2003-02-17

First draft

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Portugal and the EMU:
1996-2001, the crucial years

Luís Campos e Cunha
and
Patrícia Silva*

* Faculdade de Economia da Universidade Nova de Lisboa, and Banco de Portugal and Universidade Nova de Lisboa, respectively. Special thanks are due to A. Morgado for special assistance. The usual disclaimer applies.

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1. Introduction

Portugal is often seen as a successful case of integration in the European Union (EU). The Portuguese themselves tend to be more reluctant to take that view, and have a more critical perspective of the overall process.

This paper examines that process with a critical eye and with a special emphasis on the six year period from 1996 to 2001, the crucial years of participation in the Monetary Union.

First, in Section 2 the road to EU integration is put into perspective and in Section 3 we look at the policy and political options that led up to the single currency. Most of these facts are well known to Portuguese readers, but could be of some relevance to others.

In Section 4 we describe the period of the preparation for the country's participation in the launch of the euro. Not only are the economic criteria under review, but it is also stressed the domestic political backing.

In the following sections the new economic regime is analyzed (Section 5), as well as its immediate consequences for the behavior of the Portuguese economy. Special emphasis is placed on the behavior of traditional critical variables: Current Account (CA), inflation and the role of fiscal policy (Section 6).

In Section 7 some final remarks are made concerning what remains to be looked at and the major challenges that will come in an enlarged European Union.

2. Recent past

In 1978 Portugal initiated the formal negotiations concerning the accession to the European Community and in 1986, together with Spain, it joined the European Community as a Member-State. From the start of this integration process

Portugal undertook major structural reforms aimed at increasing the role of the private sector in the economy, ensuring a growth rate above the European Union average and giving consistency to its macroeconomic policies.

In the late 1970s, the economic activity in Portugal was subject to administrative regulations, several sectors operated under price controls and the major firms were under direct State control. In the financial sector, entry of firms in the banking and insurance market was highly restricted, the amount of credit conceded was subject to legal ceilings and interest rates on deposits and credits were controlled by the government with limited independence afforded to the Central Bank. In addition, international capital movements were restricted.

Structural reforms aimed at reducing the weight of the State in the economy and promoting competition first started in the financial sector in the mid-1980s. After 1984, legal barriers to entry in the banking and insurance sectors were relaxed and some private companies were allowed to enter the market. However, freedom of entry, provision of services and expansion of the number of branches in the banking sector were established only by the end of 1992, with the adoption of the Second Banking Directive. As shown in Chart 1, the total number of banks in Portugal has increased significantly over the last 15 years. However, it should be noted that since the early 1990s the financial sector has experienced a period of restructuring with mergers and acquisitions, which mitigated somehow the effects of entry of new banks in that evolution.

[INSERT CHART 1]

The privatization of public financial institutions started in 1989 and by 1996 most public banks and insurance companies had been privatized, significantly changing the market share of public banks (see Charts 2 and 3). However, despite the liberalization process, the market share of the five largest financial groups remained largely unchanged and the share of non-domestic banks remained relatively low.

[INSERT CHART 2 AND CHART 3]

Within the context of preparation for the Single Market in the European Union, in 1991 credit ceilings were eliminated and in mid-1992 floor limits on interest rates on deposits were removed (interest rates on lending had been liberalized in 1988 and 1989). Before the end of 1992 controls on capital movements had been entirely removed.

The privatization process, the increase of the number of banks and the removal of barriers to entry and other regulations led to an increased contestability in the financial sector, resulting in a sharp decline of the differential between the average interest rate on lending and borrowing (see Chart 4).

[INSERT CHART 4]

Privatization of State owned companies in sectors other than banking and insurance took place for the most part after 1994, along with a process of liberalization. The telecommunications and postal services were reorganized, a regulating institute was created to monitor competitiveness and new companies were allowed into the market of mobile and fixed-line communications. Competition was also enhanced in the energy sector and in the air transportation sector.

International capital mobility and the privatization program stimulated the development of capital markets. According to Carvalho (1999) there is evidence not only that the privatization process gave some impetus to the Portuguese stock exchange, but also that at the same time the capacity and innovation of the stock exchange market were important factors in the success of the privatization process in Portugal. In fact, some of the State-owned companies that were privatized have been among the 10 companies making the highest contribution to the stock market capitalization, accounting for more than 50 per cent of the turnover.

The retail sector also went through a major increase in competition and restructuring. Starting as one of the most fragmented in the EU, it turned into one of the most concentrated by international standards. Legislation concerning the creation of new firms was simplified, bankruptcy requirements became less stringent and monitoring of anti-competitive behavior was strengthened.

To sum up, by the end of 1998 the Portuguese economy had changed substantially when compared to the early 80's: it had undergone a process of liberalization and reform that rendered it more competitive and efficient and increased the role of the private sector in the economy, preparing the country for the challenge of adopting a single European currency.

3. Policy options before Maastricht

By the time Portugal became a Member of the European Community the Current Account (CA) recorded a positive balance, following the IMF program of 1983. However, since the inflation rate remained high, in the mid-1980s reducing inflation became the main policy objective.

During the second half of the decade the programmed rate of devaluation under the crawling-peg policy[1] was lowered, which helped to reduce the inflation rate. By mid-1988 the inflation rate had decreased by more than 20 percentage points (p.p.) in less than 4 years. However, at the end of 1988 inflation accelerated again, and this, together with the lower crawling rate, led to a sizable real appreciation (see Chart 5).

[INSERT CHART 5]

This took the authorities by surprise and there was no clear strategy in terms of economic policy to cope with the situation.

At the same time there was some erosion regarding fiscal consolidation. After posting excellent results in 1989, when the general government deficit reached 2.3 per cent of GDP, in 1990 and '91 the deficit increased to more than 5 per cent of

[1] The crawling-peg exchange rate regime had been adopted in 1977.

GDP due to expenditure overruns (see Chart 6). From both the inflation and fiscal points of view this was a puzzling situation.

[INSERT CHART 6]

In fact, by the end of the 80's Portugal was facing the so-called *impossible trinity*: the impossibility of simultaneously having free capital movements, an exchange rate objective and an autonomous monetary policy. Faced with this dilemma the Portuguese authorities, against the trend and against all odds, temporarily reintroduced (until the end of 1992) some of the capital controls that had previously been removed.

Regarding the exchange rate policy, the crawling-peg regime was officially abandoned in 1990 and was temporarily replaced by a vague limited fluctuation of the currency relative to the major five currencies in the Exchange Rate Mechanism of the European Monetary System (ERM/EMS). It was a period of great uncertainty about the policy strategy of the Bank of Portugal and about the fiscal policy to be pursued.

Policy options were clarified only after the elections at the end of 1991, when a tight fiscal policy was announced for 1992 and the Portuguese currency –the escudo– became part of the ERM/EMS, in April 1992[2]. Joining the ERM/EMS greatly helped in lowering the inflation rate, since it represented a firm a commitment from the Portuguese authorities to keep a stable exchange rate against the German currency that traditionally enjoyed lower inflation rates. The real exchange rate was too high at the time, but the realignments in December 1992 and May 1993 were able to cope with that situation.

Thereafter, exchange rate stability was pursued as the intermediate objective of monetary policy, the final objective of which was to reduce the inflation rate. This was the first time since the mid-80's that a coherent exchange rate policy had been set up. This policy strategy was followed until the adoption of the euro.

[2] For a more complete reading of this period see Macedo, J. B. et al (2003).

The exchange rate policy and the fiscal policy became entirely focused on fulfilling the Maastricht criteria that would place Portugal among the group of countries that adopted the single European currency right from the beginning of 1999.

4. Policy options towards the euro

4.1. Some Political Conditions

Despite the enormous economic consequences, giving up the national currency is ultimately a political decision deeply rooted in the sovereignty of a State. Therefore, a strong political commitment is necessary to embrace the euro as a supra-national currency. In the Portuguese case the political support was solid and the European integration process was never seriously questioned. This political support was *de facto* a crucial precondition for success[3].

The Portuguese party system is comprised of four principal parties. However, two of these – the *Partido Socialista* (PS) and the *Partido Social Democrata* (PSD)[4] (both of which have strong ties to other European political families) – have dominated the political arena for the past two decades, trading the reins of government back and forth between themselves[5], and together represent a large majority of the Portuguese population. In the last four parliamentary elections the PS and PSD parties have won more than 75 percent of the vote[6], and both were very supportive of the single currency project. This solid support has been crucial for the progress achieved in the European context, first in the preparations for the Single Market and later with the efforts to meet the Maastricht criteria, which outside Portugal was considered to be an impossible task for the country until at least very late in 1997[7].

