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INTERNATIONAL MONETARY FUND

PORTUGAL

Selected Issues and Statistical Appendix

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Approved by the European I Department

October 3, 1996

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Portugal: Basic Data

Total area: 34,312 square miles
Population (1995): 9.90 million
GDP per capita (1995): US\$10,495

	1990	1991	1992	1993	1994	1995	1996 1/
(Changes in percent, except as otherwise indicated)							
Domestic economy							
Real domestic demand	5.2	4.0	4.5	-2.5	1.0	2.1	2.5
Real GDP	4.0	2.2	1.7	-1.2	0.7	2.3	2.3
Real foreign balance							
(contribution to GDP growth)	-1.6	-2.2	-3.2	-2.0	-0.5	-	-0.4
Employment 2/	2.2	3.0	-6.3	-2.0	-0.1	-0.1	-0.2
Unemployment rate 2/ 3/	4.7	4.1	4.1	5.5	6.8	7.2	7.2
Compensation per worker 4/	17.7	14.2	13.7	7.9	5.0	5.7	4.5
Unit labor costs (manufacturing)	8.6	15.8	14.2	8.1	5.8	-0.8	...
Consumer prices 5/	13.4	11.4	8.9	6.5	5.2	4.1	3.3
GDP deflator	13.0	14.8	13.1	6.8	5.1	5.0	3.3
External accounts							
Export volume	12.0	1.1	7.4	0.7	15.1	12.5	12.1
Import volume	15.6	7.2	13.4	-5.0	11.5	9.0	10.5
Export unit value	3.5	-0.3	-2.1	2.3	4.8	4.2	2.8
Import unit value	3.4	-0.9	-5.4	2.8	3.1	1.7	3.0
Trade balance (US\$ bns, f.o.b.)	-6.8	-7.9	-9.4	-8.0	-8.1	-8.5	-9.3
Transfers (net, US\$ billions)	5.5	6.0	7.8	6.7	5.4	7.2	7.0
Current account (US\$ billions)	-0.2	-0.7	-	0.4	-1.5	-0.3	-0.5
In percent of GDP	-0.3	-1.0	-	1.4	-1.7	-0.2	-0.5
Nominal effective exchange rate 2/	-1.7	0.5	3.6	-5.7	-3.4	1.7	-1.2
Real effective exchange rate							
(CPI based) 2/	6.1	6.9	8.6	-2.8	-1.3	2.9	-0.6
Foreign exchange reserves							
(end period, in US\$ billions) 2/	14.5	20.6	19.1	15.8	15.5	15.8	16.2
General government finances (in percent of GDP)							
Revenues	38.7	40.0	42.9	40.8	40.2	42.1	43.8
Expenditures	44.2	46.3	46.2	47.9	45.9	47.3	47.8
Current primary spending	29.3	31.7	31.9	33.7	34.4	35.0	36.1
Current balance	-1.8	-2.8	0.1	-2.8	-2.3	-1.4	-0.6
Capital balance	-3.8	-3.6	-3.4	-4.2	-3.3	-3.7	-3.4
Primary balance	3.2	2.1	4.4	-0.4	0.2	0.6	1.2
Structural primary balance	1.5	1.2	3.7	0.2	1.1	1.6	2.2
Overall balance	-5.5	-6.4	-3.3	-7.0	-5.7	-5.2	-4.0
Public debt 6/	68.6	69.8	61.9	67.1	70.4	71.7	71.6
Of which: external debt	7.0	4.8	4.2	7.3	9.5	11.8	12.0
Privatization receipts	0.7	1.5	2.4	0.6	1.3	2.1	2.3
Financial variables							
Liquidity of residents (L-) 2/	10.9	18.5	13.4	6.2	9.5	8.2	6.7
Domestic credit 7/	13.5	18.6	16.2	8.8	11.9	11.9	6.2
Credit to the general government 2/	11.1	4.1	7.1	2.3	14.9	-5.4	-10.6
Credit to the private sector 2/ 8/	14.9	26.7	20.4	11.4	10.7	18.7	7.7
Interest rates (end period)							
Overnight rate 7/	9.5	18.6	14.2	11.2	8.9	8.5	6.9
Treasury bill rate (6-months) 7/ 9/	17.7	18.2	15.6	10.6	10.7	8.8	7.2
Deposit rate, 91-180 days 2/	11.8	18.2	14.0	10.2	9.3	8.1	6.4
Lending rate, 91-180 days 2/	21.8	21.2	18.9	15.7	14.7	12.7	10.8

Sources: Bank of Portugal; Ministry of Finance; and Fund staff estimates.

1/ Unless otherwise noted, 1996 data are staff estimates..

2/ Data for 1996 correspond to July.

3/ The figures from 1992 onward are not comparable to earlier years due to a change in the survey method.

4/ Data for 1996 correspond to wage increases implicit in collective wage agreements during January -June.

5/ Data for 1996 is a 12-month moving average through August.

6/ Maastricht definition.

7/ Data for 1996 correspond to August.

8/ Includes nonfinancial public enterprises and nonmonetary financial institutions.

9/ Gross of a withholding tax of 20 percent, introduced in May 1989.

INTRODUCTION AND OVERVIEW

The considerable progress made by Portugal since EU accession a decade ago has allowed the country to approach the threshold of full economic and monetary integration with the most stable economies in Europe. The authorities are committed to joining EMU in the first stage and policies are accordingly geared to attaining the Maastricht criteria by 1997. This setting raises a range of issues, a selected number of which are examined in this report. A first issue regards the **process of real convergence**, against the background of concerns raised by the recent growth slowdown and the awareness that the favorable conditions of the first decade of EU membership are likely to wane looking forward—both in the run up to EMU and beyond. Chapter 1 examines Portugal's real convergence experience, and highlights the growth payoff of reform policies—over and beyond cyclical and catch-up effects—in determining the country's rapid growth during most of the past decade. A second issue relates to the importance of enhancing **labor market flexibility**, particularly in anticipation of the challenges that will stem from EU enlargement and the decline in structural funds—at a time when, if EMU participation is secured, the exchange rate instrument will have been lost. Chapter 2 identifies potential areas for reform by examining developments in the unemployment-vacancy relationship since the early 1980s. A third issue for Portugal as a prospective EMU member is that of the strength of its **financial links with Spain**. Chapter 3 examines such linkages as derived from daily data on short-term interest rates. A final issue, of relevance throughout the EU, is that of **assessing the stance of policies**, particularly their degree of stringency as countries strive to achieve the Maastricht criteria. Chapter 4 develops both a monetary and financial conditions index for Portugal as additional informational tools in this regard. The following paragraphs provide a brief summary of these chapters.

In the five years following accession to the EU in 1986, Portugal implemented a wide range of reforms and experienced the most rapid growth acceleration in Europe. With the onset of the world recession in the early 1990s, growth slowed substantially despite continued progress in policy reforms. Over the last three years, real income levels have diverged from the EU average, but convergence is set to resume this year if current growth projections materialize. Chapter 1 investigates the determinants of income growth in a cross-country framework that relates changes in growth rates to changes in economic policies, controlling for other factors such as the economic cycle and initial conditions. It applies this framework to Portugal by examining the factors underlying the rapid growth that followed EU accession and the slowdown of the early 1990s. The study finds that reform policies had a significant growth-enhancing effect during the period and that cyclical factors and a weakening of the catch-up effect were the main determinants of the fall in output growth during the early 1990s.

Although unemployment in Portugal remains comparatively low, it has risen steadily during the latest cycle, to above 7 percent at present. This rise undoubtedly reflects labor shedding during the cyclical downswing, but there are also indications of a possible greater persistence of unemployment and of an increase in its structural component. Following last year's work on the persistence of unemployment in Portugal, this year the staff examined the

issue from the angle of the unemployment-vacancy relationship—an often-used tool for distinguishing between structural and cyclical causes of unemployment. Chapter 2 describes the movements observed in the unemployment-vacancy relationship during the last 12 years and identifies two structural shifts in the relationship. It finds that the most recent outward shift of the curve, i.e., the deterioration of the unemployment-vacancy relationship, suggests that the labor matching process has become less efficient, particularly following changes in the unemployment benefits regime in 1989.

In the run up to EMU, regional financial links between EU countries have received increased attention, especially when those links have been historically strong. This is the case for Spain and Portugal, where EMU participation (or otherwise) by the larger neighbor is seen as having an important bearing for Portugal. Following last year's analysis of long-term interest rate linkages between Portugal and Spain, Chapter 3 examines the linkages of short-term rates. It finds that, while these linkages have attenuated somewhat since late 1994, they clearly persist, denoting the continued importance of policies aimed at strengthening the resilience of the Portuguese economy to external shocks.

For the past year the escudo has witnessed uninterrupted stability within the ERM, while inflation has generally trended downward and international reserves have remained at a comfortable level. These achievements are to a great extent the result of the steadfast conduct of monetary policy by the Bank of Portugal, firmly geared to maintaining exchange rate stability. Within this overriding objective, the magnitude and timing of changes in policy interest rates is assessed by examining a number of indicators. Chapter 4 estimates a monetary conditions index (MCI) used in a number of countries as an additional informational tool for evaluating the stance of monetary policy. It examines the leading indicator properties of the proposed MCI with respect to output and inflation. The chapter also proposes a broader measure of financial policies that could be used to assess changes in Portugal's policy mix.

I. PORTUGAL'S PERFORMANCE AFTER ACCESSION TO THE EUROPEAN UNION: THE GROWTH PAYOFF OF POLICY REFORM¹

A. Introduction and Summary

Since joining the EU in 1986, economic policy-making in Portugal has been defined by two basic objectives: real convergence of income levels to EU averages, and nominal convergence of inflation to the best performing economies in Europe. Portugal has made major strides on both fronts. Inflation fell from 20 percent upon accession to around 3½ percent today. Real convergence has also occurred, with per capita income levels at two-thirds of the EU average in the mid-1990s, compared with half upon accession. Extensive reforms generated these achievements. Portugal implemented profound structural changes that ranged from dismantling trade barriers to the full liberalization of the financial sector, the introduction of instruments of modern taxation, and the privatization of state assets.

The process of real convergence decelerated in the early 1990s, and even backtracked in 1993-94. The standard explanation for Portugal's growth slowdown focusses on its sensitivity to European business cycle fluctuations: smaller EU economies tend to have wider cyclical output fluctuations than their larger partners. According to this view, the European slowdown of the early 1990s disproportionately affected Portugal, but the process of real convergence is now set to resume, as the recovery again takes hold in partner countries. Recent data seem to support this view. To shed further light on the issue, this chapter takes a longer-term look at Portugal's growth process and asks two main questions. First, what has been the growth payoff of the policy reforms implemented by Portugal following EU accession and, second, what was the role of policies, versus the business cycle, in the slowdown of the early 1990s.

To respond to the questions posed above, this study examines the determinants of income growth in a cross-country framework that relates changes in growth rates to changes in economic policies, controlling for other factors such as the economic cycle and initial conditions. After estimating growth equations based on this framework for 67 countries from 1960-93, this chapter compares incremental growth achieved in Portugal since EU accession to that of its European partners.

The empirical literature on the determinants of growth in a cross-country framework is vast.² For Portugal, however, relatively little applied research on growth has been carried out recently. Important exceptions include work by Gaspar and Nogueira Leite (1995), who investigate the impact of EU transfers on steady state growth in Portugal; Marques (1996), who estimates the effect of infrastructure variables on real convergence in Europe; and

¹Prepared by Maria Carkovic.

²For a recent and comprehensive review, see Barro and Sala-i-Martin (1995).

Esteves (1996), who studies European convergence in inflation and saving rates and the impact on physical and human capital accumulation.

This chapter follows the approach of Easterly, Loayza, and Montiel (1996), who study the growth effect of reforms undertaken in Latin America in recent years. It applies the approach to examine Portugal's fast growth upon EU accession and the slowdown of the early 1990s, with particular emphasis on its growth performance relative to its European partners.

The main findings are as follows:

- The wide range of reforms undertaken by Portugal upon EU accession appreciably increased the long-run trend rate of economic growth. The main channel of the rise in growth rates was an increase in the efficiency of investment.
- The slowdown in growth of the early 1990s was due both to cyclical factors and the attenuation of the real convergence effect. In the latter regard, as real per capita income rose as a result of Portugal's comparatively rapid economic growth of the late 1980's, the catch-up process naturally slowed.
- The positive output effect of economic reforms actually intensified during the economic slowdown of the early 1990s. Thus, while cyclical factors and the unwinding of the catch-up process slowed growth, the economic policy improvements further boosted long-run trend growth. Indeed, the results suggest that economic reforms executed during 1986-93 raised steady-state per capita growth by 0.8 percent per annum.

The policy implication of this analysis is that although EU cyclical effects have—and may continue to have—a comparatively large impact on Portugal, and although the neoclassical convergence factor will likely play a smaller role in supporting rapid growth as Portugal becomes relatively wealthier, persevering in the reform agenda will provide the foundation and impetus for faster growth in the future.

B. The Econometric Procedure

Based on models of endogenous growth, most of the empirical literature uses cross-country data to investigate the long-run growth effects of initial conditions, external factors, and policy variables. In contrast, this chapter uses a dynamic panel estimation procedure. By pooling cross-country and time series, it (i) uses information for a large number of countries to answer the inherently time series question of how growth has responded to policy changes; (ii) controls for business cycle and country-specific conditions, which are critical for the analysis of Portugal's experience in the late 1980s and early 1990s; and (iii) deals with the likely endogeneity of policy variables by using past observations as instrumental variables.

The regression equation divides growth determinants between policy and nonpolicy variables, as follows:

$$\hat{y}_{it} = \beta RV_{it} + \gamma CV_{it} + \delta TS_t + \Psi CS_i + \mu_i + \eta_t + \epsilon_{it} \quad (1)$$

Where *i* and *t* stand for country and time, respectively, and a hat over a variable denotes rate of change. The variables are as follows:

y = average growth of GDP per capita
 RV = reform variables
 CV = control variables
 TS = time-specific variables
 CS = country-specific variables
 μ_i = unobserved country-specific effects
 η_t = unobserved time-specific effects
 ϵ_{it} = error term

The estimation procedure involves several steps. First, it is necessary to control for unobserved time-specific effects by using time period dummies. Second, after introducing time dummies, a key panel control variable—initial income level—is separated. This is important because the coefficient on this variable provides an estimate of the speed of real convergence. These transformations give rise to the following equation:

$$\hat{y}_{it} = \alpha \ln y_{i,t-1} + \beta \chi_{it} + \Psi CS_i + \mu_i + \epsilon_{it} \quad (2)$$

In this equation the variable χ includes the policy reform variables. A further transformation is necessary to control for unobserved country-specific effects. Thus, equation (2) is expressed in first differences. A drawback of this procedure is that the estimation loses other panel control variables that do not vary over time. The equation becomes as follows:

$$\hat{y}_{it} = (\alpha+1) \hat{y}_{i,t-1} + \beta \hat{\chi}_t + \hat{\epsilon}_t \quad (3)$$

The transformation in equation (3) introduces, by construction, a correlation between the error term and the lagged dependent variable which the econometric technique needs to address. In addition, it is likely that variables in χ and growth are endogenously determined. To deal with these problems, two sets of assumptions are introduced. First, it is assumed that the error terms, ϵ_{it} , are serially uncorrelated, that is $E(\epsilon_{it}, \epsilon_{is}) = 0$ for $t \neq s$. Then, values of *y* lagged two periods or more are valid instruments in the equation in first differences. Second, given that the problem of reverse causation applies to most variables in the set of explanatory variables, χ , it is assumed that χ are only weakly exogenous in the sense that $E(\chi_{it}, \epsilon_{it}) \neq 0$

for $s \leq t$ and zero otherwise. Then, values of χ lagged two periods or more are valid instruments in the equation in first differences. These two assumptions imply a set of moment restrictions that can be used in the context of the Generalized Method of Moments (GMM) to generate consistent and efficient estimates of the parameters. The estimation technique follows Arellano and Bond (1991).

The consistency of the GMM estimator depends on whether lagged values of the explanatory variables are valid instruments in the growth regression. To assess the validity of the instruments, two specification tests are performed. The first is a Sargan test of over-identifying restrictions, and the second is a test of absence of second-order serial correlation in the error term of the differences regression, which implies that the error in the level regression is not serially correlated.

C. The Policy Variables that Affect Growth

To investigate the impact of policies on Portugal's rapid growth following EU accession, this study estimates equation (3) defined in the previous section using panel data. However, the wealth of information contained in 67 countries' experiences over a period spanning almost three and a half decades remains largely unexploited due to data weaknesses: it is very difficult to obtain variables that define policy changes finely enough for a satisfactory investigation of growth. With this caveat in mind, this study defines a set of ten control and policy variables that are general enough to capture, broadly, key policy measures affecting growth.³

The regressions control for the log of initial per capita GDP, population growth, secondary school attainment of the adult population, and terms of trade changes. As explained above, the coefficient on the first variable captures the speed of convergence in the neoclassical growth model. The following two variables attempt to measure the availability of human capital. Finally, the terms of trade are included to control for external factors that might influence growth.

Policy reform variables are broadly divided into macroeconomic and structural variables. The macroeconomic variables considered are the inflation rate, and the log of the ratio of government consumption-to-GDP. Although inflation is not a policy instrument, it generally captures the success of fiscal and monetary policies that seek to provide a stable macroeconomic environment conducive to growth.⁴ In Portugal, lowering inflation is a centerpiece of the convergence plan and the ultimate goal of monetary policy, with a revision

³ For a discussion of a wide range of definitions of policy variables used in cross-country growth regressions, see Barro and Sala-i-Martin (1995).

⁴ Several studies have looked at the link between inflation and growth. See, in particular, Fischer (1993) and Bruno and Easterly (1995).

in the central bank's statutes in 1995 formally endowing it with the mandate of price stability. A declining share of government consumption in GDP is, for its part, a widely used indicator of credible and permanent fiscal adjustment (King and Rebelo (1990), Barro (1991), and Sala-i-Martin (1995)).⁵ The basic argument is that an increase in government consumption may reduce growth through two principal channels, depending on its financing. Government consumption may be associated with increases in distortionary taxation or, if financed by debt, it may crowd out private sector investment.

The structural variables considered are those affecting the financial sector, international trade, and exchange restrictions. The financial sector variable traditionally used (Easterly, and others (1996)) is the ratio of broad money to GDP, as a measure of the size of the sector. However, the sheer size of the financial sector may not be closely related to the development of financial services such as risk pooling and project monitoring (King and Levine (1993)). Thus, this study uses an alternative measure, the ratio to GDP of domestic credit to the private sector. This alternative, albeit still imperfect, measures more accurately the efficiency of financial intermediaries because it excludes credit simply funneled to the government. Reforms of the trade and exchange rate regime are commonly captured by two variables. One is openness, measured as the log of the share of international trade in GDP, and the other is the premium paid in parallel markets for foreign exchange.

Finally, in an effort to include the growth effects of an array of structural reforms spanning from privatization of public assets to the liberalization of foreign investment, the regression includes the log of the ratio of investment to GDP. Although this ratio is possibly jointly determined with growth, this endogeneity is addressed in the estimation by using instrumental variables. Even after correcting for endogeneity, however, the size of the coefficients on investment and other policy variables needs to be interpreted carefully. To the extent that investment changes due to factors unrelated to policy reforms, then the estimated coefficient on investment may be biased. Despite this disadvantage, the variable is included in the estimation because of the prior expectation that exogenous shocks to investment tend to cancel out in a large sample of countries with relatively long time series. Furthermore, policy reforms affect growth through two channels: efficiency of investment and investment itself. Thus, the interpretation of coefficients on policy reforms when investment is included capture the reforms' impact on growth only through changes in the efficiency of investment. The effect of policy reforms on the amount of capital accumulation is, instead, captured in the estimated coefficient on investment.

⁵The ratio of the government deficit to GDP would be a better indicator of the adequacy of fiscal policy. However, differences in coverage of the public sector and in the definition of fiscal deficits make this variable difficult to use in a cross-country framework.

D. Estimation Results

The sample used consists of a panel of 67 countries with data spanning from 1960 to 1993.⁶ Time periods are defined as five-year intervals, except for the last one which contains data for 1991-93 only. The five-year averages are appropriate to study the determinants of long-run processes such as growth because they smooth out data variability due to transient fluctuations.

The estimation results presented in Table 1 show that the variables chosen perform well in explaining changes in cross-country growth rates over five-year periods. The estimated coefficients have the theoretically expected signs and are all significant at a 5 percent level except for the parallel market premium (which is statistically significant at 10 percent), secondary school enrollment, and government consumption. Tests of the regression fit are satisfactory, including an R square of 0.53 and the strong rejection of the Wald's test null hypothesis that the explanatory variables are not jointly significant. Tests of the appropriateness of the instrumental variables used, and therefore of the consistency of the Generalized Method of Moments, are also good.⁷

To compare the estimated coefficients to other studies, Table 2 presents the values obtained by Easterly, Loayza, and Montiel (1996) whose method this study follows, and Barro and Sala-i-Martin (1995), who use a seemingly unrelated econometric technique with past observations as instrumental variables, and data from 1965 to 1985 averaged over 10 years. The sign of the coefficients remains the same throughout the three studies. The main differences between the coefficients estimated here and those of Barro and Sala-i-Martin are on convergence and investment-to-GDP; in both cases, their estimates are smaller than in this study.⁸ Estimates of convergence coefficients are highly sensitive to the estimation method used and tend to be substantially higher in pooled cross-country and time series regressions than in cross-country regressions. This study's estimate of -5.78 implies that conditional

⁶The panel data set is unbalanced because not all observations are available in each of the 67 countries.

⁷ The p values for the Sargan test and the test of second order serial correlation of the errors attest to the validity of the instruments used in the regression.

⁸There is also a large gap in the estimated coefficient on government consumption, but the coefficient is not statistically significant in this study. Barro and Sala-i-Martin use a different measure of government consumption (which excludes defense and current education expenditures), and they ascribe the very large estimated coefficient to the possibility that it is picking up adverse growth effects of political corruption and other aspects of bad governance.

convergence to steady state growth occurs at a rate of 6.8 percent per year.⁹ Regarding the coefficient on investment-to-GDP, Barro and Sala-i-Martin ascribe their smaller (and statistically insignificant) estimate to the possible reverse causation from growth to investment. In contrast, Easterly and others, and this study, also find causation from investment to growth.

Compared with the estimates presented here, Easterly and others find larger coefficients on government consumption, parallel market premium, and inflation; and smaller coefficients on financial depth, convergence, and terms of trade. Differences between the estimates presented in this paper and those in Easterly and others attest to the high sensitivity of the coefficients to the model specification and sample. Thus, this study is subject to the criticisms made in Levine and Renelt (1992) on the instability of the estimated relationships. Concerns about the likely instability of estimated coefficients arise from the difficulty in isolating the effects of specific policies on growth. To address this concern, Table 1 includes a Wald test of the joint significance of the policy variables. The test's results strongly reject the null hypothesis that policy packages included in the estimated regression have no impact on growth. Further, this study is primarily interested in assessing the growth effects of policy reforms *in general* and does not seek to identify *the* single policy reform underlying growth.

E. An Application to Portugal

Initial conditions and reforms after EU accession

To gauge the significance of the ambitious reform program undertaken upon EU entry in 1986 and discuss its role in the substantial growth experienced thereafter, it is useful to take stock of Portugal's pre-accession condition. In the midst of acute political turmoil in the years following the 1974 revolution, expansionary macroeconomic policies produced high inflation and widening current account deficits, leading to recourse to a Fund arrangement in 1983. Thereafter the current account was brought to near balance. The external position remained fragile, however, with a heavy reliance on tourism receipts and workers' remittances. In the five years prior to accession, output per capita stagnated and inflation hovered around 20 percent. Policy implementation showed no noticeable signs of improvement. Fiscal deficits ranged from 7 to 9½ percent of GDP and monetary policy continued to be based on credit controls. A substantial share of credit creation was devoted to financing fiscal deficits, and the main interest rates were set administratively, with real rates rarely attaining positive levels. On the structural front, high marginal tax rates and a myriad of specific taxes generated major distortions and produced only modest revenues. Furthermore, public production played a major role in the economy and the finances of major industrial enterprises deteriorated rapidly due to poor investment decisions, irrational pricing policies, and over-staffing. The borrowing

⁹The relationship between the estimated convergence coefficient, $(\alpha+1)$, and the speed of convergence, δ , is as follows, $(\alpha+1) = -(1 - e^{\delta T})/T$, where T is the time period used to average the data.

requirement of public enterprises rose to a peak of 8 percent of GDP in 1984. Investment levels were high but directed toward projects of dubious economic merit. Finally, the whole financial system remained in public hands after its nationalization in 1974.

In the five years following EU entry, Portugal's per capita GDP grew at 5 percent per year, 4.4 percentage points above the average of the previous five years. The acceleration in growth was three times larger than the European average and the fastest in Europe (Table 3, top part). The main priorities of reform were trade liberalization and macroeconomic stabilization. Portugal's openness to international markets increased at one of the sharpest rates in Europe, second only to Ireland. Most important, customs duties and quotas affecting the industrial sector were phased out. Increased openness was complemented by a significant decline in average inflation, of 8½ percentage points, also similar to the inflation decline experienced by Ireland. The fall in inflation was facilitated by reduced monetary financing of the fiscal deficit and the anchoring of monetary policy to a crawling peg exchange rate regime. In contrast, reforms in other growth-enhancing areas lagged. Government consumption increased in the five years following accession and the fiscal consolidation that occurred over the period stemmed solely from increased revenues. The rise in revenues that resulted from the introduction of VAT in 1986 and the corporate and personal income taxes in 1989 fueled an even larger increase in expenditures. In the financial sector, credit allocated to the private sector fell marginally in proportion to GDP, with financial liberalization beginning in earnest only in 1990. Finally, investment declined from the very high levels of the previous period, as major public projects came to an end.

Five years into EU membership, growth fell sharply to three-quarters of a percent per year, or 4.3 percentage points below the average of the preceding period (Table 3, lower part). In 1991-93 growth decelerated throughout Europe, but Portugal's deceleration was twice as fast despite the continued pursuit of macroeconomic adjustment and structural reforms. Specifically, Portugal deepened its integration with foreign markets and the trade-to-GDP ratio rose twice as fast as the European average. Helped by the shadowing of the ERM as from October 1990 and full participation in September 1992, inflation also declined. Furthermore, credit allocated to the private sector increased in line with the European average and in response to the full liberalization of the financial sector during this period. Specifically, (i) the central bank replaced compulsory credit ceilings with open market operations in March 1990; (ii) the new Organic Law of October 1990 gave the central bank greater autonomy in the conduct of monetary policy and explicitly prohibited the financing of public deficits; (iii) a new securities market code gave greater transparency to the stock market's regulatory environment in 1991; (iv) credit institutions obtained full freedom to set deposit rates in May 1992, when the minimum rate for time deposits was abolished and the rate for demand deposits was liberalized; and, (v) the capital account was fully liberalized during the last quarter of 1992. The period also saw extensive privatization in the financial sector.

