MASTER FILES
ROOM C-525

0440

IMF WORKING PAPER

© 1991 International Monetary Fund

This is a working paper and the author would welcome any comments on the present text. Citations should refer to an unpublished manuscript, mentioning the author and the date of issuance by the International Monetary Fund. The views expressed are those of the author and do not necessarily represent those of the Fund.

WP/91/19

INTERNATIONAL MONETARY FUND

European Department

The Italian Lira in the Narrow ERM Band: The Challenge of Credibility

Prepared by Lazaros E. Molho*

Authorized for Distribution by Erich Spitäller

February 1991

Abstract

Under free capital mobility, a high-inflation country pursuing a nonaccommodating exchange rate policy will have higher real interest rates than its lower-inflation trading partners as long as that policy is not credible. If the policy gains credibility prior to inflation convergence, the sign of the real interest rate differential may be reversed. Developments in interest rate differentials and capital and reserve flows suggest that Italy's nonaccommodating exchange rate policy has become significantly more credible in 1989-90. As improved credibility further limits their monetary autonomy, the Italian authorities will have to rely more on fiscal and incomes policies to promote disinflation.

JEL Classification Numbers:
431, 432

---

* I am grateful to Patrick de Fontenay, Michael Deppler, Susan Jones, John Odling-Smee, Salvatore Rossi and Erich Spitäller, for helpful comments and suggestions on earlier drafts. I am solely responsible for any remaining errors.

Contents

Page

Summary iii

I. Introduction 1

II. Interest Rate Differentials as a Gauge of Credibility 2
  1. The arithmetic of real interest rate differentials 2
  2. Implications of a nonaccommodating exchange rate policy 3
    a Incomplete credibility 4
    b Full credibility 4

III. The Italian Experience in the EMS: 1979-90 5
  1. Exchange rate policy and disinflation 5
  2. The credibility of Italy's exchange rate policy 7

IV. Interest Rates and Inflation Convergence 16

V. Conclusions 18

Tables
  1. Inflation and Interest Rate Differentials vis-à-vis Major Industrial Countries, 1979-90 9
  2. Exchange-Rate Adjusted Ex Post Interest Rates in the Major Industrial Countries, 1980-90 11-12
  3. External Account Indicators, 1978-90 13
  4. Variability of Nominal and Real Interest Rates, 1980-90 15

Charts
  1. Indicators of Stance of Exchange Rate Policy, 1978-90 6a
  2. Inflation and Domestic Interest Rate Differentials, 1979-90 8a
  3. Exchange-Rate Adjusted Ex Post Interest Rates in Euromarkets, 1980-90 10a
  4. Export Market Shares, 1978-90 14a
  5. Ex Post Real Interest Rates on Domestic Markets, 1979-90 16a
  6. Exchange Rate and Interest Rate Developments, Jan.-Dec. 1990 16b
  7. European Monetary System: Positions in the Narrow Band, January 8, 1990-January 8, 1991 16c

References 19

Summary

In a world of free capital mobility, international differentials between ex-post real interest rates and between interest rates adjusted for actual exchange rate changes can be useful indicators of the credibility of a nonaccommodating exchange rate policy. Such a policy implies that the higher-inflation country keeps its nominal exchange rate fixed or depreciates it at a rate that offsets only a portion of the inflation differential. This leads to an appreciation of its real exchange rate. As long as market participants believe that purchasing power parity will eventually have to be restored through a corrective depreciation, the nonaccommodating policy is not credible. As a result, the high-inflation country must have a higher real interest rate than its lower-inflation trading partners. Once the nonaccommodating policy becomes fully credible, the anticipated appreciation of the real exchange rate, together with uncovered interest rate parity, implies that the high-inflation country must accept lower real interest rates than its lower-inflation partners.

Ever since the inception of the EMS, a nonaccommodating exchange rate policy has been a central element of Italy's fight against inflation. This can be inferred from official policy pronouncements, from trends in real effective exchange rate indicators, and from a comparison of trends in Italy's inflation differential vis-à-vis Germany and in the lira's rate of depreciation vis-à-vis the DM. Based on short-term real interest rate differentials, the credibility of Italy's exchange rate policy seems to have been increasingly challenged over the 1986-88 period. Credibility appears to have improved somewhat in 1989 and significantly more so in 1990, as Italy's short-term real interest rate differential vis-à-vis Germany was virtually eliminated and the differential vis-à-vis France turned negative. Further attesting to the recent gains in credibility are a sustained boom in net capital inflows, a record accumulation of official reserves, and an apparent willingness of the Italian authorities to allow greater flexibility in short-term interest rates.

Despite the improved credibility of exchange rate policy, real interest rates in Italy have decreased only modestly in 1990. Convergence of real interest rates was instead brought about mainly by increases in French and German real interest rates. In light of the strength of the lira in the ERM through much of 1990, this raises the possibility that Italian interest rates may have exerted upward pressure on those in other ERM members. In the period ahead, one major challenge for Italian policymakers will be to secure a resumption in the process of inflation convergence, so as to consolidate the recent gains in credibility. As improved credibility further reduces monetary autonomy, fiscal and incomes policies will need to play a greater role in promoting disinflation.

I. Introduction

The last few years have witnessed some important developments in Italy's financial relations with the rest of the world. The administrative control of international capital movements that was institutionalized in the early 1970s has been gradually eased and a new, liberal exchange law came into force on October 1, 1988. At the same time that Italian residents were beginning actively to invest in foreign securities, the exchange rate mechanism (ERM) of the EMS entered a period of unprecedented stability. The Basle-Nyborg Agreements of September 1987 enhanced the scope for intramarginal intervention, while at the same time encouraging greater intramarginal variability of exchange rates and interest rates, so as to minimize opportunities for riskless speculation. Equally important has been a growing resolve on the part of member governments to strengthen the system's credibility by discontinuing the practice of frequent realignment. 1/

In that spirit, the lira was moved from the wider 6 percent band into the narrow 2.25 percent band of the ERM in January 1990, following only a technical realignment of its central rate. This left the lira's new narrow margin of fluctuation within the broader margin in which it had been allowed to move since the realignment of January 1987. In May 1990, Italy removed the last vestiges of its capital controls without causing any disorderly behavior in the foreign exchange markets. Despite a widening current account deficit, Italy's foreign exchange reserves rose from SDR 24.2 billion at end-1988 to SDR 33.7 billion at end-1989 and to SDR 46.2 billion by October 1990. The direction of net capital inflows was temporarily reversed in November, as German unification and an incipient change in the German policy mix led to increasing tension within the EMS. This led to a partial roll-back of previous gains in official reserves and drove the lira significantly below its central rate vis-à-vis the DM for the first time since it joined the narrow band. By year-end, however, decisive action on short-term interest rates had driven the lira back towards its central rate.

This paper attempts to derive some of the implications of the increased credibility of the lira exchange rate, by focusing on recent trends in interest rates in the major industrial countries. Section II develops a simple framework that allows us to view real interest rate differentials as a gauge of the credibility of a nonaccommodating exchange rate policy. Section III describes some salient features of the Italian experience since the inception of the EMS and argues that, by several indicators, Italy's nonaccommodating policy has made substantial progress toward establishing credibility. Section IV discusses some of the challenges for the ERM, as high-inflation members find themselves compelled to preserve their monetary

---

1/ For a more detailed account of these developments, see Ungerer et al. (1990), pp. 8-9.

autonomy even after their exchange rate policies have gained some credibility, and the conclusions are summarized in Section V.

II. Interest Rate Differentials as a Gauge of Credibility

This section draws on the simple arithmetic of interest rate differentials to derive some of the implications of a nonaccommodating exchange rate policy. For the benchmark case, in which both uncovered interest rate parity and purchasing power parity are expected to hold, it is shown that real interest rates at home and abroad are equalized. Under a nonaccommodating exchange rate policy, by contrast, purchasing power parity does not hold ex post, as the real exchange rate appreciates in the higher-inflation country and depreciates in the lower-inflation country. Assuming uncovered interest rate parity still holds ex ante, it is shown that the high-inflation country will have a higher real interest rate than the low-inflation country as long as the nonaccommodating exchange rate policy is not credible. As soon as this policy becomes credible, however, the sign of the real interest rate differential must be reversed.

1. The arithmetic of real interest rate differentials

Uncovered interest rate parity implies that interest rates, adjusted for expected exchange rate changes, are equalized across countries. We have

$$r_t = r_t^* + Ee_t \qquad (1)$$

where r_t = nominal interest rate in the home country in the beginning of period t,

r_t^* = nominal interest rate abroad in the beginning of period t,

and Ee_t = expected appreciation of the foreign country's currency relative to the home country's currency during period t, based on information available at the beginning of period t.

If expectations are that the exchange rate moves so as to maintain purchasing power parity, then we also have

$$Ee_t = Ep_t - Ep_t^* \qquad (2) ,$$

where Ep_t = expected inflation in the home country during period t, based on information available at the beginning of period t, and Ep^*_t = expected inflation abroad during period t, based on information available at the beginning of period t.

Combining equations (1) and (2) implies the equalization of ex ante real interest rates at home and abroad. We have

$$r_t - Ep_t = r^*_t - Ep^*_t \qquad (3)$$

2. Implications of a nonaccommodating exchange rate policy

Assuming that the home country starts in a situation with a higher rate of inflation than in the foreign country, one can define a nonaccommodating exchange rate policy as one that allows the foreign currency to appreciate by less than the inflation differential. During each period t, the home country authorities can then be said to pursue an exchange rate rule as follows:

$$e_t = p_t - p^*_t - a_t \qquad (4)$$

where e_t = actual rate of appreciation of foreign currency in terms of home country currency during period t,

p_t = actual rate of inflation at home during period t,

p^*_t = actual rate of inflation abroad during period t,

and a_t = actual rate of appreciation of home country's real exchange rate during period t.[1]

If the home country has embarked on a nonaccommodating exchange rate policy in period t_o and its rate of inflation is still higher than in the foreign country, one can distinguish two regimes regarding the credibility of exchange rate policy during period t.

