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Review of residential mortgage lending requirements



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Important information

This report discusses the first review of the Central Bank of Ireland ("Central Bank") requirements in relation to residential mortgage lending as contained in the Central Bank (Supervision and Enforcement) Act 2013 (Section 48)(Housing Loan Requirements) Regulations 2015 (S.I. No. 47 of 2015)("the Regulations"). The report also provides information on the development of certain policy matters giving rise to amendments to the Regulations.

This report is for information purposes only. It is not the policy of the Central Bank to provide legal advice on matters arising pursuant to the Regulations and any information in this report should not be construed as legal advice or a legal interpretation of the Regulations. It is a matter for any regulated financial service provider who may fall within the scope of the Regulations to seek legal advice regarding the application or otherwise of the Regulations to their particular set of circumstances. This report should not be taken as a substitute for legal advice.

For further information, and avoidance of doubt, relevant entities should consult the text of the Regulations, as amended, directly.

The Central Bank has a range of supervisory and enforcement powers available to it in circumstances where a regulated financial service provider fails to comply with the requirements in the Regulations. Nothing in this report should be construed so as to constrain the Central Bank from taking action where it is deemed to be appropriate.

1. Outcome of Review

This report constitutes the first review of the Central Bank's macroprudential mortgage market Regulations since their introduction in February 2015. The findings are based on extensive analytical work, most of which has been published separately and which is referenced throughout as appropriate. The review finds that the overall framework of the Regulations is appropriate and effective in meeting the objectives of the measures. In particular, limiting the amount of borrowing at high loan-to-value (LTV) and loan-to-income (LTI) ratios reduces risks to financial stability by curbing house price-credit spirals; restricting the build-up of borrower indebtedness; and reducing the risk of borrowers defaulting on mortgages. While the risk of housing and financial crises cannot be eliminated, the evidence suggests that the rules that are in place would reduce the probability and severity of future crises. However, when considering the overall calibration of the measures, three structural changes were identified which can improve the effectiveness and sustainability of the framework. These changes, along with one technical change, are outlined in Box 1 and discussed in further detail below.

Box 1: Changes to the Regulations

- The property value threshold of €220,000 is removed, such that a 90 per cent LTV limit applies to first-time buyers (FTBs) and an 80 per cent LTV limit applies to second and subsequent buyers (SSBs).
- The structure of the proportionate caps is amended. Instead of an LTV allowance of 15 per cent of total new lending for primary dwelling homes, separate allowances for FTBs and SSBs are being introduced. For SSBs, 20 per cent of the value of new lending to this group will be allowed above the 80 per cent LTV limit and 5 per cent of the value of new lending to FTBs will be allowed above the 90 per cent LTV limit for FTBs.
- The current two-month valuation period is extended to four months.
- There is a technical amendment to the scope of the non-primary dwelling home limit so that large commercial landlords and developers are not in-scope of the Regulations. This is being implemented by applying the Regulations to consumers based on the definition in the Consumer Protection Code 2012 and that used by the Financial Services Ombudsman to define the scope of its jurisdiction. This definition includes persons acting outside the course of their business, trade or profession, in addition to persons (including sole traders, companies, partnerships and other unincorporated bodies of persons) with an annual turnover of €3 million or less in the preceding financial year taking into account the combined turnover of any group of persons of which they are a member.

All changes will be effective from 1 January 2017.

Market Developments and Impact of the Measures

Following the severe disruption to financial stability some eight years ago, risks and vulnerabilities relating to the residential real estate market in Ireland have declined over the past two years but remain at a high level, by both international and historical standards. These include high levels of household indebtedness and a large number of households in mortgage arrears and/or with negative or low positive equity in their houses. The overall effect is to leave the Irish economy and financial system vulnerable to any downturn that may occur in the housing market or broader economy. This underlines the importance of having rules in place to strengthen the resilience of households and banks to adverse shocks.

Alongside these risks and vulnerabilities, activity in the residential property market has remained subdued in recent years. Housing sales both for FTBs and SSBs have picked up in recent years but are still running at relatively low levels. High household indebtedness and negative equity are among the factors that are likely contributing to the relatively low number of transactions among existing home owners. For FTBs, there has been an increase in the time needed to save for a deposit while renting a house, with rising rent costs, increasing purchase prices and the impact of the new mortgage measures being contributory factors. There is also an acute scarcity of housing units, both for sale and rent, which will take a number of years to address. Despite some improvement having occurred, the number of housing completions per annum is very low by historical standards and is running at a little over half the number required to meet estimated long-term annual demand.

