# Macro-prudential policy for residential mortgage lending: Thoughts on CBI Consultation Paper CP87

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## 1 Introduction

This brief note outlines some thinking in relation to the proposed restrictions on residential mortgage lending, outlined in the Central Bank of Ireland Consultation paper CP87 (Central Bank of Ireland 2014). I first outline the context for credit restrictions, before outlining some theoretical and practical issues with the current proposals. The perspective adopted is rooted principally in the economics of housing markets, combining both macroeconomics and urban economics perspectives. The overall argument of this note is that restrictions on lending are necessary, but that, as currently proposed, they raise a number of theoretical and practical considerations, which should be addressed. In terms of the particular questions posed in CB87, the emphasis here is on Q1, Q2 and Q6, about the suitability of the measures proposed, as well as Q10, about unintended consequences.

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# 2 The Irish context

It is useful to state clearly up-front that placing acyclical limits on per-household mortgage lending is arguably the single most important macro-prudential tool available to policymakers. Housing has a unique place in modern economies, constituting both the most important good in the household's consumption basket and the dominant asset in the household portfolio. For example, it makes up 32% of the U.S. urban CPI basket and 24% of the UK's RPI and looms large in Irish household spending also.

It is therefore unsurprising that the housing market has assumed a central role in explaining business cycles (see, for example, Leamer 2007). What has become known as the Great Recession, starting in 2007, can only be understood by incorporating housing and lending for the purchase of housing. This is salient both globally, with the US subprime crisis, and more locally, with the extreme Irish housing market cycle between 1995 and 2013.

Using error correction and cointegrating vector methods, work-in-progress has highlighted that there are five long-run determinants of Irish house prices, once inflation in the wider economy is taken into account (Lyons & Muellbauer 2014). These include three fundamental supply and demand variables, and two asset considerations:

1. Income per household, which captures participation and unemployment, as well as trends in average incomes

2. Housing stock per household, measured in euro rather than unit terms, which also captures net migration

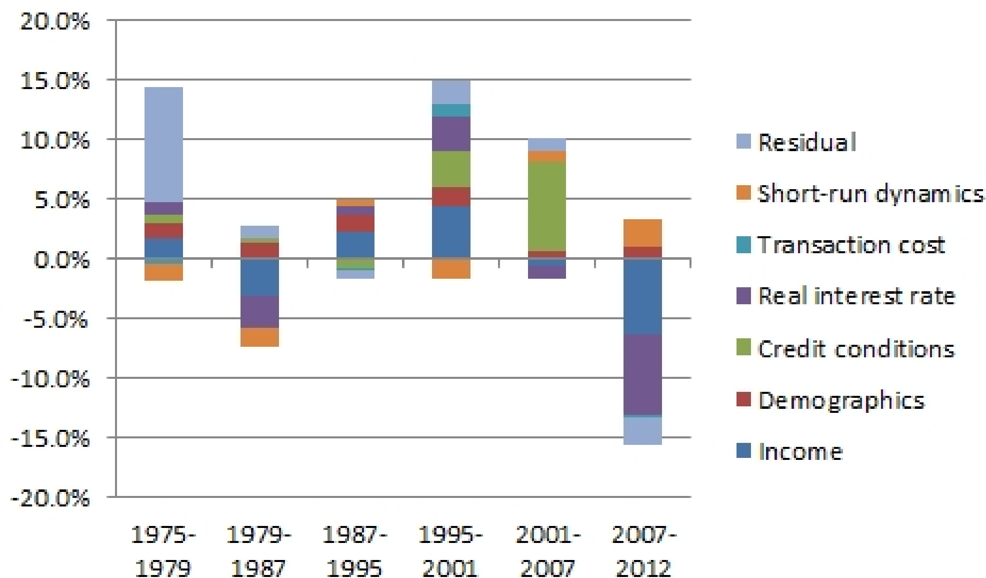
3. Number of people per household, which is the broadest measure of demographics, and captures features such as fertility, longevity and separation/divorce rates

4. User cost, which includes after-tax nominal mortgage interest rates, holding costs of property such as the Local Property Tax, and crucially expectations about future house prices

5. Credit conditions, which are tough to measure directly but are typically measured in the literature using the loan-to-value offered to the median first-time buyer

The first three factors affect rents, both actual (tenant/landlord) and implicit (owner-occupier), while the final two factors affect the yield, or relationship between house prices and rents. It should be clear from the above analysis that, given the nature of expectations and credit conditions in particular,

Figure 1: Annual house price growth attributed to drivers, by market phase, 1975-2012




there is no single equilibrium price for housing. While policy analysis that outlines simple ratios of prices relative to income, rents or other factors can be illustrative, it can mislead policymakers, politicians, journalists and others into thinking that there is a single level where prices should be. There are multiple equilibria.