---

[1] At the limit, the rate of appreciation of the home country's real exchange rate may be equal to the inflation differential, implying a fixed exchange rate policy.

a. Incomplete credibility

In this case, the market is not convinced that the authorities will be able to sustain a policy of continuous real appreciation of the exchange rate. Instead, it is expected that the inflation differential will not only be accommodated by exchange rate policy during period t but that there may even be a real depreciation of the exchange rate, so as to offset some of the real appreciation that has occurred since period t_o. More formally,

$$Ee_t = Ep_t - Ep_t^* + k \sum_{i=t_o}^{t-1} a_i \qquad (5)$$

where $o \leq k \leq 1$.

Combining equations (1) and (5) yields the ex ante real interest rate differential between the home country and the foreign country as a function of the expected real depreciation of the exchange rate in period t:

$$(r_t - Ep_t) - (r_t^* - Ep_t^*) = k \sum_{i=t_o}^{t-1} a_i \geq o \qquad (6)$$

Equation (6) suggests that one of the costs of a nonaccommodating exchange rate policy that has not yet gained credibility may be, in certain periods, a higher real interest rate in the high-inflation country. The real interest rate differential will be higher the higher the perceived deviation of the exchange rate from that required to maintain purchasing power parity.

b. Full credibility

In this case the market assimilates the authorities' exchange rate rule in its expectations formation mechanism. Assuming that this rule is described by equation (4) and combining with equation (1) yields:

$$(r_t - Ep_t) - (r_t^* - Ep_t^*) = -Ea_t < o \qquad (7)$$

where Ea_t = market's expectation of real appreciation of home country's exchange rate in period t.

As long as the home country has a higher rate of inflation than the foreign country, the less than full accommodation of the inflation differential now implies a lower real interest rate at home than abroad. This result may seem somewhat perverse, as there is obviously a greater need for a firm interest rate policy in the high-inflation country. Nevertheless, in a world with perfect capital mobility, the equalization of interest rates adjusted for exchange rate expectations may force real interest rates toward such an unlikely configuration, as soon as financial market participants come to anticipate the real appreciation of the exchange rate. 1/

III. The Italian Experience in the EMS: 1979-90

1. Exchange rate policy and disinflation

Since the inception of the EMS, a nonaccommodating exchange rate policy has been one of the central elements of Italy's fight against inflation. The policy consisted in deliberately keeping the nominal rate of depreciation of the lira below Italy's inflation differential vis-à-vis its main trading partners, so as to force domestic producers to seek cost savings through better wage discipline and more gains in productivity. This would allow the progressive narrowing of the inflation differential without jeopardizing external competitiveness. An accommodating policy, by contrast, whereby exchange rate depreciation fully offset the inflation differential, would breed complacency in the setting of domestic prices and wages, particularly in conditions of real wage rigidity. Rather than improving competitiveness, exchange rate depreciation would only perpetuate Italy's high rate of inflation.

The Italian authorities repeatedly articulated this policy in no uncertain terms. In its Annual Report for 1981, for example, the Bank of Italy described exchange rate policy as follows:

1/ This result is in the same spirit as the so-called Walters critique of the EMS which, however, does not treat explicitly the issue of credibility (see Alan Walters, "A Critical View of the EMS," Cato Journal, Fall 1988, pp. 503-6).

> "During the course of the year, variations in the exchange rate of the lira have come about primarily after the realignments of March and October in the context of the EMS. Nevertheless, even in those more delicate and difficult passages, the improvement of competitiveness through the exchange rate has been such as not to allow firms to take for granted the recovery of their profit margins through this route." 1/

The principle of nonaccommodation was reiterated even more explicitly in the Bank of Italy's Annual Report for 1982:

> "Tensions within the EMS led to the realignment of June. In the deliberations on the new parities, Italy remained faithful to the line followed since the inception of the EMS: keeping the appreciation of the real exchange rate, which stems from the higher rates of price and cost inflation relative to other countries, from eroding competitiveness to an extent that would subvert our industrial base; but rejecting a policy of accommodation, which would be inconsistent with the objective of braking inflation." 2/

Objective indicators on inflation and exchange rate developments may cast additional light on the stance of exchange rate policy. A summary picture of the extent to which the inflation differential vis-à-vis trading partners has or has not been accommodated is provided by the movement of the various real exchange rate indices. By construction, such indices appreciate (depreciate) when the rate of exchange rate depreciation falls short of (exceeds) the inflation differential. One possible shortcoming of this approach is that it may understate the extent of nonaccommodation if its disciplining effect is immediately reflected in domestic prices. Another shortcoming may stem from biases in the weighting of currencies of the main trading partners. Effective exchange rate indices are compiled using the broadest feasible coverage of each country's trade, whereas exchange rate policy may be geared toward stabilizing the exchange rate vis-à-vis the currencies of a smaller subset of trading partners (e.g., ERM members in the case of Italy).

Notwithstanding these difficulties, trends in both real effective exchange rates and in the lira's bilateral exchange rate vis-à-vis the Deutsche mark (DM) confirm that Italy has pursued a nonaccommodating exchange rate policy through most of the 1979-90 period. As is illustrated in the top panel of Chart 1, Italy's real effective exchange rates in terms of relative unit labor costs, wholesale prices and export unit values have all appreciated markedly since 1978. This appreciation was tempered by the

---

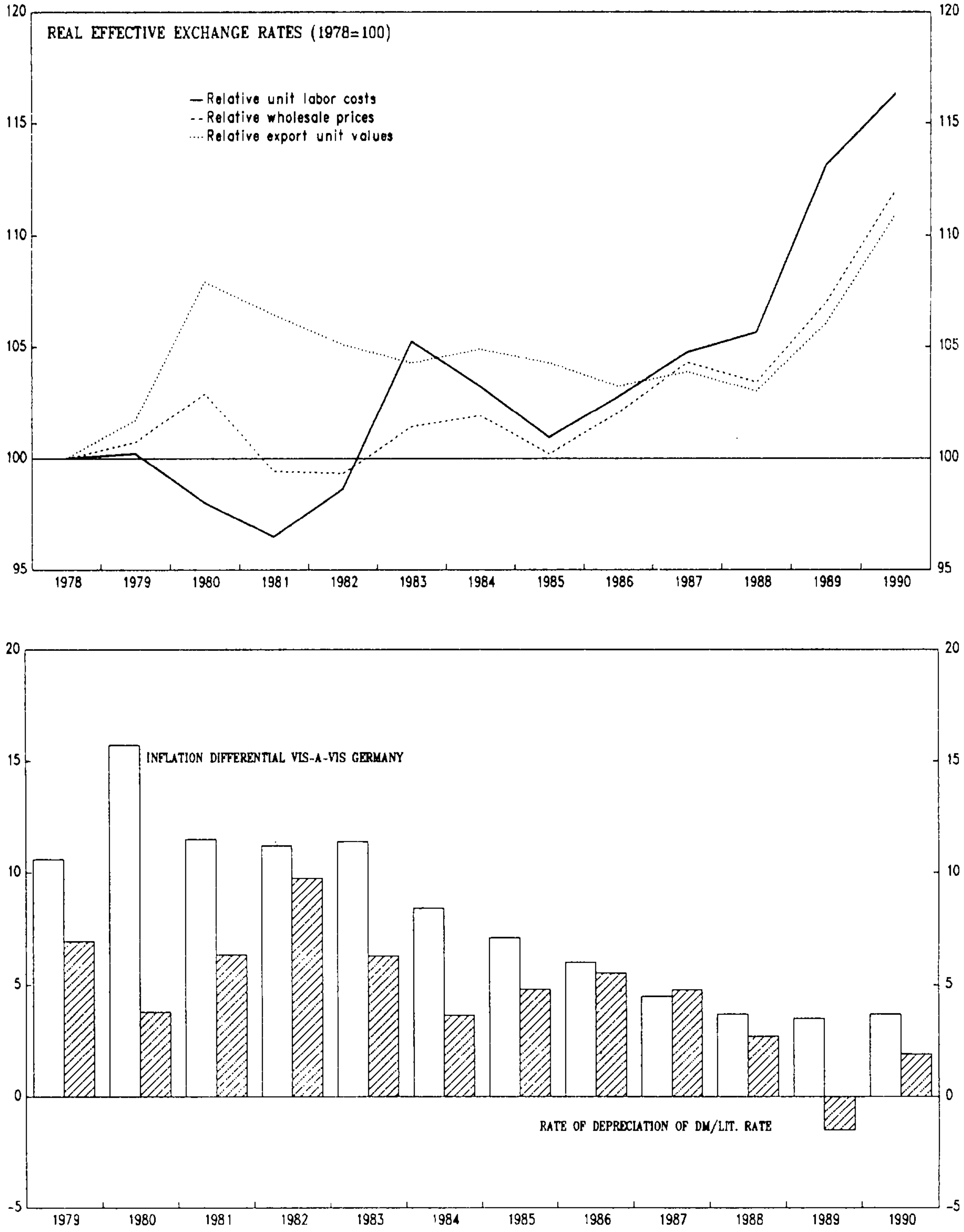
1/ Banca d'Italia, Assemblea generale ordinaria dei partecipanti tenuta in Roma il giorno 31 Maggio 1982, Anno 1981, Vol. I: Relazione annuale del Governatore, p. 393 (original text in Italian).

2/ Banca d'Italia, Assemblea generale ordinaria dei partecipanti tenuta in Roma il giorno 31 Maggio 1983, Anno 1982, Vol. I: Relazione annuale del Governatore, p. 394 (original text in Italian).

CHART 1

ITALY

INDICATORS OF STANCE OF EXCHANGE RATE POLICY, 1978-90



Sources: Bank of Italy, Relazione Annuale; IMF, International Financial Statistics; and Fund staff estimates.

strength of the U.S. dollar through 1985, but it picked up thereafter and by the second quarter of 1990, Italy's real exchange rate had risen by a cumulative 12 percent to 17 percent. The stance of exchange rate policy is also apparent from a comparison of the inflation differential vis-à-vis Germany with the lira's rate of depreciation vis-à-vis the DM, which was by most accounts the anchor of the EMS through this period. As is shown in the bottom panel of Chart 1, the lira's annual rate of depreciation vis-à-vis the DM has consistently fallen short of the respective inflation differential by a substantial margin. The inflation differential declined steadily from a peak of 15.7 percentage points in 1980 to around 3.5 percentage points in 1989-90. Nevertheless, the rate of depreciation of the lira also declined and the lira in fact appreciated in nominal terms vis-à-vis the DM in 1989 and depreciated only modestly in 1990.

