Building an Institutional Framework for Monetary Stability: the Case of Italy (1979-1994) *

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1. Introduction

A monetary regime can be defined as the set of rules and institutions shaping the expectations of the public on the future value of money and governing the behaviour of the authorities in such a way as to sustain those expectations (see Leijonhufvud 1984). Two factors typically distinguish present-day monetary regimes: the degree of independence of the central bank and the nominal anchor used for determining the level of prices.

With respect to both these factors, the experience in Italy has been characterised by important developments over the past fifteen years. A number of reforms strengthened the independence of the central bank from the government even in the unfavourable context of a sharp and continuous increase in public debt. While for most of the period under review the nominal anchor was provided by the participation of the Italian lira in the European Exchange Rate Mechanism (ERM), since the abandonment of the ERM in September 1992 monetary policy has followed a monetary rule consistent with inflation targets set by the government.

In presenting the Italian case this paper mainly concentrates on the factors that allowed one type of institutional arrangement to be

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replaced by another and on the consequences of these changes on monetary policy performance. In an often quoted speech delivered at the Annual Meeting of Shareholders in May 1981, the Governor of the Bank of Italy indicated the main institutional features of a system that would ensure monetary stability:[1] first, the power to create money should be independent from the agents that determine expenditure; second, the rules concerning government spending should respect the need to match new expenditures with additional revenue; third, collective bargaining on wages should be subordinated to the goal of monetary stability.

This paper presents the steps that were followed and the obstacles that were met in the implementation of this program. The material presented is in most cases derived from the empirical literature on the subject. The delimitation of the period is somewhat arbitrary since important steps in the definition and construction of the present monetary regime had been taken even before 1979. However, in the period covered the pace of innovation has certainly quickened. Besides, a number of other authors have already extensively covered earlier phases.[2]

Section 2 analyses the changes in the relationship between the Bank of Italy and the Treasury from the "divorce" of 1981 to the reforms implemented at the end of 1993 to comply with the requisites for participation in the European Monetary Union. Section 3 analyses the exchange rate rules that were adopted for most of the period and the more recent experience with a monetary rule. Section 4 makes some concluding remarks.

2. The path to independence

In the literature about central bank independence a distinction is often made between goal independence and instrument independence (Grilli, Masciandaro and Tabellini 1991). In this section I will mainly refer to this latter concept by which I mean the power of the central bank to set instrument variables at the desired level when other

[1] See Banca d'Italia (1981), "The Governor's Concluding Remarks", *Ordinary General Meeting of Shareholders, Abridged Annual Report for the Year 1980*, pp. 180-184.
[2] Caranza and Fazio (1983), Giavazzi and Spaventa (1990), Padoa-Schioppa (1987).

factors and agents affect those same variables. Among those factors the one which played a most significant role is fiscal policy.

In the period under review, the Italian public debt has recorded one of the fastest growths in peacetime. The public debt-to-GDP ratio increased constantly reaching a level of almost 125% in 1994. In recent years serious attempts have been made to alter the dynamics of the ratio. As a result, the primary deficit, i.e. the deficit net of interest payments, was gradually reduced and in 1992 turned into a surplus. Yet, the growth of interest payments on the accumulated debt prevented any significant reduction of the overall budget deficit, hence any slowdown in the growth of the debt.

In sharp contrast with this trend, the Bank of Italy progressively reduced its net financing of the Treasury and more recently even started decumulating its outstanding credit (Chart 1). This occurred even before the enactment in 1993 of a law prohibiting the direct monetary financing of the government, in compliance with the conditions for entry into stage two of Monetary Union.[3] This section presents the main steps followed to achieve this result, the factors that favoured the institutional changes and some of the possible consequences of these changes on monetary policy performance.

2.1. *The situation at the beginnining of the eighties*

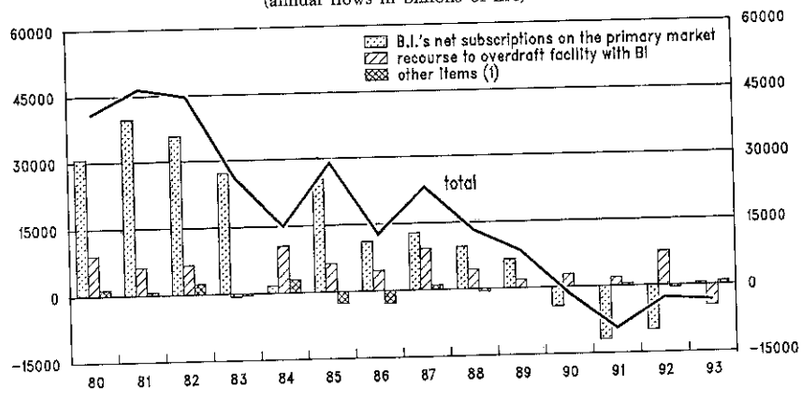
Although the Bank of Italy has traditionally enjoyed a high degree of *de facto* independence, at the beginning of the period under review its ability to control the monetary base and set short-term interest rates was somewhat constrained by a number of institutional arrangements.

First of all, the central bank was obliged to finance the Treasury through two channels: an overdraft facility, which amounted to 14% of total budgeted expenditures for the current fiscal year (see Appendix I), and purchases of unsold public bonds at auctions.[4] Sec-

[3] Article 104, par. 1 of the Maastricht Treaty states that "Overdraft facilities or any other type of credit facility with the ECB or with the central banks of the Member States [...] in favour of Community institutions, or bodies, central governments [...] shall be prohibited, as shall the purchase directly from them by the ECB or national central banks of debt instruments".
[4] Since 1975 the Bank of Italy had operated under an agreement with the Treasury to buy all the public paper not subscribed by the market.

CHART 1

MONETARY BASE OF THE TREASURY
(annual flows in billions of lire)



(1) State notes and coins, sundry services on behalf of central government and other minor items. The figure for 1983 also includes an extraordinary advance of 8 trillion lire to the Treasury.
Source: Bank of Italy.

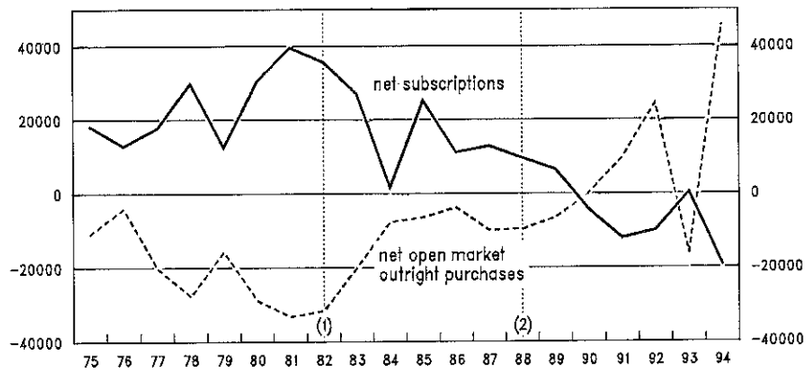
ondly, two formal constraints affected interest rate movements: the power to modify the discount rate was assigned by law to the Treasury, which acted upon proposal of the Bank of Italy; the Treasury also used to set a ceiling rate on government securities issues.[5]

These features did not imply that fiscal policy "dominated" monetary policy. Although the Bank was committed to buy all unsold paper, it could then resell it on the market: Chart 2 shows an almost perfect negative correlation between net subscriptions by the Bank of Italy and net open market purchases. Nevertheless, the institutional arrangements for financing the Treasury unquestionably complicated monetary base management. For instance, in 1981 net subscriptions at Treasury bill auctions amounted to 4.6 times the total monetary base created in that year. In periods of rapidly rising interest rates, the Bank of Italy suffered an income loss, selling bonds below their

[5] The maximum rate was set by fixing a floor price for bids at auctions. Until 1981, this latter constraint was seldom binding because the ceiling rates were set by the Treasury at a distance from market rates and the volumes supplied were large with respect to demand. In a detailed study of Treasury bill auctions between 1975 and 1980, M.T. Salvemini (1983, p. 34) concluded that "the Bank of Italy always exerted adequate control over interest rates, in the sense that the rate it offered was nearly always the tender rate".

CHART 2

BANK OF ITALY OPERATIONS IN GOVERNMENT SECURITIES
(annual flows in billions of lire)



(1) "Divorce".
(2) Abolition of floor price; launching of screen-based market.
Source: Bank of Italy.

original purchase price. Thus, by intervening in the secondary market, the monetary authorities in normal circumstances could achieve the desired amount of money creation. But in periods of instability, or when interest rates were rapidly rising, the risks of being forced to monetize part of the debt were large. Furthermore, the current account overdraft facility acted as a portfolio constraint on the balance sheet of the Bank of Italy: in the first half of the Eighties the stock of the overdraft facility rose from 24.5% to 45.8% of the central bank's total assets.

2.2. *The "divorce" and the problem of control over short-term rates*

A first set of reforms took place in the aftermath of the second oil crisis. In the uncertainties generated by rapidly rising inflation, the Treasury increasingly relied on the direct support of the Bank of Italy to finance its deficit. The market was willing to subscribe only very short-term government securities: the average maturity on new debt fell below 6 months (Chart 5). The perception that a further deterioration of market conditions might greatly increase the likelihood of

debt monetisation acted as a catalyst to introduce a number of reforms.[6]

One of these reforms concerned the system of reserve requirements. To neutralise the effects of the Treasury's overdraft on monetary base creation, the constraint on the central bank's balance sheet was matched with a similar one on the asset side of commercial banks' balance sheets, in that, the growth in the stock of compulsory reserves paralleled that of the Treasury overdraft facility. Only in recent years has the stabilisation of the credit drawn on this facility allowed a reduction in reserve requirements.

The most important single measure, however, was the so-called "divorce" between the Bank of Italy and the Treasury.[7] In May 1981 the Governor underscored the "pressing need for the Banca d'Italia to cease purchasing Treasury bills not placed at the tenders".[8] In July of that year, owing to a number of political circumstances,[9] the Treasury Minister agreed that the Bank of Italy should cease to act as the residual purchaser of public debt.

In what sense did the "divorce" improve the central bank's ability to control monetary base creation? As Chart 2 shows, net subscriptions of government securities by the Bank peaked in 1981 and declined almost uninterruptedly in following years. However, this simply implied a parallel decline in net open market sales of Treasury bonds.

According to Tabellini (1987), the effect of the "divorce" was to create uncertainty about the future conduct of the monetary authorities in financing the Treasury. This, in turn, provided an incentive for a less accommodating monetary policy and enhanced the credibility of the central bank. By refusing to subscribe securities the Bank could increase the visibility of difficulties in financing the deficit. Indeed, as Chart 3 shows, after the Bank of Italy ceased to act as residual buyer, considerable volumes of securities often went unsold.

[6] The fact that the Bank of Italy strengthened its autonomy in these unfavourable circumstances provides support to the view according to which the gains from independence are higher the greater are the time inconsistency problems – such as those generated by the stock of public debt (Cukierman 1994, Lippi and Swank 1994).

[7] Padoa-Schioppa (1987, p. 277) considers it a "milestone in the evolution of monetary policy". Likewise Tabellini (1987) refers to it as to a "monetary regime change".

[8] See Banca d'Italia (1981, p. 181), "The Governor's Concluding Remarks", *Ordinary General Meeting of Shareholders, Abridged Annual Report for the Year 1980.*

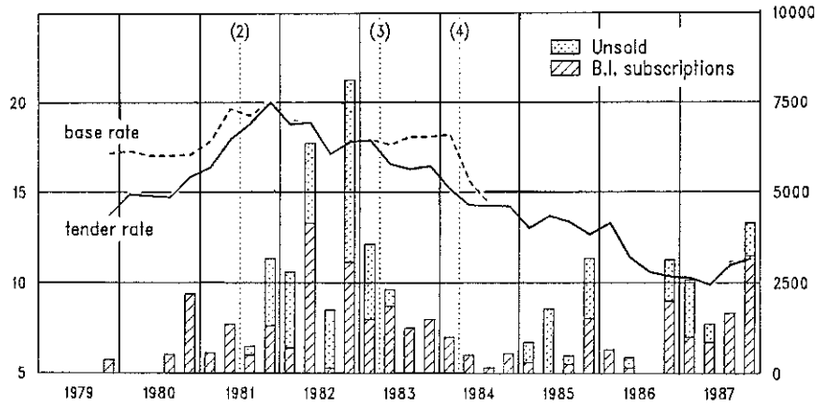
[9] "[It was] a single strategic decision on the part of a fragile Italian government intent on binding the hands of its successors and forcing on them greater price stability and lower deficits" (Goodman 1992, p. 181). On the "divorce" see also Epstein and Schor (1986).

