

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/321167334>

Boom, slump, sudden stops, recovery, and policy options. Portugal and the Euro

Article in Portuguese Economic Journal · November 2017

DOI: 10.1007/s10258-017-0139-8

CITATIONS

29

READS

165

2 authors, including:



[Pedro Portugal](#)

Bank of Portugal

159 PUBLICATIONS 7,107 CITATIONS

SEE PROFILE

Boom, slump, sudden stops, recovery, and policy options. Portugal and the Euro

Olivier Blanchard^{1,2} · Pedro Portugal^{3,4}

Received: 22 June 2017 / Accepted: 6 November 2017 / Published online: 20 November 2017
© ISEG 2017

Abstract Over the past 20 years, Portugal has gone through a boom, a slump, a sudden stop, and now a recovery. Unemployment has decreased, but remains high, and output is still far below potential. Competitiveness has improved, but more is needed to keep the current account in check as the economy recovers. Private and public debt are high, both legacies of the boom, the slump and the sudden stop. Productivity growth remains low. Because of high debt and low growth, the recovery remains fragile. We review the history and the main mechanisms at work. We then review a number of policy options, from fiscal consolidation to fiscal expansion, cleaning up of non-performing loans, labor market reforms, product market reforms, and euro exit. We argue that at this point, the main focus of macroeconomic policy should be twofold. The first is the treatment of non-performing loans, the second is product market reforms and reforms aimed at increasing micro-flexibility in the labor market. Symmetrically, we also argue that at this point, some policies would be undesirable, among them faster fiscal consolidation, measures aimed at decreasing nominal wages and prices, and euro exit.

Keywords Macroeconomic imbalances · Productivity growth · Non-performing loans · Fiscal policy · Portugal · Micro-flexibility

✉ Olivier Blanchard
OBlanchard@piie.com; ojblanchard@gmail.com

¹ Peterson Institute for International Economics, Washington, DC, USA

² MIT, Cambridge, MA, USA

³ Bank of Portugal, Lisbon, Portugal

⁴ Nova School of Business and Economics, Lisbon, Portugal

Ten years ago, in 2007, one of the authors of this paper was asked to assess the macroeconomic state of Portugal (Blanchard 2007).¹ At the time, things did not look good. After a boom in the 1990s and then a long slump in the 2000s, unemployment was high. Growth was low. Both the fiscal and the current account deficits were large. Household and corporate debts were high. His assessment was that, absent major policy action, there was little scope for optimism. The adjustment process was likely to be a long and painful one, one of continuing high unemployment and low growth, until downward wage and price pressure would make Portugal more competitive again. Along the way, risks of derailment were high.

We shall never know what would have happened, absent major shocks. There were two major shocks. The first was the global financial crisis of 2008-2009, the second the euro crisis of 2010-2012. Their combined result was a sharp contraction in demand, coming initially from the fall in exports and investment, then from tighter bank credit, and finally from fiscal consolidation. By 2013, Portugal was in many ways in worse shape than in 2007. Unemployment was higher, growth was negative. The fiscal deficit was smaller, but government debt was much higher. The current account balance was roughly balanced, but this partly reflected import compression, namely the decrease in imports due to the fall in output. Both household and corporate debt were still high.

Since then, a recovery has started. Growth is positive. Unemployment has decreased, but remains high. The fiscal deficit is getting smaller, the current account shows a small surplus. But debt, private and public, remains high. High private debt and low growth are leading to an increasing proportion of non-performing loans. On the other hand, some structural reforms have taken place. The forecasts up to 2021 are for positive but low growth, a slow decrease in unemployment, while maintaining current account balance. The risks of derailment are still present.

The purpose of this paper is the same as that of the 2007 paper: To review the history, and discuss current policy options. It is organized in three sections:

The first section is a review of the past, present, and expected future. It comes in four subsections, each corresponding to the four phases of the recent Portuguese macroeconomic history: The boom, the slump, the two crises, and the recovery.² Such a review is not just of historical interest; it is essential in thinking about policy options going forward.

The second section focuses on the current situation. It emphasizes four facts, namely still large internal imbalances, high private and public debt and high non performing loans, remaining external imbalances, and low productivity growth. It discusses some of the trade-offs facing an economy with high debt and insufficient competitiveness. For example, in an environment of very low euro inflation, improving price competitiveness may require deflation. Deflation however increases the real

¹He already had substantial help from the coauthor of this paper.

²Two other reviews, which overlap in part with this paper are by Reis (2013, 2015). Throughout, we also rely on the information in the annual OECD surveys of Portugal and various IMF documents, from article IVs to reviews and post-program monitoring reports of the 2011-2014 Portugal program (International Monetary Fund 1995, 2011, 2014, 1999).

value of both private and public debt. The improvement in external demand may come at the expense of a deterioration of internal demand.

The third section then develops policy recommendations, both for policies to follow and for policies not to follow. Because some progress has actually been made, reestablishing competitiveness, which still needs to be achieved, is less of a priority than it was ten years ago. The priority is to decrease the remaining output gap and to decrease unemployment faster than under current forecasts.

There is no magic tool to do so. A very useful policy would be, we believe, to clean banks' balance sheets of their non-performing loans, recapitalize them adequately, and, in a number of cases, change their governance structure. While it would be best if the recapitalization funds came either from the private sector or from the European Union, we believe there is a strong case for financing them through domestic public debt. The initial increase in the budget deficit is likely to be more than fully compensated through higher growth and lower deficits later.

One can reasonably hope that a better functioning banking system will lead not only to just cyclically higher growth, but also to higher potential growth. It is clear however that more is needed to sustain higher potential growth. As was argued in a now old McKinsey report (which had triggered the earlier paper by Blanchard) (McKinsey Global Institute 2003), and in a number of reports since then, the productivity gap between Portugal and other euro members is large and would seem, on paper, relatively easy to reduce. Yet, the performance of productivity since that report came out has been poor. We believe that for the time being the main structural reforms should focus on the product market. Some labor market reforms, focusing on micro-flexibility, are also essential; others, focusing on macro-flexibility, may, in the current environment, be counterproductive, and should wait until the economy has become stronger.

1 A macroeconomic review of the last twenty years

1.1 The boom. 1995-2001

The Portuguese boom started in the mid-1990s. The anticipation of participation in the euro, and the resulting anticipated decrease in country and exchange rate risk, made foreign investors in general, and euro zone banks in particular, eager to lend to Portugal. The anticipation that participation in the euro would lead to faster convergence and higher growth made Portuguese consumers and firms willing to borrow more.

