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The Portuguese Residential Real Estate Market. An Evaluation of the Last Decade

Summary: This article presents an integrated vision of the context of the residential real estate market in Portugal. It analyses the evolution of several macroeconomic indicators during the last decade. The article is complemented with the analysis of the house prices, where an evaluation of average prices of apartments in Portugal according to different typologies and regions have been done. Regarding the market environment, several indicators are assessed, such as the evolution of interest rates, the evolution of households' credit, the consumption and construction confidence indexes and the evolution of foreign direct investment in housing. The conclusion is that after a booming period, the future of the real estate market is somehow worrying.

Key words: Real estate appraisal, Real estate market, Portugal.

JEL: R30, R31, R32.

The real estate market has been an important leading indicator of national economies. The economic turndown of 2007-2009 reinforces the importance of real estate markets in the economy (Paulo Horta, Carlos Mendes, and Isabel Vieira 2010; Piet Eichholtz, Stefan Straetmans, and Marcel Theebe 2012). Moreover, the housing markets are also relevant for the overall economy and for monetary policy (European Central Bank 2003; Paolo Gelain, Kevin J. Lansing, and Caterina Mendicino 2012; Philip Arestis and Malcolm Sawyer 2013; Margarita Rubio and José A. Carrasco-Gallego 2013; Wei Xiao 2013). In the actual context of Portuguese economy real estate crisis, we analysed the evolution of this market in the last decade based on the real estate appraisal.

As the residential market in Portugal was very dynamic during last decade, but has declined steadily as a result of oversupply, due to market saturation, our goal is to present the main economic characteristics that have shaped the Portuguese real estate market, knowing that no previous study about the real estate market was carried out.

The article also analyses the evolution of house prices in the Portuguese market, comparing their average prices (in €/m²) across the main regions in Portugal between the 1st quarter 2003 and 4th quarter 2011.

The article is divided in five sections. After this introduction, the first section presents a literature survey of the housing market. The second section presents the evolution of the economic variables that influence the residential market. The third section analyses the evolution of house prices in Portugal. In the fourth section the empirical results are analysed. Finally, the conclusion is presented in the fifth section.

1. A Literature Survey

The real estate market is of vital importance for the economy being one of the most important markets in the developed economies on provisional rent and investment levels, on the one hand, and as a source of guarantee for bank loans, on the other hand (Paul E. Carrillo 2013). Moreover, the residential market has unique characteristics: the owner of a property simultaneously occupies the asset and behaves as an investor and consumer (Daniel Gat 1994), with consequences for both the family investment and the wellbeing.

Charles Leung (2004) and Morris A. Davis and Jonathan Heathcote (2005) illustrate the importance of the residential market: (i) housing constitutes a significant share of household expenditure and total wealth; (ii) the annual market value of residential investment is larger than that for business capital investment; (iii) significant fluctuations in housing price would imply significant fluctuations in wealth, and thus potentially significant household wealth effects; (iv) the market value of residential property stock in some advanced countries is approximately equal to the annual average GDP.

The proper evaluation of real estate is the first step for adequate decision making. Although there are various methods commonly used for the evaluation of property, the comparative method is the one most commonly used (Elli Pagourtzi et al. 2003). Nevertheless, the income method is frequently used when one needs to estimate the property market value (Maria Trojanek 2010).

Fernando A. de Oliveira Tavares, António Carrizo Moreira, and Elisabeth T. Pereira (2012a) used hedonic models to analyse price differences in the residential markets. They demonstrate that both property externalities and property layout can be positively or negatively interpreted in real estate investments with consequences for the property market value. Tavares, Moreira, and Pereira (2012b) conclude that information asymmetry may lead to property price distortions, adverse selection and real estate depreciation influencing the property market value. Steven D. Levitt and Chad Syverson (2008) demonstrate that there are clear differences between the time to market and the price of a property, when the property is transacted by a real estate agent and by the proprietor, as a result of information asymmetry between the two, with clear implications for the property, the owner and the real estate market.

Location also plays an important role in property evaluation. Models developed by Richard F. Muth (1969) and Edwin S. Mills (1972) play a central role in estimating real property values in urban spaces (Chung Yiu and Chi Sang Tam 2004; Liv Osland, Inge Thorsen, and Jens Petter Gitlesen 2007; Chihiro Shimizu and Kiyohiko Nishimura 2007) as property prices differ across locations and regions reflecting the owner preferences. Moreira, Tavares, and Pereira (2014), using the income ap-

proach, were among the first analysing the differences in the house prices across municipalities in Portugal. They conclude that property cap rates and market values differ not only within the two largest main cities in Portugal, Lisbon and Oporto, but also between the two. Moreover, there are also differences across typologies between the regression coefficients of the income generated by the property and its cap rate.

This situation reveals that the residential market is influenced by a wide range of factors. Nevertheless, its evolution throughout time has to be analyzed from a macroeconomic perspective. As such, the following section presents the evolution of the housing market in the Portuguese context and then the regional perspective is contextualized.

2. Evolution of Economic Variables Related to the Housing Market

The entrance of Portugal into the European Union (EU) single currency (Euro) in 1999 helped the country eliminate exchange risk in relation to other member states, which had a significant effect in the private sector debt, particularly with households. The membership process led Portugal to a stabilization of its inflation and to the consequent reduction in interest rates, aided by the increasing competitiveness of financial markets and the resulting decline in bank intermediation margins. The Portuguese integration process should be considered as an example to be followed by other small open economies in transition to the euro area.

The Euribor rate, after the lowest values ever, between 2003 and 2005, had an upward trend from December 2005 to July 2006 of a quarter-point, accelerating the pace of ascent for a quarter-point every two months after July 2006, until mid-2007 (Figure 1). From the 3rd quarter of 2008 the Euribor rate started to decline to values below 1.0%, where it remained until mid-2010. The Pearson correlation between the Euribor interest rate and the housing market prices is presented in Section 3.