However, we should also recall that following the "divorce" the Treasury demanded greater control over the conditions affecting the cost of borrowing. In the absence of central bank intervention, the Treasury feared increased volatility of interest rates and perhaps a rise in their level, because of imperfections in the financial markets and in the auction mechanism.[10] Therefore the Treasury began to set the floor price in such a way as to close the gap between the maximum auction yields and market interest rates.[11]

In its interventions in the market, the Bank was constrained by the Treasury's limits on short-term interest rates.[12] The complications

CHART 3

BASE RATES (1), TENDER RATES (1), BANK OF ITALY SUBSCRIPTIONS AND UNSOLD SECURITIES AT 3-MONTH T-BILL AUCTIONS
(quarterly data)



(1) Simple rates.
(2) "Divorce".
(3-4) 3-month T-Bill base rate decoupled from market rates.
Source: Bank of Italy.

[10] At that time the auction mechanism was based on the uniform price system, under which the bid of the marginal buyer sets the rate for the entire issue. If demand is chronically insufficient (as was the case in those years) there is a risk that an anomalous low bid may raise the cost of the entire issue for the Treasury. See Buttiglione and Prati (1991) and Buttiglione and Drudi (1994).

[11] According to Salvemini (1983) the main reason for the "divorce" was to relieve the Bank of Italy from political pressures to set interest rates and to correct the anomaly of a Treasury being dangerously "irresponsible" for the cost of financing its deficit. Dissatisfaction about this aspect of the "divorce" was instead expressed by Padoa-Schioppa (1987, p. 277).

[12] In 1983 and in the first half of 1984, when the Treasury temporarily abandoned the practice of controlling rates through the floor price for 3-month Treasury bills all issues were fully subscribed on the primary market (see Chart 3).

stemming from this aspect of the "divorce" are visible in Chart 4, which shows that the Bank continued to provide some form of support to its divorced partner. In each quarter until the end of 1983 the Bank acted as a net subscriber of government paper. In the following years these interventions were less continuous, but there was a clear negative correlation between the cover ratio – i.e. the ratio of market demand with respect to the supply of Treasury bills – and net subscriptions by the Bank. This negative correlation was significantly attenuated only in the late Eighties.

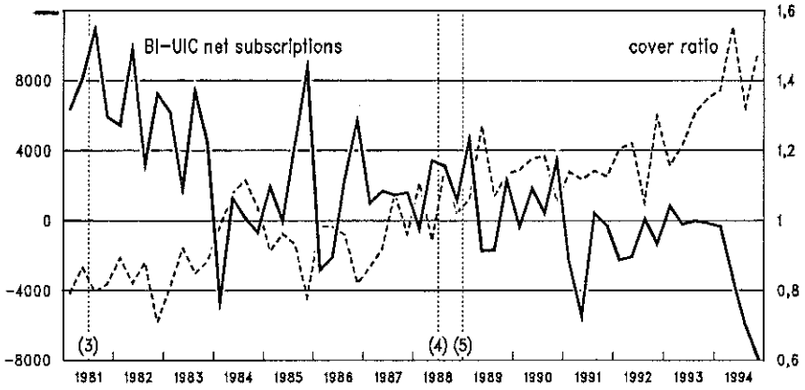
Two questions arise: Why did the Bank of Italy continue to support the Treasury even when it was no longer formally committed to do so? Why did the Treasury not abandon the practice of setting rates earlier?

In answering the first question, we have to bear in mind that the recurrent episodes of insufficient demand at auctions posed a difficult dilemma for the Bank: either monetise part of the debt immediately or let the subscription crisis break out, with the risk of a snowball effect eventually forcing an even greater monetisation.

In the well known episode at the end of 1982, the Bank did allow the subscription crisis to break out. As Chart 4 shows, in the

CHART 4

TREASURY BILL AUCTIONS: BANK OF ITALY NET SUBSCRIPTIONS (1) AND COVER RATIO (2)
(quarterly data)



(1) Billions of lire.
(2) Market demand/supply.
(3) "Divorce".
(4) Abolition of floor price at 3-month T-bill auctions.
(5) Abolition of floor price at 6 and 12-month T-bill auctions.
Source: Bank of Italy.

last quarter of 1982 the cover ratio reached its historic low. That period was characterised by difficult market conditions that exerted an upward pressure on interest rates. Yet the Treasury did not adjust the maximum rate as sharply as suggested by the Bank of Italy. To avoid adverse effects on monetary base creation the Bank raised the rates on repos. With higher rates on the secondary market, primary market demand fell. The Treasury soon exhausted its overdraft facility, but the Bank refused to make further purchases of Treasury bills. The government was thus forced to propose an extraordinary one-year advance from the central bank, which parliament immediately approved.

This episode highlighted the central bank's change of attitude after the "divorce", but it also revealed the limits of the procedure envisaged to solve the conflict with the Treasury. The law provided that the Bank should suspend payments on behalf of the Treasury twenty days after notifying it that the overdraft limit had been exceeded. However, as suspension of payments implies the repudiation of existing contracts and a *de facto* declaration of default, Parliament did not seriously contemplate denying the extraordinary advance. In other words the weapon wielded by the central bank to exert its autonomy was too destructive to be credible. What the Bank lacked were tools for more "ordinary warfare", such as the ability to move interest rates freely without triggering a financial crisis.

To explain why the Treasury was reluctant to ease its grip on interest rates, we should consider that in the early Eighties Italian financial markets were still highly imperfect; the fear that in the absence of a reference point interest rates would become more volatile was not unfounded. Furthermore these years were characterised by exceptionally high – though declining – interest rates, which accentuated the concern for the cost of financing government deficits.

2.3. *The reform of the money and financial markets and the liberalisation of capital movements*

In the last four years of the decade two major sets of structural reforms took place: those aimed at strengthening the domestic money and financial markets (see Appendix II for a detailed chronology; see also Padoa-Schioppa 1987) and those aimed at eliminating restrictions on capital movements (see Appendices II and III). Both reforms

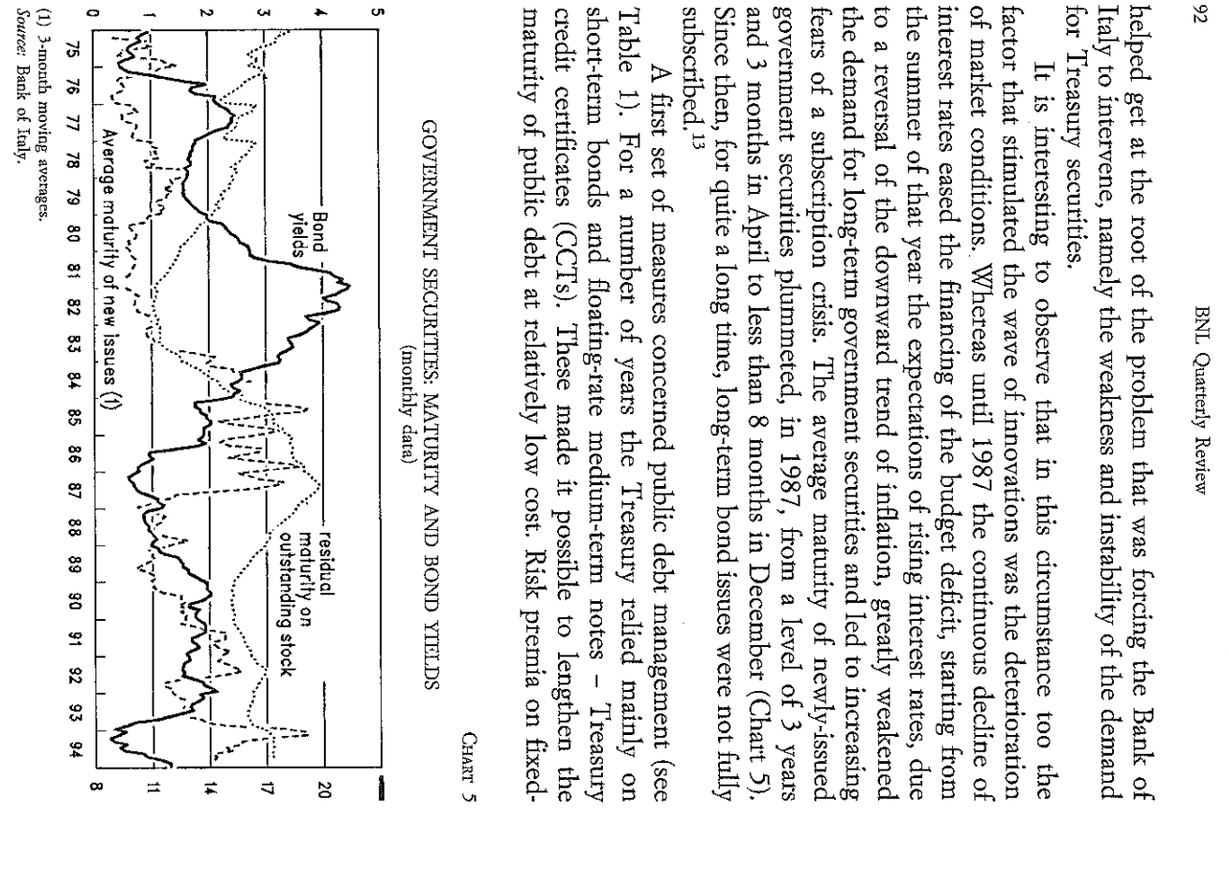
helped get at the root of the problem that was forcing the Bank of Italy to intervene, namely the weakness and instability of the demand for Treasury securities.

It is interesting to observe that in this circumstance too the factor that stimulated the wave of innovations was the deterioration of market conditions. Whereas until 1987 the continuous decline of interest rates eased the financing of the budget deficit, starting from the summer of that year the expectations of rising interest rates, due to a reversal of the downward trend of inflation, greatly weakened the demand for long-term government securities and led to increasing fears of a subscription crisis. The average maturity of newly-issued government securities plummeted, in 1987, from a level of 3 years and 3 months in April to less than 8 months in December (Chart 5). Since then, for quite a long time, long-term bond issues were not fully subscribed.[13]

A first set of measures concerned public debt management (see Table 1). For a number of years the Treasury relied mainly on short-term bonds and floating-rate medium-term notes – Treasury credit certificates (CCTs). These made it possible to lengthen the maturity of public debt at relatively low cost. Risk premia on fixed-

CHART 5

GOVERNMENT SECURITIES: MATURITY AND BOND YIELDS
(monthly data)



(1) 3-month moving averages.
Source: Bank of Italy.

[13] In a period of rising interest rates the Treasury often had to face a difficult choice between keeping the base price close to the tender price, with the risk of weakening the demand of the public, and lowering the base price, with the risk of sending an undesired signal to the market.

TABLE 1

GOVERNMENT DEBT FINANCING AND ORGANISATION OF FINANCIAL MARKET: MAIN REFORMS

	1981/1987	1988	1989	1990	1991	1992	1993	1994
DEBT MANAGEMENT central bank direct credit							Prohibition of any direct financing	
new debt instruments	1st issue of CTE (1982)	1st issue of CTOs and of 5- and 7-year CCTs		7-year BTPs	10-year BTPs		30-year BTPs; 1st global bond	
PRIMARY MARKET central bank purchases	"Divorce" (1981)							
auctions	Treasury bills: mid month (1981) - competitive for 3 months (1983) and for 6 months (1984)	Competitive for 12-month Treasury bills; uniform price for BTPs		Uniform price for CCTs				
abolition of floor price		3-month Treasury bills	6-, 12-month Treasury bills			BTPs and CCTs		
SECONDARY MARKET organised spot markets		Screen-based market for Gvm securities (MTS)	Treasury bills traded on MTS					Reform of MTS with introduction of market specialists
derivatives					Future contracts on BTPs traded on LIFFE	Italian Futures Market; Eurolira futures traded on LIFFE		Options on futures on BTPs traded on MIF
MONEY MARKET organised market				Screen-based market for interbank deposit (MID)				
liquidity facility	Credit to banks acting on the Treasury bill primary market (1984)			Mobilization of compulsory reserve deposits				No credit facility to banks acting on Treasury bill primary market
settlement system			Electronic clearing and settlement	Real-time CAT for securities clearing				

Source: Bank of Italy.

rate securities would in fact have been particularly high in a period of high and variable inflation. However, CCTs also had some negative consequences for monetary policy since they made the cost of debt servicing very sensitive to interest rate variations and created a direct, positive link between disposable income and interest rate changes.[14] In the latter part of the Eighties and in the early Nineties the Treasury widened its range of instruments and increased the proportion of longer-term fixed-rate securities.[15] The range of maturities now available, from three months to thirty years, is comparable to that found in the most highly developed financial markets.

