

# What is the right price of Spanish residential real estate?<sup>1</sup>

José García Montalvo and Josep María Raya Vilchez<sup>2</sup>

## From appraisals to market prices, and beyond.

*The results presented in this paper provide new evidence to explain the large overvaluation of Spanish real estate assets. The current appraisal mechanism relies on the incentives of banks and appraisal companies. While the average loan to appraisal value was 82%, close to the maximum level recommended by the Bank of Spain, the average ratio of loan to market price was around 110%. This divergence is based on the overvaluation bias derived from the use of appraisal values, which can be explained by two factors: i) the incentives of appraisal companies, and ii) the application of the valuation methodology. Official housing prices incorporated this overvaluation bias, generating spillover effects that exacerbated the housing bubble. A possible solution could be to limit mortgages to 80% of the Registry price.*

An important component of the current crisis can be linked to the real estate sector. The wrong incentives structure in the system of housing finance, which generated the housing bubble, is at the core of the current financial crisis. Therefore, in order to understand the extent of the correction of the irrational exuberance in the housing market, it is critical to have an accurate indicator for house prices. This is even more important when doubts exist regarding the quality and value of the assets on the balance sheets of banks. In the Spanish case, the situation is particularly important, since credit to construction, housing and household mortgages accounted for 60% of the total credit to the economy in 2007.

Usually, countries have alternative indicators for house prices. Even if the methodologies are

different, there are always price indices based on market prices. The methodological quality of the indicators is heterogeneous. Some indices, like the Standard and Poor's Case-Shiller index in the US, or the HM Land Registry in the UK, are based on repeated sales. Other indicators, such as the Census Bureau Constant Quality House Price Index in the US, take the hedonic approximation. In Spain, and despite the importance of the construction and the housing sector, there are no good indices for house prices. The official price published by the Department of Public Works (DPW) uses, as the basic input, the appraisal price computed for the purposes of requesting a mortgage. Obviously, this indicator excludes cash purchases and has a time lag of several months with respect to developments in the housing market. In addition, appraisal prices

<sup>1</sup> The financial support of FUNCAS and project SEC2007-64340 of the Ministry of Education is kindly acknowledged.

<sup>2</sup> Universitat Pompeu Fabra.

are not determined in the market. Therefore, they can be manipulated depending on the incentives of agents in the mortgage finance industry. For instance, appraisal prices can be raised in order to increase the likelihood of granting a mortgage. The Bank of Spain recommends that mortgages do not cover more than 80% of the value of the house. But if a family could not obtain the down payment of 20%, then appraisal companies, which were mostly owned by financial institutions, have an incentive to increase appraisal prices. In this way, the mortgage is approved with the family effectively receiving more than 80% of the price of the house, without an extra cost for banks in terms of risk weighted assets. It was also the case that when other indicators (income, employment situation, etc.) were not good enough to secure a mortgage, a low loan to value ratio could increase the chances to get the credit approved<sup>3</sup>.

More recently, the National Institute of Statistics of Spain (INE) initiated the publication of a different price index based on “precios registrales”, or the price that is reflected in the public transactions registry. This indicator by the INE aggregates prices

---

*In Spain, and despite the importance of the construction and the housing sector, there are no good indices for house prices.*

---

using a hedonic correction, but the registry prices are not a good reflection of the actual prices paid for housing in Spain. It is well known that buyers and sellers of real estate have tax incentives not to report the actual price paid for the house. Finally, there are also indices based on ask prices, such as the ones elaborated by the webpage Idealista.com or by Fotocasa. Obviously, these ask prices do not reflect appropriately the level and evolution of market prices, since discounts over ask prices depend significantly on the situation of the market.

Unfortunately, none of the Spanish housing price indices use as raw data actual prices of transactions. The purpose of this paper is to present a brief summary of the results of a project that compares alternative prices, including the actual market prices, for a large sample of transactions of houses during the period

---

*Unfortunately, none of the Spanish housing price indices use as raw data actual prices of transactions.*

---

2004-2011. The data which we have been able to obtain cover thousands of properties merging information from several sources, such as the actual price of the transaction, the appraisal price, the size of the mortgage and the registry price. The results of this comparison can give indications to evaluate the accurateness of current price indicators based on appraisal values.

