favour of less risky assets was accompanied by a recovery of the FIN.

Households. In the second half of the 1990s households in all countries shifted resources towards shares and mutual funds. The shift, which coincided with a reallocation of resources from deposits and securities was especially pronounced in Italy. Despite these changes, the composition of investors' portfolios by type of instrument remains diversified across countries. In the Anglo-Saxon countries the proportion of riskier assets is higher, the portfolios of insurance companies and pension funds, whose liabilities are widely distributed among households, are also more oriented towards risky financial instruments. In all countries households have increased their indebtedness, above all in connection with mortgage loans for house purchase. In Italy the proportion of debt is lower than in the other countries and the ratio of overall net wealth to households' disposable income is higher, a result that can be attributed to the high level of real wealth and to financial wealth being at an intermediate level compared with the other countries.

Firms. Up to 2000 the increase in the financial debt of non-financial corporations was reflected only to a limited extent in their leverage, which has risen instead in the last few years. As a ratio to GDP, firms' debt is high compared with the early 1990s; the highest levels are found in the United Kingdom and Japan. The composition by instrument of firms' financial liabilities continues to differ across countries, even though the rising trend of forms of direct market financing (bonds and shares) has led to more uniform conditions among the countries that in the past had relied primarily on banking intermediation.

Examination of the flow of funds indicates that self-financing is the main source of financing in all countries and that the contribution of loans to the formation of resources is significant even in the Anglo-Saxon countries. The greater financial deepening of economies has been reflected in the increase in firms' portfolio and equity investment to the detriment of real investment.

In brief, the comparative analysis of financial systems has shown that in the last ten years there have been some common trends in the western countries: the rapid growth in overall financial assets, especially in the period of rising stock market prices; the disintermediation of banking conducted using traditional instruments such as deposits and the simultaneous reallocation of households' portfolios towards riskier financial products; the increase in corporate debt at the end of the 1990s and the greater recourse to liabilities issued directly on the market. There nonetheless remain substantial differences concerning: the proportion of total wealth consisting of real assets; the role of pension funds and insurance companies; and the depth of the bond and share markets.

APPENDIX

Financial assets and liabilities. Following the adoption of the European System of National Accounts (ESA95), the financial accounts of the European countries are more comparable than in the past, not only as regards the definition of sectors and instruments but also in terms of the valuation methods used. Some differences nonetheless remain. Specifically, the aggregate shares and other equity is not fully comparable because the criteria adopted for the valuation at market prices of shares of companies not listed on regulated markets differ across countries. There are also major differences in the methods used to estimate trade credit.

The definitions of the sectors of economic activity and financial instruments of the United States and Japan have been made as close as possible to those of the European accounts. Some aspects of these issues are discussed below.

Euro-area countries. The data of the national financial accounts are taken from Eurostat's website. Under an EU Regulation, member states must send Eurostat their annual financial accounts on both a consolidated and an unconsolidated basis. In this paper we have used unconsolidated data. As regards the definition of the institutional sectors and the composition of the financial instruments, reference can therefore be made to the ESA95 Manual. In contrast with that standard, owing to the small significance of the aggregate and the desire to facilitate comparison with the US and Japanese data, the financial assets and liabilities of financial auxiliaries have been added to those of other financial intermediaries. In Italy the household sector includes non-profit institutions serving households and non-financial quasi-corporate enterprises with less than 5 employees, while those with a larger number of employees are classified among non-financial corporations. For more information on the financial accounts of each country, see the websites of its central bank; for Italy, see Banca d'Italia, 2003.

United States. The financial accounts data are taken from the publication *Flow of Funds* Accounts of the United States, edited by the Federal Reserve Board of Governors.

In the definition of the *institutional sectors*, the data on households (households and nonprofit organizations) in the United States do not include artisan firms, which are included in the statistics on non-financial business. General government is the sum of state and local government and federal government.

The sector of monetary financial institutions includes, for the US data presented here as well, banks, the central bank and money-market funds. The data on banks are the sum of the financial statements of: commercial banking, savings institutions, credit unions and bank personal trusts and estates. The sector of other financial intermediaries includes: mutual funds, closed-end and exchange-traded funds, government-sponsored enterprises, agency- and GSE-backed mortgage pools, issuers of asset-backed securities, finance companies, mortgage companies and real estate investment trusts. The way some of these intermediaries operate can be compared to that of finance companies, which are included in the sector in the European accounts. The sector of insurance companies, private pension funds, state and local government employee retirement funds and federal government retirement funds. The sector of financial auxiliaries includes: security brokers and dealers and funding corporations.

As regards the definition of the instruments, deposits include not only currency in circulation but also current and savings account deposits, deposits abroad, repos and security credit (deposits held with other financial institutions). Investment funds include money market funds and banks' portfolio management services; in the European financial accounts the amount of the latter activity is allocated to the various instruments involved in the management. Shares include equity interests in artisan firms. Interbank deposits stated among banks' assets are net of the corresponding liabilities. The shares stated among firms' liabilities are net of the corresponding assets. In the flow data used to calculate the flow of funds of non-financial corporations in the United States, the other assets include a quantitatively important residual item (miscellaneous assets); it is made up of the sector's flow of direct investment abroad, by changes in the shares held in both subsidiary and other financial institutions and assets vis-à-vis insurance companies.

Japan. The data of Japan's financial accounts are taken from Bank of Japan, Japan's Flow of Funds Accounts. The household sector includes small unincorporated businesses and, in the statistics presented here, non-profit institutions. The sector of monetary financial institutions is given by the sum of the financial statements of banks, the central bank and money-market funds. For the sake of homogeneity with the data of the other countries, in the statistics presented the sector of other financial intermediaries includes post offices and collectively managed trusts. To make the data on the composition of financial assets more comparable, investments in securities investment trusts, included among securities in the official Japanese statistics, have been allocated to shares and investment fund units.

Real wealth. The data on Italy's real wealth are estimates by the Bank of Italy's Research Department. More specifically, the data on the stock of capital are prepared by Istat and are shown at replacement cost using the permanent inventory method. The data on consumer households' are estimated using the method put forward by Brandolini *et al.* (2003); the value of households' assets is higher than previously found.

For France the real wealth of the economy is taken from INSEE, *Comptes nationaux*. The data for Germany are taken from Statistiches Bundesamt, *Volkswirtschaftliche Geamtrechnung*. The value of land is estimated on the basis of the ratio between land and buildings published in Goldsmith (1985; Table B3); this ratio may have changed considerably since it refers to the period prior to the unification of Germany. The data for the United Kingdom are taken from Central Statistical Office, *United Kingdom National Accounts, The Blue Book*. The data for the United States are taken from the publication *Flow of Funds Accounts of the United States*, edited by the Federal Reserve Board of Governors. This publication shows the real wealth of the private non-financial sector; figures for general government and financial institutions are no longer published and have been estimated for the period 1998-2004 on the basis of prorating coefficients. The figures for Japan's real wealth are taken from Bank of Japan, *Japan's Flow of Funds Accounts*

Financial assets and real wealth

Countries and years	Gross finar (F.	ncial assets A)	Real wealth (RW)	FIR^1	FA	/GDP	RW/GDP
		of which: assets held by non- residents				of which: assets held by non- residents	
T. 1							
	4411.0	401.4		0.70	4.70	0.52	6.10
1995	4411.8	491.4	5660.7	0.79	4.78	0.53	6.13
2000	8466.3	1189.2	6908.0	1.21	7.26	1.02	5.92
2004	9655.3	1409.3	9548.4	1.03	7.15	1.04	7.07
France	0.454.0	0.64.0	1505 5	1.55	7 00	0.01	2.04
1995	8476.9	964.2	4725.7	1.77	7.09	0.81	3.96
2000	15113.0	2406.9	6067.4	2.45	10.49	1.67	4.21
2002	14962.0	2443.9	6995.9	2.09	9.66	1.58	4.52
Germany							
1996	11601.0	1277.2	9203.5	1.26	6.18	0.68	4.90
2000	17526.0	2803.4	10084.0	1.74	8.50	1.36	4.89
2004	18965.0	3401.2	10968.0	1.73	8.56	1.53	4.95
UK							
1995	7817.8	1624.8	2795.20	2.83	10.60	2.21	3.89
2000	13615.0	3142.6	4250.50	3.23	13.90	3.22	4.46
2004	17355.0	4290.0	5983.70	2.96	14.30	3.57	5.14
US							
1995	54360.0	3428.1	26336.0	2.06	7.35	0.46	3.56
2000	90835.0	6584.9	37170.0	2.38	9.25	0.67	3.79
2004	108700.0	9326.0	48746.0	2.22	9.26	0.79	4.15
Japan							
1995	5446922.0	202703.2	3030646	1.75	10.97	0.41	6.10
2000	5979685.0	218288.3	2815697	2.03	11.68	0.43	5.50
2003	5881484.0	233882.2	2551462	2.16	11.81	0.47	5.12

(stocks in billions of national currency)

For information on data sources, see the Appendix. ¹ FIR is defined as the ratio of financial assets held by all institutional sectors (including Rest of the World) to the sum of real wealth and net financial assets (assets minus liabilities) of the Rest of the World.

FIR composition

Countries and periods	δ Firms*	δ House- holds*	δ Gen. Gov.*	δ Rest of the world*	δ Financial sector*	Sum of net transactions* (a)	Valuation effects** (b)	(GDP/RW) _t (c)	(I) [(a)+(b)]*(c)	FA _{t-1} /RW _t	FIR _t
Italv											
1996-2004	0.50	0.21	0.19	0.52	1.28	2.69	0.55	0.14	0.47	0.56	1.03
1996-2000	0.24	0.10	0.08	0.38	0.63	1.43	0.94	0.14	0.34	0.75	1.21
2001-2004	0.27	0.11	0.10	0.14	0.65	1.27	-0.39	0.14	0.13	0.90	1.03
France							,				
1996-2002	0.67	0.14	0.17	1.22	2.91	5.11	-1.34	0.22	0.81	1.27	2.09
1996-2000	0.44	0.10	0.09	0.71	1.76	3.09	0.77	0.22	0.84	1.48	2.45
2001-2002	0.23	0.04	0.07	0.51	1.16	2.01	-2.11	0.22	-0.02	2.11	2.09
Germany											
1996-2004	0.51	0.14	0.16	1.03	1.58	3.42	-0.11	0.20	0.67	1.06	1.73
1996-2000	0.41	0.12	0.06	0.58	1.05	2.21	0.45	0.20	0.54	1.15	1.74
2001-2004	0.10	0.02	0.10	0.45	0.53	1.21	-0.56	0.20	0.13	1.60	1.73
United Kingdom											
1996-2004	1.02	0.59	0.09	2.16	3.43	7.29	0.38	0.20	1.52	1.44	2.96
1996-2000	0.65	0.19	0.03	1.00	1.32	3.18	1.28	0.20	0.88	2.00	3.23
2001-2004	0.37	0.41	0.07	1.16	2.11	4.11	-0.90	0.20	0.64	2.32	2.96
United States											
1996-2004	0.46	0.45	0.16	0.25	1.63	2.94	0.83	0.25	0.96	1.26	2.22
1996-2000	0.34	0.17	0.00	0.14	0.79	1.44	0.87	0.25	0.59	1.62	2.38
2001-2004	0.12	0.28	0.16	0.11	0.84	1.50	-0.05	0.25	0.37	1.85	2.22
Japan											
1996-2003	-0.36	-0.02	0.73	0.16	0.36	0.87	-0.09	0.18	0.14	2.02	2.16
1996-2000	-0.20	0.02	0.43	0.04	0.58	0.88	0.10	0.18	0.18	1.86	2.02
2001-2003	-0.17	-0.04	0.29	0.12	-0.22	-0.01	-0.19	0.18	-0.04	2.20	2.16

* δ =net issuance of new financial liabilities between the beginning and the end of the period to end of period GDP.

** Valuation effects are computed as the difference between the variation of the stock of financial liabilities and the flow of new issuances. t indicates the last year of the period of reference. t-1 is the first year of the period of reference.

FIR is defined as the ratio of financial assets held by all institutional sectors (including Rest of the World) to the sum of real wealth and net financial assets (assets minus liabilities) of the Rest of the World. The ratio GDP/RW refers to 2004 (2003 for Japan; 2002 for France). In order to get FIR for 2000 the computations of column (I) are adjusted for the ratio real wealth in 2004 to real wealth in 2000.

Financial liabilities

(net transactions, GDP percentages)

Countries and periods	Sum of sectors ¹	Firms	Households	General Government
Italy				
1995-97	32.1	4.5	2.2	6.7
1998-2000	46.2	8.2	3.3	2.4
2001-03	35.3	7.7	2.6	2.2
France				
1995-97	53.9	6.3	1.5	5.7
1998-2000	94.8	14.3	3.1	2.0
2001-03	108.3	11.5	1.5	4.9
Germany				
1995-97	46.1	3.1	4.0	5.8
1998-2000	65.8	13.5	3.3	1.3
2001-03	33.9	4.4	0.8	2.4
Spain				
1995-97	47.5	9.2	4.1	6.8
1998-2000	70.9	21.8	6.9	3.0
2001-03	64.8	20.3	7.4	0.8
United Kingdom				
1995-97	90.9	8.8	4.5	3.9
1998-2000	102.5	24.1	6.5	0.4
2001-03	98.1	10.6	10.7	0.8
United States				
1995-97	37.6	6.2	4.5	2.0
1998-2000	49.2	12.8	5.7	-0.4
2001-03	38.2	2.5	6.8	4.0
Japan				
1995-97	32.3	0.4	2.8	7.8
1998-2000	17.8	-4.8	0.1	11.6
2001-03	-0.1	-5.5	-1.3	9.7

¹ Includes the Rest of the World.