2. The credibility of Italy's exchange rate policy

As was noted above, the Italian authorities announced early on their intent to pursue a nonaccommodating exchange rate policy and this policy was in fact carried out through the 1979-90 period. Yet, its ex ante credibility cannot be taken for granted as it is not unusual for governments to renege on their past policy pronouncements. Some interesting insights on the evolution of credibility can be gained by examining the trends in interest rate developments.

Before applying the analysis of Section II, it is helpful to make a simplifying assumption. Because we cannot observe the ex ante real interest rates that are the key variables, it is convenient to assume that the market makes perfect forecasts of domestic and foreign inflation. This may be a strong assumption over long horizons or when the rate of inflation is high and variable, but it is not unrealistic over relatively short periods (e.g., three months) and for the modest rates of inflation observed in ERM members. The implication is that any systematic errors in the forecasting of exchange rates stem not from errors in forecasting inflation differentials but from the lack of credibility of the government's exchange rate rule. More specifically, under the regime of incomplete credibility, combining equations (4) and (5) with the assumption of perfectly forecastable inflation yields

$$Ee_t - e_t = k\sum_{i=t_o}^{t-1} a_i + a_t > o \qquad (8)$$

Equation (8) in turn together with (1) yield

$$r_t-(r_t^*+e_t) = k\sum_{i=t_o}^{t-1} a_i+a_t \qquad (9)$$

The lack of credibility of the nonaccommodating exchange rate policy thus gives rise to systematic expectational errors, which are reflected in two directly observable phenomena: higher ex post real interest rates at home than abroad and higher domestic nominal interest rates than foreign interest rates adjusted for actual changes in exchange rates. As long as exchange rate policy is not credible, the inter-country differentials in both real interest rates and adjusted nominal interest rates will be higher the higher the perceived deviation of the real exchange rate from its equilibrium level. 1/

The trends in the differentials between Italy's real interest rate on three-month treasury bills and corresponding real rates in Germany and France, are presented in Chart 2 and Table 1. The differential is negative vis-à-vis both countries in 1979-81, but it turns positive, and rises steadily thereafter, peaking in 1987-88 at 3.6 percentage points vis-à-vis Germany and 1.3 percentage points vis-à-vis France. Both differentials drop significantly in 1989 and they fall sharply in 1990. The differential vis-à-vis France in fact turns negative in 1990 for the first time since 1981, while the differential vis-à-vis Germany drops to 0.2 percentage points or its lowest value since 1982. These developments can be

---

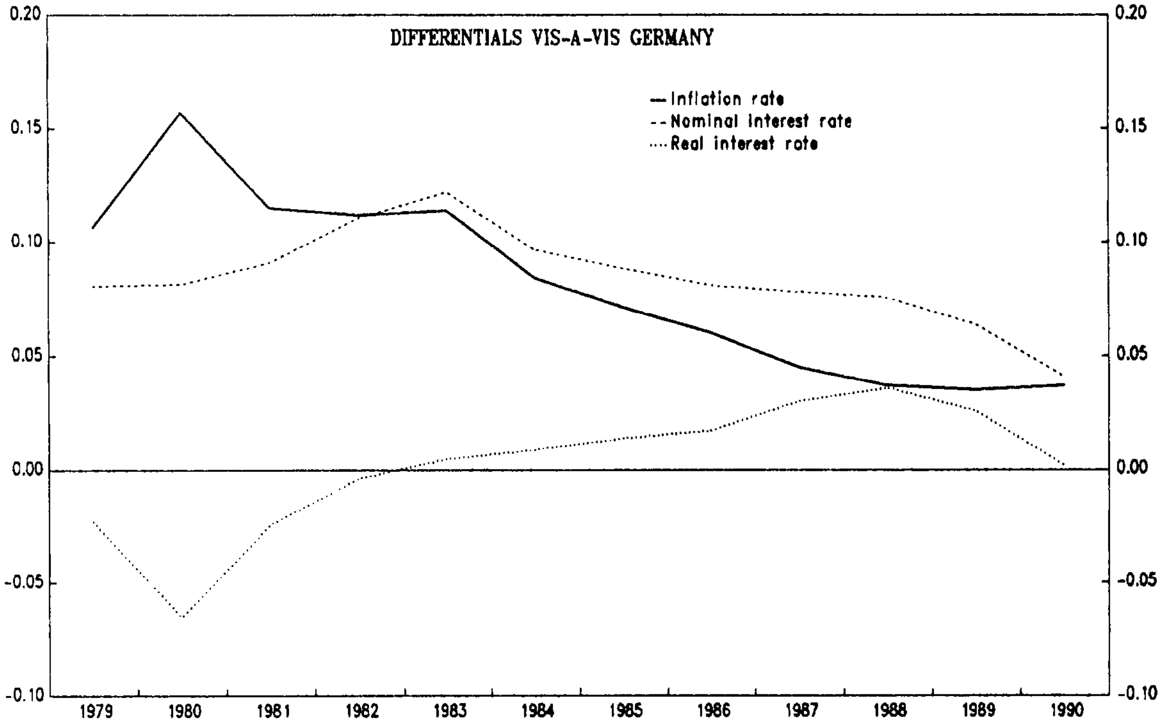
1/ In principle, such differentials could stem from a number of factors other than expectational errors. Perhaps the most commonly cited alternative explanation of the so-called forward discount bias are exchange risk premia. For a review of empirical studies that comes out against that explanation, see Froot and Thaler (1990). In the case of Italy, it could also be argued that government bond rates carry borrower-specific risk premia, reflecting the high level of public debt (see, for example, Cottarelli and Mecagni (1990)). In addition, capital controls, which were especially restrictive during the early phases of the EMS, may have limited the substitutability between domestic and foreign assets, so that uncovered interest rate parity may have failed to hold. As Giavazzi and Pagano (1985) have found, however, in the case of Italy capital controls have been able to sever the link between domestic rates and Eurorates only in the wake of EMS realignments. No potential arbitrage profits seemed to exist through most of the periods of EMS calm until 1984. This can be interpreted to imply that capital controls have not been binding on average. Further confirmation on this point is provided by the relatively narrow margins between average Eurolira rates and average Treasury bill rates during the more recent period (Tables 1 and 2). The latter finding also suggests that whatever borrower-specific premium has been added onto long-term government bond rates is not relevant for the short-term rates that are examined in this paper.

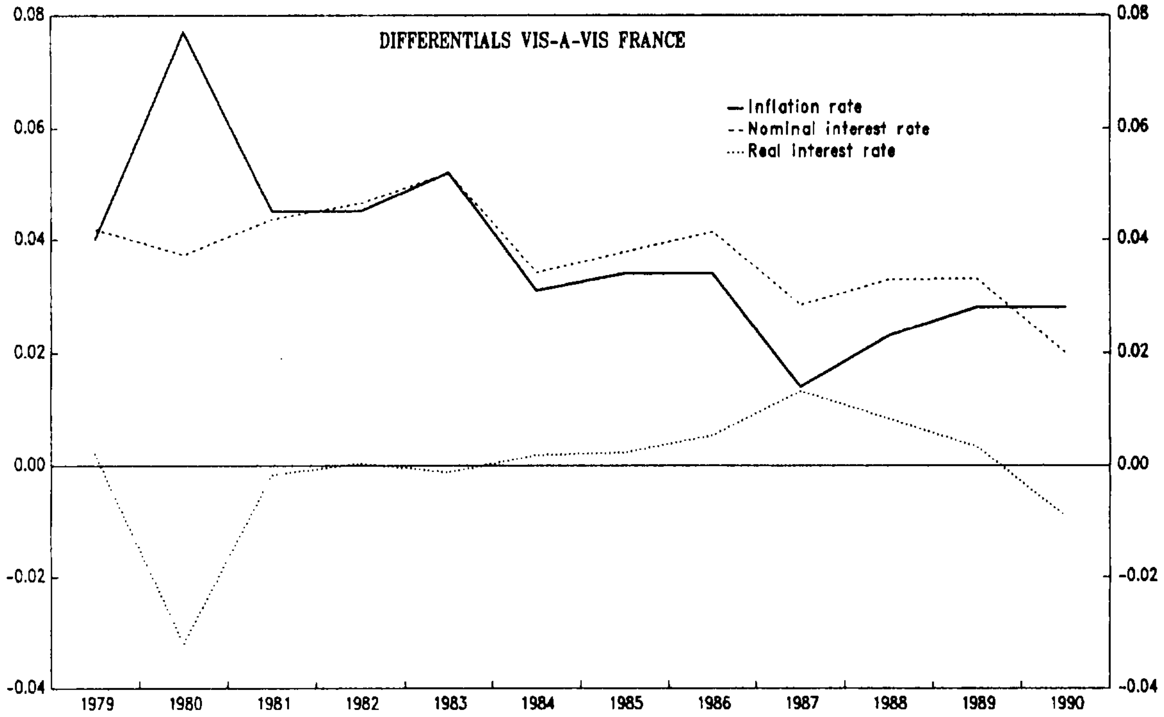
CHART 2

ITALY

INFLATION AND DOMESTIC INTEREST RATE DIFFERENTIALS, 1979-90

(In percent per annum)





Sources: Bank of Italy, Relazione Annuale; IMF, International Financial Statistics; and Fund staff estimates.