### **Housing price adjustment since the beginning of the crisis: Spain versus other countries with property bubbles**

One of the most surprising facts related to the evolution of housing prices in Spain in recent years is the slow rate of adjustment observed until very recently<sup>4</sup>. Table 1 shows that price adjustments in other countries that suffered a housing bubble smaller than the one in Spain (measured as the increase in the ratio of house prices over disposable income) were larger than in Spain.

The fact that there is no official indicator of market prices in Spain is one of the reasons for the divergence in the speed of adjustment of house prices between Spain and other countries

---

<sup>3</sup> The Spanish mortgage industry was very competitive during the years of the housing bubble. The interest rate on mortgages was the lowest in Europe and, therefore, with a very small spread, the way to increase profits was to increase the number of mortgages approved.

<sup>4</sup> The Executive Orders 2/2012 and 18/2012 of the Spanish Government have accelerated the drop of house prices by forcing Banks to write down the value of housing related assets and loans.

Table 1

**Peak-to-trough change in house prices in selected countries**

	Peak	Trough or last	Change
Ireland-CSO index	April-07	March-12	-48.5%
US-S&P Case Shiller	April-06	May-09	-32.8%
	(double dip)	February-12	-34.4%
Japan	1995	2011	-41.7%
UK	August-07	Diciembre-11	-30.6%
<b>Spain</b>			
Dep. Public Works -Appraisals	March-08	June-12	-23.5%
INE -Registry prices	September-07	March-12	-25.6%
Fotocasa-Ask prices (existing houses)	June-07	August-12	-31.9%
SOCTAS- Appraisals (new houses)	Diciembre-07	June-12	-20.7%
IMIE- Appraisals	Diciembre-07	July-12	-31%

with a housing bubble. The official price of the Department of Public Works reports a contraction from peak to trough of 23.5%<sup>5</sup>. But appraisal prices, the raw data for this indicator, depend mostly on the condition of the financial sector and not that much on the evolution of supply and demand of housing and, therefore, the housing market. The

*The fact that there is no official indicator of market prices in Spain is one of the reasons for the divergence in the speed of adjustment of house prices between Spain and other countries with a housing bubble.*

need to contain the effect of write-offs on the profits of financial institutions, and the traditional participation of banks in the capital of appraisal companies, can explain part of the divergence in speed of adjustment of price indices based on appraisals observed in Table 1. For comparison

purposes, the US price index was already down 32% in May of 2009 and Ireland's price index is down 48% from its peak.

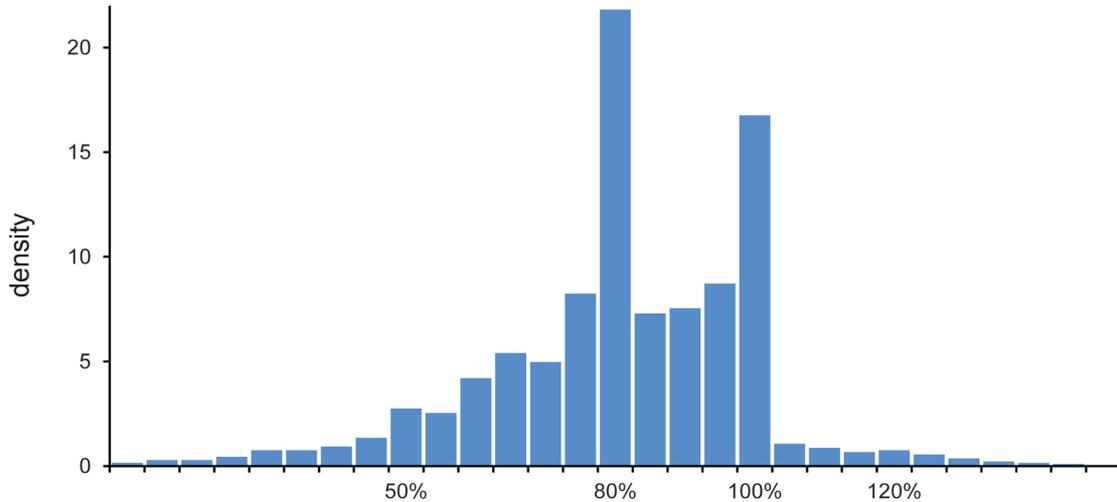
To analyze the usefulness, of the official house price indices as indicators of the value of property in Spain, we merged several databases. First, we obtained data from a housing market intermediary with many franchises that provided information on market prices and characteristics of the properties<sup>6</sup>. The second source of information was a financial intermediary which usually works with the housing market intermediary. The dataset contains information on the amount of the mortgage, the appraisal price, the extent of guarantees, etc. The third source of information was the Official Registry of Real Estate Properties (Registro de la Propiedad). The Registry provided information on the amount of the mortgage, the appraisal price, and the price reported in the official ownership document. Finally, to improve the matching success rate of the Official Registry of Real Estate Properties, we obtained the unique