Another important set of measures involved the techniques of placing government paper. Between July 1988 and March 1989 the Treasury progressively eliminated floor prices at Treasury bill auctions; in August 1992 it also completely liberalized the price of long-term bonds. Competitive bid auctions, in which buyers purchase securities at their bid prices, were extended to all Treasury bill issues. In 1988 and 1989 uniform price auctions were adopted for long-term bonds. As Buttiglione and Prati (1991) and Buttiglione and Drudi (1994) show, the extension of auction systems to all issues and the design of the most appropriate system for each segment of the market improved the trade-off between the cost of borrowing and the need to ensure availability of funds.

A third set of reforms radically reshaped the secondary market for government paper. The existence of a well developed secondary market with operators that ensure continuous trading indirectly spurs demand on the primary market for two reasons. First, it increases the liquidity of public debt instruments. Second, it increases the information content of interest rates. A screen-based secondary market for

[14] They also ended up being a rather costly instrument for the Treasury since they yield a positive spread with respect to Treasury bills, which cannot be explained only in terms of a premium on longer-term maturities. According to Alesina, Prati and Tabellini (1990) the crisis of CCTs was accentuated by the perception that the monetary authorities, through floor prices, were manipulating the indexation parameter, namely the Treasury bill rate. This system of indexation could give rise to a time-inconsistency problem, the government being tempted to keep the value of the parameter high when the debt is issued and to reduce it once the private sector has accumulated a sufficiently large stock of securities. Other factors that might have contributed to the sharp fall in the prices of indexed securities were a change in taxation that took place in those months and the lags in the indexation mechanism, which could result in capital losses in a period of rapidly rising yields.

[15] On the advantages of lengthening the maturity see Alesina, Prati and Tabellini (1990).

government securities was launched in May 1988. Turnover on this market reached 1.3% of GDP in 1993 (Table 2). In the early Nineties derivative markets were introduced. More recently, the screen-based market has been reorganised to meet increased competition from the London International Financial Futures Exchange.

A fourth set of measures affected the money market and the settlement system. Improvements in securities trading required parallel developments in the procedures adopted by operators to adjust their liquidity positions and settle the underlying obligations. Market participants need smooth clearing and settlement systems to minimize transaction costs and counterparty risk (Angelini and Passacantando 1993). The key reforms in this area were the creation of a computerised clearing and settlement system in 1989, the introduction of a screen-based market for interbank deposits in 1990, which also experienced a rapid growth of turnover (Table 2), and the reform of the compulsory reserve regime in October 1990. This latter reform strengthened the role of interbank interest rates as transmission belts of monetary policy.[16]

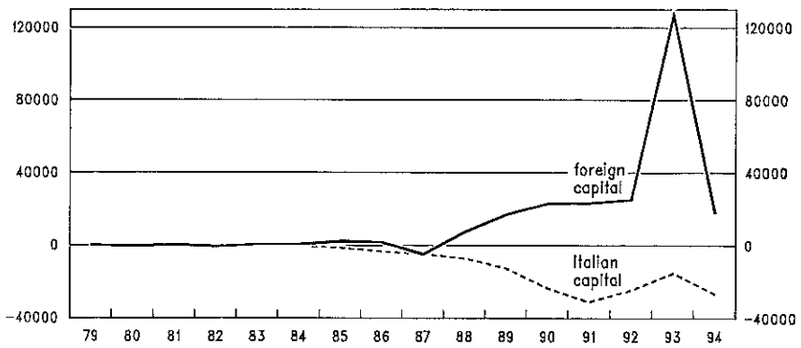
Moreover, between 1987 and 1990 capital movements were progressively liberalised to comply with the requirements set by the EC for the Single Market (see Appendix III). The most important measure became effective on October 1, 1988, when most capital movements, except those involving monetary instruments, were liberalised. The fear that liberalisation would create massive outflows of capital proved to be unfounded. Indeed, substantial portfolio adjustment by Italian residents (see Chart 6) was more than matched by a simultaneous capital inflow which resulted in a net inflow of funds. This contributed powerfully to the abandonment of any attempt to insulate domestic interest rates from the international financial markets. Annual gross financial transactions with foreign counterparties, as recorded by balance-of-payments statistics, rose from 60% of GDP in 1987 to over 3.5 times GDP in 1993.

To what extent did these reforms strengthen Italy's financial markets? Was there not a market for government securities, albeit not organised, even before the introduction of these reforms, as is argued, among others, by Tabellini (1987) and Padoa-Schioppa (1987)?

[16] The reserve requirement is now computed as a monthly average; commercial banks are allowed to mobilise a fraction of their reserve deposits within the maintenance period.

CHART 6

NET PORTFOLIO INVESTMENTS
(billions of lire)



Source: Bank of Italy - U.I.C.

Unfortunately no data exist on the volume of trading in government securities before the creation of organised markets. But a good indirect indication can be derived from the data on clearing systems, whose growth in most countries largely reflects the volume of transactions in the wholesale money, financial and foreign exchange markets.

These data unquestionably confirm a strong development of trading volumes in the latter part of the Eighties and in the early Nineties. Turnover in domestic clearing systems accelerated after 1987, soaring from 4.5 times GDP in 1988 to 25.9 times in 1993 (see Table 3). A more specific indication is provided by data on government securities clearing. The turnover of government securities amounted, in 1993, to 7 times the outstanding stock in the market. Until 1989 this ratio has always been less than one (Table 3).

2.4. *From de facto to de jure independence*

The reforms described so far implied no change in the legal status of the Bank of Italy. Even the "divorce" required no more than an agreement that could in principle be reversed by a governmental decision, without even the need for parliamentary approval.[17] In

[17] The obligation for the Bank of Italy to purchase Treasury bills unsold at auctions in the second half of the Seventies was simply enacted by a Directive of the Interministerial Committee for Credit and Savings (see Appendix I).

TABLE 2

TURNOVER ON ORGANIZED, SCREEN-BASED, INTERBANK AND GOVERNMENT SECURITIES MARKETS

Year	Interbank deposits		Government securities	
	Trillions of lire	Ratio to GDP	Trillions of lire	Ratio to GDP
1988			42[1]	..
1989			72	0.1
1990	1,312[2]	1.0	427	0.3
1991	2,141	1.5	1,224	0.9
1992	3,852	2.6	1,655	1.1
1993	5,228	3.4	2,043	1.3
1994[3]	5,247	3.2	3,902	2.4

[1] As from May 1988.
[2] As from February 1990.
[3] Provisional.
Source: Bank of Italy.

TABLE 3

FUNDS HANDLED BY THE CLEARING SYSTEMS

Year	Payments' clearing[1]		Government bonds' clearing[2]		
	Trillions of lire	Ratio to GDP	Trillions of lire	Ratio to GDP	Ratio to stock of Gov. securities
1979	735	2.4	8	..	0.1
1983	2,434	3.9	11	..	..
1987	4,929	5.0	192	0.2	0.3
1988	4,892	4.5	227	0.2	0.3
1989	8,365	7.0	366	0.3	0.4
1990	16,241	12.4	1,252	1.0	1.3
1991	20,377	14.3	2,923	2.0	2.8
1992	29,053	19.3	4,054	2.7	3.5
1993	40,476	25.9	9,266	5.9	7.0

[1] Total gross flows of payments handled by the Bank of Italy's and nation-wide clearing system.
[2] Gross flows of Government bonds handled by the clearing and settlement system of securities transactions.
Source: Bank of Italy.

more recent years, however, mainly in response to the requirements of the Maastricht Treaty for participation in the EMU, parliament has made a number of important legal and institutional changes concerning the use of monetary instruments and the monetary financing of the Treasury.

In 1992 the central bank was empowered by law to set the discount rate. In 1993, the power to vary reserve requirements – which had been a prerogative of the Interministerial Committee Credit and Savings – was assigned to the Bank of Italy within limits established by the law (see Appendix I). The same legislation abolished the overdraft facility and prohibited advances of any kind by the Bank of Italy to the Treasury. At present, the Bank does still act as cashier for the Government, collecting receipts and making payments, but through an interest-bearing account for the Treasury that cannot have a negative balance. To ensure a sufficiently large balance, the law establishes that when certain thresholds are breached the Government must report to parliament so that corrective measures can be taken. In the hypothetical case of a lack of funds, the Bank must immediately suspend payments on behalf of the Treasury.

This law has at last corrected an anomalous form of privileged financing of the Treasury, thereby creating the conditions for the removal of the portfolio constraint implicit in the previous mechanism: the outstanding credit on the overdraft facility was converted in November 1994 into bonds with an average maturity of thirty years.

2.5. *Assessing the effects of greater independence*

The reforms analyzed in this section made base money creation independent from the need to finance the government. As Chart 4 shows, net subscriptions of Treasury bills by the Bank of Italy diminished in the course of the Eighties and became negative in the early Nineties. The problem that was forcing the central bank to intervene, namely the weakness of the demand for government securities, gradually disappeared: since 1989 demand has always been greater than supply. The central bank no longer intervened to finance the Treasury directly, even in moments of great tension in financial markets, as it happened in September 1992.

The extent to which the "degree of dominance" of fiscal policy over monetary policy has lessened may be assessed by looking at the reaction of the central bank to sudden increases or decreases in the public sector borrowing requirement. Such an analysis has been carried out by Gaiotti and Salvemini (1992) using the monthly money market model of the Bank of Italy (Angeloni 1994). They show that whereas at the beginning of the eighties a shock in the deficit had a repercussion on the monetary base amounting to nearly 20% of the original impulse, at present a similar shock has almost no impact on monetary base creation.

Two questions arise: What consequences has greater independence had for the ultimate aim of monetary policy, that of reducing inflation?[18] Has the change of attitude of the central bank towards financing the government resulted in a more rigorous attitude of the government itself towards its budgetary policies? Here we will restrict to a few remarks, mainly of a methodological nature.

First, the Bank of Italy has traditionally enjoyed a high degree of *de facto* independence and has used its reputation to influence government decisions in monetary policy matters. For instance, between the end of 1979 and March 1981 the discount rate was raised from 10.5% to 19.0%, one of the steepest rises in recent history, even though at the time changes in the discount rate were still formally decided by the Treasury Minister. Also, besides open market operations other monetary policy instruments were extensively used, such as reserve requirements and credit ceilings, which in a number of circumstances until mid-1983 greatly contributed to restraining domestic demand.[19] Similarly, the restrictions on capital movements that were in effect for most of the Eighties facilitated the use of the exchange rate as an antinflationary policy tool. Therefore one could not expect, *a priori*, an immediate change in the relationship between monetary policy and inflation as a result of the implementation of the reforms that led to greater central bank independence.

It is nevertheless hard to deny that greater central bank independence did improve the performance of monetary policy in some

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[18] A large body of literature has dealt with this issue in past years. See for instance Grilli, Masciandaro and Tabellini (1991), Posen (1993), Goodhart (1994). See also Akhtar and Howe (1991), Ciocca (1992), de Haan and Sturm (1992) and Eijffinger and Schaling (1993).

[19] Credit ceilings were abolished because of their strong negative consequence on bank competition and because they eventually became ineffective. They were reintroduced twice, for periods of six months, in January 1986 and September 1987.

specific respects. The reforms greatly enhanced the flexibility of short-term interest rates and the ability of the central bank to steer them. As Chart 7 shows, the increase in the discount rate in response to inflationary pressures was much swifter and faster in 1994 than in previous turning points of inflation. Furthermore, the greater competitiveness of financial markets, besides improving the overall efficiency of banking and financial markets, increased the speed of reaction of market rates to official rate changes (Cottarelli, Ferri and Generale 1995).

The second question is even more complex. In Italy, the idea that greater central bank independence reduces the likelihood of fiscal irresponsibility has traditionally received broad support (Bruni and Monti 1992). According to this view, if monetary authorities were able to precommit their policies and exogenously fix the amount of monetary financing of the budget deficit, the fiscal authority would necessarily take this constraint into consideration. Higher deficits would lead to higher interest rates which would in turn imply higher future taxes to repay the debt.

Empirical tests of this hypothesis have not given satisfactory results.[20] There are two weak points: the first is to assume far-sighted fiscal authorities, a hypothesis very distant from reality especially in a country like Italy, with its fragmented political system and short-lasting governments. In this context higher interest rates would not necessarily discourage governments from running high deficits (Giovannini and Spaventa 1991). Secondly, the factors that contribute most to central bank independence usually also facilitate the financing of government deficits on both domestic and foreign markets.[21] As shown above, less monetary financing of the deficit by the central bank could only be achieved when a number of reforms had been enacted to facilitate the financing of the Treasury by private sector agents.

