

BANCA D'ITALIA

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del Servizio Studi

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Any Lessons from Recent Experience?**

by Luigi Buttiglione and Giovanni Ferri



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**MONETARY POLICY TRANSMISSION VIA LENDING RATES IN ITALY:
ANY LESSONS FROM RECENT EXPERIENCE?**

by Luigi Buttiglione (*) and Giovanni Ferri (*)

Abstract

We argue that Italy provides an interesting case study to test for the existence of a lending channel for the transmission of monetary policy - alongside the traditional money channel - which operates via lending rates and does not require credit rationing. First, because private debt markets are relatively underdeveloped, making the business sector dependent on bank credit. Secondly, because ties between banks and firms are not as strong as in other bank-oriented economies, ruling out factors that might curb the pass-through of monetary restrictions to the credit market. We also suggest that this lending channel may have enhanced the power of monetary restrictions through indirect instruments after the very large reduction in banks' holdings of securities in the second half of the 1980s, following the abolition of ceilings on lending growth. In the new situation, there seems to be less scope for banks to lower their securities holdings in order to shield loan supply from reserve restrictions, as they did at times in the past, compelling the Bank of Italy to reintroduce credit ceilings temporarily. Comparing the monetary tightening of 1992 and the most pronounced squeeze of the 1980s - that of 1981, with credit ceilings in place and banks' securities portfolios overweight - evidence consistent with a strengthening of the transmission of the monetary impulses through lending rates is found only for 1992. Furthermore, the econometric results from a VAR model are also consistent with the presence of this lending channel in recent years and with non-negligible effects being exerted on real activity by monetary policy.

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1. Introduction and main issues¹

Renewed attention has been recently devoted to the question of the existence and the relevance of a channel for the transmission of monetary policy through banks' credit, which operates via lending rates and does not imply credit rationing ("lending channel"). Such a channel would stem from financial market incompleteness and would be independent of the traditional one operating through banks' liabilities and market interest rates ("money channel"). Market imperfections cause some businesses to be bank-dependent in their external fund-raising. If ties between banks and firms are not strong and other countering factors are absent, a monetary contraction should exert a more pronounced effect on bank-dependent firms.

We argue that Italy provides an interesting case study to test for the existence and the working of an additional channel for the transmission of monetary policy through lending rates. First, because the development of financial markets for privately issued debt and of stock markets is very limited with respect to the Anglo-Saxon countries, making the business sector heavily dependent on bank loans. Secondly, because bank-firm ties are not as strong as in other bank-oriented economies, such as Germany or Japan, so that firms in Italy are more likely to suffer from credit restrictions should a monetary tightening occur. Furthermore, we offer an interpretation according to which, besides causing a positive shift in the loan supply, the very large reduction of bank holdings of securities in the second half of the 1980s following the abolition of ceilings on lending expansion has brought the composition of banks' assets to a new equilibrium in the last few years. In the new situation, there seems to be less scope for banks to

¹ We thank various colleagues of the Research Department - and particularly Alessandro Prati - for helpful conversation. Rossana Dell'Orca, Angela Gattulli and Michele Zollo provided valuable editorial assistance. Needless to say, we remain solely responsible for any error and omission.

turn to asset management, which previously shielded loan supply from reserve restrictions and at times compelled the Bank of Italy to reintroduce credit ceilings, albeit on a temporary basis. Accordingly, the lending channel may now be stronger than in the past and may have enhanced the power of monetary restrictions through indirect instruments. We provide both descriptive evidence and some econometric results in support of this hypothesis.

The paper is organized as follows. Section 2 offers a synthesis of the relevant theoretical background concerning the transmission of monetary policy via lending rates. In Section 3, we discuss some aspects of the Italian financial system that have a bearing on the feasibility of the transmission through lending rates and their recent evolution (Sub-Sections 3.1-3.3). We provide also a descriptive comparison of the monetary tightening of 1992 and the most pronounced squeeze of the 1980s, that of 1981, with credit ceilings still in place and banks' portfolios out of equilibrium (Sub-Section 3.4). Evidence consistent with a strengthening of the transmission of the monetary impulse through lending rates is found only for the 1992 restriction and not for the 1981 squeeze. The econometric results presented in Section 4 hinge on a VAR model: in the recent years, the evidence is consistent with the presence of this lending channel, which goes along with non-negligible effects being exerted on real activity by monetary policy.

2. The theoretical background of the lending channel

According to the pure version of the so called "money view", monetary policy works only through market interest rates. In a two-asset world (money and bonds), in which information on the credit market is perfect, banks are thought to perform a "special" function on the liability side only, by issuing demand deposits for which there are no substitutes. On the asset side, banks either purchase bonds or lend. Bonds and

loans are perfect substitutes, however, so that the loan market is not independent and can therefore be neglected, as in the classical framework of the IS-LM model. Accordingly, it is only banks' liabilities that are relevant for the transmission of monetary policy. When reserves decrease, a contraction of deposits follows; if money demand is negatively correlated with interest rates, equilibrium requires open market rates to rise. Borrowing in the capital markets becomes more expensive and spending programs in the economy are curtailed.

The more modern version of the "lending view"² refers to an economy in which some borrowers enjoy imperfect access to the open market, owing to financial market incompleteness. These borrowers are bank-dependent, since they have to rely on loans for external funding. Thus, banks are thought to be "special" also because they provide the economy with a third asset - namely loans - that offers an imperfect substitute for bonds in firms' liabilities. This may produce an additional channel for the transmission of monetary policy, independent of the money one, which may work through lending rates, thus even in the absence of credit rationing. In such a framework, the impact of a monetary tightening cannot be fully captured by the movements in the term structure of market rates as the differential effects on lending rates must be taken into account too.

This is the case if banks are unable to completely offset a drain of reserves and the subsequent reduction of demand deposits by issuing non-reservable instruments (Romer and Romer, 1990) or by lowering their securities holdings, so as to avoid a reduction in the supply of loans. The ability of the central bank to affect the loan supply is greater if either of the two following conditions is verified (Miron, Romer and Weil, 1993):

- a) banks have reached their desired portfolio composition and want to keep it constant;
- b) banks are at a "corner" portfolio allocation - i. e. they

² In what follows, we present some implications of the seminal model by Bernanke and Blinder (1988).

cannot reduce the share of securities any further and the reserve requirement on their liabilities is high.

If, as a result of the reduced availability of bank credit,³ lending rates⁴ rise more than open market rates, the effects on real activity of the monetary restriction are magnified. In practice, it is not even necessary that open market rates change for this additional channel to be effective. In fact, in case of an injection of reserves, this lending channel would work even if the demand for money were infinitely elastic to open market rates, thus preventing these rates from falling. This would be the case if investors perceived money and bonds as perfect substitutes, due to financial innovation or to the "liquidity trap". In these circumstances the money channel would be ineffective.

It is also worth stressing that the part of the transmission channel concerning the shift in the supply of loans may be activated by banks, independently of any change in the monetary stance, owing, for instance, to a change in their objectives.

The transmission through bank lending may be reinforced by additional factors which would contribute to further raise the loan rates in case of a monetary restriction. For instance, an increase of the share of bank-dependent customers in bank borrowers - because some customers able to issue debt in other markets do so - would probably determine an increase of the average risk premium embodied in loan rates, as the changed composition of bank customers raises average bankruptcy costs and diminishes the amount of collateralizable net worth.⁵

³ "High" sensitivity to open market rates and to income of the money demand and a "low" sensitivity to income of the loan demand.

⁴ As stressed by Bernanke (1993), the cost of bank credit is multidimensional: it may include terms and conditions, concerning collateral requirements and covenants, as well as others that are not always observable. Consequently, the cost may not be fully identified by lending rates alone.

⁵ Small businesses would be the most hard hit because of

The lending channel should be less important for the aggregate behaviour of the economy in countries in which strong ties exist between banks and firms - since the former are likely to cushion the impact of restrictive monetary policies onto the latter⁶ - and in those in which financial markets are highly developed even though bank-firm ties are weak. As a matter of fact, most of the empirical tests on the lending channel have referred to the USA - an economy with "arm's length" banking but with the most developed financial markets - and the results have been fairly inconclusive, at least at the macro-level.⁷ More convincing evidence is provided by papers performing tests on cross-section US data, pointing to a major impact of monetary policy shocks on bank-dependent agents, small firms and households, relative to big corporations with access to securitised capital markets (Gertler and Gilchrist, 1991, 1993; Kashyap, Lamont and Stein, 1993).

these aspects. Average bankruptcy costs would grow particularly for them since they are most likely to be bank-dependent (Morgan, 1992). In addition, according to Gertler (1992), holding shorter expected horizons, small firms have lower collateralizable net worth, since this is a positive function of their unencumbered discounted future earnings.

⁶ See, for instance, Hoshi, Kashyap and Scharfstein (1990) for Japan, and Cable (1985) for Germany. However, it should be noted that: a) probably not all firms would benefit from the cushioning; b) in the face of lasting severe monetary restrictions, even if rationing is avoided, the cost of funds would probably rise for the more strongly tied firms as well.

⁷ Recent contributions in this field include those by: Romer and Romer (1990); Hall and Thomson (1992); Bernanke and Blinder (1992). The results of Kashyap, Stein and Wilcox (1992), showing that in periods of monetary tightening, corporations shift the composition of their external financing from loans to commercial paper and the spread between prime lending rates and commercial paper rates widens have been questioned by Kuttner (1992) and Romer and Romer (1993).

3. A descriptive overview of recent trends in Italy

One would expect, as noted above, the lending channel for the transmission of monetary policy to be less important on the aggregate economy both in economies with weak bank-firm ties but highly developed financial markets and in those with less developed financial markets but with strong bank-firm ties. In the light of the theoretical framework outlined above, looking for a lending channel in the transmission of monetary policy in Italy appears a promising area of research.