Table 1. Italy: Inflation and Interest Rate Differentials vis-à-vis Major Industrial Countries, 1979-90

(Annual averages, in percent)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 Est.
United States												
Inflation	11.4	13.5	10.3	6.2	3.2	4.3	3.5	1.9	3.7	4.0	4.8	5.5
Treasury bill rate 1/	10.1	11.3	14.7	11.1	9.0	9.9	7.7	6.1	6.0	6.9	8.4	7.8
Real rate	-1.2	-1.9	4.0	4.6	5.6	5.4	4.1	4.2	2.2	2.8	3.4	2.2
Italy												
Inflation	14.8	21.2	17.8	16.5	14.7	10.8	9.2	5.9	4.7	5.0	6.3	6.4
Treasury bill rate 1/	13.7	15.9	19.6	19.4	17.8	15.3	13.9	11.9	11.1	11.2	12.7	12.3
Real rate	-1.0	-4.3	1.6	2.5	2.7	4.1	4.3	5.7	6.1	5.9	6.0	5.5
Japan												
Inflation	3.6	8.0	4.9	2.6	1.8	2.3	2.3	0.6	0.1	0.7	2.3	3.2
Interest rate 2/	6.1	11.2	7.7	7.1	6.7	6.4	6.6	5.0	4.1	4.4	5.4	7.8
Real rate	2.4	2.9	2.7	4.4	4.8	4.0	4.2	4.4	4.0	3.7	3.0	4.4
Germany												
Inflation	4.2	5.5	6.3	5.3	3.3	2.4	2.1	-0.1	0.2	1.3	2.8	2.7
Treasury bill rate 3/	5.6	7.8	10.6	8.3	5.6	5.7	5.0	3.9	3.3	3.6	6.3	8.2
Real rate	1.4	2.2	4.0	2.9	2.3	3.2	2.9	4.0	3.1	2.3	3.4	5.4
France												
Inflation	10.8	13.5	13.3	12.0	9.5	7.7	5.8	2.5	3.3	2.7	3.5	3.6
Interest rate 4/	9.5	12.2	15.3	14.7	12.6	11.9	10.1	7.8	8.2	7.9	9.3	10.3
Real rate	-1.2	-1.1	1.7	2.4	2.9	3.9	4.0	5.2	4.8	5.0	5.6	6.5
United Kingdom												
Inflation	13.4	18.0	11.9	8.6	4.6	5.0	6.1	3.4	4.1	4.9	7.8	9.6
Treasury bill rate 1/	13.6	16.1	13.5	12.0	9.9	9.6	12.0	10.8	9.5	10.1	13.7	14.7
Real rate	0.2	-1.6	1.4	3.1	5.1	4.4	5.6	7.1	5.2	4.9	5.5	4.6
Canada												
Inflation	9.1	10.1	12.5	10.8	5.8	4.3	4.0	4.2	4.4	4.0	5.0	4.9
Treasury bill rate 1/	11.7	12.8	17.7	13.7	9.3	11.1	9.4	9.0	8.1	9.5	12.1	12.9
Real rate	2.4	2.4	4.6	2.6	3.3	6.5	5.2	4.6	3.6	5.3	6.7	7.6
Average of Rest of G7												
Inflation	8.8	11.4	9.9	7.6	4.7	4.3	4.0	2.1	2.6	2.9	4.4	4.9
Interest rate	9.4	11.9	13.2	11.2	8.9	9.1	8.5	7.1	6.5	7.1	9.2	10.3
Real interest rate	0.7	0.5	3.1	3.3	4.0	4.5	4.3	4.9	3.8	4.0	4.6	5.1
Differentials vis-à-vis rest of G7												
Inflation differential	6.0	9.8	7.9	8.9	10.0	6.5	5.2	3.8	2.1	2.1	1.9	1.5
Interest rate differential	4.2	4.0	6.4	8.2	9.0	6.2	5.4	4.8	4.5	4.1	3.5	2.0
Real int. rate differential	-1.7	-4.8	-1.5	-0.9	-1.3	-0.5	-0.1	0.8	2.3	1.9	1.4	0.4
Differentials vis-a-vis France												
Inflation differential	4.0	7.7	4.5	4.5	5.2	3.1	3.4	3.4	1.4	2.3	2.8	2.8
Interest rate differential	4.2	3.7	4.4	4.7	5.2	3.4	3.8	4.1	2.9	3.3	3.3	2.0
Real int. rate differential	0.2	-3.2	-0.2	0.0	-0.1	0.2	0.2	0.5	1.3	0.8	0.3	-0.9
Differentials vis-a-vis Germany												
Inflation differential	10.6	15.7	11.5	11.2	11.4	8.4	7.1	6.0	4.5	3.7	3.5	3.7
Interest rate differential	8.0	8.1	9.1	11.1	12.2	9.6	8.8	8.1	7.8	7.6	6.4	4.1
Real int. rate differential	-2.4	-6.5	-2.5	-0.4	0.5	0.9	1.4	1.7	3.0	3.6	2.6	0.2

Sources: Bank of Italy, Relazione Annuale-Appendice and Rassegna Congiunturale; IMF, International Financial Statistics and Current Economic Indicators, and Fund staff estimates.

1/ Three-month maturity, bond-equivalent basis.
2/ Discount rate on two-month private bills. For 1979 and 1980, the rate is extrapolated by adding 25 basis points to the money market rate.
3/ Twelve-month federal debt registered claims.
4/ Three-month Paris interbank loan rate.

interpreted to imply that the credibility of Italy's exchange rate policy was increasingly challenged beginning in the mid-1980s and as the process of capital flow liberalization picked up steam. Exchange rate policy became somewhat more credible in 1989 and significantly more so in 1990, as the real interest rate differential was virtually eliminated.

Further evidence on the trends in credibility is provided by the performance of Eurolira investments relative to other Eurocurrencies. As is illustrated in Chart 3 and Table 2, through most of the 1980s, realized returns on Eurolira deposits consistently exceeded the yields on Eurocurrency deposits in both DMs and French francs after adjustment for actual exchange rate changes. 1/ Over the whole period, investments in Eurolira would have yielded an average of 4.7 percentage points per year more than the comparable DM investments and 2.6 percentage points more than the comparable French franc investments. These margins were somewhat higher during the 1980-86 period and they remained significant also during the 1987-89 period, but they narrowed markedly in 1990--to 3.2 and 0.1 percentage points vis-à-vis the DM and French franc, respectively. In relation to the currencies of the other major industrial countries, the lira also had the best performance over the whole 1980-90 period, albeit in a less consistent manner. During 1980-86, the lira was outperformed by large margins by the U.S. dollar, the Japanese yen and the Canadian dollar, reflecting the strength of the three currencies over that period. The situation was reversed in 1987-90, however, as these currencies weakened and the lira outperformed them by margins averaging around 9 percentage points, 8 percentage points and 2.5 percentage points respectively, per year (Table 2). 2/

Data on international financial flows provide further evidence on the recent gains in credibility. Despite a widening of Italy's current account deficit to between 1 percent and 1.5 percent of GDP in 1988-90, and notwithstanding the progressive removal of controls on capital outflows, the capital account surplus has risen steadily from around 1 percent of GDP in 1987 to more than 2.5 percent of GDP in 1989-90 (Table 3). The boom in

---

1/ This computation is based on annual average interest rates and exchange rates, so as to avoid any biases resulting from the short-run volatility of exchange market conditions. The results may thus be viewed as representative of the returns that could have been earned by investing for keeps, at a steady rate through the year, rather than focusing on short-run opportunities stemming from discrete changes in exchange rates.

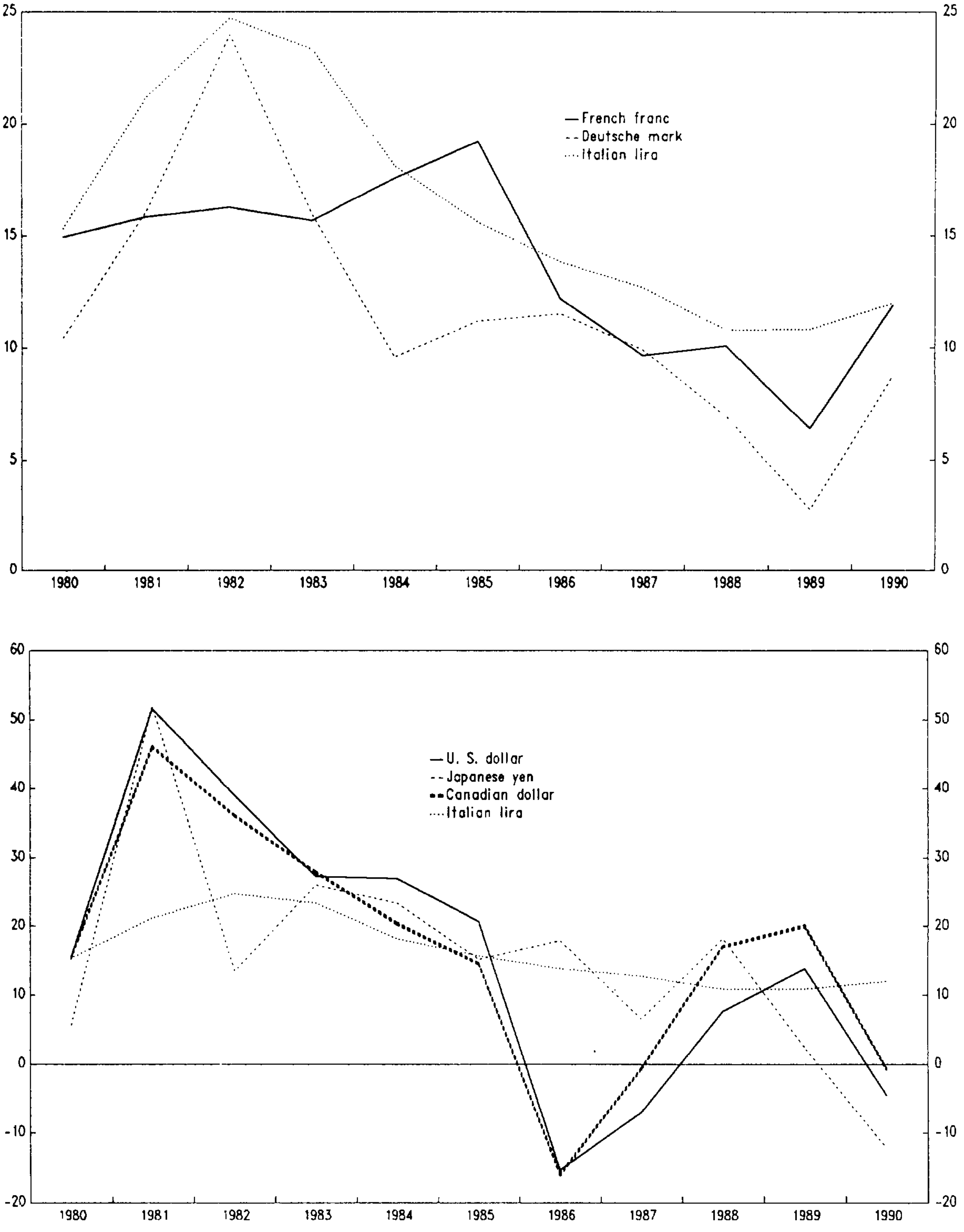
2/ From the point of view of Italian investors, lira investments have also turned out to be among the safest. The standard deviation of the ex post rate of return on Eurolira deposits was 4.7 percent over the 1980-90 period. By comparison, holdings of lira converted into Eurocurrencies and then reconverted into lira had realized returns with standard deviations ranging from 3.7 percent and 5.3 percent on French francs and DMs, respectively, to 19.3 percent on U.S. dollars.