Since introduction of the measures, the rate of house price inflation has declined and price expectations have moderated. Survey evidence suggests that the dampening of house price expectations was driven in part by the introduction of the macroprudential rules on mortgage lending. More recently, an uptick in the rate of increase in house prices has been observed, driven mainly by the shortage of supply in the context of rising disposable income and demographic pressures. However, the analysis presented in this report suggests that house prices are not currently overvalued, even though the house price-to-rent ratio is still above its long-term average. The rental market has seen particularly strong growth in rental values for a number of years, with evidence also of regional variation. This strong growth precedes the adoption of the mortgage market measures. Unlike prices, rents nationally are now above pre-crisis levels. While rents nationally appear to exceed values justified by current supply and demand factors, this has been the case since before the introduction of the measures. A number of factors have been contributing to pressures in the rental market, such as the shortage of supply, changing expectations among landlords and tenants around future rental growth, low rates of housing sales and the improving economy.

At this early stage and in the absence of data on discouraged or rejected borrowers, it is difficult to assess the full impact of the Regulations on market access. The loan-level data

that are collected in order to monitor compliance with the rules provide some insight into the effects on borrowers. There have been no notable changes in the composition of the market with FTBs, SSBs and buy-to-let borrowers (BTLs) maintaining broadly similar shares to the pre-measures period. In addition, since the introduction of the measures, average and median LTVs and LTIs are broadly in line with ratios observed prior to the measures' introduction. The review found that the increase in deposit requirement for most FTBs is relatively small compared to banks' lending practices just prior to introduction of the measures. Overall, however, there has been a reduction in the amount of new lending at high LTV and high LTI levels, which is contributing to the on-going improvement in the financial resilience of households. Scenario analysis on the debt-servicing capacity of Irish households shows the extent to which new lending since 2012 is more resilient to income and interest rate shocks than pre-2008 loans. This resilience has been maintained since the introduction of the measures. Under the Regulations, a share of new lending is allowed above the LTV and LTI limits on an annual basis, referred to as allowances in this report. Since the introduction of the measures, around 12.1 per cent of the value of in-scope PDH lending has been above the LTV thresholds, compared to an annual maximum permissible amount of 15 per cent for each lender. The corresponding value of lending above the LTI threshold has been 14.4 per cent compared to the annual maximum amount of 20 per cent for each lender. LTV allowances have been more prevalent among SSBs, higher-income borrowers and couples, while the LTI allowances have been more prevalent among lower-income borrowers, single persons and FTBs.

Across the banking sector, a number of positive developments have been evident in recent years, but banks are still strongly affected by legacy issues. Compared to 2014, banking sector capitalisation is now higher, non-performing loans (NPLs) are lower and profitability has improved. However, the share of NPLs on banks' balance sheets remains high and profitability, while positive since 2014, remains at low levels by international standards. Recent stress tests show that Irish banks are adequately capitalised but remain vulnerable to shocks. The probability of default for loans originated under the Regulations is lower than pre-Regulations lending, partly reflecting the reduction in high LTV and high LTI loans and partly changes in banks' lending practices in the years prior to the introduction of the measures. Loss severity in the event of default would be lower for the portfolio of loans originated under the Regulations, a positive development for banking resilience. It is found that all banks have successfully operationalised the measures.

Proposed changes to the framework

The calibration of the LTV and LTI measures in 2014 was guided by international standards and by Central Bank research into mortgage losses and defaults in Ireland. The review of the framework finds that a higher LTV limit of 90 per cent remains appropriate for FTBs due to continued empirical evidence showing lower default among FTBs relative to SSBs. However, when considering the overall calibration of the measures, three structural changes were identified which can improve the effectiveness and sustainability of the framework. These changes will come into force from 1 January 2017.

First, the property value threshold of €220,000, above which a lower LTV limit applies for FTBs, was re-considered. The €220,000 threshold level was originally calibrated with reference to median house prices in Dublin. However, house prices have been increasing since the introduction of the measures; for example, the median price in Dublin was around €280,000 during the first half of 2016. In the absence of changes to the Regulations, this represents an effective tightening of the LTV requirement on FTBs, particularly in the Dublin area. Examination of new lending since the introduction of the measures shows the importance of the LTI limit to the overall framework. Irrespective of the value of the LTV threshold, the LTI ratio acts as a constraint on many FTBs of higher-valued properties from taking on significantly higher leverage. In addition, further investigation of the default risk of FTBs and SSBs shows that, using the most recent data, the difference in default rate between FTBs and SSBs is now no lower for buyers who purchased lower valued houses.

The existence of a fixed nominal threshold value as part of the LTV limits for FTBs means that the Regulations would have to be updated every year. Taking into account the medium-term orientation of the measures and considering the evidence arising from the review, the property value threshold for FTBs will be removed and a 90 per cent LTV limit will apply for FTBs at all house prices from 1 January 2017. The 80 per cent LTV limit for SSBs will remain unchanged. The removal of the LTV threshold for FTBs allows for a more sustainable framework. It removes the difficulty of deciding how and when to alter any threshold for a higher LTV ratio without disrupting the functioning of the market and in a manner which does not compromise the effectiveness of the measures in meeting the objective of strengthening bank and household balance sheet resilience.