[3] The British situation concerning the Monetary Union is *a contrario sensu* another instance of this problem. This point was also raised by Cunha and Abreu (1999).
[4] These are center-left and center-right parties, respectively. The other two parties were one from the right wing (CDS/PP) and another from the left (the Communist Party).
[5] There were also some coalitions but in every case they were led by these two parties.
[6] In the elections held in 1991, 1995 , 1999 and 2002, the voting shares were, respectively, 79.7, 77.9, 76.4 and 77.8 per cent.
[7] For a discussion of the Maastricht criteria and the accession countries see Szapary (2002).

4.2. Fulfilling the criteria: 1996-1998

After the escudo joined the ERM/EMS in April 1992, the central parity of the Portuguese currency was realigned, first, in the context of the strong turbulence that hit the system at the end of 1992 and 1993 and, later, in 1995 for competitive reasons following the devaluation of the peseta in the sequence of the Mexican crisis (see Chart 7). Following that the Portuguese escudo remained very stable.

Along with the countdown for the adoption of the euro, the market's belief that Portugal would be in the first group of countries to adopt the euro increased, as can be seen from the fall in the daily volatility of the exchange rate of the escudo as time went by (see Chart 8). By the time of the assessment of the convergence criteria, the Portuguese escudo had remained for more than two years in the ERM with a largely stable exchange rate and without any devaluation in its central parity, thus fulfilling the Maastricht criteria.

[INSERT CHART 7 AND CHART 8]

Joining the EMS contributed greatly toward lowering the inflation rate in Portugal, since it represented a firm a commitment from the Portuguese authorities to keep a stable exchange rate against a basket of currencies with traditionally lower inflation rates. Exchange rate stability increased the market's belief that Portugal would participate in the Monetary Union. This gave rise to the so called "convergence plays". Against the background of the creation of a Monetary Union in the future, the countries with the highest interest rates recorded a decline in the interest rate differential relative to other Member States (see Charts 9 and 10). At the same time, progress in nominal convergence also increased the market's belief that Portugal would participate in the Monetary Union. This mutual reinforcement between the expectation of entry in the Monetary Union and nominal convergence speeded the pace of convergence itself.

Price stability was formally introduced into the statutes of the Portuguese central bank as its primary objective in 1995.

[INSERT CHART 9 AND CHART 10]

In the 12-month period that ended in January 1998 –the reference date for the assessment of the convergence process– the average inflation rate in Portugal was 1.8 percent and stood below the average inflation rate of the best three performing countries plus 1.5 p.p., which was the reference value established in the Maastricht criteria (see Chart 11)[8].

In addition, the long-run interest rate amounted to 6.2 per cent in January 1998 (see Chart 12), below the reference value computed from the average of the interest rate of the three best performing countries in terms of inflation plus 2 p.p.

[INSERT CHART 11 AND CHART 12]

The convergence process leading towards the adoption of a single European currency also called for important changes in the exercise of the fiscal policy in Portugal, in order to fulfil the Maastricht criteria for the general government deficit and gross consolidated debt.

After 1990 the public deficit widened but in 1995 it resumed a downward path. The improvement of the general government balance was achieved through lower interest payments, related to the fall of the interest rate, and higher revenues (see Charts 6 and 13). As a percentage of GDP, the public deficit ratio fell by 1.9 p.p. between 1995 and 1998, while interest payments as a percentage of GDP decreased by 2.8 p.p. and total revenue increased by 1.0 p.p. of GDP.

[INSERT CHART 13]

By the time Portugal joined the European Community, the ratio of gross consolidated debt to GDP had risen significantly

[8] For further discussion on the desinflation process see Abreu (2001).

when compared to the early 1970s, reaching 66.8 percent and in 1995 amounting to 64.3 percent. Thereafter, the debt ratio continued on a downward trend, which is explained by the reduction of fiscal deficit and the use of part of the privatization receipts to make debt repayments.

In 1998, when progress in terms of the Maastricht criteria was assessed, for 1997 the general government deficit stood below the reference value of 3 per cent of GDP and the public debt ratio was lower than 60 per cent of GDP (see Chart 14).

[INSERT CHART 14]

5. A structural change of regime: 1999 onwards

The creation of a Monetary Union brought on a change in the economic regime of the Member-States that participated in the euro zone. This new economic regime (NER) that was initiated in 1999 with the adoption of the euro contrasts with the old one in three main points: a change of rules for economic governance; a loosening up of liquidity constraints at the agent level; and a fundamental change in the nature of the external constraint of the country.

These three elements are interrelated but for exposition purposes will be treated separately. One should note that these three aspects might not be present in all countries. For instance, the change in liquidity constraints was certainly different for a German than for a Portuguese or an Irish, since Germany was a large country and the deutsche mark was the anchor currency. In any case, most of these changes were seen either as irreversible, as in the case of the adoption the euro, or as long lasting due to its EU *constitutional* nature, as is the case with the Stability and Growth Pact (SGP). Therefore, this being an extreme example of a Lucas change of regime, it could be better labeled as a *structural* change of regime.

Firstly, the NER is characterized by a new set of rules that guide economic policies. The monetary and exchange rate policies are defined by the European Central Bank (ECB), which is committed to ensure price stability in the euro zone. The ECB

not only is independent from governments, but also is the first truly supra-national institution in the EU.

On the other hand, the fiscal policy pursued by each Member-State, according to the SGP, should aim at achieving a general government position close to balance or in surplus in the medium run. In this way, automatic stabilizers built into the budget can fully operate without breaching the reference value of 3 per cent of GDP for the general government deficit and compromising fiscal sustainability[9]. These rules are subject to international monitoring, evaluation and in the limit countries may be subject to pecuniary sanctions.

Together, price stability and fiscal sustainability are seen as creating a stable macroeconomic environment that is considered as a necessary condition for sustainable growth and development. This institutional framework of the NER is seen as irrevocable or long lasting.

Secondly, the regime change was seen by consumers and firms as loosening their liquidity constraints. Due to the increasing credibility of the Portuguese participation in the EMU from day one, both nominal and real interest rates fell rapidly to the EU average (see Charts 9 and 10). The spreads were substantially reduced and have stayed that way ever since.

The strong impact in terms of the liquidity constraints was amplified by the financial innovation that took place at the same time.

Lastly, from the macroeconomic point of view, with the NER the nature of the external constraint changed for Portugal.

Prior to the single currency, any external imbalance was assessed by markets against the level of external debt of the country and the level of external reserves at the Central Bank.

Following 1999, consumers earn their living in euros, firms' cash flows are in euros and State fiscal affairs are dealt with in euros, the very same currency that those agents are borrowing or lending in the domestic and foreign markets[10]. In other words, before 1999 an international lender would be

[9] The SGP rule is relatively loose and the actual interpretation of this rule has recently been subject to some debate, as is well known.

[10] In fact the distinction between domestic market and foreign (euro area) market is basically semantic.

concerned not only with the creditworthiness of the debtor agent but also with the solvency of the country in terms of international reserves. Under the NER the investor's assessment is reduced to the first instance of the problem[11].

To sum up, the external constraint is nothing but the aggregation of the intertemporal budget constraint of each individual agent – families, firms and state– without an overall external liquidity constraint to be faced by the country.

6. Consequences: 1999 onwards

6.1. Market driven indebtness investment.

Several of the consequences of the NER started to become noticeable before the E-day, as agents anticipated the change of the macroeconomic framework.

The new characteristics of the NER as described above, lead the economy to work differently with the new set of rules. However, the economic results for the period from 1999 to 2001 stemmed not only from a new medium-term steady-state path implied by the NER, but also from the transition path towards that steady state.

The macroeconomic effects of the change in the regime and the adoption of the single currency are mainly due to the reduction of the interest rates and may be divided into supply-side and demand-side effects.

The supply-side effects are related to the reduction of the real interest rates. In fact, despite the fall of the inflation rate in the euro area, the convergence process resulted in lower real interest rates (see Chart 15) that led to a reduction in the rental cost of capital and, therefore to a higher accumulation of capital that, in turn, increased both labor productivity and the real GDP per capita. Pereira (1999) estimates that the reduction of the long-run interest rate associated with the euro will increase the long-run Portuguese GDP per capita between 2.9 percent and 13.6 percent, when compared to what would have been the evolution of the Portuguese

[11] The change of nature of the external constraint has nothing to do with the solvency of the State; i.e., New York City went bankrupt without any *external* imbalance consideration.

economy if both the NER and the euro had not been adopted. Pereira (1999) also finds that the impact on GDP from the structural transfers is close to the lower bound for the effects associated to the participation of Portugal in the euro area, thus stressing the high relative importance of the Monetary Union for Portugal.

[INSERT CHART 15]

Alternatively, Barbosa et al. (1998) estimated that a higher cumulative real GDP growth of 0.5 p.p. after 1 year and of 1 p.p. after 10 years would have resulted, against an alternative scenario under which Portugal would have adopted credible monetary and fiscal policies but outside the euro area[12].

It turned out that the growth rate for the Portuguese economy was always above the EU average for the period under consideration, 1996-2001, by more than 1 p.p., but it is too early to estimate the lasting economic impact of the Portuguese adoption of the euro.

