



BANCA D'ITALIA
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some evidence at the macro level

by Claire Giordano, Marco Marinucci and Andrea Silvestrini

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INVESTMENT AND INVESTMENT FINANCING IN ITALY: SOME EVIDENCE AT THE MACRO LEVEL

by Claire Giordano, Marco Marinucci and Andrea Silvestrini*

Abstract

We analyse the developments of investment and investment financing in Italy since 1995, based on data from national accounts and the flow of funds. The exceptional fall in investment after the global financial crisis in 2007 concerned all institutional sectors and asset categories. However, appropriately deflated data highlight the more intense fall of household capital expenditure. Consistently, on the asset side, construction was one of the most hard-hit capital goods; ICT and intangible investment instead weathered the double recession better. Focusing on investment financing, the eruption of the crisis caused a major contraction in the availability of external finance for non-financial corporations and households. Long-term loans to non-financial corporations became more important, crowding out their short-term counterparts. Also the weight of debt securities increased significantly, especially after 2008.

JEL Classification: E22, G01, G31, G32.

Keywords: gross fixed capital formation, investment financing, national accounts, financial accounts.

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* Bank of Italy, Directorate General for Economics, Statistics and Research.

1 Introduction¹

Following the outbreak of the global financial crisis, the euro area experienced a large fall in gross fixed capital formation, both in 2008-09 and during the sovereign debt crisis. This drop was dramatic in the countries more exposed to tensions in government bond markets. In Italy, in particular, total real investment has suffered a loss of around 30 per cent since 2007, the pre-crisis peak, reverting to its lowest levels since the mid-1990s. Weak investment also remained a key drag on GDP growth in 2014, although more recent quarterly data on capital accumulation point to a slight increase over the first three quarters of 2015 relative to the corresponding period in 2014.

The depressed growth of investment is in contrast with the substantially muted aggregate financing costs, which stem from the low interest rate environment resulting from the strongly expansionary stance of monetary policy in the euro area. In this context, one scenario is that investment demand will remain too low to absorb financial savings, inducing a persistent state of an excess supply of funds in capital markets. On the other hand, there are concerns that there may be a shortage in the availability of funding for long-term investment, mainly because of unintended effects of the still ongoing overhaul of financial regulation.

All these issues raise several concerns and make it necessary to ground policy responses on sound quantitative indicators and analyses. It is thus crucial to identify a set of key quantitative indicators – based on data that are of good quality, timely and comparable across countries – to monitor developments in investment and in the financing of investment. The need of having more data on investment and the way in which it is financed, especially in the key sector of the infrastructure, has been recently emphasized by in-

¹We would like to thank the following for their comments on previous drafts of this paper: Giorgio Albareto, Riccardo De Bonis, our discussant Carmine Firmiani, Giuseppe Grande, Riccardo Settimo, Peter van de Ven, Francesco Zollino and participants at the workshop on “Investment financing” held at Banca d’Italia in November 2015. Any error remains however the responsibility of the authors. The views expressed herein are those of the authors and do not necessarily reflect those of the Institution they represent.

ternational organizations and public authorities alike (Visco, 2015). The purpose of this paper is to meet this demand focusing on macroeconomic data. We first describe the main trends in investment expenditure and long-term investment financing in Italy based on a selected set of indicators, drawn from official data. Then we discuss possible limitations of the currently available data.

The rest of the paper proceeds as follows. Section 2 describes the developments in gross fixed capital formation in Italy since 1995, based on yearly national accounts.² We first focus on total investment, broken down by institutional sector. We then analyse investment in different asset types, crossing the information, where possible, with the previous breakdown. Relying on financial accounts, Section 3 first illustrates the overall developments in the long-term liabilities of the main investor sectors in Italy. Then we move on to explain the evolution over time of the most important funding instruments (long-term loans, debt securities and equity) and provide details on changes in the counterparty sectors that have made the necessary funds available. Finally, Section 4 draws some conclusions and we point out Italy's main data challenges and suggest possible future research items.

2 Developments in investment

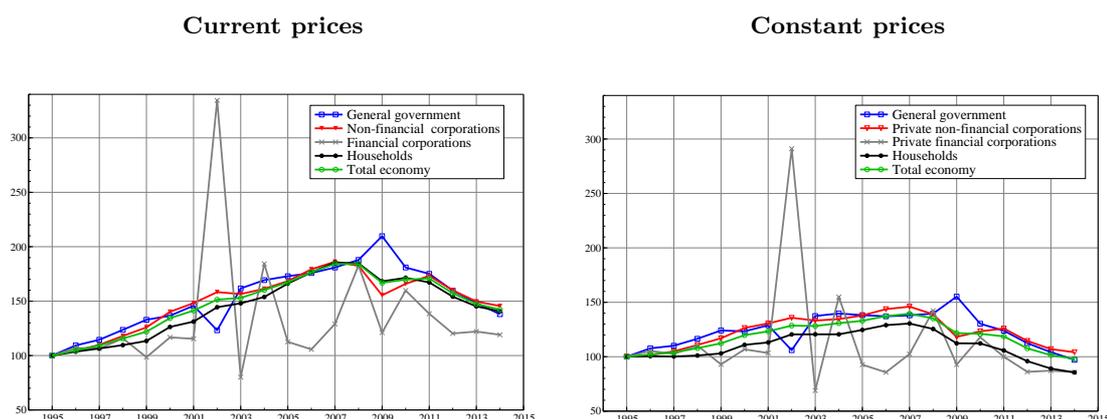
Since 1995, the first year for which national accounts data are currently available according to the SNA2008/ESA2010 standards, and until the outbreak of the global financial crisis in 2007 total investment expenditure in Italy was set on a markedly upward trend, nearly doubling at current prices and increasing by approximately 40 per cent in real terms (Figure 1). The decline thereafter was particularly sharp both in a historical perspective and with respect to the other largest euro-area countries (Figure A.1 in Appendix A): the downturn was approximately 23 per cent in nominal terms and 30 per cent at constant prices. As a result, real gross fixed capital formation in Italy is currently at its lowest

²This section is based on national accounts released in September 2015 by the Italian National Institute of Statistics (Istat).

levels since the mid-1990s.

Moreover, the total investment rate of the Italian economy, measured as the ratio of total investment to GDP at constant prices using chain-linked values, fell from levels comparable to those recorded in France and Germany in the first half of the 2000s (over 21 per cent) to its lowest level in twenty years (under 17 per cent), implying a large investment loss both relative to the country’s 2000-07 average and to its pre-crisis peak. Italy’s non-construction investment rate recorded similar negative trends.³ Both rates are depicted in Figure A.2 in Appendix A, in comparison with those recorded in France, Germany and Spain.

Figure 1: Total gross fixed capital formation: trends by institutional sector
(indices 1995=100)



Source: Istat for current price series and authors’ calculations based on Istat data for constant price series (see Appendix B).

The following analysis attempts to evaluate whether these trends were broad-based across institutional sectors and across asset types or if, on the contrary, they were concentrated in certain institutional sectors or driven by specific capital goods.

³Buseti, Giordano, and Zevi (2015) find that the main economic determinants of the downturn in Italy’s non-construction investment in 2008–14 were due to slack demand, unfavourable credit conditions and heightening demand uncertainty faced by firms.

2.1 Trends by institutional sector

The accumulation trends at current prices in Italy are largely similar across institutional sectors (Figure 1, left-hand side panel), thereby implying broadly stable shares of total investment in the medium term and few composition effects (Table 1). Non-financial corporations account for nearly a half of total investment expenditure in Italy, followed by households (more than a third). Less than a fifth of capital spending can be attributed to general government and only a negligible share (under 2 per cent) is made by financial corporations.

Table 1: Total gross fixed capital formation: breakdown by institutional sector
(1)

(percentage shares computed on current price series)

	General government (2)	Non-financial corporations (3)	Financial corporations (4)	Households (5)
1995–1999	14.4	49.5	1.6	34.5
2000–2007	13.7	50.2	1.6	34.5
2008–2014	14.4	48.8	1.5	35.4

Source: Istat. Notes to the table:

- (1) Shares are always computed on current-price series since chain-linked volumes do not preserve additivity.
- (2) General government comprises central, regional and local government and social security funds.
- (3) Non-financial corporations include all private and public corporate enterprises that produce goods or provide non-financial services to the market.
- (4) Financial corporations comprise both financial and insurance firms.
- (5) Households include “consumer” households, as well as “producer” households (i.e. household firms with up to five employees) and non-profit institutions serving households (NPISHs).

The pronounced expansion in nominal gross capital formation until 2007 was of comparable magnitude across the three largest institutional sectors, although general government saw a significant drop in its expenditure in 2002 (again Figure 1, left-hand side panel).

The decline since 2007 has been similar for both non-financial corporations and households, whereas general government capital accumulation rose sharply in 2009, owing to the countercyclical fiscal policies enacted in response to the crisis, before rapidly falling to its lowest levels since the early 2000s. Financial corporations' investment expenditure shows more pronounced fluctuations, with an exceptional hike recorded in 2002; since the turn of the new millennium it remained on average more subdued than the rest of the economy.

