Working Paper No. 847

Integration, Spurious Convergence, and Financial Fragility: A Post-Keynesian Interpretation of the Spanish Crisis

by

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October 2015

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ISSN 1547-366X

ABSTRACT

The Spanish crisis is generally portrayed as resulting from excessive spending by households, associated with a housing bubble and/or excessive welfare spending beyond the economic possibilities of the country. We put forward a different hypothesis. We argue that the Spanish crisis resulted, in the main, from a widening deficit position in the nonfinancial corporate sector—the most important explanatory factor behind the country's rising external imbalance—and a declining trend in profitability under a regime of financial liberalization and loose and unregulated lending practices. This paper argues that the central cause of the crisis is related to the nonfinancial corporate sector's increasingly fragile financial position, which originated from the financial convergence that followed adoption of the euro.

Keywords: Euro; Macroeconomic Crisis; Spain

JEL Classifications: F33, F45, O52

INTRODUCTION

In the period covering 2008–12, Spain suffered the worst economic and financial crisis in its modern history. In 2008 and 2009, GDP contracted 3.7 and 0.1 percent barely growing thereafter. There followed banking failures concentrated in the regionally based savings banks, culminating in 2012 with the near collapse of the then-fourth largest bank, Bankia, a merger of seven regionally based savings banks. The effects of the crisis on unemployment and budget finances were rapidly felt. The rate of unemployment more than doubled between 2006 and 2009, from 8 and 18 percent, only to increase and remain above 20 percent since 2010. For its part, the fiscal balance, which had been positive or near zero in the years preceding the crisis, turned negative in 2008 and stabilized at roughly double digits throughout 2012. The fiscal crisis resulted from the economic crisis and not vice versa (Pérez Caldentey and Vernengo 2012).

The Spanish crisis is generally portrayed as a "hangover" from excessive construction activity, exorbitant residential house prices, excessive spending by households, and/or from the design and construction of a welfare state beyond the economic possibilities of the country. We believe that construction activity and residential house prices were a part and parcel of the explanation of the crisis, but not its main underlying cause.

We put forward a different hypothesis. We argue that the Spanish crisis mainly resulted from a widening deficit position in the non-financial corporate sector—the most important explanatory factor behind the rising external imbalance of the country—and a declining trend in profitability under a regime of financial liberalization and loose and unregulated lending practices. This paper argues that the central cause of the crisis is related to the non-financial corporate sector's increasingly fragile financial position, which originated from the financial convergence after the adoption of the euro. The financial imbalances led to increasing financial fragility of the external accounts with a rising and negative net international investment position (IPP), which means that foreigners have more financial claims on residents than vice versa. In that sense, neither the public sector profligacy, nor the patterns of consumption of the household sector are at the center of the crisis.

Financial fragility ultimately results from the structure of the euro itself, which allowed for financial convergence, but did not create programs of fiscal transfers on the scale necessary to lead to significant real convergence between the peripheral economies (including Spain) and the central economies. In other words, there was not reconstruction program or a Marshall Plan for the European periphery.

The paper is divided into three additional sections. The first section discusses Spain's accession to the European Community and how this fact overshadowed the need to tackle some of major structural problems and vulnerabilities of the Spanish economy, which were ultimately at the root of the 2007–12 crisis. This sets the stage for the analysis of the economic performance of the country from an aggregate demand perspective and the decomposition, from an accounting perspective, of the financial balances of the non-financial corporate and household sectors. The following section complements the analysis of the flow dimension with an examination of the stock positions of the non-corporate financial and financial sectors, and discusses the "residential and house price bubble" hypothesis. The final thoughts are found in the last section.

JOINING EUROPE: NOMINAL CONVERGENCE REAL DIVERGENCE

Spain's formal integration into Europe in the 1980s marked an unprecedented event and breakthrough in Spanish history, and in the way in which the country was seen and understood by the rest of the world, as well as by Spaniards themselves. Spain's entry into the European Community was more than an economic event or a foreign policy issue. It was the way in which Spain, after decades of isolation, found its place in the international and global context, and regained its identity as a nation, coinciding with a successful transition to a democratic regime (Pérez 1999; Carr 2009, 658; García de Cortázar and González Vesga 1994, 637; Fusi and Palafox 1997, 442).

Spain was finally admitted as a full member of the European Community in January 1986 after a long and laborious process. Spain's incorporation into the European Community meant that the country would have to undergo several and deep changes to its economic and financial structures and policies (Carr 2009, 656). As part of its full membership Spain participated in the Maastricht

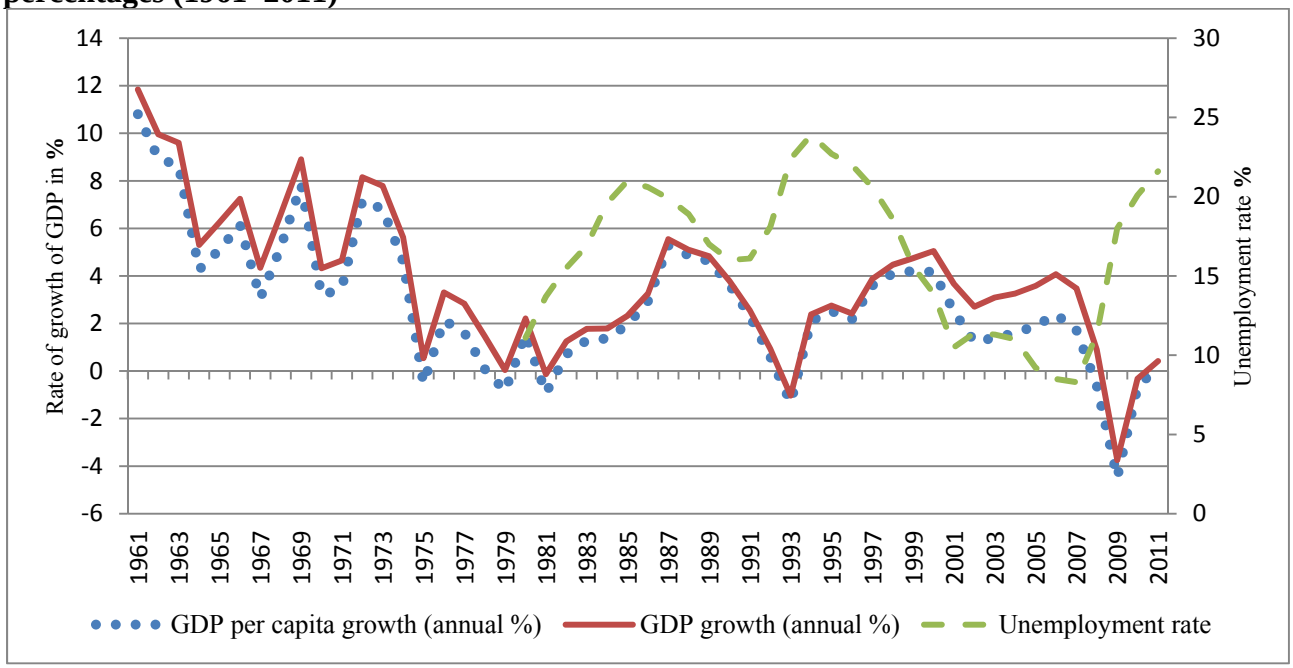
Treaty (1992), the Stability and Growth Pact (1997), and in the launch and adoption of the euro (1999 and 2002), as well as in other European initiatives. Most importantly, the incorporation of Spain was perceived as "a consecration, a way of recognizing that the country had democratic legitimacy, and that Spain was as European, as any other member of the Union" (Pérez 1999, 697).

The analysis of the evolution of GDP between 1961 and 2011 shows first that Spain witnessed a persistent growth deceleration since the 1960s until 1975. Between 1961 and 1975 the rate of growth of GDP averaged around 6.3 percent, but the trend was clearly negative. Thereafter, following an unclear pattern between 1976 and 1981, the economy finally seemed to have taken off on an upward trend in 1982 reaching a peak in 1987 (one year after Spain joined the European Community). However this proved to be transitory, with an average rate of growth of about 2.5 percent since the entry in the European Union (EU) until 2013, and around 2 percent since the launch of the euro.

It must be noted that joining the EU was associated with a process of convergence of Spain towards European livings standards; however, the convergence of Spain's GDP per capita towards that of Europe did not start with the formal integration of Spain into Europe in 1986, but actually began in the 1960s and continued throughout the middle of the 1970s. By comparison the 1986–92 convergence was short lived relative to that of the 1960s and 1970s (7 versus 15 years, respectively).[1] The process of convergence towards Europe took a renewed impetus as Spain managed to consolidate its growth performance starting in 1994, eight years after its entry into the EU, making it last for 14 years, until the euro crisis and marking it as the most stable growth period of the post–WWII era. In 1994 Spain's GDP per capita represented 74 percent, and in 2007 it was 82 percent, of that of Europe. Only by then did Spain's integration into Europe improve and consolidate in a definitive way the country's potential and prospects for growth and development.

[1] In 1960 Spain's GDP per capita represented 58 percent, and in 1975 it was 78 percent, of the European median. Thereafter, Spain's GDP per capita experienced a process of divergence lasting until 1985 ending with a loss of 9 percentage points relative to the peak reached in 1975. As a result of the convergence process, which started in 1986 and ended in 1992, Spain's GDP per capita relative to the European median expanded from 69 to 74 percent. Note that in 1992 Spain's GDP per capita relative to the European median had not reached the levels attained in 1975.

Figure 1. Spain: Real GDP, GDP per capita growth, and unemployment rate, in percentages (1961–2011)



Source: World Bank Development Indicators (2015)

A quick overview of Spain's basic cycle indicators (amplitude and duration) for the period 1990–2011 in comparison to other euro and developed (Japan, the US, and the UK) countries also shows the strength of the Spanish GDP performance in the 1990s and 2000s until the crisis. The analysis shows that with the exception of the US and the UK, Spain registers the longest and most intense expansion during this period (32 quarters and 22.9 percent from trough to peak).[2] Similarly, with the exception of the US, Spain exhibits the lowest number of cycle turning points (three peaks and two troughs) and thus, for all purposes, the most stable cycle performance.