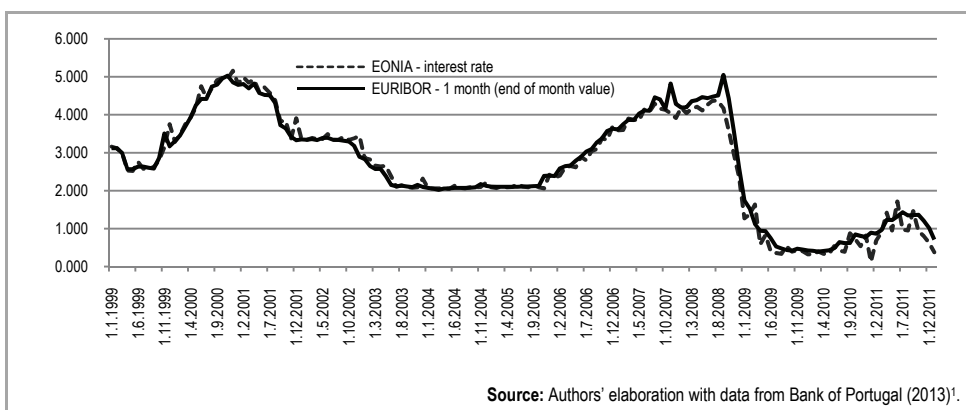


Figure 1 Evolution of the Euribor Rate (One-Month) and EONIA (Values in %)

¹ **Bank of Portugal.** 2013. BPSStat. Time Series Analysis.

[http://www.bportugal.pt/EstatisticasWeb/\(S\(costryjve33arybco2gued55\)\)/SeriesCronologicas.aspx](http://www.bportugal.pt/EstatisticasWeb/(S(costryjve33arybco2gued55))/SeriesCronologicas.aspx) (accessed September 27, 2013).

Between 1990 and 2010 “the nominal interest rates fell to a quarter and real interest rates to a fifth of their 1990 value” (João Sousa Andrade and Adelaide Duarte 2011, p. 205). In the U.S., the Federal Reserve lowered the interest rates below the levels that would be recommended by the Taylor rule from 2003 to 2005 (John B. Taylor 1993, 2007), which supports the main explanation for the speculative bubble quickly created in house prices that began to burst in late 2007 and put into question the economic growth of U.S. and disseminated to Europe (Horta, Mendes, and Vieira 2010).

Taylor (2007) contends that interest rates should continue to be defined according to macroeconomic developments, inflation rate and the real GDP, as policies based on pre-defined rules work well.

In the last years of the 1990s, especially in Europe, the use of private credit, particularly mortgages, was encouraged (Pietro Catte et al. 2004). This led to an over-indebtedness of households, with banks increasing their credit default.

In Portugal, the relationship between private housing loans and individual loans increased from 4.7 times in 1997 to 8.7 times at the end of 2002 (Figure 2). This was due to lower interest rates as a consequence of Portugal joining the Euro-zone. In 2008, the relationship between housing loans and consumption loans dropped to 6.5 times due initially to rising interest rates and later, to the cut on housing loans and consumption (Figure 2). Moreover, loan supply shocks dampened the growth rates of both, the loan volume and real GDP at the beginning of 2008 (Nikolay Hristov, Oliver Hülsewig, and Timo Wollmershäuser 2012). In 2008 and 2009, the relationship between housing loans and individual consumption loans decreased because of lower rates of growth of the lending for house purchase and to the deceleration of loans.

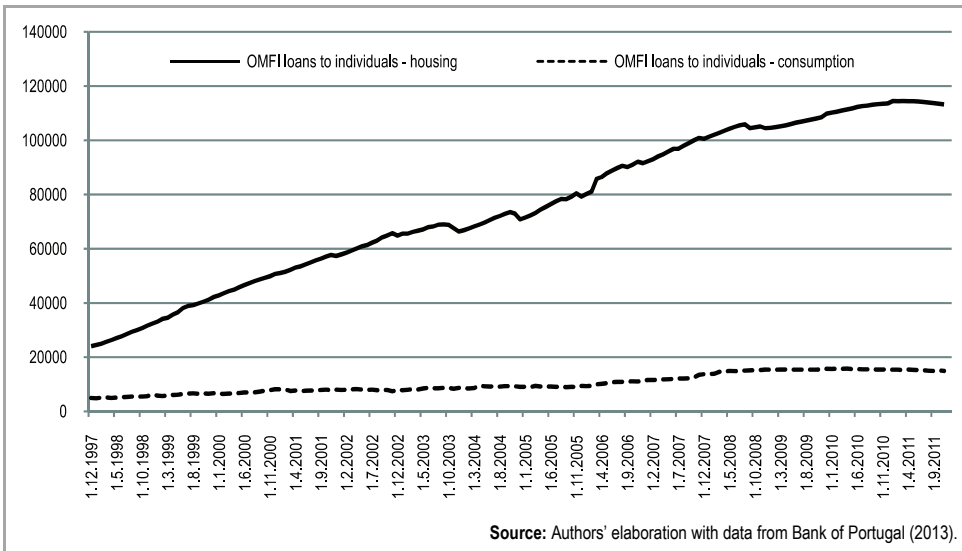


Figure 2 Loans to Individuals. Housing versus Consumption

Davis and Heathcote (2005) explain that the market value of the stock of residential properties in the U.S. is approximately equal to the GDP annual average value. Moreover, in Europe about 80% of households own their property; while the percentage of households holding shares is substantially lower (Álvaro Pina and Ildeberta Abreu 2012). Davis and Heathcote (2005) conclude that significant house prices fluctuations will imply significant household wealth fluctuations. In the last two decades, in most industrialized countries, household debt increased sharply, both in absolute terms and in relation to income levels. For Davis and Heathcote (2005) a significant part of this increase is due to two main factors: (a) the financial deregulation that started in the 1980s, greatly easing the restrictions on access to credit and liquidity constraints of the households, and (b) the reduction of interest rates, both in nominal terms or in real terms, driven by a scenario of low inflation. This phenomenon has certainly contributed to increase the sensitivity of the household sector to variations of interest rates. The importance of the housing market-bank credit relationship has also been studied by Arestis and Ana Rosa González (2014) who concluded that there is an endogenous nature of the bank credit to demand for housing.

