

# Irish Housing: A Role for Loan-to-Value Limits?

David Duffy

RENEWAL SERIES  
PAPER 7

*February 2012*





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The ESRI acknowledges the financial support of the FBD Trust for the *Renewal Series*. FBD Trust is a philanthropic trust established by FBD Holdings plc.

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## **Acknowledgements**

I would like to thank the editors, the anonymous reviewers and the participants in an internal ESRI seminar for their comments on an earlier draft of this paper.



# Irish Housing: A Role for Loan-to-Value Limits?

## Abstract

This paper examines international evidence on whether there could be a role for Loan-to-Value (LTV) limits in macroprudential regulation in Ireland. The paper first establishes the trends in LTVs during the Irish housing boom, and then turns to international evidence, mostly from countries that have introduced LTV limits. The paper finds evidence that LTV ratios are linked to boom and bust cycles in housing markets, including the level of personal debt and exposure to negative equity. Where LTV limits have been introduced there is evidence that, while they do not prevent booms from occurring, they may contribute to reducing house price volatility and limit the extent of damage to the banking sector at the end of the boom. The paper concludes that, while evidence is not entirely conclusive, there may be a role for LTV limits as one of a set of macroprudential policy instruments.

## 1. INTRODUCTION

While the extent of the rise and the depth of the fall may vary, Ireland in common with many other developed economies has experienced a housing market boom and crash. As the duration and depth of the international housing market downturn has continued a growing body of international research has sought to examine the factors that contributed to the crisis and outline possible responses. Three broad policy areas emerge from the literature - monetary policy, fiscal policy and macroprudential regulation.<sup>1</sup> According to the Committee on the Global Financial System (2010), the aim of macroprudential policy is “to reduce systemic risk, strengthening the financial system against shocks...”, with systemic risk considered to be the “risk of disruption to financial services that is caused by an impairment of all or parts of the financial system and has the potential to have serious negative consequences for the real economy”. Macroprudential policy has two main aims: to strengthen the financial system’s resilience and to actively limit the build-up of financial risks.

This paper does not examine the causes of the housing market boom, either internationally or in Ireland. Rather, it is concerned with one specific macroprudential policy response that relates to the housing market. Macroprudential measures are usually designed to target specific objectives, such as household borrowing. Given their narrow focus they are usually considered to be able to tackle an issue more directly and at a lower cost than the broader sweep of monetary or fiscal policy. In the context of the housing market, measures could include higher capital requirements, dynamic provisioning (mandating higher loan loss provisions during upswings), or limits on debt-to-income ratios. The focus of this paper is on a specific macroprudential measure aimed at borrowing in the housing market, namely, a limit on loan-to-value ratios (LTV). The introduction of such a limit can have both individual borrower and macro-economy effects. A limit on the maximum LTV ratio might help to curtail the build-up of debt by mortgage borrowers, reducing the risk associated with house price volatility. Lower borrowing means that greater declines in house prices are needed to place borrowers in negative equity. It is argued that limits on the amount that can be borrowed may also contain the extent of a boom by reducing the number of borrowers at a given price (Crowe et al, 2011a, 2011b). For the macro-economy, LTV limits can have the effect of lowering house price volatility and reducing the impact of a residential property market downturn on the banking sector. In addition, there is some evidence that LTV limits lower

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<sup>1</sup> Clement (2010) reviews the use of the term macro-prudential, stating that it refers to “the use of prudential tools with the explicit objective of promoting the stability of the financial system as a whole, not necessarily the individual institutions within it.”



house price expectations, which can have a dampening effect on house price growth.

This paper reviews the international evidence on caps to loan-to-value ratios, with the aim of assessing their potential value as a policy tool. Firstly, it examines the trend in average LTV ratios in Ireland as well as looking at published data on the distribution of LTV ratios. Section 2 also reviews some of the international evidence on the links between LTV ratios and housing markets, while section 3 discusses the international evidence on the role that LTV ratios have played in housing booms. Section 4 outlines the published evidence to date which suggests that while LTV limits can have some impact on the property market, their main result has been to strengthen the resilience of the banking system to economic shocks. Section 5 discusses some of the issues surrounding the implementation of LTV limits. Section 6 concludes.

## **2. WHAT HAPPENED TO LOAN-TO-VALUE RATIOS IN IRELAND?**

Research at the IMF by Crowe et al (2011a) found that, across a sample of 21 countries, the average LTV ratio was 71 per cent. However, the Committee on the Global Financial System (2006) show data indicating that while most housing markets have LTV ratios of between 80 and 100 per cent, the average can range from 60 per cent (Australia) to, until recently, 125 per cent (Netherlands)<sup>2</sup>. In addition, while there remains variation by individual market, longer mortgage contracts are associated with higher LTV ratios.