At the same time that GDP expanded robustly, the country was confronted with the successful resolution of one of its most difficult and persistent economic problems of its recent history—that of high unemployment. The unemployment rate that had jumped from 11 to 24 percent between 1980 and 1994, reaching unprecedented historical levels, was persistently abated to finally reach levels below the two-digit mark between 2001 and 2007 (10.5 and 8.3 percent

[2] The duration and amplitude of the cycle for the same period are: 11.3 and 11.4 for Belgium; 35 and 16.2 for France; 9.8 and 16.2 for Germany; 11.2 and 5.8 for Italy; and 9.0 and 5.8 for Japan.

respectively).[3] Finally during this growth period Spain registered some of lowest and more stable inflation rates in more than four decades. Between 1994 and 2007, the rate of inflation averaged 3.2 percent which was below that registered for the 1960s, 1970s, and 1980s (6.2, 15.4, and 9.0 percent, respectively).[4]

During this time Spanish society underwent important changes at the social and economic level. Among the most important were the prominent role and presence that Spain achieved at the international level, the efforts to improve the country's overall infrastructure network, and the continuation in the creation of a welfare state. However, these changes were far from sufficient to address the main structural problems that traditionally characterized Spain's economy and hampered its economic and social development for decades including low productivity, scarce innovation, and insufficient productive investment. Recent evidence provided by the IMF (2014) on labor productivity in Spain indicates that its rate of growth has steadily trended downwards since the 1970s. [5]

Spain's economic performance in 1990s and 2000s can hardly be said to be responding to a structural transformation or to a conscious industrial policy strategy.[6] Rather it can be explained in part by the abundance of funds received from Europe as a result of the structural fund and cohesion policies, and to private capital inflows. Between 1986 and 1996, Spain received about €150 billion in funds for agriculture, for regional development, and for cohesion; the majority of

[3] The figures refer to total unemployment. Long-term unemployment was at 4 percent in 1980 and increased to 13 percent in 1994. In 2007 it stood at 1.7 percent of the total labor force.

[4] The fight against this inflation was one of the main objectives of the first Socialist Party (PSOE) government (the PSOE held into power for fourteen years [1982–96]), even to the detriment of employment. The reduction of unemployment was always secondary to the reduction in inflation.

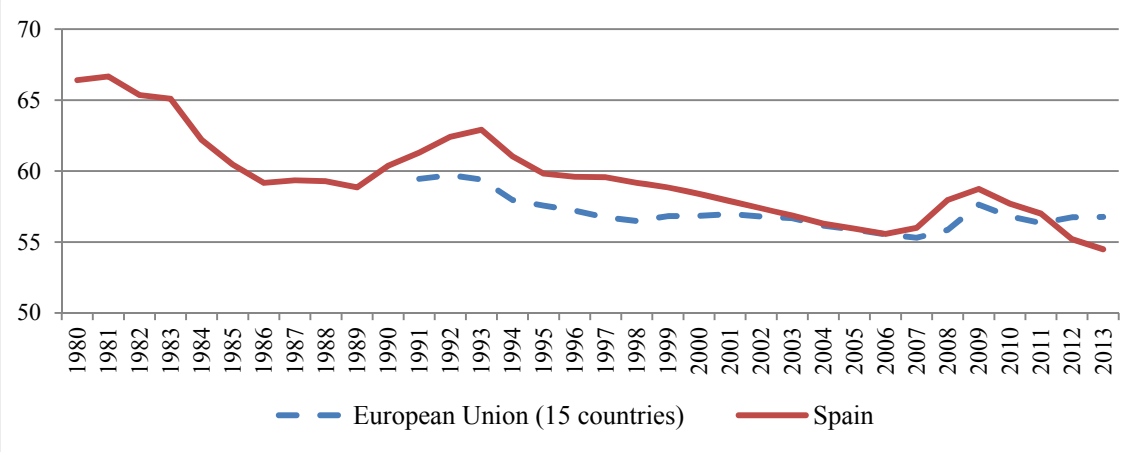
[5] Similar diagnoses of the Spanish economy can be found in Tusell (1999), Fusi and Palafox (1997), and García de Cortázar and González Vesga (1994). Similarly Pérez Caldentey and Vernengo (2012) show that higher relative unit labor costs in the peripheral countries of Europe, not accompanied by increasing productivity or by fiscal transfers from surplus countries, had led to unsustainable current account deficits.

[6] Prior to the entry into the European Community in 1986, the Socialist government of Felipe González undertook the task of transforming the economy by following OECD guidelines of limiting and closing down uncompetitive industries and promoting the technological transformation of more competitive sectors and the diversification of industry. This so called policy of "industrial reconversion" was mainly a policy of adjustment that significantly reduced the productive capacity of several industries. However, the "policy of industrial reconversion" was unable to channel industrial activity towards more productive and technologically advanced sectors. As put by Tusell (1999, 310): "…the so called reconversion when it was really a simple policy of adjustment that used the promise of re-industrialization as a means for workers' unions to overcome swallowing a bitter pill."

infrastructure development was financed with European funds, and similarly, the lion's share of tourism, foreign investment, and trade originated in Europe (Carr 2009).

But the success prior to the crisis is also explained by financial liberalization. Spain, in line with the majority of eurozone countries, lifted capital controls and deregulated interest rates towards the end of the 1980s and beginning of the 1990s. The Chinn-Ito index, which reflects the degree of openness in capital account transactions, shows that starting in 1992 the level of financial openness for Spain increased, significantly reaching the maximum level recorded by the index by 1997, in line with those of other euro countries (Chinn and Ito 2006). Another important contributing factor was a policy of wage compression. As shown in figure 2, between 1992 and 2007, the adjusted wage share trended downwards and declined from 62 to 56 percent of GDP.

Figure 2. Spain and European Union (15 countries): Adjusted wage share, total economy as percentage of GDP at current market prices (compensation per employee as percentage of GDP at market prices per person employed)



Source: AMECO (2014); available at: http://ec.Europa.eu/economy_finance/ameco/user/serie/ResultSerie.cfm

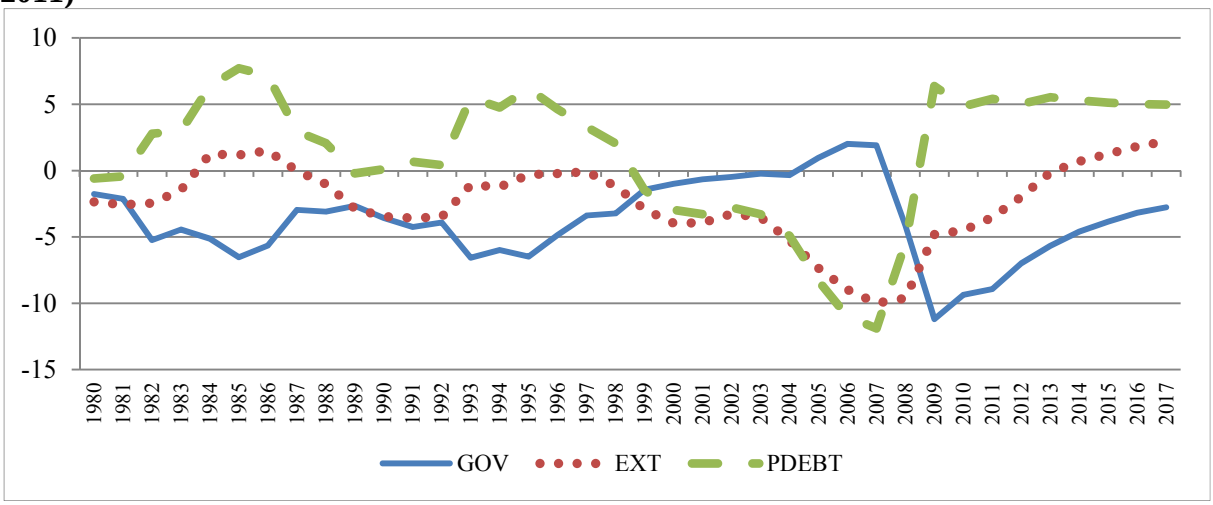
These policies gave a false sense of prosperity about the Spanish economy that hid significant vulnerabilities in its economic model. The compression of wages that translated into a decline of the wage share and thus a rise in the profit share provided a stimulus to the non-financial private sector to expand production independent of productivity concerns. The increase in profit share was accompanied by a decrease in profitability. Both can coexist under conditions of

productivity and/or capacity reductions that more than offset the rise in the profit share.[7] At the same time, the private sector (including the non-financial private sector) had greater and easier access to money and liquidity and especially to short-term financing and debt, both internal and external. Finally, the term-structure of interest rates declined significantly so that European integration provided easier money and at considerably lower rates. The creation of conditions of corporate profitability, financial liberalization, and wage compression were crucial in building up a process of debt accumulation, in increasing the degree of financial fragility of the non-financial private sector and the banking system, and in setting the stage for the crisis.

A useful way to understand the drivers of growth during the period 1994–2007 is to analyze the structure of aggregate demand through the financial balances of the three major sectors of the economy, namely government (FBg), private (FBps), and external sectors (FBes). Figure 3, below, plots the financial balances of the government, external, and private sectors for 1980 to 2011. It shows that between 1980 and roughly 1994 the driver of aggregate demand was the government. In this period the fiscal accounts of the general government were systematically in a deficit position, fluctuating around a -5 percent of GDP "trend" and injecting assets into the economy. In parallel, during this time the general (gross) government debt rose from 16 to 59 percent of GDP, reaching a peak in 1996 (67 percent of GDP).

[7]The profit rate can be expressed as $r = \frac{P}{K} = \left(\frac{P}{Y}\right)\left(\frac{Y}{Y^{FE}}\right)\left(\frac{Y^{FE}}{K}\right) \Leftrightarrow \frac{\Pi\mu}{v}$; where r = rate of profit, P= profits, K= capital, Y= income, Y^{FE}= full employment income, Π= profit share, μ = capacity utilization, and V= Capital-FE output ratio (technical coefficient). If the profit share (Π) increases, profitability (r) can fall if a decline in capacity utilization (μ) and/or productivity ($1/v$) more than compensate the rise in the profit share, which seems to be the Spanish case.

Figure 3. Spain: Financial balances of the government, external, and private sectors (1980–2011)



Source: IMF (2015)

For its part the behavior of the private sector inversely mirrored that of the public sector. That is, as the public sector remained in deficit throughout the period, so the private sector was in permanent surplus, acting as a drag on aggregate demand. More importantly, just as the public sector deficit fluctuates around a 5 percent trend, the private sector surplus also fluctuates around a 5 percent "trend." This gives the impression that during this time the Spanish economy behaved like a closed economy; that is private and public financial balances were equal or very similar (with the opposite sign). The period 1994–2008 marks a break with this pattern of aggregate demand. Starting roughly in 1994 and for more than a decade prior to the euro crisis, the government began to adopt a contractionary fiscal stance, removing its influence as a push factor of aggregate demand. The deficit declined from -6 percent in 1994 to -0.3 percent in 2004 a decade after, and thereafter went into surplus. Public debt fell by half, from 67 percent of GDP in 1996 to 36 percent in 2007.