Experience demonstrated that housing market downturns erode financial portfolio values, which diminish domestic consumption and investment, contaminating the banking sector (Eichholtz, Straetmans, and Theebe 2012). As a consequence, being housing the largest component of household wealth, changes in house prices could have a significant impact on the perception of households regarding their wealth and permanent income. Balázs Égert and Dubravko Mihajlek (2007) show that house prices in CEE are determined to a large extent by institutional development of housing markets and housing finance and hedonic effects.

The demand of loans for house purchase has fallen, mainly through the deterioration of Portugal's consumer confidence and the outlook for the housing market (Bank of Portugal 2008). According to this report, banks surveys expect the trend to continue to increase the requirements of lending criteria and anticipate a relative stability of demand for loans by businesses and a decrease by households. The key factors for the recent tightening of housing and individuals' loans are the following (Bank of Portugal 2012): a less favourable perception of risk, higher funding costs, a decrease in consumer confidence and the deteriorating outlook for the housing market.

The lending for house purchase by the Other Monetary Financial Institutions (OMFI), in the period 1997-2007, follows a steady growth (Bank of Portugal 2008). The level of Portugal's household indebtedness went from "relatively low" in the 1990s, to "alarming" levels in the first decade of the XXI century. In the first quarter of 2008, due to the financial turmoil, the tightening of lending started to negatively condition both the supply and the demand of credit (Bank of Portugal 2008).

Kostas Tsatsaronis and Haibin Zhu (2004) indicate that house prices are affected by changes in interest rates, and that the magnitude and speed of this transmission differs considerably from country to country. In the Portuguese case, the observed transmission effect has a quick magnitude (Figure 3). This indicates that the information asymmetry is low.

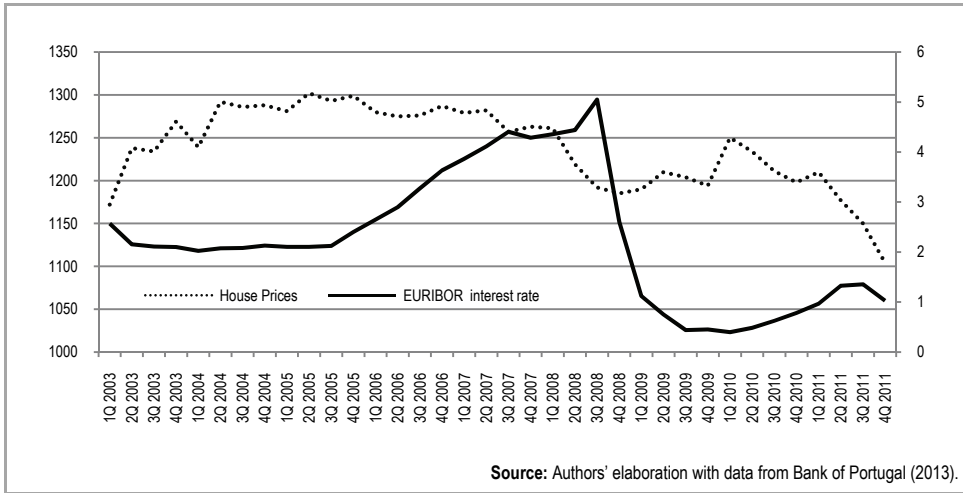


Figure 3 Relation between the Euribor Interest Rate and House Prices

In Figure 4 we can observe the evolution of the Portuguese consumer price index (CPI). Whereas in the 1980s the CPI was significantly higher, with values near 35%, characterized by rampant inflation; the CPI tended to stabilize in the mid-1990s, motivated by the convergence criteria for the entry into the Eurozone.

The long series of evolution of consumer confidence index and the construction confidence index, between 1986 until 2011, are shown in Figure 5. Both evolve in the same direction. Although from 1992 to 1995 there was a serious crisis in consumer confidence in the construction industry; the current levels are much more negative as a consequence of the crisis that Portugal is facing.

In 2002, Portugal underwent an adverse political situation that led to early parliamentary elections. Due to the enlargement of the EU, Portugal needed to reform its economic development model (until then settled in domestic demand), to correct macroeconomic imbalances that led to the Stability and Growth Pact (SGP). Thus, in 2002 the standard rate of the value added tax (VAT) increased from 17% to 19% to reduce the government deficit, with a pernicious impact on investment. In 2005 the VAT rose again, from 19% to 21%.

The construction confidence index has been decreasing since 2008 as a consequence of the international economic and subprime crisis.

The crisis of confidence for both consumers and businesses had a sharp drop in 2002 and remains until today, representing the longest cycle in recent Portuguese economic history. This way, it is obvious why housing market values in recent years have stabilised or even decreased.

Figure 6 shows the evolution of new dwellings between 1981 and 2008. The surge in 1993 can be explained by the main intertwined events: the fall of interest rates on housing loans, Portugal joining the Euro, and the existence of a subsidised interest rate for the acquisition of first houses. These subsidised loans for housing created a strong pressure to complete in progress investments.