Despite gains on most policy fronts, reform faltered in some areas. Specifically, the reduction in inflation was smaller than the average for Europe and government consumption continued to increase at a faster pace than in Europe. Except for 1992, when the

harmonization of VAT rates reduced the deficit, the fiscal situation deteriorated during 1991-93 due to the lagged effects of a three-year civil servants' pay-scale reform initiated in late 1989, the addition of a fourteenth month to social security payments in late 1990, an increase in health benefits in 1991, and a severe breakdown in tax administration in 1993. Finally, the investment-to-GDP ratio fell again, but by much less than the European average.

This preliminary overview of the evidence reveals that Portugal implemented an important set of reforms following accession, whose most salient elements were, initially, trade liberalization and price stabilization, and subsequently, financial liberalization. The reform path was not uniform not only due to the chosen sequencing of the reforms, but also because throughout the period the welfare state expanded and investment fell. The question addressed in the next section is that of the role played by the package of reforms implemented by Portugal on its growth performance.

The growth payoff of policy reforms

To analyze the factors underlying growth in Portugal since EU accession, this section breaks down the fitted values of growth rates into the contribution of explanatory variables grouped as policy variables; variables capturing cyclical and terms of trade effects; the real convergence factor; and other variables. The exercise provides a form of growth accounting in which policy-makers control many of the right-hand-side variables, unlike the growth rates of factor inputs. The exercise is performed by fitting the regression results corresponding to the periods 1986-90 and 1991-93 for Portugal and its European partners, in the top and bottom parts of Table 4. Prediction errors are significant at a 10 percent level for only one observation among the 30 presented. On average, the model explains most of Europe's increase in the per capita growth rate of 1½ percentage points in 1986-90 (compared to the previous five years) and most of the 2 percentage point fall in 1991-93.

The fitted values for Portugal in 1986-90 reveal several interesting results. First, the two most important areas of policy reform—increased openness to trade and reduced inflation—enhanced long-term growth. In classical fashion, Portugal's engine of growth was the exploitation of international comparative advantages. This improved the productivity of resources and induced higher growth. This effect was boosted by a rapid decline in inflation. Second, the positive effects of these reforms on output growth were mitigated by the fall in the measured investment-to-GDP ratio. (Indeed, the total contribution to growth of the reforms implemented in Portugal was smaller than the average contribution of the European countries in the sample). Third, a boost to human capital investment, which was ten times greater than the average in Europe, further enhanced trend growth in Portugal. This may have been the result, in part, of the increase in the school-leaving age by three years in 1986 and the rapid rise in training expenditures under the First Community Support Framework. Thus, overall policy improvements raised trend growth in Portugal, though not by as much as overall output growth in 1986-1990. The fourth element revealed by fitting the regression estimates to Portugal is that the upturn in the worldwide economic cycle and positive terms of trade shock of 1986-90 were the most important factors in explaining the jump in growth during the

first five years after EU accession. Finally, the value of the growth residual is positive. This indicates that Portugal performed better than would have been expected by the estimated impact of policy reforms based on international experience over three and a half decades, after controlling for permanent characteristics of the countries themselves and the state of the world economy. This is consistent with the hypothesis that, as a small and open economy, Portugal is more sensitive to business cycle fluctuations than the average country in the sample.¹⁰

Fitted values for the early 1990s for Portugal show that the slowdown in growth can be fully ascribed to the downturn in the world business cycle and the negative impact of real convergence factors. According to the standard convergence result, the increase in initial income put a brake on the growth process. The adverse cycle and convergence effects were mitigated by the quickening of the pace of policy reforms, whose impact on growth strengthened. Further opening of the economy and continued progress in nominal convergence were importantly reinforced by the liberalization of financial markets and structural policies that dampened the downward trend in the investment-to-GDP ratio. Had it not been for increased openness, lower inflation, and financial deepening, the rate of output growth in Portugal would have been 0.6 percentage points per year lower than it was. Moreover, these policy reforms continued to boost trend growth rates even as cyclical factors dominated the short-run economic picture. Contrary to the previous five years, the growth residual was negative in the 1990s, indicating that the effect of reforms, after controlling for Portugal's permanent characteristics and the state of the international economy, was worse than would have been expected. This is, again, consistent with the hypothesis that Portugal is highly sensitive to business cycle conditions.¹¹

The question often arises as to why Portugal has not shown the steep growth rates experienced by the fastest growing country in Europe, Ireland, during the 1990s. The main difference between Ireland and Portugal would appear to be the scope and breadth of policy reforms. Nonpolicy factors in Ireland, mainly cyclical and real convergence factors, almost replicated Portugal's experience and led to a deceleration of output growth in the early 1990s, but the deceleration was only 40 percent of that experienced by Portugal. Policy reforms increased long-run trend growth rates in Ireland by 1.3 percentage points per year in the early 1990s, more than twice the increase in Portugal. Importantly, Ireland's reforms proceeded on all fronts. The economy became more open, government consumption declined, inflation fell, financial deepening increased, and structural reforms led to higher investment, possibly

¹⁰For an application of the empirical regularities of business cycle models to Portugal, see Correia, Neves and Rebelo (1993).

¹¹Two alternative hypotheses to explain the prediction error are not symmetric and, thus, lack the intuitive appeal of the business cycle hypothesis. The other possibilities are measurement errors in the explanatory variables, which prevent a full reflection of the breadth of the reform effort undertaken by Portugal, and excluded variables such as EU transfers. EU transfers doubled when the prediction error turns negative, however.

inducing strong complementarities of macroeconomic and structural policies that boosted steady state growth. In contrast, Portugal's welfare state expanded and structural reforms failed to reverse the declining investment trend.

F. Concluding Remarks

In closing, this section answers the two questions posed at the outset: first, have policies implemented by Portugal after EU accession had a growth payoff? The answer is, unequivocally, yes. The sum of the fitted values for policy reforms in Table 4 shows that policies contributed to increasing long-term growth in Portugal by 0.8 percentage points per year in the first eight years after EU accession. This means that, cumulating over a period of 30 years, policy reforms alone would raise GDP per capita by one quarter. Furthermore, the main channel of growth in Portugal has been an increase in the efficiency of investment rather than in the capital stock. Second, how much of the reduced growth of the early 1990s is explained by policies as opposed to the effects of real convergence and the output cycle? The answer provided in this chapter is that the overall policy package implemented had a growth-enhancing role during the period. Thus, the main determinants of the fall in output growth were cyclical factors and a weakening of the catch-up effect. The policy implication of this analysis is that although cyclical factors may dampen growth in the short run, and lesser reliance can be made on growth stemming from the catch-up process, persevering in the reform agenda will provide the impetus for sustained faster growth in the longer run.

Table 1. Regression for Real Per Capita GDP Growth

Explanatory variables	Coefficient	t-statistic
Volume of trade / GDP	2.63	6.82
Government consumption / GDP	-0.04	-0.08
Inflation	-2.27	-5.21
Financial assets / GDP	2.04	4.40
Parallel market premium	-0.72	-1.79
Investment / GDP	4.10	11.18
Initial GDP	-5.78	-6.43
Average years of secondary schooling	0.14	1.36
Population growth	-0.82	-9.76
Terms of trade changes	8.89	5.97
Constant	0.34	1.26
Period dummy, 1986-90 1/	0.82	2.98
Period dummy, 1991-93 1/	-1.84	-6.53
Tests of regression fit		
R square	0.53	
Wald test of joint significance (p-value)	0.00	
Wald test of joint significance of policy variables (p-value)	0.00	
Number of observations	348	
Tests of GMM consistency		
Sargan test (p-value)	0.43	
Serial correlation test (p-value) 2/	0.44	

Data sources: Easterly, Loayza and Montiel (1996), and IFS.

1/ The regression has one dummy per time period.

2/ The null hypothesis is that errors in the first difference regression exhibit no second-order serial correlation.

Table 2. Comparison of Estimated Coefficients

	This study	Easterly et.al.	Barro & Sala-i-Martin
Volume of trade / GDP	2.63	2.50	...
Government consumption / GDP	-0.04	-0.46	-11.3
Inflation	-2.27	-3.35	...
Financial assets / GDP	2.04	1.71	1.60
Parallel market premium	-0.72	-1.12	-3.00
Investment / GDP	4.10	4.07	2.40
Initial GDP	-5.78	-4.75	-2.60
Terms of trade changes	8.89	7.76	11.00

Note: The number and definition of variables that control for human capital varies widely among the different studies. Thus, those coefficients are not reported in this table.

Table 3. Indicators of Changes in Growth and Policy Variables 1/
1986-90 relative to 1981-85

	Growth	Openness	Government Consumption	Financial Inflation	Depth	Investment
Austria	1.06	8.16	-0.32	-2.01	-0.12	0.90
Denmark	-1.37	4.26	-1.75	-3.72	0.18	1.67
Finland	0.67	0.99	1.18	-2.90	0.23	0.58
France	1.36	3.95	-0.89	-5.57	0.12	0.90
Germany	1.02	4.46	-0.50	-0.70	0.05	-0.45
Greece	0.53	16.04	1.14	-4.25	-0.07	-2.31
Ireland	3.25	19.86	-2.27	-8.17	-0.03	-5.90
Italy	1.67	4.16	0.55	-7.43	-0.00	-1.96
Netherlands	1.85	11.12	-1.46	-2.53	0.07	2.72
Norway	-1.87	2.97	1.69	-4.20	0.24	0.58
Portugal	4.43	16.48	0.68	-8.54	-0.21	-1.58
Spain	3.11	7.32	0.73	-4.12	0.02	2.23
Sweden	4.05	-2.58	-0.96	3.24	0.01	4.03
Switzerland	1.11	6.39	-0.12	-0.83	0.26	3.65
United Kingdom	1.09	5.09	-1.51	-1.32	0.22	2.78
Average	1.47	7.24	-0.25	-3.54	0.06	0.52

1991-93 relative to 1986-90

	Growth	Openness	Government Consumption	Financial Inflation	Depth	Investment
Austria	-1.84	9.02	-0.14	1.11	0.14	0.72
Denmark	-0.48	6.18	4.35	-1.86	-0.16	-3.17
Finland	-7.92	4.58	3.73	-3.74	0.12	-8.49
France	-2.67	5.27	0.39	-1.01	0.07	-1.63
Germany	-1.63	8.62	0.91	-2.44	0.16	0.43
Greece	-0.90	18.66	-0.57	-0.78	-0.13	0.50
Ireland	-1.65	9.01	-0.01	-0.71	0.03	5.20
Italy	-2.04	5.64	0.81	-1.37	0.11	-2.25
Netherlands	-1.80	7.79	-0.69	1.43	0.09	-1.19
Norway	1.04	8.07	1.26	-3.29	-0.07	-6.98
Portugal	-4.28	13.51	1.94	-1.23	0.05	-0.06
Spain	3.73	-12.37	-3.93	-0.73	-0.31	4.64
Sweden	-4.05	2.58	0.96	-3.24	-0.01	-4.03
Switzerland	-3.54	1.34	1.09	-0.32	0.19	-4.04
United Kingdom	-3.34	4.18	1.54	-0.82	0.59	-3.62
Average	-2.09	6.14	0.78	-1.27	0.06	-1.60

1/ Except for growth and inflation, all variables are ratios to GDP. Data on inflation and growth correspond to the difference in the averages of the two periods.

Table 4. Decomposition of Changes in Growth Rates
1986-90 relative to 1981-85

	Change in growth rate		Contribution to predicted change in growth rates from				Prediction error
	Actual	Predicted	Policy variables	Cyclical & external	Convergence factor	Other variables	
Austria	1.06	1.01	0.26	1.54	-0.37	-0.42	0.06
Denmark	-1.37	1.52	1.01	1.35	-0.77	-0.07	-2.89
Finland	0.67	1.73	0.67	1.58	-0.67	0.15	-1.06
France	1.36	1.82	0.80	1.33	-0.30	-0.01	-0.45
Germany	1.02	0.86	0.25	1.70	-0.37	-0.73	0.16
Greece	0.53	1.94	0.32	1.50	-0.21	0.33	-1.41
Ireland	3.25	0.86	-0.52	1.01	-0.49	0.85	2.40
Italy	1.67	1.52	0.07	1.61	-0.33	0.16	0.15
Netherlands	1.85	2.16	1.06	1.31	-0.15	-0.06	-0.31
Norway	-1.87	0.73	0.78	0.86	-0.87	-0.04	-2.60
Portugal	4.43	2.18	0.20	1.75	-0.17	0.40	2.25
Spain	3.11	2.75	1.06	1.66	-0.30	0.33	0.36
Sweden	4.05	1.76	0.97	1.52	-0.46	-0.26	2.29
Switzerland	1.11	2.75	1.37	1.53	-0.26	0.11	-1.64
United Kingdom	1.09	1.94	1.39	1.24	-0.54	-0.14	-0.85
Average	1.47	1.70	0.65	1.43	-0.42	0.04	-0.24

1991-93 relative to 1986-90

	Change in growth rate		Contribution to predicted change in growth rates from				Prediction error
	Actual	Predicted	Policy variables	Cyclical & external	Convergence factor	Other variables	
Austria	-1.84	-1.73	0.69	-1.77	-0.68	0.03	-0.11
Denmark	-0.48	-2.84	-0.80	-1.59	-0.37	-0.07	2.36
Finland	-7.92	-3.94	-1.09	-1.96	-0.86	-0.03	-3.98
France	-2.67	-1.89	0.14	-1.53	-0.69	0.19	-0.78
Germany	-1.63	-6.31	0.86	-1.83	-0.66	-4.68	4.67
Greece	-0.90	-1.58	0.64	-1.62	-0.36	-0.23	0.68
Ireland	-1.65	-2.11	1.34	-1.55	-1.43	-0.46	0.46
Italy	-2.04	-2.02	0.14	-1.78	-0.81	0.43	-0.03
Netherlands	-1.80	-2.08	0.12	-1.54	-0.69	0.02	0.29
Norway	1.04	-2.71	-1.10	-1.31	-0.33	0.03	3.75
Portugal	-4.28	-2.58	0.62	-1.76	-1.45	0.02	-1.70
Spain	3.73	-2.23	0.42	-1.61	-1.20	0.16	5.96 *
Sweden	-4.05	-2.95	-0.77	-1.64	-0.50	-0.04	-1.10
Switzerland	-3.54	-2.58	-0.21	-1.66	-0.58	-0.13	-0.96
United Kingdom	-3.34	-1.69	0.56	-1.50	-0.86	0.11	-1.65
Average	-2.09	-2.62	0.10	-1.64	-0.76	-0.31	0.52

* Statistically different from zero at the 10 percent level of significance.

REFERENCES

- Arellano, Manuel, and Stephen Bond, 1991, "Some Test of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *Review of Economic Studies*, 58.
- Barro, Robert, 1991, "Government Spending in a Simple Model of Endogenous Growth," *Journal of Political Economy*, 98.
- Barro, Robert, and Jong-wha Lee, 1993, "Winners and Losers in Economic Growth," *World Bank Economic Review*, Proceeds of the World Bank Annual Conference on Development Economics.
- Bruno, Michael, and William Easterly, 1995, "Inflation Crises and Long-Run Growth," NBER Working Paper No. 5209.
- Barro, Robert, and Xavier Sala-i-Martin, 1995, *Economic Growth*, McGraw-Hill.
- Correia, Isabel H., Neves, João C., and Sérgio Rebelo. 1993, "Business Cycles in a Small Open Economy," *Bank of Portugal Working Paper* No. 16.
- Easterly, William, Norman Loayza, and Peter Montiel, 1996, "Has Latin America's Post Reform Growth Been Disappointing?" *World Bank mimeo* (August).
- Esteves, Paulo, 1996, "Convergence Across EU Countries: Inflation and Savings Rates on Physical and Human Capital," *Bank of Portugal Working Paper* No. 1.
- Fischer, Stanley, 1993, "The Role of Macroeconomic Factors in Growth," *Journal of Monetary Economics*, 32, Vol. 3, pp. 485-511.
- Gaspar, Víctor, and António Nogueira Leite, 1995, "Cohesion and Convergence - Economic Effects of Structural Funds," *Bank of Portugal Quarterly Economic Bulletin* (September).
- King, Robert G., and Ross Levine, 1993, "Finance, Entrepreneurship, and Growth: Theory - and Evidence," *Journal of Monetary Economics*, 32.
- King, Robert G., and Sergio Rebelo, 1990, "Public Policy and Economic Growth: Developing Neoclassical Implications," *Journal of Political Economy*, 98.
- Levine, Ross, and David Renelt, 1992, "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review*, 82, Vol. 4.
- Marques, Isabel, 1996, "The Impact of Infrastructure on Real Convergence in Europe," *Bank of Portugal Quarterly Economic Bulletin* (March).
- OECD, *Economic Surveys*, Portugal, various issues.

II. AN UNEMPLOYMENT VACANCY ANALYSIS OF THE PORTUGUESE LABOR MARKET¹

Unemployment in Portugal has long been amongst the lowest in the EU; it has however risen significantly since 1992 (Chart 1, upper panel). Whilst part of this rise is undoubtedly attributable to the cyclical consequences of the 1993 recession, there have also been concerns that the Portuguese labor market may have started to develop structural problems similar to those found in other EU countries. These concerns are heightened by the sharp rise in both youth and long-term unemployment (Chart 1, lower panel), and by signs of an increase in the persistence of unemployment. Work by the staff during last year's consultation, the OECD in its 1996 Economic Survey of Portugal, and other ongoing research projects have attempted to ascertain the extent to which structural unemployment may have increased in Portugal in recent years—with somewhat contrasting results. This chapter seeks to shed further light on this issue by examining the unemployment vacancy relationship in Portugal.

The relationship between vacancies and unemployment is often used as a tool to distinguish between structural and cyclical causes of unemployment. Cyclical effects are captured by movements along the unemployment vacancy (UV) curve.² When an economy is in recession, the rate of job loss increases and firms are unwilling to hire new workers. Accordingly, unemployment is high and the number of vacancies is low. In contrast, when an economy is enjoying an upswing, unemployment declines, and firms have difficulties filling vacancies. Thus, the cyclical relationship between vacancies and unemployment will be a stable, negative one reflected in movements along the UV curve.

Shifts of the UV curve illustrate how efficiently the labor market matches unemployed workers with available vacancies (Pissarides, 1986; Blanchard, 1989). If the labor market works efficiently, unemployed people find jobs quickly, and one would expect a low vacancies rate³ to be correlated with low levels of unemployment. The efficiency of the labor market may deteriorate for a number of reasons: a reduction in the search effectiveness of the unemployed; a greater selectivity on the part of employers; or an increase in labor market mismatch. In the latter case, whilst unemployed people may be effectively searching for work and employers may have jobs to fill, hiring may still fail to occur if unemployed people do not match the job requirements of those firms that have vacancies. Mismatch can occur because workers may not have the appropriate skills (a problem of occupational mismatch) or because unemployed people may not live in those regions where firms are expanding (giving rise to

¹Prepared by Jimmy McHugh.

²The unemployment vacancy curve is sometimes referred to as the Beveridge curve.

³The vacancy rate is normally defined as the number of vacancies available as a proportion of total employment.

CHART 1
PORTUGAL
Unemployment
(In percent)

Source: Instituto Nacional de Estatística.

- 1/ Proportion of total unemployed who have been unemployed for a year or more.
2/ Proportion of 15-24 year-olds who are unemployed.

regional mismatch). In all of the above cases, the number of vacancies for any given number of unemployed people will rise, leading to an outward shift of the UV curve.

This chapter highlights two main characteristics of the UV relationship in Portugal since the early 1980s. First, by estimating a simple UV relationship, it is established that this relationship has not been stable over the last 12 or so years. Second, a more general UV relationship is estimated which includes proxy variables for the search intensity of the unemployed, and for structural change in the labor market. The empirical results strongly suggest that the relationship has been subject to two structural shifts. The first inward shift started in the mid-1980s and appears to be closely correlated with the structural impact of Portugal's entry into the European Community. However this improvement in labor market efficiency gradually subsided and by the early 1990s a second, outward shift of the UV curve occurred. This shift followed changes in the unemployment benefit regime, which loosened eligibility, and increased the level and duration of benefits, with an adverse impact on the search effectiveness of the unemployed.

A. The Unemployment Vacancy Relationship

The change in unemployment (U) between period t and $t+1$ is equal to inflows into unemployment (I_t), less outflows from unemployment denoted by (O_t):

$$U_{t+1} - U_t = I_t - O_t \quad (1)$$

Both inflows and outflows can be decomposed further. Inflows into unemployment are the sum of people who were previously employed and who have lost their jobs, denoted by I_t^e , and new entrants to the labor market, such as school leavers in search of their first job. This latter group is denoted by I_t^n . Thus, we can write:

$$I_t = I_t^e + I_t^n \quad (2)$$

Outflows from unemployment can be decomposed into those people who leave unemployment because they have found a new job O_t^e and those workers who leave unemployment and exit the labor market O_t^l . So total outflows can be written as:

$$O_t = O_t^e + O_t^l \quad (3)$$

Applying these two disaggregations to equation (1) gives:

$$U_{t+1} - U_t = (I_t^e + I_t^n) - (O_t^e + O_t^l) = (I_t^e - O_t^e) + (I_t^n - O_t^l) \quad (4)$$

An outflow from unemployment into employment (O_t^e) requires a successful matching of a worker with a vacancy. In turn the number of successful job matchings is assumed to be determined by three factors: the search effectiveness of the unemployed ($c\mu_t$), the selectivity of employers ($d_t v_t$), and the degree of labor market mismatch (M_t).

$$O_t^e = f(c\mu_t, d_t v_t, M_t) \quad f_1 > 0, \quad f_2 > 0, \quad f_3 < 0 \quad (5)$$

where $u_t = U_t/L_t$ represents the unemployment rate, $v_t = V_t/N_t$ is the vacancy rate, L_t is the total labor force, and N_t is employment. It is assumed that in each period only a proportion c_t of the unemployed are actively engaged in job search. Thus, the number of effective job-seekers is given by $c_t U_t$ with $c_t u_t$ being the "effective" unemployment rate.

Outflows from unemployment and into employment are also determined by the selectivity of employers. For a given level of search effectiveness on the part of the unemployed, the probability of an unemployed person finding a job is greater, the larger the number of vacancies offered by employers. Therefore, the number of outflows from unemployment is an increasing function of vacancies. However, for a given level of vacancies, increased selectivity on the part of employers will reduce outflows. Selectivity is a somewhat nebulous concept to model. However, Pissarides (1986) approximated the selectivity of employers by assuming that only a fraction— d_t —of the available job vacancies go into the job-matching process. Therefore, $d_t v_t$ measures the number of "effective" vacancies.

Both outflows from unemployment which leave the labor market, and inflows to unemployment by those people entering the labor market, are primarily due to demographic and social factors. For example, school leavers looking for their first job, and mothers returning to work after raising their families, would constitute the majority of those inflows to unemployment who have just entered the labor market. People who both leave unemployment and exit the labor market typically do so because they are retiring, or they obtain other non labor market related welfare benefits. Therefore, we can capture these factors in a generic function:

$$(I_t^n - O_t^l) = h(D_t) \quad (6)$$

where D_t is a vector of social and demographic variables.

In steady state equilibrium unemployment is constant. This gives the following implicit relationship:

$$I_t^e - f(c_t u_p d_t v_p M_t) + h(D_t) = 0 \quad (7)$$

Inflows to unemployment which have just entered the labor market— I_t^e —are assumed to be constant.⁴ Equation (7) can be inverted to give a relationship between unemployment and vacancies, search intensity, employer selectivity, labor market mismatch, and demographic factors:

$$u_t = g(v_p c_p d_p M_p D_t) \quad (8)$$

Bowden (1980) showed that any change in either aggregate demand or in real wages will result in movements along the UV curve, whilst changes in any other variable will cause the UV curve to shift.

In order to move to an empirical model, equation (8) is approximated by a log linear functional form. However, there is a further problem. Many of the factors which would shift the UV curve (changes in the search intensity of the unemployed, increased selectivity by employers, and labor market mismatch) are not directly observable. Observable proxy variables must be used which will hopefully capture the impact of these underlying unobservable variables which shift the function. Our estimated equation is:

$$LN\left(\frac{U}{L}\right)_t = \theta_0 + \theta_1 LN\left(\frac{V}{N}\right)_t + \sum_{i=1}^N \psi_i Z_{it} + \gamma_1 t + \gamma_2 t^2 + \varepsilon_t \quad (9)$$

⁴This is a contentious assumption. If changes in unemployment are primarily due to inflows rather than outflows, then unemployment will move independently of vacancies, changes in the efficiency of the labor matching process, and labor mismatch. Few countries produce reliable, consistent inflow series. However, Layard and others (1991) report that inflow rates tend to be high in North America, and low in the EU, Scandinavia, and Japan. There is no reliable inflow data available in Portugal.

where Z_{it} is a vector of proxy explanatory variables which capture search intensity, demographic factors, and labor market mismatch. Details of the variables included in Z_{it} are set out in the appendix to this chapter.

Search intensity is proxied by two variables: the benefits replacement ratio (Z_1) and the number of the long-term unemployed as a proportion of total unemployment (Z_2). Increases in the ratio of unemployment benefits relative to average wages reduces the opportunity cost of unemployment, increases the reservation wage and thereby reduces effective job search. For a given number of vacancies, the number of successful job matches in any period will be reduced, shifting the UV relationship outward. Therefore, one would expect a positive estimated coefficient for the benefits replacement ratio when it is included in equation (9). The hypothesis that changes in the unemployment benefits regime might have contributed to rising unemployment seems plausible. In the late 1980s Portugal enacted a series of changes in benefit regulations which increased the coverage and generosity of unemployment benefits.⁵ As a consequence, government expenditure on unemployment benefits as a proportion of GDP rose sharply in the early 1990s—well above the levels recorded during the previous peak in unemployment in the mid-1980s (Chart 2, bottom panel).

The extent of mismatch in Portugal is difficult to assess because of data limitations. For example, regional unemployment data is unavailable before 1988 and so it is not possible to construct the type of mismatch indices favored by Layard and others (1991). One potential measure of occupational mismatch might be the variance of unemployment by age (Z_3). However, benefit duration in Portugal is determined by the age of the unemployed person, with older workers eligible for longer periods of benefits. If effective benefit duration increases, one would expect workers who are older to remain unemployed longer, and so the

⁵Portugal provides two types of benefits for the unemployed: the unemployment subsidy and the unemployment social subsidy. The value of both these benefits is tied directly to the minimum wage. The unemployment subsidy is a contributions-based benefit. The decree-law No. 79-A/89 which was passed in March 1989 eased the eligibility requirements and extended the duration of benefits. Under the previous law an unemployed person could only claim benefits if they had made contributions for at least 36 consecutive months. Under the 1989 law, an unemployed person would be eligible if they had made 18 months contributions over the preceding 24 months. The 1989 benefits law introduced a sliding scale of benefit duration linked to the age of the worker. The minimum level of duration was set at 10 months for workers aged 25 or under, rising to 30 months for workers who are 55 and over. The previous system set a minimum benefit duration of 6 months plus an additional month for each 12 months of employment with a record of wages earned. The 1989 law also increased generosity of the unemployment social subsidy. Unemployed people with four or more dependents could claim a benefit equal to 100 percent of the minimum wage. Previously, only people with 6 or more dependents could claim this level of benefits. Benefit duration of the social subsidy was also extended and harmonized with the general unemployment subsidy.