At the same time, the private sector took the leading role in sustaining the growth of aggregate demand through an increasing deficit that was, for all purposes, mirrored by the rising imbalance in the external sector. In 1994 the private sector had a surplus equivalent to 5 percent of GDP. By 1999 the positive financial position had turned into a deficit of -1.5 percent of GDP which then progressively increased tenfold by 2007 reaching 12 percent of GDP. The external sector

exhibited similar behavior. In fact, as seen in figure 3, for the period 1995–2007 it tracks the evolution of the private sector.

A more detailed presentation of the sectoral financial balances (net lending/borrowing positions) is provided in table 1 for the period 1995–2012. Besides the government and the external sector it includes financial institutions, non-financial corporations, and households. Starting in the middle of the 1990s up to the crisis, households reduced their net lending position and assumed in 2004 a net borrowing position reaching -2.7 percent of GDP in 2007. Non-financial corporations became net borrowers in 1997 and increased their borrowing position throughout the 2000s. In 2007, non-financial corporations registered a deficit of -10.7 percent of GDP, that is, three-times as much as that of the household sector. Hence, the main contributor to the evolution of the financial balance of the private and external sectors was the non-financial corporations subsector.

Table 1. Spain: Net borrowing/lending in percentage of GDP by sector (1995–2012)

	Non-financial corporations	Households and non-profit organizations	Financial institutions	General government	Rest of the world (ROW)
1995	1.4	5.3	1.0	-6.6	1.1
1996	0.4	4.8	1.0	-4.9	1.3
1997	-0.2	4.2	0.7	-3.2	1.5
1998	-1.3	3.2	1.1	-2.6	0.4
1999	-2.9	2.4	0.5	-1.2	-1.2
2000	-4.0	1.3	0.5	-1.0	-3.2
2001	**-4.8**	0.6	1.2	-0.5	**-3.5**
2002	**-3.9**	0.3	1.2	-0.2	**-2.7**
2003	**-3.6**	0.0	1.1	-0.4	**-2.9**
2004	**-4.4**	**-1.0**	0.7	-0.1	**-4.8**
2005	**-6.9**	**-1.7**	0.9	1.3	**-6.5**
2006	**-8.9**	**-2.6**	0.7	2.4	**-8.4**
2007	**-10.7**	**-2.7**	1.9	1.9	**-9.6**
2008	-7.7	1.2	1.8	-4.5	**-9.2**
2009	-1.1	6.6	1.3	-11.2	-4.3
2010	1.1	3.9	0.9	-9.7	-3.8
2011	1.8	2.4	2.0	-9.4	-3.2
2012	3.5	0.9	6.1	-10.6	-0.2

Source: Bank of Spain, *Financial Accounts of the Spanish Economy* and *Annual Report* (2000) and *Methodological Notes on the Financial Accounts of the Spanish Economy* (2015)

The persistent and growing borrowing needs of the non-financial corporate sector translated into a process of debt accumulation. Available data for 2001–11 period show that net debt of non-financial corporations roughly doubled from the period 2001–02 to 2003–07, increasing from 646 to 1,194 as a percentage of their income, as shown in table 2. Thereafter debt continued to increase but at a much lower pace. For the period 2008–11, the net debt-to-income ratio reached 1,319 percent. It is worth noting that the accumulation by the non-financial corporate sector is not exclusive to Spain but that it occurs for other periphery countries, including Ireland, Italy, and Portugal. Spain distinguishes itself from other periphery countries in that it registered the most rapid increase in debt prior to the crisis. Contrarily to the periphery countries, in the case of the core countries (Austria, Belgium, France, Germany, and the Netherlands) the corporate sector witnessed, without exception, a decline in their stock of debt.

Table 2. Eurozone: Net debt-to-income ratio, after taxes, of non-financial corporations, in percentages (2001–11)

	2001–02	2003–07	2008–11
Core Countries			
Austria	616	402	440
Belgium	58	-15	-247
France	425	300	327
Germany	190	181	170
Netherlands	238	95	16
Median	**238**	**181**	**170**
Periphery countries			
Italy	353	430	711
Ireland	196	247	327
Spain	**646**	**1,194**	**1,319**
Portugal	1,376	1,129	1,578
Median	**500**	**779**	**1,015**
Other Euro	229	210	284

Source: Eurostat (2015)

In order to gain a better understanding of the behavior of the financial balance of non-financial corporations we decomposed it (FB_{NFC}) into its main determinants. These include non-financial corporations' gross value added (GVA_{NFC}), wages (W_{NFC}), taxes minus subsidies and current transfers (Ω_{NFC}), net property income (NPI_{NFC}), net capital transfers (NCT_{NFC}) and gross fixed capital formation (I_{NFC}), and other components (OC_{NFC}). Formally:

$$(1) FB_{NFC} = [(GVA_{NFC}) - (W_{NFC}) + \Omega_{NFC}] + (NPI_{NFC}) - (I_{NFC}) + OC_{NFC}$$

In equation (1), the variable W_{NFC} includes salaries and social contributions paid by employers; Ω_{NFC} includes both taxes on production and imports, and on wealth and production. Taxes on wealth and production represent on average roughly 80 percent of total tax payments for the period 2000–12. Capital taxes are included under OC_{NFC}. For the period under consideration capital taxes represent only 2 percent of total tax payments on average.

For its part net property income (NPI_{NFC}) includes net interest payments and other non-interest property income. The available data show that net interest payments accounted for roughly 50 percent of total net property income during 2000–04, and thereafter took an increasingly important role in explaining its behavior. Prior to the crisis, net interest payments represented 80 percent of total net property income.

The term $[(GVA_{NFC}) - (W_{NFC}) + \Omega_{NFC}] + (NPI_{NFC})$ represents the gross savings of non-financial corporations. The financial balance (FB_{NFC}) can then be expressed as the difference between savings and investment. Formally,

$$(2) FB_{NFC} = S_{NFC} - I_{NFC} + OC_{NFC}$$

Where, $S_{NFC} = [(GVA_{NFC}) - (W_{NFC}) + \Omega_{NFC}] + (NPI_{NFC})$. Table 3 (below) shows the evolution of the different components of FB_{NFC} on an annual basis from 2000 to 2012 as a percentage of GDP. It also provides a decomposition of its changes and changes in the gross savings of non-financial institutions (S_{NFC}) during three periods: 2000–02, 2003–08, and 2009–12. These three periods correspond respectively to pre-euro period, the implementation of the euro, and the euro crisis.

Table 3. Spain: Main components of the non-financial corporate sector financial balance, as percentage of GDP (2000–12)

Year	$(GVA_{NFC}) - (W_{NFC})$	Ω_{NFC}	NPI_{NFC}	OC_{NFC}	S_{NFC}	I_{NFC}	$S_{NFC} - I_{NFC}$
2000	17.7	3.9	-4.0	0.5	10.3	14.9	-4.6
2001	17.7	3.9	-5.1	0.5	9.1	14.6	-5.5
2002	17.6	4.1	-4.4	0.5	9.7	14.4	-4.7
2003	17.5	4.1	-3.9	0.5	9.9	14.6	-4.6
2004	17.7	4.3	-4.3	0.5	9.5	15.0	-5.6
2005	17.1	4.8	-4.5	0.5	8.3	15.8	-7.5
2006	16.8	5.0	-5.2	0.5	7.1	16.4	-9.3
2007	16.4	5.5	-6.0	0.5	5.5	16.7	-11.2
2008	16.9	3.9	-6.5	0.5	6.9	15.4	-8.5
2009	17.8	3.6	-4.9	0.5	9.8	11.9	-2.0
2010	19.4	3.2	-4.4	0.4	12.3	11.9	0.4
2011	21.2	3.2	-5.1	0.4	13.3	12.2	1.2
2012	22.7	3.9	-4.4	0.4	14.9	11.9	2.9
Δ 2000-2002	-0.1	0.2	**-0.4**	0.0	**-0.7**	-0.5	-0.1
Δ 2003-2008	-0.6	-0.2	**-2.6**	0.0	**-3.0**	0.8	-3.8
Δ 2009-2012	4.9	0.3	**0.5**	-0.1	**5.0**	0.1	5.0

Source: Authors' own computations on the basis of the financial accounts of the Spanish economy, Bank of Spain (2015).

The results show in the first place that the increase in the deficit position of the non-financial corporation sector (FB_{NFC}), which expanded significantly after the adoption of the euro and until the crisis, is mostly explained by a decline in the sector's gross savings and to a much lesser extent by an increase in gross fixed capital formation. During this period, the non-financial sector negative imbalance expanded by 3.8 points of GDP. The increase in investment explains 0.8 GDP points of this increase, that is, 21 percent of the total, and the decline in savings accounts of 3 percentage points of the total increase in the imbalance or 79 percent of the total. The deterioration in the savings capacity of the non-financial corporate sector is due to net property income (NPI_{NFC}). Net property income explains 87 percent of the change in gross savings for this sector during the period 2003–08. As mentioned above, the behavior of net property income responds to increasing interest payments. During this period interest payments represented, on average, 40 percent of the sector's gross disposable income (GDI_{NFC}), rising to 85 percent in some quarters in 2007 and 2008.

The decline in the savings capacity of firms and their increasing level of indebtedness and debt service payments took place against a background of decreasing profitability. This is illustrated in table 4, which shows different indicators of profitability (gross return on capital employed before taxes and net return on equity after taxes) and of indebtedness (net-to-income ratio after taxes, gross debt to gross operating surplus [GOS]; net debt to net operating surplus [NOS]; debt-to-asset ratio; and the debt burden) for non-financial corporations. Beginning in 2002, without exception all indicators reflect a decline in profitability. Moreover, the evidence provided in table 4 shows that the decline in profitability preceded, according to most indicators, the increase in debt so that the latter seems to be the result of the former.