Concerning the demand-side, as mentioned above, the effects of the decrease of nominal interest rates relaxed the liquidity constraints faced by households and firms, since it reduced the weight of the debt service.

More fundamentally, from the households' perspective the decrease of the real interest rates also created a sudden positive wealth effect. For a given time path of real earnings, the decrease in the real interest rates led to a higher present value of future incomes. The market value of human (and non-human) wealth increased significantly: people felt richer and they were richer. The banking sector also agreed that the optimal level of indebtedness to wealth was too low[13].

[12] Barbosa et al. (1998) obtain this result using an endogenous growth model for the Portuguese economy and assuming that if Portugal had not participated in the Monetary Union, but with credible policies, the long-run interest rates would have been higher by 350 basis points in the first and second years, by 200 basis points in the third year, by 150 in the fourth and, finally, by 50 basis points from the fifth year onwards.

[13] Back of the envelope calculations estimate the change in human capital wealth valuation above 60 percent in just a few years.

As a result, total credit to households and firms saw a strong rise for several years (see Chart 16), reflecting the adjustment in the levels of credit. Total credit to households (as a percentage of disposable income) and to non-financial firms (percent of GDP) increased from 46.4 and 53.7 percent in 1996, respectively, to 103.7 and 92.1 percent in 2002. Nevertheless, the solvency of households is not much questioned since the interest rate service of the debt remains basically unchanged throughout the period (see Chart 17). In addition, this credit was mainly used for investment in housing (see Chart 18), and only for that the net value of households' balance sheet was basically unchanged.

[INSERT CHART 16, CHART 17 AND CHART 18]

The higher demand for credit was matched by supply growth. In a segmented money market economy this increase in demand would imply in equilibrium an increase in the price (interest rate) and quantity of credit. However, in a small economy in a monetary union –i.e., a region– the supply of credit is only limited by the creditworthiness of each agent and the increase in demand did not result in an increase in price; supply was perfectly elastic in the relevant range.

As the domestic banking sector was able to intermediate this stock adjustment of households and to some extent of firms, the banking sector significantly increased its exposure to the euro money market in order to supply the demanded credit.

Given these effects the external Current Account naturally ran into a greater deficit. Between 1996 and 2001 the Current Account deficit (percent of GDP) widened by 7.0 p.p. (see Chart 19).

[INSERT CHART 19]

Simultaneously, there was an increase of foreign direct investment (FDI) abroad since large Portuguese firms began to gain access to international financing and, without becoming

short on hard currency, they were able to expand to new markets (see Chart 20). Portugal became a net foreign investor (see Chart 21), despite the simultaneous increase of FDI in Portugal.

[INSERT CHART 20 AND CHART 21]

This is an instance of the vanishing *original sin*[14] of a more mature economy, as described in Hausmann (2002).

An alternative story, and one that is not incompatible with the one presented above, is described in Blanchard and Giavazzi (2002) or Alesina et al. (2001). The fact is that at the same time the original sin vanished for small economies of the euro area, these regional economies were able to separate their decision to invest and to save. To some extent firms and households were able to separate the decisions to borrow and to invest in the NER, so for those economies it meant the end of the Feldstein-Horioka Puzzle.

6.2. Overheating?

An interesting question is whether the recent past in Portugal should be characterized as a case of overheating. We consider this to be so, but let us argue that many other transitory effects took place leading to a more complex situation than a traditional overheating problem.

As mentioned above, the increase in investment, with a somewhat lower savings rate basically financed by credit, led to a CA deficit, which is a sign of overheating for a region like Portugal. It could also be argued that a higher-than-EU-average inflation rate is another instance of that phenomenon. Lastly, the fiscal policy since 1998 was procyclical.

However, against this view one should recognize that there was no asset price inflation typical of these situations. Lower interest rates naturally also contributed to a rise in nominal and real asset prices. Inasmuch as this decline in real interest

[14] This term was coined by Hausmann. Developing countries' investors either borrow short term in domestic currency for a long-term investment or borrow long term in a foreign currency. In either case this creates mismatches that are described in Hausmann (2002). This point was stressed by Governor V. Constâncio in a recent speech.

rates is permanent and inherent to the NER, a real appreciation of assets should have been expected and should not be viewed as a sign of overheating. Furthermore, the stock market in Portugal did follow rather closely the evolution of other markets, leaving little room for any specifically domestic bubble (see Chart 22). Lastly, the real estate price index did increase more than the HCPI, but rather moderately when compared with previous boom periods or other countries for these years (see Chart 23).

[INSERT CHART 22 AND CHART 23]

In short, there are signs of overheating for the period considered, but not all of the characteristic elements are there.[15]

A second issue is related to the fact that most of the above overheating signals were market driven. Namely, the CA deficit was basically explained without resorting to expansionary public policies. It is equilibrium response towards the new regime, as argued by Alesina et al.(2001) and the CA deficit should not be a source of concern, and stopping it would amount to unduly closing an important source of financing for investment. These was due to the market lead transition to the NER, and in that way the market would naturally self correct the imbalances.

A special note should be given inflation during the period under consideration. A second issue is to ask what fiscal policy did, what it could and should have done.

6.2.1. Inflation

For a long time the determinants of the inflationary process have been studied[16] and one could argue that (i) the traditional causes of inflation –namely, money and fiscal variables– are not present and, (ii) the simple version of Purchaising Power Parity (PPP) does not generally fit the facts

[15] A comprehensive discussion of this issue can be found in Hoeller (2002).
[16] To the best of our knowledge the first econometric enquiry into the causes of inflation is Cunha and Barosa (1987).

for all periods, leaving room for some sort of Balassa-Samuelson effect[17].

But this means that if in the past domestic policies were not found to have a significant impact on inflation, now in a monetary union it is even less likely that fiscal variables could lead to enduring impacts on domestic inflation. What seems plausible is for the Portuguese inflation rate to be anchored to the euro-area average inflation plus some form of Balassa effect.

Regional inflation differences are to be expected, as in the case of the USA[18], but no local policy explanation is to be found. These differences are relative price differences, i.e. are due to real causes. Balassa technological explanation is one possible real cause, but other somewhat similar stories should not be precluded[19]. The simple fact that markets become more integrated due to less formal and informal barriers to trade, financial integration, vanishing exchange rate risk, better means of communication… lessens price level differences; all in all, cheaper countries become more expensive and that implies prolonged periods of equilibrium real appreciation that cannot – and should not – be avoided by policy activism[20].

In this vein, an alternative story is presented in the Annex, tested for the Portuguese case, and paving the way for a real explanation for inflation differences with the euro area average. There we show that the increasing integration and competition, as well as the general increase in productivity, should lower inflation. The Balassa effect, to the contrary, through the services inflation differential, leads to a real appreciation. Depending on the periods under consideration, the first effect may dominate.

6.2.2. Fiscal Policy

[17] See Cunha and Machado (1993, 1994), Cunha and Barosa (1990) and Costa (2000).
[18] For a interesting evaluation of this issue see Cecchetti et al. (1998).
[19] As argued in Bhagwati (1984) the Balassa technological explanation is not very plausible. In the same vein see also Cunha and Esteves (2002).
[20] Real appreciation may be caused by other factors than the Balassa ones. In other words, not all observed real appreciation should be taken as equilibrium real appreciation.

What could and should be done by the fiscal authorities is subjected to a heated debate in the Portuguese public opinion and among economists.

We have been trying to show that most of the imbalances experienced by the Portuguese economy, namely the CA deficit and the inflation surge, are mainly market driven by the adoption of the NER, and are unavoidable.

In Blanchard and Giavazzi (2002) the same sort of point is made, showing that most of the CA deficit is explained in Portugal (and other small euro-economies) by a lower private savings rate and an increase in investment, while public savings play a minor role. In Hoeller (2002) a conclusion along the same lines is reached when argued "higher inflation in the overheating euro area countries is not related to loosening of the fiscal stance. … On a cumulative basis, [in terms of structural balance budget] Finland tightened the most, by 3.8 per cent of GDP and Portugal the least, by 1.4 per cent of GDP between 1997 and 2001, which is considerably more than the change in the fiscal stance of France and Germany (both tightened by 0.3 per cent of GDP)." (pg. 15).

It is plainly evident that by and large most of the imbalances were unavoidable and "so, while benign neglect may not be optimal, it appears, at least for those [CA] deficits, to be a reasonable course of action" (Blanchard and Giavazzi (2002), pg. 43.)