First, inspection of Italian firms' balance sheets shows that bank credit and bonds cannot be seen as perfect substitute sources of financing. The former accounts for by far the greater part of external funds in private sector's liabilities (Sub-Section 3.1). Indeed there is no commercial paper market and issues of private bonds are negligible.

Secondly, banks made a major adjustment in their assets in the second half of the 1980s, reducing the large security holdings they had accumulated under direct credit controls (Sub-Section 3.2).⁸ This caused an autonomous shift in the loan supply that led to a contraction of the loan-government paper interest rate spread. More recently, the completion of portfolio adjustment has opened up an independent lending channel of monetary policy, since the loan supply can no longer be shielded by asset management. Descriptive evidence suggests that this channel - virtually absent in another similar episode at the beginning of the 1980s - may have boosted the transmission of the severe restriction of 1992 (Sub-Section 3.4).

Thirdly, the lack of a secondary market for CDs and the absence of large CDs (Sub-Section 3.3) have prevented banks from using liability management in response to monetary re-

⁸ Monetary policy relied on direct credit controls since the mid-1970s (Caranza and Fazio, 1983) and only shifted completely to an indirect approach during the 1980s (Padoa-Schioppa, 1987).

strictions.

Finally, "relationship banking", which would lessen the scope for the lending channel, is not a feature of the Italian financial system. Even though bank credit accounts for a larger share of firms' outside finance in Italy than in the Anglo-Saxon countries, ties between individual banks and firms are certainly weaker than in Germany and Japan,⁹ and grouping Italy with these two countries appears questionable.¹⁰

3.1 Private sector liabilities: the importance of bank credit

The composition of firms' financial assets and liabilities is reported in Table 1, whereas Table 2 pertains to households.¹¹ The share of market debt is very small: short-term bills - essentially bankers' acceptances - contribute almost nothing and bonds are also negligible (less than 3 percent and diminishing). Conversely, bank loans represent approximately one third of total liabilities and over one half of firms external indebtedness: their share in total liabilities has grown steadily since 1986, when the Stock Exchange boom ended. Furthermore, the bulk of credit granted by non-banks is heavily dependent on funding on the bank credit market and often sup-

⁹ In Italy, banks' share-holdings in firms are negligible and there is generally no "bank of reference" for the firm, even in the loan market. See Ciocca (1991), Padoa-Schioppa (1993). Finding their little involvement in firms' changes of ownership, D'Amico, Ferri and Pesaresi (1994) argue that banks are seldom really "insider" to companies in Italy.

¹⁰ For instance, the assimilation of Italy with Japan and Germany is proposed by Browne and Tease (1992) who analyze the GDP predictive power of the spread between yields on private and government securities.

¹¹ New, more accurate, financial accounts were computed since 1989, that have resulted in discontinuities in the series. We show together both the composition for 1980-88 using the old financial accounts and that for 1990-92 computed on the new series, but clearly meaningful comparisons may only be made within the two sub-periods.

FIRMS' BALANCE SHEET (*)

Table 1

Percentages on total	1980	1982	1984	1986	1988	1990	1991	1992
<u>A S S E T S</u>								
Cash	1.9	2.4	2.1	1.0	1.2	1.4	1.4	1.5
Sight deposits	29.2	32.8	30.4	15.9	18.2	17.9	17.5	16.8
of which:								
-vis-à-vis banks or SCIs	27.6	30.2	28.6	15.0	17.4	16.0	15.9	14.9
Short term bills	1.6	2.7	2.0	0.8	2.0	1.0	1.2	1.3
Short term credit	1.7	1.2	5.4	2.6	2.8	7.6	7.5	7.8
Medium & long term credit	3.4	4.3	4.5	2.1	3.1	6.2	6.3	6.6
Medium & long term bonds	0.6	1.2	3.4	3.2	5.0	13.6	15.4	10.6
of which:								
-vis-à-vis banks or SCIs	0.1	0.2	0.2	0.2	0.4	0.9	1.0	1.0
Shares	60.4	54.5	51.3	73.8	67.0	50.8	49.2	52.9
Other assets	1.2	1.0	1.0	0.6	0.9	1.6	1.6	2.4
Total assets	100	100	100	100	100	100	100	100
of which:								
-vis-à-vis banks or SCIs	27.7	30.4	28.8	15.1	17.8	16.9	16.9	15.9
<u>L I A B I L I T I E S</u>								
Short term bills	0.3	0.3	0.1	0.0	0.1	0.1	0.1	0.1
Short term debt	24.6	25.6	27.4	17.4	21.4	30.2	30.8	31.2
of which:								
-intermediaries' finance	24.6	25.6	24.5	15.3	18.7	21.3	21.9	22.3
of which:								
-bank finance	23.4	23.8	22.8	13.9	17.1	19.5	20.4	21.1
-SCI finance	1.2	1.8	1.7	1.4	1.6	1.8	1.5	1.2
Medium & long term debt	19.0	22.9	19.9	11.8	15.0	13.9	15.0	15.1
of which:								
-intermediaries' finance	14.3	15.3	12.9	7.6	9.5	9.7	10.7	11.1
of which:								
-bank finance	2.9	2.8	2.5	1.6	1.8	0.9	1.0	1.1
-SCI finance	11.4	12.5	10.4	6.0	7.7	8.8	9.7	10.0
Medium & long term bonds	3.5	3.9	3.3	2.2	2.5	3.5	3.4	3.0
Shares	52.2	44.4	40.8	63.1	54.8	46.7	44.6	44.4
Other liabilities	0.3	2.9	8.5	5.5	6.4	5.8	6.0	6.1
Total liabilities	100	100	100	100	100	100	100	100
of which:								
-intermediaries' finance	38.8	41.0	37.3	23.0	28.3	31.0	32.6	33.4
of which:								
-total bank finance	26.2	26.7	25.2	15.5	18.9	20.4	21.5	22.2
-total SCI finance	12.6	14.3	12.1	7.5	9.4	10.6	11.1	11.2
=====	=====	=====	=====	=====	=====	=====	=====	=====
Memorandum item: Liabilities/Assets	150.1	166.8	165.9	140.7	148.7	299.9	303.8	322.4

Source: Banca d'Italia: Financial Accounts.

(*) Rounding may cause the sum of shares to differ from 100; SCIs = special credit institutions.

Table 2

HOUSEHOLDS' BALANCE SHEET (*)

Percentages on total	1980	1982	1984	1986	1988	1990	1991	1992
<u>A S S E T S</u>								
Cash	5.8	5.4	4.3	3.4	3.1	2.7	2.7	2.7
Sight deposits of which:	58.4	58.1	46.2	37.7	36.4	33.7	33.8	32.5
- vis-à-vis banks or SCIs	50.1	51.0	40.4	32.2	30.3	28.2	28.2	27.1
Short term bills	9.3	13.7	13.6	10.8	13.4	12.4	12.0	13.0
Medium & long term bonds of which:	8.0	9.8	15.8	17.1	22.3	17.8	19.8	19.4
- vis-à-vis banks or SCIs	2.2	2.1	1.7	1.4	2.2	2.1	2.5	2.5
Shares	10.0	6.8	6.4	13.6	9.8	21.9	20.1	20.3
Other assets	8.6	6.2	13.8	17.5	15.1	11.5	11.8	12.3
Total assets	100	100	100	100	100	100	100	100
of which:								
- vis-à-vis banks or SCIs	52.2	53.1	42.1	33.6	32.5	30.3	30.8	29.6
<u>L I A B I L I T I E S</u>								
Short term debt of which:	34.3	29.5	28.4	28.7	25.1	22.7	21.7	22.3
- intermediaries' finance	34.3	29.5	28.4	28.7	25.1	22.7	21.7	22.3
of which:								
- bank finance	34.3	29.5	28.4	28.7	25.1	22.0	21.0	21.7
- SCI finance	0	0	0	0	0	0.7	0.7	0.6
Medium & long term debt of which:	65.7	68.0	68.8	68.2	72.3	72.5	73.3	72.0
- intermediaries' finance	61.9	65.8	64.6	57.4	61.7	61.8	63.3	63.2
of which:								
- bank finance	25.0	26.2	27.6	26.8	29.2	28.6	29.9	29.6
- SCI finance	36.9	39.6	37.0	30.6	32.5	33.2	33.4	33.6
Other liabilities	0	2.4	2.8	3.1	2.5	4.8	5.0	5.7
Total liabilities	100	100	100	100	100	100	100	100
of which:								
- intermediaries' finance	96.2	95.3	93.0	86.1	86.8	84.5	85.0	85.5
of which:								
- total bank finance	59.3	55.7	56.0	55.5	54.4	50.6	50.9	51.3
- total SCI finance	36.9	39.6	37.0	30.6	32.4	33.9	34.1	34.2
=====								
Memorandum item: Liabilities/Assets	7.5	7.0	6.0	6.2	6.7	6.3	6.6	6.5

Source: Banca d'Italia: Financial Accounts.

(*) Rounding may cause the sum of shares to differ from 100; SCIs = special credit institutions.

plied by companies belonging to bank conglomerates.¹² This heavy dependence on bank credit implies that the impact of lending restrictions on firms' spending decisions should be high. Another noteworthy aspect of firms' asset composition concerns the growing importance of shares, which reflects an increase in acquisitions and participation in other firms.

The most striking feature of households' financial accounts is the low level of indebtedness, which has remained stable at between 6 and 7.5 percent of households' financial wealth. About 85 percent of households' financial liabilities are granted by banks and special credit institutions (SCIs); the bulk of these liabilities is medium and long-term debt, presumably in connection with mortgage loans. We would therefore not expect monetary policy to be transmitted to the economy through households' spending being curtailed by heavier debt burdens, a major channel in the Anglo-Saxon countries.