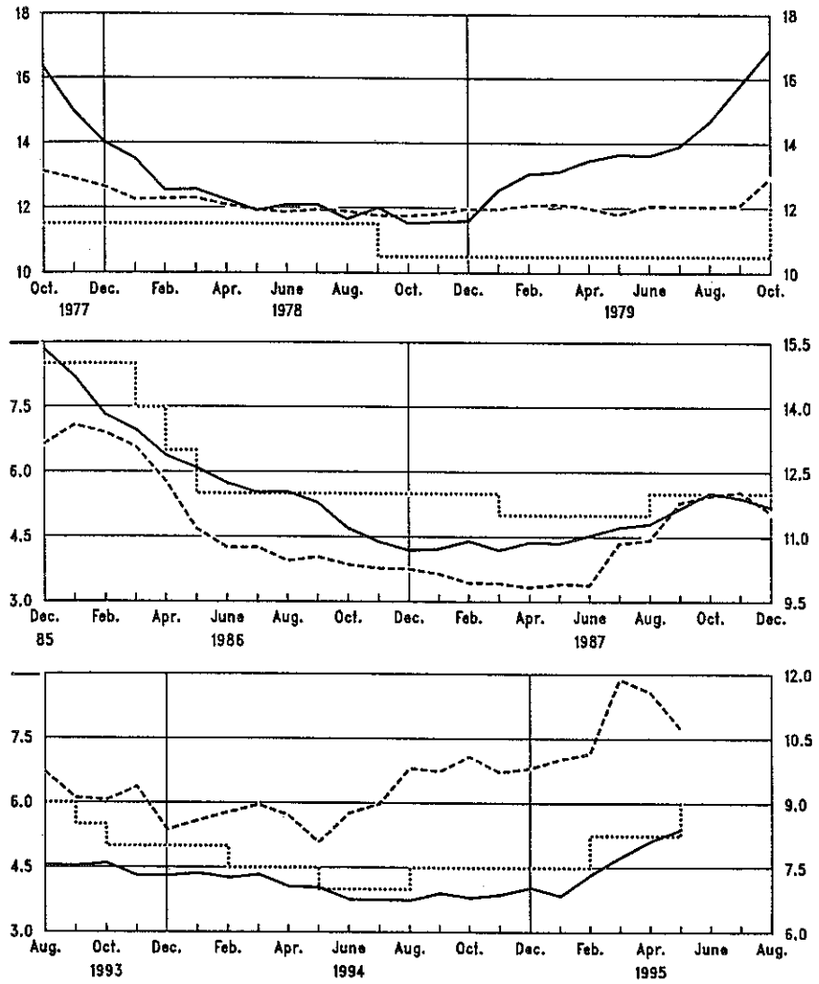
Nevertheless, one cannot deny that well functioning and integrated financial markets are an important monitoring device of gov-

[20] See Parkin (1986). Tabellini (1987), in an analysis of the effect of the "divorce" on deficit monetisation, claims that the lack of clear effects might be due to the fact that the monetary reform was still not completed when the analysis was carried out.

[21] A possible perverse effect of capital movement liberalisation on fiscal discipline has been highlighted, among others, by Giovannini and Spaventa (1991). Furthermore, by reducing inflationary expectations central bank independence might reduce the costs of government financing, as pointed out by Cukierman (1994).

CHART 7

THE DISCOUNT RATE AND TREASURY BILL RATES
IN THREE INFLATIONARY CYCLES
(percentages)



[1] Rate of increase in consumer prices over the previous twelve months; the figures for the last two months are estimated on the basis of the cost-of-living index.
[2] Average pre-tax allotment rate in the auctions held during the month.
[3] End-of-month data.

ernment action, since any delay in fiscal adjustment has an immediate effect on expectations and on long-term interest rates. In the long run this might result in greater discipline on government budgetary policies.

3. The disinflation process under alternative exchange rate regimes and policy rules

This section analyses three successive exchange rate arrangements in force between 1979 to 1994 and the monetary policies followed in the three periods. The purpose is to derive from the recent Italian experience some lessons concerning the relative merits of exchange rate rules with respect to monetary rules as devices to reduce moderate inflation.

Policy rules will be analysed by looking at three different aspects. The first is the *direct effect* on costs and prices. Since the adoption of any rule implies the movement and control of a policy instrument, it is important to consider the effects of that policy variable on the economy. For instance, while an exchange rate rule has an immediate impact on the economy via the price of imported and exported goods, a monetary rule acts mainly through interest rate movements.

The second aspect is the *effect of the policy rule on expectations*. It has long been acknowledged that expectations about future economic developments exert an influence on current economic behaviour. Because of their different degree of transparency different rules have different effects on expectations. For instance, an inflationary targeting system might have a more direct impact on inflationary expectations than a monetary rule.

A third aspect concerns the role that rules play as *coordination devices*. One form of coordination is that concerning private agents expectations and behaviours, which might depend on the "credibility" of the rule followed by the monetary authority. It is by now widely acknowledged that a gain in credibility, obtained by tying one's hands to some kind of rule, can lower inflation or reduce the inflation-output trade-off (Giavazzi and Pagano 1988). A second, more pervasive form of coordination is that affecting the policies of organized

groups such as the labour unions or the government itself. Rules can act as a disciplinary tool or as a commitment device to set wage policies of the labour unions or fiscal policies consistently with the inflationary objectives of the monetary authority. This aspect of a policy rule is often stressed by policy makers.[22] Coordination might result in a mere change of policies within the existing institutional framework or it might even induce changes in the latter. For instance, as will be shown in this section, participation in the EMS created powerful incentives to modify the institutional mechanisms governing wage bargaining.

The period under review is divided into three sub-periods. The first, from 1979 to 1986, was characterised by frequent realignments of the lira within the ERM. As is shown in Chart 8, inflation came down from a peak of almost 22% during 1980 to just above 4% in 1987. In the second period, which started in January 1987 and ended with the crisis of September 1992, the exchange rate remained fairly stable. As in other European countries the trend of disinflation reversed from the second half of 1987 to the end of 1991. The third period, from September 1992 onwards, is characterised by a freely floating exchange rate.

3.1. *1979-86: non-accommodating exchange rate policy*

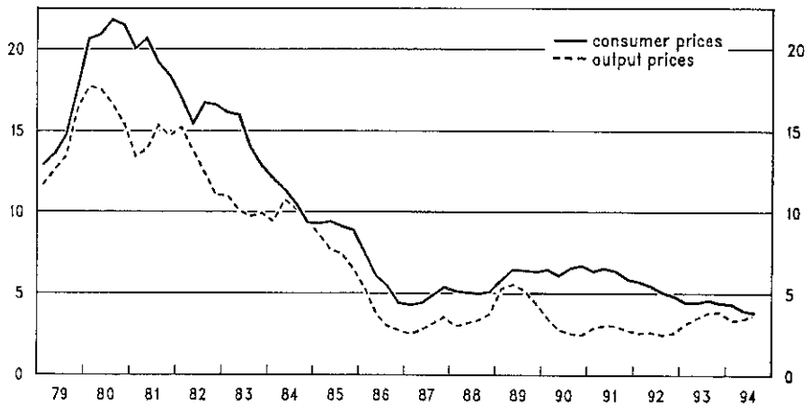
In this period the lira was rather frequently realigned within the EMS,[23] but not to such an extent as to fully offset the faster growth of

[22] In some recent macroeconomic literature on coordination failures, institutions are viewed as mechanisms for selecting one solution in a multiple-equilibrium setting (see, for instance, Bohn and Gorton 1993, and Cooper and John 1988). One of the issues debated is how to enforce the institution of nominal contracts which are generally considered to be socially superior to real or "indexed" contracts. When spontaneous contractual relationships as those envisaged by Bohn and Gorton (1993) do not work, government or legislative action might be needed as occurred for instance in Germany where the law expressly prohibited wage indexation (see Padoa-Schioppa 1987).

[23] The EMS is a monetary cooperation agreement between the countries of the European Community aiming at the creation of an area of monetary stability, which became operational in March 1979. All member countries of the EC participate in the EMS but a smaller number of them also participate in the Exchange Rate Mechanism (ERM), i.e. the agreement which – among other things – sets the bilateral limits of fluctuations between currencies and between each currency and the ecu and determines the rules for central bank intervention.

CHART 8

CONSUMER AND MANUFACTURING OUTPUT PRICES
(percentage changes on a year earlier)



Source: Bank of Italy, based on Istat data.

domestic prices with respect to those prevailing abroad. The result was a real exchange rate appreciation (Chart 9).[24]

Controls on capital movements and a restrictive monetary policy were the two main tools used to defend the lira's parity within the ERM. Since the process of reform described in the previous section was still at an initial stage, monetary policy could not yet rely on market instruments alone. Sharp short-term interest rate increases (Chart 10) were accompanied, at the beginning of the Eighties, by a tightening of reserve requirements and credit ceilings.[25] Although the increase in the degree of stringency was remarkable, only in 1983 did Italian real short-term interest rates nearly equal German ones, as is shown in Chart 11. The difficulties in manoeuvering short-term interest rates to defend the exchange rate, due to the absence of developed money markets, twice led to the reintroduction of credit ceilings in 1986 and at the beginning of 1987.

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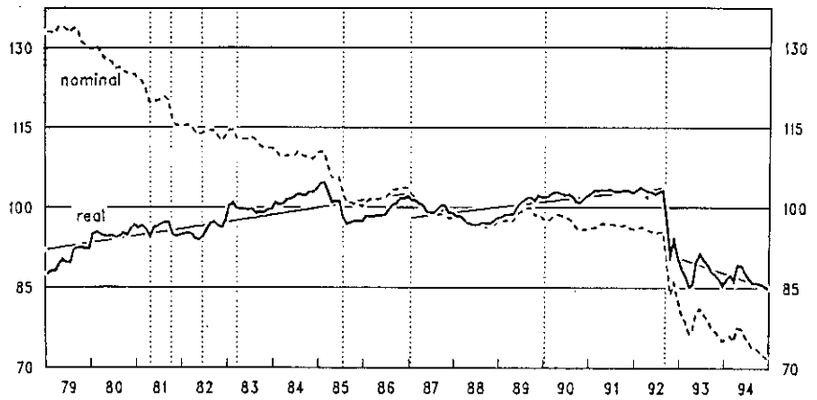
[24] The loss of competitiveness of Italian exports was less severe if measured against all the major trading partners because of the sharp appreciation of the dollar during that period.

[25] Credit ceilings were used together with controls on capital movements and, in particular, with limitations on lending to foreign counterparties. By constraining lira-denominated loans, the ceilings forced borrowers to replace lira-denominated liabilities with liabilities denominated in foreign currency, thereby inducing inflows of foreign currency reserves.

CHART 9

NOMINAL AND REAL EFFECTIVE EXCHANGE RATES OF THE LIRA
VIS-À-VIS THE OTHER EU CURRENCIES (1,2)
(monthly indices; 1987=100)

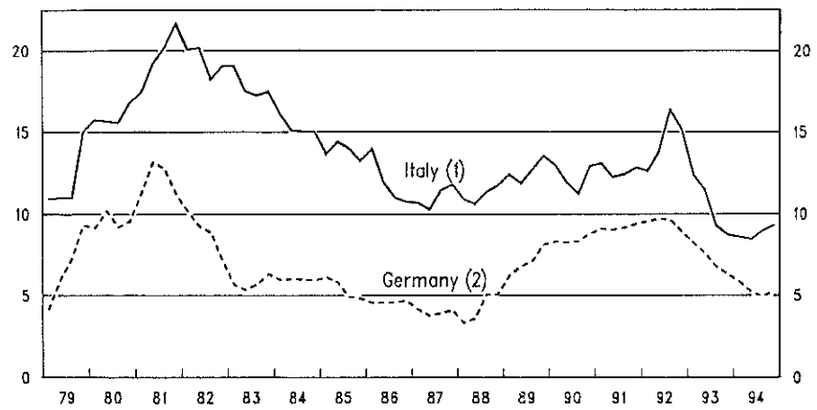


(1) Vertical lines refer to the EMS realignments which significantly affected the lira and the entry of the lira into the narrow band (8 January 1990).
(2) The other EU currencies included in the indices are the following: Belgian franc, Deutsche Mark, British pound, Dutch guilder, Irish punt, Danish krona and Spanish peseta.

Source: Bank of Italy.

CHART 10

SHORT-TERM NOMINAL INTEREST RATES
(quarterly averages)

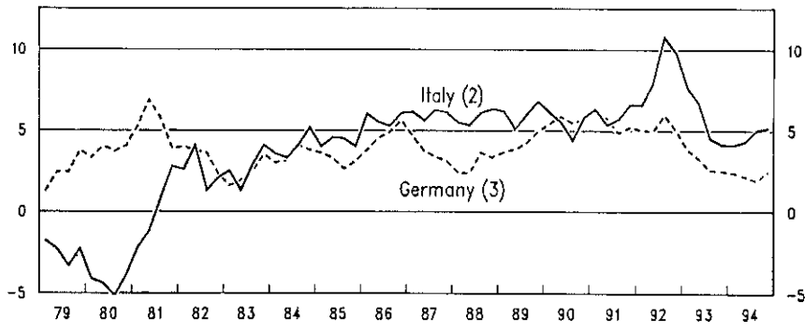


(1) Three-month. Treasury Bills, auction rates.
(2) Three-month bank loans.

