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Why are Irish house prices still falling?

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Abstract

In this note, the continued fall in Irish house prices is examined. The increased rate of decline in 2011 resulted in Irish prices being almost 50 per cent down from peak levels of mid 2007. Accordingly, in over forty years of house price data, the fall is now one of the most significant across the OECD. We outline the current state of activity in the housing market and, using a suite of models, assess whether the fall in house prices is in line with that suggested by current fundamental factors within the Irish economy. Given that the analysis suggests prices may have overcorrected since 2010 we discuss possible reasons for this continued decline.

1 Introduction

As it enters its fifth year, the severe downturn in the Irish residential property market has already become one of the OECDs largest and most protracted. The pace of decline picked up once more throughout 2011 according to the official CSO Residential Property Price Index, with 2011q4 prices down over 16.7 per cent on a year-on-year basis. Consequently, the decline in values since the peak of the market was over 47 per cent.[2] Meanwhile estimates of asking prices, from sources such as Daft.ie and MyHome.ie were also indicating substantial falls from peak, of 51.8 per cent and 43.1 per cent respectively at the end of 2011.[3] Despite the evidence from these indices, many wonder whether they are a true reflection of where house prices are currently at, pointing to the results of recent property auctions which suggests house prices may be as much as 70 per cent down from peak levels.[4]

The temptation when discussing a recovery of

[1]The views expressed in this paper are those of the authors and do not necessarily reflect those of the Central Bank of Ireland or the ESCB.

[2]According to the latest CSO data, national residential property prices remained static for the month of March 2012, on the back of monthly falls of 1.9 per cent and 2.2 per cent at the end of January and February respectively. This translates to an annual decline of 16.3 per cent, while prices are 49.3 per cent from peak values at present. See CSO Residential Property Price Index March 2012, available online at http://www.cso.ie/en/media/csoie/releasespublications/documents/prices/2011/rppi-mar2012.pdf

[3]Daft.ie and MyHome.ie have released data for 2012q1 showing national asking prices 52.6 and 47.2 per cent respectively below peak values. See Daft.ie House Price Report, 2012Q1, and MyHome.ie Property Barometer Q1 2012, available online at http://www.daft.ie/report/Daft-House-Price-Report-Q1-2012.pdf and http://barometer.myhome.ie/q1-2012/MyHomePropertyBarometerQ12012-PrintVersion.pdf

[4]However, one should also interpret these results with caution given the mix of property types, the relatively small number of lots involved and the geographic area represented. In 2011, approximately 50 per cent of the properties auctioned were located in Dublin. Though the spread of properties was wider in the final auction of the year.

the property market is to focus on prices in particular; however, as Lyons (2012) observes, it is important to focus on a recovery in the broader context of market activity. In this regard, any immediate revival of the sector appears to still be some way off. The anaemic state of the current market is underlined by statistics from the Irish Banking Federation which show total new mortgage lending in 2011q4 down over 30 per cent from a year earlier (Figure 1). Furthermore while c.11,000 loans were granted for property purchases during 2011, this is down from almost 110,800 in 2006.[5] Similarly, there has been a sizeable reduction in the value of new lending for house purchases in 2011 to €2.1 billion from €27.8 billion in 2006, though this is partly explained by the fall in house values over this period. The scale of the decline in the level of mortgage transactions has seen comparisons drawn between the present and the 1970's in terms of the volume of new mortgage lending.[6]

Construction activity in the residential market is also heavily depressed at present. Forward-looking indicators, such as planning permissions, guarantees and commencements, the signals of any future expansion in building activity also remain subdued (Figure 2). Moreover, the Department of the Environment, Communtity, and Local Government report that almost 10,500 units were completed throughout 2011, down from 14,600 in 2010. At the height of the housing market c. 93,000 units were completed in 2006.

One positive trend in the housing market, is the improvement in affordability in recent years, especially for first time buyers (FTB's), (DKM 2011).[7] This occurs as the extent of price falls outweigh the combination of lower incomes and interest rate increases by banks on some variable rate mortgage products.[8] However, the imposition of tighter credit conditions by the banks could diminish much of this benefit.

2 Recent Irish house price movements

2.1 In a cross-country context

Historically, house price booms and busts have been a relatively common occurrence across OECD members. In countries where property crashes have occurred, subsequent banking crises are not unusual, (Benetrixia et al., 2009). Since the 1970's there have been many notable examples including Norway, Sweden and Finland (late 1980's/early 1990's), Japan (1990's) and the USA (post-subprime crash 2006/2007). However, the severity of the Irish property collapse since 2007 is now truly significant in a cross-country context. With over 4 years and counting of steady declines, as of 2011q3,[9] the Irish crash (44 per cent), was second only to Japan (49 per cent) in terms of depth (Table 1). Others countries such as Finland, Netherlands, Norway, Switzerland and Sweden have also experienced considerable declines where nominal values have decreased by over 20 per cent.