As Figure 1 outlines, by uncovering the long-run house price equation at work with national house prices since 1980, it is possible to break down the various market cycles that have affected house prices in that period, into the constituent drivers. There are two salient and related points for the discussion here. Firstly, house price growth between 2001 and 2007, unlike the preceding period, where a mix of factors were responsible, was almost entirely driven by credit conditions. Secondly, the rapid boom in construction did – as basic economic theory would suggest – lead to lower house prices than would otherwise have been the case. This was not clear during the bubble due to the effect of credit on house prices.

Practically speaking, the experience of 1995-2007 teaches us that supply of dwellings, not supply of credit, is the best way to ensure abundant and affordable housing for Irish households. Limiting the amount of credit per household is, therefore, one of two policies necessary. The second, a topic for another platform, is increasing the supply of housing by lowering the cost of building homes relative to household income.

# 3 Theoretical issues

## 3.1 Market failures

While I am strongly in favour of introducing limits for per-household mortgage credit, four theoretical issues arise in relation to the proposals in CBI paper CP87, principally about the use of loan-to-income (LTI) limits. Loan-to-value (LTV) restrictions have a clear theoretical justification: they limit leverage by creating "breathing space" between the value of the collateral and the amount borrowed. Due to the importance of habits, a lower maximum LTV has the beneficial side-effect of encouraging savings habits, by requiring first-time buyers to save over time. The analysis undertaken in Lyons & Muellbauer (2014) suggests that a five percentage point reduction in the typical loan-to-value offered to first-time buyers (e.g. from 85% to 80%) would reduce house price, relative to rents, by ten percentage points.

LTV restrictions also benefit financial institutions. Should issues arise in relation to repayment, the lower the original LTV, the less likely it is that the dwelling will be in negative equity and thus it can be sold. (Given that perhaps one in eight households is in negative equity, this benefit would also accrue to the household sector.) In relation to LTI restrictions, however, there is no clear theoretical justification. Whereas there is an obvious market failure and externality by failing to limit leverage, it is clearly in the interest of financial institutions to assess the affordability of the mortgage in any case. It is not clear what LTI restrictions will bring over and above the impact of LTV restrictions. If the wider impact of the LTI restriction was neutral, the case could be made for both measures but there are negative side-effects of LTI restrictions, theoretically.

## 3.2 Capital markets

The first relates to capital markets. As proposed, limiting the ratio of the total mortgage to total gross household income is an extremely blunt tool. It is ignorant of two features: the user cost regime (in particular interest rates) and spatial variation (discussed below). The average nominal mortgage interest rate in the decade to 1995 was over 10%, compared to less than 4% in the decade to 2012. This has a huge impact on affordability, above and beyond a simple LTI ratio. In particular, a much higher ratio of debt to income is possible in a regime where interest rates are low.

Some have argued that it would be possible to correct for this issue, by instead using a maximum ratio of the mortgage repayment (suitably stress-tested) relative to disposable income. This still misses significant considera-

tions, by conflating the mortgage for the total input costs of day-to-day life. Consider a household making the choice between two homes of comparable size. One, however, is closer to where the family work and go to school, and is also more energy efficient. While its mortgage repayment of €1,400 is above the maximum threshold relative to its disposable monthly income, the family would be better off in that house than in the other home, where they would need to spend €1,100 a month on the mortgage plus an additional €350 on petrol and €100 on domestic energy bills.

Under an LTV restriction, a household merely has to save 10% more to afford a house that offers lower energy or petrol bills, which is justified due to the externality costs of excessive leverage. Under an LTI restriction, a household with a set income will never have the option of buying such a house.

Even switching to monthly disposable income, rather than gross income, the LTI restriction disincentivizes healthy investment. In practical terms, LTI will lead to greater sprawl and congestion (as well as greater fuel consumption), as it does not distinguish between what are in effect close substitutes: additional mortgage debt compared to additional petrol or energy bills.

## 3.3 Spatial issues

It is possible to argue that the LTI could be tweaked even to deal with these issues, by calculating the combined burden of mortgage debt and fuel/energy costs associated with a particular property, presumably against a higher maximum ratio relative to monthly disposable income. Even if such a complicated system were introduced, however, it remains ignorant of the huge variation in house values around the country and the (healthy) reasons for this.

Currently, in the Irish housing market, hedonic regressions indicate that there is a 15-fold variation the price of the same dwelling – a three-bed semi-detached house – around the country. Whereas the value of a three-bed semi-detached house in Roscommon in late 2014 is below €50,000, the value of the same dwelling in parts of South County Dublin is over €700,000. The variation in property market values is far greater than the variation in household incomes, which – for comparable households – is closer to 50% than 1500%. Indeed, for certain sectors, in particular the public sector, there is no variation in wages between like-for-like households.