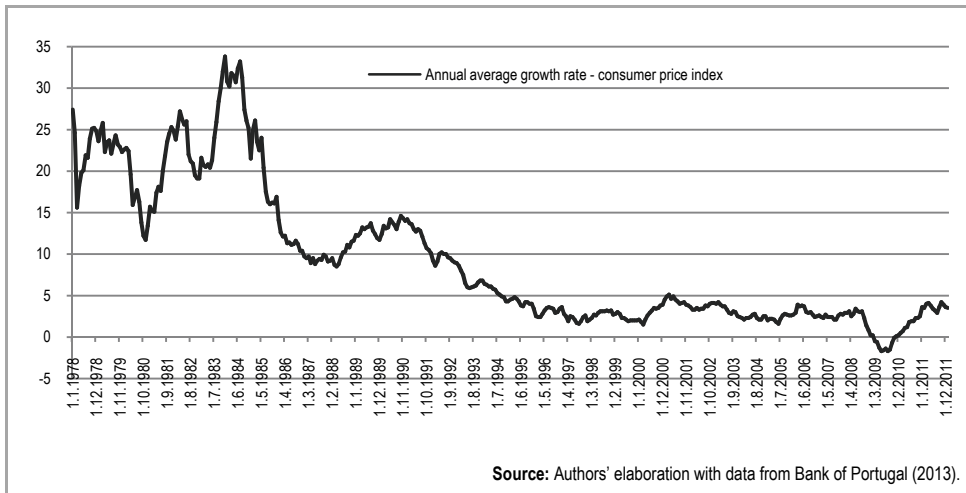


Figure 4 CPI Change (in %) in Portugal from 1978 to 2011

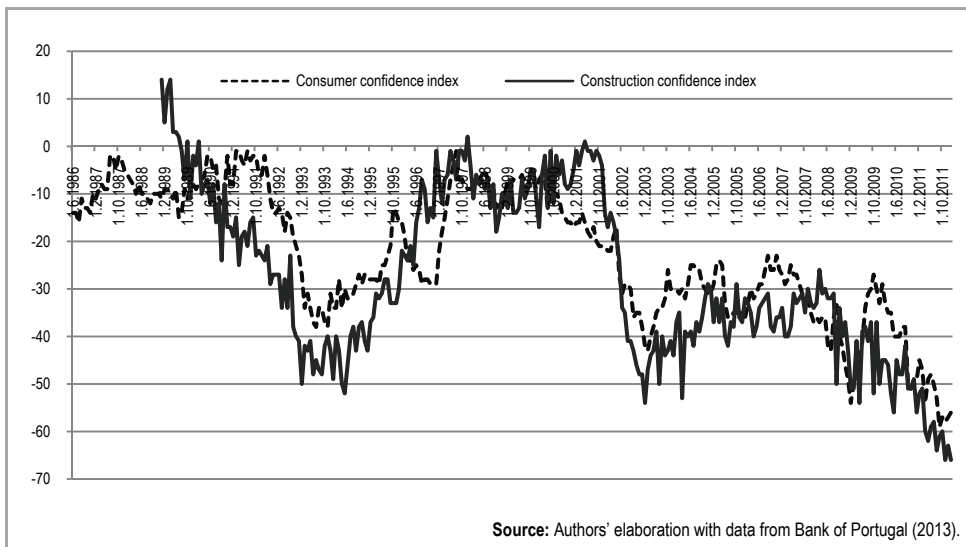


Figure 5 Consumer Confidence Index and Construction Confidence Index in Portugal

As shown in Figure 6, the evolution of new building permits and the construction of new houses follow a downward trend. This led to a sharp contraction in construction investment, with a marked reduction of the construction work finished, decreasing from more than 100000 jobs, in 2000, to about 55000, in 2011.

The number of building permits has been falling since 2002 because of the end of subsidized loans for housing purchase. This created a slight increase in urban renewals, shifting the market in this direction: urban rehabilitation. The permits for new buildings in 2010 and 2011 were the lowest values ever, as illustrated in Figure 6.

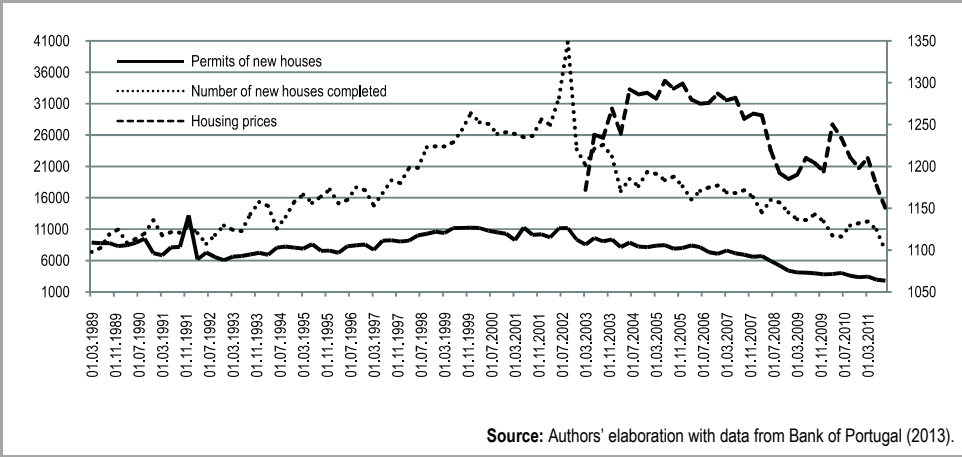


Figure 6 Evolution of New Houses Concluded, New Buildings Permits and House Prices in Portugal

As a result of the growing economic difficulties of the Portuguese economy (see Figure 7), there has been an increase in interest rates as well as a growing trend in doubtful credit. The non performing housing loans have increased substantially. It is possible to conclude that within a decade housing doubtful debts with increase more than quintupled and consumption doubtful debts sextupled. On the other hand, the non-performing loans carried by construction companies decreased between 1997 and 2001, grew between 2001 and 2002 and decreased again in 2004 and 2005. From 2006 until 2011 it has been growing to values never hitherto achieved. The amount of bad debt in building companies quintupled between 2006 and 2011. At the same time, since 2000 the trend in mortgage loans *per capita* has increased, maintaining certain stability after 2009.