CHART 3

ITALY

EXCHANGE-RATE ADJUSTED EX POST INTEREST RATES IN EUROMARKETS, 1980-90

(In percent per annum; in lira terms)



Sources: Bank of Italy, Bolettino Economico; IMF, International Financial Statistics; and Fund staff estimates.

Table 2 (continued). Italy: Exchange-Rate Adjusted Ex Post Interest Rates in the Major Industrial Countries, 1980-90

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 Est.
	(In percent per annum)											
Three-month rate of return on: 1/												
Italian lira	15.3	21.2	24.7	23.3	18.1	15.6	13.8	12.7	10.8	10.8	12.0	11.9
U.S. dollar	12.1	14.2	16.9	13.3	9.7	10.9	8.4	6.9	7.2	8.0	9.3	8.3
Japanese yen	6.1	11.3	7.7	7.0	6.6	6.4	6.7	5.1	4.3	4.5	5.5	7.8
Deutsche mark	6.3	8.7	11.9	8.6	5.6	5.8	5.4	4.6	4.1	4.3	7.1	8.5
French franc	10.7	12.2	18.2	19.5	16.5	12.8	10.8	9.5	8.6	8.1	9.4	10.3
Pound sterling	13.9	16.4	14.3	12.6	10.2	10.0	12.3	11.0	9.8	10.4	13.9	14.8
Canadian dollar	11.7	12.8	17.7	13.7	9.3	11.1	9.4	9.0	8.1	9.5	12.1	12.9
Appreciation (+) or depreciation (-) vis-a-vis Italian lira of:												
U.S. dollar		3.1	32.7	19.0	12.3	15.7	8.7	-21.9	-13.1	0.4	5.4	-12.7
Japanese yen		-0.4	36.5	5.3	17.8	15.7	8.2	10.5	1.3	13.3	-2.1	-16.8
Deutsche mark		3.9	6.8	10.8	6.7	3.8	5.1	5.9	5.0	2.8	-1.5	1.6
French franc		3.8	3.2	-1.6	-3.2	0.9	5.7	1.3	0.2	1.3	-1.6	2.3
Pound sterling		13.0	15.7	2.7	-2.7	1.9	5.4	-11.6	-2.9	9.2	-3.0	-5.0
Canadian dollar		3.3	29.5	15.6	12.4	10.1	3.1	-23.3	-8.9	8.2	9.6	-11.4
Exchange-rate adjusted ex post yields on Italian lire placed in:												
Italian lira		15.3	21.2	24.7	23.3	18.1	15.6	13.8	12.7	10.8	10.8	12.0
U.S. dollar		15.5	51.6	39.0	27.2	26.9	20.6	-15.4	-7.1	7.6	13.8	-4.6
Japanese yen		5.7	51.9	13.5	26.0	23.3	15.2	17.9	6.5	18.2	2.3	-12.3
Deutsche mark		10.5	16.1	24.0	15.9	9.6	11.2	11.5	9.9	7.0	2.7	8.8
French franc		14.9	15.8	16.2	15.7	17.6	19.2	12.2	9.7	10.1	6.4	11.9
Pound sterling		28.7	34.6	17.4	9.6	12.3	16.0	-0.8	7.8	19.9	7.1	8.3
Canadian dollar		15.3	46.0	36.1	27.8	20.3	14.5	-16.0	-0.7	17.0	20.0	-0.7
Average exchange rates Currency per U.S. dollar, unless otherwise noted:												
Italian lira	830.90	856.40	1136.80	1352.50	1518.80	1757.00	1909.40	1490.80	1296.10	1301.60	1372.10	1198.1
Japanese yen	219.14	226.74	220.54	249.08	237.51	237.52	238.54	168.52	144.64	128.15	137.96	144.79
Deutsche mark	1.8329	1.8177	2.2600	2.4266	2.5533	2.8459	2.9440	2.1715	1.7974	1.7562	1.8800	1.6157
French franc	4.2544	4.2256	5.4346	6.5721	7.6213	8.7391	8.9852	6.9261	6.0107	5.9569	6.3801	5.4453
Pound sterling ($/pound)	2.1216	2.3263	2.0279	1.7505	1.5170	1.3363	1.2963	1.4670	1.6389	1.7814	1.6397	1.7847
Canadian dollar	1.1714	1.1692	1.1989	1.2337	1.2324	1.2951	1.3655	1.3895	1.3260	1.2307	1.1840	1.1668

Table 2 (concluded). Italy: Exchange-Rate Adjusted Ex Post Interest Rates in the Major Industrial Countries, 1980-90

	1980-86 Average	1987-90 Average	1980-90 Compound Average	Standard Deviation
Three-month rate of return on: 1/				
Italian lira	18.9	11.6	16.1	4.7
U.S. dollar	12.2	7.8	10.6	3.0
Japanese yen	7.4	4.8	5.5	1.8
Deutsche mark	7.5	5.0	6.6	2.2
French franc	14.4	8.9	12.3	3.8
Pound sterling	12.8	11.3	12.2	2.1
Canadian dollar	12.2	9.7	11.3	2.6
Appreciation (+) or depreciation (-) vis-à-vis Italian lira of:				
U.S. dollar	9.9	-5.0	3.4	15.2
Japanese yen	13.4	-1.1	7.4	12.9
Deutsche mark	5.1	2.0	4.6	3.0
French franc	1.4	0.6	1.1	2.5
Pound sterling	3.5	-0.4	1.3	7.8
Canadian dollar	7.2	-0.6	3.4	13.8
Exchange-rate adjusted ex post yields on Italian lire place in:				
Italian lira (3-month Eurolira)	18.9	11.6	16.1	4.7
U.S. dollar	23.6	2.4	14.3	19.3
Japanese yen	21.9	3.7	14.3	15.5
Deutsche mark	14.1	7.1	11.4	5.3
French franc	15.9	9.5	13.5	3.7
Pound sterling	16.8	10.8	14.2	9.8
Canadian dollar	20.6	8.9	15.1	16.7

Sources: Bank of Italy, Relazione Annuale-Appendice and Bollettino Economico; IMF, International Financial Statistics; and Fund staff estimates.

1/ Three-month Eurodeposit rates, except for Canada, for which the three-month treasury bill rate was used.

Table 3. Italy: External Account Indicators, 1978-90

(*In percent of GDP*)

	Current account	Capital account	Change in official reserves (flow)	Net external 1/ position (stock)	Net investment income (flow)	Net official reserves (stock)
1978	2.1	0.3	2.3	-0.1	-0.4	8.3
1979	1.6	-0.7	0.9	2.3	-0.1	9.9
1980	-2.2	2.4	0.2	-0.3	-0.1	14.3
1981	-2.2	2.2	0.0	-3.8	-0.8	12.7
1982	-1.5	0.5	-1.0	-5.2	-1.0	9.5
1983	0.4	1.0	1.4	-4.7	-0.9	12.1
1984	-0.6	1.3	0.7	-4.9	-0.9	11.3
1985	-0.9	-0.8	-1.7	-6.6	-0.9	8.1
1986	0.4	-0.0	0.4	-5.3	-1.0	6.9
1987	-0.2	0.9	0.7	-5.3	-0.9	7.7
1988	-0.7	1.7	1.0	-6.2	-0.9	7.6
1989	-1.2	2.5	1.3	-7.9	-1.0	7.8
1990	-1.3	2.5	1.2	-8.5	-1.1	7.8

Sources: Bank of Italy, *Relazione Annuale*; and Fund staff estimates.

1/ End of year stock.