3.2 Deregulation and portfolio adjustment in the second half of the 1980s

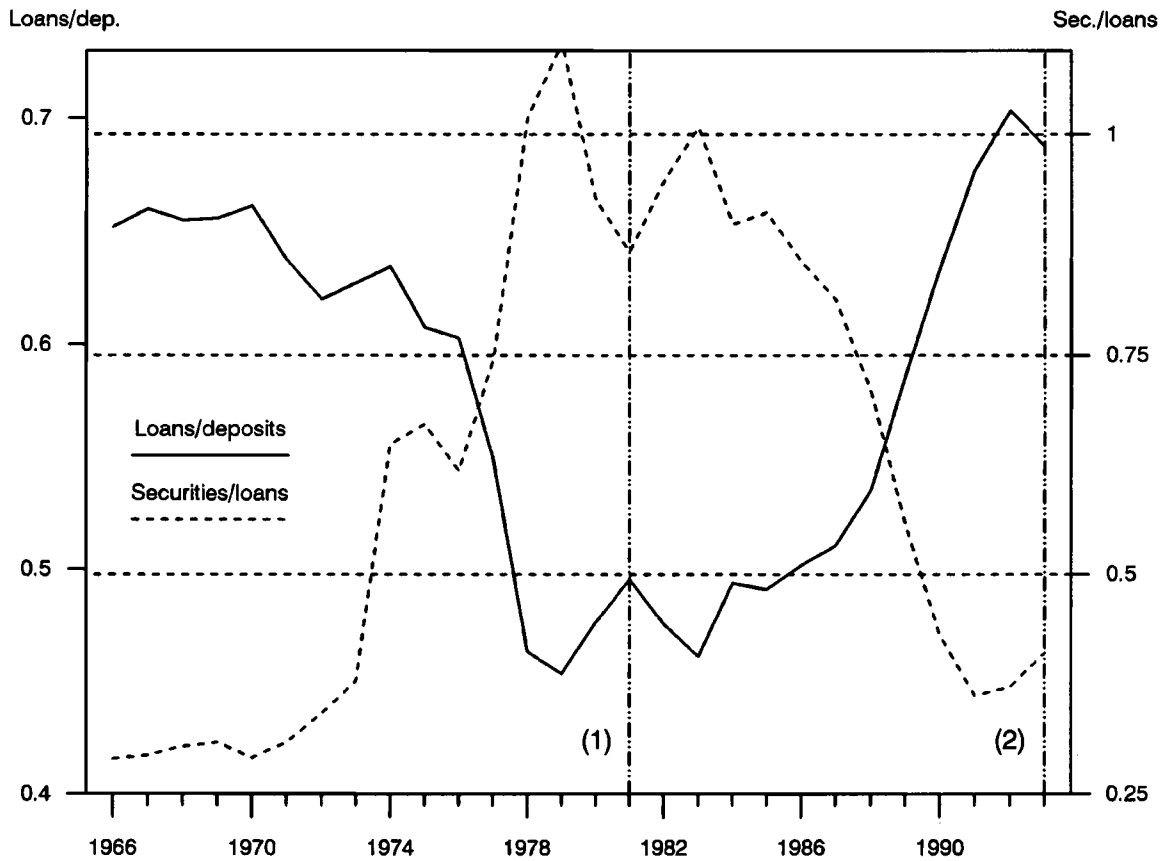
At the beginning of the 1970s, before restrictions on bank credit were enforced, securities represented about one quarter of banks' total loans and the latter amounted to about two thirds of deposits (Fig. 1). When the ceiling on the expansion of lending was abandoned in 1983, by which time the security investment requirement had also been almost completely dismantled, banks' security portfolios were equal to their loan portfolios, which had fallen to less than half of deposits.¹³

¹² For unlisted companies and households the major source of external funds in alternative to loans from Italian banks is borrowing from non-residents, a possibility granted by the abolition of capital controls at the end of the 1980s.

¹³ Another major factor accounting for the fall of the loan/deposit ratio was the increase in the reserve requirement, whose coefficient was raised from 15 percent in 1975 to 22.5 percent in 1982.

Fig. 1

SECURITIES/LOANS AND LOANS/DEPOSITS
(yearly averages)



- (1) Monetary restriction of 1981.
- (2) Monetary restriction of 1992.

An adjustment in banks' assets was expected after credit controls were removed, in line with developments in other Western countries in periods of deregulation. In the event, the portfolio adjustment did not occur immediately, but mostly between 1987 and 1991 when the securities/loans ratio plummeted from almost 80 to 36 percent and the loans/deposits ratio rose from 51 to 68 percent. It should be recalled that the expansionary cycle, started in Italy during the second half of 1983, gained momentum after the counter oil-shock in 1986-87. At the same time the Italian stock market boom in 1985-86 - partly linked to the introduction of mutual investment funds - allowed listed firms to make large issues of equity capital.

Important deregulation measures were adopted in addition to the abolition of the ceiling on lending and the security investment requirement. The most important steps were:

- a) freedom of establishment of new credit institutions (1985);
- b) impediments to free branching gradually removed (complete liberalisation in 1990);
- c) limits to the territorial area within which banks can operate abandoned and, in general terms, the stance of banking supervision evolved from a regime of case-by-case authorisation to a criterion based on objective rules, such as capital adequacy and asset ratios;
- d) exchange controls gradually lifted between 1987 and 1990.

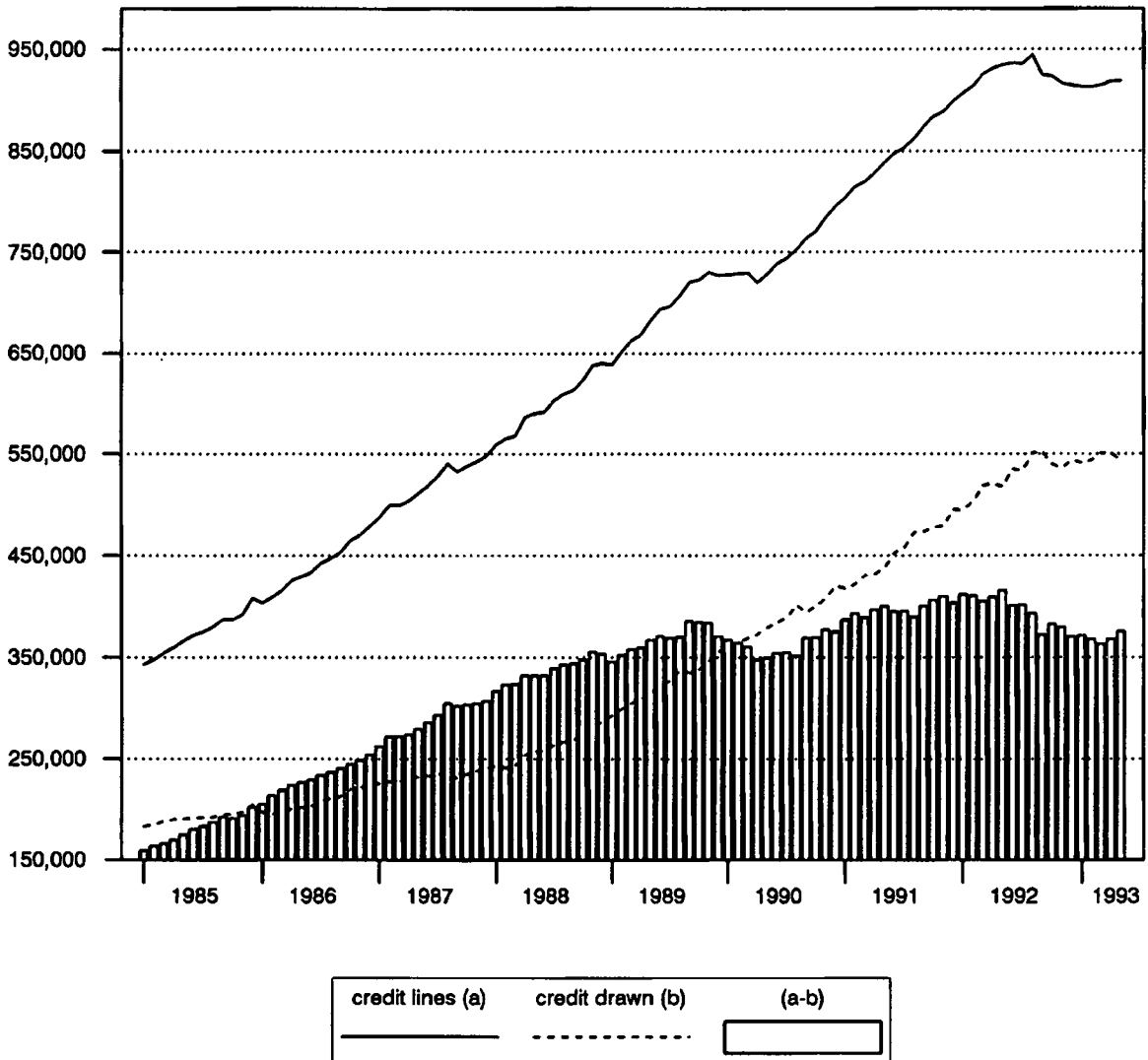
A large volume of evidence has been collected that points to growing competition in the loan market throughout this period (Giannini, Papi and Prati, 1991; Ferri and Gobbi, 1992). In addition, various indicators point to a shift in the supply of loans caused by banks' portfolio adjustment:

- a) credit lines were growing faster than drawn loans between 1985 and 1989 (Fig. 2);¹⁴

¹⁴ No fees are charged in Italy on undrawn credit lines. For a more detailed discussion on the implications of this institutional feature peculiar to the Italian banking system, see Section 4.