Source: Bank of Italy.

CHART 11

SHORT-TERM REAL INTEREST RATES (1)
(quarterly averages)



(1) Gross rates deflated by the changes in consumer prices in the previous 12 months.
(2) Three-month Treasury Bills, auction rates.
(3) Three-month bank loans.

Source: Bank of Italy.

Of the three channels of disinflation, the first played a major role.[26] The real appreciation of the lira, besides limiting aggregate demand, directly affected the domestic prices of imported goods and the pricing decisions of those sectors most exposed to international competition. Manufacturing firms reacted by resisting demands for wage increases[27] and by curtailing labour. Between 1980 and 1985 almost a million workers lost their job in the manufacturing industry; labour productivity in this sector rose by almost 25%.

As far as the second channel of disinflation is concerned, the prevailing opinion is that it took many years for the new exchange rate regime to gain full credibility, not least because of the absence of consistent economic policies (De Nardis and Micossi 1991). According to Giavazzi and Giovannini (1989) and Giavazzi and Spaventa (1994), no clear effect on expectation is visible until six years after entry into the EMS.

This effect is most likely related to the third channel of disinflation mentioned above. After half a decade of participation in the EMS, some progress in policy coordination was achieved. There was a serious attempt not only to resist labor demands but also to

[26] See Gressani, Guiso and Visco (1988) and Giavazzi and Spaventa (1990).
[27] Most notable in this respect is the confrontation that took place with the unions at FIAT in 1980; see Appendix IV and Padoa-Schioppa (1987).

reform the institutional mechanisms for wage-price setting. An experiment with pre-commitment to a disinflation program was implemented in 1984.[28] As is reported in Appendix IV, after a number of events in 1985 and 1986 a new wage indexation system, introduced by law, substantially reduced the degree of coverage of the scheme.

The overall effects of the non-accommodating exchange rate policy on inflation were quite remarkable. As Gressani, Guiso and Visco (1988) show – using a simulation of the quarterly econometric model of the Bank of Italy – the reduction of inflation was mainly the result of a slowdown in the domestic component. Only in 1986 did the effects of the sharp fall in oil prices and the depreciation of the US dollar significantly contribute to disinflation.

Would an alternative rule, based on monetary targeting and a floating exchange rate, have been as successful in reducing inflation? The direct effect of the adoption of a monetary rule relies essentially on the impact of interest rate movements on domestic demand and on the composition of private sector wealth. The effect on wages and prices would materialise to the extent that the slowdown in demand affects employment and – given the Phillips curve – labour costs. As is shown, among others, by Gressani, Guiso and Visco (1988) this effect is much slower and smaller with respect to an exchange rate rule, which has an immediate impact on the agents' pricing decisions.[29]

A monetary rule is credible if the central bank enjoys a high degree of independence and if the demand for money is sufficiently stable. In the period under review the first condition did not fully apply to the Italian case, as we saw in Section 2. Furthermore the demand for money was highly unstable in the early Eighties when banks experienced severe disintermediation. This would have made it difficult for the central bank to "build a reputation" by targeting money.

Most likely, a monetary rule would also have been less effective than an exchange rate rule as a coordination device. In the Italian situation of those years the pressure to solve coordination problems

[28] Nominal wages were set in advance as a function of the target for inflation set by the government.
[29] In their econometric exercise, Gressani, Guiso and Visco (1988, p. 145) simulated the effect of a "shock therapy" that implied raising interest rates, in 1980, by 7.6 percentage points above their actual level. This would have resulted, in 1986, in a reduction of inflation of half a percentage point with respect to the actual one and in a cumulative output loss of 9%.

under a monetary rule regime would have been much weaker than under an exchange rate regime. In a phase in which the institutional framework concerning central banking was being defined and was still largely incomplete, a monetary rule could have generated undue political pressure on the central bank and perhaps even slowed down the institutional evolution towards autonomy. On the contrary, the goal of a stable currency acquired a sort of symbolic value and was shared by a wide range of political and social forces which viewed it as a necessary prerequisite to participating in the process of European integration, a process which in Italy has always enjoyed widespread endorsement.

3.2. *1987-92: a "credible" exchange rate commitment*

After bottoming out at 4.1% in the second quarter of 1987, inflation slowly rose to a peak of 6.8% in the second quarter of 1991. The reduction of the differential with respect to other EC countries came to a halt. Two years after the realignment, the real exchange rate (measured using output prices) started to appreciate again.[30] The total net external position of Italy, which had become negative in 1985, continued to deteriorate in the following years, reaching a maximum of 11% in 1992.

Despite the worsening of the external position, the lira enjoyed a period of relative stability within the EMS. The institutional developments mentioned in the previous section significantly facilitated the manoeuvre of interest rates. The demand at auctions remained relatively stable even in periods of greatest uncertainty. By raising interest rates and directly intervening on the foreign exchange market the Bank of Italy successfully countered the pressures on the lira.[31] In these conditions the government decided to accelerate the liberalisation of capital movements and to join the narrow fluctuation band within the EMS in January 1990.

[30] As shown in Chart 9, appreciation was more moderate in this second phase than in the previous one. However, while in the first phase the appreciation of the dollar offset, to a great extent, the loss of competitiveness of Italian goods, after 1987 the depreciation of the dollar worsened the effect of the loss of competitiveness with respect to European partners.

[31] For a review of foreign exchange crises in the period and the tools used to counter them, see Del Giovane (1994).

The mechanism through which the EMS affected inflation in this phase was markedly different from that of the previous period. Let us first consider the direct effect. The deflationary impact lessened substantially since the sectors most exposed to international competitiveness had already almost completely eliminated their inflation differential *vis-à-vis* their trading partners. In this period the differential between prices in the services sector and those in the manufacturing industry widened more than in other European countries. Since the former is not exposed to foreign competition it was also sheltered from the effects of participation in the EMS.[32] The situation was worsened by the shift of resources that had occurred since the beginning of the Eighties in favour of the sectors that were producing for the domestic market. The openness of the economy, as measured by the sum of exports and imports as a ratio to GDP, fell from a peak of 40.4% in 1981 to 28.9% in 1992. As a result, average inflation remained high and the current account balance deteriorated.

Monetary policy in this period was very effective in sustaining the exchange rate. Money growth did not substantially diverge from target ranges (see Table 4); real rates on short-term T-bills remained relatively high (Chart 11). However, monetary policy could not bring about disinflation on its own, making up for the deficiencies of exchange rate policies in attaining this objective. What prevented from the adoption of a more restrictive stance?

To answer this question one has to consider that the effect of the EMS on expectations was different from that exerted in the previous phase. A number of factors strengthened the credibility of the exchange rate commitment, such as the absence of any realignment for a number of years, the successful short-term monetary manoeuvre, the liberalisation of capital movements and the entry of the lira in the narrow band. In the meantime, the process of European unification gained momentum and led – in December 1991 – to the approval of the Maastricht Treaty. In these conditions large capital inflows at times exerted a downward pressure on Italian short-term rates.[33] For

[32] According to Barca and Visco (1992) and Visco (1994), certain structural features of the services sector, such as its low efficiency, accounted for the faster growth of prices in this sector with respect to those in the manufacturing sector. Given the "structural" origin of inflation in this sector, policies to reduce demand would have had little impact on inflation.

[33] See Angeloni and Passacantando (1991). On the issue of the conflict between domestic demand and inflation, see also Giavazzi and Spaventa (1990) and Giovannini and Spaventa (1991).

TABLE 4

TARGET AND ACTUAL MONEY GROWTH RATES

Countries		1988		1989		1990		1991		1992		1993		1994	
		Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
France	*M2*	4-6	4.0	4-6	4.3	3.5-5.5	-0.5	-	-	-	-	-	-	-	-
	M3 [1]	-	-	-	-	-	-	5-7	3.8	4-6	5-9	4-6.5	-2.1	5	1.2
Germany	*M3* [2]	3-6	6.7	ca. 5	4.7	4-6	5.6	3-5	5.2	3.5-5.5	9.4	4.5-6.5	7.5	4-6	5.7
Italy	*M2* [3]	6-9	8.9	6-9	9.5	6-9	9.9	5-8	9.0	5-7	6.0	5-7	7.9	5-7	2.9
Japan	*M2+CD* [4]	10-11	10.6	9-10	10.0	ca. 11	10.0	ca. 4	2.2	ca. 0	-0.5	2	1.6	1-2	2.7
U.K.	*M0* [5]	1-5	7.4	1-5	5.7	1-5	4.0	0-4	2.4	0-4	2.8	0-4	5.6	0-4	4.5
U.S.A.	*M2* [6]	4-8	5.3	3-7	4.8	3-7	4.0	2.5-3.5	2.9	2.5-6.5	1.9	1-5	1.4	1-5	0.9
	M3	4-8	6.3	3.5-7.5	3.8	2.5-6.5	1.7	1-5	1.2	1-5	0.5	0-4	0.6	0-4	1.4

[1] Medium-term objective since 1994.
[2] In July 1991 the target for M3 was revised from 4-6.
[3] The figure for 1989 is adjusted for the effect of strikes by bank personnel.
[4] Projections only.
[5] Since 1993 monitoring ranges only.
[6] In July 1993 the target for M2 and M3 were revised from 2-6 and 0.5-4.5 respectively.

instance, in the period immediately following entrance into the narrow band the traditional negative correlation between the exchange rate and the interest rate differential did not appear; a positive correlation emerged.[34]

Only a monetary policy that had abated inflation rapidly could have avoided the perverse effect of high nominal rates attracting foreign capital and thereby inducing an expansionary inflow of reserves. It is reasonable to state that such a policy would have been incompatible with staying in the EMS. If monetary policy had simply aimed at maintaining the lira in the upper part of the band, it probably would not have made much difference, as Parigi and Prati (1993) showed.[35] If it had implied a revaluation of the exchange rate it would certainly have been more effective, but at the same time it would have raised considerable opposition both abroad and domestically, where manufacturers were already strained by the steady appreciation of the real exchange rate.[36]

Given that monetary policy by itself was not adequate to defend the exchange rate and that nobody suggested abandoning an exchange rate policy that had until then so effectively constrained domestic price formation, the only solution would have been a better coordination with incomes policy and budgetary policy. Did participation in the EMS create enough incentives to achieve this coordination? From the mid-Eighties onwards fiscal policy made some progress. The deficit net of interest payments followed a downward trend. However, the improvement was too slow to reverse the growth of the debt to GDP ratio. As far as wages are concerned, very generous increases in public sector salaries at the beginning of the Nineties created an imitation effect in the private sector. Negotiations on a new wage indexation mechanism started only in June 1991 and made little progress in the following months (see Appendix IV).

The call for a more coherent overall economic policy became more and more pressing in the analysis of the Bank of Italy in those

[34] In this period monetary policy was also affected – according to Bini Smaghi and Micossi (1989) – by the less restrictive stance followed in Germany after the stock market crash of October 1987, as also pointed out by Ciocca and Nardozzi (1993).

[35] Parigi and Prati (1993) conducted a simulation exercise with the econometric model of the Bank of Italy in which the lira was maintained – by means of higher interest rates – at the upper margin of the band. They found that CPI inflation would have been 0.2 percentage points and 0.4 percentage points lower in 1990 and 1991 respectively than actually occurred.

[36] On this point see also De Nardis and Micossi (1991).

years and in the Governor's remarks at the Annual General Meeting of Shareholders. A feeling of strong urgency is revealed in his "Concluding Remarks" in May 1992:

> "As the deadlines for closer European integration rapidly approach, our economy is passing through a difficult period, faced with pressing problems ... The issues we have examined in this Meeting for many years must be resolved swiftly and decisively by acting now, in the next few weeks".[37]

What happened is well known. Two days later, on June 2, the Danish referendum rejected the Maastricht Treaty. This triggered an unprecedented wave of pressure against the lira that eventually led to the realignment of September 13 and to the suspension from the ERM on September 17 ("Black Wednesday"). Since then the exchange rate of the lira has fluctuated widely.

Can we conclude that participation in the EMS failed to produce a shift towards a more stable monetary regime? Even ignoring the favourable effect that it certainly had on fostering central bank autonomy, the answer to this question is not a simple no. The effects on wage and price setting behaviour and on budgetary policy were very slow. However, at the very end some important results were obtained. In July 1992 wage indexation was completely abolished and wage growth slowed down dramatically. In September 1992, the day after Black Wednesday, the government implemented radical and extremely effective measures to curb the budget deficit. They did not stabilise the debt but succeeded in lowering the budget deficit even in a year of severe recession.[38]

We can therefore conclude that the EMS has been an efficient tool for disinflation in Italy in the years immediately following its birth, when the inflation rate in Italy was still widely divergent from the European average and during its death throes, when it finally exerted enough pressure on trade unions, the Confederation of

[37] Banca d'Italia (1992), "The Governor's Concluding Remarks", *Ordinary General Meeting of Shareholders, Abridged Annual Report for the Year 1991*, p. 147.