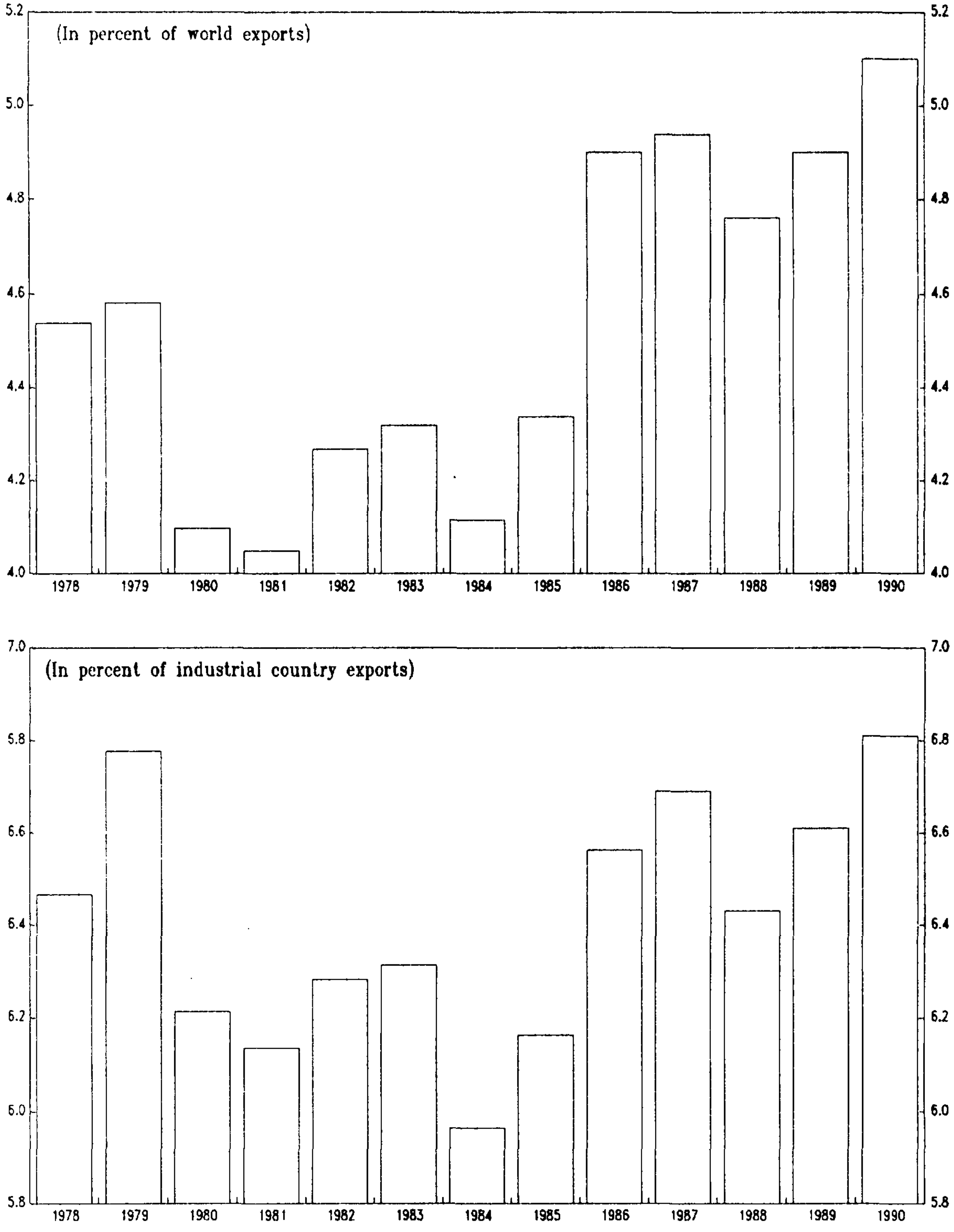
capital inflows led to an unprecedented build-up in Italy's official reserves, excluding gold, from US$20 billion at end-1986 to nearly US$70 billion by August 1990. The onset of the Gulf crisis and the firming of interest rates in Germany led to a partial reversal of these gains thereafter, but as of end-1990 official reserves remained at the comfortable level of around US$63 billion.

In a regime of free capital mobility and market-determined interest rates, modest current account deficits should prove easy to finance and, therefore, should pose little threat to the credibility of exchange rate policy. Italy's persistent current account deficit did lead to an increase in its net debtor position vis-à-vis the rest of the world--from the equivalent of 5.3 percent of GDP at end-1986 to an estimated 8.5 percent of GDP at end-1990--and to an edging up of the deficit on investment income to 1.1 percent of GDP in 1990. These magnitudes seem manageable, however, and, in and of themselves, they should pose little risk for the sustainability of Italy's external position over the next few years. Despite the apparent deterioration of real exchange rate indicators, export performance has actually held its own, with Italy's share in the value of world trade rising from 4.5 percent in 1978-79 to around 5 percent in 1990 (Chart 4). The recent widening of the current account deficit seems due more to long-run trends in the invisible balance rather than to a generalized lack of competitiveness.

The high level of official reserves, together with a more market-oriented approach towards countering speculative capital movements, are likely to have strengthened the Italian authorities' ability to adhere to their exchange rate target. In the wake of the abolition of capital controls, the continuing expansion of both inward and outward capital movements makes domestic short-term interest rates an ever-more powerful instrument for maintaining external balance. Indications are that this instrument is now being used more actively than in the past.

As is illustrated in Table 4, the month-to-month variability of Italy's nominal and real short-term interest rates increased significantly in 1989-90. In 1989, the average three-month treasury bill rate rose from 11.8 percent in January to 13.6 percent in March, before declining to 10.8 percent in June and rising again to 14 percent in November. Thereafter, this rate was mostly on a declining path, bottoming out at 10.5 percent in September 1990. It then rose again to 14 percent in December 1990 and declined to 12.9 percent in January 1991, before rising to 13.4 percent in the auction of mid-February 1991. The standard deviation of the monthly average three-month treasury bill rate rose from 1/2 of one percentage point in 1988 to 9/10 in 1989 and to one full percentage point in 1990. These developments may be attributable partly to a concurrent pickup in both the rate of inflation and its month-to-month variability, but there is reason to believe that exchange market pressures also played a role (see Section IV below). The standard deviation of the real interest rate has in fact increased commensurately with that of the nominal rate, rising

CHART 4
ITALY
EXPORT MARKET SHARES, 1978-90



Sources: IMF, International Financial Statistics; and Fund staff estimates.

Table 4. Italy: Variability of Nominal and Real Interest Rates, 1980-90

(In percent per annum)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990 Est.
I. Nominal three-month treasury bill rate											
January	15.3	16.8	20.8	19.5	16.8	13.9	14.3	10.8	11.4	11.8	13.0
February	16.0	16.7	20.1	19.1	15.8	13.6	14.2	10.7	10.7	11.9	12.7
March	15.8	18.8	19.3	18.6	15.7	13.5	13.5	10.6	10.7	13.6	13.3
April	15.6	18.3	20.7	17.8	15.6	14.4	13.0	10.2	10.7	12.7	12.7
May	15.9	20.0	20.8	17.4	15.0	14.5	11.6	10.3	10.7	12.2	12.0
June	15.4	19.3	19.1	17.3	14.7	14.4	11.2	10.3	10.6	10.8	11.1
July	15.9	20.0	18.8	17.4	14.7	14.2	11.2	11.2	11.5	12.6	11.5
August	15.9	20.8	18.3	17.3	15.0	14.0	10.9	11.2	11.5	13.0	11.7
September	14.9	19.8	17.5	17.1	15.4	13.9	10.9	12.1	11.1	12.6	10.5
October	16.9	21.4	18.1	17.3	15.3	13.3	10.8	11.9	11.4	13.2	11.6
November	16.9	21.5	19.5	17.6	15.0	13.3	10.7	11.9	11.8	14.0	13.2
December	16.8	22.1	19.5	17.5	14.8	13.2	10.8	11.6	12.1	13.5	14.0
Average	15.9	19.6	19.4	17.8	15.3	13.9	11.9	11.1	11.2	12.7	12.3
Standard deviation	0.6	1.7	1.0	0.8	0.6	0.4	1.3	0.6	0.5	0.9	1.0
II. Twelve-month rate of inflation of consumer price index											
January	20.6	19.7	17.6	16.2	12.3	9.3	8.2	4.2	5.2	5.5	6.6
February	20.8	20.0	17.1	16.1	12.1	9.3	7.3	4.4	5.1	5.9	6.5
March	20.5	20.4	16.4	16.2	11.9	9.4	7.0	4.2	5.2	6.1	6.3
April	20.9	20.1	15.8	16.4	11.6	9.4	6.4	4.4	5.1	6.3	6.2
May	20.8	20.8	15.3	16.1	11.3	9.5	6.1	4.4	5.0	6.5	6.0
June	20.9	21.0	15.3	15.5	11.3	9.4	5.8	4.5	5.0	6.6	6.1
July	22.0	19.6	16.0	15.0	10.7	9.4	5.5	4.7	5.0	6.5	6.2
August	22.0	19.3	17.0	13.6	10.7	9.1	5.6	4.8	5.0	6.3	6.7
September	21.4	18.6	17.1	13.4	10.1	8.8	5.3	5.2	4.9	6.3	6.7
October	21.2	18.7	17.1	13.1	9.5	8.9	4.7	5.5	4.8	6.4	6.8
November	22.0	18.3	16.6	12.8	9.2	8.9	4.4	5.4	5.1	6.3	6.8
December	21.3	18.1	16.1	12.6	9.4	8.8	4.2	5.2	5.4	6.3	6.8
Average	21.2	19.6	16.5	14.7	10.8	9.2	5.9	4.7	5.1	6.3	6.5
Standard deviation	0.5	0.9	0.7	1.5	1.0	0.2	1.2	0.4	0.1	0.3	0.3
III. Real three-month treasury bill rate 1/											
January	-4.4	-2.5	2.7	2.8	4.0	4.3	5.7	6.3	5.9	6.0	6.0
February	-4.0	-2.7	2.6	2.6	3.3	4.0	6.4	6.0	5.4	5.6	5.8
March	-3.9	-1.4	2.5	2.1	3.4	3.8	6.0	6.1	5.2	7.0	6.6
April	-4.4	-1.5	4.2	1.2	3.6	4.6	6.2	5.6	5.3	6.0	6.1
May	-4.1	-0.6	4.7	1.1	3.3	4.6	5.2	5.7	5.4	5.4	5.7
June	-4.6	-1.4	3.3	1.6	3.0	4.6	5.2	5.5	5.3	4.0	4.7
July	-5.0	0.4	2.4	2.0	3.7	4.4	5.4	6.2	6.2	5.7	5.0
August	-5.0	1.2	1.1	3.3	3.9	4.4	5.1	6.0	6.1	6.2	4.7
September	-5.3	1.0	0.4	3.3	4.8	4.7	5.3	6.6	5.9	5.9	3.6
October	-3.5	2.3	0.9	3.7	5.3	4.0	5.8	6.0	6.3	6.4	4.5
November	-4.2	2.7	2.5	4.2	5.3	4.0	6.0	6.2	6.3	7.2	6.0
December	-3.7	3.4	2.9	4.4	5.0	4.0	6.3	6.1	6.4	6.8	6.7
Average	-4.3	0.1	2.5	2.7	4.0	4.3	5.7	6.0	5.8	6.0	5.5
Standard deviation	0.5	2.0	1.2	1.1	0.8	0.3	0.5	0.3	0.4	0.8	0.9

Sources: Bank of Italy, Rassegna Congiunturale and Fund staff estimates.