<sup>5</sup> This effect was even more visible before the Executive Orders of 2012. At the end of 2011 house prices had dropped from the peak between 15% and 20% depending on the indicator chosen.

<sup>6</sup> The data may not be representative of the whole population of housing transactions during the period of study since large cities are oversampled. In any case, the average price per square meter and average size of the units in our sample is very similar to the national values.

Exhibit 1

**Loan to appraisal value**



identifier for each property (Referencia Catastral) for the Catastro (General Directorate of the Catastro).

Some of the information, like appraisal prices or the amount of the mortgage was redundant (i.e. present in several datasets). We used this information to make sure that the properties were properly matched in the different datasets. The sample periods include transactions that took place between 2004 and 2011.

**Data analysis**

After merging all of the datasets, we analyze the relationship between all of the prices pertaining to a real estate operation. The first indicator is the loan to appraisal value ratio. This is a very important ratio since banking regulation imposes penalties in terms of weighted assets to mortgages with loan to values above 80% (and

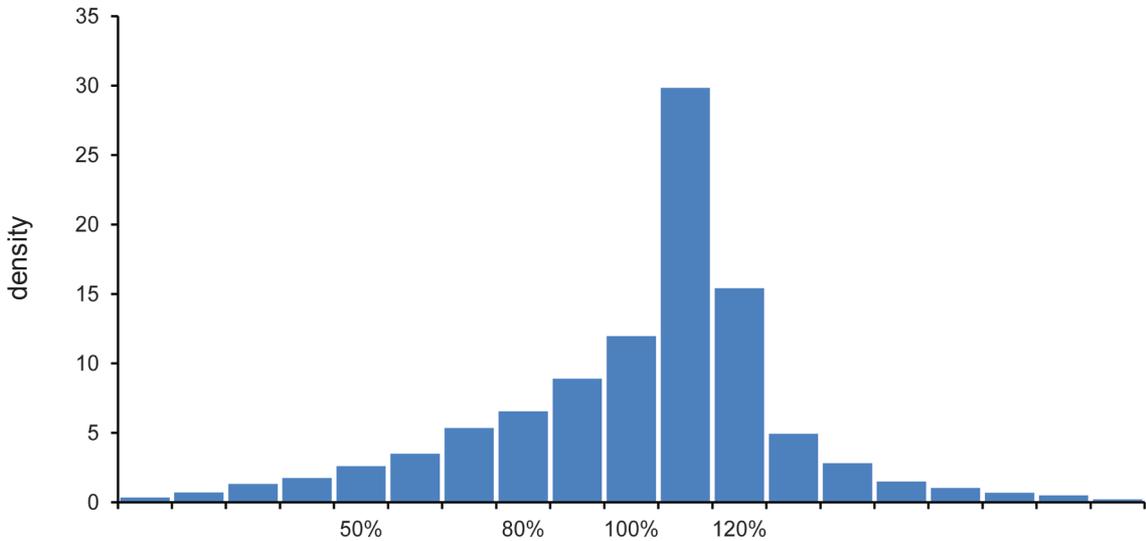
even higher penalties for ratios above 100%). As stated previously, the ownership of appraisal firms by banks has led to perverse incentives such as the adjustment the appraisal values to the financial needs of families, instead of reflecting the real value of the properties. This phenomenon is very dangerous, since we know that default rates increase exponentially once the mortgage reaches a loan to value over 80%.