In the medium term, investment series at current prices may however be biased by price movements.⁴ In the right-hand side panel of Figure 1, we therefore also provide constant-price series, obtained by deflating the nominal expenditure of each institutional sector with deflators taken from the data of the Italian National Institute of Statistics (Istat) on capital accounts disaggregated by economic activity.⁵

In real terms the pre-2007 investment expansion is more moderate for all institutional sectors than in nominal terms, as to be expected (Figure 1; right-hand side panel). Yet the pace of real household investment growth turns out to be significantly more contained than that of general government and non-financial corporations. The fall in investment after the global financial crisis was also slightly more marked for households (34 per cent). This shows that whereas, net of price effects, the 2014 levels of investment expenditure of all institutional sectors are found to be broadly comparable to the (low) values recorded in the mid-1990s, household investment reverted to its lowest levels in the past twenty years.

Furthermore, both the household and non-financial corporation investment rates, computed in real terms, decreased by around 2 percentage points of GDP after 2007, against a fall of half that magnitude of the general government investment rate (Figure A.3 in Appendix A). However, whereas the general government and non-financial corporation

⁴See for example Karabarbounis and Neiman (2014) which documents the global decline in investment prices relative to consumer goods' prices.

⁵See Appendix B for some stylized facts on Italy's investment deflators.

rates in 2014 were broadly comparable to those recorded in 1995, respectively at 2 and 8 per cent, the household rate was over one percentage point lower, standing at less than 6 per cent.

In conclusion, although all institutional sectors shared an expansionary phase in the 1995–2007 period and experienced a sharp decline thereafter, household investment was less buoyant in the first phase and the hardest-hit in the second. Given this sector’s non-negligible weight in the total economy, accounting for approximately a third of total capital accumulation, the household sector thereby dampened aggregate investment developments in Italy.⁶

2.2 Trends by asset type

Moving to total gross capital formation by asset type, construction investment represents just over half of total accumulation in Italy (Table 2), which is similar to the share observed in the other largest euro-area countries. Italy’s construction quota is then more or less equally divided between residential and non-residential buildings, with some reallocation in favour of the former occurring as of 2008. Non-construction investment mainly comprises accumulation in “other” machinery, equipment and weapons systems, followed by expenditure in intangibles, which constitutes a slightly lower share relative to that recorded in France and Germany (Busetti, Giordano and Zevi, 2015).

⁶For an analysis of the role of economic branches of activity in explaining Italy’s non-construction investment trends see Busetti, Giordano and Zevi (2015). In particular, during the recent double recessionary phase, private non-financial services are found to be the main driver of the sharp investment downturn.

Table 2: Total gross fixed capital formation: composition by asset type (1) (2)
(percentage shares computed on current price series; the sum of tangible non-construction investment, investment in intellectual property rights and investment in infrastructure is equal to total investment, net of rounding-up discrepancies)

	Tangible non-construction investment				Intellectual property products	Construction investment (3)		
	Transport equipment	ICT equipment	Other machinery, equipment and weapons systems	Total		Residential dwellings	Other buildings and structures	Total
1995–1999	6.9	4.3	25.7	36.9	12.0	25.3	25.4	50.7
2000–2007	7.2	4.1	24.6	35.9	11.8	24.8	27.3	52.1
2008–2014	5.3	3.7	24.1	33.1	13.7	27.7	25.3	53.0

Source: Istat. Notes to the table:

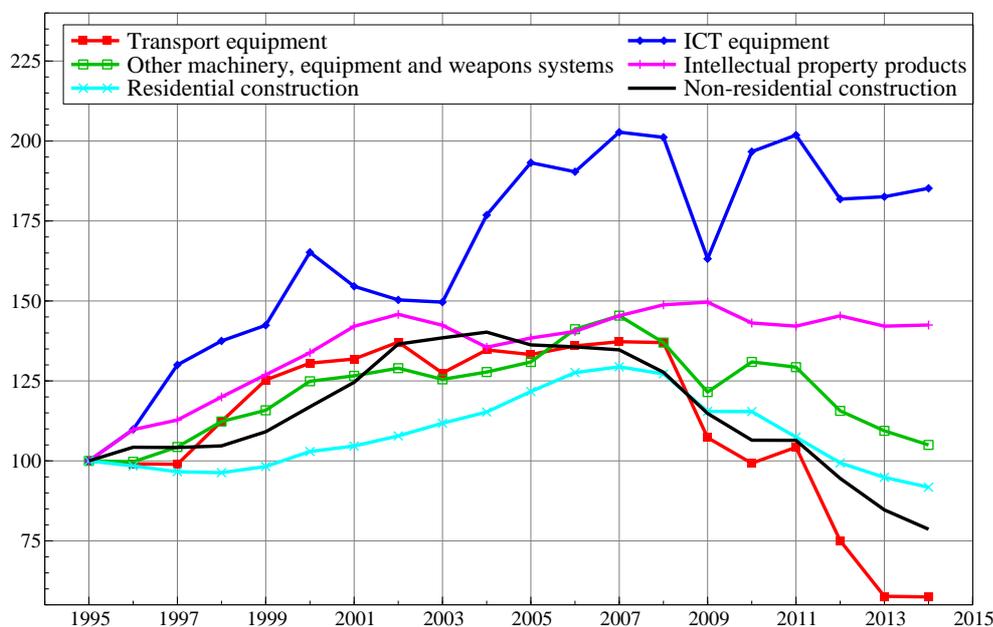
- (1) Owing to their negligible share, cultivated biological resources are not shown.
- (2) Shares are always computed on current-price series since chain-linked volumes do not preserve additivity.
- (3) Construction investment includes the cost of ownership transfers.

As of the mid-1990s capital spending at constant prices in both information and communication technologies (ICT) and in intangibles grew at a much faster rate than more traditional investment items, albeit with the former displaying a temporary setback in the early 2000s after the burst of the dot-com bubble (Figure 2).⁷

Transport equipment stands out as being the most volatile component, but on the whole it registered similar developments to those of the other capital goods. The decline in investment after the outbreak of the global financial crisis was broad-based across assets, yet with ICT and intangible investment faring better than other capital goods, similarly to what occurred in the other main euro-area countries.

⁷Istat provides both current-price and chain-linked series for gross fixed capital formation disaggregated by asset type; for the sake of brevity we only show the latter. Shares, as in Tables 1 and 2, are instead always computed on current-price series since chain-linked volumes do not preserve additivity.

Figure 2: Total gross fixed capital formation: trends by asset type (1)
(indices 1995=100; chain-linked volumes)



Source: Istat. Notes:

(1) Owing to their negligible share, cultivated biological resources are not shown.

With the exception of transport equipment, which holds a fairly modest share, construction expenditure was the worst affected during the recent recession years, with residential dwellings declining by roughly 30 per cent as of 2007 and other buildings and structures by over 40 per cent (Figure 2). This evidence is consistent with the previously documented sharp downturn in household capital expenditure, which, as we will later explain, is mainly composed of housing investment. Currently, gross fixed capital formation in both transport and construction is well below its (low) levels of the mid-1990s.

The post-2007 trends are also confirmed by the observed fall in the investment rates of all asset types, the only exception being the broad stability displayed by intangible goods as a share of GDP (data not shown). The decline in the total construction investment rate was the sharpest recorded across all capital goods, reflecting in particular the drop

in the investment rate for the non-residential component.

2.3 Trends by institutional sector and by asset type

In the case of Italy’s national accounts, the challenge is to combine both the institutional sector disaggregation with the asset type breakdown for investment data, as this cross-classification is not publicly available for all sectors. A useful source leading in this direction is the general government’s accounts, available at current prices and, at the time of writing, for the period 2000–13, which allow us to disaggregate general government capital expenditure (net of sales) by asset type.⁸

Table 3: General government gross fixed capital formation: composition by asset type

(percentage shares computed on current price series; the sum of tangible non-construction investment, investment in intellectual property rights and investment in infrastructure is equal to total investment, net of rounding-up discrepancies)

	Tangible non-construction investment				Intellectual property products	Investment in infrastructure		
	Transport equipment	ICT equipment	Other machinery, equipment and weapons systems (1)	Total		Residential and non-resid. buildings (2)	Civil engineering works (3)	Total
2000–2007	2.5	3.9	14.4	20.8	22.4	23.2	33.4	56.6
2008–2014	2.7	4.6	12.6	19.8	23.3	23.0	33.7	56.7

Source: Istat. Notes to the table:

- (1) Net of sales.
- (2) Includes the cost of ownership transfers; net of sales.
- (3) Includes transport infrastructures (roads, railways, bridges, etc.), pipelines, communication and electricity lines and other civil engineering works.