Financial assets for holding sector

(GDP percentages)

Gauntaina	Households	Firms	General Government	Financial institutions			
and years					Monetary financial institutions	Other financial institutions	Insurance corp. and pension funds
Italy							
1995	1.66	0.60	0.32	1.67	1.36	0.21	0.10
2000	2.38	1.02	0.35	2.49	1.58	0.62	0.25
2004	2.35	0.88	0.28	2.60	1.76	0.50	0.30
France							
1995	1.42	1.35	0.36	3.16	2.46	0.25	0.41
2000	1.75	2.50	0.37	4.20	2.82	0.56	0.70
2004	1.76	2.30	0.38	4.48	3.05	0.61	0.72
Germany							
1995	1.51	0.70	0.18	2.87	2.31	0.15	0.41
2000	1.76	1.11	0.18	4.09	3.09	0.40	0.59
2004	1.83	0.88	0.13	4.18	3.13	0.40	0.66
Spain							
1995	1.51	1.00	0.27	2.32	2.00	0.13	0.18
2000	1.66	1.62	0.29	2.68	2.07	0.32	0.27
2004	1.62	1.85	0.25	3.00	2.23	0.43	0.32
UK							
1995	2.73	0.79	0.22	4.89	2.80	0.75	1.34
2000	3.32	1.27	0.19	6.26	3.40	1.13	1.73
2004	2.81	1.28	0.15	7.08	4.14	1.48	1.46
US							
1995	2.91	0.75	0.21	3.01	0.95	0.81	1.02
2000	3.42	1.15	0.22	3.79	1.00	1.22	1.15
2004	3.12	1.11	0.22	4.01	1.07	1.42	1.10
Japan							
1995	2.63	1.60	0.75	5.57	2.44	2.35	0.77
2000	2.86	1.48	0.88	6.05	2.64	2.51	0.86
2004	2.89	1.50	0.98	5.90	2.71	2.24	0.90
1	1	1	1	1		1	1



FIN Financial institutions



Figure 2

FIN Banks (including the central bank)



"Intermediated" versus "non-intermediated" financial instruments¹

Countries and	Finar	icial assets	Financial liabilities		Financial assets		
years	Non-fina	ancial sectors ²	Firms		Но	ouseholds	
	"intermediated"	"non-intermediated"	"intermediated"	"non-intermediated"	"intermediated"	"non-intermediated"	
Italy							
1995	1.16	1.25	0.49	0.45	0.88	0.71	
2000	1.57	2.46	0.55	1.05	1.20	1.10	
2004	1.50	2.32	0.58	0.91	1.19	1.08	
France							
1995	1.62	1.40	0.59	0.92	1.09	0.24	
2000	1.97	3.22	0.64	2.49	1.27	0.37	
2004	2.17	2.95	0.69	2.08	1.33	0.32	
Germany							
1995	1.56	1.11	0.46	0.54	1.10	0.36	
2000	2.02	1.83	0.61	0.93	1.25	0.45	
2004	2.10	1.69	0.56	0.75	1.36	0.40	
Spain							
1995	1.41	1.14	0.44	0.84	0.96	0.35	
2000	1.71	2.03	0.58	1.38	1.04	0.48	
2004	1.74	2.30	0.80	1.40	1.02	0.46	
United Kingdom							
1995	3.44	1.54	0.49	1.47	2.07	0.47	
2000	4.16	2.60	0.62	2.16	2.51	0.61	
2004	4.23	2.17	0.73	1.51	2.24	0.35	
United States							
1995	1.61	1.76	0.34	1.56	1.45	1.41	
2000	1.94	2.14	0.39	2.06	1.74	1.63	
2004	1.97	2.00	0.39	1.71	1.73	1.34	
Japan							
1995	2.90	1.23	1.23	1.20	2.05	0.44	
2000	3.20	1.28	0.97	1.15	2.34	0.33	
2004	3.16	1.55	0.82	1.13	2.41	0.29	

(stocks, GDP percentages)

¹Deposits, loans, mutual funds' shares, insurance technical reserves and pension funds are recorded among "intermediated" financial instruments. "Non intermediated" instruments include bonds and shares and other equity.

² Includes the Rest of the World.

Currency and deposits Bonds Shares and other equity Other assets Loans Ins. Ins. Ins. Ins. Ins. Countries and Other Other Other Mon. Other Mon. corp. Mon. corp. Mon. Other corp. Mon. corp. corp. years fin. fin. and instit. interm. pension funds funds funds funds funds Italy 16.9 7.8 24.0 31.9 55.0 34.0 25.6 0 0 1995 3.8 69.6 26.3 0.9 2.1 0.5 2000 15.6 4.3 3.4 18.9 39.1 49.2 56.9 16.5 5.7 7.3 40.1 41.7 0.1 0 0 2004 18.1 4.1 7.3 18.6 35.3 58.7 55.1 29.9 2.1 7.0 30.6 31.9 0.1 0.1 0 France 1995 35.5 8.1 3.1 16.3 48.3 58.6 37.8 16.3 8.1 5.3 25.1 25.9 4.3 2.2 4.3 4.5 2000 33.1 4.6 1.8 18.7 34.5 44.1 30.9 6.7 4.9 13.0 49.6 46.8 3.7 2.4 2.5 2004 33.0 9.7 1.6 20.9 34.7 52.1 29.2 5.1 4.5 13.1 46.4 39.3 3.2 4.1 Germany 7.7 1995 24.4 35.5 15.2 59.8 15.2 54.0 1.0 14.9 4.9 31.5 22.7 1.3 0 11.7 2000 24.9 6.0 31.1 16.2 38.7 7.1 47.7 2.5 9.4 8.2 52.7 42.4 2.5 0 10.0 2004 27.9 7.7 32.2 18.7 50.4 9.9 44.8 1.1 5.9 40.7 35.1 2.1 0 11.7 11.1 Spain 1995 35.6 48.9 17.5 16.4 39.4 53.8 41.9 3.3 2.8 4.5 6.3 12.5 1.2 2.1 13.4 2000 23.0 18.5 16.7 14.4 40.3 47.4 47.3 10.9 1.6 13.9 28.4 23.1 1.1 1.9 11.2 2004 19.3 27.7 17.1 16.2 27.8 51.2 53.9 23.4 2.9 9.5 19.8 17.5 0.7 1.2 11.4 United Kingdom 1995 36.2 35.3 4.7 15.6 19.2 23.1 46.1 9.1 2.5 2.1 34.9 68.4 0 1.5 1.2 2000 35.0 38.1 4.3 16.3 14.8 25.9 45.7 2.9 3.0 39.5 65.8 0 1.1 1.1 6.6 2004 38.3 37.2 12.9 13.3 45.7 12.2 4.9 3.2 36.2 4.3 4.6 34.6 51.6 0 1.1 United States 1995 4.3 2.9 2.9 31.3 23.4 37.9 45.1 52.0 4.5 6.9 17.9 37.9 11.9 3.7 16.8 2000 5.6 2.1 2.5 31.3 20.8 31.0 43.2 45.6 3.3 7.5 27.9 49.2 12.2 3.7 14.1 2004 22.0 13.5 5.2 2.0 3.0 31.1 34.7 44.7 48.4 3.2 5.2 24.0 44.6 3.6 14.5 Japan 1995 12.6 19.9 8.7 16.8 18.1 41.4 61.5 56.8 29.5 6.0 3.3 17.9 1.8 1.9 2.0 2000 11.3 20.7 6.3 24.5 18.6 54.4 56.3 54.7 21.7 5.3 3.6 14.4 2.1 2.4 2.3 2004 11.8 12.3 3.5 64.5 48.1 54.9 4.7 2.1 2.8 1.5 31.6 25.4 16.3 5.8 13.4

Financial institutions' portfolio (percentages)

Households'	wealth
-------------	--------

Countries and	Financial	Financial	Real wealth	Net wealth	
years	assets (FA)	(FL)	(RW)	FA-FL+RW	RW/(FA+RW)
		With respect to	disposable incom	ne	percentages
Italy		l			
1995	2.41	0.31	5.44	7.54	69.2
2000	3.38	0.43	5.08	8.03	60.0
2004	3.28	0.51	6.40	9.17	66.1
France					
1995	2.09	0.63	2.82	4.28	57.4
2000	2.67	0.72	3.16	5.11	54.2
2002	2.44	0.71	3.44	5.17	58.4
Germany					
1996	2.18	0.93	5.03	6.64	69.3
2000	2.56	1.04	5.39	6.89	67.8
2004	2.63	1.01	5.28	6.90	66.8
United Kingdom					
1995	3.84	1.04	2.70	5.50	40.8
2000	4.72	1.11	3.63	7.25	43.3
2004	4.09	1.52	4.98	7.56	54.6
United States					
1995	3.98	0.94	2.08	5.13	34.3
2000	4.67	1.03	2.19	5.83	32.0
2004	4.23	1.24	2.61	5.61	38.1
Japan					
1995	4.03	1.33	4.38	7.08	52.1
2000	4.45	1.34	3.93	7.05	46.9
2003	4.53	1.28	3.47	6.72	43.3

Households' portfolio

(percentages)

Countries and years	Currency and deposits	Bonds	Shares and other equity	of which: mutual funds	Insurance technical reserves and pension funds	Other assets ¹
Italy						
1995	41.7	27.4	19.4	4.1	10.5	1.0
2000	24.5	18.4	44.5	16.6	11.9	0.7
2004	26.0	22.1	34.9	10.8	16.5	0.5
France						
1995	41.5	5.9	24.3	13.4	24.0	4.4
2000	33.3	2.9	29.7	11.3	29.8	4.3
2004	33.3	1.8	25.9	9.8	33.7	5.3
Germany						
1995	41.9	12.6	18.2	7.1	26.2	1.1
2000	34.0	9.7	27.1	11.3	27.9	1.3
2004	35.7	11.0	22.0	11.4	29.9	1.4
Spain						
1995	50.7	3.6	29.8	10.1	10.0	6.0
2000	39.8	2.5	40.2	13.7	13.9	3.6
2004	39.9	2.9	38.2	12.7	15.3	3.7
UK						
1995	24.0	2.1	19.4	3.7	50.8	3.7
2000	20.3	1.3	22.5	4.9	53.1	2.8
2004	26.8	1.5	15.7	4.3	53.0	3.0
US						
1995	13.8	9.0	46.7	7.4	29.0	1.5
2000	11.3	6.5	52.3	11.3	28.7	1.1
2004	14.3	5.9	49.2	12.2	29.3	1.4
Japan						
1995	50.6	8.0	13.4	2.4	24.3	3.6
2000	53.7	5.1	11.5	2.6	25.8	3.9
2004	55.4	4.3	11.0	2.7	25.6	3.7

¹ Includes trade credits.

Households' acquisition of financial assets

(transactions, ODT percentages)							
Countries and periods	Currency and deposits	Bonds	Shares and other equity	of which: mutual funds	Insurance technical reserves and pension funds	Other assets ¹	
Italv							
1995-97	1.4	1.0	4.1	1.0	2.1	0.2	
1998-2000	1.4	1.9	4.1	4.0	2.1	0.3	
2001-2003	-0.2	-3.2	9.2	8.7	3.3	0.0	
France	2.6	3.3	0.0	0.1	3.6	-0.1	
1995-97		0.6		1.0	5.0	0.0	
1998-2000	3.7	-0.6	-1.5	-1.8	5.3	0.3	
2001-2003	1.6	-0.4	0.4	0.7	4.5	0.5	
Germany	2.0	-0.1	1.2	0.6	3.9	0.9	
1995-97		0.7		0.0	2.2	0.7	
1998-2000	2.1	0.7	1.1	0.8	3.3	0.7	
2001-2003	0.4	-0.2	2.9	2.1	3.3	0.5	
Spain	2.6	0.7	0.3	1.8	2.3	0.4	
1995-97						<u> </u>	
1998-2000	2.2	0.1	5.6	5.4	2.4	-0.4	
2001-2003	5.3	0.0	0.4	0.1	3.0	0.7	
2001 2005	4.4	0.2	1.4	1.1	2.3	0.0	
1995-97							
1998-2000	4.4	0.0	-1.0	0.5	4.5	0.4	
2001_2003	3.7	-0.2	-2.0	0.9	3.9	0.5	
2001-2005	5.1	0.3	0.5	0.6	3.1	0.1	
1005-07							
1998-2000	1.7	0.5	0.7	3.4	2.7	0.2	
2001 2003	1.9	0.3	-0.7	2.9	2.2	0.1	
2001-2005 Ianan	3.1	-0.3	0.0	1.6	2.2	0.3	
1005_07							
1008_2000	6.1	-0.8	0.2	0.1	3.5	0.1	
2001_2002	3.7	-1.2	0.9	0.8	1.9	-0.2	
2001-2005	1.9	-0.8	-0.5	-0.2	0.2	-0.2	
					I		

(transactions, GDP percentages)

¹ Includes trade credits.

Firms' financial resources – gross flows

(percentages)¹

Countries and periods	Self- financing	Bonds issuances	Shares issuances	Loans	Other liabilities	Statistical discrepancy	Memo: Self- financing/ investments
Italy							
1995-97	67.60	-0.36	12.40	15.38	11.03	-6.05	0.82
1998-2000	56.91	-0.27	15.80	28.14	7.35	-7.92	0.87
2001-03	51.87	4.07	12.47	22.22	11.91	-2.54	0.78
France							
1995-97	59.41	2.81	22.84	12.09	7.27	-4.41	0.91
1998-2000	38.33	7.12	22.26	17.20	5.45	9.64	0.91
2001-03	42.50	11.90	24.72	17.67	0.30	2.92	0.84
Germany							
1995-97	85.30	-11.58	7.32	20.32	1.50	-2.86	1.09
1998-2000	40.12	0.38	24.44	34.67	3.28	-2.90	0.72
2001-03	66.36	5.63	11.06	3.92	8.77	4.28	0.90
Spain							
1995-97	61.68	-2.10	10.60	12.89	19.80	-2.86	1.04
1998-2000	37.26	-0.49	19.26	25.30	20.31	-1.64	0.84
2001-03	35.23	-0.68	18.19	32.70	19.19	-4.64	0.73
United Kingdom							
1995-97	56.37	7.94	17.61	19.74	0.20	-1.85	1.04
1998-2000	32.69	11.42	36.38	20.36	1.35	-2.20	0.92
2001-03	54.02	8.66	6.68	33.44	1.44	-4.24	1.14
United States							
1995-97	60.31	10.16	-5.66	13.40	18.62	3.17	0.95
1998-2000	42.30	12.12	-11.50	15.63	39.30	2.15	0.89
2001-03	72.11	10.74	-8.72	10.00	6.55	9.33	0.95
Japan							
1995-97	104.28	-0.60	7.93	-1.43	-11.36	1.18	0.88
1998-2000	110.10	-7.26	8.21	-28.27	-7.53	24.74	1.07
2001-03	123.20	-5.90	3.12	-25.42	-14.26	19.26	1.16

¹ The statistical discrepancy is the difference between the sum of uses and total resources and is treated as a resource. Self-financing includes capital transfers. Other liabilities include trade credits.

Firms' use of funds – gross flows

(percentages)

Countries and periods	Investments and change in inventories	Deposits	Bonds	Shares and other equity	Other assets ¹
Italy					
1995-97	81.25	4.12	-3.08	8.30	9.41
1998-2000	65.56	8.88	0.20	21.22	4.14
2001-03	67.03	4.64	-2.37	21.94	8.76
France					
1995-97	65.27	16.39	-2.83	14.87	6.30
1998-2000	41.38	13.76	7.09	26.00	11.78
2001-03	50.34	21.27	10.52	21.38	-3.51
Germany					
1995-97	77.99	6.77	-3.20	10.15	8.29
1998-2000	54.30	8.45	7.19	30.57	-0.50
2001-03	72.89	3.90	-4.94	12.94	15.22
Spain					
1995-97	58.98	9.97	0.26	8.20	22.59
1998-2000	43.75	4.67	1.82	24.97	24.79
2001-03	48.23	8.00	2.58	22.04	19.14
United Kingdom					
1995-97	54.33	16.50	0.36	27.89	0.93
1998-2000	35.35	17.82	0.04	44.79	2.00
2001-03	47.53	27.35	1.99	22.46	0.68
United States					
1995-97	63.12	4.43	-0.86	1.67	31.63
1998-2000	47.47	4.50	0.47	2.52	45.04
2001-03	76.00	1.86	0.93	3.08	18.14
Japan					
1995-97	119.41	-12.28	7.01	0.80	-14.94
1998-2000	100.68	4.81	10.41	2.95	-18.85
2001-03	107.93	9.40	5.50	2.45	-25.29

¹ Other assets include trade credits.