Second, in order to reflect this amendment to the overall framework, the framework for proportionate caps on LTV ratios is also being amended. Currently, 15 per cent of the value of total lending for primary dwelling homes (PDHs) is allowed above the thresholds. From the start of 2017, a change will be introduced such that 20 per cent of new lending to SSBs will be allowed above the SSB LTV limit and 5 per cent of new lending to FTBs will be allowed above the FTB LTV limit. This adjustment to the framework, i.e. differentiating the allowances of FTBs and SSBs, will allow for a more precise calibration of the rules by borrower type if in future they need to be tightened or loosened in response to emerging risks and developments in the property market. This amendment will not materially affect the amount of allowances available to SSBs compared to the current framework. The lower limit for lending above the FTB limit reflects the Central Bank's view that lending above 90 per cent LTV should be undertaken only in exceptional circumstances.

Third, a review of the effectiveness of the Regulations found that the valuation requirement, whereby the valuation should be undertaken within two months of the drawdown of a mortgage, should be amended. The Central Bank received feedback from a range of industry stakeholders and individuals that the two-month period was too short as

housing transactions rarely conclude in this timeframe. As a result, the valuation period will be increased to four months.

A final change relates to a technical amendment to the scope of the 70 per cent BTL limit whereby large commercial landlords and developers will not be in-scope of the Regulations. Specifically, the Regulations will apply to consumers based on the definition in the Consumer Protection Code 2012 and that used by the Financial Services Ombudsman to define the scope of its jurisdiction. This definition includes persons acting outside the course of their business, trade or profession, in addition to persons (including sole traders, companies, partnerships and other unincorporated bodies of persons) with an annual turnover of €3 million or less in the preceding financial year taking into account the combined turnover of any group of persons of which they are a member.¹

2. Introduction

The Central Bank is the macroprudential authority in Ireland with responsibility over a range of policy instruments to help ensure the stability of the financial system. In recent times, several macroprudential measures have been activated via the banking system. These include the counter-cyclical capital buffer (CCyB), the other systemically important institution (O-SII) buffer, and the mortgage market measures.

The Central Bank's framework for macroprudential policy is outlined in CBI (2014). This framework elaborates the aims of macroprudential policy, which are to:

- Strengthen the resilience of the financial system so that it can withstand adverse movements in credit and property cycles or the impact of other economic shocks.
- Reduce the potential for vulnerabilities that could lead to the accumulation of financial distress. Many of the vulnerabilities arise through the pro-cyclicality of the credit cycle.

Both of these aims are key priorities of the Central Bank in its dual mission to 'safeguard stability and protect consumers'.

These aims are also reflected in the objectives of the mortgage market measures which were introduced in Ireland from 9 February 2015 under Section 48 of the Central Bank (Supervision and Enforcement) Act 2013. These measures introduced limits on high LTV and LTI lending in the Irish market.² Central to the objectives of the Regulations are the aims to increase the resilience of the banking and household sectors to the property market

¹ Made by the Central Bank pursuant to section 117 of the Central Bank Act 1989.

² See Cassidy and Hallissey (2016) for further information on the introduction of the measures.

and to reduce the risk of bank credit and housing price spirals from developing in the future. The Central Bank does not wish to regulate or directly control housing prices.

The Regulations are complementary to existing microprudential supervision and to lenders' own risk management practices. They are not intended to capture all aspects of credit risk associated with the borrower, nor to replace or substitute for a bank's existing internal credit assessment policies and procedures, but rather to reinforce and strengthen the existing suite of credit risk mitigation tools employed by prudent lenders.

These limits are intended to be a permanent feature of the market. However, it may be necessary to adjust any or all of the parameters of the proportionate LTV and LTI ratios in response to economic, market, or other developments over time. In order to assess the continued appropriateness of the calibration of the measures, the Central Bank has committed to a review of the mortgage market measures on an annual basis. The first review examines the early performance of the Regulations against the stated objectives and potential side effects of the measures. A public call for evidence garnered submissions from a wide range of sources, all of which were considered as part of the review. A summary of the submissions can be found in the "Feedback Statement on Call for Submissions".