After 16 quarters of decline (to 2011q3), the Irish house price fall is still someway behind the most prolonged; Japan's 82 quarter (to date) collapse. Other nations which have experienced lengthy periods of house price busts include Switzerland (41 quarters) and Norway (20 quarters), while prices in Denmark (9 quarters) and

[5]The IBF data divides new lending into 5 categories: First Time Buyers (FTB's), Mover Purchases, Residential Investment Lettings (RIL's), Re-mortgages and Top-ups. Only loans granted for FTB's, Mover-purchasers and RILs are included in the property purchase figure above. When loans for re-mortgages and top-ups are included, the figures for 2011 and 2006 are 14,200 and 204,000 respectively. In recent quarters the level of new lending has begun to show signs of stabilisation, with the 2011q4 figure up 7 per cent on the 2011q3 figure.

[6]See Irish Examiner report from June 2011, http://www.irishexaminer.com/ireland/lending-levels-slip-to-state-not-seen-since-early-1970s-158603.html

[7]The DKM Housing Affordability Index is a measure of " the proportion of after tax income required to fund the first year of repayments on an average first time buyer working couple's mortgage (90 per cent LTV, 25 year term, both on average earnings) ". By this measure the affordability index has dropped from over 26 per cent of income in 2006 to c.13 per cent in November 2011

[8]While in general SVR rates have decreased markedly over the course of the financial crisis (from c. 5 per cent at the beginning of 2008), the average rate for those on standard variable rates (SVRs) has increased slightly over in the past couple of years from c. 2.5 per cent in Jan 2010 to c. 3 per cent in at the end of 2011.

[9]Though Irish figures for 2011q4 (and February 2012) are available, 2011q3 figures are referred to here for the purpose of cross-country comparison.

[10]The duration of a slump is measured in a similar way to Benetrixa et al (2011). The start is identified as the quarter after the nominal house price index in question records a local maximum, and it continues until a local minimum is reached, provided there has been no more than two consecutive quarters of (quarter-on-quarter) growth in-between.

Sweden (10 quarter) emerged relatively quickly from their housing troubles.[10] On average, the 10 previous episodes of major house price declines, outlined in Table 1, have lasted approximately 24 quarters (6 years), however, if the on-going slumps (Japan, Ireland and Spain) are excluded, the average falls to 18 quarters (4.5 years). In general, significant house price declines tend to follow a somewhat short, sharp collapse from peak to trough similar to the path followed by the Netherlands, Finland and Norway, rather than the more drawn out, gradual decline experienced in Japan. Graphically, up to this point, the Irish experience appears to resemble the former path more closely (Figure 3), however, it is striking that the Irish market has experienced a decline similar in size to Japans' in such a relatively short space of time.

2.2 Estimates of fundamental prices; what some models suggest

We now evaluate the state of the Irish housing market by estimating a series of long-run econometric models which are, typically, used to assess whether actual prices and those suggested by the models are aligned or not. Four different models are used in this exercise, thereby reducing the possibility of an evaluation of the market being *model dependent*.

All of the models are a form of inverted demand function where house prices are expressed as a function of key market fundamentals. The models may be summarised as follows;

(1) The standard reduced-form approach where prices are a function of income levels, real interest rates, population levels and the total housing stock (see McQuinn (2004) for a detailed review of the literature in terms of the reduced form, inverted demand approach).

(2) A related approach specifies house prices in terms of income levels, the capital stock per person and the user cost of capital (see Murphy (2006)).

(3) The affordability specification used in McQuinn and O'Reilly (2007) and (2008), which combines income levels and interest rates.

(4) A related version of the affordability model which explicitly allows for the role of credit (Addison-Smyth, O'Reilly and McQuinn (2009)).

All models are estimated with quarterly data between 1980q1 and 2011q3.[11] In Figure 4 we plot both the fundamental prices and the actual house price as well as the differences between both. It is evident that all models indicate some degree of overvaluation in the Irish market from 2003 onwards - with the degree dependent on the model. The model which suggests the smallest degree of overvaluation over the period is unsurprisingly model 4 - the Addison-Smyth et al. (2009) model as this explicitly allows for the role of credit in the specification. Model 3, the basic affordability model, suggests the largest degree of overvaluation. Models 1 and 2 both suggest degrees of overvaluation between that of models 3 and 4 (Figure 4, left hand side).

Turning to the downturn, both affordability models suggested house prices turned in 2006, while the other models didn't see price falls until late 2008 and into 2009. However, the price fall thereafter for both models 1 and 2 is quite significant. For the standard affordability model, the fundamental price actually *increases* through 2009 - this is because the affordability models are particularly sensitive to interest rate movements and actual mortgage rates fell considerably through 2008 and 2009, outweighing the negative movements in income levels.