Fig. 2

CREDIT LINES AND CREDIT DRAWN
(monthly data; billions of lire)



- b) the share of loans granted at interest rates at or below the prime-rate rose from below 20 percent in 1983 to almost 50 percent in 1989 (Fig. 3);
- c) the interest rate differential between loans and Government paper plummeted from 4 to 1.5 percentage points between 1986 and 1989 (Fig. 4).¹⁵

The development of this last differential is particularly consistent with the supply-shock hypothesis: in fact, if banks were just accommodating the increasing demand for loans, the differential might have been stable or increasing. According to the model proposed by Bernanke and Blinder (1988), the credit supply-shock might have resulted in a new equilibrium configuration of the credit and commodity markets causing a movement of the CC curve (the loci of equilibria of both the commodity and the credit market) along the LM curve, resulting in a lower spread between lending and market rates: in the traditional IS-LM framework this movement could not be accounted for.

On the demand side, the restructuring of industrial companies - mainly the large ones - enhanced their profitability and strengthened their bargaining power in the loan market. Actually, companies' demand for loans boomed as the economy underwent a process of financial deepening with increasing use being made of credit for both real and financial transactions. Loans apparently motivated by financial arbitrage purposes surged. Frequently, the interest rates payable by the (not negligible) band of prime customers was below the yields on T-bills, offering opportunities for arbitrage. This component became of such importance in explaining the trend in aggregate loans that it was even necessary to model it in the Bank of Italy Monthly Money Market Model (Angeloni, 1994). In addition to arbitrage, the relative "abundance" of credit was also partly devoted to the financing of acquisitions as can be seen by the simultaneous expansion in firms' participation over total as

¹⁵ It is appropriate to compare the interest rate on loans with the T-bill yield since most loans are granted as current account advances. Similar trends are nonetheless also to be found for the loan-government bonds spread.

Fig. 3

**DIFFERENTIAL BETWEEN PRIME RATE AND T-BILL YIELD
AND SHARE OF LOANS GRANTED AT RATES AT OR BELOW THE PRIME RATE**
(annual data)

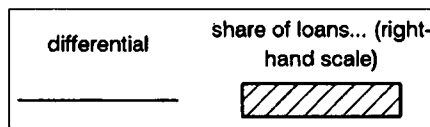
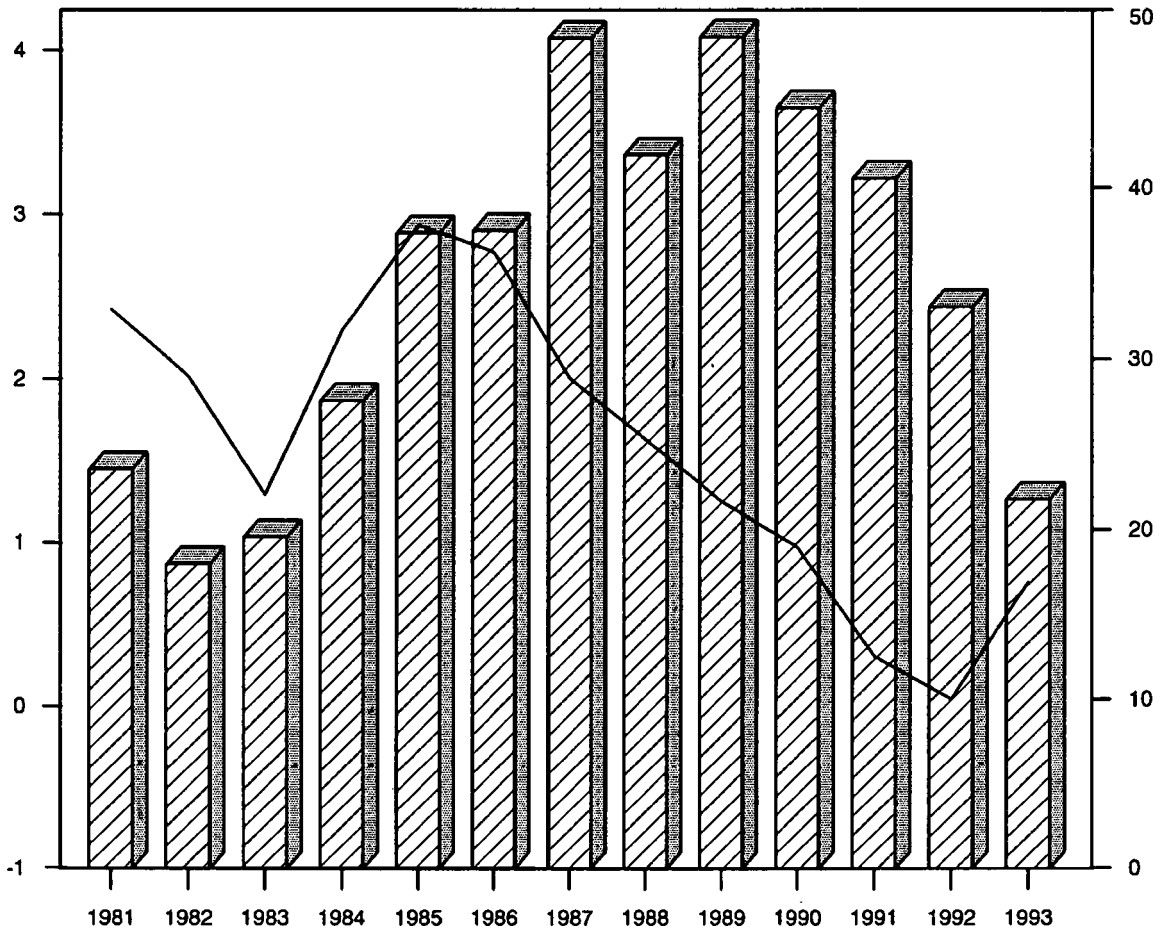
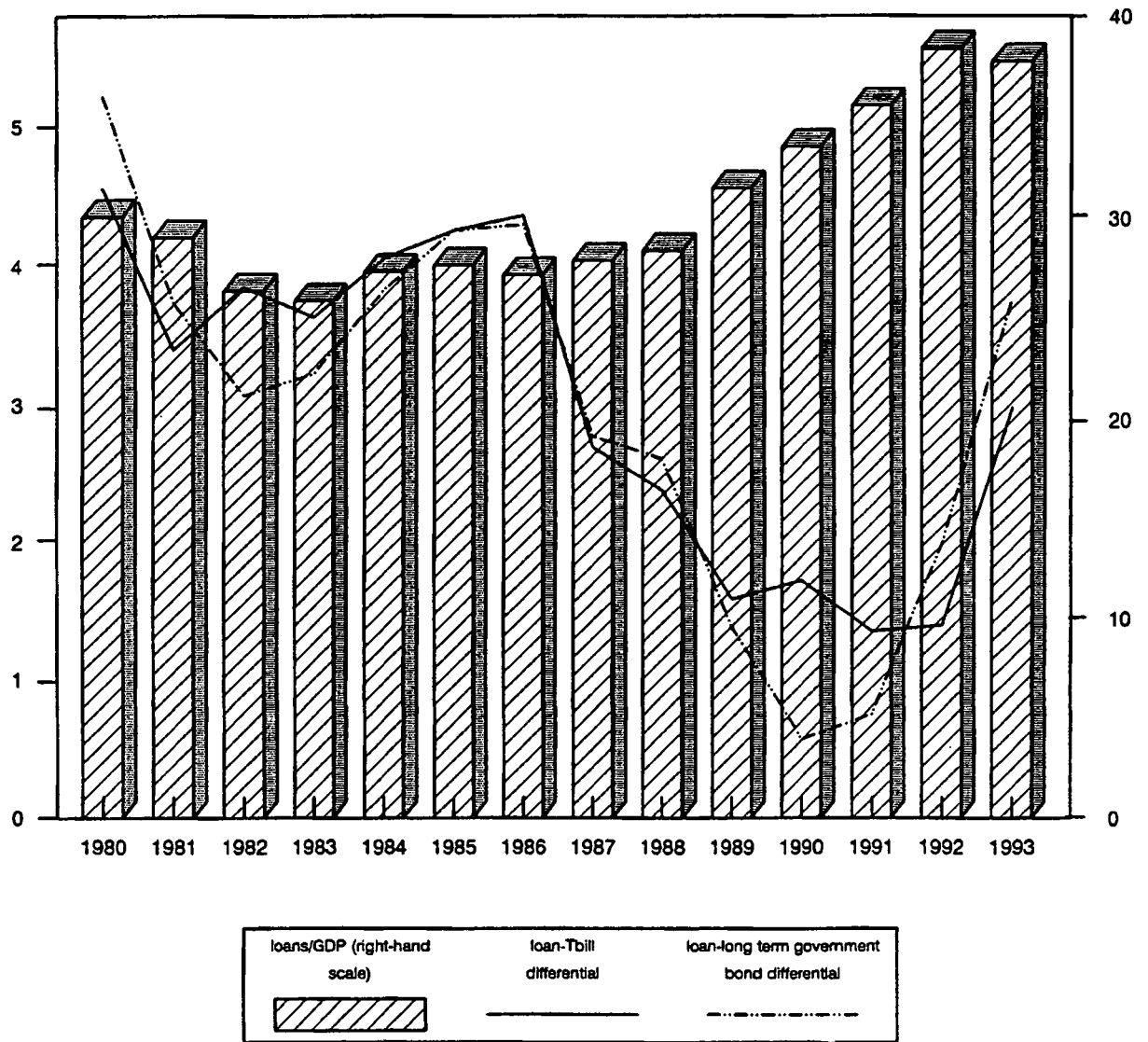


Fig. 4

**LOANS AND INTEREST RATE DIFFERENTIALS
BETWEEN LOANS AND GOVERNMENT PAPER**
(annual data)



sets and in firms' bank indebtedness (Sub-Section 3.1). It can plausibly be argued that the expansion of these financial components of loans does not have an immediate impact on production. In fact, arbitrage-motivated credit first might have a prevalently distributional impact, through the accumulation of financial wealth, which only later trickles down to influence real aggregates. By the same token, loans used to finance acquisitions might again exert only limited real effects, whereas the gains from more efficient production are harvested later.¹⁶

Turning to the more recent past, there are some indications that portfolio adjustment might have brought banks to a new equilibrium. The security-loan ratio has more or less stabilized since 1991 not far from the values prevailing before credit controls were enacted (Fig. 1); the loan-deposit ratio has also been quite stable recently. The growth of credit lines - that were already expanding less fast than actual drawings - has slowed and even become negative in nominal terms since the first few months of 1993 (Fig. 2). The share of loans granted at interest rates not above the prime lending rate has declined at a rising speed since 1990 (Fig. 3).