Exhibit 1 shows that the loan to appraisal value ratio has a mode at 80% and very low frequencies above 100%. The average of the loan to appraisal value is 82.9%. This number is consistent with the result of dividing the average amount of new mortgages over the appraisal value of an apartment of average size.

However, the information in Exhibit 1 could be biased by the incentive to increase appraisal values to give a higher proportion of loans over

Exhibit 2

**Loan to transaction price**



the actual price paid. To analyze this likely bias, Exhibit 2 presents the distribution of the ratio of loan over market price instead of appraisal value. The figure is eye-catching: most of the distribution of loan to transaction price is over 100%. In fact, the average is 110%, with a similar median<sup>7</sup>. This is a clear sign of over-appraising and it raises doubts on the traditional view that in Spain, contrary to the US case, there was not an effect of mortgage equity withdrawal. In the US, it was very frequent that families converted wealth into disposable income by asking for a loan on the increase in the price of their house. In Spain, this was not frequent. This led to some analysts' claims in the initial stages of the crisis that the effect of reduction in housing prices in Spain would not be as negative in terms of consumption as it was in the US. Exhibit 2 shows the sort of equity withdrawal that was taking place in Spain:

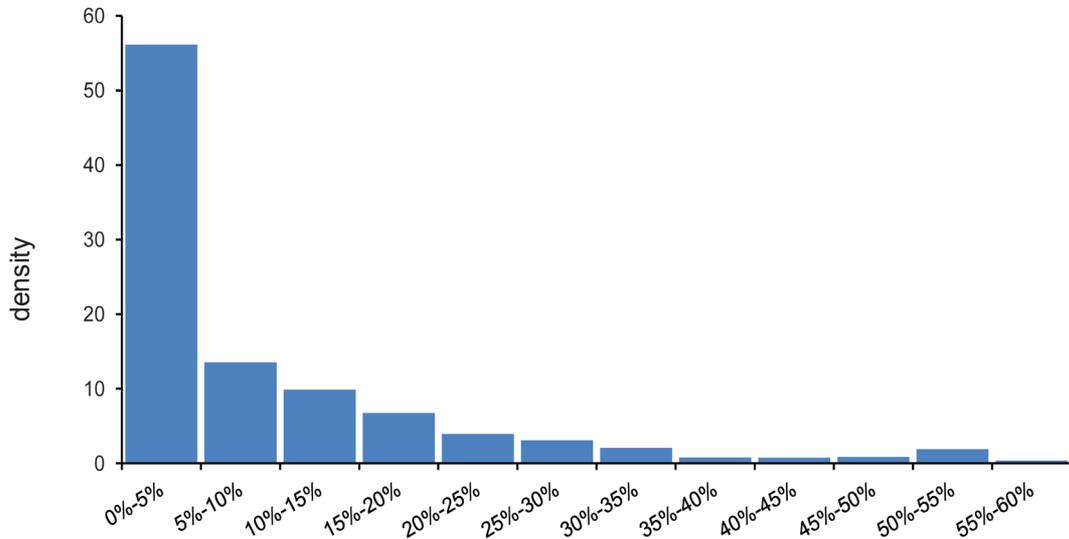
appraisal values were already capturing future increases in house prices and resulting in loans of a larger size. This kind of equity withdrawal is worse than the one observed in the US. In the Spanish case, the increase in house prices did not have to be realized. The damage was done merely through expectations.