[38] Together with the other provisions that had been taken in July 1992 and in the Budget Law approved the previous year, the September measures reduced the potential growth of the deficit by 4% in 1992 and 5% in 1993, compared with 3.2% and 1.8% in 1991 and 1990 respectively. Furthermore most of those measures were of a structural nature with a permanent – albeit limited – effect on pension schemes, health services, employment in the public sector and local authority finance.

Italian Industry and the Government to undertake some crucial steps on the path towards durable monetary stability.[39]

3.3. *1992-94: the experience with flexible exchange rates*

Inflation declined from 5.2% in September 1992 to below 4% in the latter part of 1994. Most strikingly, this result was achieved with a depreciation of the effective exchange rate with respect to Italy's fifteen main trading partners of slightly less than 30%. Furthermore, the current account of the balance of payments showed remarkable improvement. As a result, the net external position of the country reversed the uninterrupted negative trend followed since 1987.

Before concluding that the present monetary regime, characterised by a flexible exchange rate, has performed better than the previous one in reducing inflation, one should take two factors into consideration. First, the reduction in inflation is partly the result of the measures – especially those concerning wage setting behaviour – that were taken under the previous system of pegged exchange rates. Furthermore, in the latter part of 1992 and in 1993 the Italian economy experienced one of the sharpest recessions of the post-war period because the events of September 1992 dramatically reduced the propensity to spend of consumers and investors in the following year.[40]

What are the main characteristics of the present monetary regime? A pivotal role is played by the yearly inflation target set by the government within a three-year plan. Objectives for inflation have been announced since the beginning of the Eighties as part of the economic policy-making process. However, since 1992 they have played a much more crucial role in shaping agents' expectations

[39] Giavazzi and Giovannini (1989) show that in most European countries except Germany, the ERM contributed powerfully to reducing inflation. Bini Smaghi (1994) recently confirmed these results and disproved other research on the subject maintaining that the inflation performance of the countries adhering to the ERM was not different from that of other OECD countries. He too concludes that the EMS seems to have been most effective in stimulating convergence in the last period of its existence. See also Svensson (1993).

[40] Locarno and Rossi (1994) claim that the fall in domestic demand was more important than the devaluation in contributing – according to a counterfactual simulation with the quarterly econometric model of the Bank of Italy – to the improvement in the current account of the balance of payments.

because, in accordance with the labour agreement signed in July of that year, contractual wages are determined in relation to those targets (see Appendix IV). Unlike the experience of other countries, in Italy the central bank does not play any formal role in defining the target. Differences in the desired inflation rate with respect to that of the government would put the central bank in a difficult position, since the government target is the guidepost for labour negotiations. However, for this same reason, government objectives for inflation have always been rather ambitious, thereby making it extremely unlikely that the central bank be more conservative than the government in this respect. The Bank of Italy, in its official pronouncements, has therefore almost always fully shared the government objectives for inflation, specifying the conditions under which they are attainable. The main drawback of the present system is a certain opaqueness in the central bank's ultimate objective. This is in part a communication problem which can be addressed by making the antinflationary objective of monetary policy even more explicit in official declarations, as it has been the case in the recent period.[41]

Monetary policy objectives are set consistently with the inflation target. As shown by Chart 12 and confirmed by recent econometric research, the demand for money function has traditionally been relatively stable.[42] The targeting performance of M2 has also been rather successful compared with that of other main EU countries (Table 3).[43] However, the monetary target is not pursued in a rigid way when other indicators suggest that changes in the relationship between money and inflation are taking place. For instance, in 1993 money growth exceeded the target range mainly because of a shift in the composition of portfolios towards less liquid assets. In 1994 and in the early part of 1995 the reverse occurred mainly because of changes in the pricing policy of banks in a situation characterised by particularly depressed demand for credit. Other variables besides M2

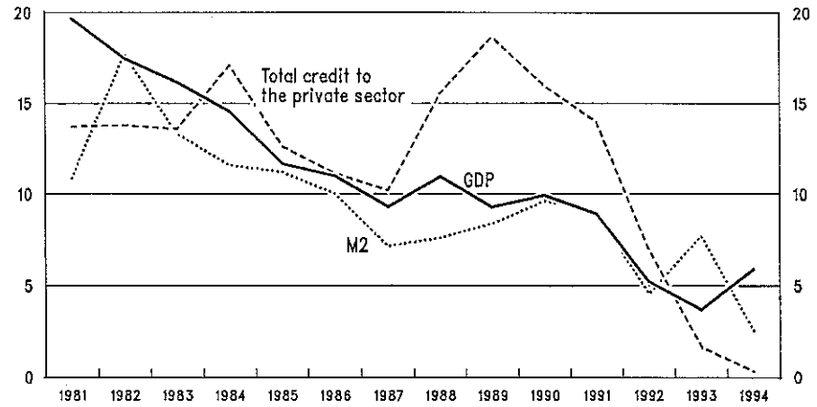
[41] On this issue see also Padoa-Schioppa (1995) who claims that central banks which do not follow a formal quantified and time-specific pre-commitment, are "by no means inherently less transparent and accountable than central banks adopting inflation targeting [...]. They win their credibility with the results they achieve and the determination and consistency of their behaviour over time".

[42] See Angelini, Hendry and Rinaldi (1994). By contrast credit to the private sector has grown for a number of years at a much faster rate than nominal income.

[43] The Bank of Italy has announced M2 targets since 1984. However, M2 was mainly used as an information variable in the late Eighties and early Nineties, when monetary policy was primarily geared to an exchange rate target.

CHART 12

GDP, TOTAL CREDIT TO THE PRIVATE SECTOR AND M2
(percentage changes on a year earlier)



Source: Bank of Italy and Istat.

are monitored to assess cyclical conditions and the outlook for inflation. They include credit aggregates, a Divisia index (see Gaiotti 1994), a measure of total financial assets. Greater attention is also devoted to indicators of inflationary expectations derived from surveys and from the structure of forward interest rates.

Even though a period of two years is too short to evaluate the performance of a monetary regime, a preliminary assessment can be made by once again considering the three channels outlined at the beginning of this section.

In the present system the main policy-controlled variable besides the short-term interest rate is the wage rate. What has been the effect of the movement in this variable on prices? According to Locarno and Rossi (1994) moderation of wage claims, together with the slackness of demand, greatly contributed to the slowdown of inflation after 1992. The target for 1993 was achieved and that for 1994 was missed by less than half a percentage point. The depreciation of the lira did produce a sharp acceleration in the prices of manufacturing output goods but did not result in an acceleration in consumer prices because it failed to give rise to a wage-price spiral.[44] Monetary policy contrib-

[44] Another important – and to a certain extent unpredicted – factor was the pricing policy of foreign exporters, who reduced the unit value in foreign currency of their exports by almost 10% in 1993 in order not to lose market shares in a year of generalised worldwide recession.

uted to the slowdown of inflation: the rate of growth of monetary and credit aggregates followed a declining trend and real rates of interest did not diminish substantially even at the height of the recession.

However, the new regime has not yet produced a permanent shift in long-term inflationary expectations. The long-term interest rate differential with respect to comparable German securities greatly diminished throughout 1993 and in the early months of 1994. Since April, though, it again widened substantially, reaching approximately 500 basis points at the end of the year. Even though this differential partially reflects the greater volatility of Italian financial markets and a growing issuer risk on public debt,[45] the largest component is likely to be the result of the expectation of further depreciation of the lira. In a situation of rapid recovery of domestic demand this depreciation might generate pressures on domestic prices. Various indicators of inflationary expectations, such as those collected through surveys, confirm this risk.

The long-term interest rate differential showed a remarkably strict positive correlation with the lira/DM exchange rate. Both variables showed a high sensitivity to political news and to the growing uncertainty in the political climate. Market uncertainty most probably reflects a past history of failures to meet the targets of budget deficits and appears to be rather insensitive to the present, more successful, government efforts to stabilize the debt. The antinflationary objective of monetary policy has been made more explicit in official declarations. Furthermore the central bank has promptly restricted monetary conditions when the first signs of a deterioration of expectations materialized. Yet inflationary expectations seem to depend very much on the credibility of the program of fiscal consolidation through its effect on the exchange rate (see Visco 1995). This picture confirms, by using the words of Allan Meltzer (1983, p. 219), that "a monetary rule without a fiscal rule cannot assure stability".

[45] If measured comparing the ten-year government security rate differential with the swap rate differential between the lira and the DM of similar maturity, issuer risk exceeded 100 basis points at the end of 1994.

4. Conclusions

In examining the reforms that reinforced the independence of the Bank of Italy, from the "divorce" of 1981 to the recent laws to comply with the Maastricht Treaty, it has been argued that the measures that most effectively relieved the pressure to finance the Treasury were those of the late Eighties reforming the money and financial markets and liberalising capital movements. These reforms sharply spurred demand for government paper even in the adverse circumstances of a continuously growing public debt.

Innovation in markets and institutions has not followed a regular pattern. It has been most intense in periods of difficult market conditions, characterised by rising interest rates and rapidly weakening demand for public bonds, especially at longer term. Fears of a subscription crisis has always stimulated the introduction of reforms to enhance the liquidity and depth of markets. A second key source of institutional change has been the need to comply with the requisites for Italy's participation in European integration.

The most relevant consequences of the reforms were the greater ability the central bank gained to steer short-term interest rates and the swifter response of market rates to movements in policy-controlled rates. Thanks chiefly to these developments, the central bank could abandon direct controls, such as credit ceilings, and improve its ability to defend exchange rate targets, enhancing the credibility of the exchange rate commitment of the later Eighties. However, no mechanical or immediate impact of greater central bank independence either on inflation or on budgetary policy could reasonably have been expected.

The second part of the paper analyses the Italian experience with exchange rate rules as devices to reduce inflation. The overall judgement is favourable: especially in the early Eighties participation in the EMS contributed mightily to Italian disinflation. Comparable results could hardly have been achieved at the same costs under an alternative regime based on a monetary rule, given the unstable demand for money during those years and the incomplete markets and institutional framework in which the central bank had to operate. Participation in the ERM became less effective as a disinflationary tool just as the exchange rate commitment became more credible, in the late Eighties and early Nineties. By that time the standard drawbacks of the strong-currency policy had emerged: the declining

competitiveness of Italian industry resulted in the deterioration of the current account balance and the net external position. The degree of openness of the economy diminished. These factors contributed to the September 1992 crisis.

The paper has looked at the function of policy rules as devices to ensure a binding commitment to low inflation. The ERM played an important role in this respect. A stable exchange rate within the EMS was a broadly shared goal among political and social forces. Some changes of attitude in wage policy and fiscal policy had already occurred in the early Eighties, consistently with this goal, but progress on both fronts had been slow and unsatisfactory. The pressure for more consistent policies mounted in the late Eighties and early Nineties as the exchange and monetary policies became less effective in reducing inflation. Action by the government and labour unions came too late to avoid the ERM crisis in September 1992 but nevertheless contributed to the significant reduction of inflation in the past two years despite the dramatic devaluation of the lira.

At present, policy coordination centres on an inflation target set by the government and taken as a guidepost for the determination of wage increases. Monetary policy sets its own objectives consistently with the aim to minimize deviations from government inflation targets. The still missing element in a sound monetary constitution is a budgetary policy capable of ensuring a significant and permanent reduction of the public debt. The lack of confidence in the governments' ability to solve the fiscal problems exerts a downward pressure on the exchange rate. Even though inflation has been greatly moderated, long-term expectations remain less favourable than in most other EU countries. These expectations have been countered by restrictive monetary policy, but the outcome of such action is inferior to what could be achieved by a more consistent fiscal policy.

APPENDIX I

Institutional arrangements for monetary policy[1]

To describe the monetary policy decision-making process in Italy, we consider separately the arrangements that affect the formulation of the general guidelines for monetary policy (Section 1.1) and those that relate to the use of policy instruments (Section 1.2).

1.1. *Arrangements affecting the central bank's independence in the formulation of monetary policy*

In Italy no constitutional provision attributes the responsibility for monetary policy to the central bank. The Italian Constitution considers the principle of protection of savings as a public good but does not expressly mention either the central bank or the goal of monetary stability. The role of the Bank of Italy is defined by a set of laws governing its financial and supervisory relationships with the banking system.