What is clear, is that, while, post 2009, there has been a considerable fall in most of the fundamental prices, the pace of decline in actual prices is much more significant. Consequently, as at 2011q3, Irish house prices are between 12 to 26 per cent *below* the level suggested by fundamental factors within the economy (Figure 4, right hand side).

One other common metric used to analyse the state of property markets is the relationship between rental values and actual house prices. Studies such as Gallin (2004) and Himmelberg, Mayer and Sinai (2005) hypothesise the existence of a long-run relationship between house prices and the rental values accruing to a property. This relationship can be summarised in the rent price ratio (similiar to the dividend price ratio in the finance literature). A significant divergence in the rent

[11] Detailed econometric results are available, upon request, from the authors.

price ratio from its long run average is indicative of house price misalignment according to this model. It is worth noting that this approach, while attractive from a theoretical perspective, treats housing purely as an investment decision - the consumption element is essentially ignored. In Figure 5, we plot the rent price ratio[12] for the Irish market for the period 1982 to 2011.

Clearly, there has been a substantial change in the nature of the relationship over the period in question. Between 1995 and 1998, the relationship between rents and house prices in the Irish economy appears to have experienced a structural change. The ratio continued to decline from 2002 to 2007, however, since 2007 it has risen sharply and is now back to the level it was at in 2000. The policy implication from the analysis depends on how one regards the latter period of the sample (the shaded portion of the graph). If one accepts the concept of a structural change in the relationship between rents and house prices in the Irish market, then the market would appear to be in equilibrium. If, on the other hand, one regards the relationship between 1982 and 1995 as being more reflective of what the long run relationship between rents and house prices should be, then house prices still have some way to fall.

Notwithstanding the implications of the rent price analysis, the empirical evidence, in general, would appear to suggest that Irish house prices have fallen by more than what they should have over the past couple of years. This implication is compounded by the fact that beyond 2011q3, prices have continued to fall. In the next section we address reasons for this continued decline.

3 Why have prices overcorrected?

The tendency for house prices to "overcorrect" following a period of sustained increases is not uncommon. For example, Kennedy and McQuinn (2011) estimate that in the case of the UK, Finland and Sweden, countries which experienced varying house price downturns in the 1990s, prices, on average, were undervalued by up to 35 per cent after significant house price booms. One possible explanation for this, is where prices are declining on a persistent basis, the price expectations of prospective purchasers become increasingly negative - to the point where these expectations outweigh all other considerations in the house purchasing decision. During the house price boom, the concept of irrational exhuberence was frequently mentioned where some people were hypothesised to purchase property in the expectation that prices would continue to increase. In a downturn, the opposite to this could well be observed - people are reluctant to buy in case prices fall further. Therefore, persistently negative price expectations could continue to drive price levels below what fundamentals suggest they should be. In this regard the results of a recent survey released by Daft.ie (2012), are quite interesting, as they provide a insight into the respondants perceptions of future house prices. When asked what they thought would happen house prices over the coming 12 months, 94 per cent said they belived they would fall, with 50 per cent of the opinion that a fall of 10 per cent or more, is likely. Approximately 40 per cent also list the belief that house prices have further to fall as the most important factor in their decision to defer buying. As to their views on whether current prices in their region represented good value, 64 per cent believed they did not.[13]

Another potential reason for the continued decline in Irish house prices concerns the availability of mortgage credit. An increasing debate within the Irish market centres on whether the reduction in credit has come as a consequence of a lack of supply or a lack of demand. Banks, typically, proclaim their willingness "to do business" and point to a lack of consumer demand due to the uncertainty surrounding the property market and overall macro-economic outlook. The difficulties being faced by the FTBs and subsequent buyers, traditionally the mainstays of the housing market are emphasised in support of this claim. High levels of youth unemployment mean relatively low incomes

[12]Rental values are those reported by the Central Statistics Office (CSO), while house prices are the new official CSO series post 2005 with prices pre 2005 and 1997 backcast using the permanent tsb series and the Department of the Environment second house prices respectively.

[13]See Daft.ie, Consumer Attitudes Survey, (released February 2012), http://www.daft.ie/research/2012-Consumer-Attitudes-Survey.pdf. The survey was completed by 2058 people. Care should be taken when drawing conclusions given the likelihood that those using Daft.ie are likely to be more active in the property market (i.e. looking to buy/sell/rent) than the population as a whole

[14]As these workers are predominantly of household formation age (25-34).

or emigration for many, thus reducing the number of potential FTB's.[14] Even those with jobs have less job security and face the prospect of further reductions in income, due to the economic uncertainty. Moreover, many FTBs who would have ordinarily become subsequent buyers after trading-up have to contend with the additional complication of negative equity.