Investment in infrastructure (i.e. in buildings and civil engineering works) accounts for

⁸Total general government gross fixed capital formation from these accounts coincides (at current prices) with that described in Figure 1. Research is under way at the Bank of Italy to construct general government expenditure by asset type and by geographical area consistent with the national data supplied by Istat (see Albanese, De Angelis and Montanaro, 2015).

over half of total general government spending in Italy (Table 3).⁹ The share of intangible expenses (in particular software and R&D) is high (just under a quarter) and is nearly double that of “other” machinery, equipment and weapons systems.

In the years prior to the global financial crisis the general government investment in ICT showed the fastest growth, followed by transport equipment, a highly volatile component also in this sector’s expenditure (Figure 3, left-hand side panel and Figure A.4 in Appendix A). Investment in all assets except transport reached its highest point in 2009, thus explaining the peak in aggregate general government expenditure in that year (see Figure 1). The overall pre–2009 expansion, in current prices, for infrastructure, intangibles and “other” machinery, equipment and weapons systems ranged between 40 and 60 per cent; building construction was partially dampened by the sharp fall recorded in 2002 due to exceptional sales. The post–2009 contraction was again broad-based across products; however, intangible and civil engineering investment were less affected than other assets, such as buildings¹⁰ and “other” machinery, equipment and weapons systems.¹¹

We also proceeded to deflate the official general government current-price series, as described in Appendix B;¹² the resulting constant-price series are shown on the right-hand side panel of Figure 3. In real terms, the pre–2009 expansion in ICT was even more pronounced than in nominal terms, owing to a marked decline in its prices (see Figure B.1 in Appendix B); its downturn thereafter was instead comparable to that valued at current prices. The nominal developments for the other asset categories in general government investment expenditure were broadly confirmed by the corresponding developments in volume terms.

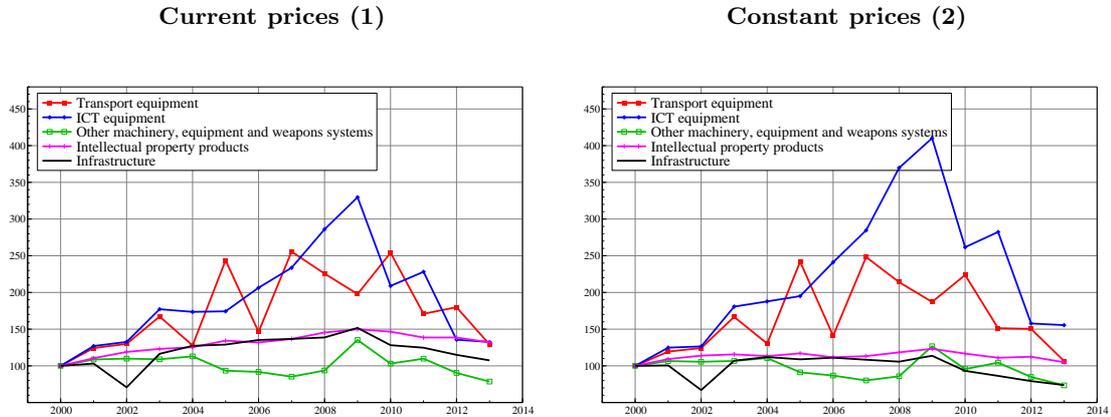
⁹The breakdown by asset type is slightly different to that provided in Table 2. In particular, it is not possible to distinguish between residential dwellings and non-residential buildings (i.e. schools, hospitals, etc.).

¹⁰Sales of buildings only increased in 2012 and 2013 relative to the previous years, pointing to lower new investment rather than disinvestment as the main reason for the developments seen in building construction expenditure.

¹¹In particular, investment in weapons systems contracted markedly after 2009.

¹²It was not possible however to construct a separate deflator for the two components of infrastructure.

Figure 3: General government fixed capital formation: trends by asset type
(indices 2000=100)



Source: Istat for current price series and authors' calculations based on Istat data for constant price series (see Appendix B). Notes:

- (1) It was not possible to construct a separate deflator for the two components of infrastructure; therefore, total public infrastructure is shown in the two panels of this Figure. Figure A.4 in Appendix A provides the complete breakdown of the current-price series.
- (2) The time series are constructed until 2013 as investment disaggregated by asset and by economic activity, employed to deflate the current-price series, is currently available only until 2013.

Other than for general government, there are no official published disaggregated data by institutional sector and asset type in Italy. Some rough indications may however again be deduced from the data on capital expenditure by economic activity. Households' investment is mainly made up of residential dwellings, although not entirely, as unincorporated enterprises of households and NPISHs are also included in the population;¹³ indeed developments in our estimated constant-price household expenditure series in Figure 1 are very similar to those in residential construction of the total economy portrayed in Figure 3.

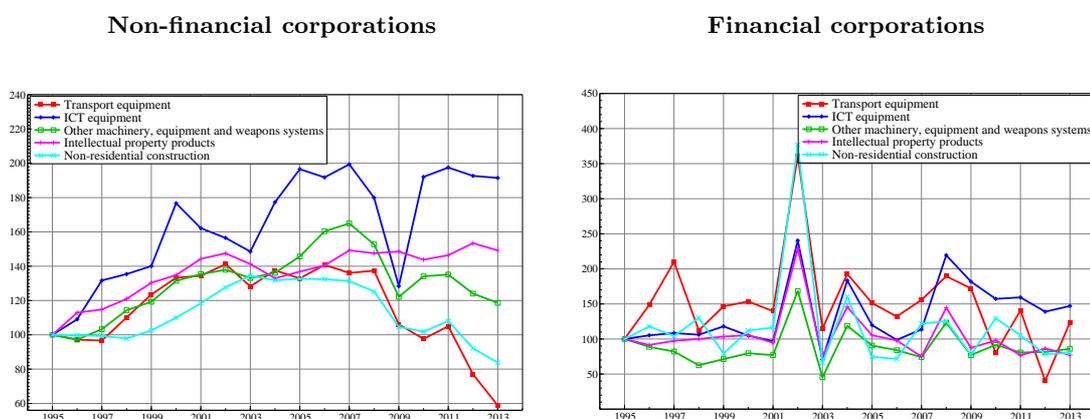
A breakdown by asset type is only warranted for non-financial and financial corporations, which we provide at constant prices.¹⁴ The expansion in ICT and other intangible expenditure of non-financial corporations before the crisis and the greater resilience of

¹³In 2014, NPISHs undertook 1 per cent of households' total investment, 29 per cent was related to investments of unincorporated enterprises, and the remaining 70 per cent concerned investment (in housing) by households.

¹⁴See Appendix B for the methodological details.

their investments in these goods during the recent recessionary years (Figure 4, left-hand side panel) led to the developments seen at the aggregate level in Figure 2. Moreover, the current low levels in total-economy non-residential construction and transport equipment are in large part due to developments in non-financial corporations' investment activity.

Figure 4: Corporations' fixed capital formation: trends by asset type
(indices 1995=100; chain-linked volumes) (1) (2)



Source: based on Istat data (see Appendix B). Notes:

- (1) Series constructed until 2013, as investment disaggregated by economic activity and by asset type is currently available only until this year.
- (2) Note that the two scales are not comparable.

Turning to financial corporations' expenditure (Figure 4, right-hand side panel) the co-movement across capital goods is relatively high, since they all have a pronounced cyclical nature, with transport equipment once again displaying the highest volatility. In particular, the exceptional rise in financial corporations' expenditure in 2002 was broad-based, yet mainly driven by non-residential construction and transport equipment. In 2013, the last year for which disaggregated data are presently available, only ICT and transport equipment investment stood at higher levels than their 1995 values.

3 Developments in financing

The previous section described the trends in gross fixed capital formation across institutional sectors and asset categories. The analysis is now complemented by looking at the main developments in investment financing based on information gathered from financial accounts.

Before moving on to discuss this issue, it is worth pointing out two important *caveats*:

1. Financial accounts' data can be regarded only as a proxy of finance directed to investment, in that institutional sectors may employ these financial resources for other additional purposes;
2. Financial accounts are computed at market values (or at their best approximation):¹⁵ stock variations are therefore not only due to transactions but also to “other changes”.¹⁶

Bearing these two *caveats* in mind, the financial liabilities that generally speaking are associated with investment activity (also referred to as “long-term liabilities”) include long-term loans, long-term debt securities, shares and other equity. In financial accounts, long-term instruments are those with an original maturity of more than one year.¹⁷ The growth rate in non-financial corporations' investment is positively and significantly correlated to the lagged growth rate in the same sector's long-term liability flows (Figure 5). As descriptive as it may be, this result suggests that notions of long-term liabilities can be used to gauge trends in the financing of long-term investments.