The Government has the power to set the general guidelines of economic policy and, at least formally, to approve monetary policy. The Interministerial Committee for Economic Planning, a body created in 1967, is in charge of setting general economic policy guidelines. Its members are the economic ministers, and its meetings are also attended by the Governor of the Bank. Every September, monetary policy objectives are presented by the Governor for approval by the Committee. The objectives presented by the Governor have never been rejected.

Within the Bank of Italy all responsibilities in the field of monetary, credit and exchange rate policy are concentrated in the hands of the Governor, who represents the Bank; practically, however, monetary policy decisions are taken after consultation with the Directorate, which is composed of the Governor, the Director General and two Deputy Directors General. The Directorate usually meets at least twice a month to discuss the monetary situation. These meetings are also attended by senior staff from the Research Department and from the four operational departments currently involved in policy implementation.

According to Bank's charter, the appointment and dismissal of the members of the Directorate must be approved by the Government, with a decree of the President of the Republic, but the candidates are nominated by the Board of Directors, a body comprised by the Governor – who chairs it – and 13 directors

[1] For further detailed information on the subject dealt with in this Appendix, a good source is Eizenga (1993).

elected for three years by the local boards of the 13 most important branches of the Bank. This body is relatively independent from outside pressure since its members cannot hold public or political office or work for a credit institution.[2]

No member of the Government can sit on the Bank of Italy's Board of Directors or directly influence its policy decisions.

A noteworthy feature of the Bank's top management is that the mandate of all the members of the Directorate, including the Governor's, is open-ended and not subject to age limits.

1.2. *Arrangements affecting monetary policy implementation*

A number of specific institutional features condition the implementation of monetary policy. These can be classified according to their effect on the central bank's ability to operate: (i) in the foreign currencies market; (ii) in the secondary market for Treasury paper; (iii) in the primary market for Treasury paper and in the direct financing of the Treasury; (iv) as a lender of last resort; (v) in setting reserve requirements.[3]

The exchange rate regime is decided by the Government, but the size and timing of exchange market interventions are decided at the discretion of the central bank. Together with the Italian Foreign Exchange Office, the Bank of Italy also manages the country's gold and foreign exchange reserves.[4]

Operations in the secondary market for Treasury paper are also at the complete discretion of the central bank. Currently, the Bank of Italy intervenes in the market mainly through repurchase agreements, whose quantity is decided by the Bank and whose rates are endogenously set through an auction mechanism.

In the past few years the prospect of European Monetary Unification has lent new impetus to progress in providing a legal basis to the policy autonomy that the Bank of Italy has traditionally enjoyed.

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[2] The Board nominates the Directorate, determines the salaries of high officials and the number of employees, approves the balance sheet and the profit and loss account to be presented to the annual meeting of shareholders and sets the standards for banknotes. It usually meets once a month and the other members of the Directorate attend. Another important body is the General Meeting of Shareholders, which usually meets on the last working day in May. It approves the balance sheet and the profit and loss accounts, authorises the distribution of profits already approved by the Board and appoints the auditors and their alternates.

[3] The central bank can also affect the economy by imposing direct credit controls on banks' activities, but this instrument is now very seldom used.

[4] The Ufficio Italiano dei Cambi (UIC), created in 1945, is formally separated from the Bank of Italy. In practice the link between the two institutions is very close: the Governor of the Bank is also the chairman of the UIC and therefore determines its interventions consistently with monetary policy goals; the UIC often acts through the Bank of Italy's operational infrastructure. At present, the main function of the UIC is to collect information about foreign transactions.

In February 1992 the central bank was empowered to set the official discount rate. Until then, changes in this rate had been enacted by the Treasury Minister, acting upon a proposal by the Governor of the Bank of Italy.

Another important legislative change came in November 1993 with the reform of the Treasury's current account with the Bank of Italy and of the compulsory reserve system. Previously, the Bank of Italy provided a direct credit line to the Treasury, in the form of an automatic unconditional overdraft on this account up to the legal limit of 14% of the current and capital expenditures budgeted in the annual Finance Law.[5] A conflict could arise in the case of the Treasury's inability to raise the funds needed to finance its deficit once the overdraft facility was exhausted. In such circumstances, the Bank could provide additional financing to the Treasury only under a special law, which also specified the amount of the extraordinary advance.

The key provision of the new law is that all forms of advance by the Bank of Italy to the Treasury are forbidden. The overdraft facility has been replaced with an interest-bearing account whose minimum balance has been set at 30 trillion lire. To meet this requirement in December 1993 the Treasury issued about 31 trillion lire of long-term bonds, which were sold to the Bank of Italy at market rates.

In November 1994 the outstanding credit on the overdraft facility of the Treasury with the Bank of Italy was converted into bonds with an average maturity of 30 years, bearing a 1 percentage point interest rate.

Under the new law if the balance falls below 30 trillion lire the Treasury must replenish it within three months. If the imbalance persists beyond that, the Minister of the Treasury must explain the causes to Parliament and present corrective measures to be taken by the end of the following month. If the end-of-month balance is less than 15 trillion lire, the Minister must report to Parliament within the first five days of the following month.

Finally, the law grants the Bank of Italy the power to regulate the reserve requirement, within limits specified by the law itself. Previously, changes in the reserve requirement had to be approved by the Interministerial Committee for Credit and Savings.[6]

Last May, the Bank of Italy reformed the reserve requirement in accordance with the 1993 law. The marginal reserve ratio was set at 15% of variations in deposits from July 1994 onwards. All categories of bank are now treated equally (including rural banks and the former special credit institutions, which were exempt), and certificates of deposit with maturity of 18 months or more are now exempt.

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[5] The Bank of Italy is the Treasury's agent for the collection of revenue and the execution of payments and has been responsible for running the 95 provincial Treasury offices since 1895.

[6] The Committee, created in 1947, is the highest authority in the field of credit and exchange rate policy and the safeguarding of savings. Its members are mainly the economic ministers; the Minister of the Treasury acts as its chairman. The Governor of the Bank of Italy attends its meetings in a non-voting capacity.

APPENDIX II

Chronology of main changes in the institutional and regulatory environment of monetary policy

1975 Reform of Treasury bill auctions: the Bank of Italy is admitted to participate on an equal footing with other market agents. The Bank is committed to act as residual buyer for unsubscribed bills. A floor price is fixed by the Treasury for each auction.

1979 **December**
Introduction of securities repurchase agreements with banks as an instrument of liquidity management.

1981 **July**
The "divorce" – the Bank of Italy ceases to act as residual buyer at Treasury bill auctions.

October
Introduction of mid-month auctions for Treasury bills.

1982 **February**
First issue of Treasury credit certificates in ecus (CTE).

December
Reform of reserve requirements: the ratio is set at 22.5% of the increase in deposits (20% of the decrease); the compulsory deposit with the Bank of Italy may not exceed 22.5% of total outstanding deposits; remuneration differs by category of deposits; banks' repos are subject to the requirement.

1983 **May**
Introduction of competitive-bid auctions for 3-month Treasury bills.

1984 **March**
Introduction of credit facilities for the main credit institutions active in the primary market for Treasury bills.

May
Introduction of competitive-bid auctions for 6-month Treasury bills.

1988 **February**
Introduction of competitive-bid auctions for 12-month Treasury bills.

May
Introduction of the screen-based secondary market for government securities.
First issue of 5 and 7-year Treasury credit certificates (CCTs).

July
Abolition of the floor price at 3-month Treasury bill auctions.

November
Introduction of uniform price auctions for Treasury bonds (BTPs).
Introduction of puttable fixed-rate Treasury option certificates (CTO).

1989 **March**
Abolition of floor price at 6 and 12-month Treasury bill auctions.

April
Introduction of a new computer-based gross settlement system on banks' centralised accounts with the Bank of Italy, with direct (real-time) debiting and crediting.

July
Introduction of two new electronic sub-systems of the national clearing system for large-value paperless transactions: *SIPS* for external lire and the lira equivalent of foreign exchange transactions and *Electronic memoranda* for adjustments in banks' liquidity position and transactions from the screen-based market for interbank deposits.

September
Admission of Treasury bills to the screen-based market.

1990 **February**
Launching of the screen-based market for interbank deposits (MID).

June
First issue of 7-year Treasury bonds (BTPs).

July
Introduction of uniform price auction for Treasury credit certificates.

September
Reform of centralised securities accounts (CAT) held with the Bank of Italy by banks, securities firms, international securities depositories, etc., introducing real-time trasferral of securities and debiting/crediting of accounts.

October
Banks are allowed to make use of part of their compulsory reserves, provided the average monthly stock is maintained at the required level.

1991 **March**
Introduction of 10-year Treasury bonds.

May
Reform of fixed-term advances. The rate applied is uniform for all banks and equal to the discount rate plus a penalty rate set by the Governor of the Bank of Italy in relation to monetary conditions.

September
Launching of BTP futures on LIFFE.

1992 **February (Law 82/1992)**
The Governor of the Bank of Italy is empowered to set the discount rate and the base rate on current account and fixed-term advances.

May
Launching of eurolira futures on LIFFE.

August
Abolition of the floor price at auctions of medium and long-term BTPs and CCTs.

September
Creation of the Italian futures market (MIF) for BTP futures.

October
The Bank of Italy introduces foreign currency swaps with banks as a new instrument to regulate liquidity.

December
Reform of fixed-term advances: the length of operations is extended to 32 days; escalating penalty rates are introduced for advances granted after the closing of national clearing.

1993 **September**
First issue of global bonds.

November
First issue of 30-year Treasury bonds.

Law 483/93 (November 26)
Suppression of the Treasury overdraft facility and creation of a Treasury payments account with the Bank of Italy to meet the needs of revenue collection and payments.
The Governor of the Bank of Italy is empowered to regulate the reserve requirement, within the limits set by law.

1994 **May**
Launching of options on BTP futures.
Reform of reserve requirements. The marginal reserve ratio is set at 15%. All categories of bank are subjected to the new regime.

July
Reform of screen-based market (MTS) with introduction of market specialists.
Treasury securities are traded on screen on the Stock Exchange.

November
The outstanding credit on the overdraft facility of the Treasury with the Bank of Italy is converted into bonds with an average maturity of 30 years. The interest rate remains unchanged at 1%.

APPENDIX III

Chronology of main changes in exchange control legislation

1976 Exchange control violations directly affecting the external accounts become criminal offences.

1981 Rationalization of exchange regulation concerning financial transactions. Depenalization of minor exchange violations.

1986 Delegation to Government to reform the exchange control system, on the principle that all external commercial and financial transactions are allowed unless explicitly prohibited.

1987 New "exchange control law" laying down the principle of freedom, but retaining some restrictions, which may be lifted by exchange authorities administratively. Effective as of 1 October 1988.

Remaining restrictions:

- foreign exchange monopoly;
- limits on daily foreign exchange position and on external creditor position in both lire and foreign currency for banks;
- permanent restrictions on short-term capital movements for non-bank residents.

1988 "Codified exchange control law" incorporating the 1987 decree. Depenalization of exchange violations.

1990 Completion of liberalization: abolition of all remaining restrictions.

APPENDIX IV

Chronology of main events concerning incomes policy

1975 **Agnelli-Lama agreement**
Wage indexation agreement: introduction of fixed-amount quarterly increases based on the cost-of-living index, uniform for all categories of workers ("punto unico"). Fully applied in 1977 for private sector workers and later on for civil service workers. Before 1975 indexation differed according to qualification.

1980 Fiat began and, after a 35-day strike, successfully ended a confrontation with the unions (white collar workers' "March of 40,000").

1982 Confindustria (Confederation of Italian Industry) unilaterally renounces the 1975 indexation mechanism. (The "punto unico" penalizes higher wage earners).

1983 **Scotti protocol**
Overall agreement on taxation, wages and regulated prices.
Revision of the indexation mechanism: reduction in the degree of protection from inflation; ceilings for monthly increases for civil service employees for the years 1983-85.

1984 Government decree on the controlling of wages, tariffs and price increases: wage increases for the first half of 1984 based on the planned rate of inflation. *Ex post*, the decree implies a 4 percentage points cut in the indexation allowance.

1985 Defeat of the referendum promoted by the opposition to abrogate the 1984 Decree Law and regain the 4 points.

1986 **Law 38/1986**
New wage indexation system: six-monthly adjustment (May-November); 100% coverage of an initial band of 580,000 lire for all workers; 25% coverage for the rest. The private sector applies the system already introduced for civil service employees in 1985. With the law expiring at end 1989, Confindustria and the unions agree on tacit renewal after expiration.

1990 **June**
Confindustria decides not to renew the wage indexation agreement.

July
Industry and the unions agree to maintain the existing system (a new law extends the indexation mechanism until December 1991) and start an overall revision of regulations on labour costs, wage bargaining and indexation.

1991 **June**
Negotiations actually start.