It is necessary to mitigate some of these conclusions, however. The Portuguese fiscal stance has been pro-cyclical at least since 1998 (see Chart 24) and there are other reasons that would justify a more-tightening policy. Under this policy it is clear that the course of inflation and the CA deficit would be largely unaltered and so it should be. Nevertheless a pro-cyclical fiscal policy is wrong because it raises credibility issues that are important to consider. On the one hand, Portugal's voluntary commitment to SGP should be honored. On the other hand, the cost of financing may increase through higher interest rate spreads which would be a pure loss. Lastly, it is also vital that the Portuguese authorities continue to be able

to invest at the rates they have been in order to make full use of the EU funds. For these reasons a more conservative stance is long overdue.

[INSERT CHART 24]

7. Concluding Remarks

This paper has shown that the impact of the new economic regime entails changes that are desirable and long lasting. However, in the medium term some apparently unpleasant consequences are to be expected, due namely to wealth effects and loosening of liquidity constraints.

The paper has further demonstrated that most of these consequences could not, and for the most part, should not be avoided. As shown in Azevedo (2002) the synchronization of the Portuguese cycle with that of the EU is so close (and becoming more so) that we may argue that a different fiscal policy would not have led to a different outcome. However, as we emphatically assert, this is not to be read as an excuse to have o pro-cyclical policy and breach the Stability Program targets.

Some of the structural reforms undertaken in Portugal are described at some length. While studying the inflation process, the relevance of those reforms in countervailing the Balassa effect are mentioned and even estimated. Several other issues, however, were passed over.

Fiscal issues such as the tax reform of 1989 or the tax cut of 2000/1, for instance, were not given their proper due.

It is difficult to assess the relevance of the Portuguese experience for an enlarged Union. For instance, unlike the situation in Ireland, Portugal or Spain, the problems of the former East Germany apparently are more difficult and more resilient than anyone could have anticipated just a few years ago.

A relevant footnote is that *so far* Portugal, as well as other catching-up countries, has been able to escape the mezzogiorno syndrome. As analyzed in Sinn and Westerman (2001), this is something that cannot be taken for granted for any

country, including Portugal, in the years that come. In an EU that is undergoing a radical enlargement process, it is difficult to visualize the path that the EU economy will follow as a new economic space; its economic geography will make unforeseeable adjustments and direction changes in the near future. Furthermore, it is not clear how it is politically possible to avoid the mezzogiorno syndrome if that is at least partially due to some form of Dutch disease resulting from an excess of transfers.

It is our belief that the challenges ahead of us are to be seen as opportunities, and the problems are to be collectively solved at the European Union level through greater political unity.

ANNEX: EQUILIBRIUM REAL APPRECIATION

The Balassa approach divides consumer goods into tradables and non-tradables. Lets consider instead that all goods are non-tradable at the consumer level and tradable at the producer level. Between the producer and the retailer several services are added to the good, transforming it into a non-tradable consumer commodity. This means that at the producer level goods are subject to the PPP, but not at consumer level.

In short, let us take the following descriptive model:

$$(1) \quad P = P_p^{a} \, S^{(1-a)}$$

$$(2) \quad P^{*} = P^{*}_p{}^{a} \, S^{*(1-a)}$$

$$(3) \quad P_p = B.E.P^{*}_p$$

where P stands for the consumer price level, P_p the producer price level, E the exchange rate, S for the services price level and "*" labels the foreign variables. Equations (1) and (2) define the relation above described between consumer prices, services and producer prices, where "a" is a technological coefficient. For sake of simplicity, it is assumed to be identical in both countries. Equation (3)–with B=1– translates the PPP hypothesis at producer level, where all goods are assumed to be internationally tradable.

Our estimation period –1990-2002- is relatively short and it includes a period of strong liberalization and openness in Portuguese economy as referred in Sections 2 and 3. Therefore, it is natural to expect the parameter B to be initially larger than one and more importantly falling throughout the period.

This last remark –falling B- is likely to account for several factors. On the one hand, it reflects the fact that the Portuguese economy has enjoyed an increase in the overall productivity above euro area countries; on the other hand it may also translate the increasing integration of the Portuguese economy in the EU economy, due to the single market, capital integration and the single currency, leading to a reduction of

formal and informal barriers on trade. This gives voice to the often referred argument that liberalization is a way out of real appreciation.

Taking log differences (1)-(3) became

$$(1') \qquad \pi = a.\pi_p + (1-a).\vartheta$$

$$(2') \qquad \pi^* = a.\pi^*_p + (1-a).\vartheta^*$$

$$(3') \qquad \pi_p = \pi^*_p + \varepsilon + \beta$$

where all variables are self-explanatory with β being the rate of change of B.
After simple manipulation one gets to

$$(4) \qquad \pi = \pi^* + \varepsilon + a\beta + (1-a)(\vartheta - \vartheta^* - \varepsilon)$$

Alternatively, one may rewrite (4) as

$$(5) \qquad APR = a\beta + (1-a)(SERV)$$

where real appreciation (APR) is determined by the difference in services price inflation denominated in the home currency (SERV) and the liberalization factor β. This is the equation that was tested for the Portuguese case, taking the "*" country as the euro area.

Several estimations were performed giving basically the same strong results. Looking at the formulation as in Table 5 below, the long term estimated equation is[21]

$$APR = -0.7 + 0.7SERV$$

This gives support to the approach above described being a=0.3, which is a reasonable value. Note that a is by definition a positive number. As above mentioned, β will be negative, which also makes the term $a\beta$ negative.

To sum up, the econometric results suggest that differential between the Portuguese inflation and the euro area

[21] That is MA(.) = 0; $SERV_t = SERV_{t-1}$; $APR_t = APR_{t-1}$.

average inflation stemming from the Balassa effect –asymmetric productivity growth between sectors– is somehow mitigated by the reduction of barriers on trade, liberalisation, overall productivity growth differences between the two regions …

Details of the econometric procedure

Three measures for the inflation rate were used: yoy rate, monthly rate and a yoy rate based on a three-month moving average of the price index. With this, we define three measures of Real Appreciation Rate all based on the same general expression, both for the total consumption bundle (APRH, APRM, APR3) and for the service sector only (APRH_SERV, APRM_SERV, APR3_SERV).

Performing simple ADF Unit Root tests (Table 1 and Table 3 for the Real Appreciation Rate based on the yoy rate (APRH and APRH_SERV); Table 6 and Table 8 for the Real Appreciation Rate based on the monthly rate (APRM and APRM_SERV); Table 11 and Table 13 for the Real Appreciation Rate based on the yoy rate calculated upon a three-month moving average of the price index (APR3 and APR3_SERV)), it is easily concluded that all series are stationary at a 5% significance level. The test equations do not include a constant term because it is not significant; the different lags introduced serve to eliminate residual autocorrelation, which invalidates the DF test, as well known. APRH_SERV is the one series that may raise some doubts about its stationarity. However it must be bared in mind that the depreciation of PTE during 1993/1994 causes a great "depression" in the APR series. It happens in all series, but not as markedly as in this particular one. Its presence reduces the power of ADF test, leading to non-rejection of false hypotheses (non-stationarity in this case). However, if we are content with 5% level of significance, there is not evidence for non-stationary behavior.

The fact that the series are stationary simply means that shocks occurred do not have permanent effects; they tend to fade away.

Since the series are stationary, the proposed equation model for real appreciation can be easily estimated using Least Squares (Table 5, Table 10, Table 15). There is, however, evidence of conditional heteroskedasticity, so the robust Newey-West variance-covariance matrix was used.

In order to verify the degree of persistence of shocks, ARMA models were fitted to each series: Table 2 and Table 4 for APRH and APRH_SERV; Table 7 and Table 9 for APRM and APRM_SERV; Table 12 and Table 14 for APR3 and APR3_SERV.

It is easily verifiable that APRH and APRH_SERV have the same kind of behavior: they are autocorrelated of order 2, evidencing an overshooting on the first lag and stabilizing after the second one. The presence of a moving average of lag 12 just accounts for the way that the APR is calculated, based on yoy rates, comparing the value of the price index on the same month in two consecutive years.

Seemingly, APRM and APRM_SERV follow approximately the same pattern: a very stable autocorrelation of order 1, where shocks tend to fade away very quickly. These series are very volatile, as is normal in monthly rates.

APR3 and APR3_SERV inherit some of the pattern from APRH and APRH_SERV – they are calculated in very similar ways, the difference being that APR3 and APR3_SERV are "smoothed" versions of APRH and APRH_SERV. The autocorrelation pattern of order 2 is maintained in APR3_SERV, with an additional moving average of order 3, just accounting for the fact that it is calculated from rates of variation of three-month moving averages of the price index. APR3 shows a greater degree of persistence of shocks (with one additional lag) relative to APRH and it is easy to attribute the moving averages three-month period lags (3, 6, 9, 12) to the method used to generate the series, much in the same line as APR3_SERV.