The result was a dramatic decrease in both nominal and real interest rates, and an increase in private debt, in particular an increase in consumer debt. From 1995 to 2001, the long-term nominal rate on government bonds decreased from 11.5% to 5%, and as inflation remained roughly constant, this implied a largely similar decrease in the long-term real rate. As capital inflows were largely intermediated by Portuguese banks, they increasingly relied on wholesale funding. The ratio of loans to deposits rose from 75% in 1997 to 128% in 2001.

Household debt increased from 52% to 118% of disposable income, non financial corporate debt from 121% to 147% of GDP. Fiscal policy, measured by the cyclically adjusted primary balance, was pro-cyclical, but given high growth and high inflation, the ratio of gross government debt to GDP decreased slightly, from 58% down to 53%. (The specific numbers for each year are given in four successive tables, corresponding to the four phases of the story. Table 1 gives the main numbers for the years 1995 to 2001).

Higher demand resulted in strong growth, 3.5% per year on average. The unemployment rate, which stood at 6.6% in 1995, decreased to 4.4% by 2001. While (business sector) productivity growth remained at 1.8% on average, nominal wages increased at 4.9% a year, leading to an increase in unit labor costs (ULC) in the business sector over the period of 20.0%, substantially above the corresponding euro average of 4.3%.

The combination of strong growth and, by implication, strong imports, together with a decrease in competitiveness (measured as an increase in the relative unit labor cost relative to the euro unit labor cost), led to a deterioration of the current account balance from -0.2% of GDP in 1995 to -10.4% in 2001.

In short, in 2001 the Portuguese economy was operating above potential. Household debt was sharply higher. As a result of high imports, the current account deficit was large, exceeding 10% of GDP.

1.2 The slump 2002–2007

In 2002 the boom turned into a slump. The main proximate cause was a decrease in domestic demand.

When the Blanchard (2007) paper was written, one of the explanations for this decrease was disappointment that the euro had not delivered, and that the hoped for labor productivity growth had not materialized, leading consumers and firms to cut spending. At the time, the numbers reported for productivity growth were indeed extremely low, 0.3% on average for 2002-2007. The numbers have been revised and now show stronger productivity growth, 1.4% on average for the period!³ It may still be that the decrease in demand was due to expectations shaped by the numbers published at the time rather than current estimates. The other explanation is that the accelerator effect came to an end, not only for investment but for consumption as well: In particular, consumers, having acquired the durable goods they wanted and having increased their indebtedness, decreased spending. Whatever the reason, the result was low growth, 1.1% on average over 2002-2007, far below euro zone growth, and an increase in the unemployment rate back from 4.4% in 2001 to 8.7% in 2007 (Table 2).

³Part of the revisions come from a change in definition, from number of workers to number of full-time equivalents as a measure of employment, and the reclassification of public employment. Most of the revisions reflect retrospective changes in the underlying series. In the course of writing this paper, and thus checking on the numbers in the 2007 paper, we have been struck by the size of the revisions of some of these numbers. In some cases, an explanation that appeared plausible then appears less plausible today, with the reverse also being true.

Table 1 Macroeconomic evolutions, 1995-2001 (percent)

	1995	1996	1997	1998	1999	2000	2001
GDP growth	2.3	3.5	4.4	4.8	3.9	3.8	1.9
(relative to euro)	1.8	1.9	1.7	2.0	1.0	-0.2	-0.2
Unemployment rate	6.6	6.7	6.2	5.4	4.8	4.3	4.4
Current account	-0.2	-4.5	-6.2	-7.5	-8.8	-10.8	-10.4
Cyclically adj primary surplus	1.5	1.2	0.9	-1.3	-0.9	-1.5	-2.6
Household debt/disp income	52	59	63	77	94	107	118
Non-fin corporate debt/GDP	121	120	120	125	132	139	147
Gross government debt/GDP	58.3	59.5	55.2	51.6	51	50.3	53.4
10-year nominal rate	11.5	8.6	6.4	4.9	4.8	5.6	5.2
CPI inflation	4.2	3.1	2.3	2.6	2.3	2.9	4.4
loans to deposits			75	85	102	115	128
Nominal wage growth (business)		6.0	5.3	5.0	4.7	4.8	3.6
Productivity growth (business)		2.0	2.0	2.2	2.7	1.8	0.2
Nominal ULC growth (business)		4.0	3.3	2.8	2.0	3.0	3.4
relative to euro		2.1	5.8	2.8	0.4	2.0	1.7

Sources: Numbers for public debt, cyclically adjusted primary surplus, and loans to deposits are from the Bank of Portugal. Numbers for the unemployment rates, nominal wages growth, productivity growth, and ULC growth are from Statistics Portugal (INE). The other numbers are from the OECD data base

To offset some of the decrease in private spending, the government relied on fiscal policy, with the cyclically adjusted deficit increasing to 3% in the mid 2000s. This was not enough to sustain growth, but enough to increase the ratio of public debt to GDP from 53% in 2001 to 68% in 2007. And, because of low growth, the ratios of both household and non financial corporate debt continued to increase, from 118% in 2001 to 146% in 2007 for household debt, and from 147% to 185% for corporate debt.

One would have expected low output growth at least to reduce the current account deficit through lower imports, but the deficit instead remained very high, around 10% of GDP. Two of the reasons were lower remittances, and more competition from Central and Eastern Europe, as they joined the European Union from 2004 on. A major reason however was a further deterioration in competitiveness, measured by relative unit labor costs. While productivity growth remained reasonably strong (at least according to the current data...), nominal wage growth remained high, showing only a small decrease over time in response to the increase in unemployment. Over the period, unit labor costs increased by another 12.0%, so 4.3% more than the euro average.

In short, in 2007, after a boom and a slump, Portugal was now facing high unemployment, and, despite low output relative to potential, a large current account deficit.

Table 2 Macroeconomic evolutions, 2001–2007 (percent)

	2001	2002	2003	2004	2005	2006	2007
GDP growth	1.9	0.8	−0.9	1.8	0.8	1.6	2.5
(relative to euro)	−0.2	−0.2	−1.6	−0.2	−1.0	−1.7	−0.5
Unemployment rate	4.4	5.5	6.9	7.3	8.3	8.4	8.7
Current account	−10.4	−8.5	−7.2	−8.3	−9.9	−10.7	−9.7
Cyclically adj primary surplus	−2.6	−0.8	−1.0	−3.0	−3.0	−1.3	−1.1
Household debt/disp income	118	123	124	127	136	141	146
Non fin corporate debt/GDP	147	154	168	177	175	176	185
Gross government debt/GDP	53.4	56.2	58.7	62.0	67.4	69.2	68.4
10-year nominal rate	5.2	5.0	4.2	4.1	3.4	3.9	4.4
CPI inflation	4.4	3.6	3.2	2.4	2.3	3.1	2.5
loans to deposits	128	139	146	144	145	154	162
Nominal wage growth (business)	3.6	2.9	2.9	2.6	4.1	2.7	4.7
Productivity growth (business)	0.2	0.4	−0.1	2.9	1.1	1.3	2.8
Nominal ULC growth (business)	3.4	2.5	3.0	−0.3	3.0	1.4	1.9
relative to euro	1.7	0.1	0.8	−0.9	1.6	2.3	0.4

Sources: Same as Table 1

Relative to 2001, household and corporate debt levels had further increased, now accompanied by government debt. The goal of returning to internal and external balance seemed distant and difficult to achieve.