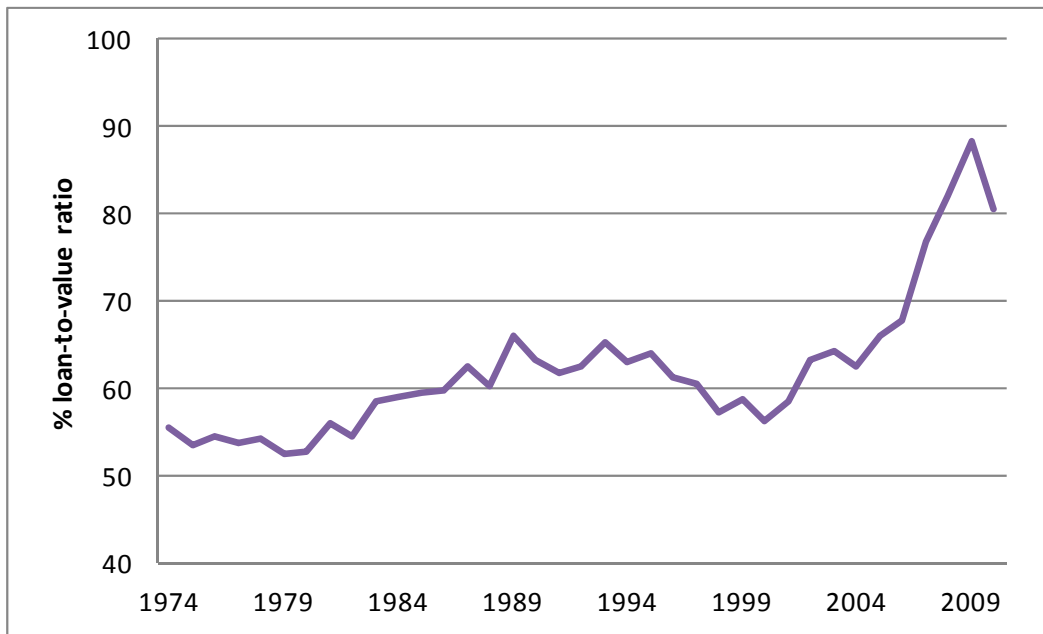
It is possible to construct a long run time series of the average LTV ratio for the period 1970 to 2010 for Ireland. Having remained relatively low for most of the period the average LTV ratio began to increase sharply from 2005, which may, in part at least, be due to the introduction of 100 per cent mortgages. At their peak in 2009 the annual average LTV ratio was 94.2 per cent for new and 85 per cent for second-hand houses.

Figure 2 shows average house prices in Ireland. In an Irish context, house prices began to rise rapidly prior to any increase in LTV ratios. This may point to higher LTV ratios becoming a factor late in the boom and allowing the boom to continue for longer than it otherwise would.

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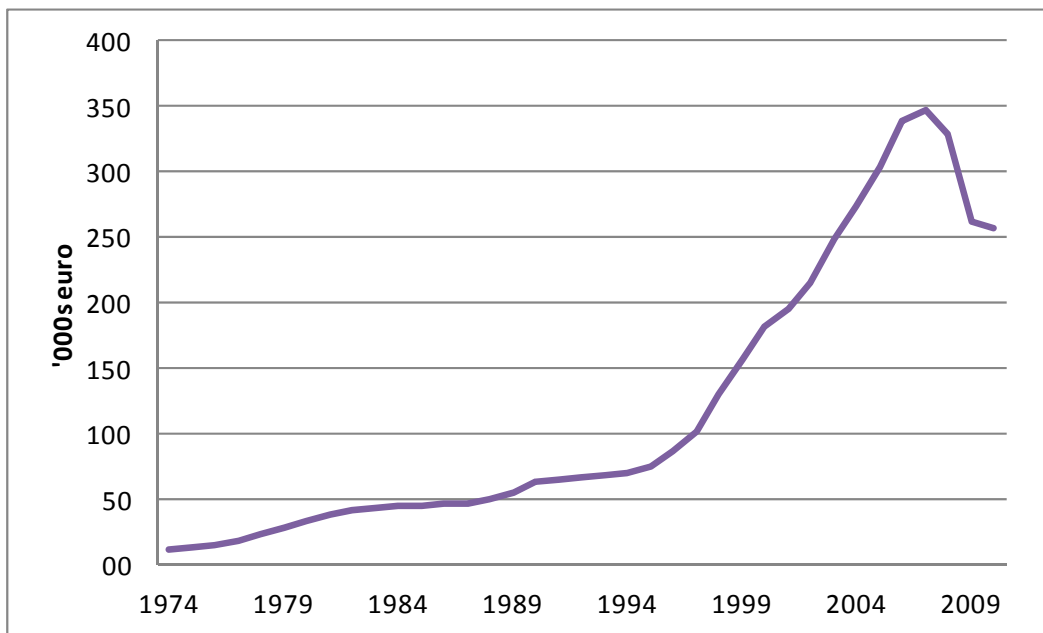
<sup>2</sup> According to the Netherlands Authority for the Financial Markets, new standards mean that the mortgage loan may amount to 112 per cent of the purchase value of the residence. The part of the debt that is in excess of the purchase value has to be redeemed within 7 years, or covered by accumulated assets. Until now, there was no maximum for the amount of the mortgage loan compared with the value of the residence. Press release April, 21 2010.