However, evidence from a series of property auctions held over the past year suggest that the demand for housing may be stronger than alluded to by the mortgage credit figures. The distressed property events held to date by Allsop Space, have been particularly well attended, generating widespread media coverage.[15] Initial calculations for the 4 auctions held in 2011, show that c.90 per cent of the properties offered were sold for a combined €51 million.[16] It is noteworthy that for the first 3 auctions 87 per cent of buyers were Irish and 86 per cent of the purchases were cash deals.

According to the Daft.ie "Consumer Attitudes Survey", the desire of people to purchase a home remains strong, with 84 per cent of those asked hoping to buy a property at some stage in the future. Asked about the likely timeframe in which they saw this happening, 38 per cent responded that they aim to buy within a year[17], while a further 22 per cent replied that they wished to secure a home in the next two years. On the face of it a question on current property market status suggests that there could potentially be a sizeable level of "pent-up" demand in the market, with almost two thirds declaring that they were either renting or living with parents at the moment. The recent release of detailed 2011 Census results showing the rise in the number of households renting is also noteworthy in this regard.[18]

A potentially significant constraint on the provision of credit in the Irish financial system is the requirement to deleverage. While financial institutions naturally tend to deleverage their balance sheets after a sustained credit boom, Irish banks are *obliged* to do so under the conditions of the programme of support negotiated between the EU/IMF and Irish authorities in November 2010. In particular, specific loan to deposit ratios have been set for Irish institutions by 2013. Both Lyons (2012) and Namawinelake (2011), outline how the deleveraging process may be leading to a certain reluctance on the parts of banks to advance credit. In particular, Lyons (2012) observes, that while the levels of unemployment and emigration are undoubtedly high, there are still over 514,000 people in the household formation cohort who are in work. Many of these would be active in the market under more normal circumstances. The CSO statistics pointing to the growth in Ireland's net population and falling average household sizes cited by Namawinelake (2011), are also relevant here. Furthermore, in reponse to a question about the 3 most important factors delaying one's next property purchase in the Daft.ie survey, the inability to secure a mortgage is amongst the most popular answers. Savills (2011) and Duffy (2012), also note the current lack of mortgage credit as an impediment to any potential market recovery.

A recent analysis of the components of house price growth adds weight to the notion of contracting credit conditions constraining house price movements. Using loan level data for four Irish financial institutions over the period 2000 - 2010, McCarthy and McQuinn (2012) assess the contribution of changes in credit conditions such as income multiples and loan-to-value ratios along with that of fundamental factors such as income levels and interest rates.[19] Their analysis suggests that one of the main reasons for the fall in house prices in 2009 and 2010 was the reduction in the size of the income multiple allowed by financial institutions. While it should be noted that this analysis is static in nature and does not address, for example, the potential causation issues between house prices

[15] According to Allsop c.300, 000 people accessed the online catalogues, while over 6,000 attended the first 3 auctions. See also "92 per cent of Lots sold by Allsop", Irish Times December 1st 2011, which reports an attendance of 1,600 at the 4th auction, held on November 30th 2011.

[16] In total 341 lots went to auction with 308 selling. Figures compiled by Allsop show that of the approximately €40 million raised in the first 3 auctions, c. €35 million came from Irish purchasers. The auctions were mixed, and though they contained commercial and retail units - 234 "residential" units have been identified. The 5th Allsop auction was held on March 1st 2012, where 87 of the 93 properties offered on the day were sold for €12.4 million

[17] This figure includes those who answered "as soon as possible" (11.8 per cent), "within 6 months" (8.5 per cent) and "within a year" (17.4 per cent).

[18] According to the CSO, the number of households renting from a private landlord increased from c.145,000 households in 2006 to over 305,000 households in 2011.

[19] The income multiple is defined as that proportion of income which financial institutions implicitly allow to service the mortgage repayment.

and credit conditions,[20] it does support the view that constraints in credit supply maybe a factor in continued house price falls.

Meanwhile, comparative work done on Irish small and medium sized enterprises (SMEs) suggests that contracting credit conditions are impacting on growth in other areas of the Irish economy. Holton, Lawless and McCann (2012), use survey data to analyse changes in credit standards for Irish borrowers and ask whether, relative to European counterparts, changes in credit standards are playing a role in the Irish credit contraction. Using the ECB's SME Survey of Access to Finance, their approach compares credit experiences across a series of indicators, for Irish SMEs vis-á-vis those of euro area peers. A general pattern to emerge from the results is one of firms being more credit constrained relative to those in other countries. For some credit constraint measures, such as bank rejection rates, interest rates and collateral requirements, the results indicate that credit is becoming significantly more constrained over the recent period.