1.3 The two crises, 2008–2013

Like other European countries, Portugal was affected by two major adverse shocks.⁴

The first shock was the global financial crisis, starting in 2008 (Table 3). Portugal was affected mainly in two ways. First, through a large decrease in exports, −10% in 2009, due to the decrease in output in trading partner countries. Second, through an increase in the cost of funds, only partly offset by liquidity provision by the ECB and the Bank of Portugal. Domestic credit supply was sharply tightened. The “diffusion index”, constructed by the Bank of Portugal based on a survey of Portuguese banks, an index which measures the change in the tightness of credit, was consistently positive and high from 2008 to 2013.

The adverse effects of lower exports and tighter credit were partly offset by a sharp fiscal expansion, with the cyclically adjusted primary deficit increasing from 1.5%

⁴The analysis of the two crises, the exact nature of the financial shocks, the relative roles of the credit crunch and of fiscal policy, deserve a much longer treatment than we can give here.

Table 3 Macroeconomic evolutions, 2007-2013 (percent)

	2007	2008	2009	2010	2011	2012	2013
GDP growth	2.5	0.2	-3.0	1.9	-1.8	-4.0	-1.1
(relative to euro)	-0.5	-0.2	1.5	-0.1	-3.4	-3.2	-0.8
Unemployment rate	8.7	8.3	10.3	11.8	12.7	15.5	16.2
Current account	-9.7	-12.1	-10.4	-10.1	-6.0	-1.9	1.4
Cyclically adj primary surplus	-1.1	-2.1	-7.4	-9.8	-3.7	1.0	2.3
Household debt/disp income	146	149	151	154	145	148	141
Non-fin corporate debt/GDP	185	197	203	199	204	218	211
Gross government debt/GDP	68.4	71.7	83.6	96.2	111.4	126.2	129.0
10-year nominal rate	4.4	4.5	4.2	5.4	10.2	10.5	6.3
Return on assets (banking)	1.1	0.3	0.4	0.5	-0.4	-0.3	-0.8
Credit supply tightening index*	8	63	40	40	70	30	-5
Proportion non-performing loans		3.4	5.6	5.9	9.9	13.8	16.1
Nominal wage growth (business)	4.7	2.8	1.2	2.8	-0.3	-0.2	1.0
Productivity growth (business)	2.8	-0.2	-0.3	3.9	-0.1	-0.3	1.9
Nominal ULC growth (business)	1.9	3.0	1.5	-1.0	-0.2	0.1	-0.8
relative to euro	0.4	-3.5	-3.2	-0.2	-0.8	-2.0	-1.9
Export price inflation	2.8	3.8	-2.0	5.9	5.5	2.7	-1.6
Growth rate export volume	7.3	-0.3	-10.2	9.5	7.0	3.4	6.9
Growth rate import volume	5.4	2.4	-9.9	7.8	-5.8	-6.3	4.6

* Credit supply index: "Diffusion index", from Bank of Portugal survey of banks, range between -100 and +100, reflecting tightening if positive, loosening if negative. Proportion non-performing loans: loans to firms (Bank of Portugal)

of GDP in 2007 to 9.8% in 2010. But liquidity provision and fiscal expansion were not enough to prevent growth from turning negative in 2009.

The second shock was the euro crisis. Increasing worries about debt sustainability, and the possibility of euro exit, led, by 2011, first to banks, then to the government, being shut out from financial markets. Again, liquidity provision from the ECB and the Bank of Portugal, and a Troika program, limited the effects of the sudden stop, but credit supply still tightened strongly. And, in contrast to the earlier response, but in response to the induced sharp increase in debt which worried markets, fiscal policy was strongly contractionary, with the cyclically adjusted primary balance going from a deficit of 9.8% in 2010 to a surplus of 2.3% by 2013.

Together, the two shocks had a large adverse effect on growth. Average growth over the period was a negative 1.3%. As a result, the unemployment rate, already high to start with, increased from 8.7% to 16.2%. And despite the sharp reduction in the

deficit, government debt increased from 68% of GDP in 2007 to 129% in 2013, while household and corporate debt remained at very high levels. High debt and low growth combined to increase non-performing loans: Non-performing loans to non-financial corporates increased from 3.4% in 2008 to 16.1% in 2013.

The only apparently good news was the sharp improvement in the current account balance, from a deficit of 9.7% in 2007 to a surplus of 1.4% in 2013. But this was in fact mixed news. Much of the decrease in the deficit was due to import compression, with a decrease in imports reflecting the decrease in output. Some of the decrease however was due to the strong performance of exports. Over the period, exports increased by 2.7% a year, reflecting an increase in Portugal's market share.

This stronger performance of exports was not expected, and why exports did well has important implications for the future, but is not settled. Despite low productivity growth, nominal wage growth was sufficiently low that unit labor costs increased very little during the period: Over 2007-2013, nominal Portuguese unit labor costs in the business sector increased by only 2.6%, 11.1% less than the euro average. Low growth of unit labor costs however did not translate into low growth of export prices. Put another way, the decrease in costs led to an increase in profit margins rather than a decrease in relative prices. A plausible hypothesis is that many Portuguese exporting firms are price takers in foreign markets, and the increase in margins allowed them to invest and increase market share.⁵ If this is the mechanism, it has important implications in partially delinking movements in prices from export performance, implications to which we shall return later.

In short, relative to the situation in 2007, Portugal in 2013 faced a much worse internal imbalance, a much higher unemployment rate. It also faced higher levels of debt, now not only household and corporate debt, but also government debt. The external imbalance had improved, although the positive current account balance still reflected in part the very low level of economic activity.

1.4 The recovery, 2014–2021

Since 2014, GDP growth has turned positive but has remained low, averaging 1.3% from 2014 to 2016 (Table 4). The IMF forecasts for 2017 to 2021, as reported in the April 2017 World Economic Report data base, are for continuing low growth, around 1.3% over 2017–2021. Because productivity growth has also been very low, and is forecast to remain low in the future, this low growth still implies a decline in unemployment. Unemployment has indeed already fallen from 16.2% in 2013 to 11.1% in 2016.⁶ Looking forward however, the decline is very slow:

⁵An alternative hypothesis is that firms, which were facing much lower domestic demand, had no alternative but to explore foreign markets (see Esteves and Rua 2015). We have explored this hypothesis using firm level data and have not found significant quantitative support for the hypothesis.