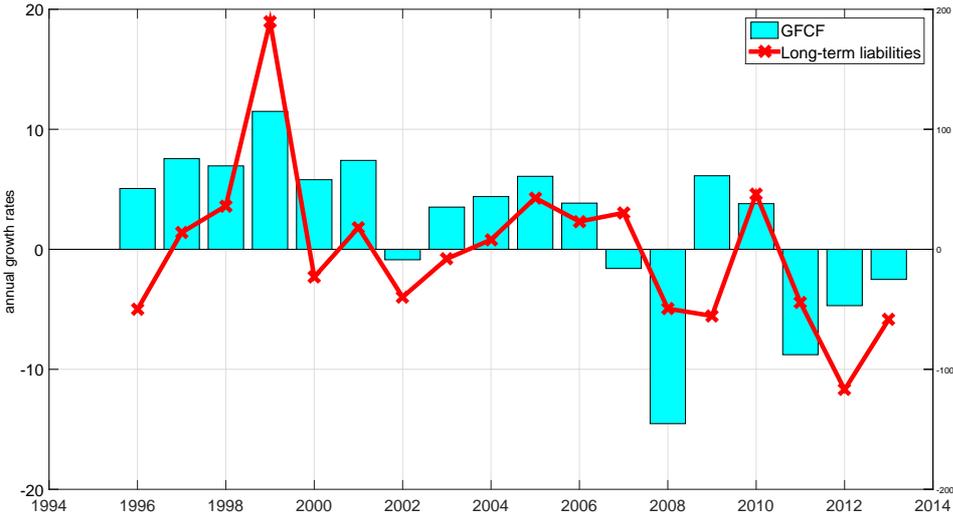
¹⁵The market value rule does not apply to assets that are not traded on a secondary market (bank deposits and loans, other accounts receivable/payable of the economy) and that are normally included at face value (Banca d'Italia, 2003; 2014).

¹⁶By “other changes” (OCs), we mean all the changes in the stock that are not determined by flows. An example of OCs are price revaluations (in the case of securities and shares), write-offs, and write-downs (in the case of bank loans). For further details, see Banca d'Italia (2003).

¹⁷According to the SNA2008/ESA2010, short-term instruments are all instruments with an original maturity of up to one year, whereas long-term instruments have an original maturity of more than one year.

Figure 5: Non-financial corporations’ investment and long-term liabilities: a comparison of growth rates of investment and those of long-term liability flows

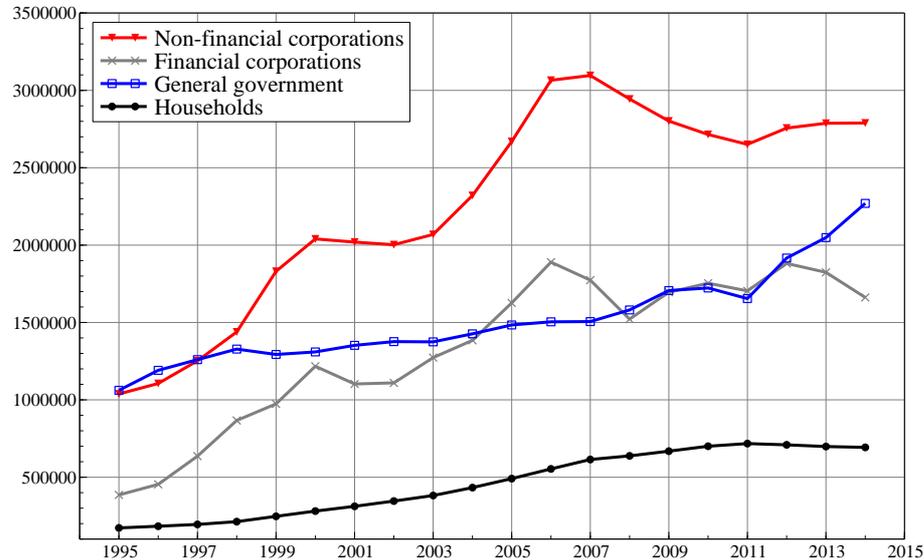
(annual growth rates computed on current-price series and considered at year $t + 1$, left-hand scale; growth rates of liability flows computed in millions of euros and considered at year t , right-hand scale)



Source: based on Istat and Bank of Italy data.

Looking at developments in long-term liabilities in Italy during the 1995–2014 period (Figure 6), we can observe an upward trend for all sectors. This “financial deepening” was interrupted by the three major shocks of the last two decades, i.e., the dot-com bubble in the early 2000s, the global financial crisis in 2007-2009 and the more recent sovereign debt crisis of the euro area.

Figure 6: Long-term liabilities: trends by institutional sector
(millions of euros, market value)



Source: Banca d'Italia.

We now move on to analyse the different components of total liabilities for each institutional sector. As already shown in Section 2, the most relevant sectors involved in investment activity are non-financial corporations, general government and households, which we focus on here.

Concerning non-financial corporations, information on total liabilities is given for both their composition (Table 4) and on how that composition changes over time (Figure 7). Equity represents the largest component, accounting for nearly one half of total liabilities. Short and long-term loans amount to more than 30 per cent of total liabilities, a weight that is quite high, especially compared to other countries such as France and, to a lesser extent, Germany.¹⁸ The weight of debt is confirmed also by the relatively high level of leverage, although the latter has been edging down in recent years (Figure A.5 in Appendix A).

¹⁸See Table A1 in Appendix A, which shows the share of bank loans in non-financial corporations' total debt in the four largest euro-area countries.

Table 4: Non-financial corporations' total liabilities: composition by financial instrument

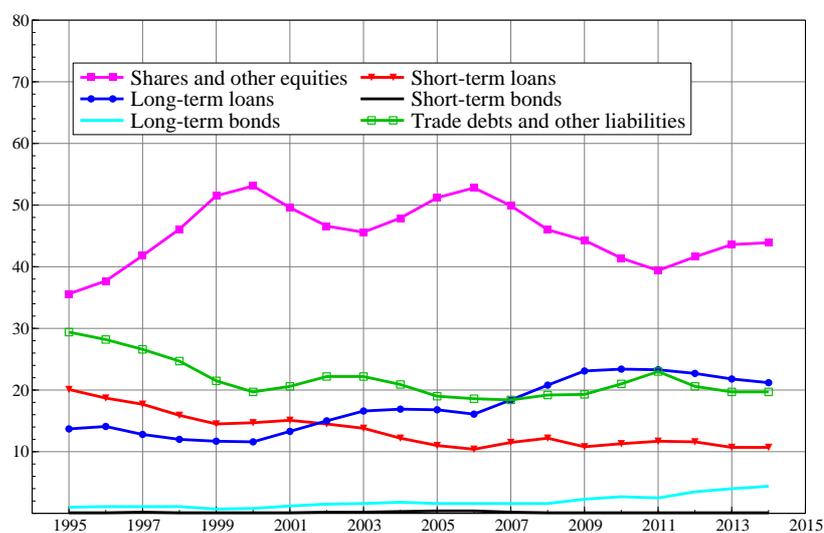
(percentage shares on current prices, market value)

	Shares and other equities	Short-term loans	Long-term loans	Short-term bonds	Long-term bonds	Trade debts and other liabilities
1995–1999	42.5	17.4	12.9	0.1	1.0	26.1
2000–2007	49.6	12.9	15.6	0.2	1.5	20.2
2008–2013	42.9	11.3	22.3	0.1	3.0	20.3

Source: Banca d'Italia.

Figure 7: Non-financial corporations' total liabilities: trends by financial instrument

(percentage shares on current prices, market value)



Source: Banca d'Italia.

It is important to note that for non-financial corporations the main driver of trends in long-term liabilities is the “other changes” component, which includes price changes and other factors unrelated to flows (Figure A.6 in Appendix A). This mainly reflects the incidence of “shares and other equity” among firms’ liabilities.

A further look at the composition of total liabilities leads to some interesting insights. First, as shown in Table 4, there has been an increasing share of long-term loans, which crowded out the short-term counterparts. Such evidence is even more clear-cut when considering the share of long-term loans over total loans (which rose from 40 to 66 per cent in the 1995–2014 period) as well as the increasing “catching up” between firms’ leverage and its long-term component (see again Figure A.5 in Appendix A).¹⁹

This rising trend in the incidence of long-term loans on the liability side of non-financial corporations’ balance sheets can be accounted for by several factors, hinging both on the banks (supply side) and on firms (demand side). Some of the structural factors that have likely had an impact on firms’ financing choices since 1995 are as follows. Rules limiting banks’ maturity transformation became less stringent in 1993 following the introduction of the Consolidated Law on Banking (*Testo Unico Bancario*) and were removed entirely around 2006. Since the mid-1990s, the persistent fall in the inflation rate reduced the uncertainty in banks’ cash-flow management, hence the need to resort to short-term loans (Banca d’Italia, 2005). Focusing on the more recent period, after the peak of the global financial crisis, firms may have been interested in lengthening the maturity of their liabilities (Banca d’Italia, 2012; International Monetary Fund, 2013). Moreover, in recent years, the strong tensions in euro-area government bond markets may have pushed firms towards long-term funding in order to avoid liquidity constraints from potential credit rationing.²⁰

¹⁹The long-term component of leverage is defined as the ratio of the sum of long-term bonds and long-term loans to total financial liabilities.