Firms' resources – net flows

(percentages)¹

Countries and periods	Self-financing	Bonds issuances	Shares issuances	Loans	Other liabilities
Italy					
1995-97	77.51	3.42	4.59	12.49	1.99
1998-2000	80.46	-1.41	-8.72	25.48	4.19
2001-03	74.68	9.28	-13.88	25.34	4.57
France					
1995-97	85.04	7.16	11.50	-5.64	1.93
1998-2000	123.12	2.02	-15.11	14.37	-24.42
2001-03	90.56	7.32	6.68	-10.20	5.64
Germany					
1995-97	105.01	-9.86	-3.36	16.62	-8.41
1998-2000	69.72	-12.34	-11.41	46.73	7.30
2001-03	95.68	13.10	-1.93	2.60	-9.46
Spain					
1995-97	99.42	-3.74	3.46	4.94	-4.07
1998-2000	81.44	-5.21	-12.47	45.78	-9.54
2001-03	66.68	-6.23	-7.55	46.98	0.12
United Kingdom					
1995-97	100.26	13.96	-18.74	5.82	-1.31
1998-2000	86.36	31.79	-20.10	6.08	-4.13
2001-03	103.83	14.39	-33.29	13.54	1.52
United States					
1995-97	100.77	18.02	-11.83	14.91	-21.87
1998-2000	93.20	25.21	-29.94	24.16	-12.63
2001-03	109.24	15.43	-17.44	11.87	-19.11
Japan					
1995-97	89.38	-4.06	6.80	7.02	0.86
1998-2000	145.35	-23.05	8.02	-44.38	14.07
2001-03	144.95	-11.67	1.32	-43.66	9.07

¹ Issuances are net of acquisitions less disposals of the corresponding financial instrument.
Figure 3



Figure 4

Debt/GDP



Table 13

Firms' liabilities

(percentages)

Countries and years	Bonds	Loans	Shares and other equity	Other liabilities ¹
Italy				
1995	1.4	40.3	35.9	22.4
2000	1.1	29.1	54.8	15.0
2004	2.7	32.4	48.1	16.8
France				
1995	6.6	30.6	41.1	21.7
2000	5.0	17.9	65.3	11.8
2004	6.8	21.6	58.2	13.3
Germany				
1995	2.8	40.4	43.8	13.0
2000	1.5	34.9	51.8	11.9
2004	3.1	36.9	46.2	13.9
Spain				
1995	3.0	24.6	44.3	28.2
2000	1.0	22.6	52.3	24.2
2004	0.5	27.7	47.8	24.0
United Kingdom				
1995	6.2	23.1	62.5	8.1
2000	7.9	21.3	65.9	4.8
2004	10.3	30.9	53.7	5.1
United States				
1995	9.3	14.2	56.8	19.7
2000	8.9	12.8	58.4	19.9
2004	10.4	14.9	54.4	20.3
Japan				
1995	9.2	40.5	30.5	19.8
2000	9.4	36.5	33.9	20.2
2004	9.4	33.2	36.1	21.2

¹ Includes trade credits and reserves for severance pay.

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CONVERGENCE OF FINANCIAL STRUCTURES IN EUROPE: AN APPLICATION OF FACTORIAL MATRIX ANALYSIS

Valter Di Giacinto and Luciano Esposito*

1. Introduction

Since the work of Goldsmith (1969), the literature has increasingly studied the evolution of national financial systems over the long run and the possibility of a progressive reduction in differences between their structures in the industrial economies. Castelnuovo (2005) offers a recent review of the arguments for and against the hypothesis of financial convergence, with special stress on the repercussions of European monetary unification. For an extensive discussion, see that work and the literature cited therein. Here, let us briefly summarize the expectations that have been voiced concerning the current stage in the evolution of national financial systems within the European Union.

In the run-up to the launch of Stage Three of Economic and Monetary Union, the countries whose macroeconomic situation was out of line with the reference parameters were required to take far-reaching corrective measures to qualify for the nascent single currency area. Substantial fiscal adjustments were required for the countries with excessive deficits and public debt. At the same time, national monetary policy was required to bring inflation rates into line with the European average.

In parallel with the macroeconomic adjustment, financial legislation was modified in order to bring about a uniform European framework and strengthen the single capital market within the area (market deregulation and harmonization of rules governing intermediaries). The heightened integration of the European financial markets helped to increase competition between financial marketplaces and intermediaries, which in turn served as a factor for the transformation of local financial arrangements from the service supply side.

Macroeconomic convergence, the transition to the single currency, greater integration between national financial markets, and sharper competition led some authors to expect the progressive reduction of the substantial differences observed in the early 1990s between the financial structures of the countries that would belong to the euro area. Other academics, however, stressed the persistence of substantial differences in key elements of the legislative and institutional framework, such as the taxation of financial income and corporate profits, shareholder protection, and pension systems.¹ There remain significant national peculiarities in the structure of the nonfinancial sector, as in industrial specialization and the average size of firms. The persistence of these differences, it is argued, prevents the progressive elimination of differences between national financial structures even in the context of monetary unification.

This essay gathers empirical evidence on the recent evolution of financial systems within the European Union, taking a multivariate approach based on joint analysis of a large number of statistical indicators. In the first stage of the study we condense the data drawn from the pool of relevant variables into a limited number of composite indicators. The latter then serve to formulate quantitative judgments of whether or not a process of convergence is in being. The data are drawn mainly from the various national financial accounts drafted according to ESA95. At present the main limitation of this source is the shortness of the time series, which generally do not go back

^{*} Bank of Italy. While the essay is a joint product of the authors, sections 2, 5 and 8 were drafted by Esposito and the others by Di Giacinto.

¹ For a discussion of the repercussions of the introduction of funded pension schemes on European financial markets, see Davis (1998).

beyond 1995. Nevertheless the period covered, now nearing a decade, and its coincidence with profound structural reforms on the part of the countries involved make it reasonable to pronounce an initial assessment of the tendencies.

The essay is organized as follows. Section 2 briefly reviews the empirical international comparisons of financial structures in the advanced countries using the financial accounts, focusing in particular on their conclusions concerning convergence or path dependence. Section 3 sets out the various concepts of economic convergence used in the literature and the statistical and econometric methodologies adopted for empirical analysis. Section 4 briefly describes the multidimensional technique of factorial matrix analysis used to construct the composite indicators. Section 5 presents the variables used in the analysis together with some initial descriptive evidence. Section 6 recounts the results of the factorial analysis, which serve as the basis for a statistical analysis of convergence set forth in Section 7. Section 8 summarizes and concludes.

2. Convergence of financial systems: an overview of the recent empirical literature

A growing body of literature deals with the relationship between financial systems and economic growth and the convergence of financial structures. It studies the regulatory framework, whether intermediation is direct or indirect, and the financial structure of firms, in that the degree of financial deepening depends not only on households' portfolio choices but also on firms' investment decisions.

Bianco, Gerali and Massaro (1997) offered evidence of basic lack of convergence in the financial structures of the advanced economies, indicating that changes in them reflect past evolution (path dependence). Where the law imposed rigid separation between banks and firms, we see the rise of non-banking intermediaries. Where such separation was not to be found, the role of the banks expanded still further. The authors also noted that in countries where public intervention in the economy has been important historically, the State's role in the financial system remained significant.

De Bondt (1998) studied the financial structure in six European countries from the mid-1980s to the mid-1990s by three distinct approaches, respectively examining intermediation, regulation, and the financial structure of firms. The study found that banks outweighed markets in the financing of firms and derived some principles for explaining financial structure and the persistence or evolution of some key characteristics. Economic and regulatory convergence in Europe with the launch of monetary union, it concluded, would foster progressive approximation of national structures.

Schmidt *et al.* (2001) studied the evolution of the financial structure in the main European countries before EMU, from 1980 to 1998. Their thesis is that the expected convergence with the launch of the single market did not occur. The German financial system remained bank-oriented, while the British continued to be market-oriented. The French system was harder to classify, as it had undergone more substantial change, especially in market organization and arrangements, the product of continuous interaction among the various players and components.

Hartman *et al.* (2003) compared the structure of the financial systems of the euro area, the United States and Japan from 1995 to 2001, confirming that the US was market-based and the other two bank-based. However, the euro-area system was less strongly bank-based than in the past, as the traditional role of banks in intermediation had diminished with respect to institutional investors, with the rise of bankassurance business. The introduction of the euro, in this thesis, fostered portfolio diversification, sustaining the demand for financial assets. The authors also examine convergence between the different euro-area countries, finding an increase, during the period, in the dispersion of the indicators of ratios between financial assets and liabilities.

Blum *et al.* (2002) reviewed the literature on the link between finance and growth, studying the structure of the financial system in 32 countries. They concluded that on the whole the degree of convergence between the national financial systems of the euro area was modest.

Bartiloro and De Bonis (2005) tracked the ratio of residents' financial assets to GDP from 1995 to 2000 in 12 European countries, finding evidence of convergence (defined as mean reversion), in the face of greater dispersion of the indicator between countries, which can be attributed to the effect of transitory shocks.

In conclusion, the recent empirical literature does not offer uniform results in assessing the hypothesis of convergence among financial system structures, though there does appear to be some prevalence for the alternative thesis of path dependence.

3. Analysis of convergence: concepts and techniques

The literature on economic growth has devoted ample space to the empirical study of convergence. Starting with Baumol (1986) and Barro (1991), we have had a series of works based on varying methodology. For extensive surveys and an effort at systematic treatment, see Temple (1999) and Islam (2003). For our purposes here, while the issue of convergence has been studied most especially in work on growth in per capita output and productivity, it has also been considered in other areas of economics. For instance, studies on the expansion of firms – in particular empirical testing of Gibrat's law – which are examined by Geroski (1999), raise a similar question and deal with it by techniques analogous to those developed in the framework of growth theory. The techniques of empirical analysis of convergence have also been applied in another area different from growth theory, namely in studies of financial market integration and interest rate convergence (e.g. Fase and Vlaar, 1998; Goldberg *et al.*, 2003).

In what follows we briefly describe some of the various concepts of convergence developed in the literature and examine the different statistical techniques proposed for empirical analysis. Islam (2003) classifies the many, diversified acceptations of the term "convergence" in growth literature. For our present purposes, it is essential to distinguish convergence within a given economy from convergence across different economies; β -convergence from σ -convergence; and absolute from conditional convergence.

The concept of convergence within an economy refers to the existence of a single long-term equilibrium and a stable transition path leading the economy to steady state equilibrium. Convergence across economies designates a situation in which differentials in per capita output between areas tend to diminish over time.

 β -convergence describes a situation in which initially backward areas tend to grow faster than the more advanced ones – a catching-up process whose intensity is measured by the coefficient β of the regression of the growth rate on the initial output level. In the presence of β -convergence, shocks to the initial output level do not have permanent effects on the long-term equilibrium level. So the system does not show path dependence on the initial conditions.

Originally conducted using non-micro-based regressions, the analysis of β -convergence was subsequently justified theoretically by setting it in the framework of the neoclassical exogenous growth model, as formulated by Solow and extended by inclusion of human capital in the production function (Mankiw *et al.*, 1992). One of the main implications of Solow's model is the existence, for each economy, of a stable dynamic equilibrium toward which the system, under certain assumptions concerning production technology and positing factor substitutability, converges independently (convergence "within"). At the same time, in the phase of transition the growth rate predicted by the model is proportional to the distance from the long-period equilibrium level. Countries with an especially low starting level by comparison with the equilibrium will grow faster, inducing convergence "across" during the transition to the steady state. Studies of β -convergence were severely criticized by Friedman (1992) and Quah (1993). For one thing, β -convergence is not sufficient to ensure that the cross-sectional dispersion of output levels actually diminishes over time. And the approach was also criticized as potentially vitiated by Galton's fallacy, *i.e.* a disturbance of the initial level of the key variable by transitory factors, such as measurement errors, in which case the convergence indicated by the β coefficient would be only apparent. As an alternative, these authors suggest direct measures of output dispersion such as standard deviation (σ) or the coefficient of variation. The tendency towards progressive reduction of such dispersion is known in the literature as σ -convergence.

A final, important distinction made in the literature is that between absolute and conditional β -convergence. We have absolute convergence when the economies considered not only do not display path dependence but in the long run converge on the same equilibrium level. Convergence is said to be conditional when it is convergence "within"; that is, each of the economies is stable and converges on a single steady state level but the level itself differs between areas. In the presence of absolute convergence the cross-sectional dispersion is determined strictly by the initial conditions and by shocks that shift the economy temporarily out of the balanced growth path. The absence of path dependence implies that in the long period the system is independent of the initial conditions, so that in the presence of absolute β -convergence the residual spatial dispersion of the phenomenon must be ascribed solely to the effect of transitory disturbances.

In the case of conditional convergence, by contrast, the cross-sectional variability of the phenomenon incorporates not only the transitory component but also a permanent component deriving from the dispersion of the individual steady state levels. Note that only if the variance of temporary shocks tends to diminish over time will we observe not only convergence "within" but also convergence "across".

As to statistical technique, at first the hypothesis of β -convergence was tested by crosssection regression of the growth rate of per capita GDP on its initial level. However, this approach has a number of serious weaknesses (Temple, 1999), such as omitted variables correlated with the initial GDP level, measurement errors, and simultaneousness of regressors. To overcome these problems, starting with Knight et al. (1993) and Islam (1995), panel techniques were used, which by including individual effects made it possible to control for omitted variables that are constant over time, such as the initial level of production efficiency. As these are dynamic panels, owing to the presence of the lagged dependent variable among the regressors, they are not easy to estimate. Originally Caselli et al. (1996) adopted the GMM estimator (Arellano and Bond, 1991). Given the high persistency of the macroeconomic variables involved, however, the Arellano and Bond estimator has problems of ineffectiveness of the instrumental variables used and of severe distortion where the sample is small. This problem was raised by Bond et al. (2001), who suggested as a solution the GMM system estimator (Arellano and Bover, 1995; Blundell and Bond, 1998). On the assumption of no serial correlation of errors, net of the individual effect, the authors show that this estimator, through an appropriate choice of the order of lag of the instruments, can be consistent even in the presence of measurement errors and endogenous regressors.

Where the series is long enough, time series methodologies can be used to analyze convergence properties. In our case, however, given the shortness of the series, this approach is not practicable. Nevertheless, the availability of observations repeated over time enables us to test the hypothesis of β -convergence for the financial structures of European countries using the panel methodology. In the absence of a formal theoretical model, it remains impossible to interpret the coefficients estimated in terms of a set of structural parameters, but the exploratory validity of the inferences drawn remains.

4. Factorial matrices analysis

The internationally comparative empirical literature more and more commonly adopts a multivariate analytical approach. The use of a single synthetic indicator, such as Goldsmith's FIR, is considered insufficient to fully capture the morphological differences between the structures of national financial systems. This approach, though it deepens the analysis, makes it problematic to produce a single ranking of groups of countries in terms of degree of financial development, to assess the evolution of structures in synthetic, effective fashion, or to bring out dynamics common to the different indicators.