4 Concluding comments

The persistent decline in Irish house prices and, in particular, the acceleration, relative to that in 2010, of the fall in 2011, poses a significant financial stability concern. This note has, using standard models of house prices, examined where actual prices are, at present, compared to fundamental levels. Most of the models suggest that Irish prices have now overcorrected by up to 12 to 26 per cent.

However, as noted in earlier work (Kennedy and McQuinn (2011)), it is not uncommon for prices to fall in such a manner following a significant house price crash. Investor confidence, a key driver in a buoyant market, has been critically impaired and will likely take some time to recover. Further more, the natural inclination for a financial system to deleverage after a significant credit bubble is compounded in the Irish market, where financial institutions are obliged to reduce their balance sheets in order to achieve a more stable funding profile. A growing array of evidence suggests that the difficulty in providing mortgage finance in the Irish market is having a contractionary impact on market activity and price levels.

[20] Such as that addressed in papers such as Gerlach and Peng (2005) and Fitzpatrick and McQuinn (2007).

References

[1] Addisson-Smyth, D., McQuinn K. and G. O'Reilly (2009) "Modelling credit in the Irish mortgage market, *Economic and Social Review*, Vol 40(4), pp.371-392, 2009.

[2] Allsop Space, (2011), Statistical Analysis: April - September 2011, available online at; http://namawinelake.files.wordpress.com/2011/10/allsopspacestatisticalanalysis1.pdf

[3] Benetrix. A., B. Eichengreen, and K. O'Rourke, (2011) How housing slumps end, IIIS Discussion Paper No.384.

[4] CSO Residential Property Index, available online at: http://www.cso.ie/en/media/csoie/releasespublications/documents/prices/2011/rppidec2011.pdf

[5] Daft.ie (2012). Consumer Attitudes Survey, available online at; http://www.daft.ie/research/2012-Consumer-Attitudes-Survey.pdf

[6] Duffy. D. (2012). The outlook for the housing and mortgage market, presentation delivered at Irish Banking Federation (IBF) Mortgage Conference January 2012.

[7] Fitzpatrick, T. and K. McQuinn (2007), "House prices and mortgage credit: Empirical evidence for Ireland," *The Manchester School*, Vol. 75, Number 1, pp.82-103.

[8] Gallin, J. (2004). The long-run relationship between house prices and rents, Finance and Economics Discussion Series 2004-50, Board of Governors of the Federal Reserve System.

[9] Gerlach, S. and W. Peng (2005), "Bank lending and property prices in Hong Kong," *Journal of Banking and Finance*, 29, 461-81.

[10] Holton S., Lawless M. and F McCann (2012), "'Credit demand and supply conditions: A tale of three crises"', paper presented at the Central Bank of Ireland Conference on the SME Lending Market, Radisson Sky Blue hotel, Dublin 2.

[11] Himmelberg, C., Mayer, C. and T. Sinai, (2005). Assessing high house prices: Bubbles, fundamentals, and misperceptions, NBER Working Papers 11643, National Bureau of Economic Research, Inc.

[12] IBF/PWC Mortgage Market Profile Q3 2011, available online at: http://www.ibf.ie/Libraries/ResearchStatistics/172618r.sflb.ashx

[13] Kennedy G. and K. McQuinn (2011). Scenarios for Irish house prices, Central Bank of Ireland *Economic Letter*, Number 2.

[14] Lyons. R. (2012). What's another year? Confidence and finance the keys to recovery, Daft.ie House Price Report 2011Q4.

[15] McCarthy Y. and K. McQuinn (2012). Decomposing Irish house prices: 2000 - 2010, *Central Bank and Financial Services Authority of Ireland Research Technical Paper* forthcoming.

[16] McQuinn, K. (2004). A model of the Irish housing sector, *Central Bank and Financial Services Authority of Ireland Research Technical Paper* 1/RT/04.

[17] McQuinn, K. and G.O'Reilly (2007). A model of cross-country house prices, Research Technical Paper 5/RT/07, Central Bank and Financial Services Authority of Ireland.

[18] McQuinn, K. and G.O'Reilly (2008). "Assessing the role of income and interest rates in determining house prices," *Economic Modelling*, Vol. 25 pp.377-390.

[19] Murphy, A. (2005). Modelling Irish house prices: A review and some new results", Nuffield College Oxford. mimeo. http://www.nuff.ox.ac.uk/Users/MurphyA/Irish%20House%20Prices.zip

[20] Namawinelake (Author Unknown), (2011), Irish property prices in 2012, available online at; http://namawinelake.wordpress.com/2011/12/31/irishpropertypricesin2012/

[21] Savills Research, Savills Ireland, (2011), Irish property market update, presentation delivered to the Central Bank, September.