⁶The fall in unemployment is surprisingly large in view of the low growth rate of output. Part of the earlier increase and part of this decrease is due to measurement issues coming from a change from a master sample based on the 2001 census to one based on the 2011 census. The transition occurred gradually from the 3rd quarter of 2013 until the 4th quarter of 2014.

Table 4 Macroeconomic evolutions and forecasts, 2013–2021 (percent)

	2013	2014	2015	2016	2017	...	2021
GDP growth (relative to euro)	-1.1	0.9	1.6	1.4	1.7		1.0
Unemployment rate	16.2	13.9	12.4	11.1	10.6		8.8
Current account	1.6	0.1	0.1	0.8	-0.3		-1.3
Cyclically adj primary surplus	2.5	3.9	3.3	3.1	2.7		1.8
Household debt/disp income	130	131	125				
Non-fin corporate debt/GDP	206	199	185				
Gross government debt/GDP	129.0	130.6	129.0	130.4	128		124
10-year nominal rate	6.3	3.8	2.4	3.2	2.9		4.3
Return on assets (banking)	-0.5	-1.2	0.4				
Credit supply tightening index	-5	-5	-8				
Proportion non-performing loans	16.1	19	19.8				
Nominal wage growth (whole eco)	3.4	-1.8	0.0	1.6	1.5		1.5
Productivity growth	1.6	-0.6	0.4	-0.1	0.2		0.5
Nominal ULC growth	1.8	-1.2	-0.4	1.6	1.3		1.0
REER ULC-based (yoy)	-3.7	0.4	-1.0	1.6	0.6		-0.3
Growth rate export volume	6.9	3.9	5.2	2.9	3.4		4.2
Growth rate import volume	4.6	7.2	7.6	3.2	3.8		4.3

Source: In this table, for internal consistency, both retrospective and prospective numbers for Portugal are from the IMF's April 2017 WEO data base. Thus, some of the numbers for 2013 are different from those given in Table 3

Even by the end of the forecast horizon, the unemployment rate is forecast to still be 8.8%.⁷

The IMF forecasts are for the ULC-based real exchange rate to remain roughly constant throughout the period. Exports are forecast to grow at a substantially higher rate than GDP, but imports are forecast to grow even faster. The trade balance, and the current account balance are forecast to slowly deteriorate, with the current account reaching -1.3% in 2021.

⁷This article was written in June 2017. As it goes to press, new IMF forecasts are now available (World Economic Outlook data base 2017). Given the stronger than expected growth so far in 2017, they have been revised upwards somewhat. Growth is now forecast to be 2.5% in 2017, and average 1.5% over 2018–2022. The unemployment rate is now forecast to decrease to 7.2% by 2022. This more optimistic outlook is obviously good news, but does not fundamentally change the policy recommendations below.

With low growth, ratios of private or public debt to GDP are not forecast to decrease by much. The forecast for the ratio of public debt to GDP is roughly the same in 2021 as in 2013, 124% versus 129%. And, more worrisome, low growth has led to a steady increase in the ratio of non-performing loans to non-financial corporations, reaching 19.8% in 2015.

In short, the dominant aspects of the current macroeconomic situation are low productivity growth and, by implication, low potential growth. Unemployment is forecast to still be high by the end of the forecast horizon. External imbalances have been reduced, although the current account surplus reflects in part low output, and will turn into a deficit as growth continues. High debt and non-performing loans are affecting both demand in the short run, and investment and productivity in the medium run.

Figure 1 summarizes the four phases of the recent Portuguese macroeconomic history. The horizontal axis measures internal balance: A positive value corresponds to output above potential, to unemployment below the natural rate. The vertical axis measures external balance, the current account balance which would prevail if the economy were operating at potential output.

- In 1995 Portugal was at point A, operating slightly below potential, with rough external balance. Debt levels, private and public, were relatively low.
- By 2001, as a result of the boom, the Portuguese economy was at point B: Output was now above potential, and the external balance had strongly deteriorated. Associated with the boom was a large increase in private debt, but not in public debt.
- By 2007 the slump had taken the economy to point C: output was again below potential, and the external balance had deteriorated further. Private debt had increased further, and public debt was now higher.
- By 2013 the two crises had taken the Portuguese economy to point D: An even larger negative internal balance, with very high unemployment, and a reduced

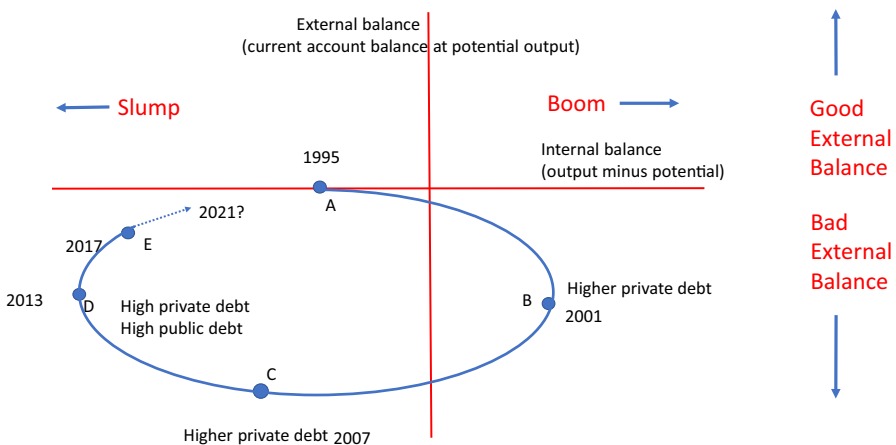


Fig. 1 Internal and external imbalances since 1995

external imbalance. Private debt remained high, now rejoined by high public debt.

- Since 2013 the slow recovery has led to a slow reduction in both internal and external imbalances, a return toward the origin. But according to forecasts, these imbalances will still be there in 2021, with the economy somewhere around point E.

2 Taking stock

Any discussion of Portugal's macroeconomic options must start from these four facts:

Still large internal imbalances Portugal still suffers from a large internal imbalance, i.e. from output still far below potential. The OECD puts the output gap at -3.1% of GDP, the IMF at -1.4%, and the European Union at a small -0.7%. If correct, assuming an Okun coefficient (i.e. a semi-elasticity of the unemployment rate to output) of -0.6 (the estimate used by the Bank of Portugal), and a current unemployment rate of 11.1%, this would imply that the Portuguese natural unemployment rate is around 10 to 11%. These estimates of the natural unemployment rate appear very high. By implication, the small OECD, IMF, and EU output gaps appear too small.