December
Preliminary agreement between employers and unions: formal acceptance of the expiration of the existing wage indexation system. The allowance is paid for the last time in November 1991.

1992 **July**
Protocol on incomes policy, disinflation and labour costs.
Other provisions:

- compensatory payment of Lit. 20,000 per month in 1993;
- suspension of company-level wage bargaining in 1993 and of renewal of civil service contracts until end-1993;
- no new form of general wage indexation: collective negotiations adopted as the instrument for fixing nominal wages.

1993 **July**
Agreement between business, labour organizations and the government creating an explicit link between collective bargaining and incomes policy, and enhancing the proceduralization of industrial relations.

Main provisions:

- formal twice-yearly consultations between the two sides of industry and the government before major economic measures are taken;
- nation-wide contracts determine increases in nominal wages consistent with government inflation targets;
- commitment to act consistently with economic objectives and introduction of instruments to deter inconsistent conduct;
- two-level bargaining: national industry-wide agreements setting contractual minimum wages and decentralized (local or company-level) supplementary contracts;
- different timing of bargaining: four-year contracts covering conditions of employment vs. two-year wage agreements;

- indexation disappears but is reintroduced on the basis of inflation targets in periods when negotiations continue after expiration of old contracts in order to reduce industrial conflicts ("indennità di vacanza contrattuale").

Government also agrees to:

- introduce measures to enhance the flexibility of the labour market and employment (differentiated trainee contracts for young workers, temporary work, fixed-term contracts for "mobile" workers, incentives for new job creation);
- extend wage supplementation (CIG) to small enterprises and to the services sector and increase the ordinary wage supplementation allowance.

REFERENCES

Akhtar, M.A. and H. Howe (1991), "The political and institutional independence of U.S. monetary policy", *Banca Nazionale del Lavoro Quarterly Review*, no. 178, September, pp. 343-89.

Alesina, G., A. Prati and G. Tabellini (1990), "Public confidence and debt management: a model and a case study of Italy", in R. Dornbusch and M. Draghi eds, *Public Debt Management: Theory and History*, Cambridge University Press, Cambridge, pp. 94-118.

Angelini, P., D.F. Hendry and R. Rinaldi (1994), "An econometric analysis of money demand in Italy", Banca d'Italia, *Temi di discussione*, no. 219, April.

Angelini, P. and F. Passacantando (1993), "Central bank's role in the payment system and its relationship with monetary policy and supervision", in F. Bruni ed., *Proceedings of the Conference organized by the "Paolo Baffi" Centre for Monetary and Financial Economics, held at Bocconi University, Milan, February 5th, 1993*, Bocconi University, Milan, pp. 453-92.

Angeloni, I. (1994), "The Bank of Italy monthly money market model: structure and applications", *Economic Modelling*, vol. 11, no. 4, pp. 387-412.

Angeloni I. and F. Passacantando (1991), "Monetary policy in Italy: institutional and economic aspects", in Bank for International Settlements ed., *The Orientation of Monetary Policy and the Monetary Policy Decision-Making Process*, C.B. 390, Basle, pp. 87-111.

Banca d'Italia, *Ordinary General Meeting of Shareholders, Abridged Annual Report*, various years.

Banca d'Italia, (1988), "Modello mensile del mercato monetario", *Temi di discussione*, no. 108, October.

Barca, F. and I. Visco (1992), "L'economia italiana nella prospettiva europea: terziario protetto e dinamica dei redditi nominali", Banca d'Italia, *Temi di discussione*, no. 175, July.

BINI SMAGHI, L. (1994), "EMS discipline: did it contribute to inflation convergence?", *Banca Nazionale del Lavoro Quarterly Review*, no. 189, June, pp. 187-98.

BINI SMAGHI, L. and S. MICOSSI (1989), "Managing exchange markets in the EMS with free capital", *Banca Nazionale del Lavoro Quarterly Review*, no. 171, December, pp. 395-430.

BUTTIGLIONE, L. and F. DRUDI (1994), "The auction mechanism for the settlement of medium- and long-term securities of the Italian Treasury", *Bond Markets, Treasury and Debt Management: The Italian Case*, Chapman & Hall, London, pp. 111-26.

BUTTIGLIONE, L. and A. PRATI (1991), "La scelta del meccanismo di collocamento dei titoli di Stato: analisi teorica e valutazione dell'esperienza italiana", Banca d'Italia, *Temi di discussione*, no. 146, January.

BOHN, H. and G. GORTON (1993), "Coordination failure, multiple equilibria and economic institutions", *Economica*, vol. 60, no. 239, August, pp. 257-80.

BRUNI, F. and M. MONTI (1992), "Autonomia della Banca Centrale, inflazione e disavanzo pubblico: osservazioni sulla teoria e sul caso italiano", in M. Arcelli a cura di, *Il ruolo della banca centrale nella politica economica*, il Mulino, Bologna.

CARANZA, C. and A. FAZIO (1983), "Methods of monetary control in Italy: 1974-1983", in D.R. Hodgman ed., *The Political Economy of Monetary Policy: National and International Aspects*, Federal Reserve Bank of Boston, Boston.

CIOCCA, P. (1992), "Il principio di autonomia nel Central Banking", *Quaderni di economia e finanza*, Banco di Sardegna, vol. 1, pp. 1-22.

CIOCCA, P. and G. NARDOZZI (1993), *L'alto prezzo del danaro*, Laterza, Roma-Bari.

COOPER, R. and A. JOHN (1988), "Coordinating coordination failures in Keynesian models", *Quarterly Journal of Economics*, no. 3, August, pp. 441-64; reprinted in E. Phelps ed., *Recent Developments in Macroeconomics*, vol. 1, Edward Elgar, Aldershot, 1991, pp. 96-118.

COTTARELLI, C., G. FERRI and A. GENERALE (1995), "Bank lending rates and financial structure in Italy: a case study", *IMF Staff Papers*, vol. 42, no. 3, September, pp. 670-702.

CUKIERMAN, A. (1994) "Commitment through delegation, political influence and central bank independence", in J. de Beaufort Wiynholds, S. Eijffinger and L. Hoogduin eds, *A Framework for Monetary Stability*, Kluwer Academic Publishers, Dordrecht/ Boston, London.

DE HAAN, J. and J.E. STURM (1992), "The case for central bank independence", *Banca Nazionale del Lavoro Quarterly Review*, no. 182, September, pp. 305-28.

DE NARDIS, S. and S. MICOSSI (1991), "Disinflation and re-inflation in Italy and the implications for transition to monetary union", *Banca Nazionale del Lavoro Quarterly Review*, no. 177, June, pp. 165-96.

DEL GIOVANE, P. (1994), "The defence of exchange rates in EMS: instruments and strategies, 1987-1993", Banca d'Italia, *Temi di discussione*, no. 228, July.

EIJFFINGER, S. and E. SCHALING (1993), "Central bank independence in twelve industrial countries", *Banca Nazionale del Lavoro Quarterly Review*, no. 184, March, pp. 49-90.

EIZENGA, W. (1993), "The Banca d'Italia and monetary policy", *SUERF Papers on Monetary Policy and Financial Systems*, no. 15.

EPSTEIN, G.A. and J.B. SCHOR (1986), "The divorce of the Banca d'Italia and the Italian Treasury: a case study of central bank independence", *Harvard Institute of Economic Research Discussion Papers*, no. 1269.

GAIOTTI, E. (1994), "Measuring money with a divisia index: an application to Italy", Banca d'Italia, *Temi di discussione*, no. 223, April.

GAIOTTI, E. and G. SALVEMINI (1992), "Budgetary policy problems in Italy and their implications for monetary policy", in Bank for International Settlements ed., *Current Issues in Fiscal Policy and Their Implications for the Conduct of Monetary Policy*, C.B. 391, Basle.

GIAVAZZI, F. and A. GIOVANNINI (1989), *Limiting Exchange Rate Flexibility: The European Monetary System*, The MIT Press, Cambridge, Mass.

GIAVAZZI, F. and M. PAGANO (1988), "The advantage of tying one's hands – EMS discipline and central bank credibility", *European Economic Review*, vol. 32, pp. 1055-82.

GIAVAZZI, F. and L. SPAVENTA (1990), "The 'new' EMS", in L. Papademos and P.C. De Grauwe eds, *The European Monetary System in the 1990's*, Longman, Harlow, pp. 65-85.

GIAVAZZI, F. and L. SPAVENTA (1994), "Italy: the real effects of inflation and disinflation", in M. Baldassarri ed., *The Italian Economy, Heaven or Hell?*, St. Martin's Press, London, pp. 19-59.

GIOVANNINI, A. and L. SPAVENTA (1991), "Fiscal rules in the European Monetary Union: a 'no-entry' clause", in A.B. Atkinson and R. Brunetta eds, *Economics for the New Europe*, Macmillan, London, pp. 99-125.

GIOVANNINI, A. and L. SPAVENTA (1994), *Central Bank Independence*, paper presented at the Conference on "Central Bank Independence and Accountability: Open Issues and Institutional Reforms", Bocconi University, Milan, 4 March.

GOODHARTH, C.A.E. (1994), "Central bank independence", in *The Central Bank and the Financial System*, Macmillan, London, 1995, pp. 60-71.

GOODMAN, J.B. (1992), *Monetary Sovereignty - The Politics of Central Banking in Western Europe*, Cornell University Press, London.

GRESSANI, D., L. GUISO and I. VISCO (1988), "Disinflation in Italy: an analysis with the econometric model of the Bank of Italy", *Journal of Policy Modeling*, vol. 10, no. 2, pp. 163-203.

GRILLI, V., D. MASCIANDARO and G. TABELLINI (1991), "Political and monetary institutions and public financial policies in the industrial countries", *Economic Policy*, vol. 13, October, pp. 341-92.

LEIJONHUFVUD, A. (1984), "Constitutional constraints on the monetary powers of government", in R. B. McKenzie ed., *Constitutional Economics*, Lexington Books, Lexington, pp. 95-107.

LIPPI F., and O. SWANK (1994), "On the optimal degree of central bank independence: trading off credibility versus flexibility", mimeo.

LOCARNO, A. and S. ROSSI (1994), "Inflation and external accounts in post-devaluation Italy: beyond the conventional wisdom", Banca d'Italia, mimeo.

LOHMANN, S. (1992), "Optimal commitment in monetary policy: credibility versus flexibility", *American Economic Review*, no. 82, pp. 273-86.

MELTZER, A.H. (1983), "Monetary reform in an uncertain environment", *Cato Journal*, Spring, pp. 93-112; reprinted in J. Dorns and A.J. Schwartz eds, *The Search for Stable Money - Essays on Monetary Reform*, University of Chicago Press, Chicago, 1987, pp. 210-220.

PADOA-SCHIOPPA, T. (1987), "Reshaping monetary policy", in R. Dornbusch and S. Fischer eds, *Macroeconomics and Finance. Essays in Honor of Franco Modigliani*, The MIT Press, Cambridge, Mass.

PADOA-SCHIOPPA, T. (1995), "Styles of monetary management", 7th International Conference Bank of Japan, Institute for Monetary and Economic Studies, Tokyo 26-27 October, mimeo.

PARIGI, G. and A. PRATI (1993), "Monetary policy, inflation and the business cycle: an analysis with the Bank of Italy's quarterly econometric model (1989-1991)", in Bank for International Settlements ed., *Changes in the Business Cycle and the Implications for Monetary Policy*, C.B. 392, Basle, pp. 139-68.

PARKIN, M. (1986), "Domestic monetary institutions and fiscal deficits", *University of Western Ontario, Department of Economics, Working Paper*, no. 8605.

POSEN, A.S. (1993), "Why central bank independence does not cause low inflation: there is no institutional fix for politics", in R. O'Brien ed., *Finance and the International Economy*, Oxford University Press, Oxford, pp. 40-59.

SALVEMINI, M.T. (1983), "The treasury and the money market – The new responsibilities after divorce", *Review of Economic Conditions in Italy*, no. 1, February, pp. 33-54.

SVENSSON, L.E.O. (1993), "Fixed exchange rates as a means to price stability: what have we learned?", *NBER Working Paper Series*, no. 4504.

TABELLINI, G. (1987), "Central bank reputation and the monetization of deficits: the 1981 Italian monetary reform", *Economic Inquiry*, vol. XXV, no. 2, pp. 185-200.

VISCO, I. (1994), "Caratteri strutturali dell'inflazione italiana 1986-1991", in *Caratteri strutturali dell'inflazione italiana*, Il Mulino, Bologna, pp. 19-60.

VISCO, I. (1995), "Inflation, inflation targeting and monetary policy. Notes for discussion on the Italian experience", in L. Leiderman and L.E.O. Svensson eds, *Inflation Targets*, CEPR, London, pp. 142-168.