CHART 2
PORTUGAL
Unemployment

1/ Based on relative unit labor costs.

variance of unemployment by age would increase. This may create a potential bias because this variable might also pick up duration effects as well as mismatch effects.

Our model of unemployment flows shows that demographic factors will affect inflows/outflows from those workers who have not previously participated in the labor force. As a consequence, the steady state relationship, given by equation (8), will also be affected by demographic factors. Female labor force participation as a proportion of total labor force (Z_4) is used to proxy this effect.

The real effective exchange rate (Z_5) is included to assess the impact of external competitiveness upon the labor market. Papers by Duffy (1984) and Jones and Manning (1990) argue that a rise in the real exchange rate would shift the UV curve outwards. An appreciation of the real exchange rate, other things being equal, would reduce the demand for labor in those sectors most exposed to international competition. Firms facing such pressures would attempt to improve productivity by cutting their workforce. This would lead to a lower employment retention rate and a reduced hiring rate.

A dummy variable for Portugal's accession to the European Union is also included in the regression. Finally, linear and quadratic time trends are included in the regression to pick up any additional structural change in the labor market which is not picked up by any of the other variables included in the regression.⁶ Whilst these variables cannot be used to attribute the source of any structural change, they can determine both the sign and magnitude of any omitted variable, and the timing of its impact upon the UV relationship.

B. The UV Relationship in Portugal

The most significant investigation of the UV relationship in Portugal was by Luz and Pinheiro (1994) who estimated a simple error correction model. They found a stable relationship for the period 1983q4 to 1994q1 by including lagged changes of unemployment and current changes in vacancies. Chart 2 (upper panel), which illustrates the UV relationship for Portugal since 1983, suggests that between 1983 and 1986 there was indeed a relatively stable negative relationship between the two variables, with the data points for these years bunched closely together. After 1986, however the relationship takes a very clear anti-clockwise journey. Initially, vacancies rise and unemployment falls. Between 1989 and 1991 unemployment continues to fall, but the trend in vacancies is reversed. After 1992, the vacancy rate falls, and unemployment rises.

⁶Jackman, Layard, and Pissarides (1989) and Layard, Nickell, and Jackman (1991) use a similar method for capturing structural change in their estimates of the UV relationship in the United Kingdom.

In order to assess whether or not the unemployment vacancy relationship is stable in Portugal, the restrictions $\psi_i = 0$ and $\lambda_i = 0$ (which imply no change in the efficiency of the labor matching process) are applied to equation (9) to give the following equation: Parameter estimates and test statistics for equation (10) are given in Table 5. The

$$LN\left(\frac{U}{L}\right)_t = \theta_0 + \theta_1 LN\left(\frac{V}{N}\right)_t + \omega_t \quad (10)$$

autocorrelation and heteroscedasticity statistics are highly significant and strongly suggest functional misspecification. A structural stability test, which splits the sample in 1990, rejects the hypothesis that the equation is stable over the entire sample. The plot of the actual versus fitted values from this equation confirms the presence of a structural break during this period (Chart 3). The equation initially tracks the downward shift in unemployment, albeit with a consistent bias. However the regression fails to capture the continued fall in unemployment after 1989. Thus it is clear both from the econometric results and from the cross plot that the UV relationship has shifted significantly.

C. Empirical Results

Table 6 presents a number of alternative estimated specifications for equation (9). In order to avoid potential simultaneity problems, the vacancy variable ($Ln(V/N)_t$) and the long-term unemployment variable (Z_2) were instrumented by lagged values of these variables. None of the diagnostic tests suggest that any of the equations suffer from misspecification. All regressions give significant, correctly signed, coefficients for the vacancy rate, the proportion of long-term unemployed, and the benefit replacement ratio (Z_1). However, the estimates for the variance of male unemployment rates (Z_3) do not seem particularly robust. The variable measuring female labor force participation (Z_4) did not seem to have any explanatory power.

The most interesting results were the estimates for the real exchange rate (Z_5). Contrary to the *a priori* hypothesis, estimates of this coefficient were consistently negative across all equations. Chart 2 (middle panel) illustrates the point that there does seem to be a negative correlation between the unemployment rate and the real exchange rate, which is inconsistent with the hypothesis that a decline in competitiveness has led to an increase in unemployment.

The linear and quadratic time trends proved to be significant in all those regressions where they were included. The sign on the coefficient for the linear trend is negative, capturing an inward shift in the UV relationship. However, the quadratic time trend is positive but with a much smaller coefficient. These time trends suggest that the UV curve shifted inwards but, as time progressed, the inward shift slowed and gradually stopped.

CHART 3
PORTUGAL

Unemployment Vacancy Relationship Actual and Fitted Values for Equation 10

Source: Staff estimates.

The dummy variable for EU membership (Z_6) gave a positive significant coefficient. This result is contrary to what one would expect given that it is widely agreed that EU membership had a positive effect upon economic performance. However, a closer examination of its interaction with the linear and quadratic time trends explains this result. When the EU is included, as in equations (1a) and (2a) of Table 6, the coefficient on the time trend is -0.03. When the EU coefficient is excluded, as in equations (5a) and (6a), the coefficient on the time trend lies between -0.01 to -0.02. If the impact of both the time trend and the EU dummy are taken together, the negative effect of the time trend effect quickly dominates the positive effect of the EU. The inclusion of the EU dummy merely picks up a few outliers in the early part of the sample, which in turn affects the estimated coefficients on the time trend. The strong suspicion must be that the EU dummy variable, along with the linear and quadratic trends, are picking up the overall structural impact of Portugal's accession to the EU. A dummy variable for two quarters on 1991 was included in some equations in order to eliminate large outliers found in 1991 which improve the overall fit of the regression.

In equations (4a) and (5a) the benefit replacement ratio is dropped in order to assess how robust are the estimates for the other regressors. The coefficient on the long-term unemployment variable increases but the other coefficients are more or less unchanged. In equations (6a) and (7a) the long-term unemployment variable is excluded. The variance of male unemployment becomes significant, suggesting that this variable is competing with the long-term unemployment variable. The most plausible explanation for this is that both variables are picking up the impact of benefit duration upon the UV relationship. Hence, the variance of male unemployment seems to be a biased, unreliable measure of occupational mismatch.

D. Conclusion

Econometric estimates of a simple UV curve reveal that this relationship has been unstable, suggesting that the Portuguese labor market has experienced appreciable structural change. The residuals from this regression suggest that there was a structural break at some point between 1989 and 1991. Estimation of a more general UV curve which includes proxy variables for search intensity, labor market mismatch, and structural change reveals that the UV has been subjected to two shifts—an inward shift which seems to be closely timed with Portugal's entry into the EU and an outward shift which closely follows changes in the eligibility rules, level, and effective duration of unemployment benefits.

Part of the inward shift of the UV curve is picked up by the negative relationship between the real exchange rate and unemployment in all estimated regressions.⁷ The first explanation for this correlation is that these variables were jointly influenced by economic reforms associated with EU membership which have been omitted from the estimated equations. Trade liberalization and economic deregulation following EU accession encouraged

⁷There are two possible explanations for this result.

a significant expansion of foreign direct investment. Foreign firms relocated their unskilled, labor intensive activities to Portugal where there is a relative abundance of cheap, unskilled labor. This created more unskilled vacancies, and so it became easier for unskilled Portuguese workers to find employment. The matching process became more efficient and the UV curve shifted inwards. As for the real exchange rate, both a capital inflow and the effects of trade liberalization led to a real appreciation. A second interpretation to the observed correlation between unemployment and the real effective exchange rate is that EU transfers contributed to the real exchange appreciation. EU membership gave Portugal access to EU transfers, which were used to develop infrastructure. Previously underdeveloped regions gained access to outside markets, reducing a potential source of regional mismatch. The empirical evidence presented here cannot distinguish between these potential explanations, and probably both made a significant contribution.

The outward shift of the UV curve in recent years is correlated with increases in both the benefit replacement ratio, and long-term unemployment, strongly suggesting that the search effectiveness of the unemployed has fallen. The joint significance of both these variables suggests that search intensity fell because both the level of benefits and effective benefit duration increased. The empirical evidence argues that the full impact of the changes in the 1989 law governing unemployment benefits eligibility were partly obscured by the beneficial effects of EU membership. The detrimental effects of the changes in the unemployment benefit system gradually dominated the structural effect, so that by the early 1990s the unemployment rate began to rise. Changes in benefit duration, which favor older, less skilled workers, inevitably encourage long spells of unemployment amongst older workers. Increased levels of benefits reduced the opportunity cost of unemployment for those workers eligible to claim unemployment benefit, while the eligibility criteria themselves were loosened.

This study suggests that reforming the current benefit system would improve the efficiency of the labor market. Such a reform could entail, first, the harmonization of benefit duration, so that all workers would be entitled to the same period of benefits. Second, the unemployment benefits replacement ratio could be reduced to the lower levels of the 1980s.⁸ The Portuguese government has introduced a pilot program for a guaranteed minimum income scheme and is planning to extend it nationwide in 1997. This offers the opportunity to reform the current welfare benefit system, including unemployment benefits, with a simpler system that provides an effective and targeted social safety net.

⁸OECD data shows that Portugal has the sixth highest benefit replacement ratio, (defined as benefits before tax as a percent of previous earnings before tax).

Table 5. Portugal: Simple Vacancy Unemployment Relationship

IV Estimation, Sample 1984(2) to 1995 (4)
Dependent Variable is $Ln(UIL)_t$

Variable	Coefficient
$Ln(V/N)_t$	-0.59 (-6.70)
Constant	2.28 (29.17)
SE	0.20
DW	0.21
AR(4)	160.06
Arch(4)	9.38
Normality	2.38
Heteroscedasticity	7.06
Parameter stability test	445.07
(t statistics in parenthesis)	
Endogenous	$Ln(V/N)_t$
Instruments	$Ln(V/N)_{t-1}, Ln(V/N)_{t-2}, Ln(V/N)_{t-3}, Ln(V/N)_{t-4}$

Table 6. Portugal: Estimated Unemployment Vacancy Relationship
IV Estimation, Sample is 1984(2) to 1995 (4) Dependent Variable is $\ln(U/L)_t$

Variable	(1a)	(2a)	(3a)	(4a)	(5a)	(6a)	(7a)
Constant	0.64 (0.63)	1.13 (1.51)	0.27 (0.30)	1.48 (1.75)	0.83 (0.91)	2.41 (5.01)	2.19 (2.44)
$\ln(V/N)_t$	-0.30 (-6.10)	-0.30 (-6.16)	-0.28 (-7.09)	-0.35 (-7.39)	-0.34 (-6.50)	-0.21 (-4.31)	-0.24 (-5.07)
Z_1	0.01 (2.16)	0.01 (2.20)	0.02 (6.43)			0.02 (3.89)	0.02 (3.31)
Z_2	0.39 (2.65)	0.39 (2.59)	0.39 (2.11)	0.49 (3.17)	0.62 (3.71)		
Z_3	0.02 (1.16)	0.01 (0.97)	0.04 (2.19)	0.01 (0.62)	0.01 (0.77)	0.05 (4.17)	0.04 (3.03)
Z_4	1.17 (0.68)						1.25 (0.67)
Z_5	-0.01 (-2.69)	-0.01 (-2.63)	-0.01 (-1.92)	-0.01 (-3.31)	-0.01 (-2.71)	-0.01 (-3.97)	-0.01 (-4.34)
Z_6	0.11 (2.54)	0.10 (2.49)		0.12 (2.48)			0.13 (3.01)
<i>trend</i>	-0.03 (-3.53)	-0.03 (-3.59)		-0.03 (-3.56)	-0.01 (-2.26)	-0.02 (-2.91)	-0.03 (-4.25)
<i>trend</i> ² x 100	0.05 (3.40)	0.05 (3.72)		0.06 (4.82)	0.04 (3.82)	0.03 (2.42)	0.05 (3.57)
<i>D1991</i>	-0.15 (-4.42)	-0.15 (-4.46)		-0.17 (-4.45)	-0.18 (-4.17)	-0.14 (-3.54)	-0.13 (-3.70)
SE	0.04	0.04	0.06	0.05	0.06	0.05	0.05
DW	2.49	2.36	1.72	2.21	1.92	1.95	2.45
AR(4)	4.71	2.47	3.49	0.96	1.04	1.44	4.34
Arch(4)	0.26	0.22	0.73	0.21	0.71	0.57	1.06
Normality	2.51	2.42	2.32	2.24	1.55	0.36	2.81
Heteroscedasticity	0.33	0.43	1.07	0.82	0.74	0.54	0.51

t statistics in parentheses.

Endogenous variables:

$\ln(V/N)_t$, Z_{1t}

Instruments:

$\ln(V/N)_{t-1}$, $\ln(V/N)_{t-2}$, $\ln(V/N)_{t-3}$, $\ln(V/N)_{t-4}$
 Z_{1t-1} , Z_{1t-2} , Z_{1t-3} , Z_{1t-4}

Data Description

Unemployment - OECD standardized unemployment rate.

Vacancies - The stock of job vacancies at the end of the period. Data supplied by I.N.E.

Z₁ - The unemployment benefit replacement ratio - The data is supplied by the Ministerio para a Qualificação e Emprego and I.G.F.S.S., who produce an annual series for the unemployment insurance replacement ratio where unemployment benefit is expressed as a percentage of the average remuneration in the economy. This series was interpolated into a quarterly series by assuming a constant replacement ratio throughout all four quarters of the year. Data was only available after 1986. In order to avoid reducing the sample size, it was assumed that between 1983 and 1985 the replacement ratio was the same as in 1986. This assumption is supported by the fact that during 1983-1986 government expenditure on unemployment benefits as a proportion of GDP remained roughly stable.

Z₂ - Long-term unemployment - The benefit replacement ratio does not adequately capture the influence of benefits duration upon unemployment rates. In theory, a high benefit replacement ratio could be consistent with low levels of unemployment if benefit duration were also low. In other words, generous but short lived eligibility may encourage short spells of unemployment which in the aggregate lead to a comparatively low level of unemployment.

One must also distinguish between the effective duration of benefits and the maximum duration of benefits. If a social security system requires that all unemployed people must undertake effective job search as a condition for receiving unemployment benefits, then people who do not actively search for jobs could lose their benefits before they reach the maximum duration. Effective duration will in large part depend upon the monitoring of the unemployed by the social security agency. Any reduction in monitoring is likely to result in an increase in effective duration.

In order to capture how effective benefit duration might influence the UV relationship, the number of people unemployed for more than 13 months as a proportion of the total unemployed is included in equation (9). Budd and others (1988) use this variable as a proxy measure for search intensity of the unemployment in their estimation of the UV curve for the United Kingdom. Increasing numbers of the long-term unemployed are interpreted as a decline in search intensity, and so a positive estimated coefficient is anticipated. It is argued here that this variable most probably picks up changes in search intensity due to changes in effective benefit duration. The data on long-term unemployment is supplied by I.N.E.

Z₃ - The variance of male unemployment rates - Typically younger workers have undertaken more years of education than older workers. Therefore, one might expect a skill mismatch to be correlated with unemployment by age. In order to construct this variable the male labor force is divided by age into intervals of five years. For example, all males between

the age of 21 and 25 participating in the labor force make up the first cohort. The unemployment rate for every cohort is calculated by dividing the number of unemployed in each cohort by the total labor force participation in that cohort. The variance of these age related unemployment rates is then calculated for every time period. Workers under 21 and over 55 are eliminated because unemployment rates in these cohorts are influenced by additional factors such as early retirement, greater training opportunities, etc. The number of unemployed by age and labor participation rates by age are taken from data provided by the Ministério para a Qualificação e Emprego.

Z₄ - Female labor force participation - Female labor force participation may influence the UV relationship because women are more likely to intermittently enter and exit the labor market than men. However, there are a number of other possible mechanisms whereby changes in female participation may influence the UV relationship. An increase in female labor supply, which was matched by an equal increase in labor demand, could still result in an outward shift in the UV curve if these workers did not have the skills necessary to fill these vacancies. Alternatively, if benefit eligibility initially differs across gender, then changes in benefits eligibility may encourage more women to enter the labor force in order to register as unemployed and obtain benefits. In order to test for any female labor supply effects, the ratio of the female labor force over the total labor force is included in the regression. This variable is created by taking the total number of females participating in the labor force and deflating it by the total labor force. The data source is the Ministério para a Qualificação e Emprego.

Z₅ - Real effective exchange rate - Data taken from the IMF International Financial Statistics.

Z₆ - European Union Membership - A simple shift dummy dated at Portugal's accession to the EU is used to see if the timing of EU membership has any explanatory power. However, a simple shift dummy will not pick up any gradual or delayed effects of membership, and so care must be taken when interpreting the empirical results related to this variable.

REFERENCES

- Blanchard, O., 1989, "Two Tools for Analyzing Unemployment," NBER Working Paper No. 3168.
- Bowden, R.J., 1980, "On the Existence and Secular Stability of U-V Loci," *Economica*, 47, pp. 33-50.
- Budd, A., P. Levine, and P. Smith, 1988, "Unemployment, Vacancies and the Long-term Unemployed," *Economic Journal*, 98, pp. 1071-91.
- Duffy, M., 1984, "The Relationship Between Unemployment and Unfilled Vacancies in Great Britain: An Extended Job Search, Labour Turnover View," *Bulletin of Economic Research*, 36, Vol. 2, pp. 143-172.
- Jackman, R., R. Layard, and C. Pissarides, 1989, "On Vacancies" *Oxford Bulletin of Economics and Statistics*, 51, Vol. 4, pp. 377-394.
- Jones, D. R., and D. N. Manning, 1990, "The Unemployment-Vacancy Relation in the UK," *Scottish Journal of Political Economy*, 4, Vol. 37.
- Layard, R., S. Nickell, and R. Jackman, 1991, *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press.
- Luz S., and M. Pinheiro, 1994, "Wage Rigidity and Job Mismatch in Europe: Some Evidence," *Bank of Portugal Working Paper*, 2:94.
- Pissarides, C., 1986, "Unemployment and Vacancies in Britain," *Economic Policy*, 3, pp. 499-559.

III. FINANCIAL LINKS BETWEEN PORTUGAL AND SPAIN: EVIDENCE FROM SHORT-TERM INTEREST RATES¹

A. Introduction and Summary

In the run up to EMU, regional financial links between EU countries have received increasing attention. This is particularly the case where links between a smaller country and a major trading partner have been historically strong (such as those between Ireland and the United Kingdom, and Portugal and Spain). For the smaller countries concerned, such links are seen as having an important bearing on the decision to join EMU, with the possible absence of their larger neighbors judged to entail certain risks. In this context, it is important to have a better understanding of the strength of such financial links, and whether it has lessened over time.

Work by the staff during last year's consultation focused on the determinants of Portuguese long term interest rate differentials vis-à-vis Germany.² The study presented evidence showing that (1) inflation differentials have a significant and persistent impact on long-term differentials, but with relatively long lags; (2) the effect of German yields on Portuguese yields is significantly larger than one, as is characteristic of other European countries with fiscal problems; and (3) there seems to be a relatively weak link between Spanish and Portuguese bond markets.

This study complements the above analysis by examining the link between Spanish and Portuguese short-term interest rates, taking into account the impact of German rates. Short-term rates are more directly influenced by monetary policy and exchange rate management, and are affected by inflation to a significantly smaller degree than are long-term differentials. After presenting the data, a two-equation vector-autoregressive (VAR) model is fitted to Portuguese and Spanish short-term interest rate differentials with Germany. It is found that there exists a statistically and economically significant link between them, but that this link is relatively weaker in the second half of the sample, i.e., from late 1994 to the present, relative to the first half. The model is then extended to a three-equation VAR, encompassing the levels of Spanish, Portuguese, and German short-term interest rates. The purpose of this exercise is to ensure that the previous findings are robust to a possibly different long-run relationship between Portuguese/Spanish rates and German rates than the one-to-one relationship implied by examining the differentials. It is found that the earlier results are indeed robust. It is also found that, over the long-run, Spanish and Portuguese short-term interest rates react by more than one-for-one to changes in German rates. Hence, the differential tends to widen when

¹Prepared by Charalambos Christofides. Box 1 of the Staff Report provides a summary of the key findings of this chapter.

²See *Portugal—Recent Economic Developments*, Appendix III, IMF Staff Country Report No. 95/124 (December 1995).

German interest rates rise, and to narrow when they decline. It is also found that, for the whole sample, Portuguese short term interest rates have a statistically significant long-run relationship to Spanish rates. This relation is, however, much smaller than one-for-one, implying that the Portuguese/Spanish differential is inversely related to the level of Spanish interest rates, other things equal.

B. The Data

This study focuses on three-month interest rates sampled at a daily frequency. Primarily because of data availability, government Treasury bill rates are used in the case of Portugal, and Euro-deposit rates are used in the case of Spain and Germany. Given the rapidity with which information is processed by financial markets, rates sampled at a lower frequency would have the significant disadvantage of reducing the ability of statistical methods to uncover the true relationship between the variables under study.³ A possible disadvantage of using daily rates is that data availability shortens the longest available sample period. For both Portugal and Spain, daily data could readily be obtained only as from November 24, 1992. However, the advantage of using daily data was judged to outweigh the shortening of the sample period, as capital controls in effect during much of the 1980s would in any case have adversely affected the economic significance of observed interest rates.

Chart 4 presents the levels of the aforementioned three-month interest rates for Portugal, Spain, and Germany (top panel). It can be seen that Portuguese rates tend to follow Spanish rates, but that both tend to follow the trend exhibited by German rates. The bottom panel of Chart 4 shows that the differentials of Portuguese and Spanish rates with Germany appear to exhibit considerable comovement, except for the period between mid-1993 to early 1995. Thus, although the data are generally consistent with the existence of financial links between Spain and Portugal, the emergence of a period of divergence might be taken as *prima facie* evidence of a weakening of such links.

To further examine this hypothesis, the movements of the escudo and the peseta relative to the DM were plotted in Chart 5 (superimposed with the ERM bands and central parity for the escudo). It is seen that for much of the period during which Portuguese and Spanish rates diverged, the escudo and the peseta continued to move in tandem. The escudo appeared to have come under pressure earlier than the peseta, and the reaction of the Portuguese authorities was to defend the currency by raising interest rates. The cause of the pressures on the escudo during this period can be found in Portuguese-specific risk premia, as the full extent of the 1993 fiscal deterioration became apparent, and there were public disagreements over the conduct of monetary policy. Later during this period, the peseta also came under pressure, but the Spanish authorities did not raise interest rates as sharply, and the peseta weakened within the band. This description of events is at odds with the *prima facie*

³This comment applies to averaged variables. Of course, for end-of-period variables, utilizing lower frequencies amounts to a pure loss of information.

CHART 4
PORTUGAL

Portuguese/Spanish Financial Linkages

Sources: IMF; and Bloomberg.

CHART 5
PORTUGAL
Exchange Rates
(Domestic currency per DM)

Source: IMF.

Note: The lower, central, and upper limits refer to the position of the escudo within the ERM.

conclusion noted above that there was a weakening of financial links during this period. It is also evident that, given the different size of the two economies, financial links would most likely be asymmetric, with Portuguese rates potentially forced to follow an upsurge in Spanish rates without the reverse being true. Thus, although the inspection of interest rate differentials is suggestive, a more refined statistical analysis is required to quantify the potential effect of Spanish rates on Portuguese rates.

C. A VAR Model of Short-Term Interest Rate Differentials

To estimate the impact of Spanish rates on Portuguese rates it is necessary to control for the effect of German rates, which would otherwise entail the detection of a spurious comovement. The simplest way to do so involves examining the comovement between Spanish and Portuguese differentials with German rates, which implicitly assumes that the comovement between Spanish/Portuguese rates and German rates is one-for-one. The effects of relaxing this assumption will be investigated in the following section.

The statistical properties of the raw interest rate series were investigated using augmented Dickey-Fuller (ADF) tests, and all were found to be integrated of order one. The Spanish rates were found to be cointegrated with the German rates, and the Portuguese rates were found to be cointegrated with the Spanish and German rates. Thus, it is allowable to fit unrestricted VAR models to determine the effects of the Spanish differentials on the Portuguese differentials.⁴

A two-equation VAR model was therefore fitted to the Spanish and Portuguese interest rate differentials with Germany, and the implied impulse response functions were calculated. Chart 6 presents the estimated impulse response functions for the full sample together with their simulated confidence intervals.⁵ The time scale on the x-axis is measured in business days. The key finding is that an unanticipated shock to the Spanish differential will cause the Portuguese differential to respond in the same direction. F-tests confirm that this result is statistically significant at a high confidence level. The confidence interval around the impulse response function also points to a statistically significant initial response.

The effect is also economically significant, in the sense that its size is quite large. The shock to the Spanish differential used to compute the impulse responses was 0.18 percent, its estimated forecast error. Thus, the size of the response of the Portuguese differential, which peaks at about 0.12 percent, is (at its peak) some two-thirds of the size of the initial shock, which indicates a rather large pass-through. Another way to gauge the size of the effect of an

⁴As will be seen below, the impulse responses computed on the basis of the VAR models to be proposed are well behaved, which tends to support the appropriateness of these models.

⁵The confidence intervals, which were simulated 500 times using Monte-Carlo methods, are drawn at plus/minus two standard errors.

Chart 6

Impulse Responses, Interest Rate Differentials

Response of SPAIN

Response of PORTUGAL

SPAIN

Shock to

PORTUGAL

Response of SPAIN

Response of PORTUGAL

unanticipated shock to the Spanish differential on the Portuguese differential is to compute the percent of its forecast variance explained by the Spanish differential. This calculation shows that, at horizons longer than two calendar months, the Spanish differential accounted for about 35 percent of the forecast error of the Portuguese differential, which is a significant, but nondominant, fraction.

Another question of interest is whether the strength of the effect of Spanish differentials on Portuguese differentials has weakened over time, as some observers have suggested. The data do not seem to indicate any sudden shift in this sense during the sample period. As illustrated above, the period of relatively high Portuguese interest rates was due to temporary country-specific factors that would in any case have no bearing on the effect of (for example) a sustained increase in the Spanish differential on the Portuguese differential. Thus, the sample was split arbitrarily into two parts, from November 1992 to October 1994, and from October 1994 to the present, chosen to keep the sample sizes of each of the subsamples equal to each other.