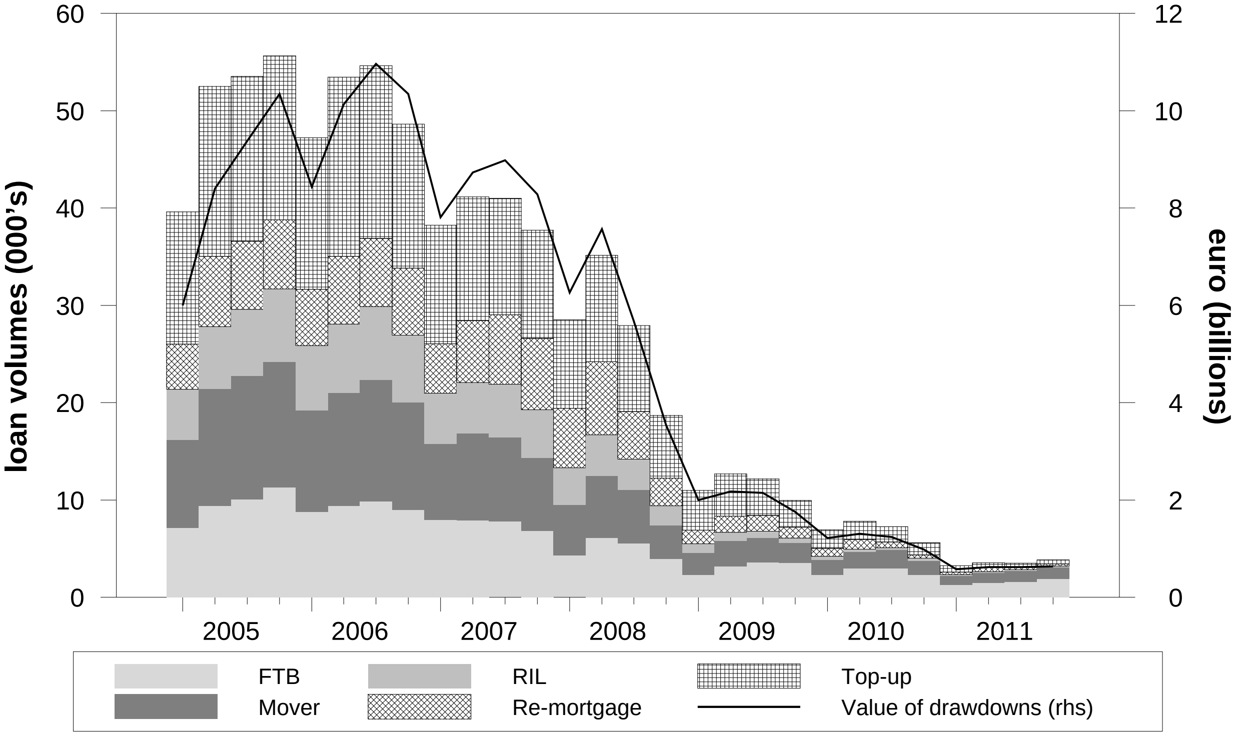
Table 1: Select Cross-Country (Nominal) House Price Declines (%)

Country	Quarter of Peak	Quarter of Trough	No. of Quarters	% △ Peak-to-Trough	Average % △ per quarter
USA	2007:2	2011:2	16	-16.3	-1.1
Denmark	2007:1	2009:2	9	-17.0	-2.0
Spain	2008:1	2011:3 (ongoing)	14	-18.2	-1.4
Sweden	1991:1	1993:3	10	-20.9	-2.3
Switzerland	1989:4	2000:1	41	-25.2	-0.7
Norway	1988:1	1993:1	20	-25.8	-1.5
Netherlands	1978:2	1982:2	16	-32.8	-2.4
Finland	1989:3	1993:2	15	-36.9	-3.0
Ireland*	2007:3	2011:3 (ongoing)	16	-44.2	-3.6
Japan	1991:1	2011:3 (ongoing)	82	-49.1	-0.8
Average			24	-28.6	
Average**			18	-25.0	