**Figure 1: Average loan to value ratio, Ireland**



Source: Based on Dept. Of Environment data for mortgage loans paid, 1970-2006; Data from 2006-2010 from Irish Banking Federation and Local Authorities.

**Figure 2: Average house price, Ireland**



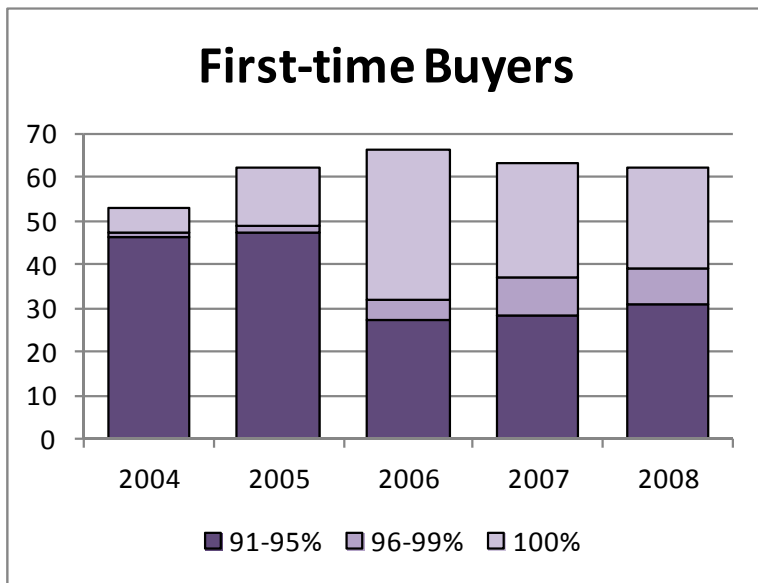
Source: Based on Dept. of Environment Housing Statistics.

As pointed out by Committee on the Global Financial System (2006), the national average LTV ratio could be high but it could be that the high LTV ratios are all concentrated in high income or high wealth households who have more scope to respond to shocks and a lower probability of receiving a negative income shock. Household vulnerability is lower in this situation than if the high LTV ratios are

concentrated in higher credit risk borrowers, who are likely to have low or variable incomes. Thus, in assessing the role of LTV limits data should ideally be available at the household level to enable a more accurate analysis of the size of the most vulnerable subgroup of the population and the extent of the risks they face.

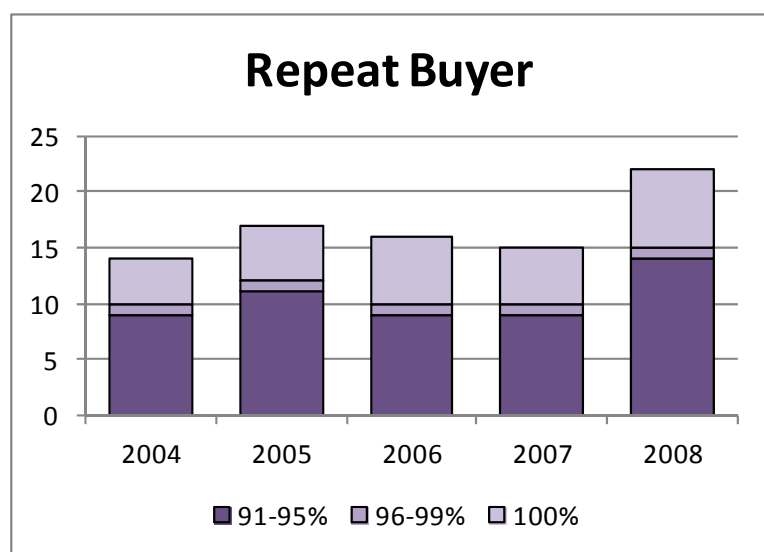
Average LTV ratios may not be representative of the risks in the market – what may be more indicative of risk is the distribution of ratios. For example, while the average LTV ratio in the US was 76 per cent in the years prior to the crisis, loans with a LTV ratio of 100 per cent were widely available (IMF 2011). While data on the distribution of LTV ratios for Ireland are limited, the Department of Environment has published the range of LTV ratios for the period 2004 to 2008. What is most noticeable is the high proportion of first-time buyers (FTB) with a very high LTV ratio. In 2007 and 2008 around one in four first-time buyers had a LTV ratio of 100 per cent; see Figure 3a. In contrast, in 2008 only 7 per cent of repeat buyers had an LTV of 100 per cent, Figure 3b. As noted by Doyle (2009) by the end of 2008, 100 per cent mortgages were no longer available as, following house price falls, banks became more restrictive with respect to LTV ratios.