The decline in profitability accompanied by the rise in the debt of the non-financial corporate sector indicates a thrust towards greater financial fragility. Financial fragility is reflected in the fact that the number of bankrupt companies increased significantly before the onset of the crisis (IMF 2012). In so far as the non-financial corporate sector required increasing levels of debt to fulfill its obligations and fund its working operations, the sector was engaging into Ponzi finance (Minsky 1982, 65–6; 1986, 207–8), which made its situation unsustainable over time. Firms became more exposed over time to changes in factor markets and more fundamentally to the dynamics of financial markets.[8]

It is interesting to note that as with the case of the evolution of the debt of the non-financial corporate sector (see table 4), the decline in profitability of that sector following the implementation of the euro is not unique to Spain. It is also a characteristic of other countries of the periphery including Greece, Italy, and Portugal. Contrarily the non-financial corporate sector

[8] Minsky (1982; 1986) distinguishes between three types of financing regimes (hedge, speculative, and Ponzi). For a firm, hedge financing means that gross profits exceeds payment commitments on debt in every period. Speculative financing means that payment commitments exceed gross profits in some periods. Ponzi finance refers to the case where "for some if not all the near term periods cash payment commitments will not be covered by gross profit." A hedge financing regime is vulnerable to changes in factor markets whereas speculative and Ponzi regimes are also vulnerable to changes in financial markets and conditions. Financial fragility depends on the weight of these regimes in the overall financing structure. Both speculative and Ponzi regimes lead to indebtedness. However, in the former case refinancing will be available when needed and financing costs do not increased the level of outstanding debt. In the Ponzi situation financing costs are greater than income so that firms increase their levels of outstanding debt. This seems to be the case of the non-financial corporate sector in Spain. Minsky (1982, 24) uses the gross capital income as a measure of profits and the main measure to assess the viability of a financial structure. The closest to that concept we found in the financial accounts of the Spanish economy is the gross balance of primary income, which is equal to gross value added minus the wage bill minus taxes and minus net capital income.

of the "center countries" (Austria, Belgium, France, and Germany) exhibited the opposite behavior. "Center countries" witnessed a decline in debt with a steady and convergent rise in profitability following the implementation of the euro.

Table 4. Spain: Profitability and debt indicators of the non-financial corporate sector (2000–12)

Year	Profitability		Indebtedness				
	Gross return on capital employed, before taxes, of non-financial corporations	Net return on equity, after taxes, of non-financial corporations	Net debt-to-income ratio, after taxes, of non-financial corporations	Gross debt to GOS	Net debt to NOS	Debt to assets	Debt burden
2000	…	…	…	1,004.7	1,171.6	45.1	
2001	16.2	9.5	642.1	1,117.5	1,118.7	47.9	27.00
2002	17.3	11.3	649.6	1,174.3	1,169.7	51.7	21.4
2003	15.6	10.5	666.5	1,117.3	1,153.0	50.0	19.9
2004	14.7	9.6	751.1	1,219.7	1,267.2	51.6	22.7
2005	13.0	7.8	1021.5	1,315.4	1,438.5	50.9	27.4
2006	11.3	7.1	1,290.1	1,482.8	1,634.8	53.1	40.8
2007	10.3	4.8	2,240.5	1,735.1	1,968.7	57.9	75.6
2008	12.3	8.2	2,079.26	1,809.0	2,097.5	70.0	67.3
2009	12.0	12.2	1,312.37	1,598.9	1,947.2	72.4	28.6
2010	13.8	17.9	1,010.02	1,476.7	1,739.4	72.1	20.1
2011	16.5	21.3	873.92	1,317.1	1,440.0	71.4	22.8
2012	…	…	…			67.9	…

Source: Authors' own computations on the basis of the Bank of Spain (2015), AMECO (2014), Eurostat (2015), and ECB (2012).

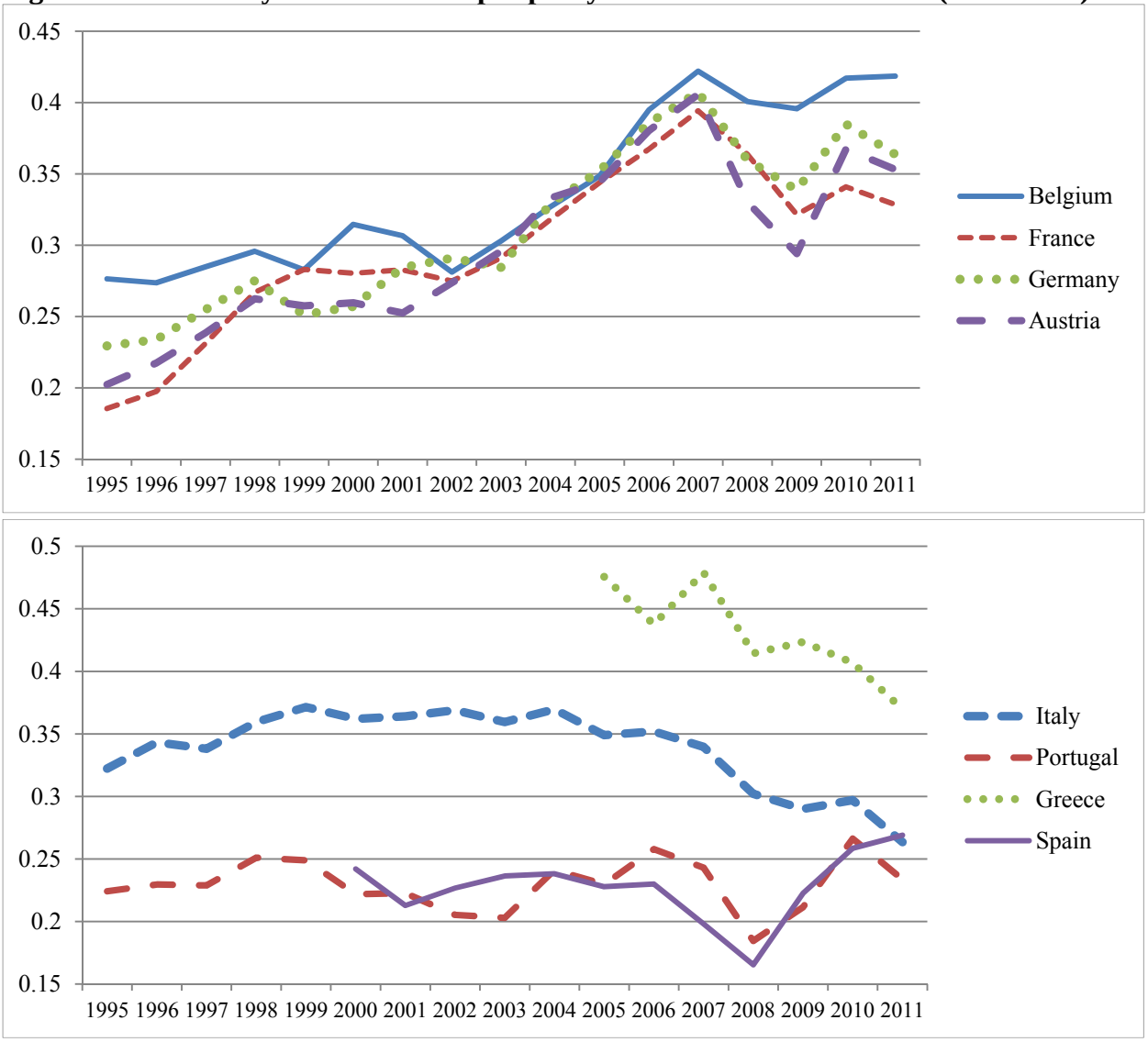
In this regard it would seem that the design and policies underpinning the economic integration of Europe and the adoption of a common currency (the euro) led to a process of divergence in the performance of the entrepreneurial sector among the core and periphery countries. The entrepreneurial sector in the core countries improved its profitability and lowered its debt while the entrepreneurial sector in periphery countries witnessed a decline in profitability and an increase in debt, as can be seen in figure 4. This divergence in the performance of the real sector contrasts markedly with the convergence achieved between core and periphery countries in financial policies and nominal variables including, among others, interest rates, public debt, and inflation, which were the basis for European integration.

The convergence in financial variables did not produce convergence in the real sector. It was in a sense a spurious convergence. More importantly this process of real divergence bears an

important part of the explanation of the disequilibria, including the imbalances of the external sector that were central to the onset of the euro crisis. In this sense real divergence proved to be extremely damaging, as it undermined the very process of integration and ultimately offset the benefits of convergence.

Besides non-financial corporations, households were the other sector that witnessed an expanding deficit with the implementation of the euro; although, by comparison, the household sector deficit was much smaller. On average, between 2003 and 2008, the non-financial corporate imbalance was seven times as large as that of the household sector, -7.0 versus 1.1 percent, respectively.

Figure 4. Profitability in the core and periphery countries of the Eurozone (1995–2012)



Source: Authors' own computations on the basis of Eurostat (2015).

Following the same methodology as with the non-financial corporate sector, the financial balance of the household sector can be expressed as the difference between gross savings (S_H) and gross fixed capital formation (I_H). Formally:

$$(3) FB_H = S_H - I_H + OC_H$$[9]

[9] OC_H includes capital transfers and other items such as changes in inventories and net acquisitions of valuables, and net acquisitions less disposals of non-financial non-produced assets. The most important component is net capital transfers.

Gross savings (S_H) are in turn equal to gross disposable income (GDI_H) minus final consumption (C_H). That is:

$$(4)\ S_H = GDI_H - C_H$$[10]

Finally, gross disposable income (GDI_H) is identical to the sum of gross value added (GVA_H), wages (W_H), net property income (NPI_H), and transfers (Tr_H), minus taxes net of subsidies (Γ_H):

$$(5) GDI_H = GVA_H + W_H + NPI_H + Tr_H - \Gamma_H$$

The results of the decomposition for the financial balance of the household sector are shown in table 6, below. It shows first that the sector's deficit is a result of both a decrease in savings and an increase in gross capital formation. This stands in contrast to the evidence provided for non-financial corporations whose deficit is mainly explained by a fall in savings.