Table 1: Details of the LTV and LTI Regulations

LTV limits	For primary dwelling homes:	<u>Until 31/12/16</u> FTBs: Sliding LTV limit from 90%* Non-FTBs: 80% 15% of all new lending allowed above limits <u>From 1/1/17</u> FTBs: 90% Non-FTBs: 80% 5% of new lending to FTBs allowed above 90% 20% of non-FTB new lending allowed above 80%	
	For buy-to-let borrowers (Investors):	70% LTV limit	10% of new lending above the BTL limit is allowed
LTI limit	For primary dwelling homes:	3.5 times income	20% of new lending above the LTI limit is allowed
Exemptions	From LTV limit:	From LTI limit:	From both limits:
	Borrowers in negative equity	Borrowers for investment properties	Switcher mortgages Restructuring of mortgages in arrears

*A limit of 90 per cent LTV applies on the first €220,000 of the value of a residential property and a limit of 80 per cent LTV applies on any value of the property thereafter.

This report summarises the results of the review. Section 3 outlines the purpose of the review and describes the framework for evaluation adopted by the Central Bank. Section 4 provides a brief overview of recent developments in the housing and rental markets and an update on vulnerabilities in the household and banking sectors. Section 5 provides analysis on the impact of the measures and discusses the effects on market access and borrower leverage, bank and borrower resilience, real-financial effects and the impact on other sectors, notably the rental sector and non-mortgage lending. Section 6 concludes.

3. Evaluation Framework

1. Introduction

The first review of the mortgage market measures had two aims: first, to examine the early performance of the measures against the stated objectives and, second, to examine possible side effects of the measures since their introduction. To inform the review, an extensive programme of analytical work was undertaken within the Central Bank. In addition, evidence and feedback from external stakeholders were gathered through a call for submissions on the impact of the Regulations, which are summarised in the “Feedback Statement on Call for Submissions”, which accompanies this report. This section of the report describes the analytical framework for evaluation that guided the Central Bank analysis throughout the review process. The main findings from this analysis are referenced throughout this report as appropriate. In addition, the majority of the analysis has been published separately.

2. Analytical Framework for Evaluation

The analytical framework underlying the review is summarised in Figure 1. The design of the framework was guided by a need to provide evidence on the early performance of the measures against the stated objectives as well as analysis of possible side effects of the measures. The framework has five pillars - the purpose of each of which is detailed below.

Pillar 1: The market overview pillar focused on trends in the housing and mortgage markets in the lead-up to the announcement and introduction of the measures in Q4 2014 and Q1 2015, respectively, and in the period since their introduction. The main findings from this analysis are summarised in Section 4, while further discussion on relevant issues can be found in the Central Bank’s bi-annual publications, the Macro-Financial Review and the Household Credit Market Report.³

Pillar 2: The second strand of the analysis was designed in order to understand more about the effects of the measures on borrowers and, in particular, on their ability to access the

³ See [Macro-Financial Review 2016\(I\)](#) and [Household Credit Market Report 2016\(2\)](#).

mortgage market. The main findings are presented in Section 5(a) of the report, based on the analysis published in Keenan *et al.* (2016), Kinghan *et al.* (2016a), Kinghan *et al.* (2016b) and the Central Bank's bi-annual Household Credit Market Report. The analysis focused on the mortgage lending that took place after the measures were introduced, as well as on the use of allowances under the proportionate caps framework. It includes an exploration of market access as well as model-based analysis to identify changes in borrower leverage after the introduction of the measures.

Pillar 3: The third analytical component of the review involved an examination of the early performance of the measures against the first stated objective – to enhance the resilience of borrowers and banks to financial shocks. Analytical projects were undertaken which assessed the impact of affordability shocks on the debt-servicing capacity of borrowers and on both the probability of default and the loss-given default of loans issued prior to and after the Regulations. The respective analyses have been published in Household Credit Market Report 2016:2, Joyce and McCann (2016) and McCann and Ryan (2016). The analysis is summarised in Section 5(b) of this report.

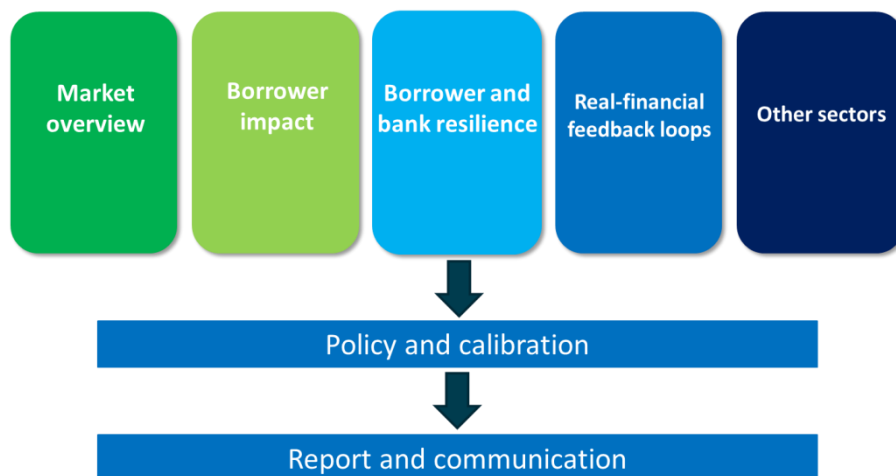
Pillar 4: The fourth analytical component of the review addressed the performance of the measures against the second objective – to reduce the risk of bank credit and housing price spirals from developing in the future. The analysis in this pillar assessed recent house price movements relative to fundamental levels and other indicators of price misalignment (Kennedy *et al.*, 2016a). This analysis was combined with the conjunctural insights from Pillar 1 to provide information on the risk of house price-credit spirals. Secondly, the analysis in this section explored the impact of the measures on the housing market, using a model developed for the original calibration of the measures, and published in Cussen *et al.* (2015).⁴ A dynamic stochastic general equilibrium (DSGE) model to assess broader macroeconomic effects of borrower based macroprudential tools was also developed (forthcoming in Lozej and Rannenberg). Section 5(c) discusses the insights from these projects.