The question should be asked this way: The natural unemployment rate in Portugal before the crisis was around 5-6%. Are there reasons to think that it has roughly doubled?

Some factors go in the direction of an increase in the rate: Many of the unemployed are low-skilled, and some of the low-skill jobs that they have lost have probably disappeared. It is not clear that all of them could be reemployed. Long-term unemployment accounts for 62% of unemployment, as opposed to about 40% before the crisis, and the duration of unemployment among the long-term unemployed itself has increased (Carneiro et al. 2011). Hysteresis, that is the effect of long-term unemployment on morale, on skills, and on employability, is likely to have led some of the long-term unemployed to become unemployable. The size of this effect on the natural rate of unemployment is difficult to assess. A study by Vansteenkiste (2017) based on the outward shift of the Beveridge curve (the curve showing the relation between the unemployment rate and the vacancy rate), suggests that this effect may have increased the natural rate by up to 2 percentage points.

Some factors work in the opposite direction. Given that older workers and college graduates tend to have lower unemployment rates, aging of the labor force and the increase in the proportion of college graduates should decrease the natural rate; quantitatively however this effect is small.

Have the labor market reforms affected the natural rate? There are both theoretical and empirical reasons to believe that they have not had a major effect. On theoretical grounds, reforms of employment protection, such as tighter limits on severance pay, change the nature of unemployment, but do not necessarily decrease the natural unemployment rate. They tend to decrease the duration of unemployment, but they increase the flows in and out of unemployment. Given that unemployment is the product of duration and flows, the first effect tends to decrease unemployment, the

second to increase it, with an ambiguous net effect on unemployment.⁸ Empirically, the scope of reforms has been limited. The reform of severance pay grandfathered existing contracts. Some of the other reforms were cancelled by the Constitutional Court. Thus, it is unlikely that, for the moment, the reforms have had a major effect on the natural unemployment rate.

These considerations lead us to conclude that the increase in the natural rate is unlikely to exceed 2%, so that the natural rate itself is unlikely to be higher than 7-8%. If we again assume an Okun coefficient of -0.6, this implies an output gap around 5-7%. Furthermore, as the economy recovers, it is quite possible for some of the workers who became disaffected and are either long-term unemployed or out of the labor force to return to employment (see Blanchard 2018). Nobody can be sure, but the only way to find out what the right number is to try to get there... It would be a major mistake to assume that the economy is operating close to potential.

High private and public debt, and high non-performing loans Both private and public debt are high. Household debt has reached 125% of disposable income; the debt of non-financial corporations is equal to 185% of GDP; Government debt exceeds 130% of GDP. Debt service is unusually low, with the low rates reflecting the ECB policy. Higher nominal rates, from the termination of the asset purchase program, or from tighter macroeconomic conditions at the euro level, or from worries by investors about debt sustainability, would all cause serious difficulties to firms, households, or the government.

After various episodes of recapitalisation, most banks now have reasonable capital ratios. But the proportion of non-performing loans (NPLs) on their books is high and worrisome. A study by Bonfim et al. (2016), based on the credit registry, finds that in 2014 (the latest year for which the data are available), 20% of Portuguese firms had negative equity. The proportion was highest for micro firms (firms with fewer than 10 workers), 24%, but it was still a high 8% for small firms, and 5% for medium and large firms. There is evidence of evergreening: Of the firms with negative equity, 33% received a new loan in 2014, and, among those in default, 12% received a new loan... Not only do high NPLs threaten the profitability of banks, but they also imply a misallocation of funds, with fewer funds available to stronger firms.

Remaining external imbalances The large current account deficits of the past are gone, but Portugal still suffers from an underlying external imbalance. The proximate reason why the current account balance is positive is that the output gap is negative and large. Were the output gap equal to zero, output would be higher, and so would be imports, deteriorating the trade balance and the current account.

A simple computation is useful here: If domestic demand increased so as to return output to potential, the trade balance as a ratio to GDP would deteriorate by an amount equal to the output gap times the ratio of imports to GDP (about 40%)

⁸As discussed at length in the literature, this does not mean that reforms of employment protection are useless. Shorter duration of unemployment makes individual unemployment experiences less painful. And higher flows reflect a better reallocation of resources and are likely to increase productivity growth.

times the elasticity of imports to GDP (about 1.5). Assuming, from the argument and computation above, that the output gap is, say, 5 to 7%, the trade balance, and by implication, the current account balance, would worsen by about 3.0 to 4.2% ($0.4 \cdot 1.5 \cdot (5 \text{ to } 7\%)$) of GDP. It thus would be equal to -2.8 to -3.4% of GDP. While the current account does not have to be balanced, this is larger than it should be.

Clearly, the more exports contributed to the increase in demand and the return of output to potential, the less the trade balance would deteriorate. Export growth has actually been relatively strong. The question is why. The answer is actually not clear. As discussed earlier, and contrary to the textbook adjustment, relatively strong export growth has come without a significant decrease in relative prices. While unit labor costs have been nearly flat, GDP deflators and export prices have continued to increase. The CPI-based real exchange rate has barely moved relative to its European Union partners, going from 100 in 2005 to 99.9 in 2013, and 98.6 in 2015 (the most recent year for which the Eurostat index is available). Put another way, as costs have moderated, firms' markups have increased, leading to larger profits. One hypothesis is that most exporters are price takers in foreign markets, and that higher profits will allow export firms to increase production and exports.⁹ Another, complementary hypothesis, points to structural changes in the export sector. There is indeed some evidence that, faced with increased competition from China and the Eastern European countries, Portuguese exporters have scaled up the value chain of their products, expanding the scale of production and diversifying the destination of their customers (Bank of Portugal 2016). If these explanations are correct, export growth may indeed continue to be strong, even without an improvement in relative prices. Another reason for some optimism is the increase in FDI, and a few new large manufacturing projects. The IMF forecasts reported in Table 4 however are for both strong export and import growth, without a substantial net contribution of the foreign sector to growth.

Low productivity growth Competitiveness is not the same as productivity. It is just a statement that costs and prices are in line with productivity. Productivity, and productivity growth, matter however very much on their own, primarily because they determine the evolution of the standard of living, but also because higher productivity growth, and by implication higher potential growth, makes it easier to reduce very high private and public debt ratios.