The calculated impulse responses indicate that the peak response of the Portuguese differential during the latter half of the sample is about half that of the earlier half. Also, the share of the Portuguese differential forecast variance explained by shocks to the Spanish differential is larger during the earlier half of the sample, reaching 48 percent (as against 32 percent during the latter half of the sample). Finally, the persistence of the response was reduced during the second half of the sample. These results suggest that there has been some attenuation in the impact of Spanish differentials on Portuguese differentials, although the effect remains statistically, and perhaps large enough to be also economically, significant.

D. A VAR Model of Interest Rates

The work reported in the preceding section was predicated on the assumption that both Spanish and Portuguese rates comove with German rates one-for-one. This assumption is not strictly speaking true, as "high-yielding" countries often find that they must adjust their interest rates by more than one-for-one to defend their currencies when German rates move. To gauge the size of this effect, simple long-run regressions were estimated as follows:

$$(1) \quad X_{S_t} = 3.59 + 1.11 X_{G_t} \quad (R^2 = 0.66) \\ (25.1) \quad (43.4)$$

$$(2) \quad X_{P_t} = 3.32 + 1.04 X_{G_t} + 0.16 X_{S_t} \quad (R^2 = 0.79) \\ (23.1) \quad (30.1) \quad (6.5)$$

where X denotes an interest rate, S, G, and P respectively denote Spain, Germany, and Portugal, and where the numbers in parenthesis denote t-statistics. The residuals from each regression were tested using ADF tests, and found to be stationary. The evidence from these regressions is that Spanish rates move more than one-for-one with German rates (a difference that is highly statistically significant), and that Portuguese rates move slightly more than one-

for-one with German rates (they are larger than one by only one standard deviation), but they also move with Spanish rates. Taking into account the sensitivity of Portuguese rates to German rates both directly and indirectly (through the sensitivity of Spanish rates to German rates) it can be seen that Portuguese rates are more sensitive to German rates than are Spanish rates.

These calculations are only suggestive, however. It is more reliable to compute the impulse response functions for the full three-equation system, encompassing the German, Spanish, and Portuguese interest rates as a system. Chart 7 exhibits the estimated impulse response functions together with their simulated confidence intervals. It is seen that the qualitative results reported in the earlier section remain robust, with the impulse response function of the Portuguese rate to an unanticipated shock in the Spanish rate retaining the same overall shape and statistical significance.

E. Conclusion

In summary, the statistical analysis provides some evidence that the financial linkages between Portugal and Spain (as reflected in movements in short-term interest rate differentials) have attenuated in the latter half of the sample period, i.e., from late 1994 to the present. This would appear to be reflected also in exchange rate movements, as this period was one during which the escudo remained free of pressures even at times of peseta weakness (e.g., before the March 1995 realignment, and after the Spanish elections in the spring of this year). Nevertheless, these linkages clearly persist and highlight the importance of structural policies aimed at making the Portuguese economy more resilient to external shocks.

Chart 7

Impulse Responses, Interest Rates

IV. AN INDICATOR OF MONETARY AND FINANCIAL CONDITIONS FOR PORTUGAL¹

A. Introduction and Summary

As elsewhere in Europe, the policy mix in Portugal is being determined both by the drive to fulfill the Maastricht criteria, which implies significant fiscal tightening, and by the cyclical weakness that has been bringing interest rates down throughout the EU. Evaluating the impact on aggregate demand and inflation of these opposing changes is an important task—one that deserves to be approached systematically. In a number of countries, a monetary conditions index (MCI) has been constructed in an attempt to measure the stance of monetary policy. By construction, the MCI measures the impact of monetary variables on aggregate demand, and can therefore go part of the way toward evaluating the impact of changes in the policy mix. To go further, a financial conditions index (FCI), a broader measure of financial policies, can also be constructed, and has been for some countries. It is the aim of this chapter to estimate, construct, and validate both an MCI and an FCI for Portugal, where such indicators have not as yet been constructed.

This chapter first reviews the most prevalent form of an MCI currently in use, and compares it to a set of technical criteria that an MCI should satisfy. It is found that MCIs as currently constructed probably fail to meet these criteria, especially if the MCI is intended to serve as an operational guide for monetary policy. The latter is not the case in Portugal, where the proposed MCI would serve essentially as a **tool of analysis or informational variable**. It clearly is not the intention of this study to suggest any change in Portugal's operational framework of monetary policy, which is appropriately based on exchange rate stability.

A slight reformulation to the MCI as currently constructed is proposed that can alleviate some of the major technical concerns; also proposed is a way to estimate this MCI that can be implemented for countries such as Portugal for which reliable economy-wide econometric models do not yet exist. In applying this procedure to Portugal, it is found that the interest rate receives slightly less weight relative to the exchange rate than it does in some other countries for which MCIs have been constructed. It is also found that the stance of monetary policy in Portugal is currently approximately neutral (i.e., consistent with output being on trend). An FCI is also proposed and estimated through the addition of a fiscal variable to the MCI. It is found that there are historical periods during which the FCI diverged from the MCI, which suggests that the proposed FCI could serve a useful role in evaluating the impact of the changing policy mix on aggregate demand. Because the timeliness of fiscal variables is in general not as good as it is for monetary variables, the FCI is likely to serve less as an up-to-date informational variable, and more as a tool that can help evaluate past policies and/or simulate the impact of proposed policy changes prospectively.

¹Prepared by Charalambos Christofides.

A sequence of statistical tests and simulations is then conducted by embedding the proposed MCI/FCI in series of vector autoregressive (VAR) models. By doing so, it is found that: (1) a tightening of either of the indices results in a statistically significant reduction of output and of inflation; (2) the MCI/FCI are exogenous with respect to output, and there is strong evidence that monetary policies have been used effectively to counter inflation; and (3) the previous results are, statistically speaking, generally stronger for the FCI than they are for the MCI, whose coefficients are more precisely measured. These findings have the following implications: (1) the proposed MCI/FCI have useful informational content both for output and for inflation; (2) the estimated MCI/FCI do reflect policy actions by the authorities, as they are not entirely determined by (they are not endogenous to) output; and (3) the inclusion of fiscal variables in the MCI can help increase the accuracy with which the impact of monetary policy on output and inflation is measured.

B. MCIs and FCIs in Current Usage: A Constructive Critique

The rationale and construction mechanics of the most popular MCI currently in use are by now well known, and derive from work first done in the Bank of Canada.² Equation (1) below presents the formula for computing the most commonly accepted MCI:

$$(1) \quad MCI_t = \beta(r_t - r_0) + \gamma(x_t - x_0)$$

where r denotes the real interest rate, x denotes the logarithm of the real effective exchange rate, β and γ denote coefficients, and time zero denotes the base period.³ To operationalize this formula, one needs to choose the coefficients β and γ , the appropriate measures of interest and exchange rates, and the base period. Broader indicators, such as FCIs, generalize the MCI by adding to equation (1) other variables, measured in logs and denoted by z , that are thought to contain information regarding the variable of interest, resulting in equation (2):

$$(2) \quad FCI_t = \beta(r_t - r_0) + \gamma(x_t - x_0) + \delta(z_t - z_0)$$

At this level of abstraction, it is evident that one could in principle construct a wide variety of MCIs, depending on their desired use. One could construct MCIs that strictly attempted to capture policies: this would argue for including the interest rate most directly controlled by the monetary authority (or a close proxy), and for including the exchange rate

²See Freedman (1994).

³The original formula given in Freedman (1994) gives the real effective exchange rate term as $(X_t / X_0 - 1)$, where X denotes the real effective exchange rate measured as an index. The logarithmic formula given here is approximately equal to the expression given in Freedman, and is somewhat more convenient.

only to the extent that it constituted an intermediate target for policy.⁴ At the other extreme, the MCI could be considered solely as a leading indicator, and would therefore contain the exchange rate even for purely floating exchange rate regimes. For example, FCIs have been proposed that contain variables (such as equity prices) that are not clearly targeted by the authorities, but which may contain information regarding the variable of interest.⁵

The variable of interest itself constitutes another choice. Although for most countries MCIs and FCIs are defined relative to aggregate demand (i.e., the weights used to construct them are chosen to capture the impact on aggregate demand of a change in the underlying determinants of an MCI/FCI), in principle one could define MCIs/FCIs relative to inflation.⁶ Of course, given the impact of aggregate demand on inflation, one would expect well-constructed MCIs/FCIs to be informative regarding the future path of inflation even if the weights used to construct them had not been optimized with respect to inflation.

On the selection of coefficients, the standard practice, followed for example by the Canadian and Swedish Central Banks, has been to choose coefficients on the basis of economy-wide econometric models that capture the impact of interest and exchange rate changes on aggregate demand over some time period.⁷ This practice has merit, because in principle it can isolate the effect of changes in interest and exchange rates on aggregate demand from the effects of changes in other variables. However, reliable large-scale econometric models are not available for all countries: for these countries, direct, small-scale econometric estimation may be the only available method.

⁴Of course, some countries have other intermediate targets, such as the monetary base or broader monetary aggregates. There is a large literature discussing appropriate measures of monetary conditions for such cases, which will not be surveyed here. However, Dueker (1993) provides further discussion for the case of the United States.

⁵See for example the FCI constructed for Japan in "Indicators of Monetary and Financial Conditions: A Reexamination," in *Japan—Selected Issues*, Chapter VIII, IMF, SM/96/172 (7/10/96).

⁶Another option deserves mention, which is to define the index without reference to any variable of interest. The idea is to extract a common component from a set of variables related to monetary policy through an exclusive reliance on a statistical procedure (for example, the principal components methodology). See "Indicators of Monetary Conditions," in *Italy—Background Economic Developments and Issues*, Annex III, IMF, SM/94/39 (2/11/94). The main disadvantage of this method is that there is no independent verification of the appropriateness of the statistical technique used to construct the index.

⁷The practice followed by the Swedish Central Bank is described by Hansson and Lindberg (1994). The MCI for Japan estimated by the staff utilized MULTIMOD to determine the appropriate coefficients.

The technical requirements that an MCI/FCI should strive to satisfy are listed below in order of increasing stringency, and according to the role assigned to the index: ⁸

- (a) The MCI/FCI should be a stationary (cyclical) variable. This property should hold for all MCIs/FCIs.
- (b) The MCI/FCI should be exogenous with respect to other variables, notably output and inflation. This property should hold for MCIs/FCIs that are closely linked to policy variables but are used as informational variables in the conduct of monetary policy.
- (c) The coefficients (β , γ , δ) should be constant over time. Properties (b) and (c) should hold for MCIs/FCIs that are used as operational targets.

MCIs/FCIs as currently constructed probably fail to satisfy these requirements. It is, for example, clear that the MCIs/FCIs computed on the basis of equations (1) and (2) will often lack property (a). This will occur whenever any one of the underlying variables is non-stationary,⁹ or whenever such a variable is subject to a structural break. Portugal is a good example of the latter case, because its real effective exchange rate experienced an equilibrium appreciation following EU accession in 1986. Any MCI constructed on the basis of equation (1), and with a base period that extends sufficiently back in the past, would be dominated by the trend appreciation of the exchange rate, and the MCI would indicate the stance of monetary policy as permanently tight.¹⁰ This is clearly unsatisfactory: the next section will propose an MCI formula that retains the spirit of equation (1) while at the same time satisfying requirement (a).

Turning to property (b), a variable is a policy variable when it can be set (or at least influenced) by policy makers. If so, one would expect such a variable to have some exogeneity properties with respect to other variables, especially output and inflation.¹¹ This property of the MCI/FCI can and should be tested econometrically.

Finally, property (c) is closely related to the idea that statistical relationships tend to break down when they are used as the basis for policy. One should at least demonstrate that the historically estimated coefficients are constant before proposing that the MCI be used as

⁸ A fuller discussion of some of these technical requirements is provided in Eika (1995).

⁹Using statistical terminology, a variable is nonstationary whenever it is integrated of order higher than or equal to one (or higher than half, if one is willing to consider fractionally-integrated processes).

¹⁰This defect cannot be corrected by a rebasing of the MCI even if the rescaling is done using the average index for the whole period for which the MCI is calculated.

¹¹To use the jargon, the MCI would “Granger-cause” output and inflation.

the basis for policy, and that these coefficients are structural (invariant with respect to changes in policy). This is clearly the hardest requirement to fulfill, and may be another reason why MCIs are infrequently used as operational guides for monetary policy. For the purposes of this chapter, property (c) will neither be demonstrated nor required, because—as noted earlier—the MCI/FCI calculated for Portugal is viewed as an informational variable, and not as an operational target.

To summarize, MCIs/FCIs as currently calculated need to be improved in order to satisfy certain technical requirements, and, once calculated, need to be tested econometrically to demonstrate that they satisfy these requirements and that they indeed have useful information content regarding output and inflation. These tasks are taken up below.

C. Estimating and Validating an MCI for Portugal

The issues regarding MCIs that were raised in the previous section can be posed in an econometrically meaningful way by considering the following regression:

$$(3) \quad y_t = c + \beta r_t + \gamma x_t + \varepsilon_t$$

where y denotes the logarithm of output, and ε an i.i.d (independently and identically distributed) error process. Comparing equation (3) to equation (1), it is seen that if one could estimate (3) then an MCI could be simply recovered as the (negative of) the projection of y onto (r, x) . Because the MCI given by equation (1) has no interpretation in absolute units, ignoring the constant has no effect on the MCI.¹² Posed in this way, the problem of constructing the MCI can be reinterpreted as the problem of estimating the coefficients of regression (3), which raises the issue of the stationarity of the underlying data.

As can be shown in the case of Portugal, the underlying data was nonstationary (a circumstance also likely for other countries). However, differenced data were stationary. This suggests that the following regression be considered for estimation and as a basis for defining the MCI:

$$(4) \quad \Delta_{12}y_t = \beta\Delta_{12}r_t + \gamma\Delta_{12}x_t + \varepsilon_t$$

where Δ_{12} denotes the year-on-year difference operator.¹³ A comparison of regression (4) with equation (1) shows that an MCI computed in this way amounts to a slight modification of equation (1): the base period, instead of being set once and for all at some point in the distant past, remains at a fixed distance from the present (i.e., it rolls forward over time). Because the variables $\Delta_{12}r_t$ and $\Delta_{12}x_t$ are in general persistent, so is the proposed MCI, which inherits the

¹²In fact, $c = -(\beta r_0 + \gamma x_0)$.

¹³ A constant should be included in this regression whenever a time trend proved statistically significant.

persistence properties of its underlying variables. Thus, the relative shortness of the distance between the current and the rolling base period is not a serious concern. Once regression (4) is estimated, the MCI can be defined as the (negative of) the projection of the year-on-year logarithmic change in output onto $(\Delta_{12}r_t, \Delta_{12}x_t)$. With this formulation of the MCI, property (a) is satisfied, and the calculated MCI is a stationary (cyclical) variable.

Given stationarity, one can attempt to estimate regression (4) directly, interpreted as a long-run relationship: the estimated coefficients can then be used to construct the desired MCI. Another, complementary, approach that can be suggested for countries for which reliable economy-wide econometric models do not exist is to estimate the following small-scale VAR model:

$$(5a) \quad \Delta_{12}x_t = c_1 + A_{11}(L)\Delta_{12}x_{t-1} + A_{12}(L)\Delta_{12}r_{t-1} + A_{13}(L)\Delta_{12}y_{t-1} + v_{1t}$$

$$(5b) \quad \Delta_{12}r_t = c_2 + A_{21}(L)\Delta_{12}x_{t-1} + A_{22}(L)\Delta_{12}r_{t-1} + A_{23}(L)\Delta_{12}y_{t-1} + v_{2t}$$

$$(5c) \quad \Delta_{12}y_t = c_3 + A_{31}(L)\Delta_{12}x_{t-1} + A_{32}(L)\Delta_{12}r_{t-1} + A_{33}(L)\Delta_{12}y_{t-1} + v_{3t}$$

where the $A(L)$ denote polynomials in the lag operator, c is a constant vector, and v is a vector i.i.d. process. An estimation of the impulse responses would then permit the computation of the effects on output of a shock in the exchange and the interest rate, and the relative magnitudes of these effects. It should be understood that the relative magnitude can change depending on the length of the time horizon considered: those central banks that use MCIs generally choose short-term horizons (between 6-18 months).¹⁴

When regression (4) and VAR (5) were estimated, the results were generally satisfactory (data issues are discussed below). For the regression, the marginal significance of the coefficient on the interest rate was better than 1 percent, while that of the coefficient on the exchange rate was just over 10 percent. For the VAR (equation 5c), the lagged coefficients of both the interest and the exchange rate had a joint significance level that was better than 5 percent. A variance decomposition for output showed that 12 percent of the forecast error variance was explained by the exchange rate, and 16 percent by the interest rate over a long time horizon.

Regarding the size of the estimated coefficients, it was found that the coefficient on the interest rate was larger than the coefficient on the exchange rate. Based on regression (4), the relative weight was calculated at 2.6:1 (indicating that a 1 percentage point change in the interest rate term has an equivalent effect to a 2.6 percentage point increase on the exchange

¹⁴The impulse responses can in theory also depend on the ordering of the variables in the VAR. Experimentation in the case of Portugal revealed that alternative orderings did not seem to change the relevant results significantly.

rate term).¹⁵ This finding is not unreasonable, given that Portugal is a small, open economy that heavily relies on trade. As earlier indicated, the relative size of the exchange and interest rate effects can change over time. For Portugal, what was observed was that the interest rate effect dominated the exchange rate effect over short horizons, but that the exchange rate became more important over longer horizons.¹⁶ Based on VAR (5), the relative weight peaked at 1.5:1 after a lag of four months. For the purposes of monetary policy, it is more sensible to use the estimates over the time horizon where the interest rate effect predominates (as is the practice in those central banks that utilize MCIs). The coefficients were not measured very precisely, however, and the true weights could differ significantly from the estimated ones. Fortunately, the qualitative results are not very sensitive to the precise coefficients used.

To maximize the degrees of freedom available for estimation—especially in light of the voracious needs of VAR models in this regard—it was necessary to use data sampled at a monthly rather than a quarterly frequency (available back to 1980). This restricted the choice of the output variable to the industrial production series, seasonally adjusted and corrected for the number of working days.¹⁷ The available interest rate series comprised a discount rate, administratively set lending and deposit rates,¹⁸ and a 3-month T-bill rate.¹⁹ Experimentation with these rates revealed the T-bill rate as the best performer in the sense of generating regressions with the correct signs and with the largest significance levels. Finally, the real effective exchange rate (based on relative consumer prices) was taken from the International Financial Statistics (IFS). Chart 8 presents the key series selected for the construction of the MCI (industrial production, the 3-month ex-post real T-bill rate, and the real effective

¹⁵Typical relative weights that have been used for other countries range from 2.5:1 to 4:1. For Japan, a 10:1 weight has been proposed by the staff.

¹⁶As Freedman (1994) points out, the impact of the exchange rate relative to the interest rate is likely to be larger the longer the time horizon considered.

¹⁷This series was for some time considered deficient in terms of coverage, but the National Statistical Service (INE) now considers these problems as having been largely addressed. The main available alternative was a coincident indicator series produced by the Bank of Portugal that was available, however, only at a quarterly frequency. A monthly coincident indicator series was interpolated from the quarterly coincident indicator and was used in place of the industrial production series, but the information loss was clearly too great (for example, some of the resulting regressions had the wrong sign on the interest rate).

¹⁸These rates were administered throughout most of the sample, with the deposit and lending rates being freed from administrative control only in the early 1990s.

¹⁹An interbank rate could only be extended back to 1983.

CHART 8
PORTUGAL

Industrial Production, Real Interest Rate, and Real Effective Exchange Rate
(Year-on-year logarithmic change)

Source: IMF, and Fund staff estimate.

Note: The ex-post real interest rate series is based on a 3-month t-bill rate, and its year-on-year change is calculated in absolute terms.

exchange rate).²⁰ Chart 9 presents the main ex-post real interest rate series, showing that they exhibit substantial comovement.

Chart 10 presents the MCI computed for Portugal on the basis of regression (4).²¹ The MCI presented there has a more natural interpretation than the MCIs commonly used: a measure of +1 percent, for example, indicates that the stance of monetary policy is consistent with year-on-year output growth being 1 percent below trend at the appropriate time horizon. Hence, the evidence regarding the stance of monetary policy in Portugal in 1996 is that it has become mostly neutral—i.e., consistent with output being on its trend path. It is also of interest to note that the MCI indicates a significant tightening of monetary policy in the period late 1983-early 1985, which coincides with Portugal's stand-by arrangement with the Fund.²²

Following up on the discussion presented in the previous section, the estimated MCI was subjected to a number of further tests and simulations which provide further insight into its dynamic properties and information content. First, VAR models were estimated on the MCI and output, and on the MCI and inflation. For concreteness, these models were:

$$(6a) \quad MCI_t = C_1(L)MCI_{t-1} + D_1(L)\Delta_{12}y_{t-1} + \varepsilon_{1t}$$

$$(6b) \quad \Delta_{12}y_t = F_1(L)MCI_{t-1} + G_1(L)\Delta_{12}y_{t-1} + \eta_{1t}$$

and

$$(7a) \quad MCI_t = C_2(L)MCI_{t-1} + D_2(L)\Delta_{12}p_{t-1} + \varepsilon_{2t}$$

$$(7b) \quad \Delta_{12}p_t = F_2(L)MCI_{t-1} + G_2(L)\Delta_{12}p_{t-1} + \eta_{2t}$$

where the C, D, F, and G denote polynomials in the lag operator, and (ε, η) a vector i.i.d. process. The impulse responses derived on the basis of the estimated models (6) and (7) are set out in Charts 11 and 12 drawn together with two standard deviation bounds; the time-scale on the x-axis is measured in months. They show that both output and inflation experience a statistically significant reduction as a result of a tightening in the MCI (the top

²⁰Given the short maturity of the interest rates considered here, ex-post real interest rates are likely to be very close to ex-ante real rates that could alternatively have been generated on the basis of a model that projects inflation.

²¹The FCI, whose computation will be described in the next section, is also shown in this chart.

²²The stand-by arrangement, which was intended to last from October 1983 to February 1985 was not implemented in full, as the program went off track. Both the MCI and the FCI (whose computation will be described in the following section) indicate a significant loosening of policies following the expiration of the stand-by arrangement.

CHART 9
PORTUGAL
Short-Term Real Interest Rates
(In percent)

Sources: IMF and Bank of Portugal.

Note: Interest rates are real ex-post.

1/ As of May 1991, the discount rate was replaced by the interest rate charged by the Bank of Portugal on regular provision of liquidity.

CHART 10
PORTUGAL

Monetary and Financial Stance Measures (Year-on-year logarithmic change)

Source: Fund staff estimates.

Note: Zero denotes a neutral policy stance, while a plus denotes a tight policy stance.

Impulse Responses, MCI and Output

Response of MCI

Response of OUTPUT

Shock to

OUTPUT

Response of MCI

Response of OUTPUT

Impulse Responses, MCI and Inflation

Shock to

MCI

INFLATION

Response of MCI

Response of INFLATION

Response of MCI

Response of INFLATION

right panels of Charts 11 and 12 show the time path of the responses of output and inflation respectively). The response of output is not very persistent, lasting only between 6-12 months, with the maximum impact occurring after 4 months. The response of inflation is more persistent, lasting about 18 months, with the maximum impact occurring after about 10 months. Additional statistical tests and a variance decomposition are collected in the following tabulation.

Dependent Variable	Joint Significance Test for the Nondependent Variable Lags (marginal significance of F-test)	Forecast Error Variance Due to MCI (long-run effect)
MCI	0.20	0.68
$\Delta_{12}y$	0.67	0.06
MCI	0.00	0.83
$\Delta_{12}p$	0.00	0.16

The statistical tests confirm that the MCI is exogenous with respect to output, which provides some evidence that it does indeed reflect policy. Over the sample period, there is strong evidence that monetary policy was used successfully to combat inflation. It is also interesting to note that over short time horizons the MCI determined a significant fraction of the forecast error variance of inflation: more than one-third for periods up to one quarter, and almost one-fifth for periods up to two quarters. The implication of this result is that monetary policy needs to be used consistently and over a sustained period of time in order to maximize its effectiveness in reducing inflation.

D. Estimating and Validating an FCI for Portugal

The results for the MCI described in the earlier section went in the right direction, but in some cases lacked statistical significance. It will be seen that this is partly the result of not accounting for the effect of fiscal policy on output and inflation. This section will consider a broader indicator of financial policies, the FCI, by expanding the list of variables included in the MCI. The regression that will form the basis for constructing the FCI can be written as:

$$(8) \quad \Delta_{12}y_t = \beta \Delta_{12}r_t + \gamma \Delta_{12}x_t + \delta \Delta_{12}z_t + \varepsilon_t$$

where z will refer to a fiscal variable (in volume terms). The selection of z is not obvious *a priori*, because the overall fiscal deficit (the most prominent candidate) contains disparate elements—taxes, public consumption, public investment, and interest expenditure. For the purposes of constructing the FCI, regression (8) was implemented using a quarterly real public consumption series available from the OECD, on the grounds that it would most closely track

changes in policy.²³ By analogy with the method that was used to compute appropriate weights for the MCI, a four equation VAR model was also estimated, and its impulse responses were used to gauge the relative strength of the responses of output to changes in the exchange rate, interest rate, and public consumption.²⁴

The estimates yielded the following results. First, including a fiscal variable in the regression actually increased the statistical significance of the monetary variables.²⁵ Second, the ratio of the interest rate coefficient to the exchange rate coefficient was calculated at 2.1:1—approximately the mid-point of the estimates given in the previous section. Third, the ratio of the interest rate coefficient to the fiscal variable coefficient was calculated at 1.5:1. Fourth, all coefficients continued to have the expected sign (with increases in public consumption tending to stimulate aggregate demand—a result that would not necessarily hold over the longer term, because of possible detrimental effects of public consumption on trend growth, as discussed in Chapter I of this paper). These results tend to validate the choice of public consumption for inclusion in the FCI.

Chart 10 exhibits the estimated FCI, computed on the basis of regression (8). Since the volume of quarterly public consumption is not available on a timely basis, the FCI is not as current an indicator as the MCI. This suggests that the FCI can be used to assess the past policy stance and/or prospectively, in the context of policy simulations, rather than as a coincident informational tool. Because there are historical periods during which the FCI diverges significantly from the MCI (especially during 1986 and again during 1988), the FCI could have additional information relative to the MCI in analyzing such policy scenarios.²⁶

²³The series was interpolated to a monthly frequency for the purposes of estimating the regression.

²⁴The VAR model was a four equation version of equation (5), where each equation was augmented with lags in public consumption, and where a fourth equation was added for public consumption.

²⁵The coefficients estimated on the basis of regression (8) were each significant at a better than 1.5 percent level. For the four-equation VAR model (output equation), all lagged coefficients jointly tested significant at a better than 5 percent level.