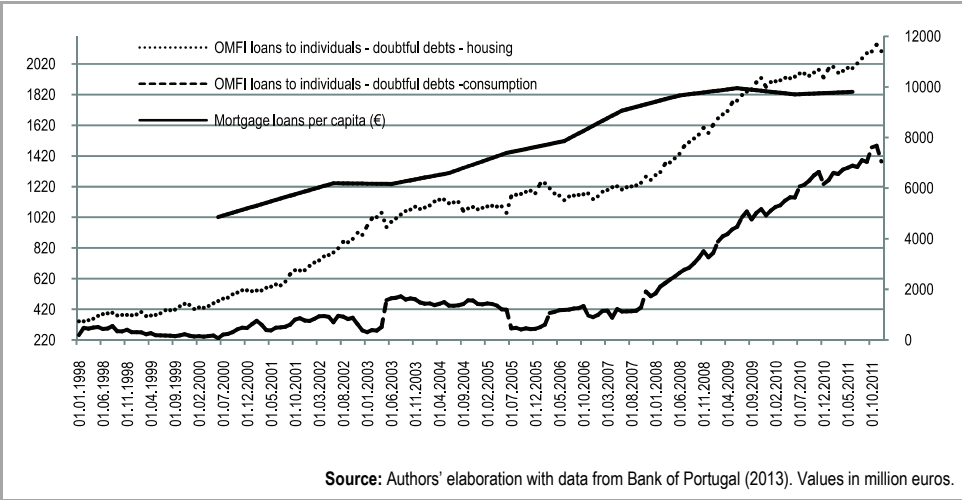


Figure 7 OMFI Loans to Individuals Doubtful Debts. Housing versus Consumption

In addition to the structural characteristics of each housing market and its financing particularities, the sensitivity of households in their consumption decisions is strongly influenced by the variations of household income, by the house prices, by the interest rates and by the strong growth of their debt, which make households more vulnerable to various types of shocks.

First, the behaviour of the household income is highly dependent of the economic situation, in terms of unemployment. High household debt combined with high levels of debt service increases the difficulty of families confronted with unemployment, amplifying the effects and creating an adverse shock on the economy. Second, higher levels of household indebtedness make households more exposed to falls in house prices, as for many families their houses are their greatest asset in life-long investments. Moreover, the fall in house prices leads to lower levels of consumer confidence, which leads to lower consumer spending. Third, long-term loans have a strong weight in the household sector's liabilities, being loans associated with housing a significant portion of these responsibilities. In Portugal, the increase in household debt is related to the increase in loans for house purchase. Knowing this, the household's sensitivity to changes in interest rates will strongly depend on the form in which the loan was negotiated, i.e., fixed or floating rate.

The Portuguese youth unemployment rate (<24 years) has been steadily increasing (Figure 8), being amongst the largest in the EU (Ramon Gomez-Salvador and Nadine Leiner-Killinger 2008). It affects not only the entry into the labour market, but also delays their financial independence, postponing the purchase of new homes (Misbah Tanveer Choudhry, Enrico Marelli, and Marcello Signorelli 2010).

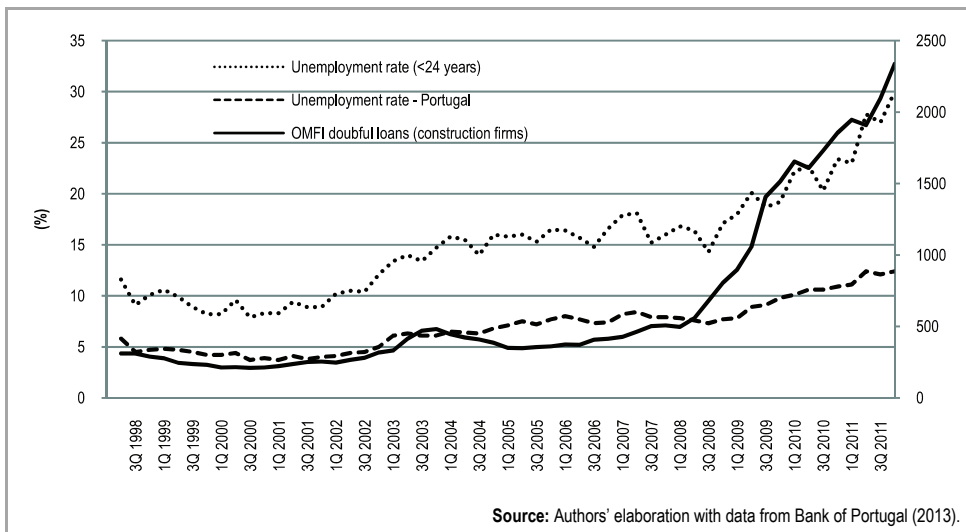


Figure 8 Relation between Unemployment and Doubtful Credit, from 1998 to 2011

As shown in Figure 9, the active population in Portugal increased from 1998 to 2007. On the other hand, employment levels have declined sharply in recent years, with the total employment back to 1997 levels for both cyclical and structural rea-

sons (Pina and Abreu 2012), affecting the level of household income and money supply for house purchases.