Tables

Table 1: Augmented Dickey-Fuller Unit Root Test on APRH

ADF Test Statistic	-2.960962	1%	Critical Value*	-2.5804
		5%	Critical Value	-1.9422

	10% Critical Value	-1.6169

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(APRH)
Method: Least Squares
Date: 02/04/03 Time: 14:13
Sample(adjusted): 1991:06 2002:12
Included observations: 139 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APRH(-1)	-0.057291	0.019349	-2.960962	0.0036
D(APRH(-1))	0.335520	0.083574	4.014625	0.0001
D(APRH(-2))	0.055660	0.088396	0.629663	0.5300
D(APRH(-3))	0.040722	0.088475	0.460265	0.6461
D(APRH(-4))	0.100237	0.083997	1.193343	0.2348
R-squared	0.186440	Mean dependent var		-0.053184
Adjusted R-squared	0.162155	S.D. dependent var		1.052726
S.E. of regression	0.963601	Akaike info criterion		2.799029
Sum squared resid	124.4225	Schwarz criterion		2.904585
Log likelihood	-189.5325	Durbin-Watson stat		2.037204

Table 2: ARMA model for APRH

Dependent Variable: APRH
Method: Least Squares
Date: 02/04/03 Time: 14:17
Sample(adjusted): 1991:03 2002:12
Included observations: 142 after adjusting endpoints
Convergence achieved after 7 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002781	0.019252	0.144453	0.8854
APRH(-1)	1.288886	0.116632	11.05089	0.0000
APRH(-2)	-0.329689	0.121017	-2.724320	0.0073
MA(12)	-0.694426	0.063819	-10.88110	0.0000
R-squared	0.967214	Mean dependent var		1.116622
Adjusted R-squared	0.966501	S.D. dependent var		4.365941
S.E. of regression	0.799086	Akaike info criterion		2.417067
Sum squared resid	88.11819	Schwarz criterion		2.500330
Log likelihood	-167.6118	F-statistic		1357.030
Durbin-Watson stat	2.077647	Prob(F-statistic)		0.000000
Inverted MA Roots	.97	.84+.49i	.84 -.49i	.49+.84i
	.49 -.84i	.00+.97i	-.00 -.97i	-.49+.84i
	-.49 -.84i	-.84 -.49i	-.84+.49i	-.97

Table 3: Augmented Dickey-Fuller Unit Root Test on APRH_SERV

ADF Test Statistic	-2.334414	1% Critical Value*	-2.5794
		5% Critical Value	-1.9420
		10% Critical Value	-1.6168

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(APRH_SERV)

Method: Least Squares
Date: 02/04/03 Time: 14:20
Sample(adjusted): 1990:08 2002:12
Included observations: 149 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APRH_SERV(-1)	-0.030479	0.013056	-2.334414	0.0210
D(APRH_SERV(-1))	0.349605	0.082273	4.249309	0.0000
D(APRH_SERV(-2))	0.022993	0.086492	0.265842	0.7907
D(APRH_SERV(-3))	-0.093493	0.084524	-1.106108	0.2706
D(APRH_SERV(-4))	0.192963	0.084335	2.288051	0.0236
D(APRH_SERV(-5))	0.165291	0.085498	1.933269	0.0552
D(APRH_SERV(-6))	-0.033692	0.082141	-0.410175	0.6823

R-squared	0.227826	Mean dependent var	-0.038818
Adjusted R-squared	0.195199	S.D. dependent var	1.081191
S.E. of regression	0.969944	Akaike info criterion	2.822683
Sum squared resid	133.5923	Schwarz criterion	2.963808
Log likelihood	-203.2899	Durbin-Watson stat	1.989820

Table 4: ARMA model for APRH_SERV

Dependent Variable: APRH_SERV
Method: Least Squares
Date: 02/04/03 Time: 14:24
Sample(adjusted): 1990:03 2002:12
Included observations: 154 after adjusting endpoints
Convergence achieved after 8 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.025820	0.032401	0.796880	0.4268
APRH_SERV(-1)	1.346678	0.073993	18.20016	0.0000
APRH_SERV(-2)	-0.363067	0.077068	-4.710974	0.0000
MA(12)	-0.548125	0.081883	-6.694027	0.0000

R-squared	0.975025	Mean dependent var	3.370184
Adjusted R-squared	0.974526	S.D. dependent var	5.449590
S.E. of regression	0.869792	Akaike info criterion	2.584505
Sum squared resid	113.4806	Schwarz criterion	2.663387
Log likelihood	-195.0069	F-statistic	1952.015
Durbin-Watson stat	1.973940	Prob(F-statistic)	0.000000

Inverted MA Roots	.95	.82+.48i	.82 -.48i	.48+.82i
	.48 -.82i	.00+.95i	-.00 -.95i	-.48+.82i
	-.48 -.82i	-.82+.48i	-.82 -.48i	-.95

Table 5: Real Appreciation Equation Model

Dependent Variable: APRH
Method: Least Squares
Date: 02/04/03 Time: 14:26
Sample(adjusted): 1991:02 2002:12
Included observations: 143 after adjusting endpoints
Convergence achieved after 9 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.048842	0.019595	-2.492608	0.0139
APRH_SERV	0.856378	0.070080	12.22006	0.0000

APRH(-1)	0.934755	0.018834	49.63190	0.0000
APRH_SERV(-1)	-0.807614	0.061005	-13.23858	0.0000
MA(2)	-0.342550	0.063875	-5.362795	0.0000
MA(10)	-0.333448	0.104090	-3.203453	0.0017
MA(12)	-0.322953	0.109074	-2.960856	0.0036

R-squared	0.990624	Mean dependent var	1.166012
Adjusted R-squared	0.990210	S.D. dependent var	4.390448
S.E. of regression	0.434400	Akaike info criterion	1.218009
Sum squared resid	25.66362	Schwarz criterion	1.363043
Log likelihood	-80.08764	F-statistic	2394.885
Durbin-Watson stat	1.919258	Prob(F-statistic)	0.000000

Inverted MA Roots	1.00	.83 -.49i	.83+.49i	.40+.78i
	.40 -.78i	.00+.80i	-.00 -.80i	-.40+.78i
	-.40 -.78i	-.83 -.49i	-.83+.49i	-1.00

Table 6: Augmented Dickey-Fuller Unit Root Test on APRM

ADF Test Statistic	-3.919169	1% Critical Value*	-2.5793
		5% Critical Value	-1.9420
		10% Critical Value	-1.6168

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(APRM)
Method: Least Squares
Date: 02/04/03 Time: 14:31
Sample(adjusted): 1990:07 2002:12
Included observations: 150 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APRM(-1)	-0.498586	0.127217	-3.919169	0.0001
D(APRM(-1))	-0.180503	0.123619	-1.460153	0.1464
D(APRM(-2))	-0.253401	0.114925	-2.204930	0.0290
D(APRM(-3))	-0.090321	0.099381	-0.908833	0.3649
D(APRM(-4))	-0.126114	0.082326	-1.531888	0.1277

R-squared	0.366024	Mean dependent var	-0.002939
Adjusted R-squared	0.348535	S.D. dependent var	0.883148
S.E. of regression	0.712818	Akaike info criterion	2.193585
Sum squared resid	73.67597	Schwarz criterion	2.293940
Log likelihood	-159.5189	Durbin-Watson stat	1.993778

Table 7: ARMA Model for APRM

Dependent Variable: APRM
Method: Least Squares
Date: 02/04/03 Time: 14:34
Sample(adjusted): 1990:03 2002:12
Included observations: 154 after adjusting endpoints
Newey-West HAC Standard Errors & Covariance (lag truncation=4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.071871	0.062209	1.155319	0.2498
APRM(-1)	0.310531	0.095409	3.254742	0.0014

R-squared	0.096788	Mean dependent var	0.106956
Adjusted R-squared	0.090845	S.D. dependent var	0.744759
S.E. of regression	0.710125	Akaike info criterion	2.166150
Sum squared resid	76.65014	Schwarz criterion	2.205591

Log likelihood	-164.7935	F-statistic	16.28821
Durbin-Watson stat	1.988555	Prob(F-statistic)	0.000086

Table 8: Augmented Dickey-Fuller Unit Root Test on APRM_SERV

ADF Test Statistic	-3.784151	1% Critical Value*	-2.5793
		5% Critical Value	-1.9420
		10% Critical Value	-1.6168

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(APRM_SERV)
Method: Least Squares
Date: 02/04/03 Time: 14:34
Sample(adjusted): 1990:07 2002:12
Included observations: 150 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APRM_SERV(-1)	-0.444559	0.117479	-3.784151	0.0002
D(APRM_SERV(-1))	-0.160291	0.118512	-1.352533	0.1783
D(APRM_SERV(-2))	-0.244239	0.108188	-2.257534	0.0255
D(APRM_SERV(-3))	-0.186715	0.094192	-1.982293	0.0493
D(APRM_SERV(-4))	-0.051717	0.078226	-0.661123	0.5096