**Figure 3a: Percentage of mortgages with LTV > 90 per cent, First Time Buyers**



Source: Based on Dept. of Environment Housing Statistics.

Figure 3b: Percentage of mortgages with LTV > 90 per cent, Repeat Buyers



Source: Based on Dept. of Environment Housing Statistics.

In response to the crisis a number of countries have taken steps to increase mortgage market regulation, including setting LTV limits. For example, amongst others, Sweden has set a maximum LTV ratio of 85 per cent, while Finland has set a limit of 90 per cent (IMF 2011). The Honohan report (2010) into the Irish banking crisis reveals that the introduction of LTV limits was identified in 2006 as a potential measure to dampen the property boom by the Financial Regulator. Capital requirements were raised for high LTV ratio mortgages in 2006, although this was after much debate and is considered “belated and relatively modest”. Alternatives, such as banning (or disapproving publicly of) 100 per cent LTV ratio mortgages, were not considered seriously as they were felt to be out of tune with the principles-based approach<sup>3</sup> and with the international regulatory fashion of the time (Honohan 2010). In addition there were concerns that stronger regulatory action would have had a negative impact on the competitiveness of institutions under the remit of the Financial Regulator and may have made Ireland a less attractive location for international investment. Again these issues are discussed in more detail in Honohan (2010).

In Ireland, while there is currently no direct regulation of credit limits, as part of Central Bank restructuring, broader regulatory powers which would include the ability to prescribe lending limits are anticipated (CBFSAI, 2010). The Central Bank aims to improve the identification and control of credit risk by enhancing credit

<sup>3</sup> Principles-based regulation relied very heavily on making sure that appropriate governance structures and systems were in place in banks and building societies (Honohan 2010).

history information about borrowers. The lack of comprehensive credit information can lead to poor lending decisions resulting in overleveraged borrowers. With regard to credit limits, the Central Bank is keeping under review the potential for credit limits to be applied as a macro-prudential measure.

### **3. THE ROLE OF LOAN-TO-VALUE RATIOS IN HOUSING BOOMS**

Among the factors identified internationally as facilitating the boom in housing markets has been the trend towards a more deregulated mortgage market, increased competition within the mortgage market and high levels of mortgage product innovation.<sup>4</sup> Ellis (2006) argues that these factors, combined with the effect of lower inflation on nominal interest rates and increased credit supply, supported increased demand for housing. Given the relatively inelastic nature of housing supply, higher house prices resulted. Andrews (2010), in an analysis of a panel of OECD countries, finds that financial deregulation and mortgage innovations have been associated with a noticeable increase in the effective demand for housing and, thus, real house prices. Duca, Muellbauer and Murphy (2011) using US data show that LTV ratios rose over the period 2000 to 2005 and find that changes to credit standards played a major role driving real US house prices. Andrews et al (2011) found that over the past three decades, after accounting for a number of macro-economic and structural factors, demand pressures arising from financial deregulation may have translated into increases in house prices of some 30 per cent in an average OECD country over the period.

Part of the mortgage market innovation that took place included an increase in LTV ratios internationally. Borio and Shim (2007) and Borio, Furfine and Lowe (2001) suggest that LTV ratios are inclined to be pro-cyclical, as lenders tend to relax LTV ratios in good times in response to competitive pressures and perceptions of declining risk. In an analysis of the US housing market, Ellis (2008a) argues that, in part, the depth of the housing downturn in the US was caused by an easing of lending standards. This included the use of second mortgages, (resulting in higher overall LTV ratios), higher initial LTV ratios on new mortgages, and the availability of 100 per cent mortgages. Furthermore, the introduction of interest only<sup>5</sup> mortgages meant that not only were initial LTV ratios high, but they stayed high on an ongoing basis.

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<sup>4</sup> For example, see André (2010) or Ellis (2008a).

<sup>5</sup> An interest only mortgage means that the borrower does not repay any of the principal but instead just pays the interest due. Typically for this type of mortgage a borrower would have an interest only period at the commencement of the mortgage, say for 3 years, after which they would then begin to repay both interest and capital.

As part of a wider examination of the influence of structural and policy factors on real house prices, Andrews (2010) looks at the role played by the LTV ratio. Based on his analysis of 20 OECD countries he finds that an increase in the LTV ratio is associated with higher real house price volatility, where they measure house price volatility as the standard deviation of annual real house price growth over 5 year intervals between 1980 and 2005. The empirical results show that half a standard deviation rise in the LTV ratio (equivalent to 5 percentage points) is associated with a 7 per cent increase in real house price volatility, although the impact is lower in countries with a more responsive housing supply and higher transactions costs. In addition, Andrews finds that house price volatility tends to be higher in environments characterised by high rates of leverage (proxied by using maximum LTV ratios). On the basis of his wider analysis, Andrews (2010) concludes prudential banking supervision and policies aimed at containing the build up of borrowing reduce the extent of house price volatility, and that these results support the argument for ongoing prudential reform.