3.3 The lack of liability management

For most of the time, the deposit market was decoupled from the growing competition in the loan market. Banks did not really face fierce competition on the liability side until very recently (Focarelli and Tedeschi, 1993).

Bank liabilities continue to be essentially retail-based. Even the recent growth of CDs has not yet resulted in the development of a suitable instrument for liability management. Contrary to the situation in most of other industrialized coun-

¹⁶ Barca, Ferri and Parigi (1993) find evidence that changes in ownership of firms are immediately followed by modifications in their financial structure but not in their productive performance.

tries, yields on CDs are structurally far lower than those on government securities of the same maturity (Fig. 5).¹⁷ In addition, there is virtually no secondary market for CDs in Italy. Accordingly, issues of large CDs are very limited: the CDs with the largest average unitary amount are those issued with a 3-month maturity (the shortest maturity allowed up to now): only 150 million lire (approximately 90.000 US\$ at the current exchange rate).

Besides, reserve requirement has applied to all bank liabilities (including CDs) and the resulting burden was only a little lower for CDs with reserves remunerated at a higher rate.¹⁸

Finally, but noticeably, banks had no particular incentive to engage in liability management during the period in which they were seeking to reduce their security holdings; rather, asset management was used.¹⁹

Whether for lack of suitable instruments, incentives or

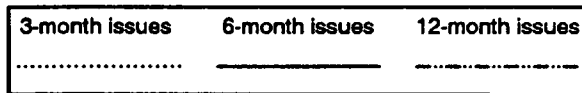
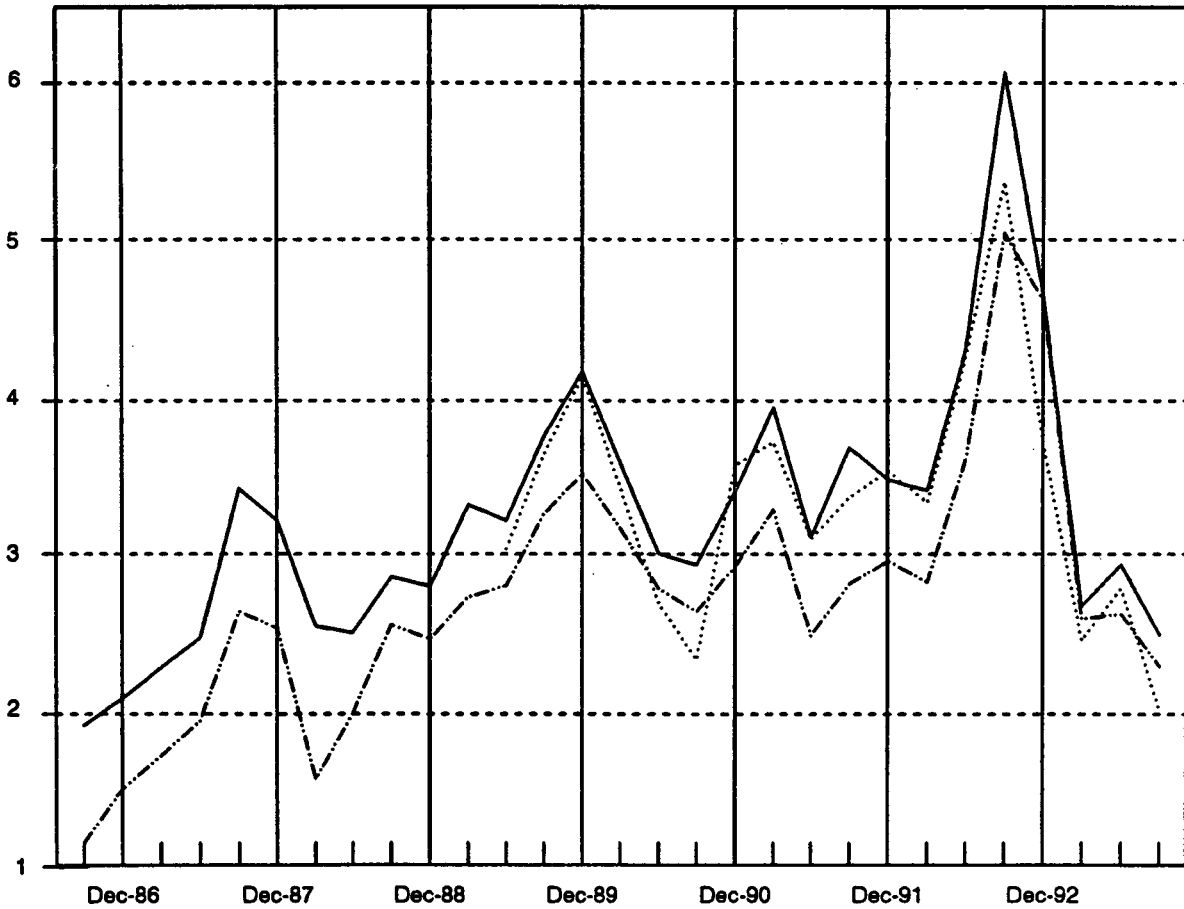
¹⁷ Fama (1985) shows that over the period 1967.1-1983.5 the yield spread between CDs and T-bills in the USA was positive, ranging from 28 basis points for 1-month maturities, to 97 basis points for 3-month maturities and to 74 basis points for 6-month maturities. The amount of the T-bill-CD yield spread for Italy would be lower than that shown in Figure 5 when taking into account bank intermediation fees on the former rate (approximately ranging from 50 to 100 basis points); nevertheless, there would be no change in qualitative terms.

¹⁸ In February 1993, reserve requirements were revised: a 10 percent coefficient applies to CDs with a maturity of 18 months or more, while the ratio for other liabilities is 17.5 percent.

¹⁹ It is worth mentioning that Italian banks recorded a large rise in customer security repos, particularly after the reserve requirement on such contracts was abolished in 1991. Fund raising abroad, particularly on the Euro-markets, has provided an important source of liabilities for Italian banks which became especially abundant between mid-1991 and mid-1992; foreign capitals have nonetheless actually decreased for Italian banks during the 1992 monetary restriction and afterwards.

Fig. 5

INTEREST RATE SPREADS BETWEEN T-BILLS AND CDs
(net of withholding tax; quarterly data)



merely initiative, Italian banks did not (and still do not) appear to practice liability management. As a result, banks are unable to raise funds competitively in order to offset the impact of changes in reserves induced by monetary policy actions.

3.4 Some evidence from two major episodes of monetary tightening

From a descriptive standpoint it may be most fruitful to focus on episodes characterized by substantial changes in the monetary stance in searching for evidence of the transmission of monetary impulses via lending rates. We will now consider the two major monetary policy restrictions via interest rates in Italy since the beginning of the 1980s, which took place in the spring of 1981 and in the summer of 1992.

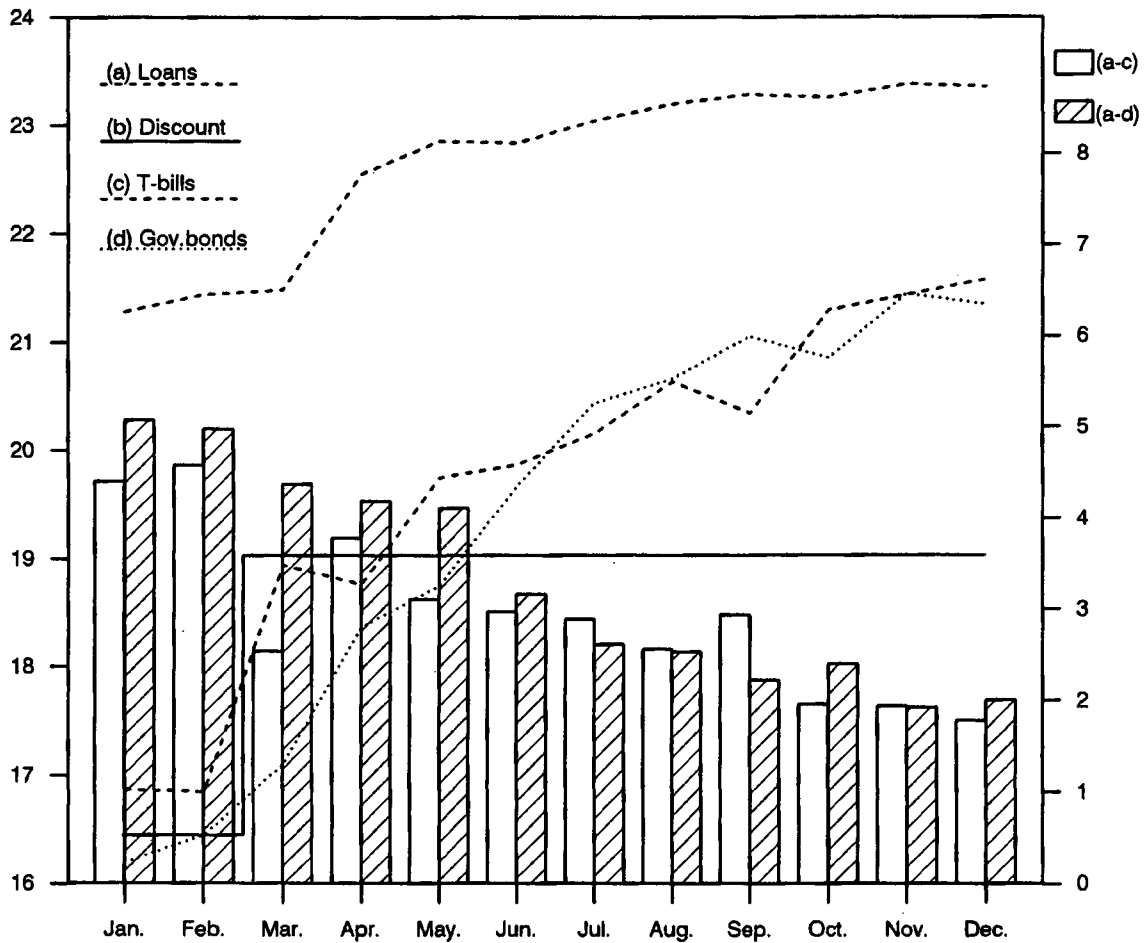
In March 1981, policy became more restrictive to counter inflationary pressures and promote exchange rate stabilization (Gressani, Guiso and Visco, 1988). The official discount rate was raised by 2.5 percentage points, leading to a steep increase in real rates; government paper yields increased by about 4 percentage points by the end of the year (Fig. 6). At the same time, the compulsory reserve ratio was raised from 15.75 to 20 percent. This was the first tightening enacted also with indirect instruments since the introduction of credit ceilings in the mid-1970s. Credit ceilings and the security investment requirement had resulted in the share of securities in banks' portfolios being very substantial. Banks reacted to the monetary restriction by reducing their security portfolios²⁰ in order to shield loan supply, even though they were constrained by the credit ceilings.²¹ Following the monetary shock, banks'