R-squared	0.331690	Mean dependent var	-0.001059
Adjusted R-squared	0.313254	S.D. dependent var	1.022305
S.E. of regression	0.847185	Akaike info criterion	2.538971
Sum squared resid	104.0699	Schwarz criterion	2.639325
Log likelihood	-185.4228	Durbin-Watson stat	1.993506

Table 9: ARMA Model for APRM_SERV

Dependent Variable: APRM_SERV
Method: Least Squares
Date: 02/04/03 Time: 14:36
Sample(adjusted): 1990:03 2002:12
Included observations: 154 after adjusting endpoints
Convergence achieved after 5 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.166367	0.090050	1.847500	0.0666
APRM_SERV(-1)	0.320263	0.137624	2.327088	0.0213
MA(12)	0.240022	0.115104	2.085259	0.0387

R-squared	0.153400	Mean dependent var		0.231873
Adjusted R-squared	0.142187	S.D. dependent var		0.913410
S.E. of regression	0.845984	Akaike info criterion		2.522655
Sum squared resid	108.0690	Schwarz criterion		2.581817
Log likelihood	-191.2444	F-statistic		13.68030
Durbin-Watson stat	1.848060	Prob(F-statistic)		0.000003
Inverted MA Roots	.86+.23i	.86 -.23i	.63+.63i	.63 -.63i
	.23 -.86i	.23+.86i	-.23 -.86i	-.23+.86i
	-.63 -.63i	-.63 -.63i	-.86 -.23i	-.86+.23i

Table 10: Real Appreciation Equation Model

Dependent Variable: APRM
Method: Least Squares

Date: 02/04/03 Time: 14:41
Sample(adjusted): 1990:03 2002:12
Included observations: 154 after adjusting endpoints
Convergence achieved after 10 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.061712	0.013194	-4.677176	0.0000
APRM_SERV	0.655502	0.052624	12.45633	0.0000
APRM(-1)	0.109538	0.051760	2.116263	0.0360
MA(2)	-0.386806	0.062584	-6.180584	0.0000
MA(10)	-0.305770	0.100840	-3.032242	0.0029

R-squared	0.708434	Mean dependent var		0.106956
Adjusted R-squared	0.700607	S.D. dependent var		0.744759
S.E. of regression	0.407509	Akaike info criterion		1.074420
Sum squared resid	24.74345	Schwarz criterion		1.173023
Log likelihood	-77.73035	F-statistic		90.50832
Durbin-Watson stat	1.919632	Prob(F-statistic)		0.000000
Inverted MA Roots	.94	.75+.49i	.75 -.49i	.28+.81i
	.28 -.81i	-.28+.81i	-.28 -.81i	-.75 -.49i
	-.75+.49i	-.94		

Table 11: Augmented Dickey-Fuller Unit Root Test on APR3

ADF Test Statistic	-3.263625	1% Critical Value*	-2.5806
		5% Critical Value	-1.9422
		10% Critical Value	-1.6169

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(APR3)
Method: Least Squares
Date: 02/04/03 Time: 14:51
Sample(adjusted): 1991:08 2002:12
Included observations: 137 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APR3(-1)	-0.028888	0.008852	-3.263625	0.0014
D(APR3(-1))	1.109220	0.084916	13.06250	0.0000
D(APR3(-2))	-0.286092	0.127533	-2.243281	0.0266
D(APR3(-3))	-0.396276	0.121641	-3.257745	0.0014
D(APR3(-4))	0.530571	0.121274	4.374962	0.0000
D(APR3(-5))	-0.114776	0.126714	-0.905792	0.3667
D(APR3(-6))	-0.014582	0.084729	-0.172101	0.8636

R-squared	0.755370	Mean dependent var	-0.053029
Adjusted R-squared	0.744079	S.D. dependent var	0.775870
S.E. of regression	0.392502	Akaike info criterion	1.017192
Sum squared resid	20.02750	Schwarz criterion	1.166388
Log likelihood	-62.67767	Durbin-Watson stat	2.005631

Table 12: ARMA Model for APR3

Dependent Variable: APR3
Method: Least Squares
Date: 02/04/03 Time: 15:07
Sample(adjusted): 1991:04 2002:12
Included observations: 141 after adjusting endpoints

Convergence achieved after 20 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002537	0.013039	0.194545	0.8460
APR3(-1)	2.096560	0.099777	21.01240	0.0000
APR3(-2)	-1.362452	0.188061	-7.244726	0.0000
APR3(-3)	0.251592	0.093421	2.693084	0.0080
MA(1)	-0.232617	0.055220	-4.212527	0.0000
MA(3)	-0.540705	0.078067	-6.926121	0.0000
MA(6)	-0.246104	0.123706	-1.989421	0.0487
MA(9)	0.288176	0.097249	2.963284	0.0036
MA(12)	-0.618420	0.090205	-6.855728	0.0000

R-squared	0.995171	Mean dependent var		1.208477
Adjusted R-squared	0.994878	S.D. dependent var		4.283170
S.E. of regression	0.306537	Akaike info criterion		0.534744
Sum squared resid	12.40335	Schwarz criterion		0.722962
Log likelihood	-28.69942	F-statistic		3400.173
Durbin-Watson stat	1.748333	Prob(F-statistic)		0.000000
Inverted MA Roots	1.06	.86+.38i	.86 -.38i	.50+.84i
	.50 -.84i	-.06 -.94i	-.06+.94i	-.48+.88i
	-.48 -.88i	-.75 -.52i	-.75+.52i	-.95
	Estimated MA process is noninvertible			

Table 13: Augmented Dickey-Fuller Unit Root Test on APR3_SERV

ADF Test Statistic	-3.110190	1% Critical Value*	-2.5806
		5% Critical Value	-1.9422
		10% Critical Value	-1.6169

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(APR3_SERV)
Method: Least Squares
Date: 02/04/03 Time: 15:08
Sample(adjusted): 1991:08 2002:12
Included observations: 137 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APR3_SERV(-1)	-0.020629	0.006633	-3.110190	0.0023
D(APR3_SERV(-1))	1.068516	0.085839	12.44790	0.0000
D(APR3_SERV(-2))	-0.202004	0.126811	-1.592956	0.1136
D(APR3_SERV(-3))	-0.520211	0.114906	-4.527273	0.0000
D(APR3_SERV(-4))	0.581388	0.111961	5.192778	0.0000
D(APR3_SERV(-5))	-0.065581	0.115192	-0.569318	0.5701
D(APR3_SERV(-6))	-0.062145	0.076806	-0.809127	0.4199

R-squared	0.758851	Mean dependent var	-0.086990
Adjusted R-squared	0.747721	S.D. dependent var	0.800618
S.E. of regression	0.402130	Akaike info criterion	1.065659
Sum squared resid	21.02208	Schwarz criterion	1.214856
Log likelihood	-65.99767	Durbin-Watson stat	1.926081

Table 14: ARMA Model for APR3_SERV

Dependent Variable: APR3_SERV
Method: Least Squares
Date: 02/04/03 Time: 15:09

Sample(adjusted): 1991:03 2002:12
Included observations: 142 after adjusting endpoints
Convergence achieved after 17 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.027335	0.009670	2.826673	0.0054
APR3_SERV(-1)	1.850216	0.044280	41.78459	0.0000
APR3_SERV(-2)	-0.866254	0.045067	-19.22135	0.0000
MA(3)	-0.497992	0.052396	-9.504482	0.0000
MA(12)	-0.235973	0.069437	-3.398356	0.0009
R-squared	0.993584	Mean dependent var		2.959309
Adjusted R-squared	0.993397	S.D. dependent var		5.384294
S.E. of regression	0.437535	Akaike info criterion		1.219257
Sum squared resid	26.22687	Schwarz criterion		1.323336
Log likelihood	-81.56726	F-statistic		5303.899
Durbin-Watson stat	1.760266	Prob(F-statistic)		0.000000
Inverted MA Roots	.95	.78+.39i	.78 -.39i	.42+.73i
	.42 -.73i	-.05+.88i	-.05 -.88i	-.48+.82i
	-.48 -.82i	-.73+.48i	-.73 -.48i	-.84

Table 15: Real Appreciation Equation Model

Dependent Variable: APR3
Method: Least Squares
Date: 02/04/03 Time: 15:10
Sample(adjusted): 1991:03 2002:12
Included observations: 142 after adjusting endpoints
Convergence achieved after 10 iterations
Newey-West HAC Standard Errors & Covariance (lag truncation=4)
Backcast: OFF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.031513	0.014057	-2.241758	0.0266
APR3_SERV	0.691729	0.121481	5.694132	0.0000
APR3(-1)	1.686944	0.078932	21.37204	0.0000
APR3(-2)	-0.729998	0.079822	-9.145375	0.0000
APR3_SERV(-1)	-1.140301	0.233253	-4.888680	0.0000
APR3_SERV(-2)	0.478046	0.124143	3.850776	0.0002
MA(3)	-0.337443	0.080773	-4.177673	0.0001
MA(12)	-0.354469	0.102469	-3.459297	0.0007
R-squared	0.998027	Mean dependent var		1.255171
Adjusted R-squared	0.997924	S.D. dependent var		4.304073
S.E. of regression	0.196103	Akaike info criterion		-0.365663
Sum squared resid	5.153162	Schwarz criterion		-0.199138
Log likelihood	33.96210	F-statistic		9683.975
Durbin-Watson stat	1.714347	Prob(F-statistic)		0.000000
Inverted MA Roots	.96	.81 -.43i	.81+.43i	.44+.77i
	.44 -.77i	-.03+.91i	-.03 -.91i	-.48+.83i
	-.48 -.83i	-.77 -.49i	-.77+.49i	-.89

Data

Harmonized Index of Consumer Price (HICP), monthly data for 1990-2002. Source: Eurostat. HICP for Portugal and EU-12 1990-2002.