The bias towards higher housing prices derived from the incentives of appraisal firms was amplified by the fact that appraisal firms generally use ask prices, and not market prices, to construct the set of comparables (usually six) that are considered as the basis for the pricing for comparables in the neighborhood (main pricing methodology for appraisals). The use of an index based on appraisals as the only official indicator of prices during the bubble years generated also external effects. The bias towards calculating high

<sup>7</sup> The results are almost identical if we use the sample of properties in which market price is equal to the price reported by the Registro de la Propiedad.

Exhibit 3

**Proportion of undeclared payment over total price paid in the transaction**



appraisal values led to an aggregated price index that had also a bias toward a rapid growth rate, which gave the impression that house prices were growing faster than they were actually growing. Each time that the rapid growth rate of the official house prices appeared in the media, this attracted some large, and many small, private investors. Moreover, many families were led to believe that

*The use of an index based on appraisals as the only official indicator of prices during the bubble years generated also external effects. The bias towards calculating high appraisal values led to an aggregated price index that had also a bias toward a rapid growth rate, which gave the impression that house prices were growing faster than they were actually growing.*

if they did not buy quickly, house prices would be unattainable in the future. Therefore, the use of appraisals for the construction of the official price index fed a vicious circle that led to an enormous housing bubble.

The regression of the loan to appraisal value ratio over the loan to transaction price ratio leads to a coefficient of 0.89, which implies a clear deflation of the loan to transaction price when translated into loan to appraisal value ratios. The standard deviation of the coefficient is very small which implies that this mechanism was applied consistently. The average of the over-appraisal reaches 32% of the transaction price. Notice that part of this difference is retained by the bank to supposedly cover for the equity. The other part was used to pay for transaction costs, furniture, appliances, vacations or even the down payment on a car. There is also a trade-off between the loan to appraisal value ratio and the degree of over-appraisal. There are basically two situations:

either the loan to appraisal value ratio is high, with a transaction price close to the appraisal price, or the loan to value is low with a high degree of over-appraisal. Savings and loans more frequently adopted the first strategy, while banks had a high propensity to follow the second strategy.

Finally, the merged data can help to calculate the extent of undeclared payment in housing transactions. Declaring the price of a house below the actual price paid has fiscal advantages for buyers and sellers. The buyer pays less for sale taxes, while the seller pays less for income taxes due to lower capital gains. Exhibit 3 shows that many transactions did not involve any undeclared money since the price declared in the Official Registry was identical to the transaction price. However, there are many transactions that involved heterogeneous amounts of undeclared money. The average divergence is 8%.

## Conclusions

The recent episodes of stress in the Spanish financial sector show how slowly the financial reform has advanced in Spain until recently. The bursting of Spain's property bubble has seen the level of bad loans as a proportion of total lending rise to the highest level in 18 years. The portfolios of repossessed and unsold real estate are negatively impacting the ability of banks to provide credit to the economy. The results presented in this paper provide new evidence to interpret the large overvaluation of Spanish real estate assets. The mechanism relies on the incentives of banks and appraisal firms. While the average loan to appraisal value was 82%, close to the maximum level recommended by the Bank of Spain, the average ratio of loan to market price was around 110%. This divergence is based on the overvaluation bias derived from the use of appraisal values and can be explained by two factors:

i) the incentives of appraisal companies, and

ii) the application of the methodology for valuation. The official housing price, based on the aggregation of appraisal values, incorporated that overvaluation bias in the index and generated external effects that exacerbated the housing bubble. There is also evidence of undeclared payment involved in housing transactions.

To solve the problems discussed above, and try to avoid the next bubble, the size of loans should be tied to the price declared in the official document of the transaction (escritura). If the loan is capped at 80% of the Registry price, many of the perverse incentives described above disappear. Buyers will not have an incentive to accept the overvaluation of the house to get a larger mortgage since they will have to pay more taxes. Sellers may still have incentives to declare lower values for the transaction but that incentive will not be aligned with the incentives of buyers who need a mortgage as large as possible to finance the purchase. This mechanism would avoid the multiplicity of prices and it would increase tax revenues largely avoiding undeclared money. Finally, it would eliminate the external effects of price indices based on appraisals.