The usual techniques of statistical analysis, in the case of two-dimensional databases (units and variables), permit the effective reduction of the data to produce composite indicators which, keeping to a minimum the loss of information with respect to the set of data observed, produce an effective synthesis for operational purposes. The literature has proposed extensions of these techniques designed to operate in analogous fashion on datasets with more than two dimensions (multiway techniques; Rizzi and Vichi, 1995). Here we describe the so-called FAMA technique (Factorial Matrices Analysis; see, e.g., Fachin *et al.*, 2002), which has been successfully applied to the analysis of time series of macroeconomic data for a set of countries (Tassinari and Vichi, 1994).

The FAMA methodology seeks to condense the information contained in a threedimensional matrix – statistical units, variables and occasions – into a dataset with fewer dimensions while minimizing information loss. This is a three-phase technique: dependence analysis, synthesis and singular values decomposition.

1. Dependence analysis. This phase measures the matrix correlation among the various "slices" making up a three-way matrix. Using X_h , h=1,2,...,T to designate a matrix containing the observations of K variables on N statistical units for the period (occasion) h, the following is a general expression of the relative index of dependence:

$$dip(X_h, X_m) = \frac{vec(X'_h)'Cvec(X'_m)}{\sqrt{vec(X'_h)'Cvec(X'_h)vec(X'_m)'Cvec(X'_m)}}$$

Varying the definition of the matrix, one gets different measures of dependence, the most common of which are:

- the weak dependence index, obtained setting $C = I_N \otimes I_K$ in which I_M is the identity matrix of order M;

- the strong dependence index, obtained setting $C = I_N \otimes U_K$, in which U_M is the square matrix of order *M* with all elements equal to 1.

The strong dependence index gives a broader measure of the correlation between matrix pairs, in that in evaluating the dependence between matrices of data for two different occasions it considers not only the covariance between observations for the same variable but also that between different variables.

2. Synthesis. In this phase, factorial matrices are defined as the normalized linear combination of the matrices X_h , h=1,2,...,T. In particular, the g-th factorial matrix F_g is obtained as the solution to the following problem of optimal:

$$F_g = \sum_{h=1}^T a_{hg} X_h$$

such that:

$$\sum_{h=1}^{T} \sum_{m=1}^{T} dip(X_h, X_m) a_{hg} a_{mg} = \max$$

under the following constraints:

$$\sum_{h=1}^{T} a_{hg}^2 = 1$$

$$\sum_{h=1}^{T} \sum_{m=1}^{T} dip(X_h, X_m) a_{hf} a_{ml} = 0, \qquad f \neq l; f, l = 1, ..., g$$

The weights for the linear combination of the data matrices are thus defined in such a way that the factorial matrices are mutually independent with respect to the measure of matrix dependence selected and are such as to maximize the fraction of linear dependence explained by the individual matrix.

3. Singular values decomposition. A standard factor analysis (principal components) is performed on the individual factorial matrices identified in the second stage. Then the time trajectories of the latent variables are defined by projecting the observed data on the factorial axes of the synthesis matrix.

5. Description of the database

The database assembled for the study includes 14 indicators selected from among those used in the empirical literature, considering the availability of statistics for a broad set of European countries. Table 1 lists the indicators with a brief description of the way the variables have been calculated and the aspects of the financial system that each indicator highlights. The main descriptive statistics on the individual indicators are given in Table A1 in the Apprendix.

Except for TURNOVER, obtained from the World Bank database on financial structures,² and CAPEX, which in part uses data released by the World Federation of Exchanges, the indicators are constructed on the basis of the national financial and economic accounts of 13 European countries in the period 1995-2003.³

During this period the indicator of the overall size of the financial system (FINAS) follows, for the average of the 13 countries, a positive trend that continues even in the years of sharply declining share prices between 2000 and 2003. The cross-country dispersion of this variable increased in absolute terms but diminished slightly in proportion to the higher average level. There is also an upward trend for the indicators of development of the equity markets (CAPEX, TURNOVER) and the corporate bond markets (BONDNFC), with an increase in relative dispersion until the end of the 1990s and a subsequent return to the initial levels. The external

² For a description of that database, see Beck *et al.* (1999).

³ The countries are Austria (AT), Belgium (BE), Germany (DE), Denmark (DK), Spain (ES), Finland (FI), France (FR), Italy (IT), the Netherlands (NL), Norway (NO), Portugal (PT), Sweden (SE), and the United Kingdom (UK).

openness of national financial systems increased appreciably, with a decline in cross-country variability of this indicator with respect to the mean.

Bank credit, over the period considered, grew faster than real economic variables as well. For the LOMFI indicator cross-sectional dispersion increased both in absolute terms and *vis-à-vis* the mean, while relative variability remained broadly unchanged for the HOUSEDP indicator.

The volume of banking intermediation, though growing more than the real economy, declined with respect to the total growth of financial assets (FIN), though there are signs of a recovery in 2002-2003. The dispersion of this indicator increased in relative terms until 2000 and then diminished; in 2003 it was at the same level as in 1995.

Households' portfolio of financial assets saw an increase in the proportion accounted for by non-bank intermediated instruments (HOUSINS and HOUSFUND). Direct shareholding (HOUSSHR) also increased, while bond holdings (HOUSBOND) declined. The share of bank deposits (HOUSDEP) declined until 2000 and then rose again, but not enough to regain its initial levels.

The incidence of the public debt on the financial system (DEBGG) showed a declining trend in the second half of the 1990s and substantial stability thereafter. The dispersion of the indicator across countries diminished progressively in absolute terms but shows a tendency to increase over the lower level observed in the second part of the period studied.

Table 2 gives the simple correlations between the 14 indicators, calculated jointly including the data for the 13 countries and the 9 years. The principal indicator of financial development (FINAS) is correlated negatively with the indicators of relative development of banks (FIN and HOUSDEP) and with the incidence of the public debt (DEBGG). It is positively correlated with the indicators of absolute development of the credit markets (LOMFI and HOUSDEB). Overall, as the size of the financial system increases in relation to the real economy, so does the volume of banking intermediation, but less than proportionally, so that the latter shows a relative diminution.

Additional descriptive evidence comes from dynamic analysis of the distance between countries, jointly measured with respect to the entire set of indicators (Table 3). The mean distance between the 13 countries diminished by about 8 per cent (from 2.6 to 2.4) between 1995 and 2003, indicating a tendency to reduction of dispersion in national financial structures. The countries with the sharpest decreases are Portugal (-21.9 per cent), Norway (-14.0 per cent), Belgium (-13.9 per cent) and the UK (-12.0 per cent). For Italy and Spain, by contrast, the average distance from the other countries increased (by 4.8 and 4.5 per cent respectively).

6. Results of the Factorial Matrix Analysis

This section sets forth the results of factorial matrix analysis of the database described above, separately for each of the three phases of the procedure. As a preliminary step, the individual variables are rendered comparable by transforming them into index numbers with respect to the cross-sectional mean for each year. This eliminates the differences of level between indicators and, for each indicator, between different periods. At the same time this procedure, unlike full standardization of the variables, preserves the differentials between indicators in terms of relative variability with respect to the mean, assigning a greater weight to those that deviate more from the set of countries analyzed.

6.1. Dependence analysis

To study dependence between matrices of indicators in different years we have used the strong dependence index, which takes account of cross-correlations between variables. As these are indicators of level that refer to structural characteristics, one should expect a certain degree of persistence over time, and this is confirmed by the pattern of the indices of matrix correlation, which show that dependence is especially great between contiguous years and that while gradually declining it remains high even at a distance of nearly a decade (Table 4).

6.2. Synthesis

The strong persistence of the phenomenon over time is highlighted by the spectrum of eigenvalues of the strong correlation matrix, which has one overwhelmingly dominant value (Table 5).

The associated eigenvector shows that the contributions that all years contribute in essentially equal fashion to the definition of the first factorial matrix (Table 6). This matrix, comprising 88 per cent of the dependence between the data matrices of the individual years, forms the is the synthesis matrix from which the subsequent phase of analysis begins.

6.3. Singular values decomposition

In this phase, the synthesis matrix is initially broken down into its pricincipal components. Examining the spectrum of eigenvalues of the variance-covariance matrix, we can identify at least three components (or factorial axes) that define composite indicators (obtained, that is, as a linear combination of the original indicators) that explain overall about 70 per cent of the total variance of the 14 indicators (Table 7).

The factorial axes can be interpreted starting with a reading of the contributions made by the original variables to the composite indicators that define the axes or, in analogous fashion, of the correlations of the variables with the factorial axes.

The first factor, which explains 36.3 per cent of the total variance, shows a positive correlation with the volume of financial assets (FINAS), stock exchange capitalization (CAPEX), international openness (INTOPEN), the diffusion of corporate bonds (BONDNFC) and, in very marked fashion, the portion of household assets consisting in insurance policies and retirement provisions (HOUSINS; Table 8). It shows a negative correlation with households' direct holdings of shares and bonds, deposits and investment fund units and with the incidence of public sector liabilities on the total. For the banking variables, the correlation is positive for its absolute size (LOMFI) but negative for indicators expressed as a ratio to total financial assets (FIN, HOUSDEP).

The first composite indicator, then, can be likened to a measure of the overall development of the financial system, or financial deepening, driven by the advance of markets and certain institutional investors (insurance companies and investment funds) and the growth of cross-border transactions. The process is associated with households' increased utilization of credit and a lesser incidence of financial disintermediation due to direct sales of securities to savers. As this variable increases the banking system continues to expand, but more slowly than the financial system as a whole, thus registering a relative contraction.

The second factor, which explains about 18 per cent of the overall variance, shows a positive correlation with the absolute size of the banking system (LOMFI, HOUSDEB) and above all with the variables measuring the relative volume of banking intermediation (FIN and HOUSDEP). It can be interpreted as a measure of the development of the banking system for a given overall degree of diffusion of financial assets.

The third composite indicator, which captures 15 per cent of overall variability, is correlated directly with the incidence of public liabilities and with households' holdings of bonds, especially their direct holdings (HOUSBOND) but also their holdings through investment funds (HOUSFUND). This can thus be read as an indicator of the weight exerted on the financial structure by the public finances. The negative correlation between this latent variable and the portion of private debt financed directly in the market (BONDNFC) could be interpreted as the crowding-out of private by government securities. At the same time an increase in the weight of public sector liabilities is associated with greater international openness of the financial markets, presumably reflecting the placement of a part of the debt abroad.

The positions of individual countries with respect to the three factorial axes can be represented graphically, thus showing groups of countries whose financial structures display the most affinities. In 1995, as Figure 1 shows, the highest values along the first axis (financial deepening) were those for the UK and the Netherlands; the highest for the second axis (banking) were those for Germany, Austria and Denmark. The lowest with respect to the first axis was Italy and with respect to the second, Portugal. For banking, the UK also had one of the lowest values.

By 2003 the picture had changed significantly (Figure 2). Portugal had recouped a good deal of ground along the banking axis, while Germany, Austria and Denmark had come back towards the rest of the group. The UK also had moved upwards along that axis. The Netherlands showed a significant increase in terms of the financial deepening axis, practically equalling the UK. The lowest value for the banking variable was that of Finland, while Italy continued to be by far the lowest in terms of the factorial axis representing financial deepening.

Figure 3 shows the position of the various countries in 1995 with respect to the third factorial axis (public finances). The graph highlights the position of the countries with high public debt (Belgium and Italy), while Norway has an especially low value. The rest of the group shows little dispersion. The situation in 2003 (Figure 4) showed no radical change but some reduction of dispersion, with a tendency to converge on the central values both from above (Belgium and Italy) and from below (Portugal and Norway).

7. Statistical analysis of convergence

We can now use the synthetic indicators identified using FAMA methodology to assess whether the path of evolution of national financial structures within Europe has been convergent or not. Given the great attention that the literature has paid to determining the degree of homogeneity of national systems, *i.e.* to defining convergence "across", we first analyze σ -convergence. Subsequently we consider the dynamic properties of the process, with an examination of the hypothesis of path dependence using techniques based on β -convergence.

7.1. σ -convergence

Simply comparing dispersion among countries with respect to the three latent factors we have identified reveals the possible presence of σ -convergence during the decade considered and enables us to describe its dynamics with respect to selected aspects of the financial structure.

As to the first latent factor, excluding 1995 the standard deviation shows a tendency to diminish over the years, though not very sharply (Figure 5). That is, since the second half of the 1990s there has been a slight increase in the degree of homogeneity among the countries considered with respect to financial deepening. This trend confirms the conclusions of recent works such as Bartiloro *et al.* (in this volume) that the degree of financialization of all the countries studied has increased over the period.

With respect to the composite indicator for banking, by contrast, dispersion increased significantly over the decade, the end-period value being half again as high as the initial value

(Figure 6). Not only do we have no σ -convergence but there is actual divergence of financial structures as regards the relative weight of the banking system in the allocation of resources. This trend to dispersion, in turn, depends on the fact that in some banking-oriented countries such as Germany and Denmark the incidence of the banks remained unchanged while in the other countries it generally diminished (save for the UK and the Netherlands, which registered slight rises from very low initial levels).

The clearest empirical evidence for σ -convergence derives from the time series of the standard deviation of the third latent factor, which records a significant decrease in the last few years of our period, equal to some 20 per cent of the level found in the second half of the 1990s (Figure 7). A reduction in the cross-country differences with respect to this factor was expected in the light of the debt- and deficit-control policies required for membership of the euro area. As was seen in plotting the trend in countries' positions *vis-à-vis* this factorial axis, the overall convergence derived both from a decrease in the weight of the public finances in the high-debt countries and from an increase in the countries at the low end of the distribution.

7.2 β -convergence

The econometric estimates of β -convergence were obtained by applying what is currently considered the most appropriate estimator for dynamic panels that, as in our case, display a high degree of persistence: namely, the GMM system estimator as implemented in the Stata package from David Roodman's XTABOND2 routine.⁴ The estimates are given in Table 9, separately for the single synthetic indicators. The estimates were obtained assuming different individual effects for each country, a case that is equivalent to an analysis of conditional convergence.⁵ Subsequently, we tested the hypothesis that individual effects were nil, which can be considered as a test of the hypothesis of absolute convergence.

Even without a formal theoretical model to produce clear predictions on the causes of the long-term equilibrium level of the variables, a statistical evaluation of the tendency of the series to converge on one or on many steady-state levels can enhance our empirical understanding of the phenomenon, at least in descriptive terms. Denoting the dependent variable as *y*, the model estimated is the following:

$$y_{it} = (1+\beta)y_{it-1} + \delta_i + u_{it}$$

where u_{it} is white noise, uncorrelated either over time or cross-section.

In the first stage the estimates were computed setting equal to 1 the minimum lag order used by the procedure in constructing the instrumental variables on which the estimate is based. This situation is optimal for the case in which the explanatory variables are strictly exogenous or predetermined and are not affected by measurement errors. To get consistent estimates even with white-noise measurement errors, the procedure was repeated setting equal to 2 the minimum lag order of the instruments, as suggested by Bond *et al.* (2001). In all cases the inferences are based on robust estimates of standard errors.

Estimates were based on untransformed variables, which by construction can be treated as percentage differences from the mean, and on the basis of annual data.⁶ The regression coefficient

⁴ David Roodman, Center for Global Development, Washington (D.C.) E-mail:droodman@cgdev.org.

⁵ As the initial variables are already expressed as ratios to the mean for each year, time effects were not included in the model.