This huge variation in values, compared to incomes, is entirely healthy. Households with comparable incomes and comparable space requirements have the opportunity to choose different bundles of amenities. A particularly important amenity for many households is access to a thick labour market, and for many households, the depth of consumption amenities offered by

urban centres is of great value, thus proximity to larger cities is important. But such considerations are not important for all, hence a fraction of the population chooses to live in rural locations.

Practically speaking, however, this means that an LTI restriction can never be binding across all segments of the market. Taking round numbers for simplicity, suppose the typical first-time-buyer household earns €50,000 and they are looking for a three-bedroom semi-detached home. If a maximum LTI of 3.5 is in place, this means their mortgage can be no more than €175,000 and the price of the home they buy can be no more than €220,000 (assuming a 20% deposit). This is useless, both in the large parts of the country where three-bedroom semi-detached properties are worth less than half that limit and a different kind of useless in parts of Dublin where the same home is worth more than twice that limit. Whereas the LTV is a clear measure of leverage (and thus a maximum LTV is protection from leverage), the LTI is an arbitrary limit.

### 3.4 Future-proofing

Taking a bigger time-scale, the last century has illustrated that services, in particular differentiated market services, are income-elastic. Whereas agricultural commodities and manufacturing merchandise comprised the majority of household spending in the early 1900s, now services dominate expenditure. Consider, now, housing as two services: shelter and location. Housing as shelter may have limited income elasticity: above perhaps 50sqm or 100sqm per person, there are limits to the value of additional dwelling space.

However, housing as access to location-specific amenities appears to have large income elasticity. Consumption amenities have grown in importance, seen for example in the phenomenon of the reverse commute, and thus in coming decades it is likely that a greater fraction of household income will be spent on location – the reason the value of a particular type of home varies so dramatically geographically. This is perfectly healthy, and not restricted under an LTV system (beyond having to save slightly more to spend slightly more). But, as before, an LTI introduces an arbitrary limit on the extent of agglomeration. And by affecting agglomeration, this affects the variety of differentiated services available to all households.

## 4 Practical issues

It has been suggested that the measures outlined in Consultation Paper CB87 would be brought in on 1 January 2015. This raises a number of one-off

transitional issues. The aim of limits on per-household mortgage lending is to ensure sustainable long-run expectations and leverage, the two factors that affect the ratio between fundamentals (as outlined above) and house values. It is not necessary for the immediate maximum LTV to be the same as the ultimate desired maximum, provided the transition path is done in a way that does not encourage leverage in the interim.

In practice, consider two paths of minimum deposits from 2015 to 2020. The first has a minimum deposit of 5% in 2015, 10% in 2017, 15% in 2019 and 20% in 2020. This would clearly have perverse incentives. A household with savings of €20,000 now and which could expect to have no more than €40,000 saved by 2020 would do its best to borrow as soon as possible. (It would be able to borrow €380,000 in 2015 and €160,000 in 2020.) An alternative is a minimum deposit of 15% in 2015, 16% in 2016 and so on to 20% in 2020. This has a starting point not far from current lending standards and a pace of increase in minimum deposit required that is roughly in line with the capacity to save. Thus, the typical household should be roughly indifferent between buying in 2015 or waiting.

# 5 Conclusion

Restricting mortgage lending per-household is a straightforward and sensible policy option for limiting the risks associated with residential mortgage market, which is based on leverage. Some have argued that this is not the time in the market cycle to limit credit. This is firstly spurious, as the intention is not to limit the quantity of loans, rather their average size (and thus could potentially lead to more loans, for a given capital stock). This line of reasoning, secondly, also misses the obvious lesson of recent Irish economic history: the supply shortages of 1995-2001 directly led to the credit-fuelled bubble of 2001-2007. The shortages had this effect by raising expectations about future house prices held by both borrowers and lenders, and through the latter channel affecting the minimum deposit required.

Similarly, others have argued for procyclical LTV (and/or LTI) requirements. This assumes an understanding of the market that is only available *ex post*. An acyclical set of restrictions is both easy to implement and easy to understand.

This brief note is in broad support of the measures proposed and, in terms of the particular questions posed in CB87, the emphasis here has been on Q1, Q2 and Q6, as well as Q10. It started by setting out a general framework for understanding the Irish housing market, based on academic research spanning the period back to 1980. It also discussed a number of

theoretical issues, in particular relating to the arbitrary nature of the LTI limit, compared to the obvious purpose of an LTV in correcting a market externality.

In particular, unlike the LTV measure, LTI brings the potential for unintended consequences in relation to investment, environmental sustainability, congestion, sprawl and agglomeration economies. These have been largely ignored in the macroprudential literature to date, given the lack of an urban economics perspective in the nascent field. In addition, a transitional issue was raised, about the speed with which any measures should be brought in.

Affordability on a month-to-month basis is a key concern of financial institutions. Excessive leverage at a systemic level is the concern of policymakers. The Central Bank's efforts should be exclusively on loan-to-value measures, not loan-to-income ones, for the reasons outlined above.

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