Source: OECD and Central Bank of Ireland calculations

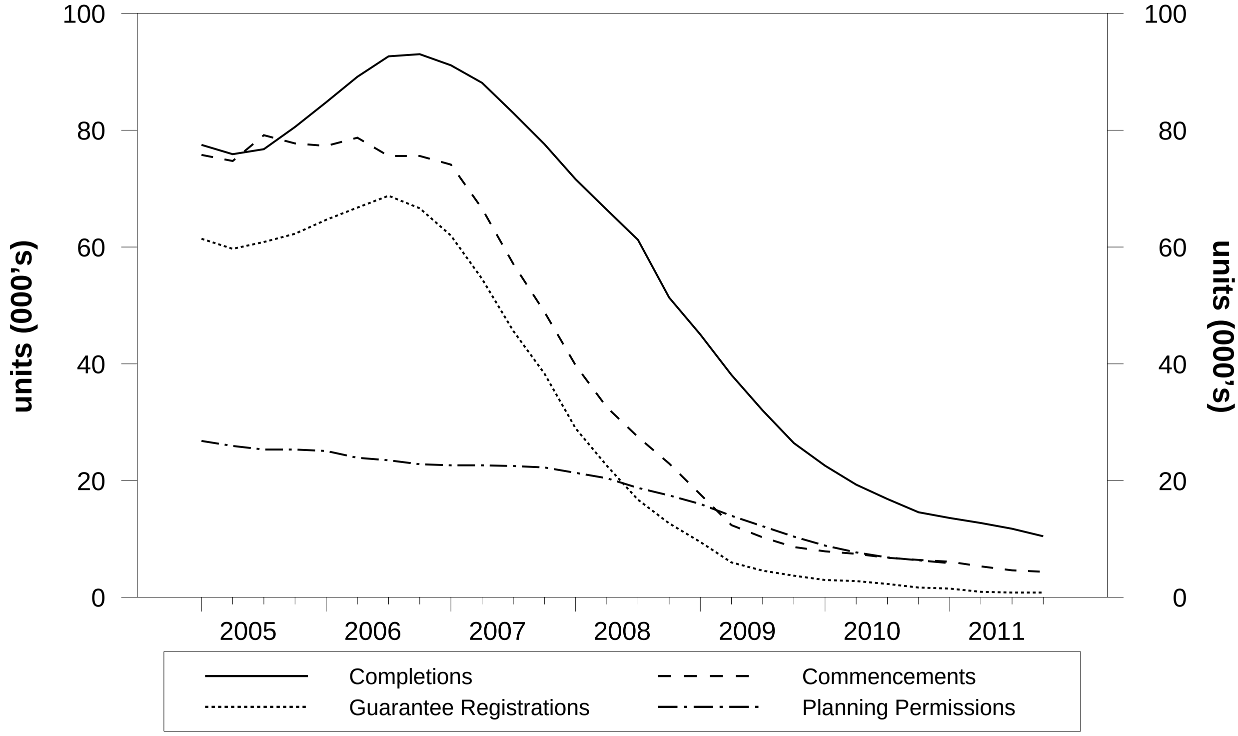
Note: Latest OECD data 2011Q3. *Irish house prices are CSO data (National Residential Property Price Index 2011Q3). ** Average excluding Spain, Ireland and Japan.