Pillar 5: The final analytical component of the review addressed the interplay between the measures and the rental and unsecured lending markets. Developments in the rental sector were the subject of a number of submissions to the public call for evidence, while developments in the unsecured lending market are relevant for understanding borrower resilience. The rental market analysis looked at whether the introduction of the measures coincided with a shift in the growth rate of rents, or with a change in the relationship between rents and estimated long-run or model consistent values. The analysis has been published in Kennedy *et al.* (2016b) and McCann (2016). A further project examined the average time-to-save for a deposit by a prospective FTB who is currently renting (Kelly and McCann, 2016), while developments in unsecured lending are further discussed in the

⁴ The updated model is presented in O'Brien and O'Toole (forthcoming).

Central Bank's Macro-Financial Review. Analysis from this pillar is summarised in Section 5(d).

Chart 1: An Analytical Framework for Evaluation



In summary, the review of the mortgage market measures was informed by extensive analytical insights and by responses to the public call for submissions on the impact of the measures. The analytical framework outlined above will guide further reviews, and will be enhanced as new data and methodologies become available.

4. Market Overview and Recent Trends

Key Messages:

- Housing market activity has continued to recover following the economic and financial crisis. Nevertheless, activity levels in the market, both transactions and supply, remain low.
- Prices have been on an increasing trend since around 2012. The annual rate of increase was as high as 20 per cent at end-2014. The rate of increase subsequently moderated, particularly in Dublin. One impact of the measures has been to dampen expectations regarding future price increases.
- More recently, prices and price expectations have shown signs of picking up again, driven largely by shortages of supply. Nevertheless, house prices remain well below their pre-crisis peaks and are not judged to be overvalued in comparison to fundamental values.
- Rental market pressures have been escalating for a number of years and rents are now above their 2008 peak. The availability of property for rent has declined markedly in recent years.
- Household sector vulnerabilities remain elevated. These include high levels of household indebtedness and a high number of households in mortgage arrears and/or with low positive equity or negative equity in their houses.
- While the Irish banking sector is recovering from the crisis, there remain vulnerabilities. These include a high level of NPLs, a concentration of lending to real estate and relatively weak profitability.
- Current household and banking sector vulnerabilities leave the economy and financial system exposed to any downturn that may occur.

1. Introduction

This section provides a brief overview of the latest housing market developments, including transactions, prices, rents and supply. It also discusses the latest trends in household indebtedness, negative equity and mortgage arrears as well as banking sector developments. A more in-depth discussion of these issues can be found in the Central Bank's bi-annual publications, the Macro-Financial Review and Household Credit Market Report.⁵

2. Housing market transactions

Despite some increases since 2011, housing transactions remain well below historical levels. Chart 2 shows estimates of annual housing transactions since 2000, which suggest that at the peak of the housing boom there were more than 150,000 annual residential transactions in Ireland.⁶ However, the extent of the collapse in transactions between 2006 and 2011 was sizeable and, despite a doubling of transactions since 2011, the current level,

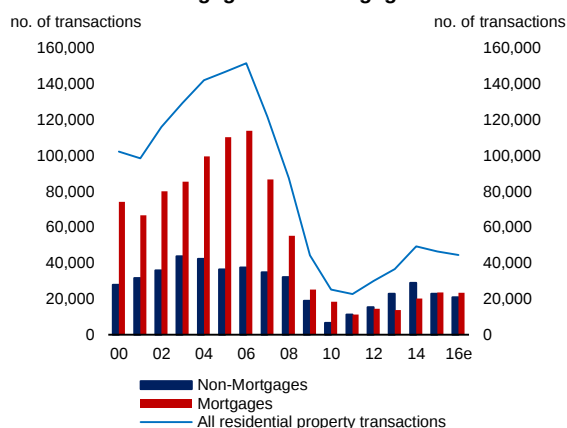
⁵ See [Macro-Financial Review 2016\(I\)](#) and [Household Credit Market Report 2016\(2\)](#).