⁶ The empirical studies that have applied panel methodology to the convergence of per capita income commonly use multi-year average growth rates, in order to reduce the influence of cyclical fluctuations. In our case, this procedure would have resulted in an excessive reduction in the number of usable observations. In any case, it must be noted that as the raw indicators were centred on

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thus measures the variation, in percentage points, in response to a shock equal to 1 percentage point in the initial period. Negative values of β indicate convergence "within", *i.e.* independence from the initial conditions, and in this case the absolute value of the coefficient measures the fraction of the adjustment effected in a year. Nil or positive values of β indicate absence of convergence, *i.e.* persistence of the effect of transitory shocks on the long-run level of the variable.

For the variable representing *financial deepening*, the results indicate the presence of β convergence, albeit with a long persistence (about 2 per cent of the past shock is absorbed each year; Table 9). The level of significance is insufficient in the case of instruments with a minimum lag of 1 but meets the conventional threshold when the order of the lag is set at 2. The F-test for zero country effects does not reject the null hypothesis and thus supports the hypothesis of absolute convergence. The diagnostic tests (Hansen's overidentification test on the goodness of the instruments and the Arellano-Bond test for serial autocorrelation) do not reveal problems in the dynamic specification of the model.

Turning to the *banking* variable, as in the analysis for σ -convergence the results are reversed, with lack of convergence for both sets of instruments. The progressive increase in dispersion for this variable could therefore reflect, at least in part, the accumulation of local disturbances that are not absorbed over time and that, cumulatively, make the trajectory of the individual countries gradually diverge. Here again the diagnostic tests show no problem.

The third factor, *public finances*, again paralleling the findings for σ -convergence, is the variable most clearly showing mean reversion, even after controlling for the presence of measurement errors and other unobservable transitory shocks (the result thus appears to be robust to Galton's fallacy). The percentage correction of imbalance is measurably higher than for the first factor, at between 8 and 10 per cent per year. However, the estimation rejects the hypothesis that country effects are nil. That is, we have conditional but not absolute convergence. Given that the graphs pointed to Belgium and Italy as possible outliers for this indicator, the estimates were repeated excluding these two countries. The results, reported in the last column of Table 9, show that in this case the null hypothesis of absolute convergence cannot be rejected at the 5 per cent significance level. Except for Italy and Belgium, in the long run the European countries considered in the analysis thus apparently show a tendency to converge towards one equilibrium level of the indicator of the incidence of the public finances.

8. Conclusions

Our aim has been to provide an assessment, in quantitative terms, of whether or not the financial structures of Europe have converged in the wake of the institution of Economic and Monetary Union. The statistical approach to measuring differences between national financial systems was bottom-up. Starting with a broad selection of indicators drawn from the empirical literature, the multidimensional factorial matrix analysis technique (FAMA) was used to derive a set of composite indicators synthesizing similarities and divergences between national systems and to depict the evolution of the phenomenon over time along a limited number of axes.

The factorial matrix analysis identified three latent variables that together explained about 70 per cent of the dispersion of the countries' financial structures. Based on the correlations of those variables with the initial indicators, the first factorial axis could be interpreted as an indicator of financial deepening, sustained mainly by the growth of securities markets and non-bank intermediaries. The second composite indicator can be seen as an index, holding the absolute size of the financial system constant, of the relative weight of banks. The third composite indicator can

average cross-section averages prior to performing the FAMA analysis, the composite indicators are shorn of the effect of any cyclical fluctuations common to the countries examined, such as those deriving from simultaneous changes in financial asset prices.

be read as a gauge of the influence of the public finances – general government liabilities – on the financial structure.

Analyzing the trajectories of the composite indicators over time permits a statistical evaluation of the presence or absence of convergence. The techniques used drew on the methodological apparatus developed in the study of economic growth and convergence of levels of development. The properties of path dependence of the process were studied using panel techniques for the analysis of β -convergence; the presence or absence of a tendency to the reduction of the dispersion of the variables between countries was also studied (σ -convergence).

The results confirm the hypothesis of both types of convergence as regards financial deepening and the influence of the public finances, with a perceptibly faster adjustment to the steady-state level for the latter indicator. For the indicator of the importance of the banking system, by contrast, β -convergence is absent and there is a progressive increase of cross-sectional dispersion (σ -divergence).

For β -convergence the results show absolute convergence for the first factor and also for the third factor, if one excludes the countries with historically high public debt. Despite relatively marked dispersion of the level of financial deepening among the sample countries, then, the empirical evidence does not conflict with the existence of a steady-state level common to all the financial systems studied. Such results are shown to be robust to the presence of measurement errors and other transitory shocks to the initial level of the variables.

In general, albeit allowing for the limitations due to the shortness of the time period considered (only a decade), the hypothesis of a progressive convergence of the structure of the financial systems of the EU countries (excepting the banking sector, which still appears to depend on the initial conditions) does not appear to be contradicted by the empirical evidence.

Financial Indicators

Acronym	Description
FINAS	Total financial assets/GDP. It provides a measure of the overall size of the financial system compared with that of real economy.
FIN	Ratio of banking sector's financial assets to total financial assets, an indicator of banking development compared with the overall size of the financial system.
LOMFI	Loans of MFIs/GDP. It provides an indicator of absolute development of banking credit.
CAPEX	Stock exchange capitalization /GDP. A measure of stock exchange market size.
TURNOVER	Ratio of traded quoted stock to stock exchange capitalization. It provides a further indicator of the stock market development.
INTOPEN	Ratio of the sum of financial assets and liabilities of the Rest of the World to the sum of financial assets and liabilities of residents. It provides a measure of the degree of the international openness of the financial system.
BONDNF	Ratio assets/loans in the liabilities of non financial firms. It provides a measure of the incidence of the direct financing on bond markets on manufacturing sector's debt.
HOUSDEP	Share of deposits on households' total financial assets. It represents an indicator of the preference for liquidity of the sector and of the development of the banking system, from the funding side.
HOUSBOND	Share of bonds on households' total financial assets. It provides a measure of the incidence of direct holding of private and public bonds.
HOUSSHAR	Incidence of shares and other equity on households' financial assets (excluding mutual funds shares). Together with the preceding indicator, it provides a measure of the relevance of not intermediated assets in households' financial wealth.
HOUSFUND	Mutual funds shares as a percentage of households' total financial assets. It provides evidence of the relevance of such non-banking intermediaries.
HOUSINS	Share of insurance technical reserve and investment funds units on households' total financial assets. This indicator provides an assessment of the relevance of this kind of intermediation. It is strongly influenced by the presence of funded retirement schemes.
HOUSDEB	Ratio of households financial liabilities to disposable income. It catches the degree of development of households' credit market.
DEBGG	Ratio of General Government financial liabilities to total financial assets. It provides a measure of the weight of public finance on the financial structure.

Table 2

Correlation matrix

(based on pooled year-country data)

	FIN AS	LO MFI	FIN	INT OPEN	CAP EX	TURN OVER	BOND NFC	HOUS DEP	HOUS SHAR	HOUS BOND	HOUS INS	HOUS FUND	HOUS DEB	DEB GG
FINAS	1.00	0.52	-0.17	0.74	0.62	-0.18	0.38	-0.62	-0.03	-0.02	0.57	-0.11	0.24	-0.52
LOMFI	0.52	1.00	0.40	0.29	0.25	0.03	0.04	-0.25	-0.54	-0.02	0.65	-0.10	0.64	-0.46
FIN	0.17	0.40	1.00	-0.25	-0.54	-0.04	-0.15	0.51	-0.37	0.28	-0.28	0.39	-0.01	0.05
INTOPEN	0.74	0.29	-0.25	1.00	0.59	-0.38	0.20	-0.31	-0.05	0.07	0.32	-0.29	0.06	-0.35
CAPEX	0.62	0.25	-0.54	0.59	1.00	0.12	0.26	-0.58	0.34	-0.38	0.52	-0.39	0.12	-0.40
TURNOVER	-0.18	0.03	-0.04	-0.38	0.12	1.00	-0.16	-0.10	0.10	-0.31	0.11	0.19	0.09	-0.06
BONDNFC	0.38	0.04	-0.15	0.20	0.26	-0.16	1.00	-0.13	0.07	-0.52	0.39	-0.38	0.05	-0.52
HOUSDEP	-0.62	-0.25	0.51	-0.31	-0.58	-0.10	-0.13	1.00	-0.22	-0.03	-0.58	-0.06	-0.36	0.20
HOUSSHAR	-0.03	-0.54	-0.37	-0.05	0.34	0.10	0.07	-0.22	1.00	-0.16	-0.37	0.13	-0.47	0.15
HOUSBOND	-0.02	-0.02	0.28	0.07	-0.38	-0.31	-0.52	-0.03	-0.16	1.00	-0.43	0.48	-0.26	0.67
HOUSINS	0.57	0.65	-0.28	0.32	0.52	0.11	0.39	-0.58	-0.37	-0.43	1.00	-0.44	0.72	-0.63
HOUSFUND	-0.11	-0.10	0.39	-0.29	-0.39	0.19	-0.38	-0.06	0.13	0.48	-0.44	1.00	-0.13	0.36
HOUSDEB	0.24	0.64	-0.01	0.06	0.12	0.09	0.05	-0.36	-0.47	-0.26	0.72	-0.13	1.00	-0.52
DEBGG	-0.52	-0.46	0.05	-0.35	-0.40	-0.06	-0.52	0.20	0.15	0.67	-0.63	0.36	-0.52	1.00

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	AT	BE	DE	DK	ES	FI	FR	IT	NL	NO	РТ	SE	UK	Average
								1995						
AT	0	2.68	1.30	2.33	2.14	1.61	2.56	2.14	3.21	2.37	2.65	2.14	3.67	2.40
BE	2.68	0	2.85	2.57	2.95	3.29	3.23	2.01	3.77	3.85	3.37	2.67	4.25	3.12
DE	1.30	2.85	0	1.67	2.05	2.28	2.07	2.60	2.44	2.07	2.60	1.50	3.16	2.22
DK	2.33	2.57	1.67	0	2.29	2.92	2.48	2.84	2.33	2.28	2.84	1.51	3.25	2.44
ES	2.14	2.95	2.05	2.29	0	2.00	1.32	2.93	3.02	2.12	1.08	1.76	3.31	2.25
FI	1.61	3.29	2.28	2.92	2.00	0	2.71	2.67	3.06	2.11	2.27	2.24	3.49	2.55
FR	2.56	3.23	2.07	2.48	1.32	2.71	0	3.45	2.90	2.25	1.74	2.06	2.60	2.45
IT	2.14	2.01	2.60	2.84	2.93	2.67	3.45	0	4.00	3.53	3.28	2.69	4.72	3.07
NL	3.21	3.77	2.44	2.33	3.02	3.06	2.90	4.00	0	2.38	3.24	1.71	2.14	2.85
NO	2.37	3.85	2.07	2.28	2.12	2.11	2.25	3.53	2.38	0	2.19	1.97	2.59	2.48
РТ	2.65	3.37	2.60	2.84	1.08	2.27	1.74	3.28	3.24	2.19	0	2.05	3.34	2.55
SE	2.14	2.67	1.50	1.51	1.76	2.24	2.06	2.69	1.71	1.97	2.05	0	2.86	2.10
UK	3.67	4.25	3.16	3.25	3.31	3.49	2.60	4.72	2.14	2.59	3.34	2.86	0	3.28
Average	2.40	3.12	2.22	2.44	2.25	2.55	2.45	3.07	2.85	2.48	2.55	2.10	3.28	2.60

Distances matrix among national financial structures (1)

(Euclidean distances based on the 14 indicators considered)

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	AT	BE	DE	DK	ES	FI	FR	IT	NL	NO	РТ	SE	UK	Media
							20	003						
AT	0	2.02	1.63	1.97	2.43	2.74	2.20	2.88	3.07	1.81	1.40	2.43	3.24	2.32
BE	2.02	0	1.90	2.48	2.90	3.29	2.96	2.04	3.43	2.98	1.65	2.78	3.89	2.69
DE	1.63	1.90	0	1.54	1.78	2.73	2.30	2.24	2.57	1.96	1.42	1.91	3.12	2.09
DK	1.97	2.48	1.54	0	2.47	3.00	2.38	3.25	1.75	1.63	1.61	1.95	2.52	2.21
ES	2.43	2.90	1.78	2.47	0	1.85	2.07	3.10	2.80	2.10	1.99	1.40	3.29	2.35
FI	2.74	3.29	2.73	3.00	1.85	0	1.29	3.60	3.00	2.08	2.26	1.44	2.67	2.50
FR	2.20	2.96	2.30	2.38	2.07	1.29	0	3.45	2.73	1.59	1.95	1.26	2.08	2.19
IT	2.88	2.04	2.24	3.25	3.10	3.60	3.45	0	4.21	3.50	2.46	3.29	4.61	3.22
NL	3.07	3.43	2.57	1.75	2.80	3.00	2.73	4.21	0	2.16	2.57	2.04	1.83	2.68
NO	1.81	2.98	1.96	1.63	2.10	2.08	1.59	3.50	2.16	0	1.88	1.55	2.31	2.13
РТ	1.40	1.65	1.42	1.61	1.99	2.26	1.95	2.46	2.57	1.88	0	1.83	2.88	1.99
SE	2.43	2.78	1.91	1.95	1.40	1.44	1.26	3.29	2.04	1.55	1.83	0	2.24	2.01
UK	3.24	3.89	3.12	2.52	3.29	2.67	2.08	4.61	1.83	2.31	2.88	2.24	0	2.89
Average	2.32	2.69	2.09	2.21	2.35	2.50	2.19	3.22	2.68	2.13	1.99	2.01	2.89	2.41

Distances matrix among national financial structures (1)

(Euclidean distance based on the 14 considered indicators)

(1) To compute the distances, the indicators have been made comparable by transforming them to index numbers with respect to the average of each year of the three countries.