Empirical analysis in IMF (2011) using data from 19 advanced OECD economies covering the period 1980 to 2010 shows a positive, significant, relationship between LTV ratios and the magnitude of house price downturns. The analysis finds countries where LTV ratios are high, on average, have deeper downturns. Crowe et al (2011b) acknowledge that establishing a causal link running from LTV ratios to house price dynamics is difficult due to lack of time series data, lack of variation in LTV limits over time, or the lack of mandatory LTV limits in many countries. Nonetheless, using data from 21 countries they find that maximum LTV limits are positively related to house price appreciation between 2000 and 2007, estimating that a 10 percentage point increase in the maximum LTV ratio allowed is associated with a 13 per cent increase in nominal house prices. Other research has also shown the influence of LTV ratios on house prices, with positive shocks to income leading to larger house price increases where LTV ratios are higher (Lamont and Stein (1999), Almedia, Campello, and Liu (2006), Benito (2006).

Thus, there is a wide range of papers using cross-country analysis showing that higher LTV ratios are associated with higher house prices and higher house price volatility.

#### **4. EVIDENCE ON LIMITS ON LOAN-TO-VALUE RATIOS**

As part of the discussion on what caused the boom and possible means of containing future booms, there has been some focus on the potential role to be played by capping LTV ratios. Crowe et al (2011b) cite examples of the effectiveness of LTV limits. For example, in Korea the introduction of LTV limits in September 2002 saw monthly house price inflation fall from 3.4 per cent to 0.3

per cent and then remain low until April 2003. Subsequent lowering of the LTV limit was followed by reductions in house price inflation.

#### *The use of LTV limits in Hong Kong*

One housing market with long run experience of LTV limits is Hong Kong, where maximum LTV limits have been in place since 1991, as well as the adjustment of these limits to intervene in the market. The policy of LTV limits was introduced with two main aims: to strengthen bank resilience to asset price volatility, and to reduce the risk of bank credit becoming a source of cycle amplification. Prior to 1991 the maximum LTV ratio was 90 per cent. Initially a LTV limit of 70 per cent was adopted voluntarily by the banking sector, until November 1995 when the policy became part of regulatory policy. Since then the LTV limit has remained in place although its value has varied in the face of property market conditions. For example, in its most recent move, the Hong Kong Monetary Authority reduced the maximum LTV for properties valued at over HK\$12 million (approximately 1.2 million euro) to 50 per cent, lowered the maximum LTV ratio for properties valued over HK\$8 million (€785,000 approx.) and below HK\$12 million from 70 per cent to 60 per cent and capped the maximum loan amount at HK\$6 million (€590,000 approx). For residential properties with a value below HK\$8 million the maximum LTV ratio was held at 70% but the maximum loan amount was capped at HK\$4.8 million (€470,000 approx.). For all non-owner-occupied residential properties, the limit has also been reduced to 50 per cent regardless of the property value. These measures were introduced amid concerns that the housing and mortgage markets would grow too rapidly, exposing the banking system to higher risks.<sup>6</sup>

Using loan level data for Hong Kong, Wong et al (2004) find that the LTV ratio is statistically significant, the higher the current LTV ratio the greater is the default probability. In addition they undertake a simulation exercise, allowing the LTV limit to be relaxed from 70 per cent to 90 per cent. This results in a sharp increase in negative equity loans and a default rate twice that which actually occurred. The evidence presented in the analysis suggests that the policy of limiting LTV ratios has a role in reducing negative equity and mortgage defaults.

Using panel data from 13 economies, some of which do not have a LTV policy, Wong et al (2011) assess the sensitivity of the mortgage delinquency ratio<sup>7</sup> to property prices and find that sensitivity is lower in economies with a LTV policy. A

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<sup>6</sup> Hong Kong Monetary Authority Press Release, November 19th, 2010.

<sup>7</sup> The mortgage delinquency ratio is measured by a ratio of total amount of overdue loans to total outstanding loans.

1 per cent drop in property prices would increase the delinquency ratio for economies with LTV policies by 0.35 basis points, whereas there would be a 1.29 basis point increase for economies without a LTV policy. Thus, the policy is considered to be an effective one with regard to reducing systemic risk. In addition the limits have played a role guarding the system against the house price crash in 1997. They find that “if maximum LTV ratios were to have been relaxed from 70 per cent to 90 per cent before 1997, the delinquency ratio right after the 40 per cent decline in property prices in 1997-98 would have been 1.7 per cent compared to the actual level of 0.84 per cent at the end of 1998.” These results are consistent with the earlier Wong et al (2004) study which used loan level data.