1/ Nominal interest rate deflated by the rate of growth of the CPI over the previous twelve months.

in 1990 to 9/10 of one percentage point. This was more than double its standard deviation over the 1986-88 period and the highest since 1983.

The rising month-to-month variability of short-term interest rates can be interpreted to imply that the Italian authorities are increasingly willing to subordinate their domestic interest rate objectives to the goal of exchange rate stability. This, together with the new tools placed at the disposal of central banks by the Basle-Nyborg Agreements, should help increase the potential costs of speculating against ERM parities, thereby strengthening the system's credibility.

IV. Interest Rates and Inflation Convergence

The hardening of exchange rate policy in Italy and France over the last few years has been based on the presumption that, after credibility was established, the costs of the policy would abate. Implicit in this line of reasoning was the assumption that the EMS worked asymmetrically. Germany, at the center of the system, could set its own monetary policy so as to maintain price stability, thereby providing the system's nominal anchor. The monetary policies of other member countries, by contrast, were dictated by the need to support the value of their currencies vis-à-vis the DM. This typically implied that their real interest rates were higher than in Germany, which could be rationalized as the price of building up credibility. Once credibility improved, real interest rates would converge to the level prevailing in Germany. In the case of Italy, this could help bring about the virtuous cycle between lower interest payments and a smaller fiscal deficit that has been a central element of official fiscal adjustment scenarios.

Developments in 1990 suggest that there has been significant convergence of real interest rates, albeit without much relief for the Italian Government's interest bill. The average ex post real interest rate on three-month treasury bills did drop modestly, from around 6 percent in 1987-89 to 5.5 percent in 1990, but this decline had already been reversed by December 1990 (Table 4). The convergence of real interest rates has in fact stemmed not so much from a decline in lira rates as from a sharp increase in French and German real rates (Chart 5). Developments in Germany could be attributed partly to the real implications of unification and to the attendant changes in the policy mix, but no similar case can be made for France. It is indeed possible that Italian rates pulled up those in France and Germany.

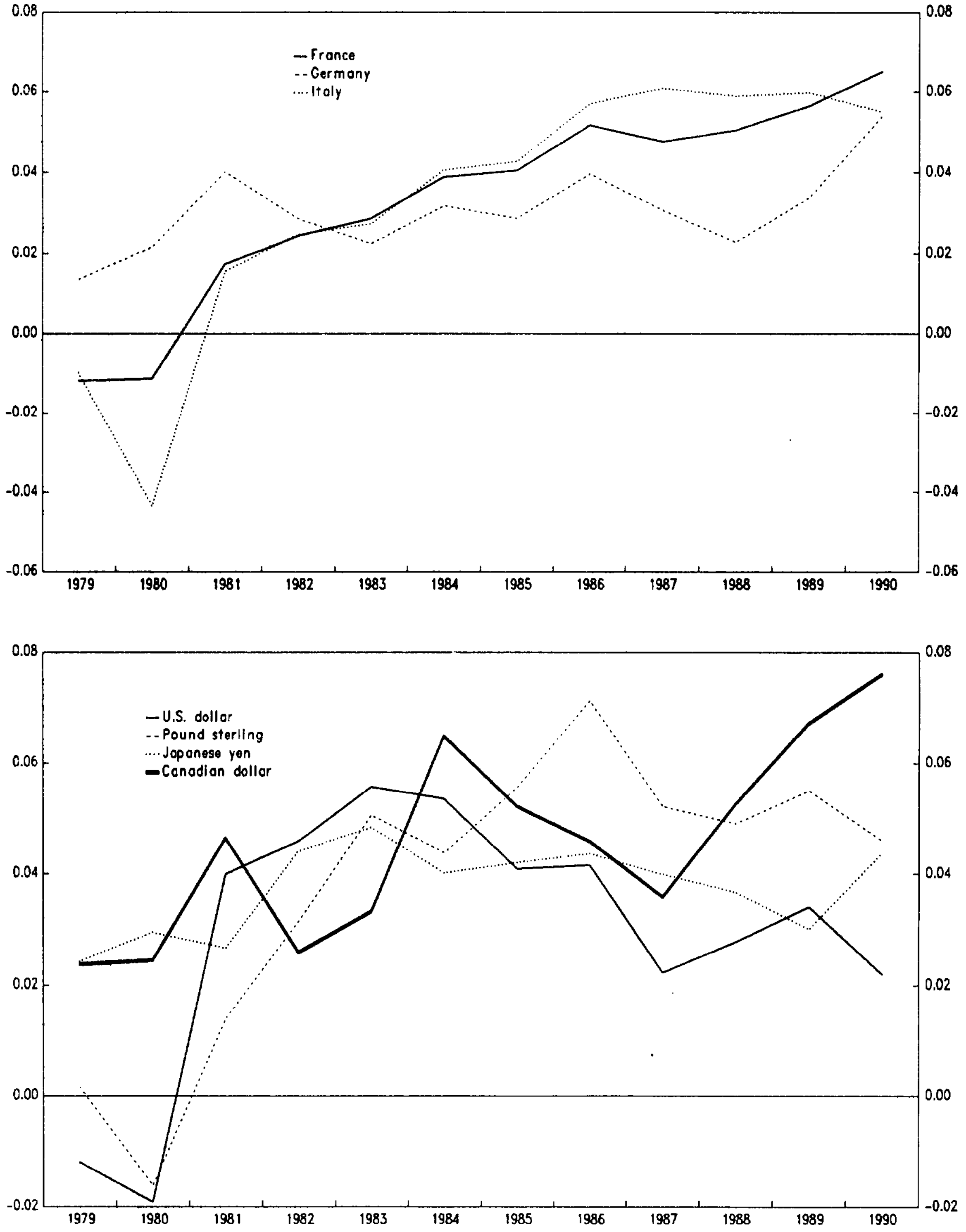
As is illustrated in Charts 6 and 7, there was a downward trend in short-term interest rates in France throughout early 1990, which was, however, interrupted in May as the French franc reached its lower margin of fluctuation vis-à-vis the lira. The level of short-term rates in Italy and their differential with French rates declined in June following coordinated exchange and money market interventions in the two countries, but French

CHART 5

ITALY

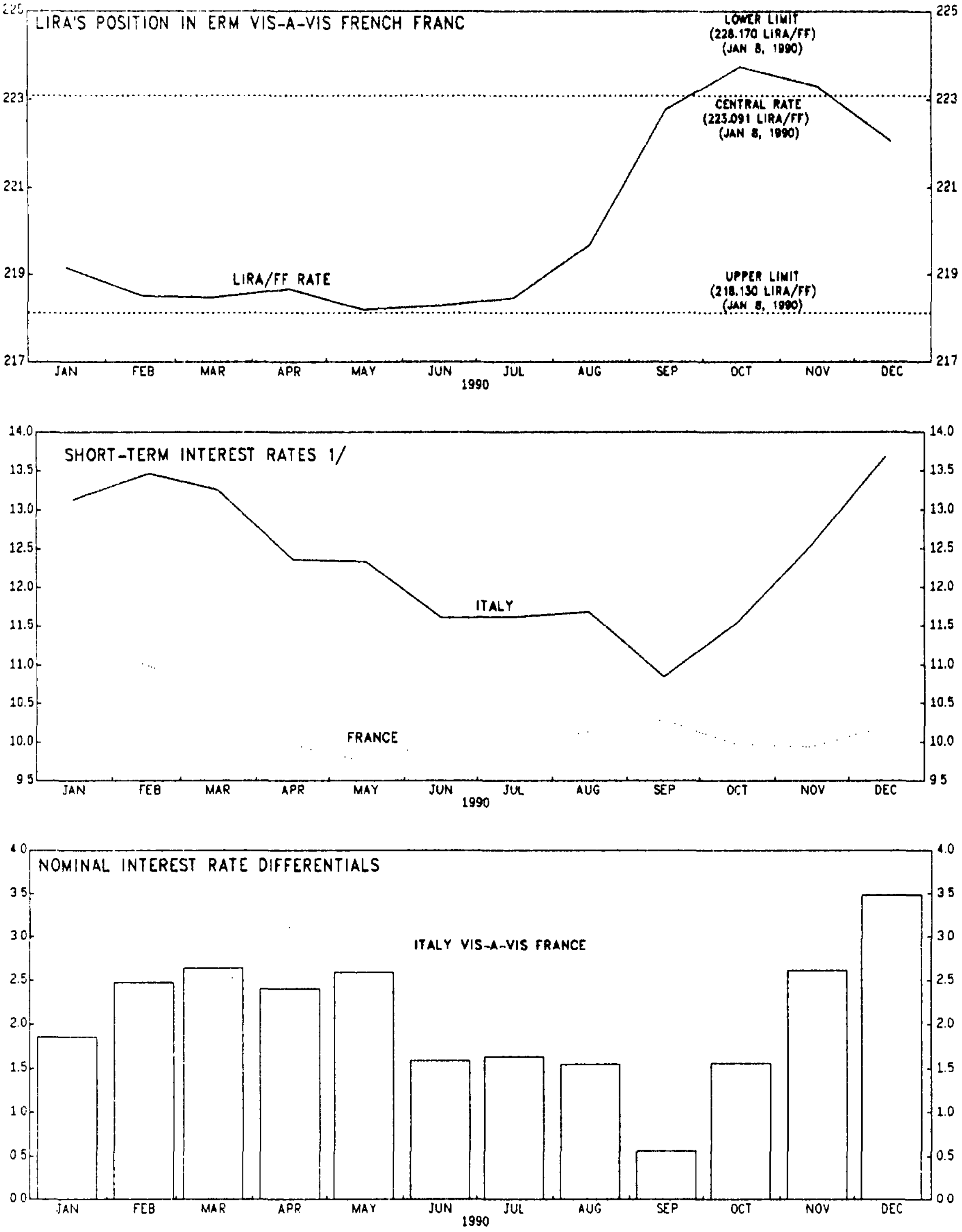
EX-POST REAL INTEREST RATES ON DOMESTIC MARKETS, 1979-90