Table 5. Spain: Main components of the household financial balance, as percentage of GDP (2000–12)

	GVA_H	W_H	NPI_H	Γ_H	Specie	GDI_H	C_H	S_H	I_H	FB_H
2000	25.0	44.4	4.5	7.7	11.8	76.7	69.6	7.1	7.3	1.3
2001	25.4	44.1	4.3	7.7	12.1	75.8	68.8	6.9	7.5	0.5
2002	25.7	43.7	3.6	7.9	12.0	75.4	68.2	7.2	7.9	0.3
2003	25.8	43.4	3.6	7.2	12.3	75.4	67.6	7.7	8.5	0.1
2004	25.8	42.8	3.6	7.2	12.5	75.2	68.2	7.0	9.0	-0.9
2005	26.0	42.6	3.7	7.3	12.8	75.2	68.3	6.9	9.5	-1.5
2006	26.1	42.3	3.7	7.5	12.9	74.4	67.9	6.5	9.7	-2.2
2007	26.2	42.9	3.5	8.1	13.2	74.4	68.1	6.3	9.6	-2.6
2008	25.7	44.6	3.3	7.9	13.3	77.3	68.6	8.7	8.4	1.0
2009	24.7	45.4	3.5	7.3	12.3	81.4	69.2	12.3	6.3	6.6
2010	23.5	44.5	3.2	7.5	11.4	79.2	70.5	8.7	5.6	3.9
2011	23.4	43.5	3.0	7.6	10.8	77.6	70.4	7.1	5.1	2.5
Δ2002–2000	0.7	-0.7	-0.9	0.2	0.2	-1.3	-1.3	0.0	0.7	-1.0
Δ2007–2003	0.4	-0.5	-0.1	0.9	0.9	-0.9	0.5	-1.4	1.1	-2.7
Δ2007–2002	0.5	-0.8	-0.2	0.2	1.2	-1.0	-0.1	-0.8	1.6	-2.9

Source: Authors' own computations on the basis of the financial accounts of the Spanish economy, Bank of Spain (2014).

[10] Gross disposable income (GDI_H) includes social transfers in kind.

The increase in gross capital formation and the decline in savings explain most of the change in the net borrowing/lending capacity of households between in all periods. The decline in household savings (S_H) cannot be attributed to a single variable but is explained by a combination of factors. These include a lower wage bill, a higher tax burden, a greater level of consumption, and a minor decline in net property income. For the household sector, in contraposition to non-financial corporations, non-property income remained positive throughout the period. This is explained mainly by the fact that households received an increasing flow of distributed income from corporations.

The debt burden of households, measured as the sum of interest payments and principal, increased but at a slower pace than the stock of debt. The decline of the debt burden in relation to the debt stock is explained partly by the decrease in interest rates, which occurred as a consequence of the convergence criteria, contemplated by the Maastricht Treaty. Also, as important, households were able to roll over their debt over time. Households were able to roll over their debt probably because their assets had also risen significantly following the implementation of the euro. The decomposition of the debt burden shows that interest payments remained stable throughout the first half of the 2000s at roughly 3 percent gross domestic income (GDI) reaching a 5 percent peak in 2007 and that the increase in the debt burden is explained by the principal. Relative to other euro countries, the debt burden of Spanish households was by no means excessive (BBVA 2009).

Our own estimates based on the national annual accounts by institutional sector for selected periphery and center countries (Greece, Italy, Portugal, and Spain; Austria, Belgium, Germany, and France) show that with the exception of Germany all countries, whether belonging to the periphery or the center, witnessed, during the implementation of the euro, an increase in the interest rate debt burden. But the evidence also indicates that the change in the interest debt burden from 2003 until 2008, the year in which it reached its maximum for all the countries, is higher for the periphery than for center countries. For that period, the change in the interest debt burden is roughly equal to 1.5 percentage points for center countries and ranges between 5.8 and 1.6 percentage points for the periphery countries. In the case of Spain, the change in the interest debt burden is equal to 3.3 percentage points.

THE STOCK DIMENSION AND FINANCIAL FRAGILITY

The above sections examined the behavior of different sectors of the Spanish economy and centered more specifically on the household and non-financial corporate sectors from a flow perspective. This section completes the analysis by focusing on the balance sheet and net worth position of the same sectors. The analysis of the sectoral balance sheets shows that the corporate sector exhibited the weakest financial position of all the sectors of the Spanish economy. Available data for the period 1990 to 2011 show a negative and deteriorating trend in the net financial worth of the non-financial corporate sector adjusted for the share and equity component (see table 6 below).[11] This simply reflects the fact that debt grew more rapidly than assets.

The deterioration of the stock position of the non-financial corporate sector began prior to the adoption of the euro. Nonetheless, with the adoption of the euro in 2002, the balance sheet of the non-financial corporate sector worsened further and at a faster pace. These stock results are consistent with the flow data, namely with the increasing deficit in the net financial balance of the same sector. The other sectors (with the exception of the external sector, which mirrors the behavior of the non-financial corporate sector) did not exhibit a similar pattern. Data available for 2000–11 for households, corporations, and the general government show that households exhibited a positive net worth throughout the period whose level did not vary very much between the year of the adoption of the euro and the crisis. For its part, the general government exhibited in a consistent manner a negative net worth, albeit a declining net worth. The net financial worth of the government reached -40 percent of GDP in 2001, -22 percent in 2006, and -18 percent in 2007. That is the government reduced its balance sheet liability position by 50 percent prior to the euro crisis (table 6).

[11] Financial net worth (financial assets minus liabilities) can take on negative values because of rising values of shares and equity. To avoid this case, and capture the effect of rising debt on the net financial worth position, we computed financial net worth as the difference between financial assets and liabilities, excluding shares and equity.

Table 6. Spain: Net financial worth of households, the non-financial corporate sector, and the general government, as a percentage of GDP (2000–10)

	Households	Non-financial corporate sector	General government
2000	119	-25	-44
2001	104	-29	-57
2002	93	-33	-40
2003	98	-35	-37
2004	95	-38	-34
2005	96	-42	-29
2006	101	-49	-22
2007	92	-62	-18
2008	67	-76	-23
2009	77	-87	-34
2010	75	-87	-40
2011	71	-114	-49

Source: Authors' own computations on the basis of the financial accounts for the Spanish economy, Bank of Spain (2015).

The decomposition of the non-financial corporate sector's net financial worth into its different assets and liabilities shows that in terms of assets, Spain's corporate sector became increasingly dependent on the component "shares and other equity," basically unquoted share excluding mutual funds. The other important component on the asset side is "other accounts (receivable/payable)," whereas loans were not a substantive amount of total assets. On the liability side, the available evidence indicates that "shares and other equity" represent its most important component, followed by loans. On a net basis the negative financial worth of the corporate sector is explained by its increasing reliance on loans. An analysis by sources of finance of the non-corporate sector validates the above result, which shows that the bulk of the finance for this sector was loans provided by the domestic financial sector. Further, the bulk of the loans were long-term loans.

From the perspective of the financial system, the evidence available since the 1990s shows that between 1993–97 and 2002–07 loans to the non-financial corporate sector rose on average from 12.1 to 27.1 percent of GDP. The biggest contributor to the increase in loans was the services sector. The other productive sectors, including construction (that is not services), saw minor increases in their loan portfolio when measured in terms of GDP (see table 8). Households also secured an increase in loans mainly for home purchases, while loans for consumer durables rose

by less than 1 percent of GDP. Considering the construction sector in its entirety, loans in industry and services, in households, and the non-financial corporate sectors represented 8 and 29.9 percent of the total on average in the period 1993–97 and 2002–07. In terms of the composition of the financial sector's loan portfolio, loans to construction represented 38 and 55.7 percent of the total for both periods (table 8).

The analysis of the financial system's balance sheet by type of institutions including monetary financial institutions (Bank of Spain and other monetary financial institutions) and non-monetary financial institutions (comprising other financial intermediaries and financial auxiliaries) shows that in the composition of assets, loans represented the majority of the assets. The composition of assets is reflected in that of the liabilities of the financial system. The liabilities of commercial banks and other credit institutions comprise mainly loans for the whole period under consideration.

A comparison between the composition of assets prior to and after the adoption of the euro shows that differences are visible mostly on the liabilities side of the financial system. Of particular interest is the gain in importance of the item "securities other than shares." Securities other than shares represented on average 4 percent of the total liabilities of the financial system between 1980 and 2002 and reached above 20 percent for the 2008–13 period.

An analysis by counterpart sector shows that the financial sector's liabilities were held not only by domestic agents—households, non-profit organizations, and financial institutions—but also by non-residents. A further analysis of the liabilities of the financial sector by counterpart sector and by the most important financial instruments—currency and deposits and securities other than shares—shows a similar pattern in that a significant part of the financial sector's liabilities were held by the rest of the world, 23 percent of deposits and 63.6 percent of securities other than shares. In fact the rest of the world accounted for the largest share of securities other than shares (table 9).

Table 10. Spain: Credit of the financial system to productive activities, households and construction, as percentage of GDP and percentage of total credit (1993–2013)

	Productive activities						Households				Construction		
					Services								
Period	Total	Agriculture and fisheries	Industry (except construction)	Construction	Total	Construction	Total	Home purchases and improvement	Home purchases	Consumer durables	Total	Construction and real estate (industry)	Construction and real estate (households)
As percentage of GDP													
1993–1997	**12.1**	0.6	3.7	1.7	**6.1**	1.0	**8.3**	5.8	5.5	0.9	**8.4**	2.6	5.8
1998–2001	**15.9**	0.7	4.3	2.2	**8.7**	1.6	**12.8**	9.2	8.8	1.5	**13.0**	3.8	9.2
2002–2007	**27.1**	0.9	4.9	4.4	**16.8**	6.8	**24.4**	18.7	17.8	2.1	**29.9**	11.2	18.7
2008–2009	**44.0**	1.1	6.8	6.4	**29.8**	14.1	**35.8**	28.6	27.3	2.3	**49.1**	20.5	28.6
2010–2013	**37.8**	0.9	5.9	4.0	**27.0**	11.6	**33.1**	27.4	26.1	1.5	**43.0**	15.7	27.4
As percentage of total credit granted by the financial system													
1993–1997	**58.9**	2.8	18.9	8.7	**28.5**	4.5	**37.0**	24.9	23.8	4.6	**38.1**	13.2	24.9
1998–2001	**54.1**	2.4	14.7	7.4	**29.6**	5.4	**43.4**	31.0	29.6	4.9	**43.7**	12.8	31.0
2002–2007	**51.6**	1.8	9.8	8.3	**31.6**	12.1	**46.5**	35.4	33.7	4.1	**55.7**	20.4	35.4
2008–2009	**54.1**	1.3	8.3	7.9	**36.6**	17.3	**44.1**	35.2	33.6	2.9	**60.4**	25.2	35.2
2010–2013	**51.7**	1.2	8.1	5.5	**37.0**	15.8	**45.6**	37.7	36.1	2.1	**59.0**	21.2	37.7

Note: Credit expressed as a percentage of GDP does not fall during the crisis because the fall in nominal GDP was greater than that of credit.
Source: Authors' own computations on the basis of Bank of Spain *Statistical Bulletins* (1998–2014).