²⁶The size of the divergence between the MCI and the FCI during 1986 is somewhat extreme. A closer examination of fiscal trends during this period revealed that the fiscal deficit did not experience an increase during 1986. However, public consumption did increase very rapidly in volume terms, while its effect on the overall deficit was compensated by rapid increases in revenues. Because the relative increase in revenues was smaller than the increase in public consumption, it is likely that an even broader concept of an FCI (one that included revenues in addition to public consumption) would retain the qualitative relationship between the MCI and the FCI observed in Chart 10

Next, the following VAR models were estimated for the FCI:

$$(9a) \quad FCI_t = C_3(L)FCI_{t-1} + D_3(L)\Delta_{12}y_{t-1} + \varepsilon_{3t}$$

$$(9b) \quad \Delta_{12}y_t = F_3(L)FCI_{t-1} + G_3(L)\Delta_{12}y_{t-1} + \eta_{3t}$$

and

$$(10a) \quad FCI_t = C_4(L)FCI_{t-1} + D_4(L)\Delta_{12}p_{t-1} + \varepsilon_{4t}$$

$$(10b) \quad \Delta_{12}p_t = F_4(L)FCI_{t-1} + G_4(L)\Delta_{12}p_{t-1} + \eta_{4t}$$

On the basis of these models, the estimated impulse responses together with two standard deviation confidence bounds are presented in Charts 13 and 14. As with the MCI, a tightening of the FCI causes a statistically significant reduction in output and in inflation (top right panels). The persistence of the responses of output and inflation is larger for the FCI than it is for the MCI, indicating that inflation can be more successfully countered when monetary and fiscal policies act in concert.

Additional statistical tests and a variance decomposition are set out in the following tabulation.

Dependent Variable	Joint Significance Test for the Nondependent Variable Lags (marginal significance of F-test)	Forecast Error Variance Due to FCI (long-run effect)
FCI	0.17	0.85
$\Delta_{12}y$	0.26	0.15
FCI	0.02	0.95
$\Delta_{12}p$	0.00	0.26

The statistical tests confirm that the FCI is exogenous with respect to output, which provides some evidence that it does indeed reflect policy. As with the MCI, the FCI appears to exhibit counter-inflationary properties, but with a slightly lower level of significance. Over short-time horizons, the FCI determines a significant fraction of the forecast variance of inflation, while over long time horizons the FCI determines a larger fraction of the forecast variance of inflation than the MCI. These results indicate that monetary and fiscal policies can together have a more persistent impact on inflation than monetary policies alone. They also indicate that policies need to be maintained over a period of time to maximize their effectiveness in reducing inflation.

Impulse Responses, FCI and Output

Shock to

FCI

Response of OUTPUT

OUTPUT

Response of FCI

Response of OUTPUT

Impulse Responses, FCI and Inflation

Response of FCI

Response of INFLATION

Shock to

INFLATION

Response of FCI

Response of INFLATION

E. Conclusion

On the basis of the results presented above, a number of policy implications can be suggested.

- The MCI is a useful informational variable. It can be calculated regularly, as are numerous other indicators used to assess the policy stance and the prospects for inflation and output (e.g., coincident indicators, core inflation, etc.).
- Output, and, even more so, inflation, were shown to be responsive to a tightening of the MCI. Monetary policy was used to successfully counter inflation: the estimates suggest that a monetary policy shock could persist for some 18 months, with the maximum disinflationary impact observed after about 10 months. The results of the FCI show that inflation can be countered even more successfully when monetary and fiscal policies act in concert.
- The recent stance of monetary policy—while determined by the exchange rate objective—would also appear on an ex post basis to have been broadly consistent with cyclical considerations. A tightening was observed as the recovery picked up steam in the course of mid-1994 to 1995, which also served as a counterweight to the fiscal deterioration of 1993. From late-1995 to the present, the overall stance shifted to being broadly neutral.
- The FCI can be a useful tool for prospectively analyzing changes in the policy mix. When possible, the inclusion of fiscal variables in the MCI can help increase the accuracy with which the impact of monetary policy on output and inflation is measured. Data availability of the fiscal variables, however, would limit the operational use of the FCI as a coincident informational variable.

REFERENCES

- Dueker, M.J., "Indicators of Monetary Policy: The View from Implicit Feedback Rules," *Federal Reserve Bank of St. Louis Quarterly Review* (September/October 1993).
- Eika, K.H., and others, "Making a Monetary Conditions Index Operational," Mimeo (1995).
- Freedman, C., "The Use of Indicators and the Monetary Conditions Index in Canada, in *Frameworks for Monetary Stability: Policy Issues and Country Experience*, ed. by T.Balino and C.Cottarelli (Chapter 18; Washington: International Monetary Fund, 1994).
- Hansson, B., and Lindberg, H., "Monetary Conditions Index—A Monetary Policy Indicator," *Sveriges Riksbank Quarterly Review* (1994:3).
- International Monetary Fund, 1994, *Italy—Background Economic Developments and Issues*, SM/94/39.
- International Monetary Fund, 1996, *Japan—Selected Issues*, SM/96/172.

Table 1. Portugal: Aggregate Demand

	1990	1991	1992	1993	1994	1995
(In billions of escudos, at current prices)						
Private consumption	6,141.8	7,244.5	8,346.9	8,887.7	9,367.9	9,932.2
Public consumption	1,533.3	1,955.7	2,222.4	2,393.1	2,547.9	2,777.1
Investment	2,728.8	3,087.7	3,543.9	3,406.9	3,629.8	3,822.5
Gross fixed investment	2,612.4	2,987.7	3,426.5	3,319.1	3,517.2	3,662.0
Change in stocks	116.4	100.0	117.4	87.8	112.6	160.4
Total domestic demand	10,403.9	12,287.9	14,113.2	14,687.7	15,545.6	16,531.7
Exports (goods and services)	3,487.5	3,565.6	3,633.5	3,701.1	4,241.2	4,899.6
Aggregate demand	13,891.4	15,853.6	17,746.7	18,388.9	19,786.8	21,431.3
Imports (goods and services)	4,308.0	4,605.2	4,817.7	4,735.3	5,338.9	5,906.4
GDP	9,583.3	11,248.3	12,929.0	13,653.5	14,447.9	15,524.9
(Percentage change at constant prices)						
Private consumption	5.0	5.2	4.6	-0.3	0.0	1.8
Public consumption	1.9	3.2	1.5	-1.7	1.5	2.5
Investment	7.5	1.8	6.1	-8.3	3.3	2.9
Gross fixed investment	8.1	2.5	5.6	-7.6	2.8	1.8
Total domestic demand	5.2	4.0	4.5	-2.5	1.0	2.1
Exports (goods and services)	12.2	2.1	4.6	-0.6	10.0	11.2
Aggregate demand	7.0	3.5	4.5	-2.1	2.8	4.1
Imports (goods and services)	13.9	6.4	11.4	-4.8	9.1	8.9
GDP	4.0	2.2	1.7	-1.2	0.7	2.3
(Percentage change, implicit deflators)						
Private consumption	13.8	12.1	10.2	6.8	5.4	4.2
Public consumption	21.1	23.6	12.0	9.5	4.9	6.4
Investment	7.8	11.2	8.2	4.8	3.2	2.3
Gross fixed investment	8.0	11.6	8.7	4.9	3.1	2.3
Total domestic demand	13.1	13.6	9.9	6.8	4.8	4.1
Exports (goods and services)	4.5	0.2	-2.6	2.5	4.2	3.9
Aggregate demand	10.8	10.2	7.1	5.9	4.6	4.1
Imports (goods and services)	6.4	0.5	-6.1	3.2	3.4	1.6
GDP	13.0	14.8	13.1	6.8	5.1	5.0

Source: Bank of Portugal.

**Table 2. Portugal: Contributions of Demand Components
to Real GDP Growth 1/**

(In percentage)

	1990	1991	1992	1993	1994	1995
Private consumption	3.2	3.3	3.0	-0.2	0.0	1.1
Public consumption	0.3	0.5	0.3	-0.3	0.3	0.4
Investment	2.2	0.5	1.7	-2.3	0.8	0.7
Gross fixed investment	2.2	0.7	1.5	-2.0	0.7	0.4
Change in stocks	-0.1	-0.2	0.2	-0.2	0.2	0.3
Domestic demand	5.6	4.3	4.9	-2.8	1.1	2.3
Exports (goods and nonfactor services)	4.5	0.7	1.5	-0.2	2.7	3.3
Aggregate demand	10.1	5.1	6.3	-2.9	3.8	5.6
Imports (goods and nonfactor services)	-6.1	-2.9	-4.7	1.8	-3.2	-3.3
GDP	4.0	2.2	1.7	-1.2	0.7	2.3

Source: Bank of Portugal.

1/ Based on the structure of the previous year (at current prices).

Table 3. Portugal: Consumption of Investment Indicators

(Year-on-year real percentage change)

	Consumption			Investment				
	Current consumption Total 1/	Auto sales 2/	Gasoline sales	Machinery imports 3/	Sales of Commercial vehicles		Cement 6/	Steel 7/
					Light 4/	Heavy 5/		
1991	7.6	7.9	10.0	6.6	-1.2	-9.2	4.1	-1.9
1992	3.0	22.1	13.1	6.3	21.1	-5.0	2.2	15.9
1993	1.0	-12.7	6.0	13.8	-1.6	-28.1	-0.9	-7.3
1994	5.4	-3.7	3.0	3.4	22.4	-21.8	0.6	19.5
1995	5.7	-13.5	1.7	...	-33.4	6.2	4.3	13.2
1992								
I	2.1	28.5	18.7	5.2	24.9	6.3	11.0	29.0
II	5.4	25.6	12.7	-1.8	23.0	-7.1	-1.5	4.8
III	3.8	12.2	11.0	10.8	17.6	-6.0	-0.2	14.7
IV	1.0	21.6	11.4	6.8	19.2	-11.8	0.4	17.0
1993								
I	2.1	-7.0	8.0	...	6.2	-28.3	1.1	-3.1
II	0.4	-16.9	7.4	...	2.6	-18.9	2.8	17.6
III	0.5	-9.0	4.9	...	-4.9	-31.5	-2.2	-19.1
IV	1.2	-16.9	4.3	...	-9.8	-3.8	-5.6	-21.6
1994								
I	4.0	-8.2	5.4	-8.1	5.0	-28.7	-8.8	-7.3
II	-0.3	2.8	4.6	-0.7	10.4	-25.7	-3.3	-2.9
III	0.4	-8.2	2.2	8.7	14.3	-22.5	5.6	41.5
IV	1.5	-1.6	0.4	15.2	60.3	-11.3	10.1	57.9
1995								
I	-2.5	-11.1	1.6	19.8	-24.5	1.1	10.6	38.0
II	4.9	-12.6	2.1	8.7	-29.2	3.0	9.7	30.4
III	4.9	-7.3	0.7	13.3	-27.3	2.8	0.7	-2.0
IV	3.4	-22.4	2.6	...	-46.1	16.7	-3.1	-3.8
1996								
I	...	11.0	3.4	...	10.0	3.9	-7.2	...

Source: Bank of Portugal.

1/ Based on sales by main supermarkets. New series since 1994.

2/ Passenger vehicles, excluding 4x4.

3/ Imports of capital goods, excluding transport equipment.

4/ Light commercial vehicles, excluding 4x4.

5/ Heavy commercial vehicles, excluding 4x4.

6/ Sold to construction industry.

7/ 1991-92 includes steel imports.

Table 4. Portugal: Composition and Structure of Gross Fixed Investment 1/

	1990	1991	1992	1993	1994	1995
(Real growth, in percent)						
Gross fixed investment	8.1	2.5	5.6	-7.6	2.8	1.8
Construction	5.3	4.5	2.5	-0.6	1.1	5.0
Equipment	10.2	0.9	8.2	-13.7	4.3	-1.3
(In percent of total)						
Composition by sector						
Public sector	26.3	29.0	29.3	30.6	28.7	31.3
General Government (SPA)	12.9	14.2	15.3	17.2	15.8	17.9
Public enterprises 2/	13.4	14.8	14.0	13.4	12.9	13.4
Private sector	73.7	71.0	70.7	69.4	71.3	68.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Structure						
Construction	43.0	45.8	46.2	49.1	48.3	50.3
Equipment	57.0	54.2	53.8	50.9	51.7	49.7

Sources: Bank of Portugal; Ministry of Finance-GAFEFP.

1/ Figures for public enterprises are based on estimates provided by the GAFEFP. Private sector investment (including nationalized banks) was calculated as a residual.

2/ Nonfinancial public enterprises.

Table 5. Portugal: Distribution of National Income

	1990	1991	1992	1993	1994	1995
(In billions of escudos)						
1. Wage income	4,319.6	5,002.1	5,737.4	6,015.1	6,190.1	6,479.2
2. Gross operating surplus	4,014.4	4,810.7	5,449.4	5,945.9	6,311.9	6,922.8
3. GDP at factor cost (3=1+2)	8,334.0	9,812.8	11,186.8	11,961.0	12,502.0	13,402.0
4. Indirect taxes net of subsidies	1,249.3	1,435.5	1,742.2	1,692.5	1,945.9	2,122.9
5. GDP at market price (5=3+4)	9,583.3	11,248.3	12,929.0	13,653.5	14,447.9	15,524.9
6. Net factor payment from abroad	-34.1	10.8	90.0	12.7	-51.6	-107.7
7. GNP at factor cost (7=3+6)	8,299.9	9,823.6	11,276.8	11,973.7	12,450.4	13,294.3
8. GNP at market price (8=5+6)	9,549.2	11,259.1	13,019.0	13,666.2	14,396.3	15,417.2
9. Net unrequited transfers	649.6	658.9	690.5	715.6	617.8	721.1
10. National disposable income (10=8+9)	10,198.8	11,918.1	13,709.5	14,381.8	15,014.2	16,138.3
Households	7,485.8	8,777.0	9,908.8	10,447.0	10,906.2	11,446.8
Firms	1,415.6	1,573.5	1,650.3	1,927.4	1,895.2	2,136.6
General government	1,297.4	1,567.6	2,150.4	2,007.4	2,212.8	2,554.9
(Percentage change)						
1. Wage income	21.1	15.8	14.7	4.8	2.9	4.7
2. Gross operating surplus	12.3	19.8	13.3	9.1	6.2	9.7
3. GDP at factor cost (3=1+2)	17.6	17.7	14.0	6.9	4.5	7.2
4. Indirect taxes net of subsidies	22.7	14.9	21.4	-2.9	15.0	9.1
5. GDP at market prices (5=3+4)	17.5	17.4	14.9	5.6	5.8	7.5
Memorandum item:						
Share of wage income in GDP factor cost	51.8	51.0	51.3	50.3	49.5	48.3

Source: Bank of Portugal.

Table 6. Portugal: Disposable Income

	1990	1991	1992	1993	1994	1995
(In billions of escudos)						
Disposable household income	7,485.8	8,777.0	9,908.8	10,447.0	10,906.2	11,446.8
Private consumption	6,141.8	7,244.5	8,346.9	8,887.7	9,367.9	9,932.2
Households saving	1,344.1	1,532.5	1,561.9	1,559.3	1,538.3	1,514.7
Saving rate (in percent)	18.0	17.5	15.8	14.9	14.1	13.2
Direct taxes	546.2	695.2	923.6	950.9	990.0	1,087.1
Social security taxes	1,120.2	1,327.7	1,567.1	1,723.3	1,853.2	2,017.4
Personal income	8513.9	10,133.8	11,758.0	12,506.2	13,174.9	14,041.2
Wage bill	4,319.6	5,002.1	5,737.4	6,015.1	6,190.1	6,479.2
Other earned income	2,960.2	3,585.7	4,170.3	4,342.3	4,550.3	4,833.7
Domestic currency transfer	1,234.1	1,546.0	1,850.3	2,148.8	2,434.5	2,728.3
Transfers from abroad	638.3	666.2	641.5	615.1	574.4	510.2
(Percentage change)						
Disposable income	21.6	17.2	12.9	5.4	4.4	5.0
Real disposable income 1/	6.9	4.5	2.5	-1.3	-0.9	0.7
Personal income	21.8	19.0	16.0	6.4	5.3	6.6
Wage bill	21.1	15.8	14.7	4.8	2.9	4.7
Other earnings income	22.0	21.1	16.3	4.1	4.8	6.2
Domestic currency transfer	23.7	25.3	19.7	16.1	13.3	12.1
Private external transfers	8.6	4.4	-3.7	-4.1	-6.6	-11.2
Memorandum items:						
Factor income (GDP at factor costs)						
In billions of escudos	8,334.0	9,812.8	11,186.8	11,961.0	12,502.0	13,402.0
Percentage change	16.7	17.7	14.0	6.9	4.5	7.2

Source: Bank of Portugal.

1/ Deflated by the private consumption deflator.

Table 7. Portugal: Savings and Investment

	1990	1991	1992	1993	1994	1995
(In billions of escudos)						
Domestic saving	2,597.6	2,799.0	3,224.4	3,101.1	3,098.4	3,429.0
Private (including public enterprises)	2,759.7	3,106.0	3,212.2	3,486.7	3,433.5	3,651.3
Households	1,344.1	1,532.5	1,561.9	1,559.3	1,538.3	1,514.7
Firms	1,415.6	1,573.5	1,650.3	1,927.4	1,895.2	2,136.6
Public (general government)	-162.1	-307.0	12.2	-385.6	-335.1	-222.3
Foreign saving	131.2	288.7	319.5	305.8	531.4	393.4
Gross saving = gross investment	2,728.8	3,087.7	3,543.9	3,406.9	3,629.8	3,822.4
Gross fixed capital formation	2,612.4	2,987.7	3,426.5	3,319.1	3,517.2	3,662.0
Change in stocks	116.4	100.0	117.4	87.8	112.6	160.4
(In percent of GDP)						
Domestic saving	27.1	24.9	24.9	22.7	21.4	22.1
Private (including public enterprises)	28.8	27.6	24.8	25.5	23.8	23.5
Households	14.0	13.6	12.1	11.4	10.6	9.8
Firms	14.8	14.0	12.8	14.1	13.1	13.8
Public (general government)	-1.7	-2.7	0.1	-2.8	-2.3	-1.4
Foreign saving	1.4	2.6	2.5	2.2	3.7	2.5
Gross saving = gross investment	28.5	27.5	27.4	25.0	25.1	24.6
Gross fixed capital formation	27.3	26.6	26.5	24.3	24.3	23.6
Change in stocks	1.2	0.9	0.9	0.6	0.8	1.0

Source: Bank of Portugal.

Table 8. Portugal: Origins of Gross Domestic Product
(Real percentage change, except when otherwise indicated)

	1990	1991	1992	1993	1994	1995
Agriculture, forestry and fishing	-1.0	-1.4	-1.0	-6.6	-3.2	-0.1
Manufacturing	5.3	0.9	-2.0	-4.4	-0.9	2.7
Energy	10.0	3.0	2.0	3.5	10.1	6.2
Construction	5.0	4.5	2.5	-0.5	1.0	4.8
Services	5.6	4.8	4.4	-0.7	-0.3	-0.1
GDP at market prices	4.1	2.3	1.7	-1.2	0.7	2.3

Source: Bank of Portugal.

Table 9. Portugal: Consumer Prices 1/
(Annual average percent change)

	1990	1991 2/	1992	1993	1994	1995
Overall index, excluding rents	13.4	11.4	8.9	6.5	5.2	4.1
Food and beverages	13.6	9.9	7.1	2.8	4.8	4.0
Clothing and footwear	9.5	11.9	11.9	7.0	4.1	1.9
Housing expenditures	11.9	12.1	9.6	7.0	3.5	3.3
Health	12.7	14.2	15.5	12.6	9.1	6.2
Transports and communications	19.7	14.4	9.7	11.1	5.9	4.8
Education, culture and recreation	10.0	9.4	9.5	9.0	7.6	6.2
Tobacco and related expenditures	11.8	19.2	19.1	11.5	6.1	6.3
Other	11.3	10.9	8.6	13.2	6.7	5.5
Housing rents	17.7	22.1	15.7	9.5	7.5	5.0
Overall index, including rents	13.6	12.0	9.5	6.8	5.4	4.2
Administered prices	12.2	13.8	8.6	6.8	3.9	3.3
Nonadministered prices	13.2	10.6	9.0	6.5	5.4	4.2
Memorandum items:						
Year-on-year inflation rate	13.7	9.6	8.4	6.4	4.0	3.4
Underlying inflation 3/	13.2	12.3	11.8	8.9	5.7	5.0
NEER 4/	-2.7	0.7	3.2	-6.0	-4.0	2.0
Import prices	3.4	-0.9	-5.4	0.8	3.1	1.7
Inflation in EU 5/	5.7	5.0	4.2	3.4	3.0	3.2
Inflation differential vis-à-vis EU 5/	7.8	6.5	4.8	3.2	2.2	1.0

Source: Bank of Portugal.

1/ Annual averages.

2/ New CPI series starting January 1991.

3/ Excluding food and beverages, and energy.

4/ Rate of change of nominal effective exchange rate of the escudo.

5/ EU excluding Portugal.

Table 10. Portugal: Population, Labor Force, Employment, Unemployment, and Labor Market

	1990	1991	1992 1/	1993	1994	1995
(In thousands)						
Total resident population	9,808	9,815	9,345	9,350	9,350	9,357
Civilian labor force	4,716	4,829	4,528	4,504	4,564	4,551
Total employment	4,496	4,631	4,341	4,255	4,252	4,225
Dependent employment	3,166	3,211	3,223	3,132	3,070	3,040
Fixed term contracts 2/	18.0	16.1	12.1	10.9	10.6	11.1
Unemployment	220	199	187	248	312	325
First employment seekers	57	41	40	39	52	60
New employment seekers	163	158	147	209	260	266
Labor market						
Application for employment by unemployed	304.3	296.6	339.3	365.1	410.2	451.8
Unfilled vacancies	7.7	8.4	7.0	5.0	5.1	7.3
Placements	30.6	27.5	27.9	28.6	34.7	46.8
(In percent)						
Participation rate	48.1	49.2	48.5	48.2	48.8	48.6
Participation rate 15-64 years	69.0	70.3	68.4	67.8	67.5	67.2
Male	80.5	80.7	78.7	77.2	76.4	75.4
Female	58.2	60.6	58.9	59.0	59.2	59.5
Unemployment rate	4.7	4.1	4.1	5.5	6.8	7.2
Male	3.2	2.8	3.5	4.7	6.0	6.4
Female	6.6	5.8	4.9	6.5	7.8	8.0
Duration of unemployment						
Less than 3 months	29.3	31.4	35.7	29.4	27.3	22.0
Between 3 and 12 months	36.8	38.5	38.4	41.3	38.5	38.6
Over 12 months	33.9	30.1	25.9	29.3	34.2	39.3
Memorandum item:						
Unemployment rate in EU-12	7.8	8.4	9.8	11.1	11.6	11.2

Sources: National Institute of Statistics, *Inquerito ao Emprego*; Bank of Portugal, *Monthly Bulletin*; and WEO.

1/ As a result of methodological changes in the construction of the series, data for 1992 is not strictly comparable to previous years.

2/ In percent of dependent employment.

Table 11. Portugal: Employment by Sector 1/

(In thousands)

	1990	1991	1992 2/	1993	1994	1995
Agriculture, forestry, and fishing	795.3	799.1	490.1	481.2	486.9	477.5
Manufacturing and mining industries	1,158.1	1,154.2	1,061.0	1,028.0	1,025.6	988.7
Electricity, water and gas	40.2	45.9	31.1	22.8	54.3	34.6
Construction	361.1	363.6	346.2	339.3	327.9	340.3
Services	2,141.4	2,268.1	2,412.2	2,372.1	2,367.6	2,384.0
Total	4,495.9	4,630.8	4,340.7	4,253.7	4,251.2	4,225.2
Memorandum items:						
Public sector	808.7	828.2	940.4	902.4	...	...
General government 3/	655.3	691.4	810.8	784.8	793.5	802.2
Public enterprises 4/	153.4	136.8	129.6	115.5	...	...
Public sector (percent of total)	18.0	17.9	21.7	21.2	...	...

Source: National Institute of Statistics, *Inquerito ao Emprego*.

1/ Period average.

2/ As a result of methodological changes in the construction of the series, data for 1992 is not strictly comparable to previous years.

3/ Including education and health services, public and private.

4/ Nonfinancial public enterprises covered by GAFEEP.

Table 12. Portugal: Wage Developments

(Annual nominal percentage change)

	1990	1991	1992	1993	1994	1995
Wages 1/	17.7	14.2	13.7	7.9	5.0	5.7
Contractual wages						
Agriculture	14.9	14.9	11.7	7.6	5.1	4.5
Industry	13.8	14.4	10.7	7.8	5.2	5.1
Construction	13.9	13.5	10.8	6.6	--	4.5
Services	13.6	14.5	11.9	7.8	5.1	4.6
Total, excluding						
General government	13.7	14.4	11.2	7.6	5.2	4.8
Public enterprises	14.4	14.5	11.9	6.3	4.2	3.9
Private sector	13.8	14.4	11.1	7.7	5.2	4.8
Memorandum item:						
Inflation rate (CPI)	13.4	11.4	8.9	6.5	5.2	4.1

Source: Bank of Portugal, *Monthly Bulletin*.

1/ Including employers' social security contributions.

Table 13. Portugal: Labor Costs in Manufacturing

(1990 = 100)

	IPI (1)	Employment (2)	Productivity (3)	Wages (4)	Unit Labor Costs in escudos (5)	Percent Change in ULC	Unit Labor Costs- Exterior in escudos (6)	Relative Unit Labor Costs (7)	Percent Change in RULC
1986	83.2	88.7	93.8	59.7	63.6	...	74.1	85.9	...
1987	87.5	92.7	94.4	67.9	71.9	13.0	83.9	86.8	1.0
1988	89.9	95.7	93.9	75.9	80.8	12.3	87.5	92.3	6.4
1989	92.4	98.7	93.6	86.0	91.9	13.7	93.4	98.4	6.5
1990	100.0	100.0	100.0	100.0	100.0	8.9	100.0	100.0	1.7
1991	100.4	100.1	100.3	116.4	116.1	16.1	103.8	111.8	11.8
1992	97.8	98.8	99.0	129.9	131.2	13.1	104.0	126.2	12.9
1993	92.3	96.1	96.0	137.2	142.9	8.1	114.5	124.8	-1.0
1994	91.6	96.0	95.4	144.3	151.2	5.8	116.1	130.3	4.4
1995 1/	93.6	92.5	101.4	152.1	150.0	-0.8	112.9	132.9	2.0

Source: Bank of Portugal based on the following data:

- (1) INE, Industrial Production Index (manufacturing); adjusted for working days.
- (2) INE.
- (3) (1)/(2).
- (4) Ministry of Employment and Social Security. Wages in manufacturing.
- (5) $ULC = (4)/(3)$.
- (6) ULC of main partner countries weighted by manufacturing trade.
- (7) (5)/(6).