²⁰For an account of the relative incidence of demand and supply factors in explaining the contraction in bank lending in Italy in recent years, see Panetta and Signoretti (2010) and references in Angelini, Grande and Panetta (2014).

Also the share of debt securities on total financial debt²¹ has significantly increased over the years (from 3.1 per cent in 1995 to 12.3 per cent in 2014; Banca d'Italia, 2015b, p. 17), in particular doubling after the outbreak of the global financial crisis, even though it still represents a very small share of total long-term liabilities. This evidence suggests that the contraction in bank lending that has occurred in Italy since 2008 encouraged corporations to diversify their sources of finance. Data on individual firms reveal, however, that this larger recourse to bond markets was mainly on the part of medium and large firms, as smaller firms continued to rely mainly on bank lending.²²

Summarizing, for non-financial corporations, the increase of long-term loans and bond share, together with the stationary “Share and other equity” component, led to an overall increase of long-term instruments on total liabilities from 56.4 per cent during the 1995–1999 period to almost 68.2 per cent in 2008–2013.

Concerning general government, the steady increase of total liabilities is mainly driven by long-term bonds, accounting for nearly 70 per cent of the total (Table 5 and Figure 8). This increase in long-term bond issues occurred throughout the 1995–2014 period and likely reflects both the Italian government’s strategy of lengthening public debt’s average maturity and the growing demand for medium- and long-term Italian government bonds on the part of both domestic and foreign investors.

²¹Total financial debt corresponds to the sum of loans and debt securities. In particular, long-term debt securities almost coincide with the total in that short-term debt securities are negligible.

²²Some recent policy measures in Italy are aimed at encouraging the participation of small firms in the capital market (see, e.g., Grande and Guazzarotti, 2014), for example by fostering the issuance of debt securities (known as mini-bonds). There is evidence of small and medium-sized firms issuing mini-bonds in 2014 (Banca d'Italia, 2015b, p. 17). See Accornero, Finaldi Russo, Guazzarotti and Nigro (2015) on the characteristics of first-time corporate issuers in Italy in 2002–13.

Table 5: General government’s total liabilities: composition by financial instrument

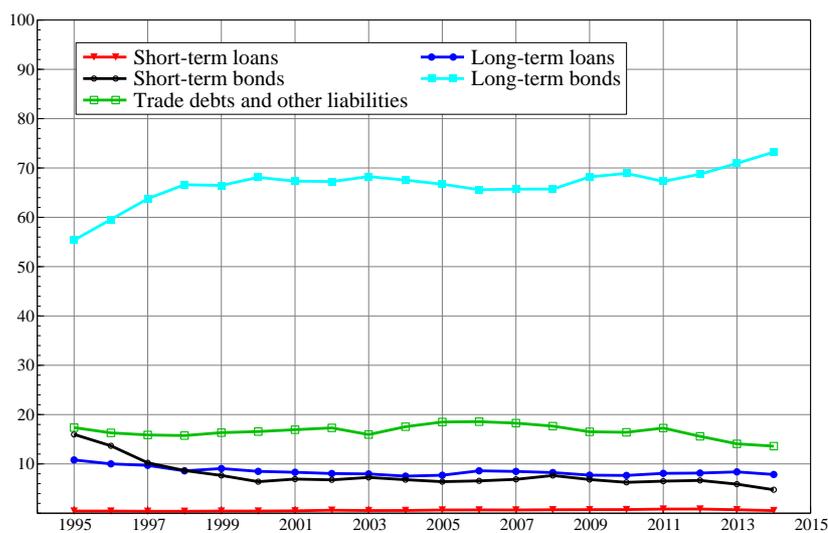
(percentage shares on current prices, market value)

	Short-term loans	Long-term loans	Short-term bonds	Long-term bonds	Trade debts and other liabilities
1996–1999	0.4	9.6	11.2	62.4	16.3
2000–2007	0.6	8.1	6.8	67.1	17.5
2008–2013	0.7	8.0	6.4	69.0	15.9

Source: Banca d’Italia.

Figure 8: General government’s total liabilities: trends by financial instrument

(percentage shares on current prices, market value)



Source: Banca d’Italia.

The investor base of Italian government debt is very diversified (Table 6 and Figure 9). The share of debt held by non-residents has increased considerably since the mid-1990s (in spite of a temporary drop between the summer of 2011 and that of 2012 at the peak of the euro-area sovereign debt crisis) and since 2008 it has averaged around 43 per cent.²³ The share of debt held by Italian financial corporations (banks, insurance companies, mutual funds, etc.) increased significantly during the five years 2009–13, marked by a prolonged phase of financial instability, and in 2014 it started to come down again.

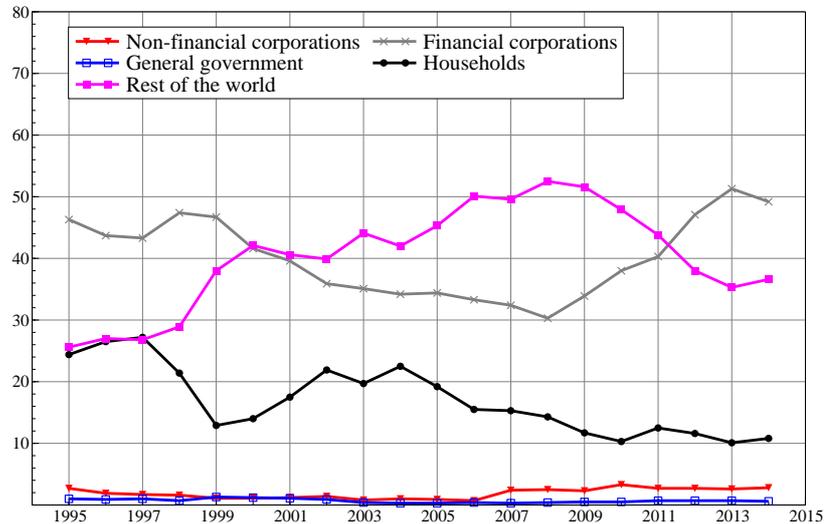
Table 6: General government long-term bonds: composition by holders
(percentage shares on current prices, market value)

	Non-financial corporations	Financial corporations	General government	Households	Rest of the world
1995–1999	1.6	42.0	0.9	28.7	26.8
2000–2007	1.1	35.6	0.6	20.9	41.8
2008–2014	2.6	41.1	0.6	12.7	43.1

Source: Banca d'Italia.

²³More refined statistics about the Italian government bonds held by foreign investors is regularly published in the Bank of Italy' twice yearly Financial Stability Report. In these statistics, foreign holdings do not include the Italian government bonds held by the Eurosystem (formerly held by the Bank of Italy) and those held in foreign portfolios that are attributable to Italian investors (for instance, mutual funds established in Luxembourg or Ireland by asset management companies belonging to Italian bank or insurance groups and mostly placed in Italy). At the end of 2014 the share of total (both short- and long-term) Italian general government securities held by foreign investors, net of those attributable to the Eurosystem (formerly Bank of Italy) and Italian investors' foreign portfolios, was 29.3 per cent, compared with a share of 38.2 per cent based on unadjusted data (Banca d'Italia, 2015b).

Figure 9: General government long-term bonds: trends by holders
(percentage shares on current prices, market value)



Source: Banca d'Italia.

Finally, households' investment financing coincides with long-term loans, currently representing nearly 70 per cent of total liabilities (Table 7), as households do not issue shares and bonds.²⁴ Long-term loans are mainly driven by transactions, because “other changes” normally play a negligible role for this kind of instrument.²⁵

Looking at the dynamics of long-term loans three phases stand out (Figure 10): sustained growth during the 2001–07 period; a slowdown starting in 2008, and a decline since 2011. The levelling off of Italian household debt since the global financial crisis mainly reflects the impact of the prolonged period of weakness of the domestic economy. As a ratio to disposable income, at the end of 2014 long-term loans stood at 62.9 per cent, a much lower level than the euro-area average (96.0 per cent; Banca d'Italia, 2015a).

²⁴Note that according to SNA2008/ESA2010 there is still no clear definition of unincorporated enterprises, which fall into the household category, implying that there may be differences between countries in the definition of this sub-sector. In the Italian case, they are defined as all enterprises with no more than five employees.