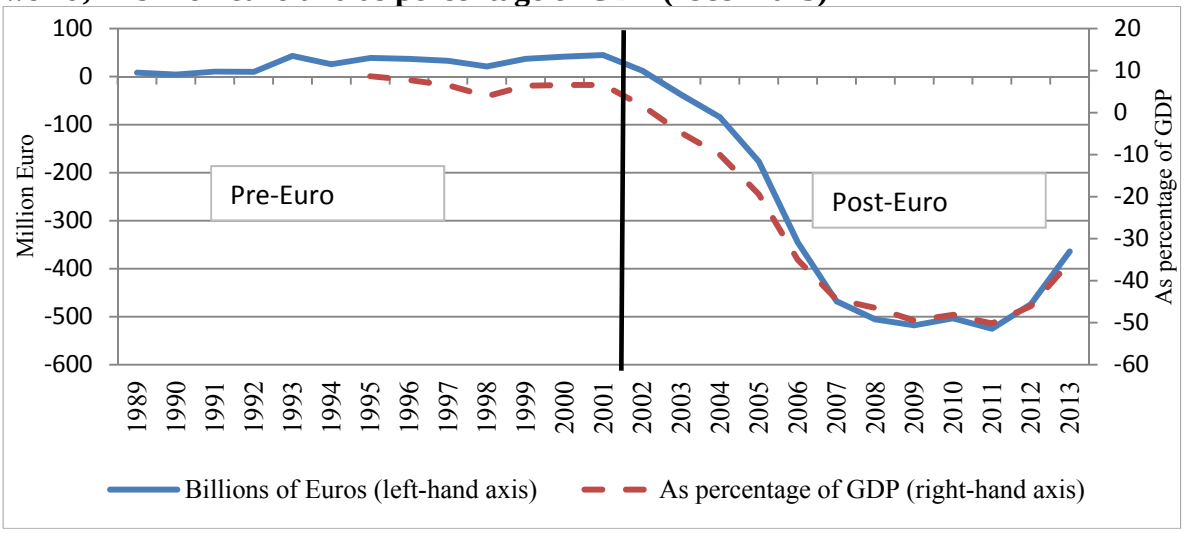
Table 9. Spain: Liabilities of financial institutions by counterpart sector and (most significant) financial instrument, percentages of the total (1980–2013, averages)

	Non-financial corporations	Domestic financial institutions	Government	Households and non-profit organizations	Rest of the world (ROW)
	Currency and deposits				
1980–1990	10.5	29.1	4.5	47.5	8.4
1991–2002	8.3	30.2	4.8	40.1	16.5
2003–2007	**10.0**	**31.0**	**4.5**	**31.5**	**23.1**
2008–2011	8.0	38.6	3.6	28.8	20.9
2012–2013	7.5	38.3	2.9	30.6	20.7
	Securities other than shares				
1980–1990	31.0	24.8	0.0	40.7	3.5
1991–2002	13.6	43.6	0.3	24.6	17.9
2003–2007	**3.3**	**29.0**	**0.1**	**4.0**	**63.6**
2008–2011	1.9	44.0	1.0	2.3	50.8
2012–2013	3.3	57.6	0.2	1.8	37.0

Source: Authors' own computations on the basis of the financial accounts of the Spanish economy, Bank of Spain (2015).

The significance of the sector "rest of the world" (ROW) as an issuer of the liabilities of the financial sector is further underscored by the fact that the position of the financial sector *vis-à-vis* the rest of the world changed from net creditor to net debtor. Moreover the inflection point corresponds to the year Spain adopted the euro.

Figure 5. Spain: Net balance sheet position of the financial sector *vis-a-vis* the rest of the world, in billion euro and as percentage of GDP (1989–2013)



Source: Authors' own computations on the basis of the financial accounts of the Spanish economy, Bank of Spain (2015).

Figure 5 shows the net financial position of the financial sector with respect the external sector as a percentage of GDP between 1989 and 2013. In the period between 1989 and 2002, the position of the financial sector was without exception positive and actually increased from 8 to 45 billion euros in 2001. Thereafter the net balance sheet position of the financial sector became increasingly negative, reaching over 400 billion euros, or the equivalent of -44 percent of GDP, in 2007 prior to the crisis.

Financial fragility, in this context, is reflected in an increased leverage that to a great extent explains the increase in the profitability of the sector following the implementation of the euro. Available data for 1998 to 2011 show that the rate of return over equity (ROE), a basic measure of banks' profitability, experienced a steady decline between 1998 and 2003 followed by a rising trend thereafter until 2007. The rise in ROE is explained mainly by an expansion in leverage (L). From 2002 until 2007 leverage rose from 11.4 to 13.2 percent (see table 10). The rate of return on assets (ROA) also increased, but as the decomposition of ROA into its main components shows this was the result of a decline in costs rather than an increase in income.[12]

[12] Profitability in the financial sector can be explained by simple banking profit identity, also known as return over equity (ROE) decomposition, stating that the ratio of earnings to equity equals the product of the ratio of earnings to assets and assets to equity. That is,

$ROE = \frac{Earnings}{Equity} = \left(\frac{Earnings}{Assets}\right) * \left(\frac{Assets}{Equity}\right), where\ \frac{Assets}{Equity} = Leverage\ (L)\ and\ \frac{Earnings}{Assets} = ROA$

$\Leftrightarrow \frac{Earnings}{Equity} = ROA * L.$ In turn, $ROA = \frac{NII+NNII+OE-P-T}{A}$ where, $NII = net\ interest\ income;\ NNII = net\ non-interest\ income;\ OE = operating\ expenses; P = provisions;\ T = taxes.$

Table 10. Spain: Rate of return over equity (ROE), rate of return over assets (ROA), leverage (L), and components of ROA for the financial sector, in percentage of assets (1998–2009)

	ROE	L	ROA	Components of ROA				
				NII	NNII	OE	PRO	T
1998	9.6	12.5	0.77	2.40	1.13	2.14	0.44	0.19
1999	9.7	12.9	0.76	2.23	1.03	2.06	0.24	0.20
2000	9.3	11.5	0.81	2.18	1.21	2.07	0.36	0.15
2001	8.7	11.5	0.76	2.45	0.94	1.88	0.65	0.10
2002	8.5	11.4	0.75	2.24	0.97	1.82	0.57	0.08
2003	8.1	11.7	0.69	2.11	0.92	1.64	0.53	0.17
2004	7.6	11.0	0.69	1.95	0.88	1.64	0.37	0.13
2005	8.5	11.7	0.73	1.64	0.87	1.30	0.34	0.14
2006	11.0	12.9	0.86	1.62	1.00	1.16	0.40	0.20
2007	12.7	13.2	0.96	1.65	0.96	1.09	0.40	0.16
2008	7.9	12.7	0.62	1.59	0.77	1.02	0.66	0.06
2009	5.0	12.0	0.42	1.63	0.71	0.97	0.91	0.04

Note: NII: net interest income; NNII: non-net interest income; OE: operating expenses; PRO: provisions; T: income taxes.
Source: Authors' own computations on the basis of OECD (2014).

The balance sheet position of the non-financial corporate and that of the financial sectors were reflected in the net international investment position (IPP) of the country. The IPP is the net balance between its international financial assets and liabilities. It reflects the net debtor or creditor position of the country with respect to the rest of the world, and can be interpreted as an indicator of a country's financial fragility. In the case of Spain available data for the period 1992–2013 show that the net investment position deteriorated significantly. This stock behavior is explained first by the significant expansion between 2002–07 of portfolio inflows and then their reduction in 2007 prior to the contraction of GDP in 2008 and 2009 (table 11).

Table 11. Spain: Net international investment position (IIP) and its components, in billions of euro, as percentage of total (1992–2013)

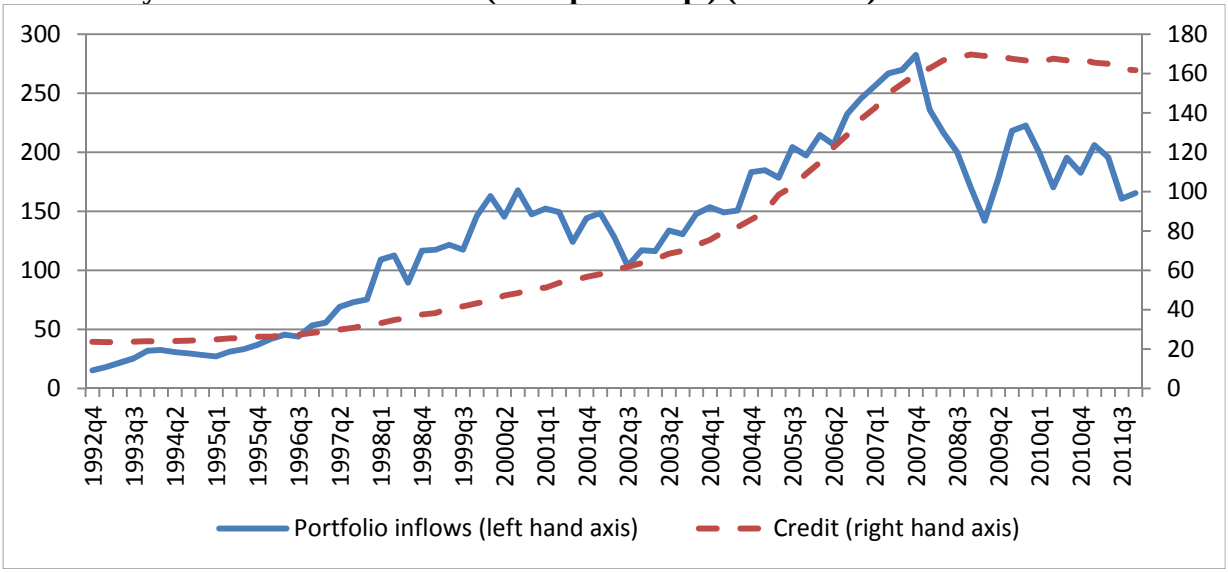
Net international investment position	Net international investment position (excluding Bank of Spain)	Direct investment	Portfolio investment	Other investment	Financial derivatives
	In billion euro				
1992	-103.7	-46.4	-34.1	-23.3	…
2002	-363.7	-89.2	-105.7	-168.9	…
2007	-901.7	-2.6	-648.5	-231.8	-18.8
2008	-914.0	1.3	-603.7	-305.1	-6.4
2009	-1026.3	-4.5	-693.7	-327.1	-1.0
2013	-863.4	-52.8	-609.5	-203.7	2.6
	As percentage of the total				
1992	100.0	44.7	32.8	22.5	…
2002	100.0	24.5	29.0	46.4	…
2007	100.0	0.3	71.9	25.7	2.1
2008	100.0	-0.1	66.1	33.4	0.7
2009	100.0	0.4	67.6	31.9	0.1
2013	100.0	6.1	70.6	23.6	-0.3

Source: Authors' own computations on the basis of the statistical bulletin of the Bank of Spain (2015). Other investment includes loans, deposits, and other investments.