1/ Provisional.

Table 14. Portugal: General Government Expenditures and Revenues

(In billions of escudos; national accounts basis)

	1990	1991	1992	1993	1994	1995	1996 Budget
Current receipts	3,486.2	4,194.3	5,124.3	5,124.3	5,474.2	6,110.6	6,685.2
Taxes	3,080.9	3,673.3	4,435.9	4,471.7	4,933.1	5,497.8	6,000.1
Direct taxes	1,757.8	2,162.1	2,622.4	2,695.4	2,913.9	3,253.5	3,543.3
Income and property	805.7	1,026.7	1,291.3	1,243.8	1,315.8	1,480.0	1,615.0
Social security	952.1	1,135.4	1,331.1	1,451.6	1,598.1	1,773.5	1,928.3
Indirect taxes	1,323.1	1,511.2	1,813.5	1,776.3	2,019.2	2,244.3	2,456.8
Other current receipts	405.3	521.0	688.4	652.6	541.1	612.8	685.1
Current expenditure	3,643.7	4,510.4	5,112.0	5,509.9	5,809.3	6,332.9	6,780.3
Goods and services	1,495.6	1,909.7	2,241.1	2,415.7	2,547.9	2,777.1	3,009.8
Of which: Payroll	1,151.7	1,457.8	1,777.8	1,904.5	1,982.5	2,136.3	2,371.8
Subsidies	147.1	153.3	130.6	135.9	121.8	139.2	138.8
Interest payments	832.4	946.3	991.3	908.9	842.0	899.2	857.4
Transfers	1,168.6	1,501.1	1,749.0	2,049.4	2,297.6	2,517.4	2,774.3
Current balance	-157.5	-316.1	12.3	-385.6	-335.1	-222.3	-95.1
Capital receipts	227.1	301.0	426.6	447.2	335.9	427.6	503.0
Capital expenditures	593.6	700.5	864.9	1,023.3	818.8	1,008.5	1,099.8
Investment	329.1	392.1	523.3	571.1	556.9	654.1	740.3
Transfers	264.5	308.4	341.6	452.2	261.9	354.4	359.5
Capital balance	-366.5	-399.5	-438.3	-576.1	-482.9	-580.9	-596.8
Balance excl. net lending	-524.0	-715.6	-426.0	-961.7	-818.0	-803.2	-691.9
Of which: Primary	308.4	230.7	565.3	-52.8	24.0	96.0	165.5
Net lending	98.0	-12.9	24.5	6.8	26.0	70.2	36.9
Overall balance	-622.0	-702.7	-450.5	-968.5	-844.0	-873.4	-728.8
Memorandum items:							
Total expenditure (exc. net lending)	4,237.3	5,210.9	5,976.9	6,533.2	6,628.1	7,341.4	7,880.1
Of which:							
Total primary expenditures	3,404.9	4,264.6	4,985.6	5,624.3	5,786.1	6,442.2	7,022.7
Current primary expenditures	2,811.3	3,564.1	4,120.7	4,601.0	4,967.3	5,433.7	5,922.9
Total receipts	3,713.3	4,495.3	5,550.9	5,571.5	5,810.1	6,538.2	7,188.2
Borrowing requirement of non-financial public enterprises	76.1	154.6	164.4	68.7	51.6	107.1	...

Source: Ministry of Finance.

Table 15. Portugal: General Government Expenditures and Revenues

(In percent of GDP)

	1990	1991	1992	1993	1994	1995	1996 Budget
Current receipts	36.4	37.3	39.6	37.5	37.9	39.4	40.4
Taxes	32.1	32.7	34.3	32.8	34.1	35.4	36.3
Direct taxes	18.3	19.2	20.3	19.7	20.2	21.0	21.4
Income and property	8.4	9.1	10.0	9.1	9.1	9.5	9.8
Social security	9.9	10.1	10.3	10.6	11.1	11.4	11.7
Indirect taxes	13.8	13.4	14.0	13.0	14.0	14.5	14.9
Other current receipts	4.2	4.6	5.3	4.8	3.7	3.9	4.1
Current expenditure	38.0	40.1	39.5	40.4	40.2	40.8	41.0
Goods and services	15.6	17.0	17.3	17.7	17.6	17.9	18.2
Subsidies	1.5	1.4	1.0	1.0	0.8	0.9	0.8
Interest payments	8.7	8.4	7.7	6.7	5.8	5.8	5.2
Transfers	12.2	13.3	13.5	15.0	15.9	16.2	16.8
Current balance	-1.6	-2.8	0.1	-2.8	-2.3	-1.4	-0.6
Capital receipts	2.4	2.7	3.3	3.3	2.3	2.8	3.0
Capital expenditure	6.2	6.2	6.7	7.5	5.7	6.5	6.7
Investment	3.4	3.5	4.0	4.2	3.9	4.2	4.5
Transfers	2.8	2.7	2.6	3.3	1.8	2.3	2.2
Capital balance	-3.8	-3.6	-3.4	-4.2	-3.3	-3.7	-3.6
Balance excl. net lending	-5.5	-6.4	-3.3	-7.0	-5.7	-5.2	-4.2
Of which: Primary	3.2	2.1	4.4	-0.4	0.2	0.6	1.0
Net lending	1.0	-0.1	0.2	0.0	0.2	0.5	0.2
Overall balance	-6.5	-6.2	-3.5	-7.1	-5.8	-5.6	-4.4
Memorandum items:							
Total expenditure (exc. net lending)	44.2	46.3	46.2	47.9	45.9	47.3	47.7
Of which:							
Total primary expenditures	35.5	37.9	38.6	41.2	40.0	41.5	42.5
Current primary expenditures	29.3	31.7	31.9	33.7	34.4	35.0	35.8
Total receipts	38.7	40.0	42.9	40.8	40.2	42.1	43.5
Borrowing requirement of non-financial public enterprises	0.8	1.4	1.3	0.5	0.4	0.7	...

Sources: Ministry of Finance and INE.

Table 16. Portugal : General Government Accounts, 1993

(in billions of escudos, national accounts basis)

	Central Government		Local Administration	Social Security	Total Consolidated
	State	Autonomous Services and Funds			
Current revenue	2,980.7	965.2	497.1	1,720.2	5,124.3
Taxes on income and property	1,133.4	--	110.4	--	1,243.8
Social security contributions	--	--	--	1,451.6	1,451.6
Taxes on goods and services	1,565.8	53.3	145.4	11.8	1,776.3
Nontax revenue	281.5	911.9	241.3	256.8	652.6
Of which: From other general government sectors	6.3	705.6	125.7	201.3	--
Current expenditures	3,512.5	916.4	480.4	1,639.4	5,509.8
Goods and services	1,307.8	635.4	404.6	67.9	2,415.7
Of which: Salaries	1,149.2	468.9	244.2	42.2	1,904.5
Subsidies	103.7	24.8	7.4	--	135.9
Interest payments	866.9	7.8	34.1	--	908.8
Other current transfers	1,234.1	248.4	34.3	1,571.5	2,049.4
Of which: From other general government sectors	994.6	15.1	1.1	28.1	--
Current balance	-531.8	48.8	16.7	80.8	-385.5
Capital revenue	62.3	377.8	210.1	161.6	447.0
Of which: From other general government sectors	8.4	241.2	111.7	3.5	--
Capital expenditure	476.4	415.1	289.6	207.0	1,023.4
Fixed investment	108.2	189.4	263.8	9.8	571.2
Capital transfers	368.2	225.7	25.8	197.2	452.2
Of which: To other general government sectors	294.2	4.4	--	66.1	--
Capital balance	-414.1	-37.3	-79.5	-45.4	-576.3
Overall balance	-945.9	11.5	-62.8	35.4	-961.8
Primary balance	-79.0	19.3	-28.7	35.4	-53.0
Net lending	-14.6	18.5	1.9	1.1	6.9
Overall balance including net lending	-931.3	-7.0	-64.7	34.3	-968.7
In percent of GDP	-6.8	-0.1	-0.5	0.3	-7.1

Source: Ministry of Finance.

Table 17. Portugal : General Government Accounts, 1994

(In billions of escudos, national accounts basis)

	Central Government		Local Administration	Social Security	Total Consolidated
	State	Autonomous Services and Funds			
Current revenue	3,244.0	1,002.9	495.5	1,866.0	5,474.2
Taxes on income and property	1,206.8	--	109.0	--	1,315.8
Social security contributions	--	--	--	1,598.1	1,598.1
Taxes on goods and services	1,808.1	45.6	151.0	14.5	2,019.2
Nontax revenue	229.1	957.3	235.5	253.4	541.1
Of which: From other general government sectors	6.3	782.4	128.6	216.9	--
Current expenditures	3,597.6	999.8	489.9	1,856.5	5,809.5
Goods and services	1,376.2	694.2	410.5	67.1	2,548.0
Of which: Salaries	1,191.0	492.0	257.7	41.9	1,982.6
Subsidies	102.4	11.5	7.9	--	121.8
Interest payments	799.8	5.9	34.8	1.5	842.0
Other current transfers	1,319.2	288.2	36.7	1,787.9	2,297.7
Of which: From other general government sectors	1,069.5	19.5	1.7	43.6	--
Current balance	-353.6	3.1	5.6	9.5	-335.4
Capital revenue	36.9	408.8	206.5	63.4	336.0
Of which: From other general government sectors	4.5	251.7	119.7	3.7	--
Capital expenditure	464.6	371.3	247.5	115.2	818.9
Fixed investment	116.2	204.1	224.1	12.5	556.9
Capital transfers	348.4	167.2	23.4	102.7	262.0
Of which: To other general government sectors	309.4	9.1	0.5	60.7	--
Capital balance	-427.7	37.5	-41.0	-51.8	-483.0
Overall balance	-781.3	40.6	-35.4	-42.3	-818.4
Primary balance	18.5	46.5	-0.6	-40.8	23.6
Net lending	11.1	12.2	2.7	--	26.0
Overall balance including net lending	-792.4	28.4	-38.1	-42.3	-844.4
In percent of GDP	-5.5	0.2	-0.3	-0.3	-5.8

Source: Ministry of Finance.

Table 18. Portugal : General Government Accounts, 1995

(in billions of escudos, national accounts basis)

	Central Government				
	State	Autonomous Services and Funds	Local Administration	Social Security	Total Consolidated
Current revenue	3,601.7	1,121.6	549.5	2,015.8	6,110.7
Taxes on income and property	1,351.0	--	129.1	--	1,480.1
Social security contributions	--	--	--	1,773.5	1,773.5
Taxes on goods and services	1,956.8	51.5	169.9	66.0	2,244.2
Nontax revenue	293.9	1,070.1	250.5	176.3	612.9
Of which: From other general government sectors	4.5	883.0	135.6	154.8	--
Current expenditures	3,767.9	1,118.9	523.4	2,100.7	6,332.8
Goods and services	1,471.2	789.7	439.5	76.7	2,777.1
Of which: Salaries	1,276.6	536.0	275.9	47.7	2,136.2
Subsidies	117.6	13.5	8.1	--	139.2
Interest payments	837.8	6.9	38.3	16.2	899.2
Other current transfers	1,341.3	308.8	37.5	2,007.8	2,517.3
Of which: From other general government sectors	1116.5	6.5	0.9	54.2	--
Current balance	-166.2	2.7	26.1	-84.9	-222.3
Capital revenue	36.0	462.6	212.0	128.7	427.0
Of which: From other general government sectors	2.3	278.7	126.9	4.4	--
Capital expenditure	515.7	469.8	276.7	158.7	1,008.7
Fixed investment	144.0	245.0	251.3	13.9	654.2
Capital transfers	371.7	224.8	25.4	144.8	354.5
Of which: To other general government sectors	339.9	4.1	--	68.2	--
Capital balance	-479.7	-7.2	-64.7	-30.0	-581.6
Overall balance	-645.9	-4.5	-38.6	-114.9	-803.9
Primary balance	191.9	2.4	-0.3	-98.7	95.3
Net lending	209.0	38.8	2.4	-180.0	70.2
Overall balance including net lending	-854.9	-43.3	-41.0	65.1	-874.1
in percent of GDP	-5.5	-0.3	-0.3	0.4	-5.6

Source: Ministry of Finance.

Table 19. Portugal : General Government Accounts, 1996 (Budget)

(In billions of escudos, national accounts basis)

	<u>Central Government</u>				
	State	Autonomous Services and Funds	Local Administration	Social Security	Total Consolidated
Current revenue	3,912.3	1,194.1	608.1	2,385.1	6,685.4
Taxes on income and property	1,476.5	--	138.5	--	1,615.0
Social security contributions	--	--	--	1,928.3	1,928.3
Taxes on goods and services	2,119.1	54.6	180.6	102.6	2,456.9
Nontax revenue	316.7	1,139.5	289.0	354.2	685.2
Of which: From other general government sectors	5.5	922.5	157.4	328.8	--
Current expenditures	4,165.9	1,161.7	566.8	2,300.1	6,780.2
Goods and services	1,657.5	807.7	463.1	81.5	3,009.8
Of which: Salaries	1444.2	581.5	294.9	51.3	2,371.9
Subsidies	122.5	5.5	10.8	--	138.8
Interest payments	795.6	6.6	51.0	4.2	857.4
Other current transfers	1,590.3	341.9	41.9	2,214.4	2,774.2
Of which: From other general government sectors	1325.9	26.5	0.9	61.0	--
Current balance	-253.6	32.4	41.3	85.0	-94.9
Capital revenue	69.2	489.3	242.7	145.1	503.2
Of which: From other general government sectors	7.1	282.9	149.0	4.1	--
Capital expenditure	555.8	511.8	298.1	177.4	1,099.9
Fixed investment	170.9	285.7	269.1	14.7	740.4
Capital transfers	384.9	226.1	29.0	162.7	359.5
Of which: To other general government sectors	358.4	11.3	3.3	70.2	--
Capital balance	-486.6	-22.5	-55.4	-32.3	-596.8
Overall balance	-740.2	9.9	-14.1	52.7	-691.7
Primary balance	55.4	16.5	36.9	56.9	165.7
Net lending	8.0	26.4	2.4	0.0	36.8
Overall balance including net lending	-748.2	-16.5	-16.5	52.7	-728.5
In percent of GDP	-4.5	-0.1	-0.1	0.3	-4.4

Source: Ministry of Finance.

Table 20. Portugal: General Government Financing 1/

	1992	1993	1994	1995 2/
<u>(in billions of Escudos)</u>				
General government deficit	426.1	934.8	818.1	803.7
Privatization receipts used for debt reductio	-199.9	-23.9	-49.7	-117.8
Adjustment for complementary period	0.4	-35.8	-81.1	-152.5
Other adjustments 3/	186.3	107.3	226.5	202.7
Public sector borrowing requirement	412.9	982.4	913.8	736.1
Domestic credit	313.3	65.4	488.5	-178.9
Bank credit, net	397.8	168.7	490.1	-289.6
Bank of Portugal	306.6	10.9	6.0	-179.8
Deposit money banks	91.2	157.8	484.1	-109.8
TB and CLIP held by the public	-84.5	-103.3	-1.6	110.7
Non-bank credit	489.3	395.5	219.5	775.8
Of which: saving certificates 4/	251.8	199.0	95.0	152.2
Non-securitized credit	31.3	72.5	33.4	-132.3
Foreign credit, net	-2.5	316.4	401.6	507.0
Foreign holdings of securitized debt	-413.9	172.7	-207.7	-319.3
Net foreign assets of the Treasury 5/	1.7	-5.7	36.8	-6.9
Errors and omissions	-6.3	-34.4	-58.3	90.7
<u>(in percent of GDP)</u>				
General government deficit	3.3	6.8	5.7	5.2
Privatization receipts used for debt reductio	-1.5	-0.2	-0.3	-0.8
Adjustment for complementary period	0.0	-0.3	-0.6	-1.0
Other adjustments 3/	1.4	0.8	1.6	1.3
Public sector borrowing requirement	3.2	7.2	6.3	4.7
Domestic credit	2.4	0.5	3.4	-1.2
Bank credit, net	3.1	1.2	3.4	-1.9
Bank of Portugal	2.4	0.1	0.0	-1.2
Deposit money banks	0.7	1.2	3.4	-0.7
TB and CLIP held by the public	-0.7	-0.8	-0.0	0.7
Non-bank credit	3.8	2.9	1.5	5.0
Of which: saving certificates 4/	1.9	1.5	0.7	1.0
Non-securitized credit	0.2	0.5	0.2	-0.9
Foreign credit, net	-0.0	2.3	2.8	3.3
Foreign holdings of securitized debt	-3.2	1.3	-1.4	-2.1
Net foreign assets of the Treasury 5/	0.0	-0.0	0.3	-0.0
Errors and omissions	-0.0	-0.3	-0.4	0.6

Source: Bank of Portugal, Annual Report, 1995.

1/ The definition of general government in the monetary statistics is broader than that of the budget. The former includes some autonomous entities that are considered public enterprises in the budget.

2/ Provisional data.

3/ Includes take over of debt of public entities.

4/ Credit net of amortization and interest paid. Interest paid on these certificates is not included in the above-the-line item of interest payments of the general government.

5/ Increase (-), decrease (+).

Table 21. Portugal: State Tax Revenue

	1990	1991	1992	1993	1994	1995	1996 Budget
<u>(In billions of escudos)</u>							
Direct taxes	723.9	941.0	1,174.8	1,118.4	1,190.2	1,323.9	1,459.0
General income tax	669.2	898.1	1,160.0	1,105.4	1,175.3	1,310.0	1,443.4
Personal	455.4	607.0	811.6	826.3	864.9	982.7	997.4
Corporate	213.8	291.1	348.4	279.1	310.4	327.3	446.0
Other	54.7	42.9	14.8	13.0	14.9	13.9	15.6
Indirect taxes	1,167.1	1,354.9	1,670.7	1,667.8	1,970.1	2,077.6	2,206.5
Value-added tax 1/	550.8	636.6	832.0	797.3	1,038.9	1,124.6	1,207.7
Tax on petroleum products	250.1	309.4	362.5	369.6	399.1	428.4	466.0
Stamp tax	161.4	186.5	213.9	224.7	214.9	151.0	159.0
Tobacco tax	70.4	86.5	108.7	132.3	141.5	151.0	167.3
Motor vehicle tax	60.6	67.0	100.3	99.5	121.1	135.3	151.8
Alcohol and beer tax	15.1	18.6	24.2	24.6	29.2	30.7	33.3
Other taxes	58.7	50.3	29.1	19.8	25.4	56.6	21.4
Total	1,891.0	2,295.9	2,845.5	2,786.2	3,160.3	3,401.5	3,665.5
<u>(In percent of GDP)</u>							
Direct taxes	7.6	8.4	9.1	8.2	8.2	8.5	8.8
General income tax	7.0	8.0	9.0	8.1	8.1	8.4	8.7
Personal	4.8	5.4	6.3	6.1	6.0	6.3	6.0
Corporate	2.2	2.6	2.7	2.0	2.1	2.1	2.7
Other	0.6	0.4	0.1	0.1	0.1	0.1	0.1
Indirect taxes	12.2	12.0	12.9	12.2	13.6	13.4	13.3
Value-added tax 1/	5.7	5.7	6.4	5.8	7.2	7.2	7.3
Tax on petroleum products	2.6	2.8	2.8	2.7	2.8	2.8	2.8
Stamp tax	1.7	1.7	1.7	1.6	1.5	1.0	1.0
Tobacco tax	0.7	0.8	0.8	1.0	1.0	1.0	1.0
Motor vehicle tax	0.6	0.6	0.8	0.7	0.8	0.9	0.9
Alcohol and beer tax	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other taxes	0.6	0.4	0.2	0.1	0.2	0.4	0.1
Total	19.7	20.4	22.0	20.4	21.9	21.9	22.2

Source: Ministry of Finance and INE.

1/ It excludes Esc. 45 billion of VAT revenues that accrue to social security in 1995 and Esc. 75 billion in 1996.

Table 22: Social Security Accounts

(in percent of GDP)

	1990	1991	1992	1993	1994	1995	1996 Budget
Current revenues	8.6	9.2	8.9	9.6	10.1	10.3	10.3
Contributions	7.6	7.8	7.6	7.8	7.5	7.4	7.4
Budget transfers 1/	0.6	0.6	0.6	1.5	1.5	1.1	2.0
Other revenues	0.4	0.7	0.7	0.4	1.1	1.8	0.8
Current expenditures	7.8	8.2	8.3	8.9	9.2	9.5	9.6
Pensions	5.5	5.6	5.6	6.0	6.1	6.2	6.3
Unemployment benefits	0.3	0.4	0.5	0.8	0.9	0.9	0.9
Sickness benefits	0.6	0.6	0.6	0.5	0.6	0.6	0.6
Other welfare programs	0.4	0.5	0.5	0.5	0.5	0.7	0.8
Other	1.0	1.1	1.1	1.1	1.0	1.0	0.9
Current transfers	0.5	0.4	0.3	0.2	0.4	0.4	0.4
Capital revenues	0.3	0.5	0.9	1.1	0.8	0.8	0.9
Capital expenditures	0.5	0.6	0.9	1.5	1.0	1.0	1.1
Overall balance	0.0	0.4	0.3	0.1	0.3	0.3	0.1
Current balance	0.2	0.6	0.3	0.5	0.6	0.4	0.3
Capital balance	-0.2	-0.2	0.0	-0.3	-0.3	-0.2	-0.2

Sources: Ministry of Employment and Social Security, Ministry of Finance, and INE.

1/ This classification corresponds to that used by the Ministry of Employment and Social Security.

Table 23. Portugal: Public Transfers Between Portugal and the EU 1/

(In billions of escudos)

	1990	1991	1992	1993	1994	1995	1996 Proj.
A. From the EU to Portugal	215.5	385.1	461.3	619.7	507.9	669.5	738.4
(In percent of GDP)	2.2	3.4	3.5	4.5	3.5	4.3	4.5
Structural funds	144.4	300.1	359.6	500.9	321.4	449.7	477.0
(In percent of GDP)	1.5	2.6	2.8	3.6	2.5	3.0	2.9
(In percent of total investment)	5.5	10.0	10.5	15.1	9.1	12.3	12.1
ERDF	74.1	185.2	222.5	286.0	218.9	315.7	291.2
ESF	29.7	54.9	87.2	152.8	53.7	79.0	122.6
EAGGF-Guidance 2/	40.6	60.0	49.9	62.1	49.6	55.0	63.2
PEDIP	17.6	20.3	21.2	10.8	5.6	...	...
Cohesion Fund	...	...	...	15.7	33.7	79.5	85.0
EAGGF-Guarantee 3/	38.3	56.6	74.4	86.4	139.7	138.9	173.9
Other 4/	15.2	8.1	6.2	5.9	4.7	--	2.5
B. From Portugal to the EU	94.8	130.2	145.4	163.1	247.5	170.4	223.6
(In percent of GDP)	1.0	1.1	1.1	1.2	1.7	1.1	1.4
Customs and agricultural duties	27.7	37.7	36.7	35.4	40.0	40.3	42.5
Other own resources	63.3	88.7	108.7	127.7	207.5	130.1	177.9
Other	3.8	3.8	--	--	--	--	0.2
C. Net transfers (A-B)	120.7	254.9	315.9	456.6	260.4	499.1	514.8
(In percent of GDP)	1.2	2.2	2.4	3.3	1.8	3.2	3.1

Sources: Ministry of Finance; and INE.

1/ On a cash basis.

2/ Mostly under PEDAP, Specific Program for Portuguese Agriculture.

3/ Mostly price subsidies.

4/ Includes reimbursements and adjustments.

Acronyms:

EAGGF: European Guidance and Guarantee Fund

ERF: European Regional Fund

ESR: European Social Fund

PEDIP: Specific Program for the Development of Portuguese Industry

Table 24. Portugal: Direct Public Debt

	1990	1991	1992	1993	1994	1995
<u>(In billions of escudos)</u>						
Direct public debt 1/	5,663.3	6,689.3	7,226.0	8,440.7	9,477.0	10,523.2
Domestic debt	4,989.9	6,154.3	6,682.9	7,448.3	8,105.3	8,685.5
External debt	673.4	535.0	543.1	992.4	1,371.7	1,837.7
Total government debt 2/	6,574.8	7,846.2	8,001.7	9,162.7	10,166.5	11,124.0
<u>(In percent of GDP)</u>						
Direct public debt	59.1	59.5	55.9	61.8	65.6	67.8
Domestic debt	52.1	54.7	51.7	54.6	56.1	55.9
External debt	7.0	4.8	4.2	7.3	9.5	11.8
Total government debt 1/	68.6	69.8	61.9	67.1	70.4	71.7
<u>(In percent of direct public debt)</u>						
Direct public debt	100.0	100.0	100.0	100.0	100.0	100.0
Domestic debt	88.1	92.0	92.5	88.2	85.5	82.5
External debt	11.9	8.0	7.5	11.8	14.5	17.5

Source: Ministry of Finance and INE

1/ Gross securitized debt of the State.

2/ Government debt in accordance with Maastricht Treaty criteria.

Table 25. Portugal: Interest Rates on Direct Public Debt

	1990	1991	1992	1993	1994	1995	1996 Projected
<u>(In billions of escudos; national accounts basis)</u>							
Interest payments	681.6	816.3	998.6	884.9	760.1	791.8	763.4
Domestic debt	620.2	754.9	963.3	845.1	699.8	692.4	651.7
External debt	61.4	61.4	35.3	39.8	60.3	99.4	111.7
Interest payments	7.1	7.3	7.7	6.5	5.3	5.1	4.6
Domestic debt	6.5	6.7	7.5	6.2	4.8	4.5	3.9
External debt	0.6	0.5	0.3	0.3	0.4	0.6	0.7
<u>(In percent, unless indicated otherwise)</u>							
Implicit nominal interest rate	13.7	14.9	16.8	13.6	10.3	9.7	8.7
Domestic debt	14.9	15.4	17.8	14.8	11.3	10.6	9.5
External debt	9.1	11.5	6.5	5.2	5.1	6.2	5.9
Implicit real interest rate 1/	0.7	0.2	3.3	5.8	4.8	4.1	5.0
Domestic debt	1.8	0.6	4.2	6.9	5.8	4.9	5.8
External debt	-3.4	-2.8	-5.8	-2.0	-0.1	0.8	2.3
Memorandum items:							
Inflation rates							
CPI	13.4	11.4	8.9	6.5	5.2	4.1	3.3
GDP	12.9	14.7	13.1	7.4	5.2	5.4	3.5
Nominal GDP growth	16.6	17.4	14.9	5.6	5.8	7.5	6.5
Interest/growth differential							
on direct public debt 2/	-2.9	-2.5	1.9	8.0	4.5	2.2	2.2
Direct public debt (in billions of escudos)	5,663	6,689	7,226	8,441	9,477	10,523	...
Domestic debt	4,990	6,154	6,683	7,448	8,105	8,686	...
External debt	673	535	543	992	1,372	1,838	...