⁶ See [Coates et al. \(2016\)](#).

at around 50,000 per annum, remains low. This equates to a rate of turnover of around 2.5 per cent of the stock of housing. International commentators suggest that a well-functioning housing market should see 3 to 4 per cent of its stock turn over every year.⁷

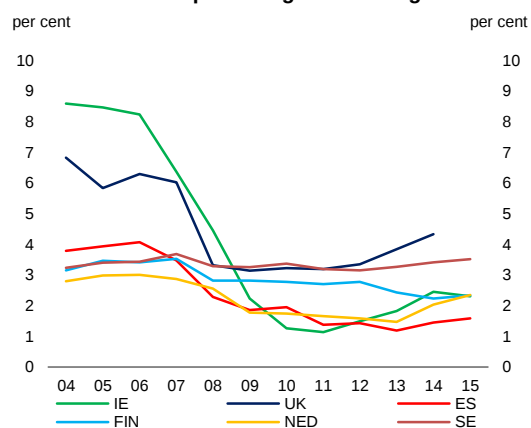
Ireland is not alone in experiencing a slow market recovery following the crisis. European Mortgage Federation Hypostat data for a number of countries can be used to derive a cross-country comparison of the percentage of housing stock that has been transacted annually over the past decade or so. The data show transactions rates that are low in a number of countries (Chart 3). An exception is the UK, where the turnover rate is close to 4 per cent of stock compared to 2.5 per cent for Ireland. It is important to exercise caution in making such international comparisons, however, given the significant structural variations that exist across international housing markets.

Chart 2: Breakdown of residential property transactions: mortgage / non-mortgage



Source: Coates *et al.*, Property Services Regulatory Authority and Banking & Payments Federation Ireland.
Note: 2016 estimate based on data for the last 4 available quarters (2015q4 – 2016q3).

Chart 3: Cross-country residential property transactions as a percentage of housing stock



Source: Hypostat and Central Bank of Ireland calculations.

Newly released data from the CSO (covering both mortgaged and cash transactions) indicate that the share of FTBs in the market has decreased, from approximately half of buyers in 2010, to about a fifth by the end of 2014, a share that has remained relatively constant since 2014 (Chart 4). The proportion of former owner-occupiers (SSBs), non-owner occupiers (BTLs) and non-household purchasers (REITS and foreign private equity firms), have all increased since 2010. Nevertheless, the data show that transactions recently have been low among FTBs, SSBs and BTL investors.

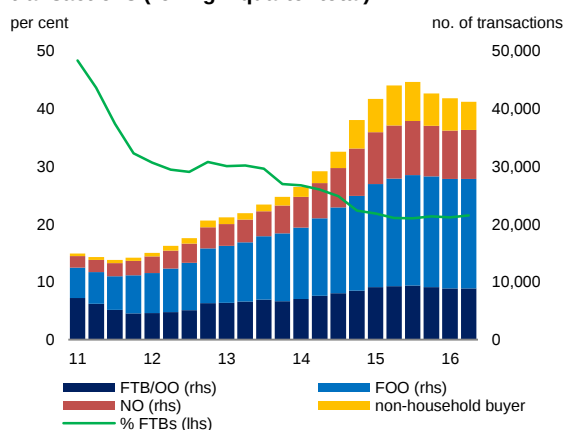
At this stage, it is too early to estimate whether the introduction of the macroprudential mortgage market measures has had an effect on transaction activity. Some reduction in demand following the introduction of the measures seems to have occurred, as is evident in the slower pace of recovery in transactions in 2015 and 2016 compared to previous years. Other fundamental factors underlying the low level of transactions since 2008 relate to the

⁷ [TEGoVA \(2012\), Country-Specific Legislation and Practice – Country Chapter: Ireland.](#)

effects of the financial crisis. Many potential borrowers experienced considerable income shocks during the crisis which reduced affordability. Household indebtedness and numbers in negative equity remain high, which can serve as a drag on the recovery in the market by discouraging households from moving house. As indebtedness falls and borrowers move out of negative equity it can be expected that the market will recover further. There will also be an increasing cohort of borrowers who will not have a debt overhang to service.