The rapid expansion of portfolio inflows during this period (figure 6), which largely surpassed portfolio outflows, contributed significantly to expand their stock. Further analysis focusing on portfolio investment and other investment by sector shows that by and large the non-financial corporate sector and the financial sector explain the large increase in both categories. The increasing level of external indebtedness generated interest rate payment obligations that are reflected in the growing negative income balance of the balance of payments. This contributed significantly, but to a lesser extent than the imbalance in goods and services, to the generation of the external current account deficit. This by itself can generate a cumulative process, as higher portfolio flows cause higher levels of debt and interest payments, which, in turn, expand the current account deficit, which requires increasing levels of portfolio flows to fill the financing gap.

Similarly in, 2007, as the country registered a sudden stop and reversal in its portfolio flows, most likely due to the contagion effects caused by the onset of the global financial crisis (2007–09), the net international investment stock position did not change substantially. In fact between 2007 and 2008, the international net investment stock position barely changed and increased slightly in 2009. Further, as portfolio flows fell, credit of the financial system stopped growing and contracted moderately (see figure 6).

Figure 6. Spain: Indices of portfolio net flows and the international and credit of the financial system to resident sectors (1992q4–2011q3) (2005=100)



Source: Authors' own calculations on the basis of the Bank of Spain *Statistical Bulletin* (2014).

This had an effect on the different sectors of the economy including on the real estate and construction sectors. Moreover the fall in house and real estate prices further impaired the balance sheets of the financial sector and the non-financial corporate sector. In this sense, the fall in house and real estate prices was an aggravating rather than a triggering phenomenon of the Spanish crisis.

The crisis of Spain and also of the periphery countries of the Eurozone is traced in a wide part of the literature on the subject to the indebtedness of households and a corresponding bubble in the housing market, in similar fashion to the case in the United States. A cycle analysis of the data on price-to-rent, price-to-income, and real price indices of housing for the period 1970–2011 shows that the upward real estate phase that Spain witnessed from the end of the 1990s to the beginning of the 2000s does not appear to be the most expansionary in Spain's recent history.

Indeed, the available data also indicates that the Spanish real estate industry witnessed an expansionary phase in the later part of the 1980s that rivals the most recent one in terms of several cycle indicators.

A comparative analysis between both periods reveals that the 1980s expansionary phase exhibited greater amplitude relative to that of the 1990s–2000s, measured both in terms of percentage increase and in the compound annual growth rate. This begs the question of why if the real estate residential sector experienced important expansions in the 1980s and in the 1990s–2000s of comparable magnitude and duration, to some extent, only in the latter case was it followed by a crisis. This line of questioning is reinforced by the fact that the expansionary phase of the 1990s–2000s was not exclusive to Spain. In fact many other European countries that did not experience a crisis, such as that of the peripheral countries, also experienced a similar increase in the value of residential property. The rise in property values was a euro phenomenon and, more than that, a European phenomenon (see appendix table 12 and figure 7).

CONCLUSION

The traditional explanation for external crisis is often associated to deep fiscal causes, even though the argument has serious problems, and in the European case the evidence is weak at best (Pérez Caldentey and Vernengo 2012). The fiscal argument has never been taken seriously in the case of Spain for obvious reasons. However, the widely accepted idea that in Spain the excessive spending of the private sector, associated to a bubble in housing markets and a construction boom, was at the core of the crisis. Yet, the housing bubble in Spain was not out of line with similar experiences in other European countries that did not suffer with crisis.

Looking at the sectoral balance sheets of the Spanish economy reveals that it was the non-financial corporate sector's rising deficit, which was reflected in a growing negative net financial worth balance sheet position, that was at the center of the imbalances. The non-financial sector financed its deficits and debt not only via the domestic banking system, but also through external loans from other eurozone countries. In turn, the commercial banking and financial system also required external funding, becoming a net debtor *vis-à-vis* the rest of the world and in particular

vis-à-vis the eurozone. The majority of the external funding was portfolio investment. The balance sheet positions of the non-financial corporate sector and the financial system and their composition were reflected in a deteriorating net international investment position of the country in the aggregate, that is, the stock counterpart of the rising current account deficit.
The fragility of this process, akin to a Ponzi regime and, thus, unsustainable over time, materialized when Spain experienced a sudden stop and contraction in portfolio flows mainly due to the global financial crisis (2007–09). This produced a credit crunch in the availability of finance and of credit which, given the financial position of non-financial corporate sector, put the sector against the wall. This also impaired the construction and the real estate sectors putting a downward pressure on house prices and on the value of real estate property. As a result, real estate property-based assets lost their appeal, affected by low profitability and liquidity and high carrying costs and further deteriorated the balance sheet of both the financial and non-financial corporate sectors.

The freedom of financial flows to move throughout Europe and abroad, low borrowing costs, and easy access to liquidity via leveraging coupled with no exchange rate risk provided a false sense of prosperity in a low-risk environment, which in the case of Spain led to the excessive leverage of the non-financial corporate sector. Neither fiscal policy, nor the housing bubble, is at the heart of the crisis in our view. The imbalances, at the heart of the crisis, are essentially connected to excessive indebtedness of the non-financial corporate sector, which imply a net debtor position for the country. In a sense, the fact that the eurozone does not have mechanisms to deal with the imbalances that arise in the external accounts and that forces austerity on debtor countries is the problem.

Note that in common currency areas, like the United States, fiscal transfers would allow for imbalances to continue without leading to contraction of output to reduce the regional balance of payments constraints. Alternatively, if the European Central Bank (ECB) had the ability to buy euro denominated bonds of peripheral countries and keep their borrowing costs low, fiscal policy could be used by member countries, without risk of default. Hence, Lavoie (2015) is correct to note that at the heart of the problem there is a monetary sovereignty problem. On the other hand, it is also true that the manifestation of the euro crisis is as a regular balance of payments crisis, as

noted by Cesaratto (2014). It is unclear to these authors that depreciation and exit from the euro would solve the problems of peripheral countries like Spain. On the other hand, the reform of the European institutional framework has proceeded at pace that seems too slow for the magnitude of the problems faced in the peripheral countries.

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APPENDIX

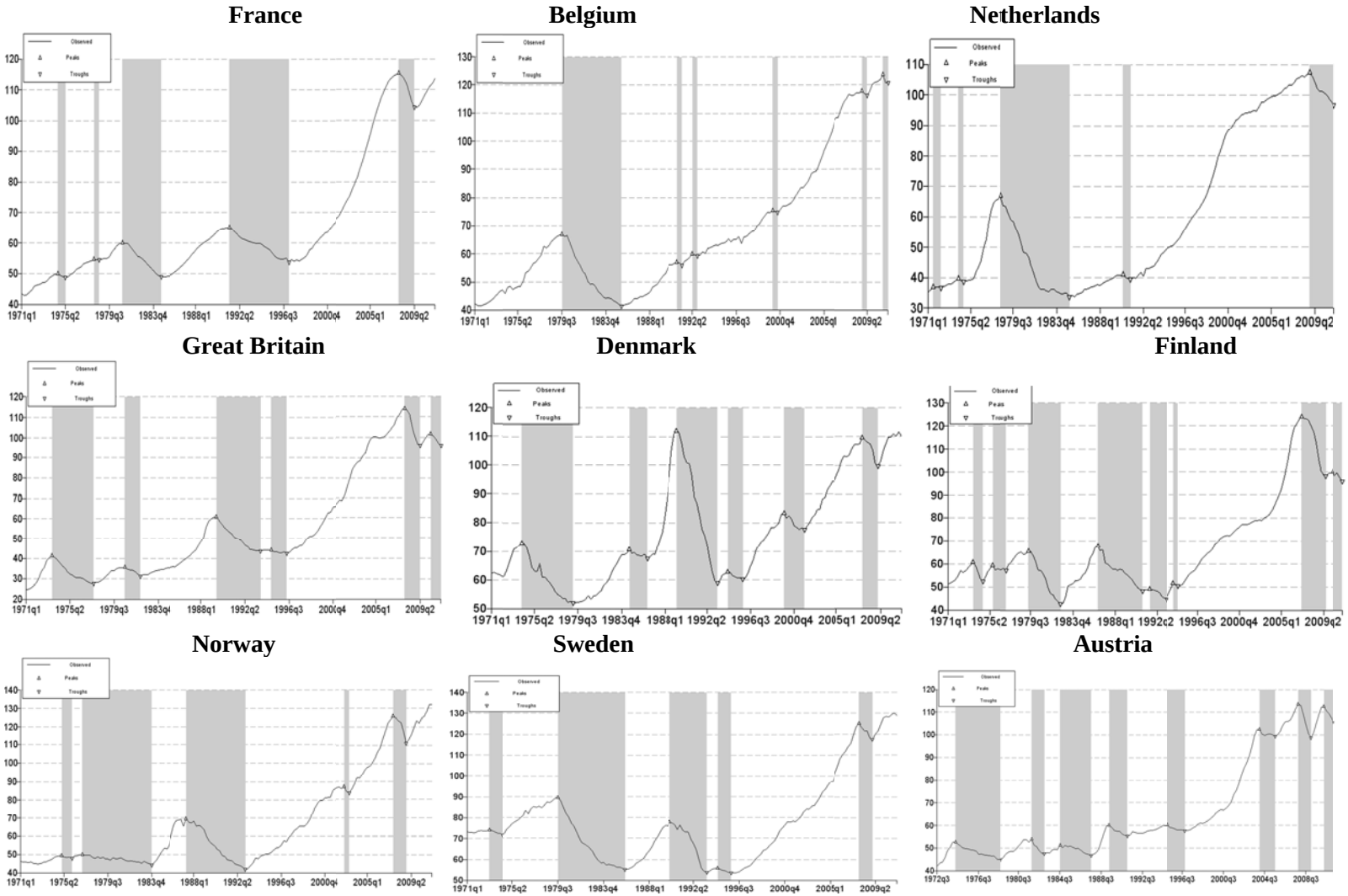
Table 12. Spain: Cycle indicators for house prices, rent-to-price, and rent-to-income (1971q1–2011q3)