Productivity gaps between Portugal and the rest of Europe have been well documented and are quite striking. Based on 2015 numbers from the OECD STAN database, the level of labor productivity relative to Germany was 38% in manufacturing, 54% in construction, 81% in trade. Relative to Spain, these three numbers were

⁹This increase in markups is also present in Spain, Italy, and Greece. We have looked at the evolution of wages, productivity, unit labor costs, and markups at the sectoral level in Portugal and have not been able to detect a clear pattern. One fact, which argues against the explanation in the text, is that there is no clear difference between the evolution of markups in tradable versus non-tradable sectors. One would expect firms to be more price makers in the non-tradable sector, and thus to pass on lower unit labor costs through prices; this does not appear to be the case.

43%, 37%, and 80% respectively.¹⁰ The same is true for the growth rate of productivity. A somewhat old study by Bassanini et al. (2001) estimating growth regressions for OECD countries concluded that, given observable characteristics such as education, income per capita, etc, Portugal's growth per capita from the mid-1970s to the mid-1990s was a large negative outlier, with growth 1.5% below the regression predictions.¹¹

This large productivity gap is both bad news and good news. To the extent that the constraints can be identified, the scope for large productivity improvements and thus for high productivity growth is clearly there.¹² Within the Troika program, Portugal has implemented a number of structural reforms. Perhaps the most visible one, in terms of results, has been the liberalization of the housing market, but it does not lead directly to an increase in productivity. Other reforms, including those related to energy markets, public transportation, ports, regulated professions, competition policy and the judicial system, get mixed assessments. The OECD has a rather positive view, with Portugal moving from the 24th to the 10th rank with respect to the product market regulation index. The assessment of product market reforms by the IMF in its ex-post assessment of the program (2016) is less positive, in particular about reforms of the energy market and of judicial processes. And, as we saw in Table 4, the IMF forecasts of productivity growth remain quite pessimistic.

3 Policy choices

Our goal in this section is to examine a number of policy choices. We do this from an economic viewpoint, leaving aside the issue of whether they are consistent with EU or euro-zone institutional constraints, whether they are politically realistic or not.¹³

¹⁰Estimates from another data source, the KLEMS data base, for 2006 (the latest available year) were roughly similar except for trade, in which relative labor productivity was estimated to be much lower, 44%. The difference comes from different definitions of the trade sector in the two data sets. Trade includes transportation and storage, accommodation and food services in the OECD data set, not in the KLEMS data set.

¹¹Productivity growth was surprisingly high during the crisis. Large decreases in output are typically associated with large decreases in productivity, as firms cut employment less than output. This was not the case, and measured productivity growth was actually high in 2010. In thinking about the future, it is important to understand why this was. One hypothesis is that many firms were financially constrained, and thus were forced to shed labor to survive. In ongoing work, we have found some evidence that this was indeed the case. A firm-level regression based on balance sheet and credit registry data from 2005 to 2015 shows that more financially constrained firms, i.e. firms having either a probability of default in the upper quartile, or firms having a negative EBIT (negative earnings before interest and taxes), decreased employment more than other firms. This increase in productivity must be seen as a "one off", unlikely to be repeated in the future.

¹²This was the topic and the theme of the 2003 McKinsey study in which one of the authors participated. It identified specific sectors and reforms and sectors with a scope for large productivity improvements. Among them were construction and tourism. Yet, there appears to have been no convergence in those sectors relative to, say, Germany, since 2003.

¹³In each case, a more formal treatment, and a tentative quantitative assessment, are needed. We have been working with José Maria, Paulo Júlio, and the modelling team at the Banco de Portugal to generate simulations of the PESSOA model. These simulations will be presented as a separate contribution later.

Higher Euro inflation It is useful to start with a policy choice which is clearly not in the hands of Portugal, but is nevertheless highly relevant. Eurozone inflation has been and is below target. A higher rate of inflation for the euro zone would strengthen the recovery in Portugal. One of the authors has suggested that going above the target of 2% would be desirable (Blanchard et al. 2010); even reaching the target would be useful.

The reason why higher euro inflation would help is the following: Even if, as we have seen, export growth has taken place so far without a decrease in Portuguese relative prices, improving price competitiveness would reinforce this process, allow for a more export-based recovery in demand, reducing both internal and external imbalances. With very low euro inflation, improving price competitiveness requires however even lower inflation in Portugal, perhaps even deflation. Deflation however increases the real value of nominal debt, be it private or public, and is thus likely to decrease domestic demand.¹⁴ Even if higher price competitiveness leads to higher foreign demand, the adverse effect on domestic demand may well dominate.

In short, higher euro inflation would allow for an improvement in price competitiveness without requiring Portuguese deflation, and thus without increasing the real value of debt.

Labor market reforms The need for “more labor market flexibility” is an old mantra from international organizations, be it the European Union, the OECD, or the IMF. It is essential however to distinguish between two dimensions of flexibility.¹⁵ One is highly desirable, the other, in the current Portuguese context, is not.

The first is “micro flexibility”, the ability of the economy to allow for the reallocation of workers to jobs needed to sustain growth. The gold standard is what is known as “flex security”, the optimal combination of flexibility for firms and security for workers. The four central labor market institutions in play here are employment protection, unemployment insurance, professional training, and retraining. The evidence is that such flexibility is an important determinant of reallocation and, in turn, of productivity growth.

Despite recent reforms on this front, more must be done. One pitfall of many employment reforms has been to decrease employment protection at the margin by creating two categories of workers, permanent workers with strong employment protection, and temporary workers, without such protection. This duality has turned out to have strong adverse effects, both in terms of the nature of unemployment, and in terms of productivity growth. While it allows firms to adjust employment through hiring and firing of temporary workers, it gives them few incentives to train and

¹⁴Somebody’s debt is somebody else’s claim. This raises the issue of why the positive effect of the reduced value of the debt is not offset by the negative effect of the reduced value of the claim. The answer is twofold. Even if debt is held domestically, the net effect comes from the asymmetry between the behavior of borrowers and of lenders. Borrowers are more likely to be constrained and thus react more strongly to the decrease in debt than the lenders do to the decrease in their claim. And, to the extent that debt is largely held by foreign creditors, the increase in their spending falls largely on their domestic goods rather than on Portuguese goods.

¹⁵This builds on Blanchard et al. (2013).

keep those temporary workers. The result has been the emergence of two classes of workers, those who are lucky enough to have a permanent job, and those who alternate temporary contracts and unemployment, are not given additional training, and have poor career paths. Reforms should thus aim at reducing this duality, simplifying employment protection and making its cost more predictable for firms. Reforms of professional training, making it more closely matched to firms' needs, such as the reform in the program by President Macron in France, also can make a large difference.