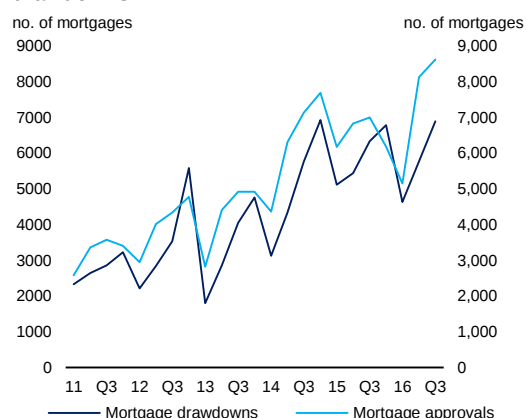
The latest data provide some indication that the market has been picking up again during 2016. The number of mortgages drawn down in Q3 2016, at 6,900, was up 8.8 per cent in comparison to the same quarter of the previous year and was the highest number of drawdowns in a quarter since the introduction of the mortgage measures (Chart 5). Mortgage approvals have also been growing steadily throughout 2016 with 10 per cent more approvals granted between January and September of this year compared to the same period of last year.

Chart 4: Breakdown of residential property transactions (rolling 4 quarter total)



Source: Central Statistics Office.
Note: FTB/OO = First-Time Buyer Owner-Occupier. FOO = Former Owner-Occupier (Second and Subsequent Borrower). NO = Non-Occupier.

Chart 5: Volume of mortgage approvals and drawdowns



Source: Banking & Payments Federation Ireland.

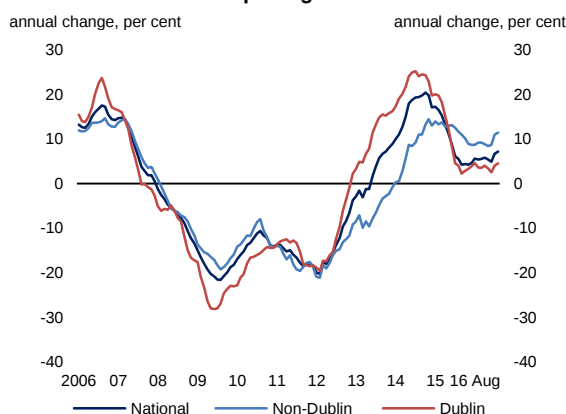
3. House prices

Following sharp rises in 2014, the rate of house price inflation eased markedly throughout 2015. Data from the CSO indicate that the rate of increase in national residential property prices fell from over 20 per cent year-on-year in late-2014 to less than 5 per cent at the end of 2015 (Chart 6). Similarly, the annual rate of growth in Dublin fell from 24 per cent to 4 per cent over the same period. House price expectations, as garnered from the Central Bank of Ireland/SCSI Quarterly Property Survey, moderated significantly after introduction of the macroprudential measures and respondents have consistently attributed this in part to the effect of the measures.⁸ Chart 7 shows changes in house price

⁸ See [Macro-Financial Review 2016\(I\)](#), Box 4 “Residential property price expectations survey”, Page 26.

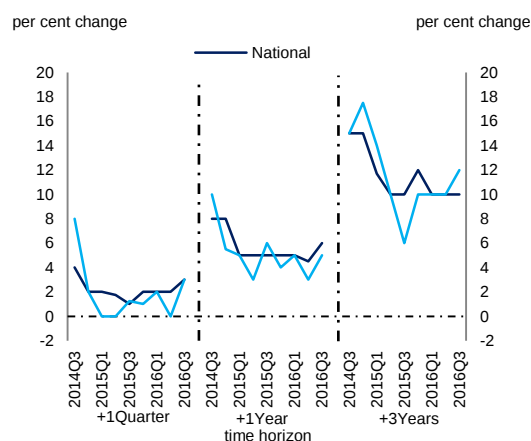
expectations nationally and for Dublin over periods between 1 quarter and 3 years ahead since before the measures were introduced. It shows that price expectations moderated significantly after Q3 2014, particularly for Dublin, and have remained relatively stable thereafter.

Chart 6: Annual house price growth



Source: Central Statistics Office.

Chart 7: Median expected change in residential property prices over 1 Quarter, 1 Year, and 3 Year time horizons: National & Dublin



Source: Central Bank of Ireland / SCSi Property Survey.

Having been relatively stable for the first half of 2016, the pace of residential property price growth has begun to pick up again in recent months. National residential property prices rose by 7.2 per cent in the year to August 2016, while Dublin house price inflation was lower at 4.5 per cent over the same period. Outside Dublin, house prices increased by 11.4 per cent since August 2015, although this does mask some regional variability. The weak levels of transactions and credit growth suggest that a shortage of supply is a key factor underlying this renewed pick up in house prices.