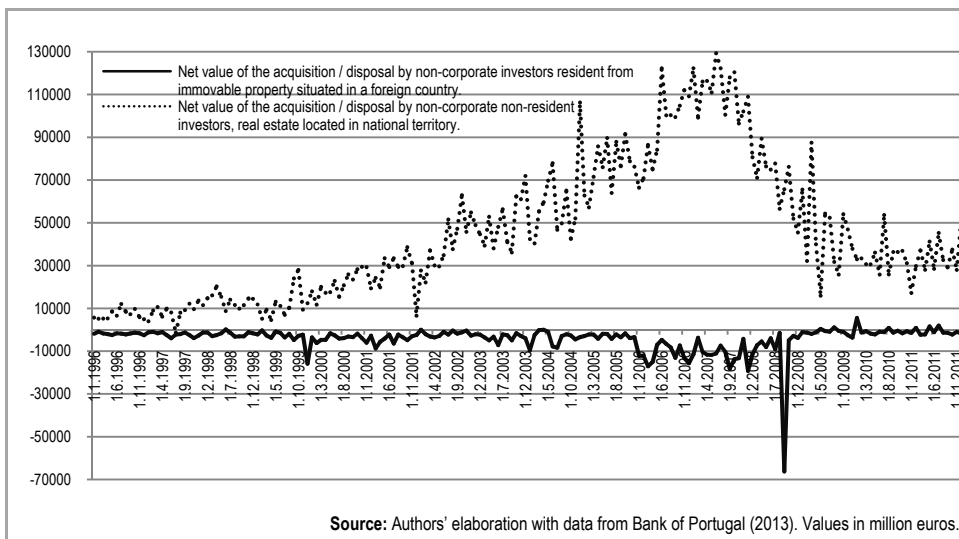


Figure 9 Net Values of Purchase/Sale Operations, by Non-Corporate Investors

The evolution of foreign investment in Portugal's real estate market is presented in Figure 9. From 2000 to 2007 foreign direct investment (FDI) in Portugal increased, increasing the housing demand, with impact in the growth of house prices. During 2008 there was a steep decline in FDI, which can be related to the global market's crisis, remaining at low levels until the end of 2011.

Figure 10 shows the evolution of the GDP growth rate in Portugal. Between 1996 and 1999 there was a growing trend, but from mid-1999 to mid-2003 there was a sharp decline, which coincides with the cycles of the above referred figures. From the first quarter of 2005 until the first quarter of 2007 there was an upward trend. Before this increase, there had been seen substantially lower values for the period 1996 to 2000, where the GDP growth rate was high.

According to Miguel S. Aubyn (2007), in only eight years (1995-2003) the Portuguese household debt rose from 54% to 124% of their disposable income. For the author, the economic expansion on the second half of the 1990s was characterised by a sharp increase in private consumption, driven by: low interest rates, low use of credit, household income, and expectations of higher future income. As explained by macroeconomic inter-temporal optimisation models, households took advantage of the favourable conditions and increased their credit exposure. Adding debt to the household, the indebtedness of the state led to the external indebtedness of the economy and to the necessary intervention of the EU, the European Central Bank and the International Monetary Fund in 2011.

Very much as the Spanish economy, the recovery of the Portuguese economy depends on the success of fiscal consolidation, which means a change in government consumption and expenditure. Moreover, the downturn of the Portuguese housing

stock is not a consequence of the typical cyclical downturn, but rather the result of a high level of debt, which adding to the increased budget constraints of households and high employment rate, jeopardises the recovery of the housing market.

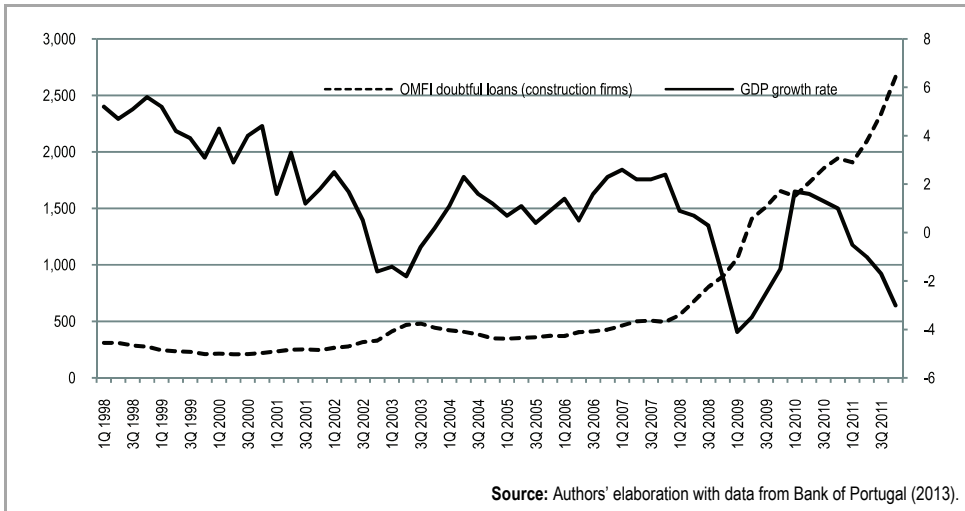


Figure 10 GDP Growth in Portugal versus Doubtful Credit

The success of the economic recovery will depend on the positive development of business productivity, supported by qualitatively superior investments, either in physical or human capital, allowing wage increases and significant income that will sustain household consumption at higher levels, besides a broad program of fiscal consolidation and economic reforms.

3. Evolution of Prices of Houses in Portugal

The Portuguese sluggish economy in recent years has had a negative impact on the real estate sector. Figure 11 presents the evolution of the prices of houses (€/m²) in Portugal, by regions. In this study the database of the Portuguese National Statistics Institute (Statistics Portugal 2012²) was used when assessing the housing market by typologies of apartments. Within the residential real estate market, the residential housing was chosen because they represent a more homogeneous product in the real estate market. Clearly, there is an inverted U shape indicating that, after an initial appreciation, the unit prices of houses have followed a downward trend. Algarve is the Portuguese region that stands out, closely followed by Lisbon and Tagus Valley (LVT) region.

Table 1 shows the comparison of prices of residential apartments in Portugal by typology, from 2003 to 2009. In this article property data analysed are based on the following typology used in Portugal: B1 stands for an apartment with one bed-

² **Statistics Portugal.** 2012. Statistical Data.

http://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_base_dados (accessed December 28, 2012).

room, plus a living/dining room and a separate kitchen. B2, B3, B4 and B5 represent the number of bedrooms.