Table 4

Strong correlation indices between couple of years

	1995	1996	1997	1998	1999	2000	2001	2002	2003
1995	1	0.94	0.85	0.77	0.81	0.75	0.76	0.70	0.67
1996	0.94	1	0.95	0.87	0.88	0.81	0.82	0.80	0.73
1997	0.85	0.95	1	0.95	0.93	0.89	0.84	0.85	0.78
1998	0.77	0.87	0.95	1	0.93	0.91	0.87	0.90	0.83
1999	0.81	0.88	0.93	0.93	1	0.98	0.87	0.90	0.89
2000	0.75	0.81	0.89	0.91	0.98	1	0.92	0.95	0.95
2001	0.76	0.82	0.84	0.87	0.87	0.92	1	0.95	0.94
2002	0.70	0.80	0.85	0.90	0.90	0.95	0.95	1	0.96
2003	0.67	0.73	0.78	0.83	0.89	0.95	0.94	0.96	1

Table 5

Eigenvalues of the strong correlation matrix

Eigenvalues	Absolute values	% explained dependence
1	7.923	88.0
2	0.616	6.8
3	0.223	2.5
4	0.128	1.4
5	0.047	0.5
6	0.031	0.3
7	0.016	0.2
8	0.014	0.2
9	0.001	0.0

Table 6

Contributions of single years to the synthesis matrix

Periods	Contributions
1995	0.304
1996	0.328
1997	0.339
1998	0.338
1999	0.345
2000	0.344
2001	0.336
2002	0.338
2003	0.327

Table 7

Synthesis matrix: eigenvalues

Eigenvalues	% variance	% accumulated
5.08	36.3	36.3
2.56	18.3	54.6
2.03	14.5	69.0
1.65	11.8	80.8
1.01	7.2	88.0
0.71	5.0	93.0
0.43	3.1	96.1
0.33	2.4	98.5
0.11	0.8	99.3
0.05	0.3	99.6
0.04	0.3	99.9
0.01	0.1	100
0	0	100
0	0	100

Contributions to the factorial axes and correlation between latent variables and indicators

1	correlations	computed	on	pooled	vear-countr	v data)
	conclutions	computed	o_n	pooica	year country	y uuiuj

Indicators		Contributions		Correlations				
	I component	II component	III component	I component	II component	III component		
FINAS	0.339	0.012	0.367	0.66	-0.04	0.20		
FIN	-0.163	0.452	-0.028	-0.37	0.63	0.12		
LOMFI	0.266	0.437	0.057	0.52	0.60	-0.04		
INTOPEN	0.266	-0.064	0.439	0.48	-0.12	0.32		
CAPEX	0.334	-0.296	0.104	0.70	-0.53	-0.13		
TURNOVER	-0.009	-0.036	-0.396	0.05	-0.08	-0.47		
BONDNFC	0.245	-0.160	-0.151	0.59	-0.37	-0.44		
HOUSDEP	-0.261	0.089	-0.265	-0.51	0.14	-0.17		
HOUSSHAR	-0.084	-0.517	0.031	-0.12	-0.82	0.01		
HOUSBOND	-0.230	0.177	0.536	-0.64	0.45	0.93		
HOUSINS	0.402	0.146	-0.095	0.89	0.15	-0.38		
HOUSFUND	-0.259	0.188	0.192	-0.56	0.30	0.42		
HOUSDEB	0.260	0.341	-0.161	0.58	0.51	-0.32		
DEBGG	-0.349	-0.084	0.218	-0.81	0.03	0.58		

Figure 1

Position of the 13 countries on the first 2 factorial axes: 1995



Figure 2

Position of the 13 countries on the first 2 factorial axes: 2003





Position of the 13 countries on the first and the third factorial axis: 1995

Figure 4

Position of the 13 countries on the first and the third factorial axis: 2003



Financial deepening

Figure 3





Time series of the standard deviation: 1st factor









Time series of the standard deviation: 3rd factor

Table 9

β -convergence: the results of panel regression

(value in brackets)

Coefficients and statistics		Dependent Variable										
	First f	actor	Second	l factor	Third	factor	Third	factor				
			•									
			Instrumen	ts minimun	n order of la	g = 1						
Constant	0.0156	(0.396)	-0.0135	(0.275)	0.0888	(0.004)	0.0743	(0.019)				
Beta	-0.020	(0.115)	0.0195	(0.206)	-0.1049	(0.007)	-0.0955	(0.053)				
Obs.	104		104		104		88					
F Test country- effetcs	2.48	(0.141)	1.60	(0.230)	7.40	(0.019)	3.74	(0.082)				
Hansen Test	10.57	(1.000)	10.49	(1.000)	11.81	(1.000)	6.92	(1.000)				
Test z AR(1) residuals	-2.19	(0.028)	-2.19	(0.028)	-2.03	(0.043)	-1.94	(0.052)				
Test z AR(2) residuals	-1.55	(0.122)	-1.25	(0.210)	-0.86	(0.392)	-1.04	(0.299)				
			Instrumen	ts minimun	n order of la	g = 2						
Constant	0.0155	(0.266)	-0.0095	(0.486)	0.0655	(0.012)	0.0638	(0.043)				
Beta	-0.0203	(0.037)	0.0138	(0.308)	-0.0774	(0.009)	- 0.0805	(0.057)				
Obs.	104		104		104		88					
F Test country- effects	4.35	(0.059)	1.04	(0.328)	6.87	(0.022)	3.60	(0.087)				
Hansen Test	11.83	(0.992)	9.21	(0.999)	8.64	(0.999)	10.31	(0.997)				
Test AR(1) residuals	-2.24	(0.025)	-2.17	(0.030)	-1.92	(0.055)	-1.83	0.067				
Test AR(2) residuals	-2.53	(0.126)	-1.25	(0.210)	-0.88	(0.379)	-1.05	0.292				