A related and important issue for Portugal is the employment of workers with low levels of education. There is some evidence that the 2008-2010 increases in the minimum wage had an adverse effect on employment (Carneiro et al. 2011; Centeno et al. 2011) At 530 euros a month in December 2016, the minimum wage was already close to 60% of the median wage, the ratio at which most economists believe it starts having substantial adverse effects on employment. Unless social contributions are reduced (more on this below), the plan to increase it to 600 euros by January 2019, when it would cover 30% of workers, is likely to have an adverse effect on employment.

The second dimension is "macro flexibility", the ability to adjust wages and prices in response to changes in productivity or to competitiveness issues, so as to maintain internal and external balance. In general, macro flexibility is highly desirable. Such lack of flexibility can be seen as the main reason why the Portuguese economy has suffered for so long from the after effects of its initial boom. Indeed, in 2007, one of the authors of this paper argued for a tripartite agreement to reestablish competitiveness through a coordinated decrease in wages and prices. The situation is however different today. As we saw, the external imbalance is substantially smaller, so the need for such adjustment is smaller. And debt, in particular government debt, is much higher, implying a stronger adverse effect of lower prices on the real value of debt and on domestic demand. Thus, it would be unwise at this point to push for further wage decreases. At the same time, putting in place now a tripartite structure to build trust between social partners and make it easier to adjust the wage to macro reality in the future is clearly desirable.

Product market reforms As was discussed earlier, the large gaps in productivity levels between Portugal and other European countries, even controlling for the low level of education in Portugal, suggest that product market reforms that facilitate entry and increase competition could have large effects on productivity. Thus, they should remain a priority.

Product market reforms however share one potential danger with macro flexibility reforms. To the extent that they lead to lower prices, they may lead, as do decreases in nominal wages, to lower inflation or even deflation, increasing the real value of debt and decreasing demand and output in the short run.¹⁶ However, in contrast with nominal wage decreases, expectations of higher potential growth in the future are likely to increase consumption and investment demand, and more than offset adverse effects of higher real debt. Also, and not irrelevant, product market reforms are typically

¹⁶See for example Eggertsson et al. (2014).

less politically costly than labor market reforms (which have stronger distribution effects).

Fiscal consolidation Should fiscal consolidation proceed at a faster pace than is currently planned? The arithmetic of fiscal consolidation at a given interest rate and a given exchange rate is extremely unattractive. A decrease in the cyclically adjusted primary surplus of, say, 1% is likely to decrease demand and output by at least 1%, but to reduce the debt to GDP ratio by substantially less than 1%, leading to an initial reduction in the debt to GDP ratio from, say, 129% to, say, 128.5%. Given low forecast growth in the absence of fiscal consolidation, 1% less growth because of fiscal consolidation may mean close to zero growth, in exchange for a very small decrease in the debt to GDP ratio. And to the extent that low growth leads to lower inflation, this small decrease in the volume of debt may even be offset by an increase in the real value of debt.

There are clearly circumstances when fiscal consolidation is needed despite its output cost, namely when investors start doubting debt sustainability; this was the motivation behind the strong fiscal consolidation from 2009 on.¹⁷ Circumstances are however different today, and do not justify stronger fiscal consolidation. The decrease in the debt to GDP ratio will be in any case a very slow process, and the priority should be to increase growth, both cyclical and potential, to allow for a faster reduction in the ratio over time.

This does not rule out changes in the composition of revenues and spending. We shall mention two. One, which was discussed at length but dismissed, is fiscal devaluation, i.e. a decrease in social security contributions in exchange for an increase in the VAT rate. We are not sure at this point that such a measure is still justified; the issue is more what the right VAT rate should be. A variation of the theme, aimed primarily at reducing the cost of labor is the financing of health and unemployment benefits through the income tax rather than through social contributions (again a measure included in the program of President Macron in France.) Yet, another measure aimed at reducing the cost of low-skilled labor, and which has been adopted by a number of other countries, would be a reduction of the tax wedge for low-wage workers, a wedge currently equal to a high 39%.

Fiscal expansion If faster fiscal consolidation is bad, could fiscal expansion, in the face of such a high debt to GDP ratio, be justified? We believe that it may be, if the increase in the deficit is used to increase potential growth. If so, even if the effect on potential growth is modest, the effect may be not only to increase growth, which is desirable on its own, but to eventually decrease the debt to GDP ratio and thus decrease the risk that debt is unsustainable. In other words, the right fiscal expansion may not increase spreads, but indeed potentially decrease them.

This argument has been used to argue for increased infrastructure investment, financed by public debt. This is what underlies the Juncker plan at the European

¹⁷We shall not re-litigate here whether the fiscal consolidation was excessive or not. Given the nearly total loss of market access, the speed of fiscal consolidation was largely determined by the size of the Troika program.

Union level, which however is quantitatively too limited. The case for such investment spending may be stronger in some countries than in others. The past experience of Portugal makes one worried that the wrong investment projects (airports or fast trains, rather than education) will be chosen. Yet, the decrease in public investment as a ratio to GDP from 5% in the late 1990s to 1.5% in 2016 suggests that an increase would be desirable and justified.

Two other uses appear to us as or even more promising. The first is the use of the increased deficit to help pass and finance structural reforms. To the extent that some structural reforms have winners and losers, it may often be politically wise, as well as socially justified, to partly compensate the losers. The second is the use of the increased deficit to recapitalize the banks. This gets us to our next point.

Treatment of non-performing loans As we have seen, the proportion of non-performing loans is high, the result of low growth, and, in turn, almost surely a constraint on current growth. There is substantial evidence that non-performing loans seriously impair financial intermediation, as banks continue to lend either to zombie firms or to firms with low profitability rather than to new or more profitable firms (Caballero et al. 2008 on Japan). And there is also some evidence that cleaning up these loans can substantially increase growth (Balgova et al. 2016). The cleaning up is however only a necessary condition. Recapitalization of banks, and changes in governance so the problem does not recur in the future, are both required.