Figure 1: New Mortgage Lending 2005:1 - 2011:4



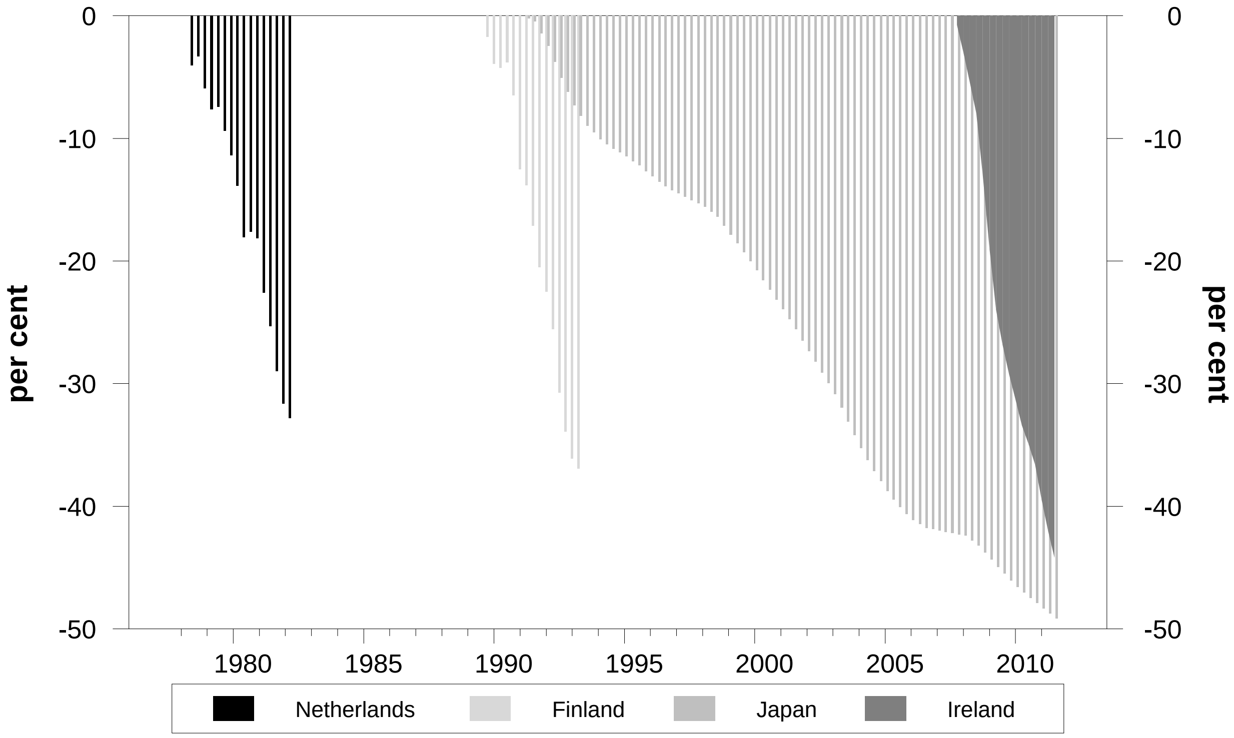
Source: Irish Banking Federation

Figure 2: Indicators of Residential Construction Activity 2005:1 - 2011:4



Source: Department of the Environment, Community and Local Government

Figure 3: Duration of Nominal House Price Falls



Source: OECD and Central Bank of Ireland calculations

Figure 4: Results of Different House Price Models 2000:1 - 2011:3

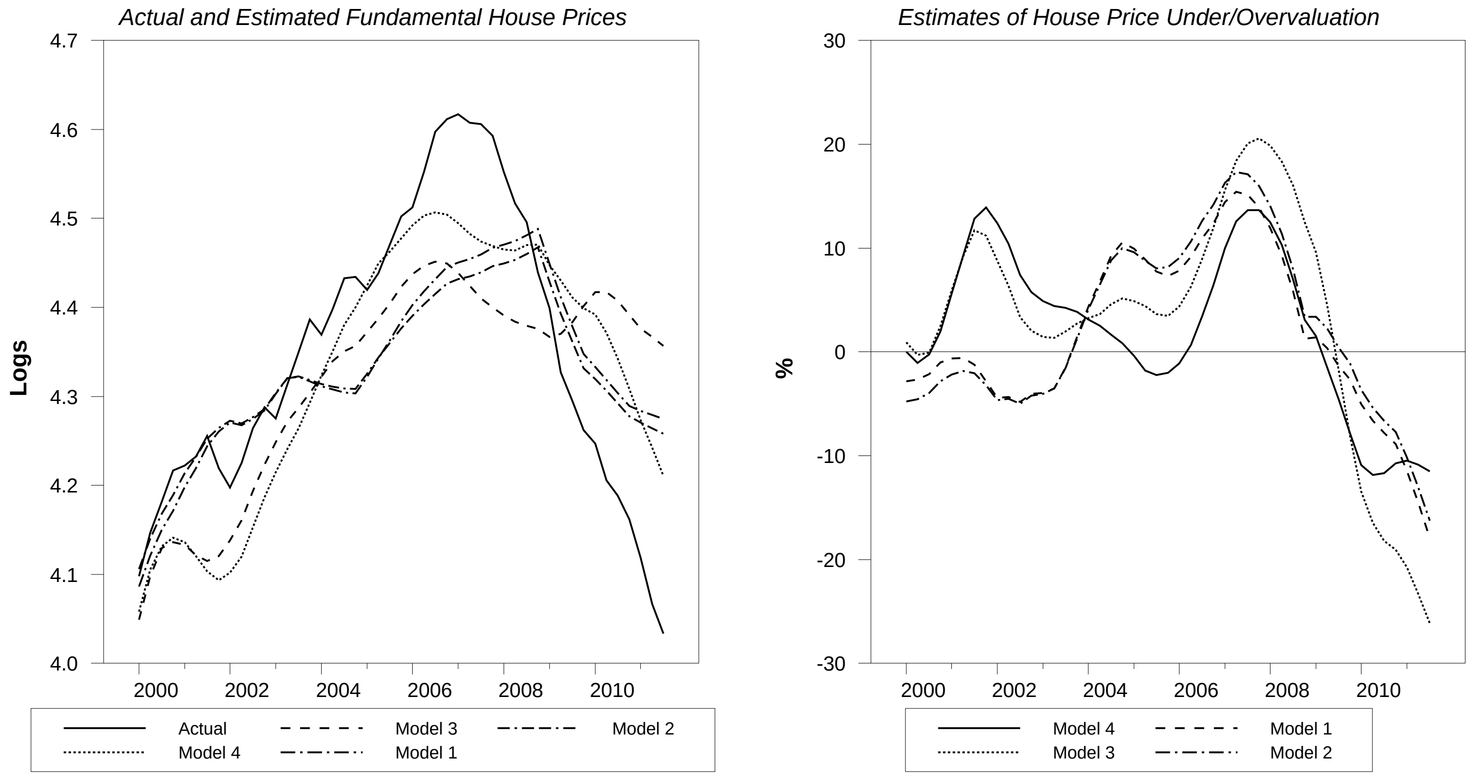


Figure 5: Irish Rent Price Ratio 1982:1 - 2011:3