Source: Ministry of Finance and INE.

1/ Implicit nominal interest rate deflated by the GDP deflator.

2/ Nominal interest rate minus growth rate of nominal GDP.

Table 26. Portugal: Privatization revenues
(In billions of Escudos)

	1989	1990	1991	1992	1993	1994	1995	Budget 1996
Total privatization revenues	<u>78.9</u>	<u>69.6</u>	<u>173.0</u>	<u>313.5</u>	<u>80.4</u>	<u>188.1</u>	<u>320.0</u>	<u>380.0</u>
In percent of GDP	1.0	0.7	1.5	2.4	0.6	1.3	2.1	2.3
Fundo de Regularizacao da Divida Publica, FRDP								
Receipts from privatization	<u>57.1</u>	<u>30.7</u>	<u>108.2</u>	<u>221.0</u>	<u>66.5</u>	<u>92.3</u>	<u>170.0</u>	...
Other revenues 1/						17.2		
Privatization receipts used for debt reduction 2/	44.8	71.7	73.0	199.9	23.9	49.7	117.8	290.0
In percent of GDP	0.5	0.7	0.6	1.5	0.2	0.3	0.8	1.8
Privatization receipts used for capital injections 3/	11.7	25.5	14.8	26.9	36.8	45.7	45.0	...
Balance for next period	0.6	-66.5	20.4	-5.8	5.8	14.1	7.2	...
Holding companies 4/	<u>21.8</u>	<u>38.9</u>	<u>64.8</u>	<u>92.5</u>	<u>13.9</u>	<u>95.8</u>	<u>150.0</u>	...
RNIP 5/						3.4	10.0	
PARTEST 6/						54.4	12.5	
IPE 6/						2.4	0.0	
Others 6/						35.6	127.5	

Source: GAFEEP, Ministry of Finance

- 1/ These receipts are payments of shares sold to workers in previous years' privatizations.
- 2/ These amounts are shown as a financing item of the general government.
- 3/ These amounts do not appear in the enlarged public sector accounts because the transactions cancel out: an expenditure of the FRDP (an off-budget autonomous fund) and a capital increase in the affected public enterprises.
- 4/ Prior to 1994, there is no disaggregation between resources in the holding companies and privatization revenues used for capital injections. All of the resources are shown under holding companies.
- 5/ To be liquidated after having paid its debts. Proceeds from the liquidation will accrue to the state.
- 6/ Revenue used to reduce liabilities and augment capital of the affiliated companies.

Table 27. Portugal: Privatizations, 1989-96

Date	Enterprise	Sector	Percent Privatized	Procedure	Total Receipts (billion Esc)	Receipts of the State (billion Esc)
3/22/89	Unicer, tranche 1	Brewery	49	Public Offer	9.4	9.4
7/10/89	Banco Totta e Acores, tranche 1	Banking	49	Public Offer	28.6	12.2
10/2/89	Alianca Seguradora, tranche 1	Insurance	49	Public Offer	7.1	2.3
12/4/89	Tranquilidade, tranche 1	Insurance	49	Public Offer	25.8	25.8
5/11/90	Jornal de Noticias	Newspaper	86.26	Public Offer	7.5	--
6/28/90	Unicer, tranche 2	Brewery	51	Public Offer	13.3	13.3
7/31/90	Banco Totta e Acores, tranche 2	Banking	31	Public Offer	22.4	22.4
8/6/90	Transinsular	Sea Transport	51.1	Public Offer	1.8	--
10/9/90	Tranquilidade, tranche 2	Insurance	51	Public Offer	18.9	18.9
11/12/90	Central de Cerveja	Brewery	100	Public Offer	34.6	34.6
12/11/90	Banco Portugues do Atlantico, tranche 1	Banking	33	Public Offer	49.8	49.8
5/6/91	Sociedade Financeira Portuguesa	Banking	100	Public Offer	16.1	--
5/15/91	Diario de Noticias	Newspaper	100	Public Offer	8.4	8.4
5/29/91	Alianca Seguradora, tranche 2	Insurance	51	Public Offer	6.8	6.8
6/21/91	Portline	Sea Transport	80	Public Tender	5.8	--
6/25/91	Companhia de Seguros Bonanca, tranche 1	Insurance	60	Public Offer	18.8	18.8
7/9/91	Banco Espirito Santo & C.L., tranche 1	Banking	40	Public Offer	60.9	60.9
8/27/91	Banco Fonseca & Burnay, tranche 1	Banking	80	Public Tender	36.1	7.9
2/25/92	Banco Espirito Santo & C.L., tranche 2	Banking	60	Public Offer	89.0	89.0
3/10/92	Rodoviaria do Algarve	Road Transport	100	Public Offer	2.9	--
4/14/92	Companhia de Seguros Mundial Conf.	Insurance	100	Public Offer	33.4	33.4
4/22/92	Rodoviaria Douro e Minho	Road Transport	100	Public Offer	0.5	--
5/25/92	Banco Portugues do Atlantico, tranche 2	Banking	17.64	Public Offer	50.6	--
5/12/92	Transporta	Transport	100	Public Offer	0.6	--
5/19/92	Rodocargo	Transport	100	Public Offer	0.5	--
6/4/92	Petroleos de Portugal	Oil	25	Public Tender	40.8	8.5
7/20/92	Banco Fonseca & Burnay, tranche 2	Banking	20	Public Offer	9.0	9.0
11/17/92	Companhia de Seguros Imperio	Insurance	100	Public Offer	25.5	22.1
11/23/92	Banif	Banking	16.01	Public Offer	5.3	5.3
11/25/92	Companhia de Seguros de Credito, tranche 1	Insurance	3.33	Public Offer	0.1	0.1
12/2/92	Companhia de Seguros de Credito, tranche 2	Insurance	45.67	Direct Sale	1.5	1.5
12/2/92	Credito Predial Portugues	Banking	100	Public Offer	40.8	40.8

Table 27 (Concluded). Portugal: Privatizations, 1989-96

Date	Enterprise	Sector	Percent Privatized	Procedure	Total Receipts (billion Esc)	Receipts of the State (billion Esc)
12/9/92	Companhia de Seguros Bonanca, tranche 2	Insurance	15	Public Offer	4.3	4.3
2/3/93	Uniao de Bancos Portugueses, tranche 1	Banking	61.11	Public Offer	24.4	24.4
3/15/93	Socarmar	Water Transport	51	Public Tender	1.8	1.8
4/12/93	Radio Comercial	Radio Communication	100	Public Offer	1.2	1.2
7/7/93	Banco Portugues do Atlantico, tranche 3	Banking	17.5	Public Offer	32.4	32.4
7/27/93	Rodoviaria Beira Litoral	Road Transport	100	Public Offer	1.8	--
11/16/93	Rodoviaria do Tejo	Road Transport	100	Public Offer	2.0	--
12/20/93	Rodoviaria do Alentejo	Road Transport	100	Public Offer	3.4	--
2/10/94	AGA	Cement	100	Public Tender	0.3	0.3
3/25/94	Banco Portugues do Atlantico, tranche 3	Banking	7.5	Direct Sale	15.4	15.4
5/31/94	Secil, tranche 1	Cement	51	Public Tender	31.2	--
5/31/94	CMP, tranche 1	Cement	80	Public Tender	31.8	--
7/4/94	CIMPOR	Cement	20	Public Offer	39.6	39.6
8/8/94	Rodoviaria Estremadura	Transport	100	Public Offer	3.4	--
11/16/94	Banco Pinto e Soto Maior, tranche 1	Banking	80	Public Tender	37.3	37.3
12/12/94	Companhia de Seguros Bonanca	Insurance	25	Public Offer	6.6	--
12/27/94	Banco Fomento Exterior	Banking	19.5	Public Offer	19.4	--
1/10/95	Rodoviaria Sul do Tejo	Road Transport	100	Public Offer	4.0	--
3/24/95	Banco Portugues Atlantico, tranche 5	Banking	24.4	Public tender	75.1	75.1
3/28/95	Banco Pinto e Soto Maior, tranche 2	Banking	20	Public Offer	6.8	6.8
5/15/95	Rodoviaria Lisboa	Road Transport	100	Public Offer	6.0	--
5/29/95	Secil, tranche 2	Cement	7.9	Public Offer	4.7	--
5/29/95	CMP	Cement	20	Public Offer	7.8	--
6/1/95	Portugal Telecom, tranche 1	Telecommunications	27.3	Public Offer and Direct Sale	142.6	48.8
6/27/95	Portucel Industrial	Pulp and Paper	44.3	Public Offer and Direct Sale	39.5	--
7/11/95	Uniao de Bancos Portugueses, tranche 2	Banking	20	Public Tender	7.5	--
8/18/95	Socarmar, tranche 2	Water Transport	49	Public Tender	1.8	1.8
9/28/95	SNAP	Fishing	90	Public Tender	0.9	0.9
6/11/96	Portugal Telecom, tranche 2	Telecommunications	21.7	Public Offer and Direct Sale	146.4	...
8/28/96	Banco de Fomento	Banking	100	Public Offer	136.0	...

Source: Ministry of Finance.

Table 28. Portugal: Timetable for Privatizations, 1996-97

	Year
Financial sector: BTA - Banco Totta & Acores, SA	1996
Other sectors	
ANA - Airport management Co.	1996/97
BRISA - Highways Co.	1997
CIMPOR - Cement Co.	1996
CNP - Petrochemical Co.	1996
CL - Companhia des Lezírias	1996/97
DRAGAPOR - Dredging Co.	1996
EDP - Electricity Co.	1996/97
Subsidiaries:	
CPPE	
EN	
CENEL	
LTE	
SLE	
REN	
ENVC - Shipyard Co.	1996/97
PEC - Foodstuff Co.	1996/97
Subsidiaries:	
PEC - Produtos Pecuários de Portugal, SGPS	
PEC - Nordeste	
PEC - Lusa	
PEC - Tejo	
PEC - BAL	
Petrolgal - Oil Co.	1997
Portucel - Pulp and paper Co.	1997
Subsidiaries:	
Portucel Industrial	
Portucel Florestal	
Portucel Tejo	
Gescartao, SGPS	
Portucel Viana	
Portucel Reclica	
Portucel Embalagem	
Companhia de Papel do Prado	
Fapajal	
Inapa	
PT - Portugal Telecom	1996/97 ^{1/}
Quimigal - Chemical Co.	1996/97
Subsidiaries:	
Anilina de Portugal	
Quimigal Adubos	
ATM	
Aquatro	
Atlantport	
Cuftrans	
ECE	
Fisipe	
Quimiparque	
SETENAVE - Shipbuilding Co.	1996
SN - Steel Co.	1996/97
SN - Empresa de Serviços	
TABAQUEIRA - Tobacco Co.	1996

^{1/} Second stage of privatization completed in June 1996.

Table 29. Portugal: Monetary Survey 1/

(In billions of escudos; end-of-period)

MSURV93.WK3	1989	1990	1991	1992	1993	1994	1995
I. Net foreign assets	2,305.6	2,623.2	3,173.6	3,529.1	4,454.3	3,866.0	2,837.1
Bank of Portugal	2,277.7	2,617.0	3,445.8	3,563.0	3,700.7	3,273.8	3,132.4
Other monetary institutions	27.9	6.2	(272.2)	(33.9)	753.6	592.2	(295.3)
II. Total domestic credit	6,882.8	7,812.5	9,263.6	10,768.7	11,710.5	13,099.6	14,663.9
Net credit to general government	2,520.1	2,800.1	2,915.5	3,123.8	3,195.9	3,672.1	3,473.3
Credit to the private sector 2/	4,362.7	5,012.4	6,348.1	7,644.9	8,514.6	9,427.5	11,190.6
Credit to non financial firms and individuals	4,221.7	4,724.0	5,848.2	6,852.5	7,641.7	8,345.7	9,623.1
Non financial public firms	614.9	693.2	787.3	703.8	696.9	718.3	679.8
Other non financial firms and individuals	3,606.8	4,030.8	5,060.9	6,148.7	6,944.8	7,627.4	8,943.3
Credit to non monetary financial institutions 3/	141.0	288.4	499.9	792.4	872.9	1,081.8	1,567.5
III. Other items net	(1,189.1)	(1,550.1)	(1,792.4)	(1,941.7)	(2,665.9)	(2,287.9)	(1,533.0)
Capital and reserves	(1,312.6)	(1,553.0)	(1,836.1)	(2,129.7)	(2,745.5)	(2,877.5)	(2,804.5)
Non monetary assets	(40.1)	(80.0)	(163.7)	(186.5)	(290.9)	(283.5)	(223.2)
Sundry items net	163.6	82.9	207.4	374.5	370.5	873.1	1,494.7
Liquid assets held by the public (L) = I+II+III	7,999.2	8,885.7	10,644.9	12,356.1	13,498.7	14,677.7	15,968.1
Liquid assets held by non-financial residents (L-)	6,226.2	6,905.9	8,184.3	9,279.4	9,852.4	10,783.7	11,664.4
Broad money (M2-)	5,717.2	6,229.9	7,801.5	9,106.5	9,758.9	10,654.5	11,522.0
Narrow money (M1-)	2,242.5	2,352.2	2,704.7	3,163.7	3,392.6	3,641.4	3,972.2
Currency in circulation	577.3	623.9	683.1	708.2	752.9	795.8	841.0
Demand deposits	1,665.2	1,728.3	2,021.6	2,455.5	2,639.7	2,845.6	3,131.2
Quasi-money	3,474.7	3,877.7	5,096.8	5,942.8	6,366.3	7,013.1	7,549.8
Time-deposits	3,173.7	3,510.1	4,506.7	5,699.1	6,232.2	6,897.9	7,400.5
Certificates of deposits	135.3	218.1	270.6	119.7	65.1	31.8	30.2
Cash certificates	31.4	41.2	48.3	41.2	44.0	12.4	4.4
Repurchase agreements of securities	134.3	108.3	271.2	82.8	25.0	71.0	114.7
Treasury-bills and CLIPs	509.0	676.0	382.8	172.9	93.5	129.2	142.4
Liquid assets held by non-monetary financial institutions	185.3	226.1	517.8	824.7	1,078.0	1,217.2	1,633.6
Deposits and other liquid assets held by emigrants	1,587.7	1,753.7	1,942.8	2,252.0	2,568.3	2,676.8	2,670.1
Memorandum item:							
Broad money (M3H) 4/	5,717.2	6,229.9	7,801.5	9,106.5	9,758.9	10,654.5	11,522.0

Source: Bank of Portugal, Monthly Bulletin, various issues.

1/ Figures adjusted for the abnormal component of checks in process of collection in 1986-1991.

2/ Includes non financial public firms.

3/ Includes credit to small savings banks and agricultural credit cooperatives.

4/ M3H is defined as M2-.

Table 30. Portugal: Sources and Uses of Base Money

	1989	1990	1991	1992	1993	1994	1995
(Stocks in billions of escudos; end-of-period)							
Sources							
Net foreign assets, Bank of Portugal	2,277.4	2,617.0	3,445.8	3,563.0	3700.7	3273.8	3132.4
Net credit to general government	844.5	637.1	(544.4)	(237.8)	(225.9)	(220.7)	(425.4)
Credit to financial institutions	116.8	16.7	160.1	8.8	272.9	576.1	639.9
Total A	3,238.7	3,270.8	3,061.5	3,334.0	3,747.7	3,629.2	3,346.9
Other compulsory deposits	5.5	7.0	191.3	0.4	--	--	--
Operations absorbing liquidity 1/	781.3	837.1	125.4	381.4	23.8	1854.5	1855.2
Capital and reserves, counterpart to foreign exchange fluctuations, sundry items (net)	597.6	374.1	229.9	170.7	692.7	525	273.5
Total B	1,384.4	1,218.2	546.6	552.5	716.5	2,379.5	2,128.7
Monetary base (= Total A - Total B)	1,854.3	2,052.7	2,515.0	2,781.6	3,030.4	1,249.7	1,218.3
Uses							
Currency (notes and coins)	577.3	693.9	765.3	797.8	846.2	881.1	935.8
Reserves and other non compulsory deposits 2/	1,277.0	1,358.9	1,749.7	1,983.9	2184.2	368.6	282.5
(In percent of monetary base)							
Sources							
Net foreign assets, Bank of Portugal	122.8	127.5	137.0	128.1	122.1	262.0	257.1
Net credit to general government	45.5	31.0	(21.6)	(8.5)	(7.5)	(17.7)	(34.9)
Credit to financial institutions	6.3	0.8	6.4	0.3	9.0	46.1	52.5
Total A	174.7	159.3	121.7	119.9	123.7	290.4	274.7
Other compulsory deposits	0.3	0.3	7.6	0.0	0.0	0.0	0.0
Operations absorbing liquidity 1/	42.1	40.8	5.0	13.7	0.8	148.4	152.3
Capital and reserves, counterpart to foreign exchange fluctuations, sundry items (net)	32.2	18.2	9.1	6.1	22.9	42.0	22.4
Total B	74.7	59.3	21.7	19.9	23.6	190.4	174.7
Monetary base (= Total A - Total B)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Uses							
Currency (notes and coins)	31.1	33.8	30.4	28.7	27.9	70.5	76.8
Reserves and other non compulsory deposits 2/	68.9	66.2	69.6	71.3	72.1	29.5	23.2

Sources: Bank of Portugal, Monthly Bulletin, and Annual Report, various issues.

1/ Securities repurchase agreements, central bank monetary certificates, central bank intervention bills and time-deposits.

2/ Prior to 1989, include penalty reserves due to noncompliance with credit ceilings.

Table 31. Portugal: Credit and Monetary Aggregates 1/

(Percent change over previous year, end-of-period)

	1989	1990	1991	1992	1993	1994	1995
Credit aggregates							
Total domestic credit	5.4	13.5	18.6	16.2	8.7	11.9	11.9
Net credit to general government	(3.2)	11.1	4.1	7.1	2.3	14.9	(5.4)
Credit to the private sector 2/	11.1	14.9	26.6	20.4	11.4	10.7	18.7
Credit to non financial firms and individuals	10.6	11.9	23.8	17.2	11.5	9.2	15.3
Non financial public firms	(4.7)	12.7	13.6	(10.6)	(1.0)	3.1	(5.4)
Other non financial firms and individuals	13.8	11.8	25.6	21.5	12.9	9.8	17.3
Credit to non monetary financial institutions 3/	28.4	104.5	73.3	58.5	10.2	23.9	44.9
Monetary aggregates							
Liquid assets held by the public (L)	12.2	11.1	19.8	16.1	9.2	8.7	8.8
Liquid assets held by non financial residents (L-)	10.7	10.9	18.5	13.4	6.2	9.5	8.2
Broad money (M2-)	13.0	9.0	25.2	16.7	7.2	9.2	8.1
Narrow money (M1-)	14.9	4.9	15.0	17.0	7.2	7.3	9.1
Currency in circulation	13.3	8.1	9.5	3.7	6.3	5.7	5.7
Demand deposits	15.5	3.8	17.0	21.5	7.5	7.8	10.0
Quasi-money	11.8	11.6	31.4	16.6	7.1	10.2	7.7
Time-deposits	11.2	10.6	28.4	26.5	9.4	10.7	7.3
Certificates of deposits	184.8	61.2	24.1	(55.8)	(45.6)	(51.2)	(5.0)
Cash certificates	16.7	31.2	17.2	(14.7)	6.8	(71.8)	(64.5)
Repurchase agreements of securities	(25.3)	(19.4)	150.4	(69.5)	(69.8)	184.0	61.5
Treasury-bills and CLIP	(10.2)	32.8	(43.4)	(54.8)	(45.9)	38.2	10.2
Liquid assets held by non monetary fin. institutions 3/	116.0	22.0	129.0	59.3	30.7	12.9	34.2
Deposits and other liquid assets held by emigrants	11.8	10.5	10.8	15.9	14.0	4.2	(0.3)
Memorandum items:							
Broad Money (M3H) 4/	13.0	9.0	25.2	16.7	7.2	9.2	8.1
Inflation (CPI)	12.6	13.4	11.4	8.9	6.5	5.2	4.1
GDP deflator	12.0	13.0	14.8	13.1	6.8	5.1	5.0

Source: Bank of Portugal.

1/ Figures adjusted for the abnormal component of cheques in process of collection.

2/ Private sector is defined to include non financial public firms.

3/ Includes credit to small savings banks and agricultural credit cooperatives.

4/ M3H is defined as M2-.

Table 32. Portugal: Structure of Monetary Aggregates 1/

	1989	1990	1991	1992	1993	1994	1995
Currency in circulation / Narrow money (M1-)	25.7	26.5	25.3	22.4	22.2	21.9	21.2
Demand deposits / Narrow money (M1-)	74.3	73.5	74.7	77.6	77.8	78.1	78.8
Narrow money (M1-) / Broad money (M2-)	39.2	37.8	34.7	34.7	34.8	34.2	34.5
Quasi-money / Broad money (M2-)	60.8	62.2	65.3	65.3	65.2	65.8	65.5
Narrow money (M1-) / Liquid assets held by non financial residents (L-)	36.0	34.1	33.0	34.1	34.4	33.8	34.1
Quasi-money / L-	55.8	56.2	62.3	64.0	64.6	65.0	64.7
Broad money (M2-) / L-	91.8	90.2	95.3	98.1	99.1	98.8	98.8
Short-term Treasury bills and CLIP / L-	8.2	9.8	4.7	1.9	0.9	1.2	1.2
L- / Liquid assets held by the public (L)	77.8	77.7	76.9	75.1	73.0	73.5	73.0
Emigrants deposits and other liquid assets / L	19.8	19.7	18.3	18.2	19.0	18.2	16.7
Nominal GDP / M2- (percent change)	1.43 4.7	1.54 7.8	1.43 -7.1	1.42 -0.6	1.40 -1.5	1.36 -3.1	1.35 -0.6
Nominal GDP / L- (percent change)	1.31 6.9	1.39 5.9	1.36 -1.8	1.39 2.3	1.39 -0.5	1.34 -3.3	1.33 -0.7
Nominal GDP / L (percent change)	1.02 5.5	1.08 5.8	1.05 -2.9	1.05 -0.1	1.01 -3.3	0.98 -2.7	0.97 -1.2
Memorandum items:							
Inflation (CPI)	12.6	13.4	11.4	8.9	6.5	5.2	4.1
Inflation (GDP deflator)	12.0	13.0	14.8	13.1	6.8	5.1	5.0

Source: Bank of Portugal.

1/ Figures adjusted for the abnormal component of cheques in process of collection.

The monetary aggregates are defined as follows:

Narrow money (M1-) = Currency in circulation + Demand deposits.

Quasi-money = Time deposits + Certificates of deposits + Cash deposits + Repurchase agreements.

Broad money (M2-) = Narrow money (M1-) + Quasi-money.

Liquid assets held by non financial residents (L-) = Broad Money (M2-) + Short-term Treasury bills and CLIP

Liquid assets held by the public (L) = Liquid assets held by non financial residents (L-) + Liquid assets held by non monetary financial institutions + Emigrants deposits and other liquid assets.

Table 33. Portugal: Selected Interest Rates

	Overnight Rate	3-Month Interbank Deposit Rate	3-Month Treasury Bill ^{1/}	6-Month Treasury Bill ^{1/}	1-Year Treasury Bill ^{1/}	Year-on-year CPI Inflation
1992						
Jun	16.8	17.1	16.8	16.5	16.0	9.5
Jul	16.5	16.8	16.7	16.4	16.0	9.5
Aug	14.9	15.5	15.0	15.2	15.3	9.2
Sep	26.1	15.0	13.9	14.3	13.2	9.1
Oct	18.2	15.8	15.0	14.8	14.4	8.7
Nov	17.9	16.1	15.3	15.1	...	8.6
Dec	14.2	16.5	16.0	15.6	14.7	8.4
1993						
Jan	13.4	14.5	14.6	14.7	13.6	8.5
Feb	13.2	13.7	13.6	13.5	13.1	8.0
Mar	18.0	15.7	...	13.5	13.3	7.3
Apr	19.3	17.1	...	15.5	...	6.2
May	15.6	15.3	15.5	15.2	13.4	5.7
Jun	11.9	12.6	13.0	12.3	12.4	5.6
Jul	11.5	13.1	11.0	11.0	10.8	5.8
Aug	11.2	11.4	10.9	10.8	10.5	5.8
Sep	11.1	11.0	10.6	10.5	10.1	6.0
Oct	11.5	11.3	10.6	10.3	10.0	6.3
Nov	11.1	11.5	10.9	10.5	10.0	6.6
Dec	11.2	11.7	11.0	10.6	10.0	6.4
1994						
Jan	10.6	11.1	10.7	10.5	10.0	6.3
Feb	9.9	10.0	9.8	9.7	9.7	6.1
Mar	10.7	9.6	9.5	9.3	9.2	6.0
Apr	15.0	11.9	9.8	...	...	6.0
May	11.5	11.1	10.8	10.8	...	5.7
Jun	14.4	13.7	11.9	12.2	11.5	5.6
Jul	11.8	12.7	12.5	12.3	12.0	5.1
Aug	10.3	11.9	11.7	11.5	11.5	4.8
Sep	9.4	10.6	11.0	10.8	10.8	4.7
Oct	9.1	10.0	10.1	10.4	10.5	4.5
Nov	8.8	9.9	9.9	10.2	10.4	4.0
Dec	8.9	10.5	10.4	10.7	10.7	4.0
1995						
Jan	8.8	10.6	10.5	10.9	11.3	4.5
Feb	8.8	9.9	9.9	10.4	10.9	4.6
Mar	9.9	10.8	10.7	10.9	11.5	4.8
Apr	9.2	10.8	10.7	11.1	11.5	4.6
May	9.0	10.0	10.0	10.4	11.0	4.3
Jun	9.0	9.8	9.8	10.4	10.8	3.8
Jul	8.9	9.5	9.3	9.7	10.1	3.7
Aug	8.8	9.3	9.2	9.5	9.9	4.0
Sep	8.6	9.3	9.1	9.3	9.6	4.0
Oct	8.7	9.2	...	...	...	4.0
Nov	8.8	9.0	9.1	9.3	9.5	3.9
Dec	8.6	8.9	...	...	...	3.4
1996						
Jan	8.2	8.4	8.3	8.1	8.4	2.5
Feb	8.0	8.1	7.9	7.9	7.9	2.9
Mar	7.9	7.9	7.8	7.7	7.8	2.5
Apr	7.6	7.4	7.1	7.5	7.2	2.9
May	7.2	7.1	6.9	6.9	6.9	3.5
Jun	7.3	7.2	7.0	7.0	7.0	3.6
Jul	7.5	7.3	7.2	7.2	7.1	3.8
Aug	7.2	7.3	7.1	7.1	7.2	3.6

Source: Bank of Portugal

^{1/} Primary market rates.