It is easy to see how recapitalization, and the removal of NPLs, can have large multiplier effects, and, if financed through deficit spending, lead to a decrease in the ratio of public debt to GDP. Suppose the capital ratio constraint is binding on credit supply. Then for any one euro increase in capital, bank credit supply may potentially increase by one over the capital ratio, thus by ten euros or more. While this increase in financial intermediation by banks implies a decrease elsewhere (so long as the saving rate does not change), we know that bank credit is often the only source of credit for SMEs, and many of those are still credit constrained. Thus, the effect on total credit, and in turn on investment and growth of SMEs is likely to be substantial. Thus, even if this increase is financed by public debt, the effect on demand of the higher credit supply is likely to largely exceed the adverse effect of higher government debt on government spending.¹⁸

A similar argument applies to the removal of NPLs. To the extent that NPLs are replaced by credit to non-zombie firms, the effect on investment and growth can again be very large. This is where there is a natural interaction between the case for fiscal expansion and the treatment of non-performing loans. It would clearly be best if recapitalization were achieved through private funds, but this has proven difficult. The next best option is to recapitalize through the use of European, rather than Portuguese funds, thus not adding to the Portuguese public debt. If it is not available,

¹⁸This is an example of a more general proposition, that reallocating debt among debtors, in this case from the banks to the government, is not neutral, as the effects of public debt on government spending may well be less than the effects of private debt on private spending.

there is still a strong case for doing it through deficit spending and an increase in Portuguese public debt.¹⁹

Euro exit A discussion of this policy choice is often avoided altogether, but this is counterproductive. We believe there are good reasons to reject this option for Portugal at this point.²⁰ One of the main weaknesses of the euro construction is indeed the difficulty of adjusting relative prices and reestablishing competitiveness. Thus, if a country suffers from a very large competitiveness gap and appears unable to decrease it, a discussion of euro exit makes sense, despite the very large transition costs, the likely need to restructure debt after the depreciation and the loss of market access. As we have argued however, the competitiveness problem of Portugal has been largely, although not entirely, resolved, and thus the main rationale for exit is much weaker than it might have been earlier. This does not imply that the Euro is a perfect system, just that getting out of the Euro is almost surely not worth it for Portugal at this point.

4 Conclusions

Over the past 20 years, Portugal has gone through a boom, a slump, a sudden stop, and now a recovery. Unemployment has decreased, but remains high, and output is still far below potential. Competitiveness has improved, but more is needed to keep the current account in check as the economy recovers. Private and public debt are high, the legacies of the boom, the slump and the sudden stop. Productivity growth and thus potential growth remain low. Because of high debt and low growth, the recovery remains fragile. For example, worries about debt sustainability could lead to higher interest rates, and be largely self-fulfilling.

In this context, we have reviewed a number of policy options, ranging from fiscal consolidation to fiscal expansion, to cleaning of non-performing loans, to labor market and product market reforms, and to euro exit.

We have argued that, at this point, the focus of macroeconomic policy should be twofold. The first is on the treatment of non-performing loans, which would allow for stronger financial intermediation, and lead to an increase in demand in the short run and an increase in supply in the medium run. We argue that, to the extent that such treatment requires recapitalization, this may justify recapitalization by the state, and thus a fiscal expansion, even in the face of high public debt. The second is on product market reforms, and reforms aimed at increasing micro-flexibility in the labor market.

Symmetrically, we have also argued that, at this point, some policies would be highly undesirable, among them stronger fiscal consolidation, measures aimed at decreasing nominal wages and prices, and euro exit.

¹⁹Such recapitalization and deficit spending run into the various constraints on financial rules and on fiscal policy imposed by the European Union. As we indicated earlier, we are discussing policy options based on their economic merits, whether or not they are consistent with current Portuguese or European Union rules.

²⁰Thus, we disagree with the statement by Joseph Stiglitz that “It costs more to Portugal to stay in the Euro than to leave.” (Stiglitz 2016).

Acknowledgments Presented at the Gulbenkian Foundation, May 2017. Special thanks to Abebe Selassie for many discussions, to Bill Cline, Jorge Correia da Cunha, António Domingos, Christopher Erceg, Francesco Franco, Vitor Gaspar, Subir Lall, Jesper Linde, Maximiano Pinheiro, Ricardo Reis, and Nicolas Veron for comments and discussions, and to Portuguese authorities for very useful discussions. We have also benefitted from interactions with, and simulations by José Maria, Paulo Júlio, and the modeling team at the Banco de Portugal. Finally, we thank Julien Acalin and Colombe Ladreit for excellent research assistance.

References

- Balgova M, Nies M, Plekhanov A (2016) The economic impact of reducing non-performing loans. EBRD working paper 193
- Bank of Portugal (2016) Portuguese international traders: some facts about age, prices and markets. Econ Bull
- Bassanini A, Scarpetta S, Hemmings P (2001) Economic growth: the role of policies and institutions. Panel data evidence from OECD countries. OECD working paper 283
- Blanchard O (2007) Adjustment within the euro: the difficult case of Portugal. *Port Econ J* 6(1):1–22
- Blanchard O (2018) Should we reject the natural rate hypothesis? *J Econ Perspect*, forthcoming
- Blanchard O, Dell’Ariccia G, Mauro P (2010) Rethinking macroeconomic policy. *J Money Credit Bank* 42(s1):199–215
- Blanchard O, Jaumotte F, Jougani P (2013) Labor market policies and IMF advice in advanced economies during the great recession. IMF staff discussion note
- Bonfim D, Cerqueiro G, Degryse H, Ongena S (2016) Evergreening and the misallocation of credit in Portugal. Manuscript, Banco de Portugal
- Caballero R, Kashyap A, Hoshi T (2008) Zombie lending and depressed restructuring in Japan. *Amer Econ Rev* 98:1943–1977
- Carneiro A, Portugal P, Varejão J (2011) Catastrophic job destruction during the portuguese economic crisis. *J Macroecon* 39:444–457
- Carneiro A, Sá C, Varejão J, Portela M (2011) Estudo sobre e retribuição mínima garantida em Portugal. Ministério da Economia e do Emprego
- Centeno M, Duarte C, Novo A (2011) The impact of the minimum wage on low-wage earners. Bank of Portugal, Economic Bulletin
- Eggertsson G, Ferrero A, Raffo A (2014) Can structural reforms help Europe. *J Monet Econ* 61:2–22
- Esteves SP, Rua A (2015) Is there a role for domestic demand pressure on export performance? *Empir Econ* 49:1173–1189
- International Monetary Fund (1995) Article IV reports. Various years
- International Monetary Fund (2011) Program reviews, Portugal program. Various years
- International Monetary Fund (2014) Post-program monitoring reports, Portugal. Various years, 2014–2017
- International Monetary Fund (2017) World economic outlook data base
- McKinsey Global Institute (2003) Portugal 2010. Increasing productivity growth in Portugal. McKinsey Institute, Lisbon
- Organization for Economic Development (1999) Surveys, Portugal. 1999–2017. various years
- Reis R (2013) The Portuguese slump and crash and the euro-crisis. *Brookings Papers Econ Activ* 46:143–193. Spring
- Reis R (2015) Looking for a success in the euro crisis adjustment programs: the case of Portugal. CEPR DP 10972
- Stiglitz J (2016) It costs more for Portugal to stay in the euro than to leave. Interview with Frederico Pinheir, Antena 1
- Vansteenkiste I (2017) Did the crisis permanently scar the Portuguese labour market? evidence from a markov-switching Beveridge curve analysis. ECB working paper 2043