²⁰ In 1981 the compulsory security investment rule was not binding. On this regard, see Banca d'Italia (1981) and Cottarelli, Galli, Marullo Reedt and Pittaluga (1986).

²¹ Non-interest-bearing deposits at the Bank of Italy had to be held by banks exceeding the ceiling. These deposits reached a maximum of 2.2 percent of the allowed stock of credit, see Banca d'Italia (1981).

Fig. 6

EVOLUTION OF INTEREST RATES IN 1981



- (a) Average rate on bank loans (monthly averages).
- (b) Official discount rate at the Bank of Italy (end of month data).
- (c) Average rate at 3-6-12 month T-bill auctions (monthly averages).
- (d) Average rate on the secondary market for government bonds with a residual life of more than 1 year (monthly averages).

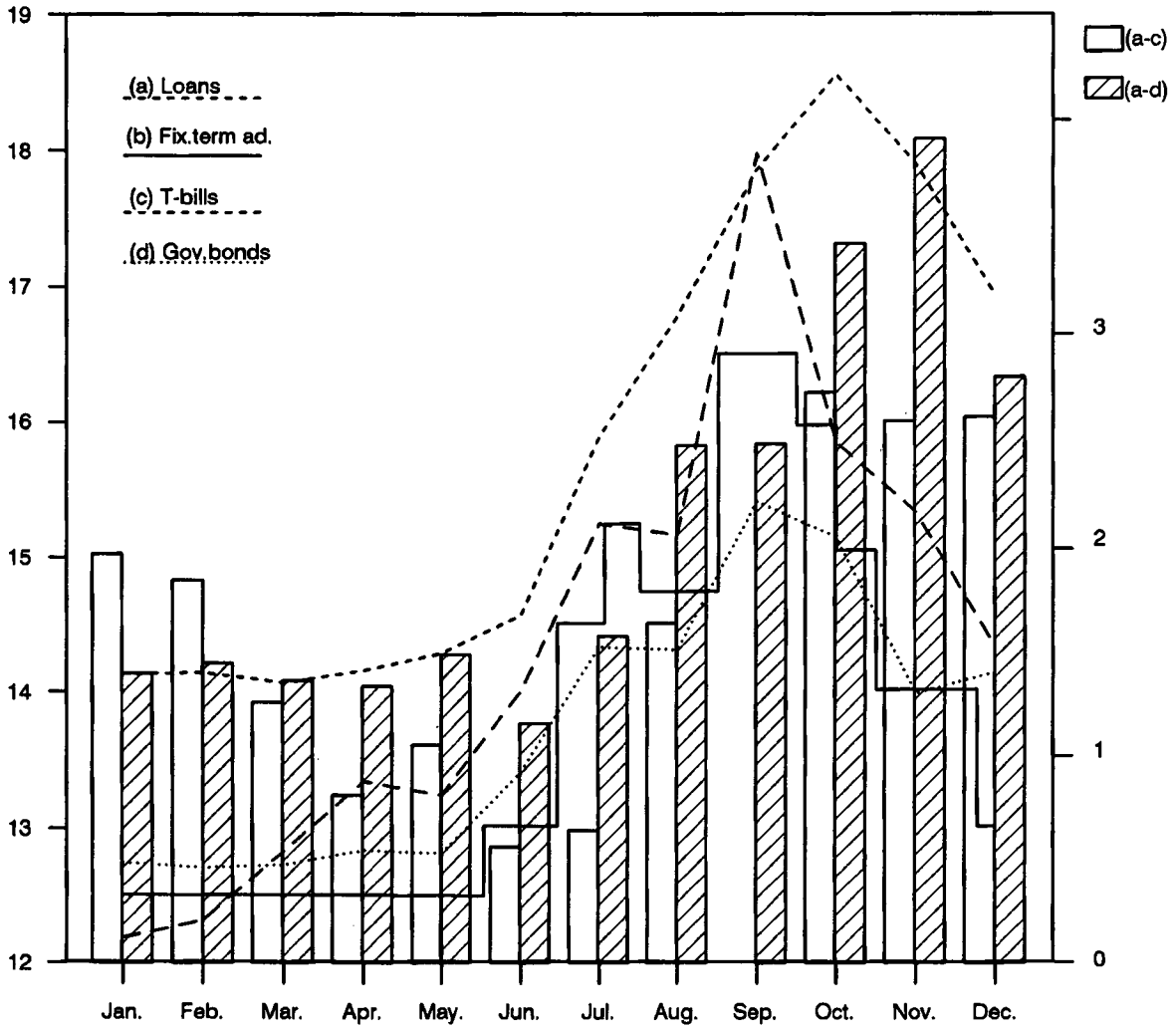
ratio of securities to loans fell (Fig. 1). Deposit growth slowed sharply to 9.2 percent in 1981 (when inflation averaged 19.5 percent), from 13.2 percent in 1980 (when inflation averaged 21 percent) and was well below that of domestic loans in lire, which expanded by 15.2 percent (14.5 percent in 1980). Average lending rates lagged behind and under-reacted with respect to security rates, with an increase of only 2 percentage points by the end of the year. Lending rates thus did not magnify the monetary restriction, quite the contrary, they dampened it. Therefore, the lending channel as it was qualified previously did not work in that occasion.

Permanent recourse to credit ceilings was abolished in 1983. However, banks' willingness to slim the large security holdings they had accumulated partly cushioned the impact on the credit supply of monetary tightening via indirect instruments in the subsequent years. In particular, when the Bank of Italy sought a quick and effective tightening, the ceilings on the expansion of loans had to be reimposed temporarily. They were in force throughout the first semester of 1986 and between the last quarter of 1987 and the first of 1988, in order to counter exchange rate crises. Even though these measures may have postponed the adjustment, they did not substantially prevent the fall of the loan-government paper interest rate spread described in the previous Section.

Between June and September 1992, with the aim at keeping the lira within the EMS fluctuation band in the face of large speculative attacks, the Bank of Italy increased the rate on fixed-term advances by a total of 4 percentage points (Fig. 7), while the overnight rate rose by 6 percentage points. This was the first, very intense monetary restriction to take place after the adjustment in banks' balance sheets mentioned above: following the reserve drain and its restrictive effect on deposits, banks were unwilling to reduce the share of securities in their assets. Thus they shrunk their portfolio without substantially changing its composition. Unlike the previous episode and in line with the presence of a lending channel of transmission, loan supply contracted: credit lines fell in

Fig. 7

EVOLUTION OF INTEREST RATES IN 1992



- (a) Average rate on bank loans (monthly averages).
- (b) Rate on fixed terms advances at the Bank of Italy (daily data).
- (c) Average rate at 3-6-12 month T-bill auctions (monthly averages).
- (d) Average rate on the secondary market for government bonds with a residual life of more than 1 year (monthly averages).

nominal terms (Fig. 2) and the 12-month rate of increase in domestic loans in lire fell from 13.8 percent in June to 4.3 percent in December (in 1992 nominal GDP grew by 5.7 percent). Apart from the spike in the T-bill rate in September, caused by a major turmoil in the financial markets, the spread between loan rates and government paper widened significantly from the beginning of the summer. By October, before major monetary easing was undertaken, average loan rates had increased more than those on securities compared with the situation at the end of May (before the crisis): approximately 4.3 points for loan rates as against 2.6 for T-bills and 2.3 points for long-term government paper. Accordingly, the spread between rates payable by private borrowers and the cost of government borrowing in the market more than doubled: the differential with respect to T-bills widened from 1.1 to 2.6 points and that with respect to the bond rate from 1.5 to 3.4 points.