Table 34. Portugal: Lending and Deposit Rates 1/

(% in percent)

	1992	1993				1994				1995				1996
	Dec.	Mar.	Jun.	Sept.	Dec.	Mar.	Jun.	Sept.	Dec.	Mar.	Jun.	Sept.	Dec.	Mar.
Lending rates														
Over 90 days and up to 180 days	18.9	17.1	16.6	15.8	15.7	15.0	15.4	15.2	14.7	13.8	13.5	13.0	12.7	12.3
Discount of commercial bills	20.8	20.6	20.4	19.3	18.2	17.9	17.4	17.3	16.3	16.2	15.9	15.6	14.6	14.4
Over 180 days and up to 1 year	18.6	18.4	18.0	16.2	16.2	14.8	15.1	15.4	14.9	14.5	13.4	11.8	13.3	12.2
Over 2 years and up to 5 years	18.9	18.7	18.2	17.3	16.4	16.5	16.3	15.2	15.0	15.3	15.7	14.6	13.6	14.2
Over 5 years	17.0	16.5	16.7	15.5	13.6	15.7	14.7	14.6	12.8	13.1	14.0	13.3	12.4	12.6
Deposit rates (time deposits)														
Over 31 days and up to 90 days	14.3	13.1	12.1	9.8	10.0	9.0	9.8	9.1	8.7	9.1	8.7	8.1	8.1	7.3
Over 90 days and up to 180 days	14.0	12.7	12.6	10.6	10.2	9.2	9.3	9.5	9.3	8.9	8.9	8.3	8.1	7.2
Over 180 days and up to 1 year	13.4	12.3	11.5	9.6	9.1	8.1	8.2	8.3	8.2	8.6	8.5	8.2	8.1	7.0
Over 1 year	12.7	11.8	11.3	9.2	9.1	8.3	8.2	8.3	8.2	8.4	8.4	8.1	8.0	7.1
Memorandum items:														
Indicative lending rate, Portuguese Banking Association														
90 days	20.5	19.9	19.4	18.4	18.1	17.2	16.7	16.7	16.3	16.3	16.3	16.1	16.0	15.5
180 days	20.8	20.1	19.4	18.5	18.2	17.4	16.8	16.8	16.4	16.4	16.5	16.4	16.2	15.8
Inflation (CPI), year-on-year	8.4	7.3	5.6	6.0	6.4	6.0	5.6	4.7	4.0	4.8	3.8	4.0	3.4	2.4

Source: Bank of Portugal, Monthly Bulletin, various issues.

1/ Weighted averages; loans and advances to non financial enterprises excluding public enterprises.

Table 35. Portugal: Official Interest Rates on Regular Operations of Provision and Absorption of Liquidity by the Bank of Portugal and Remuneration of Minimum Reserve Requirements (In percent)

		Regular Operations 2/	Standing Facility	Absorption of Liquidity	Remuneration of Minimum Reserve Requirements 1/
1995					
August	I	8.8760	11.5000	8.5000	0.0000
	II	8.8680			
	III	8.7520			
September	IV	8.7500	11.0000	8.2500	
	I	8.7500			
	II	8.7500			
	III	8.7500			
	IV	8.7500			
October	I	8.7500			
	II	8.7500			
	III	8.7500			
	IV	8.7500			
November	I	8.7510			
	II	8.7500			
	III	8.7500			
	IV	8.7500			
December	I	8.7500			
	II	8.7500			
	III	8.5000	10.5000	7.7500	
	IV	8.5000			
1996					
January	I	8.5000			
	II	8.4910			
	III	8.3250			
	IV	8.2500			
February	I	8.2590			
	II	8.1250			
	III	8.0000			
	IV	8.0000			
March	I	8.0000			
	II	7.9000	10.2500	7.5000	
	III	7.9000			
	IV	7.8000			
April	I	7.8000			
	II	7.6000	9.5000	7.2000	
	III	7.5000	9.0000	6.8000	
	IV	7.5000			
May	I	7.5100			
	II	7.5000			
	III				
	IV				
June	I				
	II	7.5000			
	III	7.5000			
	IV	7.5000			
July	I	7.5000			
	II	7.5010			
	III	7.5010			
	IV	7.5000			
August	I	7.5000			
	II	7.5100			
	III	7.5000			
	IV	7.2500			

Source: Bank of Portugal, Monthly Bulletin.

1/ Marginal rate of remuneration

2/ Since July 14th 1994 this rate corresponds to the weighted average repo rate.

Table 36. Portugal: Exchange Rate Developments

(Percentage changes over previous years) 1/

	1990	1991	1992	1993	1994	1995	1996 August
Rate of Portuguese escudo against:							
U.S. dollar, period average	10.5	-1.3	7.0	-16.0	-3.1	9.9	-1.6
U.S. dollar, end-of-period	12.2	-0.4	-8.6	-17.0	11.1	6.5	0.3
ECU, period average 2/	-4.5	1.5	2.5	-7.1	-4.4	1.2	0.2
ECU, end-of-period 2/	-2.9	2.2	1.1	-10.1	1.0	1.9	0.2
DM, period average	-5.1	1.3	0.7	-11.1	-4.9	3.0	0.9
DM, end-of-period	-1.3	1.0	-2.7	-11.2	-0.3	-1.4	1.3
Nominal effective exchange rate							
Bank of Portugal index 2/ 3/	-2.7	0.7	3.2	-6.0	-4.1	1.9	-0.9
IMF 2/	-1.7	0.5	3.6	-5.7	-3.4	1.7	-1.2
Real effective exchange rate							
Bank of Portugal index 3/	4.7	6.1	8.8	-2.7	-1.7	...	...
IMF (ULC)	7.2	11.7	12.0	-0.8	0.5	5.5	2.6
IMF (consumer prices) 2/	6.1	6.9	8.6	-2.8	-1.3	2.9	-0.6
Memorandum items:							
Escudo per U.S. dollar, period average	142.6	144.5	135.0	160.8	166.0	151.1	152.2
Escudo per U.S. dollar, end of period	133.6	134.2	146.8	176.8	159.1	149.4	151.9
Escudo per DM, period average	88.2	87.1	86.4	97.3	102.3	105.4	102.7
Escudo per DM, end of period	89.4	88.5	90.9	102.4	102.7	104.2	102.6

Sources: Bank of Portugal; IMF, International Financial Statistics; and staff estimates.

1/ A negative sign indicates a depreciation.

2/ Data for 1996 is for July.

3/ Trade weighted vis-à-vis 13 competitor countries (weights adjusted periodically).

Table 37. Portugal: Merchandise Trade and Terms of Trade

(Customs basis)

	1990	1991	1992	1993 1/	1994	1995
Exports, f.o.b. (in billions of escudos)	2,335.8	2,354.1	2,475.2	2,557.3	3,082.3	3,615.6
Percentage change in unit value	3.5	-0.3	-2.1	2.3	4.8	4.2
Percentage change in volume	12.0	1.1	7.4	0.7	15.1	12.5
Imports, c.i.f. (in billions of escudos)	3,589.6	3,811.1	4,087.6	4,027.4	4,633.6	5,135.0
Percentage change in unit value	3.4	-0.9	-5.4	2.8	3.1	1.7
Percentage change in volume	15.6	7.2	13.4	-5.0	11.5	9.0
Trade balance (in billions of escudos)	-1,253.8	-1,457.0	-1,612.4	-1,470.1	-1,551.3	-1,519.4
In percent of GDP	-13.1	-13.0	-12.5	-10.8	-10.7	-9.8
Terms of trade (percentage change)	0.1	0.6	3.5	0.5	1.6	2.5
Memorandum items:						
Market growth	6.1	3.8	2.6	-5.6	11.6	8.4
Change in competitor countries' prices (in US\$, export weighted)	13.0	-2.4	3.5	-9.5	2.0	12.2
Change in Portugal's export prices (in US\$)	14.3	-1.6	4.8	-14.1	1.6	15.3
Rate of nominal effective depreciation of the escudo 2/	-2.7	0.7	3.2	-6.0	-4.0	2.0

Sources: Direcção-Geral do Comércio; Bank of Portugal; IMF Research Department and IFS.

1/ National accounts estimates from 1993 onwards - Bank of Portugal.

2/ A negative sign indicates a depreciation of the escudo.

Table 38. Portugal: Geographical Distribution of Trade

	1990	1991	1992	1993	1994	1995 1/
(In percent of total imports)						
Imports	82.6	84.1	86.6	85.6	84.5	83.7
Industrial countries						
Of which:						
EU-12	68.9	70.2	73.6	71.8	71.1	71.5
Of which:						
France	11.4	11.6	12.9	12.7	12.8	11.9
Germany	14.4	14.6	14.7	15.0	13.9	14.4
Italy	9.9	10.0	10.3	8.7	8.6	8.4
Netherlands	5.7	6.0	6.9	4.9	4.3	4.5
Spain	14.5	15.5	16.7	17.9	19.9	20.8
United Kingdom	7.5	7.4	7.2	7.4	6.6	6.6
United States	3.9	3.3	3.0	3.2	3.6	3.3
Japan	2.6	2.8	3.1	3.2	2.9	2.2
Oil exporting countries	7.1	5.5	3.7	5.0	5.7	5.2
Other	10.2	10.4	9.7	9.4	9.8	11.1
(In percent of total exports)						
Exports	91.0	88.6	89.1	90.2	90.4	90.1
Industrial countries						
Of which:						
EU-12	73.4	72.7	75.1	75.2	75.3	76.0
Of which:						
France	15.4	13.9	14.2	15.1	14.7	14.0
Germany	16.8	18.9	19.2	19.6	18.9	21.6
Italy	4	3.8	3.9	3.0	3.4	3.3
Netherlands	5.7	5.5	5.4	5.2	5.4	5.3
Spain	13.7	14.6	14.9	14.4	14.5	14.7
United Kingdom	12.1	10.4	11.2	11.4	11.6	11.0
United States	4.8	3.6	3.5	4.4	5.2	4.6
Japan	1	0.8	0.8	0.8	0.8	0.8
Oil exporting countries	0.7	0.6	0.6	0.9	0.8	0.7
Other	8.4	10.8	10.3	8.9	8.8	9.2
(In percent of total trade deficit)						
Trade balance	100	100.0	100.0	100 2/	100.0	100.0
Industrial countries	67	76.3	82.5	77.6	72.8	69.0
Of which:						
EU-12	60.2	65.8	71.6	65.8	62.7	61.2
Of which:						
France	3.8	7.8	10.8	8.5	9.1	7.2
Germany	9.8	7.1	7.8	7.1	4.0	-2.3
Italy	21	20.5	20.3	18.7	18.9	20.2
Netherlands	5.8	6.7	9.2	4.4	2.2	2.8
Spain	16.1	17.0	19.5	23.9	30.5	34.8
United Kingdom	-1.1	2.2	0.9	0.5	-3.4	-3.5
United States	2.1	2.7	2.3	1.1	0.5	0.4
Japan	5.7	6.2	6.7	7.5	7.0	5.7
Oil exporting countries	19.3	13.8	8.5	12.1	15.4	15.9
Other	13.8	9.9	9.0	10.3	11.8	15.2

Source: IMF, Direction of Trade Statistics.

1/ From 1993 onwards - source: Direcção-Geral do Comércio.

2/ From 1993 onwards - FOB/CIF

Table 39. Portugal: Composition of Exports

(Custom basis; in percent)

	1991	1992	1993 1/	1994	1995 2/
(Share of total exports)					
Agricultural products	8.1	7.7	7.3	7.3	7.4
Energy products	2.6	2.9	3.4	4.1	3.3
Products of chemical industry	5.8	5.3	5.6	6.3	6.2
Leather, wood, cork, paper and paper products	11.4	10.6	10.5	10.8	11.1
Hides, skins and textile products	8.8	8.6	8.7	8.4	7.7
Clothing and footwear	30.3	30.4	9.9	27.7	23.8
Metal and mineral products	6.2	5.7	6.0	6.1	5.9
Machinery	13.3	14.1	14.7	15.8	18.0
Transport equipment	6.5	7.6	6.5	6.0	9.4
Other	7.0	7.0	7.4	7.6	7.3
Total	100.0	100.0	100.0	100.0	100.0
(Volume percent changes)					
Agricultural products	8.9	5.9	-5.2	18.2	14.8
Energy products	-21.5	42.6	2.7	51.8	-4.4
Products of chemical industry	-5.1	8.7	3.1	27.5	2.9
Leather, wood, cork, paper and paper products	4.5	0.4	3.2	7.2	0.2
Hides, skins and textile products	--	5.0	-3.6	11.7	3.9
Clothing and footwear	1.5	4.5	-5.1	6.4	-2.4
Metal and mineral products	3.3	3.3	3.2	10.9	5.2
Machinery	4.4	12.0	2.7	27.5	37.0
Transport equipment	-7.6	20.5	-10.2	6.0	81.9
Other	5.5	4.5	3.1	18.6	16.9
Total	1.1	7.4	-1.7	14.8	13.0
(Prices)					
Agricultural products	2.4	-5.5	0.7	1.7	3.0
Energy products	-3.7	-17.7	12.0	-4.2	-1.8
Products of chemical industry	-3.4	-10.7	1.6	5.8	13.5
Leather, wood, cork, paper and paper products	-10.3	-2.4	-3.8	15.7	19.8
Hides, skins and textile products	1.3	-2.4	4.6	3.9	4.8
Clothing and footwear	3.3	0.7	3.8	4.7	3.2
Metal and mineral products	-7.8	-5.1	0.7	10.0	8.9
Machinery	-0.4	-0.8	2.0	0.8	-1.6
Transport equipment	3.4	2.8	-5.2	4.3	2.1
Other	4.4	0.8	1.5	4.2	-2.5
Total	-0.3	-2.1	1.7	4.8	4.2

Sources: Direcção-Geral do Comércio; and Bank of Portugal.

1/ Data from 1993 onwards should not be directly compared with data for previous years.

2/ 1995 nominal (and real) percent changes are calculated by the Bank of Portugal, based on comparisons of provisional data for 1994 and 1995.

Table 40. Portugal: Composition of Imports

(Custom basis; in percent)

	1991	1992	1993 1/	1994	1995 1/
(Share of total imports)					
Agricultural products	13.2	12.5	14.0	14.6	13.9
Energy products	9.1	8.0	8.8	8.6	8.2
Products of chemical industry	11.2	11.3	11.9	12.3	12.8
Leather, wood, cork, paper and paper products	5.4	5.6	5.7	6.0	6.3
Textiles, clothing and footwear	11.0	11.0	10.7	10.9	10.8
Metal and mineral products	7.9	7.5	7.2	8.0	8.8
Machinery	2.9	22.0	20.9	19.4	20.8
Transport equipment	13.5	16.1	14.8	15.1	13.2
Other	5.8	6.0	6.0	5.3	5.2
Total	100.0	100.0	100.0	100.0	100.0
(Volume percent changes)					
Agricultural products	9.0	10.0	4.6	15.8	5.1
Energy products	-2.1	11.6	-0.6	11.0	7.2
Products of chemical industry	8.4	14.2	1.9	16.1	9.1
Leather, wood, cork, paper and paper products	11.4	15.4	-3.9	14.9	8.3
Textiles, clothing and footwear	10.7	15.6	-6.5	12.7	8.8
Metal and mineral products	14.0	10.8	-7.1	20.0	12.8
Machinery	6.2	6.9	-9.9	3.9	19.9
Transport equipment	0.4	25.5	-16.7	15.9	-3.7
Other	21.2	18.7	-3.2	-0.2	16.8
Total	7.2	13.4	-5.8	11.9	9.2
(Prices)					
Agricultural products	8.5	-7.1	1.4	3.9	0.7
Energy products	-8.6	-15.0	5.1	0.7	-0.3
Products of chemical industry	-1.9	-5.5	-1.1	2.1	6.1
Leather, wood, cork, paper and paper products	-6.2	-4.2	0.8	5.8	7.8
Textiles, clothing and footwear	-1.6	-7.3	-1.1	3.6	1.1
Metal and mineral products	-7.7	-8.2	-2.6	7.3	9.1
Machinery	-1.4	-3.6	--	3.3	-0.9
Transport equipment	4.9	1.8	4.6	1.5	0.9
Other	-1.2	-6.7	-1.4	1.5	-6.1
Total	-0.9	-5.4	0.8	3.1	1.7

Sources: Direcção-Geral do Comércio; and Bank of Portugal.

1/ Data from 1993 onwards should not be directly compared with data for previous years.

2/ 1995 nominal (and real) percent changes are calculated by the Bank of Portugal, based on comparisons of provisional data for 1994 and 1995.

Table 41. Portugal: Invisible Transactions

	1990	1991	1992	1993	1994	1995
(In millions of U.S. dollars)						
Invisible balance	6,647	7,113	9,380	8,301	6,533	8,292
Receipts	13,034	14,161	17,040	17,701	16,349	20,907
Payments	6,387	7,048	7,660	9,400	9,816	12,614
Services	1,147	1,151	1,583	1,621	1,129	1,112
Receipts	6,605	6,936	7,717	9,334	8,944	11,79
Payments	5,458	5,785	6,134	7,714	7,815	10,683
Tourism	2,688	2,686	2,556	2,170	2,410	2,715
Receipts	3,555	3,710	3,721	4,067	4,110	4,859
Payments	867	1,024	1,165	1,897	1,700	2,13
Transport and insurance	-1,048	-1,189	-1,305	-264	553	425
Receipts	973	955	976	1,250	1,117	1,584
Payments	2,021	2,144	2,281	1,514	1,670	2,009
Investment income	-233	82	666	134	204	586
Receipts	1,145	1,350	1,965	2,316	2,093	3,428
Payments	1,378	1,268	1,299	2,182	2,297	4,013
Official transactions	-162	-182	-189	172	177	199
Receipts	42	42	47	51	54	76
Payments	204	224	236	222	230	274
Other	-98	-246	-145	247	347	403
Receipts	890	879	1,008	1,652	1,571	1,848
Payments	988	1,125	1,153	1,899	1,918	2,251
Transfers	5,500	5,962	7,797	6,680	5,404	7,180
Receipts	6,429	7,225	9,323	8,367	7,405	9,112
Payments	929	1,263	1,526	1,686	2,001	1,932
Private	4,506	4,590	4,790	3,825	3,462	3,401
Receipts	4,767	4,954	5,206	4,328	3,880	3,899
Payments	261	364	416	503	418	498
Public	994	1,372	3,007	2,855	1,942	3,779
Receipts	1,662	2,271	4,117	4,038	3,525	5,213
Payments	668	899	1,110	1,183	1,583	1,434
(In percent of GDP)						
Invisible balance	9.8	9.1	9.8	9.8	7.5	8.0
Services balance	1.7	1.5	1.7	1.9	1.3	1.1
Of which:						
Tourism receipts, gross	5.2	4.7	3.9	4.8	4.7	4.7
Investment income, net	-0.3	0.1	0.7	0.2	-0.2	-0.6
Transfer balance	8.1	7.6	8.1	7.9	6.2	6.9
Private	6.7	5.9	5.0	4.5	4.0	3.3
Public	1.5	1.7	3.1	3.4	2.2	3.7

Sources: Bank of Portugal, *Annual Report and Quarterly Bulletin*, various issues.

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Table 42. Portugal: Indicators of Tourism

	1990	1991	1992	1993	1994	1995
Tourist arrivals						
(In thousands)	18,422	19,641	20,742	20,579	21,728	...
(Annual percentage change) 1/	11.8	6.6	5.6	-0.8	5.6	5.0
Of which:						
Spain	13,806	14,583	15,553	15,776	16,628	...
United Kingdom	1,203	1,307	1,435	1,368	1,442	...
Germany	681	852	878	795	874	...
France	658	712	686	591	639	...
United States	252	178	229	208	219	...
Tourist receipts						
(In millions of U.S. dollars) 2/	3,555	3,710	3,721	4,068	4,110	4,860
(Annual percentage change)	32.4	4.4	0.3	9.3	1.0	18.2
Memorandum items:						
Escudos per Spanish peseta	1.40	1.39	1.32	1.26	1.24	1.20
(Percentage change) 3/	-5.2	0.6	5.1	4.3	1.9	2.9
Nominal effective exchange rate (percentage change) 3/	-2.7	0.7	3.2	-6.0	-4.0	2.0

Sources: Bank of Portugal, Direcção-Geral do Turismo; and IMF, International Financial Statistics.

1/ For 1995 January-November year-on-year percentage change.

2/ New series since 1993. Bank of Portugal estimates from 1993 onwards.

3/ A positive change indicates an appreciation of the Portuguese escudo.

Table 43. Portugal: Foreign Direct Investment

	1989	1990	1991	1992	1993	1994	1995
(In millions of U.S. dollars)							
Total	1,577	2,594	3,167	3,006	2,779	1,817	3,801
Country of origin							
OECD European countries	1,303	2,115	2,371	2,479	2,436	1,700	3,159
France	270	435	367	525	193	184.0	1176
Germany	115	148	106	170	266	371.0	280
Spain	184	365	383	238	541	265.0	383
Switzerland	94	95	175	91	209	168.0	485
United Kingdom	364	515	637	876	643	250.0	829
Other	276	557	703	579	584	462	6
Japan	12	69	34	13	4	16.0	13
United States	71	83	277	124	330	91.0	87
Other	191	327	485	390	9	10	542
(In percent of total)							
Country of origin							
OECD European countries	82.6	81.5	74.9	82.5	87.7	93.6	83.1
France	17.1	16.8	11.6	17.5	6.9	10.1	30.9
Germany	7.3	5.7	3.3	5.7	9.6	20.4	7.4
Spain	11.7	14.1	12.1	7.9	19.5	14.6	10.1
Switzerland	6.0	3.7	5.5	3.0	7.5	9.2	12.8
United Kingdom	23.1	19.9	20.1	29.1	23.1	13.8	21.8
Other	17.5	21.5	22.2	19.3	21.0	25.4	0.2
Japan	0.8	2.7	1.1	0.4	0.1	0.9	0.3
United States	4.5	3.2	8.7	4.1	11.9	5.0	2.3
Other	12.1	12.6	15.3	13.0	0.3	0.6	14.3
Sectoral destination							
Manufacturing	21.8	18.9	21.7	17.6	22.3	36.4	60.5
Construction and public works	7.2	8.7	5.2	7.2	2.4	1.4	2
Banks and other financial institutions	47.0	60.7	59.9	60.4	59.3	37.8	21.8
Retail and wholesale trade, restaurants and hotels	17.7	8.5	7.0	9.4	7.6	16.1	9.4
Other	6.4	3.2	7.1	5.4	8.4	8.4	6.1
Memorandum items:							
Total foreign direct investment							
Growth rate, in percent	127.9	64.5	22.1	(5.1)	(7.6)	-34.6	109.4
In percent of GDP	3.0	3.9	4.1	0.0	3.3	0.0	3.7

Source: Bank of Portugal.

Table 44. Portugal: Official Reserves
(In millions of U.S. dollars: end-of-period)

	1989	1990	1991	1992	1993	1994	1995	1996	
								Mar.	May
Gold 1/ 2/	5,184	5,113	5,125	5,188	5,189	5,189	5189	5,169	5,189
SDRs	2	57	98	46	58	74	92	89	100
Reserve position in the Fund	125.0	176	270	314	302	337	455	455	466
Foreign exchange 2/	9,826	14,252	20,261	18,769	15,441	15,101	15239	14,786	15,735
Total	15,137	19,598	25,754	24,317	20,990	20,701	20,975	20,499	21,490
Memorandum item: Official reserves in months of imports 3/	8.4	8.2	10.3	8.6	8.0	7.2	5.8	...	...

Sources: Bank of Portugal; and IMF, International Financial Statistics.

1/ National valuation.

2/ Gold and foreign exchange holdings exclude the deposits made with the European Monetary Cooperation Fund (EMCF) of a portion of the gold U.S. dollar holdings; the holdings of ECU issued by the EMCF against these deposits are included in foreign exchange holdings in this table.

3/ Imports include goods and services.

Table 45. Portugal: External Debt
(In millions of U.S. dollars, end-of-period)

	1989	1990	1991	1992	1993	1994	1995
Medium and long-term debt	15,087	16,122	15,829	16,287	13,648	13,885	14,165
General government	5,796	5,112	4,242	3,995	2,099	1,912	2,118
Nonfinancial public enterprises	6,404	7,179	7,011	6,968	6,303	6,596	6,582
Monetary institutions	780	884	1,296	1,420	902	846	705
Bank of Portugal	1	--	--	--	--	--	--
Other	2,106	2,947	3,280	3,904	4,344	4,531	4,760
Short-term debt	2,901	2,546	2,431	2,849	2,496	2,285	2,883
Bank of Portugal and other							
monetary institutions	53	--	17	103	18	20	57
Nonfinancial public enterprises	1,085	984	837	1,044	843	384	1,365
Other	1,763	1,562	1,577	1,702	1,635	1,881	1,461
Total	17,988	18,668	18,260	19,136	16,144	16,170	17,048
Of which:							
Monetary	54	--	17	103	18	20	57
Publicly guaranteed	1,893	2,445	2,789	2,815	2,544	2,897	...
Memorandum items:							
Share of short-term debt in total debt	16.1	13.6	13.3	14.9	15.5	14.1	16.9
Share of public and publicly guaranteed debt in total debt	42.8	40.5	38.5	35.6	13.1	11.9	12.5
Ratio of debt to GDP	39.5	31.1	26.6	24.8	20.9	17.8	16.4
Ratio of debt to foreign exchange reserves	180.7	128.9	88.5	99.5	104.6	107.1	111.9

Sources: Bank of Portugal, Quarterly Bulletin and Monthly Bulletin; IFS; and data provided by the Portuguese authorities.

Table 46. Portugal: External Debt Service Payments

(in millions of US dollars; end-of-period)

	1989	1990	1991	1992	1993	1994	1995
Amortization payments on medium and long-term debt	2,617	3,642	4,926	4,287	3,299	3006	4364
Of which: advance repayments	1,054	1,575	1,094	--	--	--	--
Interest 1/	1,293	1,378	1,268	1,299	1,268	1156	1268
Total debt service 2/	3,910	5,020	6,194	5,586	4,567	4,162	5,632
Debt service	17.3	17.1	20.4	15.8	13.7	11.4	12.4
Debt service excluding advance repayments	12.7	11.7	16.8	13.9	13.7	11.4	12.4
Interest payments	5.7	4.7	4.2	3.7	3.8	3.2	2.8
Amortization	11.6	12.4	16.2	12.1	9.9	8.2	9.6
Excluding advance repayments	6.9	7.1	12.6	12.1	9.9	8.2	9.6
Memorandum item:							
Current account receipts (in millions of U.S. dollars)	22,571	29,335	30,384	35,315	33,605	34,927	45,010

Sources: Bank of Portugal, Quarterly Bulletin; IFS; and data provided by the Portuguese authorities.

1/ Based on the debit for investment income in the balance of payments.

2/ Excluding amortization of short-term debt.