In order to compare the differences in average prices, *T*-tests were performed for different typologies. It was found that B1, B2, B3, B4 and B5 are statistically different for a level of significance of 1%, for all the regions analysed.

One conclusion can be drawn from Figure 11 and Table 1: the housing market prices are influenced by the typology of the apartment and the region analysed. As can be seen in Table 1, Algarve has the highest average values for both B1 and B2, while for B3, B4 and B5, the highest prices are in the LVT region. Moreover, the North has the lowest average apartment prices for B1, B2 and B3, and Alentejo shows the lowest mean values for B4 and B5.

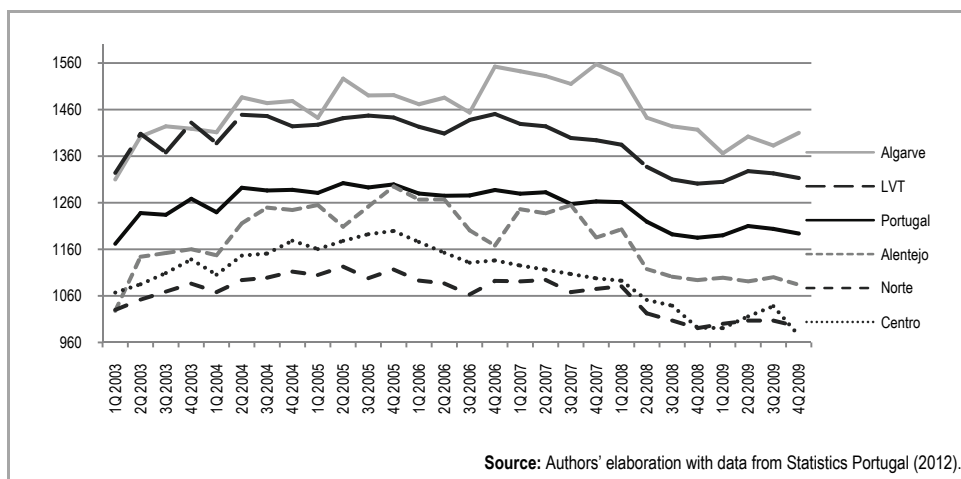


Figure 11 Evolution of Average Unit Values (€/m²) of Residences in Portugal

Table 1 Average Unit House Prices (€/m²) in Portugal

	Portugal	B1	B2	B3	B4	B5
Algarve	1453.6	1682.5	1456.3	1306.4	1318.2	1456.2
LVT	1422.1	1530.6	1393.5	1407.3	1441.7	1529.8
Portugal	1238.4	1447.0	1250.9	1172.5	1255.5	1317.5
Alentejo	1153.5	1407.1	1172.5	1130.4	1067.5	1112.5
Centro	1080.8	1330.3	1128.5	1018.1	1079.4	1067.8
Norte	1048.7	1231.0	1061.3	993.9	1107.2	1129.8

Source: Authors' elaboration with data from Statistics Portugal (2012).

Some differences stem from the type of market served. The higher average prices of apartments in Algarve region for B1 and B2 can be explained by the huge foreign investment in real estate in Algarve. According to the International Tourism Advisers (2007) the high prices of apartments in Algarve can be explained by the diversified origin of the properties' owners: 41.90% from UK, 19.88% from Portugal, 11.01% from Ireland, 8.26% from Spain, 5.20% from France, and 4.59% from Netherlands. Moreover, there are two important characteristics that make the housing

market in Algarve very dynamic: firstly, one of the purposes of those who purchase houses/apartments in Algarve is to enjoy leisure time during holidays and rent them out the rest of the year; secondly, Algarve is the preferred location for buying a second house and 48.63% of houses are on the coast overlooking the sea and 37.08% on the coast (International Tourism Advisers 2007).

Differently, B3 apartments can be considered closer to the family model (though usually young families do not buy a B3) and their demand is lower than for B1s or B2s.

The differences among typologies are shown in Figure 12. It is observed that the price per m^2 decreases from typology B1 to B3 and then increases for the B4 and B5, following a U shape. The price increase for these latter typologies is explained by the fact that those apartments are often considered luxury products or their location is of paramount importance.

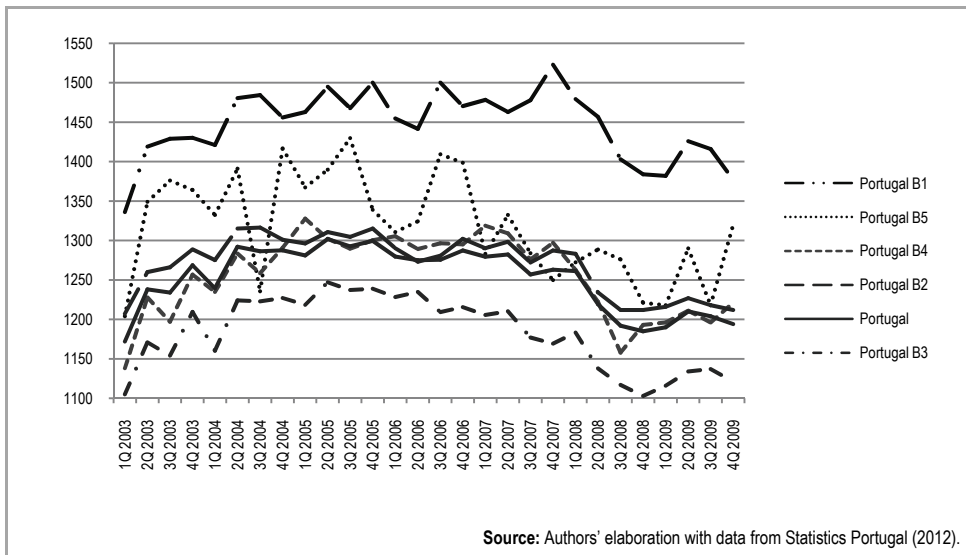


Figure 12 Average Unit Prices (€/m²) of Houses for Typology in Portugal

4. Empirical Analysis: Data, Methodology and Discussion of Results

The evolution of variables related with the market and house prices are presented in order to empirically analyse the relationship between the house prices, as a depend variable, with macroeconomic variables referred to in Section 2, as an independent variable.