Wong et al (2011) use data for Hong Kong, Singapore and Korea, three economies with LTV limits, to examine the effectiveness of LTV policy and the tightening of this policy in stabilising the property market. The results in relation to the property market are mixed. However, they find strong empirical evidence that tightening LTV caps reduces household leverage, leading the authors to suggest that LTV policy may affect systemic risk via effects on household leverage with the property market playing a minor role.

Although limited to a LTV ratio of 70 per cent, credit is available in the Hong Kong property market under a mortgage insurance programme allowing qualified borrowers to obtain a loan of up to 90 per cent of the house value. However, the lenders exposure remains at 70 per cent as the remaining 20 per cent is insured by the Hong Kong Mortgage Corporation. The mortgage insurance programme does allow qualifying borrowers overcome the hurdle of a substantial downpayment, even if the loan repayments were affordable. Wong et al (2011) show that usage of mortgage insurance increased between 1999 and 2009, arguing that this indicates that the concerns about LTV limits and liquidity constraints should not be lightly dismissed. As part of their panel data analysis they examine whether mortgage insurance programmes reduce the effectiveness of a LTV policy but find no evidence that such an effect occurs. Mortgage insurance of high LTV loans is also a feature of the Canadian mortgage market; see Kiff (2009).

Gerlach and Peng (2005) find the introduction of LTV limits to have a significant impact on bank lending and property prices in Hong Kong. They find that bank lending adjusts to property prices, with a 10 per cent increase in real property prices leading to a 4 per cent rise in real bank credit prior to 1991 but by only 1.3 per cent after 1991, at least in part due to the introduction of an LTV limit. These



results show that the prudential regulation and risk controls limited the exposure of the banking sector to swings in property prices.

Crowe et al. (2011b), based on the Hong Kong experience, suggest that while LTV limits may not prevent a boom, their presence helps to limit damage to the banking system. The positive experience using LTV limits in Hong Kong is pertinent in an Irish context, as Hong Kong is also a small open economy. Furthermore, the pegging of their currency to the US dollar means that monetary policy cannot be used to control asset prices, see Gerlach and Peng (2005).

#### *LTV Limits and Debt-to-Income Limits*

LTV limits are one of the macroprudential measures that have been introduced in some economies and considered in the literature as a means of containing the effects of a real estate boom and bust. In some cases they have been introduced in conjunction with other measures, such as debt-to-income limits, for example, China introduced LTV limits in 1997 and followed with debt-to-income limits in 2004 (IMF 2011). Similarly debt-to-income limits were introduced in Korea approximately three years after the introduction of LTV limits. There is little empirical evidence available of the use of debt-to-income limits with much of the macroprudential literature focussing on LTV limits. Igan and Kang (2011) examine the introduction of LTV and debt-to-income limits in Korea. Combining a regional data set and survey data they find evidence that transactions levels fall after the introduction of such limits. In a series of regressions, Igan and Kang found that the implementation of a LTV limit had a negative statistically-significant impact on house price growth. Although the coefficients for a debt-to-income limit were also negative they were not statistically-significant. In the three month period following a tightening of regulations, they found an average drop of 16 per cent in transaction activity in response to a tightening of LTV limits and a 21 per cent average drop in response to tightening debt-to-income regulations. In addition, using survey data they are able to model the effect of limits on property buying decisions and perceptions on the direction of house prices. The results show that both LTV and debt-to-income ratio tightening delay property-buying decisions and push down house price expectations.

#### *LTV Limits and Homeownership*

The implementation of LTV limits can have an impact on the attainment of homeownership. The imposition of such limits may involve either the exclusion of low-income households from owner occupancy or postponement of the decision to become a homeowner due to the need to meet a higher downpayment constraint. Using data from a survey of US borrowers, Mayer and Engelhardt (1996) find that the size of the downpayment required can act as a constraint to

homeownership. Using Canadian data, Engelhardt (1994) shows that for a given house price, as the proportion of the price required as a downpayment rises, by increasing the amount of savings required for a deposit, this acts to discourage homeownership. Andrews and Caldera Sánchez (2011), based on analysis of a panel of 12 OECD countries, show the relaxation of downpayment constraints has increased homeownership rates, particularly among credit-constrained and younger households over recent decades. They show that, overall, a 10 percentage point increase in the LTV ratio raises the aggregate homeownership rate by 3 percent from the sample median. The effect is much stronger for those households that are financially constrained, with the homeownership rate rising by 12 per cent for households in the second income quartile with a head of household aged between 25-34 years. Caldera Sánchez and Andrews (2011), using household data for 25 OECD countries, find that the relaxation of downpayment constraints on mortgage loans, reducing deposit requirements, has increased residential mobility, with a stronger effect on younger households.<sup>8</sup> Caldera Sánchez and Andrews (2011) also discuss the risks associated with high rates of homeownership or high LTV ratios, as very high borrowing to achieve homeownership may constrain mobility by increasing vulnerability to shocks and to negative equity.<sup>9</sup>