Table A1

Main descriptive statistics for the selected indicators

FINAS7.0287.397.8738.3259.4739.6739.6739.6239.7239.525FIN0.2440.2680.2780.2520.2470.2480.2480.261INTOP1.1990.1670.6700.7830.7030.8010.8010.9030.8180.903INTONOV0.5710.6700.7830.7030.8010.8140.9140.1480.141INTONOVE0.7030.7130.7030.701 <t< th=""><th></th><th>1995</th><th>1996</th><th>1997</th><th>1998</th><th>1999</th><th>2000</th><th>2001</th><th>2002</th><th>2003</th></t<>		1995	1996	1997	1998	1999	2000	2001	2002	2003
FINAS7.0287.3797.8738.3259.4739.5759.6039.2729.6961LOMF1.0161.0341.0551.0671.1441.1701.2081.2371.236INTOPEN0.2480.2840.2520.2740.2440.2480.2630.262INTOPEN0.5530.6980.7650.7620.1300.9570.8090.6160.767TURNOVER0.5770.6170.7630.7030.8610.3140.1480.145BONDNC0.1060.1070.7810.1180.1280.1410.1350.375HOUSSHAR0.1530.1790.990.2140.2340.2210.1410.161HOUSSUD0.0010.0900.0920.1030.1040.0070.0720.075HOUSSUD0.0610.0700.0840.0920.1030.1040.0900.082HOUSSUD0.6610.0700.0840.0920.1030.1040.1000.090HOUSSUD0.6610.0710.0840.0920.1030.1040.1000.0860.081HOUSSUD0.6610.6710.6720.5752.5142.5772.3442.473LONFUD0.6510.6720.6750.6740.6850.6610.661DEDEGE0.5940.5950.5750.5140.5750.5410.580.561INTOPEN0.5950.5160.5750.5760.56		Average								
LOMFI1.0161.0341.0551.0671.1441.1701.2081.2371.256FIN0.2490.2360.2780.2520.2470.2540.2630.262INTOPEN0.1590.1690.1830.1910.2160.2400.2480.235CAPEX0.5380.6980.7650.9021.1300.8610.8810.9990.889BONDNC0.1060.1130.1130.1180.1240.2140.2140.1410.1480.1350.372HOUSDEN0.0990.0710.0940.2140.2440.2210.1940.1610.109HOUSDEND0.0100.0950.0850.0750.0650.0670.0710.0820.072HOUSDEND0.0100.0900.0920.1030.1040.1000.0900.092HOUSDEND0.6170.7010.0700.0840.0271.0501.0801.121.149DEBGG0.1310.1260.140.1030.1040.1000.0900.082HOUSPEND0.6540.6710.2752.5752.5142.5572.3442.517LOMFI0.5240.6320.6620.0770.770.780.770.780.73LOMFI0.540.6510.7770.760.650.6610.6590.661NUTNOVER0.530.530.530.540.5710.3440.511LOMFI0.54<	FINAS	7.028	7.399	7.873	8.325	9.473	9.575	9.603	9.272	9.696
FIN0.2940.2860.2780.2670.2520.2470.2540.2630.262INTOPN0.1570.1670.1830.100.2160.2480.2480.248CAPEX0.5830.6610.7650.9621.1300.9570.8090.881BONDNCP0.1060.1130.1130.1180.1280.1410.1480.445HOUSDRAP0.1300.1710.1800.2340.2210.1410.1610.169HOUSSINS0.1300.0950.0850.0670.0710.0750.0250.2410.2240.2290.2350.2440.2470.2580.710.2620.281HOUSSINS0.4500.0600.0710.0721.0301.1021.1021.1121.149DEGG0.1310.1260.1410.1680.0790.2750.2540.2580.3610.3710.371DIMSIDE0.6610.0700.0810.0770.0850.0610.0890.8810.3310.341DIMSIDE0.1310.1220.2752.5142.5752.5142.5752.5142.5750.3410.3310.341DIMSIDE0.6540.6610.6610.6770.660.661	LOMFI	1.016	1.034	1.055	1.067	1.144	1.170	1.208	1.237	1.256
INTOPEN0.1590.1670.1830.1910.2160.2400.2480.2480.6361CAPEX0.5830.6980.7650.9621.1300.9570.6090.6160.767TURNOVER0.1070.1130.1130.1130.1130.1130.1130.1140.1280.1410.1480.145BONDNEC0.3990.3710.3400.3250.3040.3010.3140.3350.371HOUSSHAR0.1530.7790.0790.2240.2240.2250.2440.4710.2580.710.0700.082HOUSSEDB0.2640.2790.2720.2350.2440.4140.1000.0900.092HOUSDEDB0.3010.7010.0840.0920.1030.1040.1000.0900.092HOUSDEDB0.5030.6710.0600.440.1040.0800.0810.1121.149DEGG0.5300.5110.1640.1600.0610.0590.0510.0510.051LONFIN0.5290.2720.2750.2990.3200.3350.3370.341LONFI0.530.6110.6160.6500.6650.6610.6560.666CAPEX0.5310.6160.6170.6160.6560.6660.6660.6660.666CAPEX0.5310.5160.5160.5170.6260.6170.6180.6310.6140.618LONFIN	FIN	0.294	0.286	0.278	0.267	0.252	0.247	0.254	0.263	0.262
CAPEX0.5830.6980.7650.9621.1300.9570.8090.6160.676TURNOVER0.5770.6170.6670.7830.7030.8610.8810.9810.889BONDNFC0.1060.1130.1130.1170.1180.1280.1410.1480.325HOUSDEP0.3990.3110.3460.3250.0340.3010.3140.3350.371HOUSDND0.1000.0950.0850.0750.0670.0710.0700.072HOUSDND0.0010.0070.0840.0220.0330.1400.0000.092HOUSDED0.6810.7070.0840.0220.0350.1440.1080.022HOUSDED0.6810.710.7070.6810.8810.7121.149DEBGG0.1310.1260.1140.1060.0890.840.8230.337DEGG0.5310.7220.2730.2752.5142.5572.442.473DMAS1.9542.1822.3060.5270.7570.660.6610.059IDMFIP0.2590.2720.2730.2710.7770.620.4440.5310.442IDMFIP0.6640.630.610.6710.7770.6260.4170.380.393IDMDFC0.790.7630.6750.710.770.6260.4440.5310.464IDMDFD0.670.710.77<	INTOPEN	0.159	0.167	0.183	0.191	0.216	0.240	0.248	0.248	0.253
TURNOVER0.6770.6170.6670.7830.7030.8610.8810.9390.881BONDNC0.3090.3110.1130.1170.1180.1280.1410.1480.145HOUSDEM0.1530.1790.3460.3240.2340.2210.1940.1610.109HOUSSINS0.1000.0950.0850.0750.0650.0670.0710.0720.022HOUSINS0.2240.2290.2350.2440.2470.2880.2710.2820.282HOUSDEM0.6800.710.0600.9471.0271.0501.0800.0800.082HOUSDEM0.8500.710.1660.0700.0840.0890.0820.0860.082HOUSDEM0.8500.710.1660.0890.0840.0820.0860.071DEBGG0.1310.1260.1410.1060.0590.0510.0510.051LOMFI0.650.610.0500.670.650.660.66ITOPEN0.530.510.5170.7770.6260.4170.380.335ITROPEN0.0500.0510.0710.0710.0740.0750.0670.6710.071INTOPEN0.0500.0510.0710.0710.0740.0750.0710.0740.0750.071INTOPEN0.1530.1510.1550.1470.1480.1460.1650.1410.160<	CAPEX	0.583	0.698	0.765	0.962	1.130	0.957	0.809	0.616	0.676
BONDNFC0.1060.1130.1130.1170.1180.1280.1410.1480.145HOUSDEP0.3900.3710.3400.3250.3040.3010.3140.3350.371HOUSSNAR0.1030.1090.1990.1900.0650.0650.0700.0170.0720.072HOUSNDN0.0040.0290.0350.0440.0270.2580.2710.2820.285HOUSPUND0.0610.0700.0840.0920.1030.1040.1000.0900.092HOUSDED0.5800.8710.9060.9771.0271.0501.0800.1121.149DEBGG0.1310.1260.1140.1060.0890.0820.0820.0820.082LOMFI0.2590.2720.2870.2750.2990.3200.3350.3370.347LOMFI0.0530.0510.0500.0640.0560.0660.0560.0560.056NTOPEN0.0530.520.4160.5170.7770.6260.4170.3380.331TURNOVER0.3900.3500.4120.3740.4560.4540.3510.426RONDNFC0.0700.0680.0710.0740.0880.0870.0810.095HOUSBAN0.1530.1510.1550.1470.1480.4660.444HOUSBAN0.0510.0760.0710.0740.0860.8750.374	TURNOVER	0.577	0.617	0.667	0.783	0.703	0.861	0.881	0.939	0.889
HOUSDEP0.3990.3710.3460.3250.3040.3010.3140.3350.327HOUSSHAR0.1530.1790.1990.2140.2340.2210.1940.1610.169HOUSSND0.0240.2990.0850.0670.0670.0710.0720.282HOUSNDD0.0240.2290.2350.2440.2470.2880.2710.2820.282HOUSPLDB0.0500.8710.9020.1030.1040.0000.0900.092HOUSDEB0.8500.8710.9060.9471.0271.0501.0801.1121.149DEBGG0.1310.1260.1140.1060.0890.0840.0820.0840.082LOMFI0.2592.3762.5172.5172.3442.473FIN0.0640.0630.0610.0570.0550.0610.0590.056INTOPEN0.0530.0510.0770.6260.4170.3880.331INTOPEN0.0500.0510.0710.0740.0890.0950.081INTOPEN0.0500.0510.0710.0740.0760.0650.0670.0710.0740.089INTOPEN0.0510.0710.0740.0750.0710.1480.1400.480.3140.4140.4140.4140.4140.4140.4140.4140.4140.4140.4140.4140.4140.4140.4140.414 <td< td=""><td>BONDNFC</td><td>0.106</td><td>0.113</td><td>0.113</td><td>0.117</td><td>0.118</td><td>0.128</td><td>0.141</td><td>0.148</td><td>0.145</td></td<>	BONDNFC	0.106	0.113	0.113	0.117	0.118	0.128	0.141	0.148	0.145
HOUSSHAR0.1530.1790.1990.2140.2340.2210.1940.1610.169HOUSSDON0.0200.0850.0750.0650.0670.0710.0750.072HOUSINS0.2240.2290.2350.2440.2470.2580.2710.2580.271HOUSDED0.0610.7110.9060.9471.0271.0501.0801.1121.149DEBGG0.1310.1260.1410.1660.8990.8440.8220.8660.823DEGG0.1310.1260.1410.1660.8990.8440.8250.8640.825LOMFI0.2590.2720.2870.2750.2572.5142.5572.3442.473LOMFI0.530.0510.0510.0510.0560.0610.0590.661INTOPEN0.530.510.550.4120.7770.5260.4170.3380.343UNTOPEN0.530.510.5170.770.5260.4170.3380.402BONDNFC0.0700.680.0710.770.5260.4170.3380.402BONDNFC0.0710.0810.0920.1020.0910.0910.0910.091HOUSBEM0.0930.0710.0760.0670.0710.0760.0710.0740.681HOUSBEN0.1530.1530.1510.1660.1710.1480.1610.161HOUSBEN	HOUSDEP	0.399	0.371	0.346	0.325	0.304	0.301	0.314	0.335	0.327
HOUSBOND0.1000.0950.0850.0750.0670.0710.0710.0720.072HOUSINS0.2240.2290.2350.2440.2470.2580.2710.2820.285HOUSIND0.6100.0700.0840.0920.1040.1000.0800.1010.102HOUSDB0.8500.8710.9060.9471.0271.0501.0801.1121.149DEBGE0.1310.1220.2870.2752.5142.5572.3442.473LOMFI0.2590.2720.2870.2750.2990.3200.3350.3370.347FIN0.0630.0610.0630.0670.0650.0610.0530.051INTOPEN0.3320.0510.0500.0440.0500.0510.0560.056INTONPEN0.2620.3090.3550.4120.3740.4560.4140.3380.432DUNDNFC0.0700.0680.0710.0740.0680.0710.0740.0810.0710.0740.081HOUSDEP0.1410.1530.1510.1670.1710.1140.1070.0830.0370.0370.0370.037HOUSDEP0.1530.1510.1560.1570.1470.1480.1460.1410.1480.1410.1480.1460.141HOUSDEP0.1530.1510.1560.1570.1710.1480.1450.2550.251 <td< td=""><td>HOUSSHAR</td><td>0.153</td><td>0.179</td><td>0.199</td><td>0.214</td><td>0.234</td><td>0.221</td><td>0.194</td><td>0.161</td><td>0.169</td></td<>	HOUSSHAR	0.153	0.179	0.199	0.214	0.234	0.221	0.194	0.161	0.169
HOUSINS0.2240.2290.2350.2440.2470.2580.2110.2820.281HOUSFUND0.0610.0700.0840.0920.1030.1040.1000.0900.092HOUSEDB0.8300.8710.9060.9471.0501.0501.0801.0801.121DEBGG0.1310.1220.1140.1060.0890.0820.0820.0820.082DEBGG0.1310.1220.2370.2750.2990.3200.3350.3370.347INAS1.9542.1822.3062.2930.2750.2940.3200.3550.4170.3380.3370.347FIN0.0640.0630.0610.0500.0510.0560.0610.0560.0610.056CAPEX0.3190.0520.4120.770.780.4340.4310.402DUNOVER0.2620.3090.3550.1120.170.1440.1070.0880.091HOUSDEP0.1540.1550.170.1440.1670.0810.0910.0950.091HOUSDEN0.0530.0610.0760.0650.0710.0760.0240.3350.3370.3370.337HOUSDEN0.1530.1510.1560.1470.1480.1460.141HOUSDEN0.1530.1550.1470.1480.1460.141HOUSDEN0.3310.3410.4160.4580.453<	HOUSBOND	0.100	0.095	0.085	0.075	0.065	0.067	0.071	0.075	0.072
HOUSFUND0.0610.0700.0840.0920.1030.1040.1000.0900.092HOUSDEB0.8500.8710.9060.9471.0271.0501.0801.1121.149DEGG0.130.120.1140.1060.0890.0840.0820.0860.082DEGG1.9572.1822.3062.2932.5752.5142.5572.3442.473LOMFI0.2590.2220.2870.2750.2900.3200.3350.3370.347FIN0.0640.0630.0610.0630.0670.0650.0610.0500.061CAPEX0.3190.3220.4160.5170.7770.6260.4170.3380.343TUROVER0.6200.3090.3550.4120.3740.4560.4840.5310.070BONDNFC0.0700.0680.0710.0710.0740.0890.0870.091HOUSDAD0.1530.1530.1610.1690.0710.0740.081HOUSDAD0.0950.0960.0760.0650.0670.0710.0740.081HOUSDAD0.0130.0310.0140.0480.0450.0370.0370.0370.037HOUSDAD0.0190.0460.0450.0470.0380.5540.5440.5440.541HOUSDAD0.0250.2630.2560.2640.2390.2240.2550.2640.239	HOUSINS	0.224	0.229	0.235	0.244	0.247	0.258	0.271	0.282	0.285
HOUSDEB0.8500.8710.9060.9471.0271.0501.0801.1121.149DEBGG0.1310.1260.1140.1060.0890.0840.0820.0860.082DEBGG0.1310.1260.1140.1060.0890.0840.0820.0860.081LINAS1.952.1822.3062.2932.5752.5142.5572.3442.473LOMFI0.2590.0260.0610.0630.0670.0650.0610.0590.056INTOPEN0.0530.0510.0500.0440.0500.0540.0560.0660.061CAPEX0.3190.3220.4160.5170.7770.6260.4170.3380.343UNNOVER0.2620.3090.3550.4120.3740.4560.4840.5310.402BONDFC0.7070.6860.7110.1120.1170.1140.1070.0980.095HOUSBDM0.0750.0760.0650.0670.0710.0740.085HOUSBDND0.0950.0960.0760.0550.1470.1480.1460.146HOUSBLM0.0310.340.1510.1560.1570.4710.1480.4660.441HOUSBLM0.0310.340.4160.4480.4610.4380.3370.3370.337HOUSBLM0.1310.4250.2430.2560.2540.264 <t< td=""><td>HOUSFUND</td><td>0.061</td><td>0.070</td><td>0.084</td><td>0.092</td><td>0.103</td><td>0.104</td><td>0.100</td><td>0.090</td><td>0.092</td></t<>	HOUSFUND	0.061	0.070	0.084	0.092	0.103	0.104	0.100	0.090	0.092
DEBGG0.1310.1260.1140.1060.0890.0840.0820.0860.082INAS1.9542.1822.3062.2932.5752.5142.5572.3442.473LOMFI0.2590.2720.2870.2750.2990.3200.3510.3370.347FIN0.0640.0630.0610.0630.0670.0540.0560.056INTOPEN0.3330.310.3500.4140.5770.6260.4170.3380.433TURNOVER0.2620.3090.3550.4120.3740.4560.4840.5310.402BONDNFC0.0700.0680.0710.0810.0920.1020.0940.0950.087HOUSDEP0.1540.1250.1230.1160.1170.1140.1070.0880.091HOUSDAD0.0950.0660.0900.0760.0650.0670.0710.0740.088HOUSDAD0.0950.0510.0190.0810.0810.0340.0460.4140.436HOUSDAD0.0510.0410.0450.4550.4740.4460.4460.44HOUSPAD0.0510.0510.4450.4550.4740.4380.4550.544HOUSPAD0.0510.4460.4450.4450.440.4590.2440.5310.544HOUSPAD0.0510.4460.4590.5540.5450.540.554<	HOUSDEB	0.850	0.871	0.906	0.947	1.027	1.050	1.080	1.112	1.149
Isau-isau-isau-isau-isau-isau-isau-isau-i	DEBGG	0.131	0.126	0.114	0.106	0.089	0.084	0.082	0.086	0.082
INAS1.9542.1822.3062.2932.5752.5142.5572.3442.473LOMFI0.2590.2720.2870.2750.2990.3200.3350.3370.347FIN0.0640.0630.0610.0630.0670.0650.0610.0590.056INTOPEN0.0530.0510.0500.0440.0500.0540.0560.0660.060CAPEX0.3190.3920.4160.5170.7770.6260.4170.3380.343TURNOVER0.2620.3990.3550.4120.3740.4560.4840.5110.402BONDNFC0.0700.0680.0710.0140.1020.0940.0950.087HOUSBAR0.0730.0770.0780.0190.0980.0870.0870.095HOUSBOND0.0950.0960.0900.0760.0550.0710.0740.088HOUSBOND0.0950.0960.0900.0760.0550.0710.0740.088HOUSBOND0.0310.0340.0410.0480.0460.0410.0380.0370.0370.0370.037HOUSDEB0.1530.1530.1470.1480.1460.1460.1460.1460.1460.146HOUSDEB0.2780.2720.2880.2610.2740.2780.2240.2240.224LOSDA0.2780.2720.2380.2610.2740.27		Standard deviation								
LOMFI0.2590.2720.2870.2750.2990.3200.3350.3370.347FIN0.0640.0630.0610.0630.0670.0650.0610.0590.056INTOPEN0.0530.0510.0500.0440.0500.0540.0560.0560.066CAPEX0.3190.3920.4160.5170.7770.6260.4170.3380.343TURNOVER0.2620.3090.3550.4120.3740.4560.4840.5310.402BONDNFC0.0700.0680.0710.0810.0920.1020.0940.0950.087HOUSDEP0.1540.1250.1230.1160.1170.1140.0710.0780.091HOUSBAR0.0730.0770.0780.0910.1090.0980.0710.0740.068HOUSBND0.0950.0960.0760.0560.6670.0710.0740.064HOUSBND0.0550.1530.1510.1560.1470.1480.1460.146HOUSDED0.3110.0340.0410.0480.0450.0470.0370.0370.0370.037DEBGG0.5000.510.4460.4590.4560.2640.2990.2240.216LOMFI0.2160.2180.2160.2520.2280.2280.2280.2280.228LOMFI0.2550.2630.2660.2640.2990.565 <td>INAS</td> <td>1.954</td> <td>2.182</td> <td>2.306</td> <td>2.293</td> <td>2.575</td> <td>2.514</td> <td>2.557</td> <td>2.344</td> <td>2.473</td>	INAS	1.954	2.182	2.306	2.293	2.575	2.514	2.557	2.344	2.473
FIN0.0640.0630.0610.0630.0670.0650.0610.0590.051INTOPEN0.0530.0510.0500.0440.0500.0540.0560.0660.060CAPEX0.3190.3920.4160.5170.7770.6260.4170.3380.343TURNOVER0.2620.3090.3550.4120.3740.4560.4840.5110.402BONDNFC0.0700.0680.0710.0810.0920.1020.0940.0950.087HOUSEPP0.1540.1250.1230.1160.1170.1140.1070.0880.091HOUSBAR0.0550.0950.0900.0760.6650.6670.0710.0880.035HOUSBAN0.0350.0350.0910.0460.0410.0380.0350.034HOUSPUND0.0310.0340.0410.0460.0410.0380.0350.034HOUSDEB0.4000.4250.4460.4590.4550.5140.5360.5540.544HOUSDEB0.4000.4250.4460.4590.370.3350.370.3370.3370.33DEBGG0.5510.5610.5620.6470.2740.2780.2720.2740.2740.2740.2740.274FINAS0.2760.2720.2320.2250.2280.2280.2280.2440.5160.455INTOPEN0.3510.541<	LOMFI	0.259	0.272	0.287	0.275	0.299	0.320	0.335	0.337	0.347
INTOPEN0.0530.0510.0500.0440.0500.0540.0560.0560.060CAPEX0.3190.3920.4160.5170.7770.6260.4170.3380.343TURNOVER0.2620.3090.3550.4120.3740.4560.4840.5310.402BONDNFC0.0700.6680.0710.0810.0920.1020.0940.0950.087HOUSDEP0.1540.1250.1230.1160.1170.1140.1070.0980.097HOUSBOND0.0950.0960.0900.0760.0650.0670.0710.0740.068HOUSBOND0.0950.0960.0900.0760.0550.1470.1480.1460.146HOUSBOND0.0150.1530.1510.1560.1550.1470.1480.1460.146HOUSPUND0.0310.0340.0410.0480.0460.0410.0380.0370.0370.037DEBGG0.0500.0510.4460.4590.4950.5240.5360.5240.5250.5540.541INTOP0.3350.3010.4920.4550.5240.5360.5540.5540.5510.5540.551DEBGG0.5260.2630.2720.2270.2280.2280.2280.2280.2280.2280.2280.2280.2280.2280.2280.2280.2280.2350.5150.5480.551<	FIN	0.064	0.063	0.061	0.063	0.067	0.065	0.061	0.059	0.056
CAPEX0.3190.3920.4160.5170.7770.6260.4170.3380.343TURNOVER0.2620.3090.3550.4120.3740.4560.4840.5310.402BONDNFC0.0700.6680.0710.0810.0920.1020.0940.0950.087HOUSDEP0.1540.1250.1230.1160.1170.1140.1070.0980.091HOUSBAR0.0730.0770.0780.0910.1090.0980.0870.0870.095HOUSBOND0.0950.0960.0900.0760.0650.0670.0710.0740.068HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSPUND0.0310.0340.0410.0480.0460.0410.0380.0370.0370.037DEBGG0.5000.5110.0490.0450.0370.0350.0370.0370.0370.037FINAS0.2780.2780.2720.2430.2760.2740.2660.2530.252LOMFI0.2550.2630.2720.2320.2260.2280.2280.228INTOPEN0.3350.3610.5420.5320.5300.5490.5450.515INTOPEN0.3510.5460.5420.5320.5300.5490.5260.452INTOPEN0.3550.5150.5480.5300.549	INTOPEN	0.053	0.051	0.050	0.044	0.050	0.054	0.056	0.056	0.060
TURNOVER0.2620.3090.3550.4120.3740.4560.4840.5310.402BONDNFC0.0700.0680.0710.0810.0920.1020.0940.0950.087HOUSDEP0.1540.1250.1230.1160.1170.1140.1070.0980.093HOUSSHAR0.0730.0770.0780.0910.1090.0980.0870.0870.095HOUSBOND0.0950.0960.0900.0760.6550.0670.0710.0740.068HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSDEB0.4000.4250.4460.4490.4450.0310.0370.0370.0370.037DEBGG0.5000.5110.0490.0450.370.350.370.370.370.37DEBG0.2780.2950.2930.2760.2720.2630.2660.2530.257LOMFI0.2160.2180.2120.2320.2250.2280.2280.2280.228INTOPEN0.3350.3070.2720.2320.2250.2280.2280.2320.225INTOPEN0.5470.5610.5420.5380.5550.5150.5480.507INTOPEN0.5650.5260.5320.5300.5490.5540.452BONDNFC0.6600.6050.6250.6870.7810.796	CAPEX	0.319	0.392	0.416	0.517	0.777	0.626	0.417	0.338	0.343
BONDNFC0.0700.0680.0710.0810.0920.1020.0940.0950.087HOUSDEP0.1540.1250.1230.1160.1170.1140.1070.0980.097HOUSSHAR0.0730.0770.0780.0910.1090.0980.0870.0870.095HOUSBOND0.0950.0960.0900.0760.0650.0670.0710.0740.068HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSPUND0.0310.0340.0410.0480.0460.0410.0380.0350.0370.037DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.0370.037DEBGG0.2780.2780.2930.2760.2720.2630.2660.2530.255LOMFI0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.232INTOPEN0.3550.3610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3350.336<	TURNOVER	0.262	0.309	0.355	0.412	0.374	0.456	0.484	0.531	0.402
HOUSDEP0.1540.1250.1230.1160.1170.1140.1070.0980.091HOUSSHAR0.0730.0770.0780.0910.1090.0980.0870.0870.095HOUSBOND0.0950.0960.0900.0760.0650.0670.0710.0740.068HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSFUND0.0310.0340.0410.0480.0460.0410.0380.0350.034HOUSDEB0.4000.4250.4460.4590.4950.5240.5360.5540.549DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.0370.037DEBGG0.2780.2950.2930.2760.2720.2630.2660.2530.255LOMFI0.2550.2630.2720.2320.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.386 <td< td=""><td>BONDNFC</td><td>0.070</td><td>0.068</td><td>0.071</td><td>0.081</td><td>0.092</td><td>0.102</td><td>0.094</td><td>0.095</td><td>0.087</td></td<>	BONDNFC	0.070	0.068	0.071	0.081	0.092	0.102	0.094	0.095	0.087
HOUSSHAR0.0730.0770.0780.0910.1090.0980.0870.0870.0970.095HOUSBOND0.0950.0960.0900.0760.0650.0670.0710.0740.068HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSFUND0.0310.0340.0410.0480.0460.0410.0380.0350.034HOUSDEB0.4000.4250.4460.4590.4950.5240.5360.5540.544DEBGG0.5000.510.0490.4550.0370.0350.0370.0370.037DEBGG0.2780.2950.2930.2760.2720.2630.2660.2530.257LOMFI0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5220.2620.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSBOND0.9531.0131.0641.0141.010 <td< td=""><td>HOUSDEP</td><td>0.154</td><td>0.125</td><td>0.123</td><td>0.116</td><td>0.117</td><td>0.114</td><td>0.107</td><td>0.098</td><td>0.093</td></td<>	HOUSDEP	0.154	0.125	0.123	0.116	0.117	0.114	0.107	0.098	0.093
HOUSBOND0.0950.0960.0900.0760.0650.0670.0710.0740.068HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSFUND0.0310.0340.0410.0480.0460.0410.0380.0350.034HOUSDEB0.4000.4250.4460.4590.4950.5240.5360.5540.549DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.037FINAS0.2780.2950.2930.2760.2720.2630.2660.2530.255LOMFI0.2550.2630.2720.2580.2610.2740.2780.2720.277FIN0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSDEN0.6840.6690.6430.6400.6290.57	HOUSSHAR	0.073	0.077	0.078	0.091	0.109	0.098	0.087	0.087	0.095
HOUSINS0.1530.1530.1510.1560.1550.1470.1480.1460.146HOUSFUND0.0310.0340.0410.0480.0460.0410.0380.0350.034HOUSDEB0.4000.4250.4460.4590.4950.5240.5360.5540.549DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.034Coefficient of variationFINAS0.2780.2950.2930.2760.2720.2630.2660.2530.2720.277FIN0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSDEN0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSDEN0.6840.6690.6430.6400.6290.5700.5450.5160.511 <tr< td=""><td>HOUSBOND</td><td>0.095</td><td>0.096</td><td>0.090</td><td>0.076</td><td>0.065</td><td>0.067</td><td>0.071</td><td>0.074</td><td>0.068</td></tr<>	HOUSBOND	0.095	0.096	0.090	0.076	0.065	0.067	0.071	0.074	0.068
HOUSFUND0.0310.0340.0410.0480.0460.0410.0380.0350.034HOUSDEB0.4000.4250.4460.4590.4950.5240.5360.5540.549DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.0370.034DEBGG0.2500.0510.0490.0450.0370.0350.0370.0370.0370.0370.037FINAS0.2780.2950.2930.2760.2720.2630.2660.2530.255LOMFI0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSSFUND0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSSFUND0.507 <t< td=""><td>HOUSINS</td><td>0.153</td><td>0.153</td><td>0.151</td><td>0.156</td><td>0.155</td><td>0.147</td><td>0.148</td><td>0.146</td><td>0.146</td></t<>	HOUSINS	0.153	0.153	0.151	0.156	0.155	0.147	0.148	0.146	0.146
HOUSDEB0.4000.4250.4460.4590.4950.5240.5360.5540.549DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.0370.034DEBGG0.0500.0510.0490.0450.0370.0370.0350.0370.0370.0370.0370.037FINAS0.2780.2950.2930.2760.2720.2630.2660.2530.255LOMFI0.2550.2630.2720.2580.2610.2740.2780.2720.277FIN0.2160.2180.2180.2320.2320.2640.2390.2240.218INTOPEN0.3350.3070.2720.2320.2320.2550.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSSHAR0.6840.6690.6430.6000.6290.5700.5450.5160.511HOUSFUND0.507	HOUSFUND	0.031	0.034	0.041	0.048	0.046	0.041	0.038	0.035	0.034
DEBGG0.0500.0510.0490.0450.0370.0350.0370.0370.034Coefficient of variationFINAS0.2780.2950.2930.2760.2720.2630.2660.2530.272LOMFI0.2550.2630.2720.2580.2610.2740.2780.2720.277FIN0.2160.2180.2180.2320.2220.2240.2180.218INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSSINS0.6840.6690.6430.6000.6290.5700.5450.5160.511HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	HOUSDEB	0.400	0.425	0.446	0.459	0.495	0.524	0.536	0.554	0.549
Coefficient of variationFINAS0.2780.2950.2930.2760.2720.2630.2660.2530.255LOMFI0.2550.2630.2720.2580.2610.2740.2780.2720.277FIN0.2160.2180.2180.2360.2650.2640.2390.2240.218INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.607TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSSINS0.6840.6690.6430.6090.5290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4270.414	DEBGG	0.050	0.051	0.049	0.045	0.037	0.035	0.037	0.037	0.034
FINAS0.2780.2950.2930.2760.2720.2630.2660.2530.255LOMFI0.2550.2630.2720.2580.2610.2740.2780.2720.277FIN0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414		Coefficient of variation								
LOMFI0.2550.2630.2720.2580.2610.2740.2780.2720.277FIN0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	FINAS	0.278	0.295	0.293	0.276	0.272	0.263	0.266	0.253	0.255
FIN0.2160.2180.2180.2360.2650.2640.2390.2240.215INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSDEB0.4710.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	LOMFI	0.255	0.263	0.272	0.258	0.261	0.274	0.278	0.272	0.277
INTOPEN0.3350.3070.2720.2320.2320.2250.2280.2280.238CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	FIN	0.216	0.218	0.218	0.236	0.265	0.264	0.239	0.224	0.215
CAPEX0.5470.5610.5440.5380.6880.6550.5150.5480.507TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	INTOPEN	0.335	0.307	0.272	0.232	0.232	0.225	0.228	0.228	0.238
TURNOVER0.4540.5010.5320.5260.5320.5300.5490.5650.452BONDNFC0.6600.6050.6250.6870.7810.7960.6660.6410.602HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	CAPEX	0.547	0.561	0.544	0.538	0.688	0.655	0.515	0.548	0.507
BONDNFC 0.660 0.605 0.625 0.687 0.781 0.796 0.666 0.641 0.602 HOUSDEP 0.385 0.336 0.356 0.358 0.386 0.378 0.341 0.294 0.285 HOUSSHAR 0.480 0.428 0.393 0.427 0.464 0.442 0.447 0.539 0.565 HOUSBOND 0.953 1.013 1.064 1.014 1.010 0.992 1.003 0.980 0.935 HOUSINS 0.684 0.669 0.643 0.640 0.629 0.570 0.545 0.516 0.511 HOUSFUND 0.507 0.488 0.486 0.526 0.445 0.390 0.374 0.383 0.372 HOUSDEB 0.471 0.488 0.493 0.485 0.483 0.499 0.496 0.498 0.478 DEBGG 0.382 0.407 0.425 0.422 0.417 0.419 0.451 0.427 0.414 <td>TURNOVER</td> <td>0.454</td> <td>0.501</td> <td>0.532</td> <td>0.526</td> <td>0.532</td> <td>0.530</td> <td>0.549</td> <td>0.565</td> <td>0.452</td>	TURNOVER	0.454	0.501	0.532	0.526	0.532	0.530	0.549	0.565	0.452
HOUSDEP0.3850.3360.3560.3580.3860.3780.3410.2940.285HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	BONDNFC	0.660	0.605	0.625	0.687	0.781	0.796	0.666	0.641	0.602
HOUSSHAR0.4800.4280.3930.4270.4640.4420.4470.5390.565HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	HOUSDEP	0.385	0.336	0.356	0.358	0.386	0.378	0.341	0.294	0.285
HOUSBOND0.9531.0131.0641.0141.0100.9921.0030.9800.935HOUSINS0.6840.6690.6430.6400.6290.5700.5450.5160.511HOUSFUND0.5070.4880.4860.5260.4450.3900.3740.3830.372HOUSDEB0.4710.4880.4930.4850.4830.4990.4960.4980.478DEBGG0.3820.4070.4250.4220.4170.4190.4510.4270.414	HOUSSHAR	0.480	0.428	0.393	0.427	0.464	0.442	0.447	0.539	0.565
HOUSINS 0.684 0.669 0.643 0.640 0.629 0.570 0.545 0.516 0.511 HOUSFUND 0.507 0.488 0.486 0.526 0.445 0.390 0.374 0.383 0.372 HOUSDEB 0.471 0.488 0.493 0.485 0.483 0.499 0.496 0.498 0.478 DEBGG 0.382 0.407 0.425 0.422 0.417 0.419 0.451 0.427 0.414	HOUSBOND	0.953	1.013	1.064	1.014	1.010	0.992	1.003	0.980	0.935
HOUSFUND 0.507 0.488 0.486 0.526 0.445 0.390 0.374 0.383 0.372 HOUSDEB 0.471 0.488 0.493 0.485 0.483 0.499 0.496 0.498 0.478 DEBGG 0.382 0.407 0.425 0.422 0.417 0.419 0.451 0.427 0.414	HOUSINS	0.684	0.669	0.643	0.640	0.629	0.570	0.545	0.516	0.511
HOUSDEB 0.471 0.488 0.493 0.485 0.483 0.499 0.496 0.498 0.478 DEBGG 0.382 0.407 0.425 0.422 0.417 0.419 0.451 0.427 0.414	HOUSFUND	0.507	0.488	0.486	0.526	0.445	0.390	0.374	0.383	0.372
DEBGG 0.382 0.407 0.425 0.422 0.417 0.419 0.451 0.427 0.414	HOUSDEB	0.471	0.488	0.493	0.485	0.483	0.499	0.496	0.498	0.478
	DEBGG	0.382	0.407	0.425	0.422	0.417	0.419	0.451	0.427	0.414