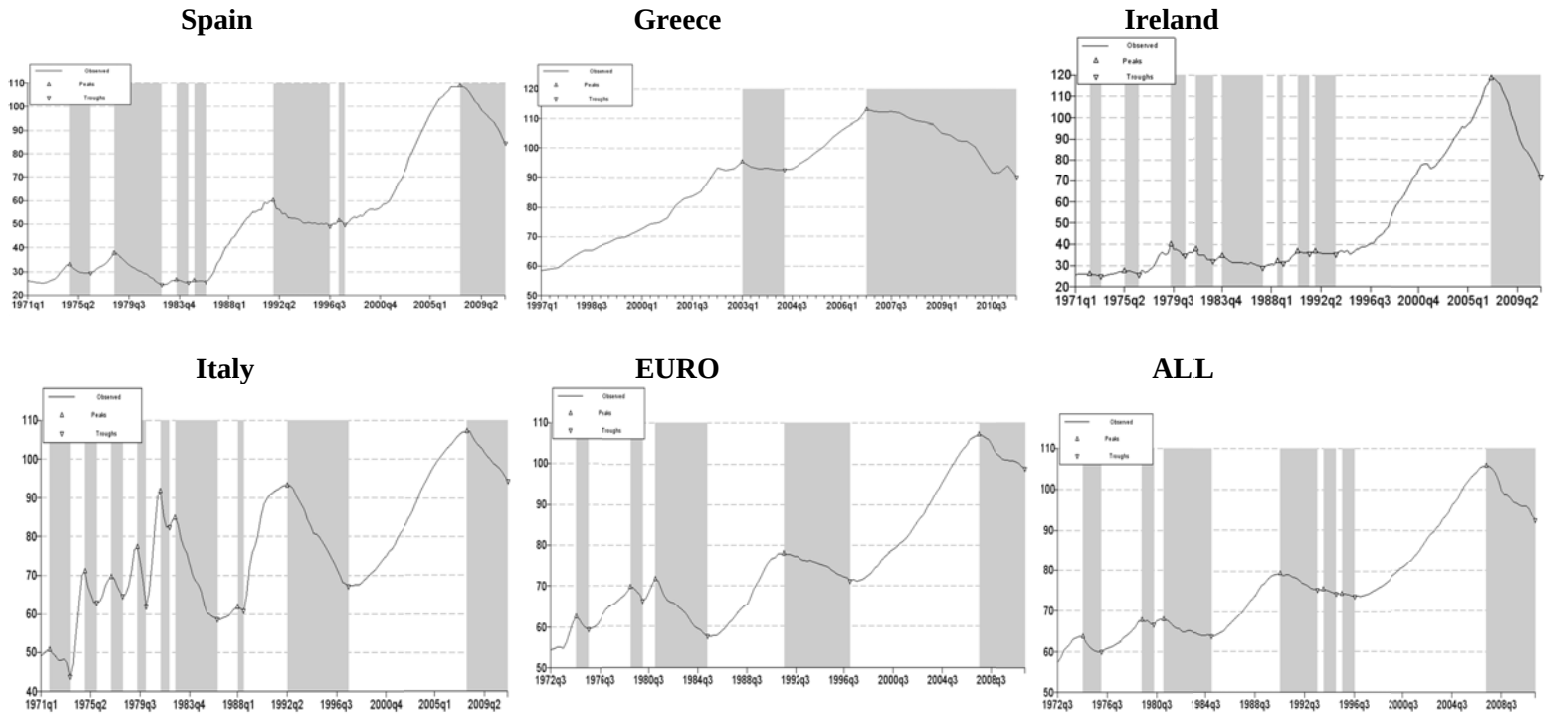
Series	Troughs	Peaks	Amplitude			Duration (# quarters)	Intensity (%)	Cumulated Effect (d)
Price-to-rent								
All phases			Interval (a)	Increase (%) (b)	Average annual growth (%) (c)			
						11	3.1	186.5
						13	3.8	356.9
	1972q1	1974q3	21.8-29.2	33.9	11.2	**38**	**3.7**	**2,682.8**
	1975q3	1978q3	27.3-42.3	54.9	14.4	3	0.05	0.24
	1982q2	**1991q3**	**29.6-71.4**	**141.2**	**9.7**	4	0.5	3.8
	1994q2	1994q4	59.6-59.7	0.16	0.2	**38**	**2.6**	**1,884.8**
	1996q3	1997q2	55.1-56.2	1.9	2.0			
	1997q4	**2006q4**	**53.7-107.**	**99.2**	**7.5**			
Averages								
Peak-to-Trough				-6.4		6.8	-0.9	26.8
Trough-to-Peak				20.6		16.7	1.2	172.0
Peak-to-Peak				…		23.5	…	…
Trough-to-Trough				…		20.6	…	…
Price-to-income								
All phases			Interval	Increase (%)	Average annual growth (%)			
						5	2.5	31.8
	1973q1	1974q1	45.8-51.6	12.7	10.0	9	2.4	121.1
	1976q2	1978q2	47.6-60.4	26.9	11.2	2	3.4	6.8
	1982q2	1983q3	41.4-44.2	6.8	14.0	5	0.3	4.0
	1984q2	1985q2	43.4-44.1	1.6	1.3	**17**	**4.7**	**686**
	1986q1	**1990q1**	**41.4-74.8**	**80.7**	**14.9**	4	1.2	9.6
	1990q4	1991q3	72.9-76.4	4.8	4.8	4	0.6	4.8
	1993q2	1994q1	66.3-67.9	2.4	2.4	4	1	8
	1996q3	1997q2	57.6-59.9	4.0	4.0	10	0.3	14
	1997q4	2000q1	57.7-61.8	2.8	7.1	**38**	**1.93**	**1,396.5**
	2000q3	**2006q4**	**61.1-106.**	**73.5**	**6.0**			
Averages								
Peak-to-Trough				-6.1		5.9	-1.04	-18.0
Trough-to-Peak				11.6		8.2	1.40	47.6
Peak-to-Peak				…		14.3	…	…
Trough-to-Trough				…		12.2	…	…
Real prices								
All phases			Interval	Increase (%)	Average annual growth (%)			
						10	3.9	192.5
	1972q2	1974q3	21.8-30.2	38.5	13.9	9	5.5	222.8
	1976q2	1978q2	27.9-41.7	49.5	19.6	6	2.2	39.6
	1982q2	1983q3	29.6-33.5	13.2	8.6	3	0.7	3.2
	1984q3	1985q1	33.6-34.3	2.1	2.8	**24**	**4.9**	**1,424.4**
	1986q1	**1991q4**	**34.3-75.0**	**118.7**	**13.9**	4	0.5	4
	1996q3	1997q2	55.1-56.2	2.0	2.0	**40**	**2.5**	**1,984**
	1997q4	**2007q3**	**53.7-107**.	**99.2**	**7.1**			
Averages								
Peak-to-Trough				-5.2		8.6	-0.6	-22.4
Trough-to-Peak				16.4		12.7	1.3	104.1
Peak-to-Peak				…		22	…	…
Trough-to-Trough				…		17	…	…

Note: The price-to-income ratio refers to nominal house prices divided by nominal disposable income per head, index based in 2005. The price-to-rent ratio is defined as nominal house prices to rent prices, index based in 2005. Real house price is a seasonally adjusted, index based in 2005. The methodology to obtain the cycle turning points and the amplitude and duration are explained in footnote 7 (above). The cumulated effect (column e) is equal to the duration multiplied by the amplitude and divided by two. The interval (column a) refers to the lowest and highest values (nominal and real) from the trough to the peak of the cycle. The increase (column b) is the percentual rate of increase between both of these values. The average annual growth (column c) is the growth on a yearly basis divided by the number of years. The Harding and Pagan methodology (Harding and Pagan 2002) views the cycle as a set of turning points of a time series representing the level of aggregate economic activity without consideration to a trend. The inflection points of the series are then used as a basis to analyze the cycle in terms of a series of indicators such as the duration, intensity of an expansion (trough-to-peak), and a contraction (peak-to-trough) and the degree of coincidence between two given time series. Central to this approach is the identification of the turning points of a series. The turning points of a series are usually identified using the Bry-Boschan algorithm (1971) developed originally for monthly data and adapted to deal with quarterly observation. The algorithm consists in identifying local maxima and minima for a given series following a logarithmic transformation using specific censoring rules. These include the specification of two quarters for a minimum duration for a single phase, and a minimum duration of five quarters for a complete cycle. The peak for a series y_t is found when y_t is greater than $y_{t\mp k}$ for $k = 1,2$. Similarly, the trough for a series y_t is found when y_t is less than $y_{t\mp k}$ for $k = 1,2$. The algorithm excludes the occurrence of two successive peaks or troughs. Cycle analysis characterizes fluctuations in terms of duration and intensity and concordance. The duration (D) of an expansion is defined as the ratio the total number of quarters of expansion to the total number of peaks in a series. That is, $D = \frac{\sum_{t=1}^{T} S_t}{\sum_{t=1}^{T-1}(1-S_{t+1})S_t}$, where, S is a binary variable, which takes a 1 during an expansion and 0 during a contraction.[1] The numerator in $(\sum_{t=1}^{T} S_t)$ denotes the total duration of expansions and the denominator $(\sum_{t=1}^{T-1}(1 - S_{t+1})S_t)$ measures the number of peaks in the series. For its part the intensity or amplitude (A) of the expansion is measured as the ratio of the total change in aggregate economic activity to the total number of peaks. That is: $A = \frac{\sum_{t=1}^{T} S_t \Delta Y_t}{\sum_{t=1}^{T-1}(1-S_{t+1})S_t}$ where Y is a measure of economic activity (GDP in our cases) and the numerator in $(\sum_{t=1}^{T} S_t \Delta Y_t)$ is the total change in economic activity.

Source: Authors' own computations on the basis of OECD (2013) and Dubois and Michaux (2011)

Figure 7. Evolution of real housing prices for selected European countries and cycle turning points (1971q1–2011q2)





Note: The white and shaded areas represent expansions and contractions respectively. The peaks of the expansion are denoted by Δ and the troughs by ▼. ALL refers to all European countries that are included in OECD housing price database.
Source: Author's own computations based on OECD (2013) and Dubois and Michaux (2011)