As pointed out by Catte et al (2004), high LTV ratios allow a higher level of debt, which can require longer repayment terms to keep the debt service cost to income ratio affordable. Longer repayment terms reduce the amount of capital repaid in any period. A lower LTV ratio provides the borrower with a buffer to protect against house price falls and so can reduce the incidence and depth of negative equity (Ellis 2008a, Ellis, 2008b). Ellis (2008b) shows the implications for negative equity of different stylised LTV distributions, with a lower average initial ratio resulting in a lower incidence of negative equity. In an Irish context, Duffy (2010) shows that those with high LTVs are much more likely to experience negative equity.<sup>10</sup>

## 5. ISSUES SURROUNDING THE IMPLEMENTATION OF LTV LIMITS

In constructing an LTV ratio for regulatory purposes, the value against which the loan is measured can have a significant impact, particularly on the procyclicality

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<sup>8</sup> Households where the head of household is aged 44 years or younger.

<sup>9</sup> They cite evidence from Chan (2001) who uses a sample of US loan level data and shows that those with high initial LTV ratios are more likely to be “locked-in” and unable to move as a result of a house price shock. Ferreira et al (2010) using American Housing Survey also finds a negative relationship between negative equity and mobility. However, there is some debate about this finding in a paper by Schulhofer-Wohl (2010).

<sup>10</sup> An overview of the literature on the effects of negative equity for individual borrowers and the macro-economy is discussed in Duffy (2010).

of bank lending. If house prices are rising rapidly, in part due to easing credit standards, then the value component could be considered unreliable and would also artificially lower the LTV ratio. The majority of economies use the market value of the property, although a number use a mortgage lending value. The market value is based on the transaction price for the property, while the mortgage lending value is an “estimate of the realisable value of the property that is sustainable in the longer term” (Borio et al, 2001). Use of the market value, based on primarily short term factors, can therefore result in higher procyclicality in the value component. In Hong Kong properties were usually valued by a professional surveyor who took account of factors such as property age and location as well as the latest transaction price for similar properties. The maximum loan was calculated based on the lower of the purchase price or the valuation amount (Gerlach and Peng, 2005).

An important consideration is the timing of the introduction of LTV limits in the house price cycle. In this regard empirical analysis is scarce. At present Irish house prices continue to fall and lending standards have tightened. As already noted, Doyle (2009) finds that by the end of 2008, 100 per cent mortgages were no longer available in Ireland. Based on the small number of countries where LTV limits have been introduced, it appears that the introduction generally occurs at a time of strong house price growth and worries about excessive exposure to property sector loans. In the case of Hong Kong a voluntary LTV limit was first introduced by the banking sector in 1991 during a period of rapid house price growth to “provide a cushion for banks should the market come back down” (Yue 2001). The limit was then adopted by the Hong Kong Monetary Authority as a prudential measure. Similarly, the Financial Supervisory Service in Korea first introduced LTV limits around 2003 to “prevent potential distress from an overheated housing market on the financial system (Lee 2006).

As pointed out by the Committee on the Global Financial System (2010), the use of macroprudential tools is in its infancy and so the full impact of any measures may not yet be fully understood. For example, the introduction of lower LTV ratios may lead to a redeployment of capital to other sectors. In addition the transmission mechanism may change over time as financial innovation in response to policy measures may change the risk distribution. In order to be able to operate macro-prudential policies, particularly in a countercyclical manner, policy makers must be able to identify the build up of financial risk and so observable and reliable indicators are needed. In addition micro data, such as survey data, may provide information of the tails of the distribution that aggregate macro data do not provide. In applying a limit to the LTV ratio, policy makers could set the cap at a certain level and leave it there. This would

contribute to the aim of enhancing financial system resilience, but may also act as an automatic stabiliser which helps moderate the financial cycle. This latter effect could be enhanced by adjusting the LTV limit around its norm in a counter cyclical manner. A Committee on the Global Financial System workshop<sup>11</sup> on the use of property related measures found that an 80 per cent LTV ratio maximum was generally seen as the norm with tightening of this usually in the order of 10-20 percentage point, some of which was reversed when conditions normalised.

While policy interventions may help to reduce future risks, intervention is not without costs or possibly market distortions. A difficulty implementing macroprudential measures is that once they are put in place the market works to find ways of overcoming the restriction. Attempts to overcome LTV limits have the potential for serious consequences. Multiple loans can make sorting out debt problems much more difficult in the event of a bust. There is also the risk of pushing borrowers outside the mainstream financial system to non-bank or less regulating borrowing. To avoid this regulatory arbitrage, it is important that LTV limits apply to the entire financial system. In addition such regulatory arbitrage can, over time, reduce the effectiveness of LTV limits (IMF 2011).