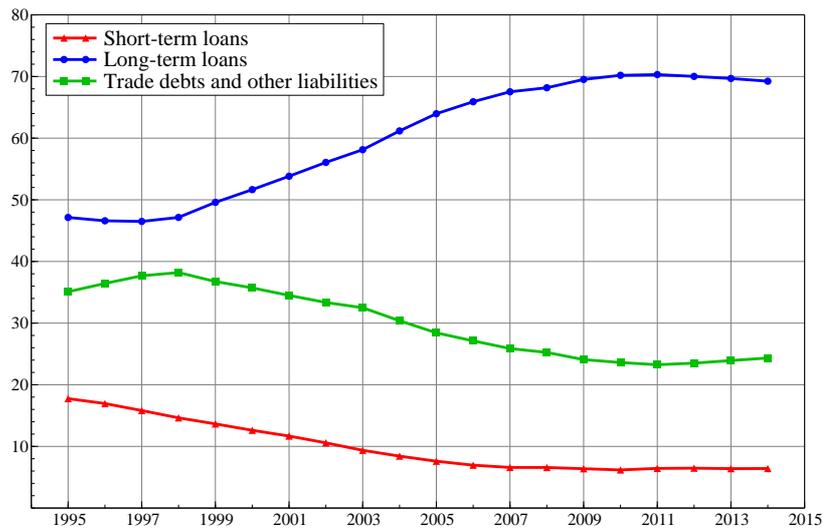
²⁵As already mentioned previously, debt write-offs might also influence “other changes”. However, in Italy debt write-offs of households are negligible, also owing to the narrow definition of “unincorporated households”, as explained in the previous footnote.

Table 7: Households' total liabilities: composition by financial instrument
(percentage shares on current prices, market value)

	Short-term loans	Long-term loans	Trade debts and other liabilities
1995–1999	15.8	47.4	36.8
2000–2007	9.2	59.8	31.0
2008–2013	6.4	69.5	24.1

Source: Banca d'Italia.

Figure 10: Households' long-term liabilities: trends by financial instrument
(percentage shares on current prices, market value)



Source: Banca d'Italia.

It is worth remembering that long-term loans can be considered as a proxy of households' investment activity but it is not possible, at this stage, to distinguish across sub-sectors whose funding have different purposes. In other words, long-term loans related to households owning a dwelling usually correspond to residential investment, while this is not the case for unincorporated enterprises of households or NPISHs, which typically

request long-term funding to invest in their own economic activity. Therefore, even though the former households are the most representative subsector, we cannot say *a priori* how much they contribute to investment financing.

4 Conclusions and indications for complementary analysis

In this paper we have described the main trends in investment expenditure and long-term investment financing in Italy since 1995. We have only considered indicators at the macro level that are based on official economic or financial national accounts data (see Table A2 in Appendix A for an overview of the indicators we analysed). This choice was made in order to favour comparability with similar analyses produced by other countries, at the cost however of being constrained in terms of available information.

Medium-term gross fixed capital formation trends in Italy may be summarized along the following lines. The pre-2007 capital expansion was broad-based, both across institutional sectors and asset categories, although less marked for households; similarly, the exceptional downturn thereafter affected all sectors and components, yet to a different extent. In particular, focusing on the most recent period, the decline in general government and non-financial corporations' expenditure, cumulatively undertaking about two thirds of total investment in Italy, was sizable (approximately 25 per cent), yet slightly more contained than the concurrent drop in household investment spending. The total-economy investment rate in Italy currently stands at its lowest levels since data became available in the mid-1990s; current government and non-financial corporation investment rates are comparable only to those recorded in 1995; the household rate is even lower. From the asset side, in recent years construction investment, in both residential dwellings and non-residential buildings, which represents half of total expenditure, was the hardest-hit item, excluding transport equipment expenditure (small and volatile), whereas ICT investment and the accumulation of intangible assets weathered the recent double-dip recession better.

It is likely that in Italy total investment touched its lowest level in the third quarter of 2014. On the whole, in the three following quarters (the latest quarterly data are in reference to spring 2015) capital accumulation increased. Both quantitative and qualitative business cycle indicators suggest that in the second half of 2015 gross fixed capital formation will again continue to edge up, boosted by more favourable credit conditions, waning uncertainty and a modest recovery in demand.

Regarding Italian gross fixed capital formation data, two issues stand out. The first concerns the fact that official sector accounts are expressed at current prices, when in fact price movements of investment goods can be non-negligible and are differentiated across capital products, affecting medium-term trends. For example, the decline in ICT prices is a well-known stylized fact in many advanced economies, interrupted in Italy only by the global financial crisis. This leads to the need to assess suitable deflators for sector accounts – an attempt that was made in this paper – to allow for an analysis of both nominal and real developments in institutional sector investment. The second issue concerns the lack of official and publicly available data broken down by both institutional sector and asset type (with the exception of general government accounts), which are useful to design policy incentives correctly. For instance, on the basis of our calculations, only some disaggregated trends were common to most sectors, such as the better-than-average performance of ICT investment or the large current investment gap in non-residential construction. Conversely, the recent drag on transport equipment mainly stemmed from the non-financial corporation sector. Finally, the breakdown by asset and by sector of economic activity, which we used to deflate the official current-price series, is only available with a sizable delay (up to 21 months) after the end of the reference year, therefore preventing timely analyses.

Our analysis of the main developments in investment financing in Italy drew on financial accounts' data, which provide information on stocks and flows of assets and liabilities

classified by institutional sector and financial instrument, where the latter are also broken down by maturity at issue. As such, they can serve as a proxy for finance directed to investment projects, although institutional sectors may employ these financial resources for different purposes.

The financial liabilities that are usually associated with investment activity (termed “long-term liabilities”) since 1995 displayed an upward trend for all institutional sectors, which came to a halt after the outbreak of the global financial crisis. Focusing on the developments in long-term liabilities of the main investor sectors, a break in 2008 is particularly evident for non-financial corporations and households, whereas general government experienced an acceleration in long-term liabilities as of 2012, likely due to the objective of further lengthening the average residual maturity of public debt. For non-financial corporations, the largest component of long-term liabilities is equity, which accounts for more than 40 percent of the total. Households’ investment financing basically coincides with long-term loans, as even the micro enterprises included in this sector cannot issue shares and bonds.

A glance at the composition of the stock of total long-term liabilities provides further interesting insights. First, long-term loans to non-financial corporations have become increasingly important, crowding out the short-term counterparts. Second, in spite of the fact that the issuance of debt securities still represents only a small part of non-financial corporations’ total long-term liabilities, its weight has increased significantly, especially after 2008, although we know from firm-level data that the greater recourse to bond markets almost exclusively involved large companies.

There are at least three challenges concerning Italy’s investment financing data, which we leave for future research. As mentioned earlier, long-term liabilities taken from financial accounts are not necessarily directed to investment. Hence, it is not possible to identify unambiguously a direct link between financing and investment, based solely on these

data. A finer matching of investment and investment financing data would be warranted, although difficult to attain, given data constraints. However, the use of long-term liabilities as a proxy of long-term investment financing may not be such a restrictive assumption after all, as we provide evidence that the growth rate in non-financial corporations' investment is positively and significantly correlated to the lagged change in the same sector's long-term liability flows, which is encouraging.

Secondly, another type of data that we did not use in this analysis and that could be particularly informative, also for conducting international comparisons, is survey-based information. Surveys such as the Bank Lending Survey (BLS) and the Survey on the access to finance of enterprises (SAFE) conducted by the European Central Bank, as well as the Investment Survey coordinated by the European Commission, provide important information on both bank lending (which is known to be a significant source of funding for investment, especially for small and medium-sized Italian firms) and corporate investment as well as its determinants.²⁶ These surveys have the advantage of referring not only to banks and firms in one single European country, but to those of all euro-area or European Union countries.²⁷ Moreover, they allow to explore issues related to both sides of the markets (demand and supply), including episodes of tightening in the supply of credit and credit rationing.

Finally, while data at the macro level give an accurate indication of the size and trend of the phenomena, they are not able to capture heterogeneity at the level of individual firms, households or financial instruments and markets. A case in point are the small and

²⁶The Bank Lending Survey (BLS) is conducted quarterly in January, April, July and October; for a description of the survey and additional details on the questionnaire, see <http://www.ecb.europa.eu/stats/money/surveys/lend/html/index.en.html>. The Survey on the access to finance of enterprises (SAFE) is instead published yearly; details may be found here: <https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html>. On the recent findings of the EC Investment Survey relating to the four largest euro-area countries see Buseti, Giordano and Zevi (2015).