(In percent per annum)



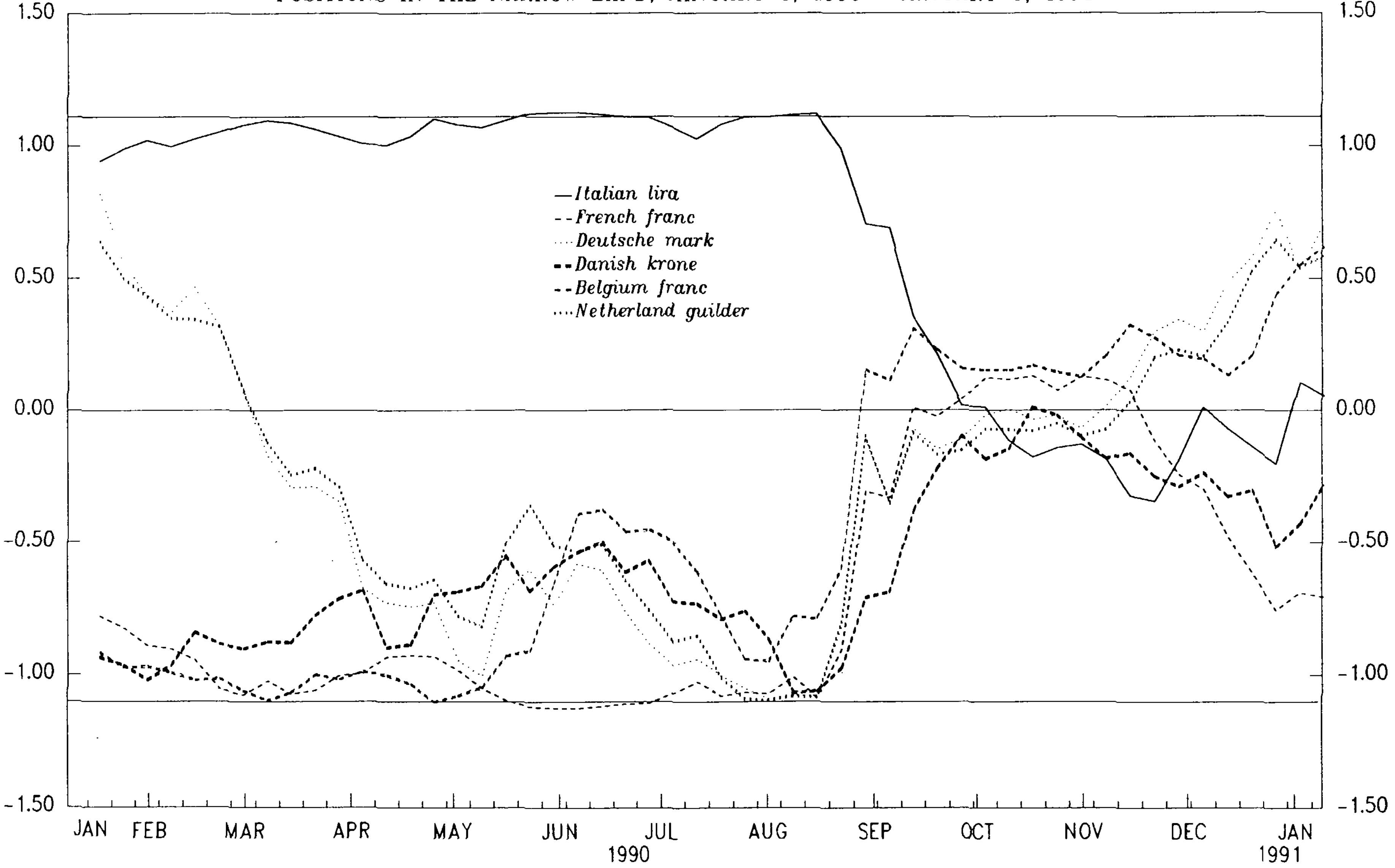
Sources: Banca d' Italia, Relazione Annuale and Bolettino Economico; IMF, International Financial Statistics; and Fund staff estimates.

CHART 6
ITALY
EXCHANGE RATE AND INTEREST RATE DEVELOPMENTS, Jan.-Dec. 1990



Source: Bank of Italy, Rassegna Congiunturale, IMF, International Financial Statistics; and Fund staff estimates.
1/ Three-month interbank loan rates.

Chart 7
ITALY
EUROPEAN MONETARY SYSTEM:
POSITIONS IN THE NARROW BAND, JANUARY 8, 1990 - JANUARY 8, 1991



interest rates edged up thereafter. In August, the lira once again reached its upper limit vis-à-vis both the deutsche mark and the French franc, and it once again took concerted foreign exchange intervention to drive it back down, this time also with the participation of the Bundesbank. 1/ Italian short-term interest rates were driven even further down in September as the Bank of Italy temporarily abstained from intervening in the domestic money market, lowering the average interest rate differential with France to around one half of a percentage point. This helped push the lira back toward its central rate in the ERM, while also facilitating a partial reversal of the previous increase in French money market rates. Lira short-term rates increased sharply thereafter, as rising interest rates in Germany and the strengthening of the deutsche mark caused tensions in the ERM. A part of this increase was reversed in January 1991, once the lira's position in the ERM was stabilized, but lira rates rose again in February, following another round of increases in German interest rates.

How could a ratcheting up of real interest rates be prevented? If all countries were to abstain from sterilization operations, interest rates would tend to decline in countries gaining official reserves. At first sight, this might seem like the optimal solution. Italy's nonaccommodating policy would secure the long-awaited decline in real interest rates and other ERM members could also relax their own monetary policies. But the slow pace of inflation convergence makes lower interest rates an ill-timed reward for Italy. In the absence of any other credible means to bring about the needed disinflation, it is difficult to preserve the recent gains in the credibility of exchange rate policy without a tight stance of monetary policy. Sterilized intervention in the foreign exchange market could not be effective for any sustained period of time in keeping domestic interest rates out of line with foreign rates. In the short run, however, it is possible that sterilization on a large scale could have some effect in delaying the required adjustments in domestic interest rates.

If the nonaccommodating exchange rate policy is maintained, the budgetary costs of sustained sterilized interventions could be nonnegligible. Assuming that no capital losses or gains have been made on the Bank of Italy's foreign exchange operations in 1988-90, one can derive a rough estimate of the carrying cost of that period's interventions. With cumulative official reserve gains on the order of 3.5 percent of GDP over the three-year period and with a nominal interest rate differential averaging between 4.5 and 6 percentage points vis-à-vis the three principal reserve currencies (U.S. dollar, DM, and Japanese yen) the net annual cost of carrying the domestic liabilities associated with the increase in foreign assets would amount to the equivalent of 0.2 percent of GDP. To this amount could be added the extra costs of any foreign exchange losses resulting from

---

1/ For a description of these operations, see Carlo A. Ciampi, Intervento al XXXII Congresso Nazionale del Forex Club Italiano, Verona, October 20, 1990, reprinted in Bank of Italy, Bollettino Economico, 15, October, 1990, p. 81.

the depreciation of some reserve currencies and of any future accumulation of official reserves.

V. Conclusions

The nonaccommodating exchange rate policy that Italy has pursued since the inception of the EMS has produced tangible results. The annual inflation differential vis-à-vis Germany was brought down from an average of 12 percentage points in 1979-83 to 3 1/2 percentage points in 1988-90, while the lira's average annual rate of depreciation vis-à-vis the DM declined from 6 1/2 percent to 1 percent over the same period. These achievements were secured with little apparent damage to Italy's traded goods sector and at the same time that its restrictive controls on capital inflows were being dismantled. During 1990, the lira's move into the narrow band of the ERM in January signalled the Italian authorities' determination to link it ever more closely to other ERM currencies. The lifting of remaining capital controls soon thereafter reiterated the Italian authorities' commitment to European financial integration and further enhanced the attractiveness of lira assets. The evidence on interest rate differentials, capital and reserve flows, and currency positions in the ERM suggests that financial markets' confidence in the lira was strengthened by these developments.

Notwithstanding the recent gains in the credibility of exchange rate policy, the stubbornness of the inflation differential poses some new challenges for Italian policy makers. With the lira in ERM's narrow band and with no remaining capital controls, domestic monetary policy has less autonomy than ever before. If markets are now convinced that exchange rate policy will remain nonaccommodating, uncovered interest rate parity implies that Italy must, at times, accept lower real interest rates than in its lower-inflation ERM partners.

To ensure that the recent gains in credibility are consolidated, it seems necessary to secure an early resumption in the process of inflation convergence. That process moved rapidly through most of the 1980s, but it has stalled in the last two years and its prospects are now further clouded by the tightening constraints on monetary autonomy. As the move toward the irrevocable fixing of exchange rates and EMU approaches, the new realities dictate that fiscal and incomes policies will now have to play a greater role in dampening inflation.

References

Banca d'Italia (1982, 1983), Assemblea generale ordinaria dei partecipanti tenuta a Roma etc., Vol. I: Relazione Annuale del Governatore.

Ciampi, Carlo A., Intervento del Governatore della Banca d'Italia al XXXIII Congresso Nazionale del Forex Club Italiano, Verona, October 20, 1990, reprinted in Bank of Italy, Bollettino Economico, 15, October 1990, pp. 79-85.

Cottarelli, Carlo and Mauro Mecagni (1990), "The Risk Premium on Italian Government Debt, 1976-88," Staff Papers (December), pp. 865-80.

Froot, Kenneth A. and Richard H. Thaler (1990), "Anomalies: Foreign Exchange," Journal of Economic Perspectives (Summer), pp. 179-92.

Giavazzi, Francesco and Marco Pagano (1985), "Capital Controls and the European Monetary System," reprinted in Capital Controls and Foreign Exchange Legislation, Occasional Paper (June) Euromobiliare.

Ungerer, Horst, Jouko J. Hauvonen, Augusto Lopez-Claros and Thomas Mayer (1990), "The European Monetary System: Developments and Perspectives," IMF, Occasional Paper 73 (November).

Walters, Alan (1988), "A Critical View of the EMS," Cato Journal (Fall), pp. 503-6.