Crowe et al (2011a, 2011b) cite the example from the US of combining one or more loans to avoid mortgage insurance above an 80 per cent LTV. This could be overcome by banning second loans or by using LTVs ratios applied to aggregate borrowings. Crowe et al also cite the example of Korea where lower LTV limits for loans with less than 3 years of maturity lead to a boom in loans with a term of 3 years and one day. Macro-prudential measures can suffer from being a “blunt” instrument. Studies of homeownership rates indicate that those impacted by LTV limits would be those more in need of credit, for example younger and/or poorer individuals. Some solutions have been adopted to try to overcome, or minimise, the unintended negative consequences from LTV limits. Again Crowe et al (2011a, 2011b) cite a range of examples – Korea differentiates limits across regions based on house price appreciation, while China and Singapore impose lower limits on second mortgages. However, there is also empirical evidence showing that LTV limits have a role in reducing house price volatility, and experience showing that LTV limits can offer some protection to consumers and the banking system in event of a bust. Crowe et al. (2011b), in their model based analysis, find that the use of LTV limits has the advantage of a narrow focus on a specific objective, and by addressing a specific issue can perform better than other interventions. However, Crowe et al. (2011a, 2011b) also argue that their narrow focus means

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<sup>11</sup> Committee on the Global Financial System, (2010), “Macroprudential instruments and frameworks: a stocktaking of issues and experiences”, CGFS paper no. 38, Bank for International Settlements, May.

that they may be easier to circumvent. When this happens, the result may be more difficult to resolve or renegotiate in the event of a bust, in which case the measures are ultimately counter-productive.

Crowe et al, (2011a, 2011b) undertake a model based evaluation of policy responses, monetary policy, fiscal policy and macroprudential measures, to house price fluctuations and find support for the view that tools with a narrow focus, macroprudential measures, addressing a specific rigidity can perform better, and suggest that LTV limits might be a policy tool that could operate in a counter cyclical manner. As argued by Crowe et al (2011a, 2011b), "Each policy will entail costs and distortions, and its effectiveness will be limited by loopholes and implementation problems. Broad reaching measures (such as change in monetary policy) will be more difficult to circumvent, and hence potentially more effective, but will typically involve greater costs. More targeted measures (such as maximum LTV ratios) may limit costs, but will be challenged by loopholes, jeopardizing efficacy." Borio and Shim (2007) make the point that prudential policy alone is not sufficient, monetary and fiscal policy can also play a role and take a share of the burden.

## **6. CONCLUSION**

With increasing attention being paid to the causes of the housing market boom and bust, the international evidence suggests that LTV limits on mortgages may have a role to play. Data from Ireland shows that LTV ratios rose in the latter half of the boom, which suggests that they may have contributed to prolonging the boom in Irish house prices. If Ireland were to decide to regulate LTV ratios then this would have a number of possible impacts on the future housing market. The introduction of LTV limits could lower house price volatility. In addition, the evidence indicates that LTV limits do not prevent house price booms but can help to protect the financial system from sharp declines in house prices. Although the literature shows that LTV limits would not prevent future growth in Irish house price growth they can serve to dampen growth by lowering purchaser's house price expectations.

LTV limits have generally been introduced during a housing market boom or as a result of the experience gained from an economic shock. Evidence from Korea shows lower transaction levels following the imposition of LTV limits. Other research shows that LTV ratios tend to be pro-cyclical. Furthermore, as pointed out by Doyle (2009), by the end of 2008 100 per cent LTV ratio mortgages had disappeared from the Irish market. On that basis average LTV ratios in the Irish market are probably already lower than during the boom period. This represents

a market response. The introduction of LTV limits in Ireland as a regulation instrument would represent a direct policy intervention, which could prevent LTV ratios increasing during future periods of strong house price growth. If LTV limits are to be introduced then the timing of the introduction and the level at which any limit is set needs careful consideration. At present, the Irish housing market is still experiencing a contraction in prices and low levels of activity. However, as there is a low volume of transactions at present, this may well represent a good opportunity to put a new policy framework in place. Thus, in the future if house prices began to increase rapidly a policy framework would exist. There is also evidence that suggests that the existence of such a policy tool would in itself have a dampening impact on price expectations. The experience of Hong Kong is particularly relevant for Ireland, indicating that LTV limits can be actively adjusted to take account of the property market cycle, suggesting a much more active role for regulation.

Although the use of macro-prudential tools is the focus of a growing body of research it is, as yet, difficult to fully assess their effectiveness as in many cases the use of such tools is in its infancy. In addition they may be used in conjunction with other monetary or fiscal policy instruments and so their impact may be difficult to assess. Despite this, the empirical evidence to date suggests that the introduction of LTV ratios can have an impact, particularly on the robustness of the banking system in the face of property related shocks.

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The ESRI acknowledges the  
financial support of FBD Trust  
for the *Renewal Series*