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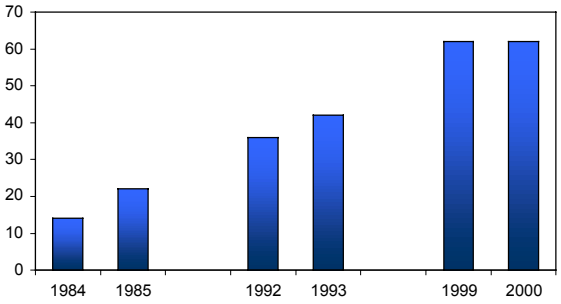
Chart 1

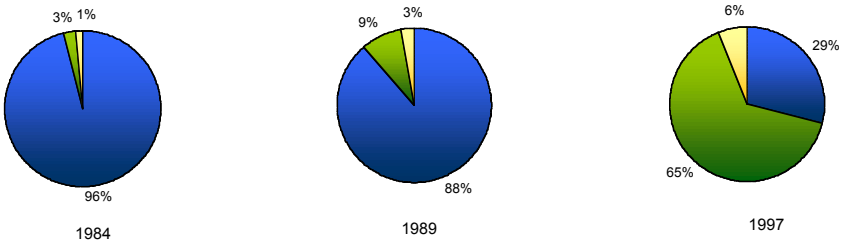
Number of banks in Portugal



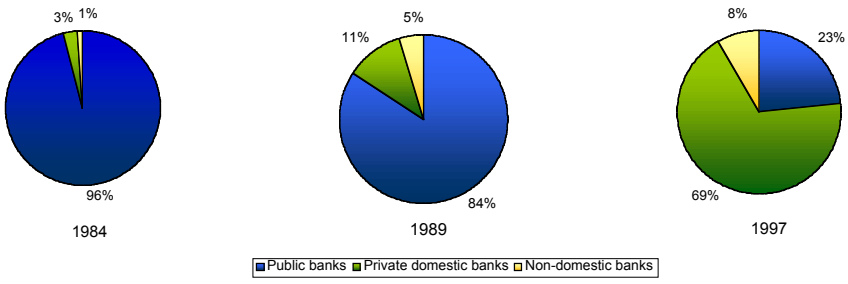
Source: Banco de Portugal.

Chart 2

Market shares in terms of deposits



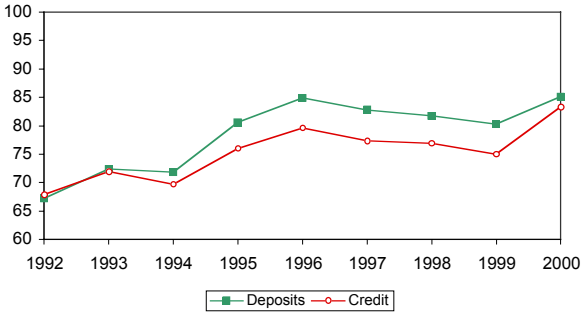
Market shares in terms of credit



Source: Banco de Portugal.

Chart 3

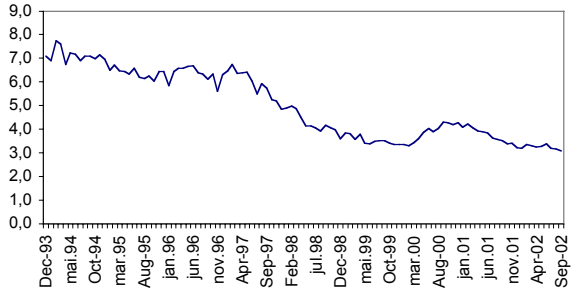
Market share of the five largest banking groups



Source: Banco de Portugal.

Chart 4

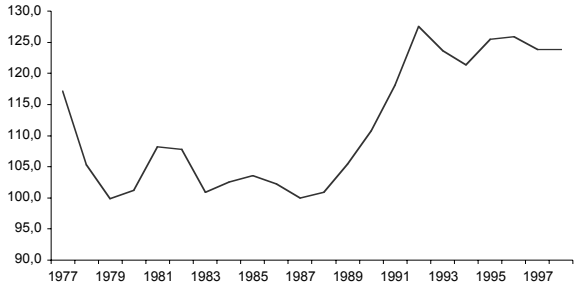
Average lending and borrowing interest rate differential



Source: Banco de Portugal.

Chart 5

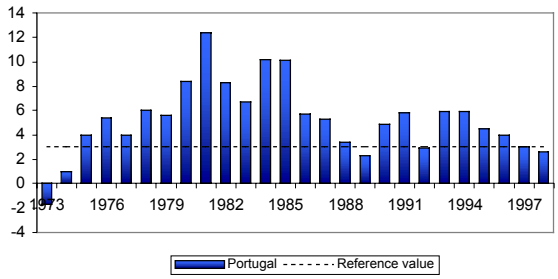
Real effective exchange rate



Source: Banco de Portugal and Abreu (2001).

Chart 6

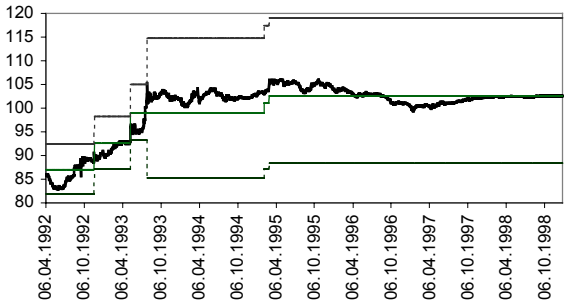
General government deficit
(percentage of GDP)



Source: European Commission.

Chart 7

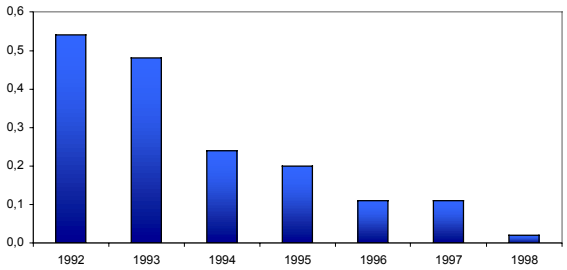
PTE/DEM exchange rate



Source: Banco de Portugal.

Chart 8

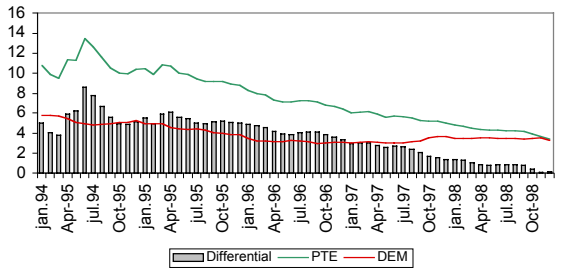
Exchange rate volatility
(standard deviation of daily changes)



Source: Banco de Portugal.

Chart 9

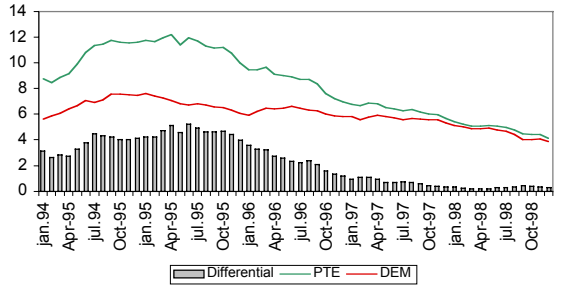
3-Month interest rate differential relative to Germany



Source: Reuters.

Chart 10

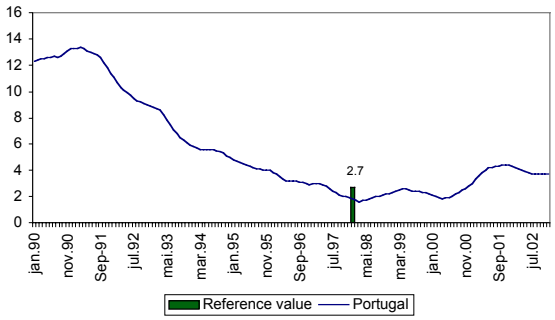
10-Year interest rate differential relative to Germany



Source: Reuters.