4. Some econometric analyses

In what follows we present a preliminary analysis on aggregate data intended to capture further evidence on the existence of a lending channel - operating through lending rates - in addition to the money one and on the overall effectiveness of monetary policy in terms of real activity. The analysis refers to the period January 1988-May 1993. In fact, we believe, as reported in the previous section, that banks' portfolio adjustment put the lending channel in a position to transmit at least two main shocks in this period: one expansive and autonomously triggered by banks between 1988 and 1991; the other restrictive and due to monetary policy in 1992. We estimated an unrestricted VAR model on monthly data for the following variables:

- a) the overnight rate, capturing the stance of monetary policy (OV);
- b) the average rate on government paper with a residual life

longer than one year (BTP);²²

- c) credit lines granted by banks to customers both utilized and not (CRAD); changes in this variable are taken as a proxy for changes in banks' notional loan supply, either autonomous or triggered by monetary policy and security rates;
- d) the amount of credit actually drawn (CRUD);
- e) the average interest rate on loans (TIM);
- f) the index of industrial production (IPRO).

Credit quantity variables are seasonally adjusted and expressed in real terms by deflating them with the price level of industrial output; they are also taken as logarithm levels. IPRO is net of the seasonal component, corrected for the number of working days and is also taken as logarithm. In addition to the constant, we introduced four exogenous variables: the log of the price index for industrial output and three dummies. The first dummy takes account of the effects of the temporary credit ceilings in place in the first few months of 1988. The second one controls for possible changes in the structural relationships between OV and the other variables in the period when the lira was restricted to fluctuating within the narrow band of the EMS. The third dummy is aimed at filtering out the impact of "moral suasion" actions taken by the Bank of Italy vis-à-vis commercial banks at the end of 1989, in order to shrink unused credit lines: it is impossible to assess whether - and in which proportion - the invitation by the central bank resulted in a shift in the loan supply or in mere window dressing.

Specification search led us to estimate the VAR selecting five as the number of lags.²³ The ordering of the variables in the VAR is as follows:

²² Similar results were obtained using T-bill rates.

²³ Some tests were performed on the integration and cointegration properties of the variables before proceeding with the regression. Traditional tests for serial correlation in the residuals were run without detecting any serious problem.

OV - BTP - CRAD - CRUD - TIM - IPRO

This can be thought of as a recursive structure model. The first variable, OV, is the "most exogenous one", set by monetary authorities; the assumption that the stance of monetary policy in Italy can be captured by the overnight rate, analyzed in the updated version of the Monthly Model of the Banca d'Italia (Gaiotti, 1992), appears quite plausible for the last few years. The second variable, BTP, represents the traditional vehicle for the transmission of monetary impulses via market interest rates to real activity; it can nevertheless also be affected by perceived shocks not caused by the central bank (changes in expected inflation, etc.). With the third variable we identify a proxy for loan supply setting by banks independently of the demand, as the quantity of loans - in the absence of rationing - usually reflects both. This task was made easier by an interesting feature of the Italian loan market that, to our knowledge, is unique among Western countries: namely, the fact that in Italy bank credit lines are prevalently extended to customers with the peculiarity that no commission or fee is charged on the undrawn part. Considering that, in the absence of a pecuniary cost, demand for credit lines should in principle be infinity, one can then reasonably argue that credit lines offer a proxy of the notional loan supply.²⁴ This variable may be affected by autonomous shocks originating within the banking system, by monetary impulses and by changes in security rates. We thus have a strong a-priori that the supply of loans can be identified and also that it is predetermined with respect to the demand. Accordingly, the amount of loans can be interpreted mostly as a demand variable.

²⁴ Given that the utilization rate on credit lines, though increasing in recent years, is approximately 60 percent, it would be unwise to think that banks are actually ready to almost double their supply from one day to the next. In all probability, the bank and the customer re-contract if the customer draws above the normal level for his class. Keeping this in mind, although the level of credit lines may carry little information on the actual amount of loans, its changes over time may help identify supply from demand shifts.

The following group of three variables may be thought of as a block of more endogenous, "demand", variables, which should react, in the structure of our model, to shocks to the "supply" variables. Needless to say, industrial production represents the last step of the transmission chain.

Some results of this analysis provide supportive evidence that a lending channel may have contributed to the dynamics of real variables and that monetary policy may have substantially accounted for variations in real activity in this period. Response functions to 1 percent exogenous shocks to OV, BTP and CRAD - reported in Figures 8-10 within confidence bands - and variance decomposition analyses show that:

- a) consistently with the existence of a separate lending channel, after a 1 percent positive shock to OV, TIM temporarily over-reacts, increasing by almost 2 percent after three months, while BTP does not; thus the differential between the two rates widens. Actually, both BTP and TIM experience a reduction after 5 months, which may be interpreted as a consequence of a lower inflation rate induced by the tightening of monetary policy.
- b) Impulses to OV negatively affect CRAD (and explain 35 percent of its variance), supporting the idea that following monetary tightening banks tend to curtail the supply of credit.
- c) Shocks to BTP exert a significant impact on CRAD (and CRUD), although the former account for only 12.3 percent of the variance of the latter. This may represent an additional piece of evidence consistent with the market interest rate channel, as loan supply reacts negatively to increases in their opportunity cost. In the same direction goes the approximately unitary response of TIM to shocks in BTP.
- d) Shocks to CRAD affect positively IPRO, though being slightly significant. Besides CRAD accounts also for a large portion of the variance in IPRO (26 percent; Table 3). Adding the

Fig. 8

IMPULSE RESPONSES TO 1% DISTURBANCES TO OV (monthly data)

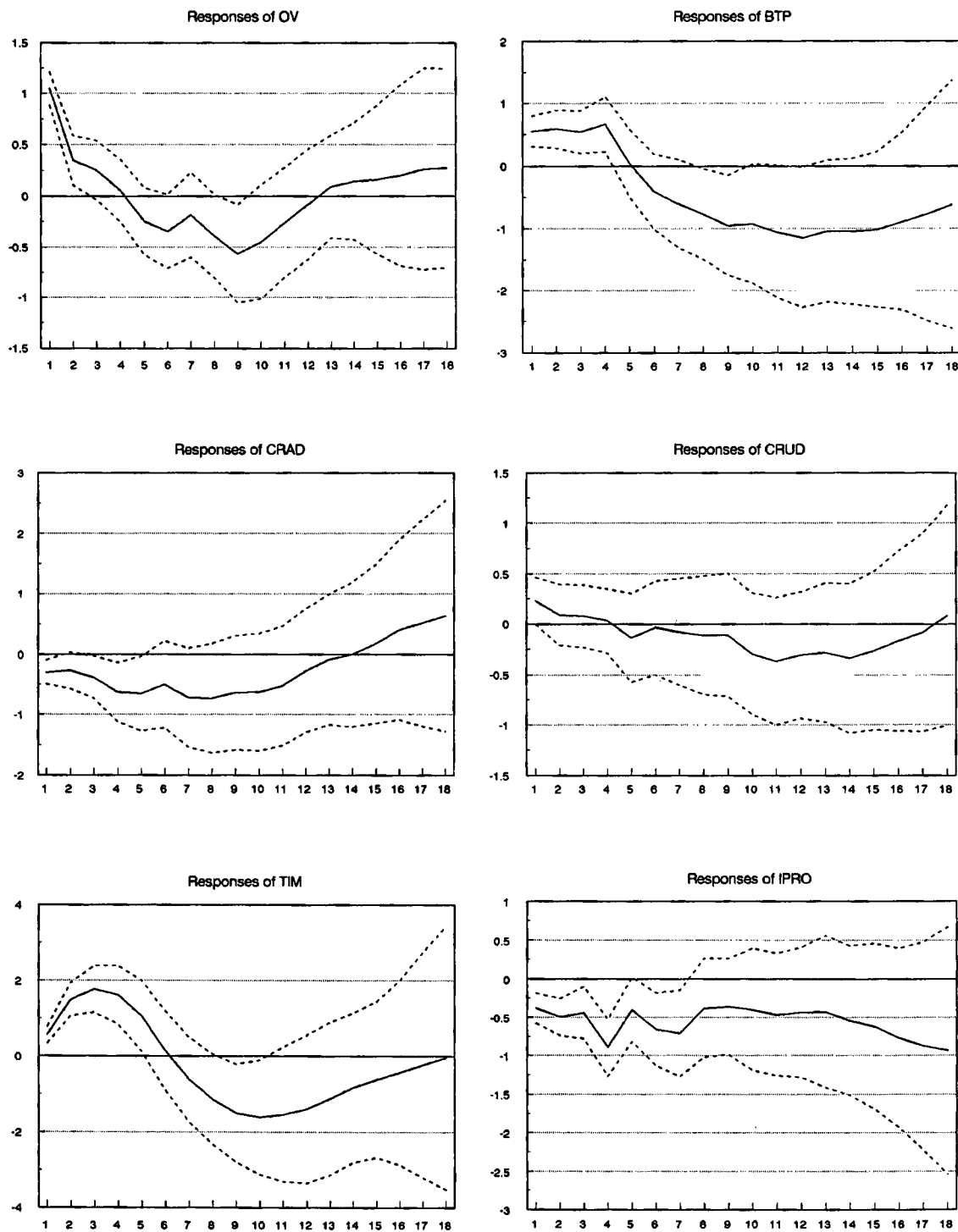


Fig. 9

IMPULSE RESPONSES TO 1% DISTURBANCES TO BTP (monthly data)