²⁷Banca d'Italia also conducts quarterly and yearly surveys that include specific questions on investment and the purposes of bank loans requested by firms (see Albareto and Finaldi Russo, 2012, and Buseti, Giordano and Zevi, 2015), but they refer solely to Italian manufacturing and private non-financial service firms with over 20 or 50 employees.

medium-sized enterprises (SMEs), for which the official national accounts data we have used in this paper do not offer any insights, including, in particular, on the existence of funding gaps.²⁸

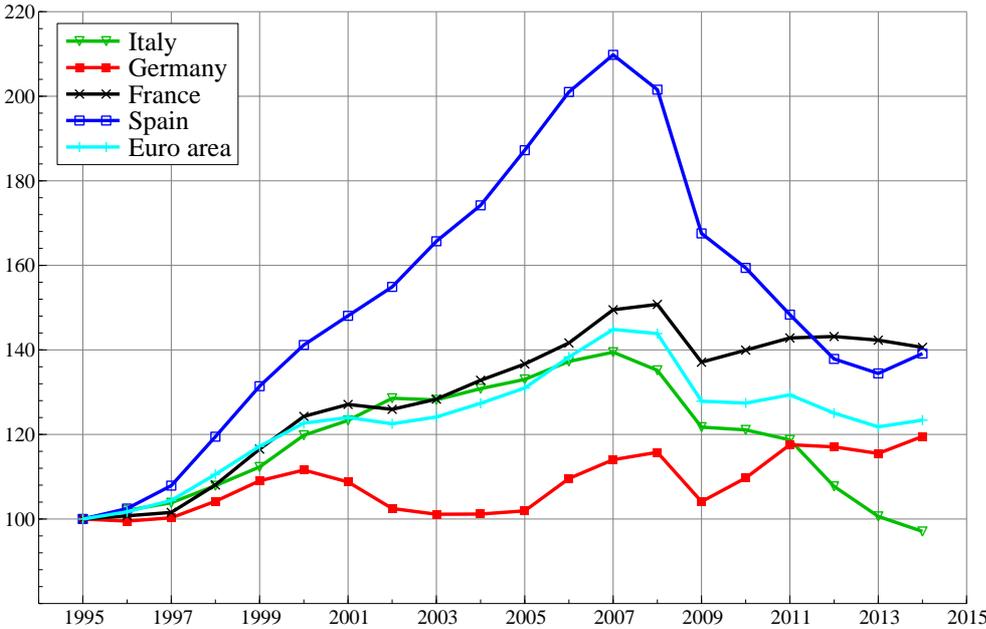
In conclusion, in future research it may also be useful to investigate the availability of comparable survey and firm-level data at an international level, in order to complement official indicators at the macro level with qualitative, but often more timely, information and with more granular data.

²⁸There is a growing interest in studying non-financial corporations' investment decisions and financing choices using micro data (see for example Blundell-Wignall and Roulet, 2014, and Mäkinen and Silvestrini, 2015, for recent contributions).

Appendix A Additional figures and tables

Figure A.1: Total gross fixed capital formation in the four largest euro-area countries

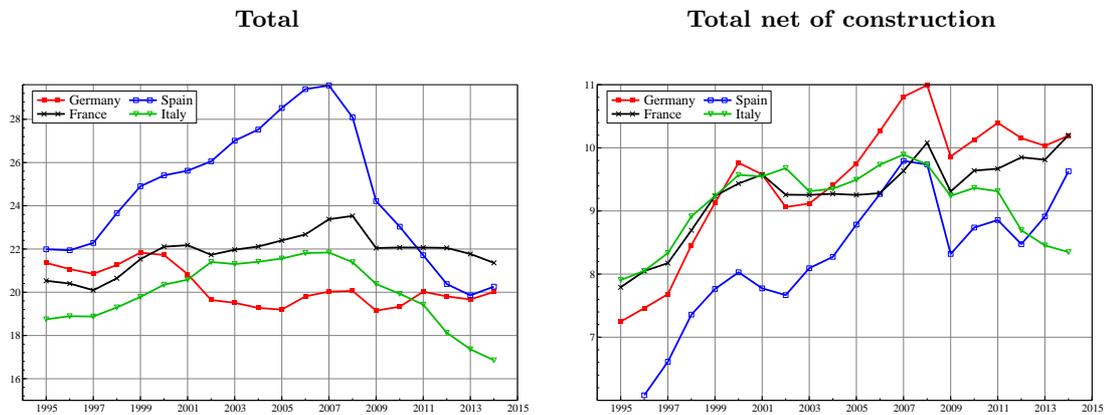
(indices 1995=100; chain-linked volumes)



Sources: Istat and Eurostat.

Figure A.2: Total and non-construction gross investment rates in the four largest euro-area countries

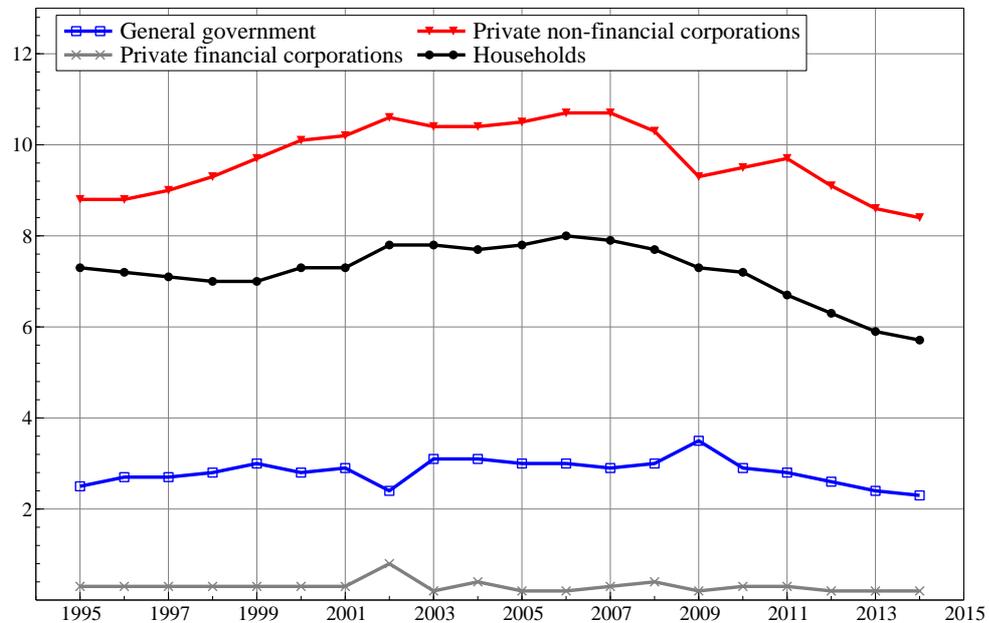
(ratio of total investment to GDP at constant market prices, computed using chain-linked volumes)



Source: Buseti, Giordano and Zevi (2015).

Figure A.3: Total investment rates: trends by institutional sector

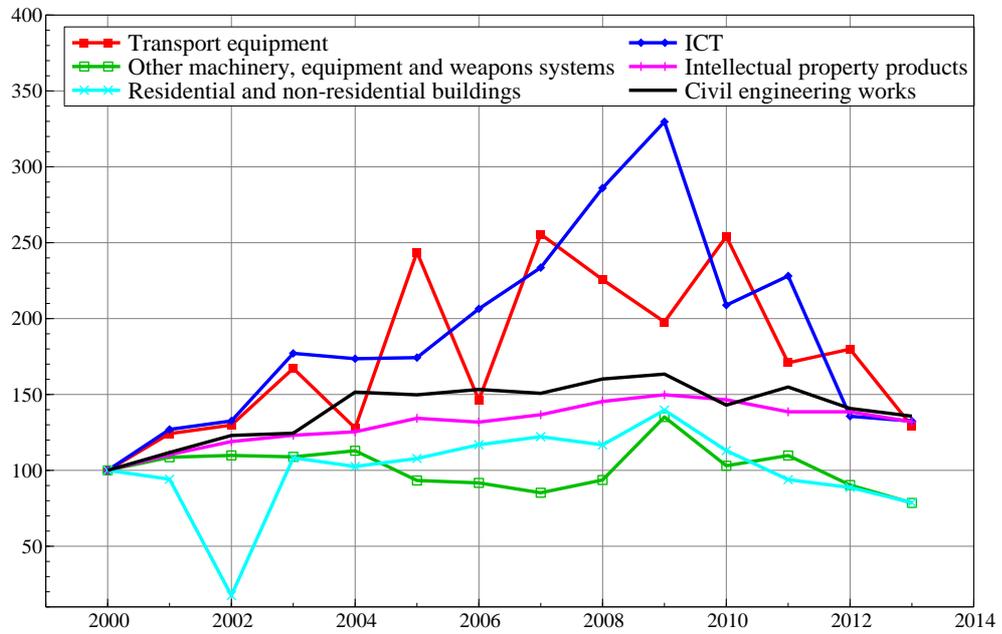
(ratio of total investment to GDP at constant market prices, computed using chain-linked volumes)



Source: based on Istat data.