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CLOSING REMARKS

Luigi Federico Signorini*

I could not even begin to make an adequate, substantive summary of the past sessions, with their rich and stimulating content. After two days of intense study, you will allow me to end on a light note, first with some well-deserved thanks and then with a few suggestions for the future.

No doubt one would start with thanking Carlo Muscariello and Alessandra Piccinini for all their efforts to organise the symposium. Most of you will already have been to other meetings they have organised, and know they are a byword for efficiency; every aspect of the organisation, from sending out the invitations to choosing the wines for dinner, will run like clockwork. Those of you not familiar with their talents, are now in the know. Only one thing was missing: a trip on the Ferris wheel at Perugia; apparently, the organisation could not guarantee enough seats. As you see, nothing was left to chance! That no hitch marred the symposium is evidence of the work put in beforehand, which has been appreciated by one and all.

The person I have to thank above all is Riccardo De Bonis. The symposium was Riccardo's idea, he believed strongly in it and worked hard to make it a reality. He gathered finished papers and papers in the pipeline and called for others from inside and outside the Department. Riccardo chose to keep to the format which we have used for some time (as Salvatore Rossi explained in his introduction) and which seems well-suited to complex research projects, especially when they have a direct bearing on the Bank's institutional responsibilities. After we have put all our efforts into a project, there comes the time for us to share our results, to offer them up for critical review and for assessment by academics, operators and institutions. The most obvious way seems to be for those taking part in the project to make their presentations, followed by an open discussion. From our point of view, as a method, it gives excellent results – as long as we choose our interlocutors well. The symposium has been particularly successful in this respect: the participants have been of the highest level and their contributions have reflected this. We are enormously proud that so many eminent academics and leading experts in their fields have been pleased to come here to discuss our results.

I must also mention that the participants from the Bank include the very people who have succeeded one another over the years in the difficult task of compiling Italy's financial accounts: from Grazia Marchese to Riccardo Massaro, from Valter Di Giacinto to Gabriele Semeraro. Franco Cotula, whom Riccardo had naturally wanted to come, is absent for personal reasons. My gratitude to them, too. And, of course, I would also like to thank everyone who has taken part in the past two days and contributed to the debate. For our part, we have found it very interesting and fruitful.

The beauty of the financial accounts is that they require us to consider all aspects of the financial structure of the economy simultaneously in a coherent framework. Each element must be studied in relation to all the rest. This enforces a certain discipline on research – a point many of the discussants have emphasised. The broad range of topics is complemented by the wide variety of methodologies available. As was apparent from the very diverse contributions coming from both sides of the table, a large array of statistical methods goes into to building the financial accounts, from standard official statistics to microeconometric analysis. The financial accounts are a meeting place of methodologies, as well as of topics.

^{*} Bank of Italy.

Riccardo De Bonis, on top of everything else, was so kind as to take the time to suggest some football metaphors for these 'light' remarks of mine – something about playing in a lot of championships: European, Italian, international, and so on. He is much better than me at that sort of thing. Metaphors aside, what I do want to say is that the symposium has been a welcome opportunity to present part of the work completed in recent years. This work of analysis has propelled, and been propelled by, the huge methodological effort that went into building the accounts according to the new European standards, ESA95. This has been the Bank of Italy's European championship, which it played at the same time as all its Italian games. And I think it is fair to say that my colleagues' contribution to its development was neither small nor insignificant, despite limited forces. On top of their remarkable methodological contribution within European institutions, we should not forget that made within the OECD and others as well, which I need not list here. The underlying concept we have always insisted on is that analysis, methodological research and compilation should be done together, by the same people and the same offices.

Every participant will make up their own mind about what they have gained from the symposium. For our part, we wanted our project to undergo the evaluation and debate I mentioned earlier; that wish has been granted in full. Moreover, a number of ideas and proposals have emerged, which we intend to take into account. They include concrete suggestions for future work, some of which tie in with our existing plans, while others point in new directions. One in particular has been put forward by several speakers, that is the usefulness of separate data on listed shares. We have other plans, too, which I will not go into here.

Another point mentioned repeatedly is the relationship between micro and macro analyses. It is our intention to look at this closely; in fact, we are already working on it, witness the paper on the estimation of households' wealth. This paper is just one stage in a vaster project to create an integrated, credible and stable picture of households' wealth. We hope to do so by supplementing the existing data provided by microeconomic surveys with information available at the macro level. I hope we can present at least part of the work at an event similar to this one.

As for the financial accounts, if there is enough interest we will not stop at this symposium. We think there is much to be gained from further meetings – even beyond the excellent wines served at dinner. It is our hope to broaden participation, to play a European match. This has been a home game, which has allowed us to focus on a set of questions in which the national perspective was important, not only because of the national dimension of our reconstruction, but also because of the nature of the problems examined. I think it was the right choice. However, there is much wider interest in the topics discussed, associated with methodological issues and some problems of substance that transcend national borders. If we repeat this experience, we may try a different format, one that welcomes European and international contributions.

I hope you have profited from the discussions. If you have gained even half what I have, then it has indeed been a successful occasion.

Thank you all again and I wish you a safe journey home.