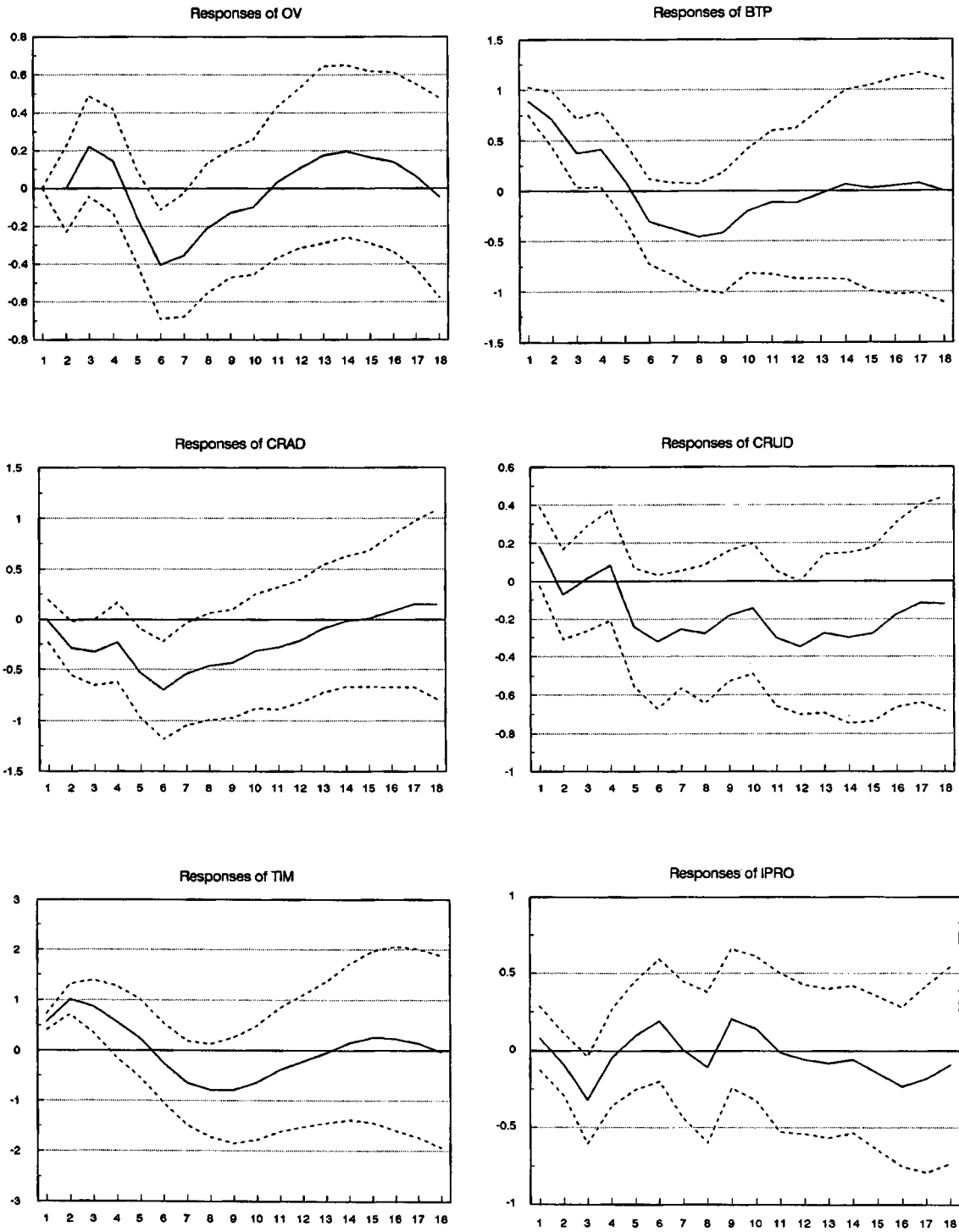


Fig. 10

IMPULSE RESPONSES TO 1% DISTURBANCES TO CRAD (monthly data)

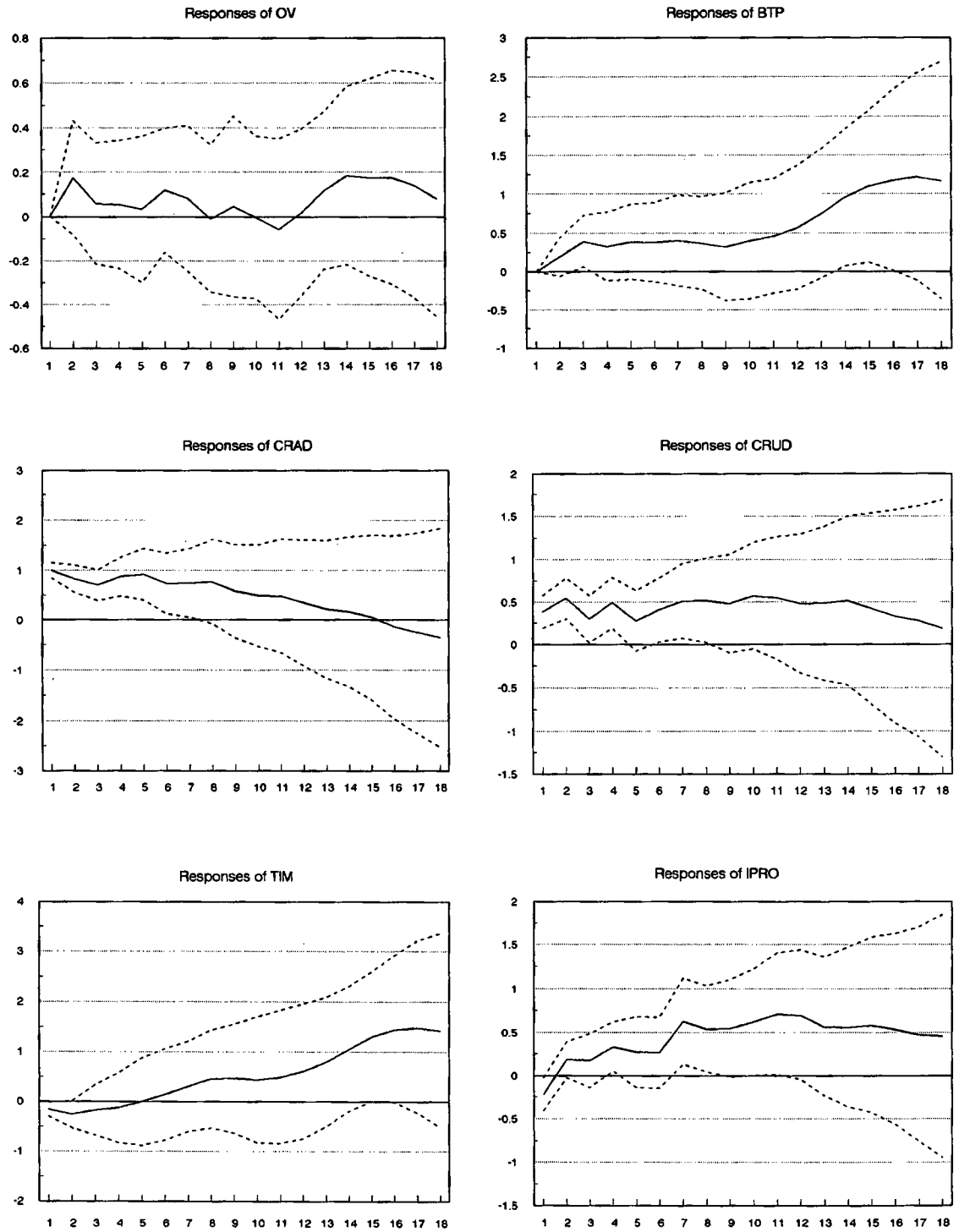


Table 3

VARIANCE DECOMPOSITION OF VARIABLES (*)

Dependent variables	OV	BTP	CRAD	CRUD	TIM	IPRO	TOTAL
OV	62.4	14.1	4.4	5.3	8.9	4.8	100
BTP	43.7	9.0	32.1	6.1	5.3	3.8	100
CRAD	35.0	12.3	47.2	1.2	1.2	3.1	100
CRUD	11.5	14.0	49.5	18.3	4.5	2.1	100
TIM	52.3	10.7	25.4	3.8	5.0	2.8	100
IPRO	40.6	2.6	26.0	9.7	10.0	11.2	100

Notes: Entries are the percentages of the variance of the row variables accounted for by shocks to the column variables at a 18-month horizon. Estimates are based on a VAR model with five months lags of each variable with the same ordering as the row variables.

(*) Rounding may cause the sum of shares to differ from 100.

effects coming via TIM, the variables possibly controlled by banks account for 36 percent of the variance of IPRO. This is also consistent with the existence of a lending channel.

- e) CRUD reacts positively in the face of positive shocks to CRAD, while the reverse is not true. Besides, CRAD accounts for almost half of the variance of CRUD, while the latter accounts for only 1 percent of the variance of the former. Both pieces of evidence seem to confirm our a-priori on the role of CRAD.
- f) Shocks to OV affect negatively IPRO in the short-run and OV accounts for a large portion of the variance of IPRO (41 percent), displaying the relevance of shocks to monetary policy on real activity during this period, no matters through which channel.
- g) There is no evidence of a significant response of IPRO to shocks in BTP, which in the decomposition of the variance of IPRO accounts for a slim 3 percent.

Although more thorough tests are needed, the results described above appeared substantially robust to various changes in the ordering of the variables that were performed. For instance if, taking into account possible simultaneities between TIM and the pair CRAD-CRUD, we position TIM before the two credit quantity variables, the variance decomposition of the model does not show noticeable changes (Table 4).²⁵

²⁵ Nor do the impulse response functions (available upon request) show changes.

Table 4

VARIANCE DECOMPOSITION OF VARIABLES (*)

Dependent variables	OV	BTP	TIM	CRAD	CRUD	IPRO	TOTAL
OV	62.4	14.1	7.9	4.4	6.3	4.8	100
BTP	43.7	9.0	8.5	27.2	7.7	3.8	100
TIM	52.3	10.7	7.4	21.8	4.9	2.8	100
CRAD	35.0	12.3	3.7	44.4	1.4	3.1	100
CRUD	11.5	14.0	4.0	49.2	19.2	2.1	100
IPRO	40.6	2.6	11.1	22.2	12.4	11.2	100

Notes: Entries are the percentages of the variance of the row variables accounted for by shocks to the column variables at a 18-month horizon. Estimates are based on a VAR model with five months lags of each variable with the same ordering as the row variables.

(*) Rounding may cause the sum of shares to differ from 100.

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