Figure A.4: General government fixed capital formation: trends by asset type (detailed breakdown)

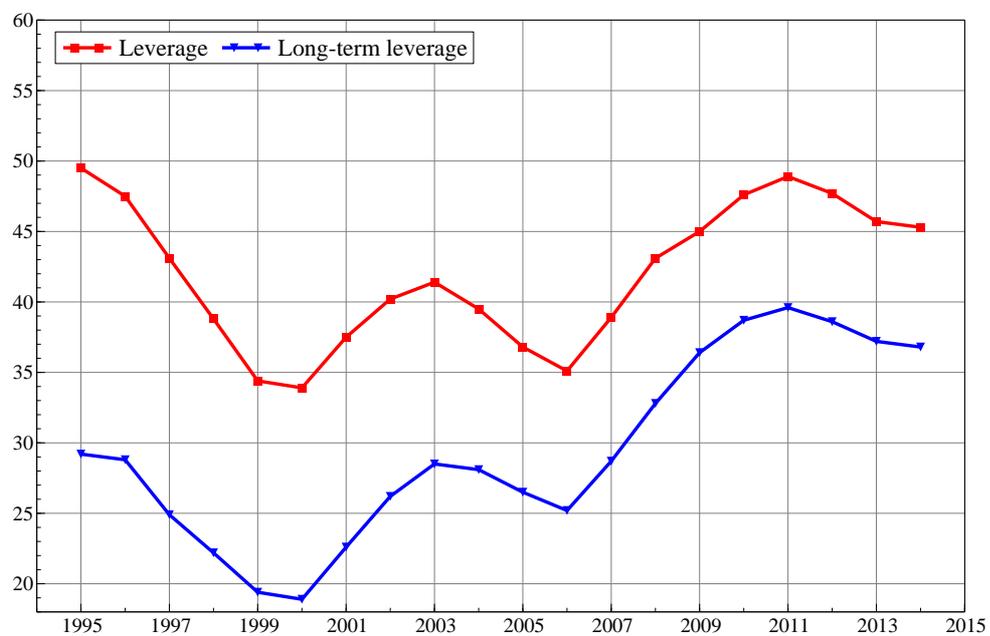
(current prices; indices 2000=100)



Source: Istat.

Figure A.5: Non-financial firms' leverage: total and long-term component trends

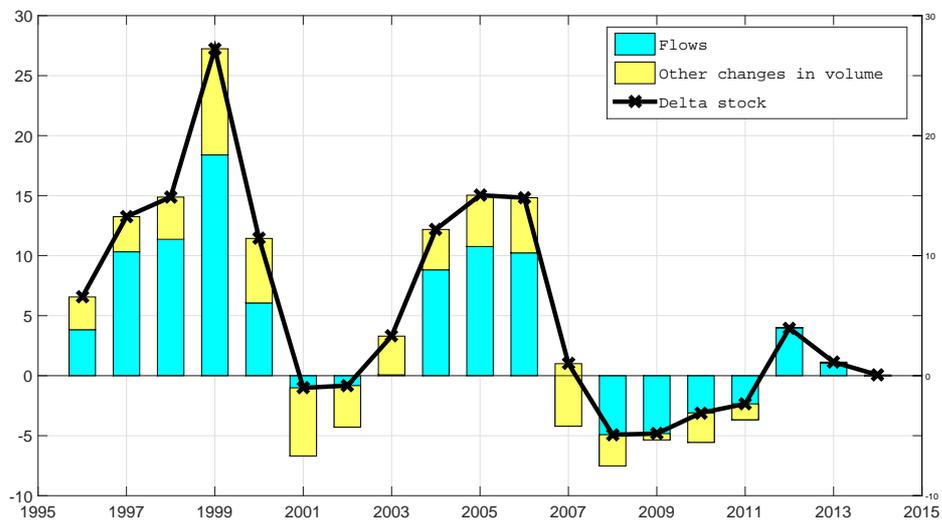
(ratio of bonds and loans to total financial liabilities; percentage shares)



Source: Banca d'Italia.

Figure A.6: Non-financial corporations long-term liabilities: growth decomposition

(percentage changes)



Source: Banca d'Italia.

Table A1: Shares of Monetary Financial Institutions' loans in total non-financial corporations' debt

(percentage shares)

	DE	FR	IT	ES
Average Q1 2000 – Q2 2008	50.2	39.6	60.4	58.3
Average Q3 2008 – Q4 2012	46.9	39.2	62.2	59.6
Q4 2012 only	45.5	37.0	62.8	51.5

Source: ECB (2014).

Table A2: A summary of the indicators reviewed

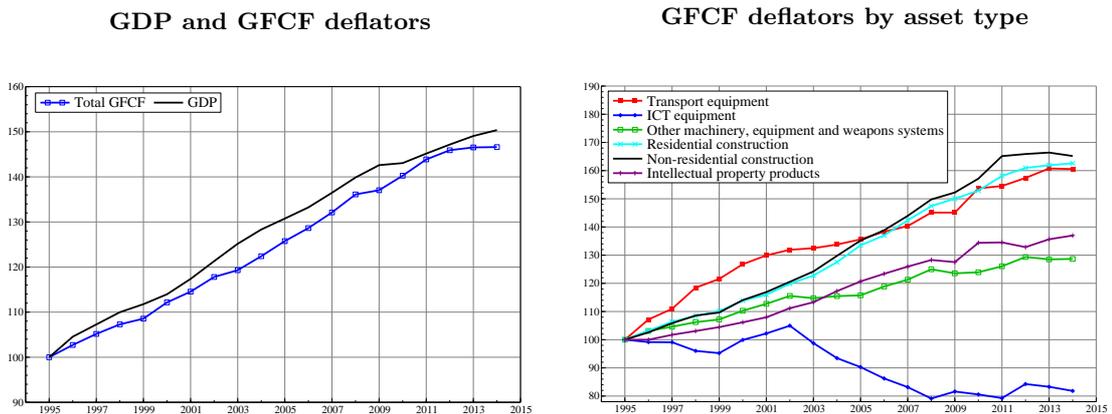
Indicator	Definition and evaluation
1. Gross fixed capital formation (GFCF)	
a) GFCF by institutional sector	Current and constant prices (1)
b) Investment rate by institutional sector	Ratio of investment by institutional sector to GDP; current and constant prices (1)
c) GFCF by asset type	Current and constant prices (1)
d) GFCF by institutional sector and asset type	Current and constant prices (1)
2. Investment financing	
a) Long-term liabilities (long-term loans, long-term bonds, shares and other equity)	Market prices (except for assets for which there is no secondary market: these are included at face value)
b) Long-term liabilities by institutional sector	
c) Long-term liabilities by institutional sector and financial instrument	
d) General government's long term bonds by holders	

Notes to the table: (1) Constant prices are estimated by the authors (see Appendix B).

Appendix B An attempt to deflate Italy’s current-price investment series by institutional sector

It can be argued that in the medium-term investment series at current prices may be affected by price movements; moreover, the potential bias may be of a different magnitude over time and across assets. In particular, as seen in Figure B.1 (left-hand side panel), the total investment price deflator in Italy increased until 2011, and stabilized thereafter; relative total investment prices (i.e. the total investment deflator relative to the GDP deflator) have instead marginally declined over the whole 1995–2014 period. An appreciable variance in price movements shows up across assets: construction investment prices have grown faster than non-construction investment prices (with the exception of transport equipment), whereas ICT prices declined by approximately a quarter after 2002 (Figure B.1, right-hand side panel). The prices of all assets have broadly stabilized in the most recent recessionary years, with the exception of those of intangible goods, which were also set on an upward trend in 2014.

Figure B.1: GDP and investment deflators by asset type
(indices 1995=100)



Source: Istat.

We therefore attempted to deflate Italy’s official investment series by institutional sector by using information retrieved from the gross fixed capital formation data disaggregated by industry, available both at current and chain-linked prices, also broken down by asset types.

In particular, we deflated total general government investment expenditure with the investment deflator “public administration, defence, education, human health and social work activities”, in turn computed as the ratio between the current and constant-price Istat series. For financial corporations’ investment we employed the “financial and insurance activities” investment deflator, for households the “real estate activities” deflator (owing to the fact that most of households’ investment expenditure is in residential dwellings) and for non-financial corporations the deflator computed for the total economy net of the previously mentioned industries.

The correlations are indeed satisfactory between growth rates in total investment of each institutional sector at current prices and those in total investment of the selected corresponding economic branches, again at current prices. In particular, they are over 0.9 in the case of non-financial corporations and households, and over 0.7 for financial corporations in the period 1995-2013. The correlation is instead smaller for general government (0.5).²⁹

We also deflated current-price investment series broken down both by institutional sector and by asset. In particular, for financial corporations we rescaled the current-price series of investment by asset of the financial and insurance sector so that they added up to the financial corporations total current-price expenditure;³⁰ subsequently, we deflated each

²⁹As an alternative, we also attempted to employ the deflator computed only for “public administration and defence”, thereby netting out health and education (which in part are private services), but the correlation is even lower (0.4); hence, we preferred to use the deflator described in the text. Moreover, correlations in levels are even more satisfactory (greater than 0.9 for all institutional sectors except financial corporations, for which it is equal to 0.6).

³⁰Since residential investment accrues entirely to the real estate industry in the capital expenditure by economic sector breakdown, we cannot provide any information on financial and non-financial corporations investment in residential dwellings, which however should represent only a small share of corporations total capital spending.

asset by the asset-specific investment deflator of the financial and insurance sector. For general government and for non-financial corporations we adopted the same procedure, employing information on investment by asset of the “public administration, defence, education, human health and social work activities” industries and the total economy net of the public, financial and real estate sectors, respectively. A general issue with crossing data breakdowns by asset and by industry is that we cannot account for second-hand markets for capital goods, which may be important for example for dwellings and machinery equipment.

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