To begin with, a multiple regression analysis was carried out. Then it was decided to remove the entries that were not statistically significant or that were auto correlated. Data analysed went from the first quarter of 2003 to the fourth quarter of 2011.

Table 2 presents a group of explicit variables related to the house prices. Model 1 to Model 5 present individual relationships between housing market prices, as dependent variable, and each of the independent variables: doubtful loans, GDP growth rate, Euribor interest rate, construction confidence index and unemployment rate.

We witness different positive relations between house prices and individual variables. At a 5% significance level GDP growth rate and Euribor interest rate show a positive influence in house prices in Portugal, as shown in Model 2. This means that the house price increases as GDP growth rate increases, which is an indicator that when economy expands there is a greater propensity for housing demand to increase. On the other hand, as shown in Model 3, the Euribor interest rate influences negatively the prices of apartments (i.e.: the house price increases as the Euribor interest rate decreases).

Table 2 Static Linear Regression Analysis - Results

Var	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Doubtful loans	-0.055 ***					-0.094 ***	-0.063 ***
GDP		18.004 ***				9.669 ***	11.406 ***
Euribor interest rate			-13.570 **			-15.776 ***	-15.550 ***
Construction confidence index				0.698		1.015 **	1.133 ***
Unemployment rate					-15.175 ***	10.526 *	
Constant	1288 ***	1232.410 ***	1207.724 ***	1267.207 ***	1367.816 ***	1308.662 ***	1373.778 ***
R	0.781	0.675	0.374	0.133	0.640	0.936	0.928
R ²	0.611	0.455	0.140	0.018	0.409	0.877	0.861
No. obs.	36	36	36	36	36	36	36

Note: * significant at 10% level; ** significant at 5% level; *** significant at 1% level.

Source: Authors' estimation with data from Statistics Portugal (2012).

Finally, the relation between the construction confidence index and the house prices is positive, although not statistically significant, as shown in Model 4.

At a 5% significance level, as shown in Models 1 and 5, the doubtful loan rate and unemployment rate have a negative relationship with the house prices. This means that as those variables increase the house prices tends to decrease, which is expected given the lower propensity of demand for new houses and the increasing failure to pay the mortgage by the unemployed.

When analysed together, as shown in Model 6, some of the independent variables change their behavioural influence on the house prices. The first conclusion to be taken is that only the variables doubtful loans, GDP and Euribor interest rate are statistically significant at a 1% level while the construction confidence index is significant at a 5% level. On the other hand, the unemployment rate is no longer statistically significant because of its 5% level. Therefore, it was decided to withdraw the unemployment rate and analyse the model with four statistically significant inde-

pendent variables, as shown in Model 7, where all variables are statistically significant at a 1% significance level.

As can be seen, doubtful loans and Euribor interest rate have negative correlation coefficients, which are in accordance with what was expected, given that the higher these variables are the lower the house prices are expected. On the other hand, GDP and construction confidence index have positive correlation coefficients, meaning that the higher they are, the higher the house prices, which was also expected. Another conclusion is that both the Euribor interest rate and the GDP play a key role in the house prices, having the other two variables (non-performing loans and construction confidence index) a fairly minor influence.

5. Conclusions

Portugal went from a situation of shortage of housing that was felt in the early 1990s, to a market housing surplus situation.

The low interest rates, in the first years of 2000s and the entrance into the Eurozone contributed to the increase in mortgage loans and to the current state of an indebted country, making bad debt is worrying.

The worrying construction confidence index is similar to the consumer confidence index. Both present substantially lower values, since 2002, and are one of the reasons for the fall in building new houses. Doubtful loans to construction companies quintupled in the last six years.

One of the pernicious aspects of the real estate market is the youth unemployment rate, which delays the investment in housing and retracts the market.

After 2007, the slowdown in the Portuguese economy due to market reductions in aggregated demand originated fiscal consolidation, credits constrains and lower investments, with pervasive consequences amongst European and world economies. The economic growth falling helped to aggravate the crisis in the residential real estate market, evident in the decline of average unit house prices (€/m²) for all the apartment typologies in Portugal.

The evolution of house prices, in €/m², by regions and by typology, follow a downward trend.

The housing market in Algarve is influenced by tourism. Foreign residents have sparked a demand for B1 and B2 apartments, which led to a price increase in Algarve, but not felt throughout the country.

The house prices, in €/m², by typology decreases from B1 to B3, following the “rule of thumb”: the larger the area, the lower the value per m². Notwithstanding, B4 and B5 apartments are an exception to this rule, knowing that these typologies belong to different market segments.

According to the empirical analysis estimated by a statics linear regression, the doubtful loans, the Euribor rate and the youth unemployment rate exhibit a negative relationship with the house prices, while the GDP growth and the construction confidence index exhibit a positive relation. Most of these results are in accordance with the previous studies of the literature review, but in our case the turbulent period is coincident with the economic crisis in Portugal.

Households borrowed on the expectation of wage improvements and other future income, which is not happening. A sustained future growth should be based on an improvement of the country's macroeconomic environment.

The real estate market in Portugal is gloomy and the success of the recovery will depend on the positive development of business productivity and improved skills that will attract new investments. Knowing this, wage increases will represent larger yields, in the hope for a renewed and sustained household investment involving all stakeholders.

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