Chart 11

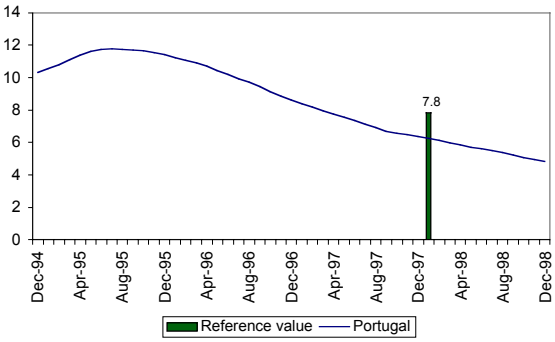
Inflation rate
(HICP)



Source: European Commission.

Chart 12

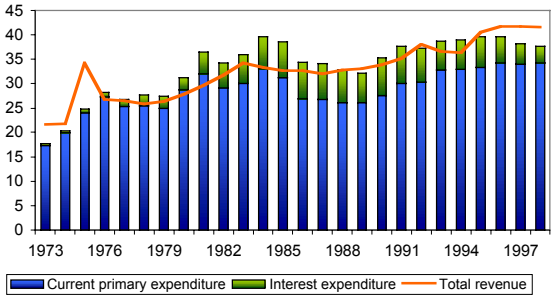
10-Year bond yield
(annual average)



Source: Reuters.

Chart 13

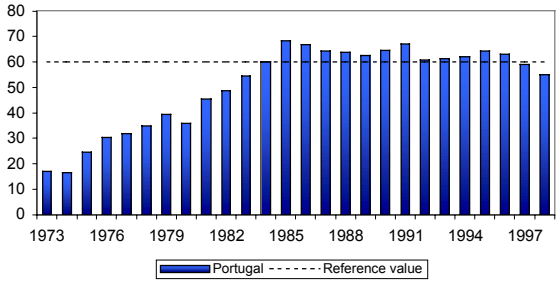
Current primary expenditure, interest expenditure and total revenue
(percentage of GDP)



Source: European Commission.

Chart 14

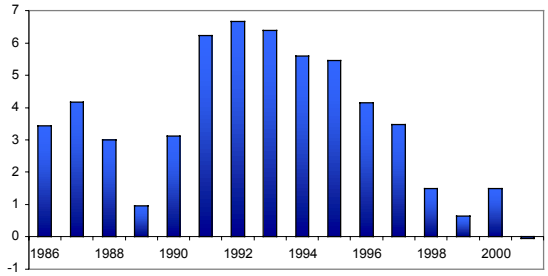
General government consolidated gross debt (percentage of GDP)



Source: European Commission.

Chart 15

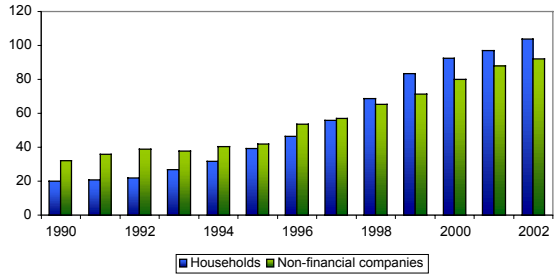
Real interest rate



Sources: European Commission and National Statistical Institute.

Chart 16

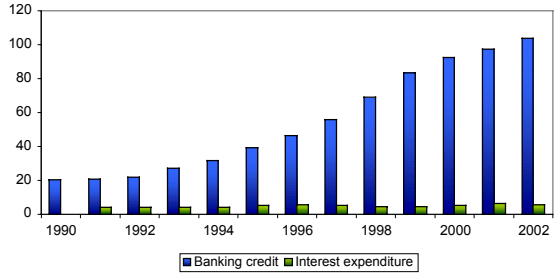
Total credit to households and non-financial companies (percentage of households' disposable income and of GDP, respectively)



Souce: Banco de Portugal.

Chart 17

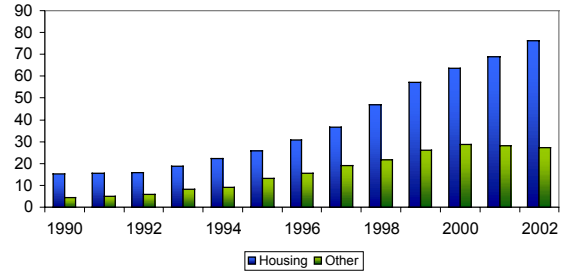
Total credit to households and interest expenditure (percentage of households' disposable income)



Souce: Banco de Portugal.

Chart 18

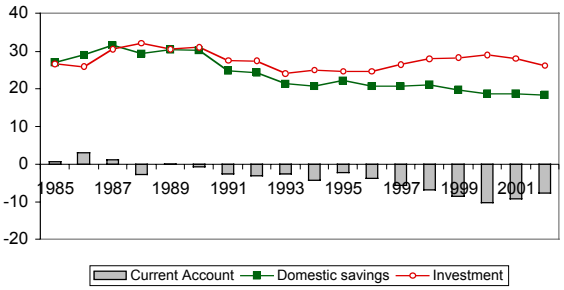
Structure of total credit to households
(percentage of households' disposable income)



Source: Banco de Portugal.

Chart 19

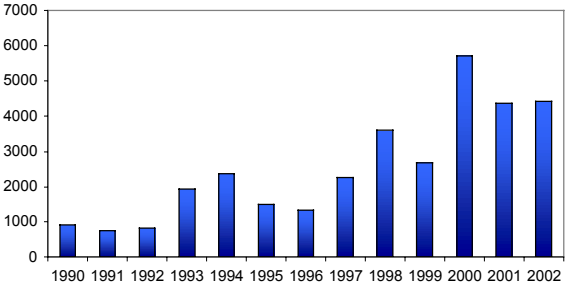
Saving, investment and the Current Account
(percentage of GDP)



Source: Banco de Portugal.

Chart 20

Syndicated international loans to nonfinancial companies[1]
(millions of euros)

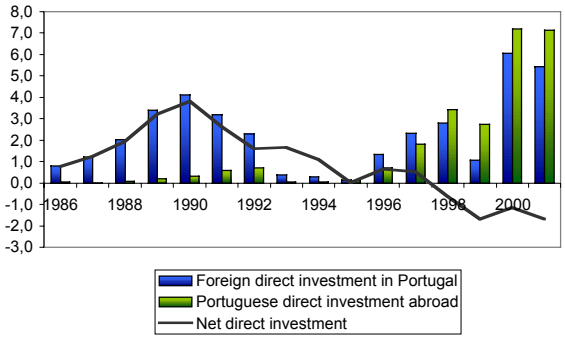


Note: New contracts in each year.

Source: Dealogic-Loanware.

Chart 21

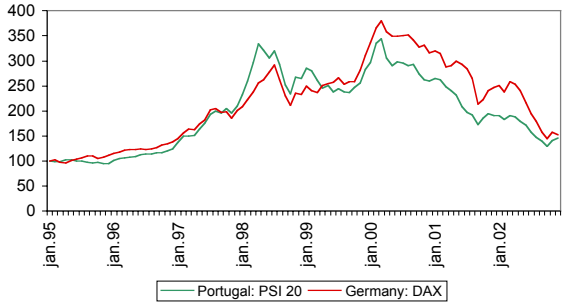
Foreign direct investment flows
(percentage of GDP)



Source: Banco de Portugal.

Chart 22

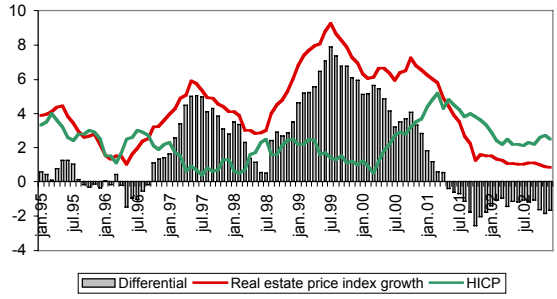
Stock market index in Portugal and Germany



Source: Bloomberg.

Chart 23

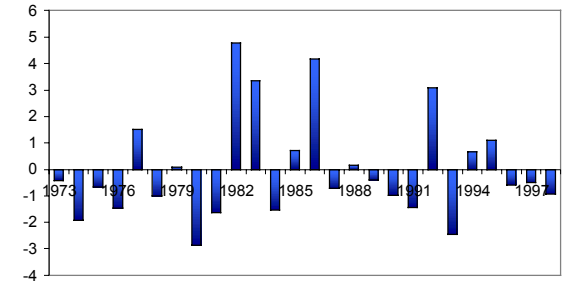
Real estate price index growth and HICP



Source: Confidencial Imobiliário and European Commission.

Chart 24

Change in the cyclically adjusted primary balance
(percentage of GDP)



Source: European Commission.