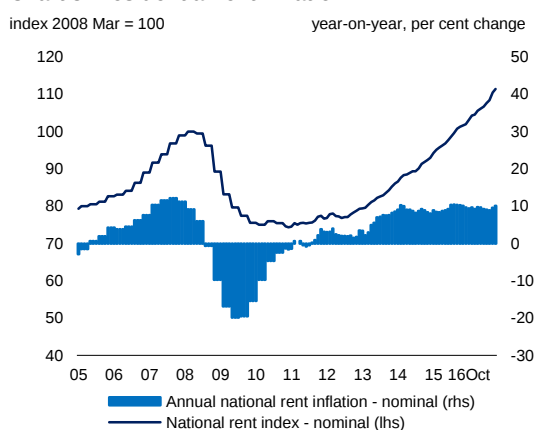
MyHome.ie and Daft.ie have reported a pick-up in asking prices in the second and third quarters of 2016. Results from the latest Quarterly Property Survey show that national and Dublin median house price expectations are increasing once more, albeit not to the levels seen at the time of introduction of the mortgage measures. Meanwhile, rising disposable incomes, projected increases in household formation, supply shortages and strong rental growth can be expected to exert further upward pressure on residential property prices over the medium term. Despite the trend of recent years, prices remain around one-third below their 2007 peak. This is clearly not a very meaningful comparison since prices at the peak were significantly overvalued. Analysis undertaken for this review indicates that prices are, if anything, below the levels that would be warranted by economic fundamentals; however, both price-to-rent and price-to-income levels are above long run averages (as discussed further in Section 5(c)).⁹ Overall, the evidence does not point to a significant misalignment of prices in either direction at the current time.

⁹ Further detail is available in Kennedy *et al.* (2016a).

4. The rental market

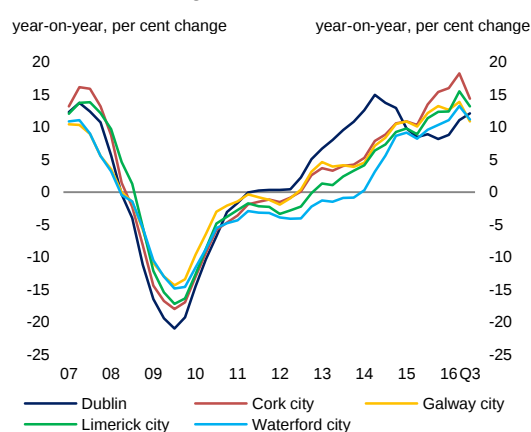
Rental market pressures have been building steadily in recent years with strong demand and a shortage of supply contributing to higher rents across the country. After bottoming-out in late-2010/early-2011, rents have been steadily increasing (Chart 8). Nationally, private rental inflation, as measured by the CSO, has averaged over 9 per cent per annum for the past three years. Average rents in October 2016 were more than 11 per cent higher than their previous peak level in 2008. According to the 2016 Q3 Daft.ie Rental Report, Dublin rents have increased by 12.1 per cent over the past year (Chart 9) and by almost 60 per cent since their low point at the end of 2010. Furthermore, rent increases are no longer confined to cities and Dublin commuter counties. Rents are rising at double-digit rates in 37 of the 54 regions analysed in the Daft.ie Report, up from just 17 regions as recently as late-2015.

Chart 8: Residential rent inflation



Source: CSO & Central Bank of Ireland calculations.

Chart 9: Daft.ie regional residential rents



Source: Daft.ie.

A fall in the availability of rental properties across the country is one factor exacerbating the situation in the rental market. In October 2016, the number of units listed for rent on Daft.ie was down 12 per cent on a year earlier and by over 85 per cent since 2009 (Chart 10). The situation in Dublin is particularly acute, with fewer than 1,500 units on offer, a fall of over 80 per cent from the mid-2009 peak. This drop in the availability of rental units has occurred despite an addition to the stock of properties in the private rental sector (PRS). Research by McCartney (2016) estimates that 24,000 units were added to the PRS since 2011, but the strength of demand for rental accommodation since then has accounted for this additional stock.

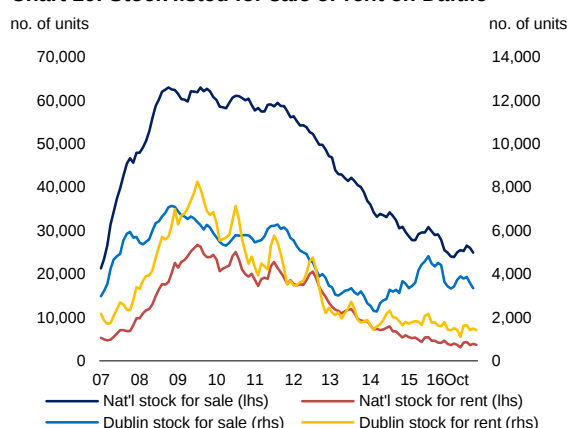
Further analysis of developments in the rental market, in the context of the macroprudential mortgage measures is presented in Section 5(d).

5. Housing supply

A shortage of housing supply has been a feature of the Irish residential property market since the housing crash. Output has been weak and the number of second-hand units listed

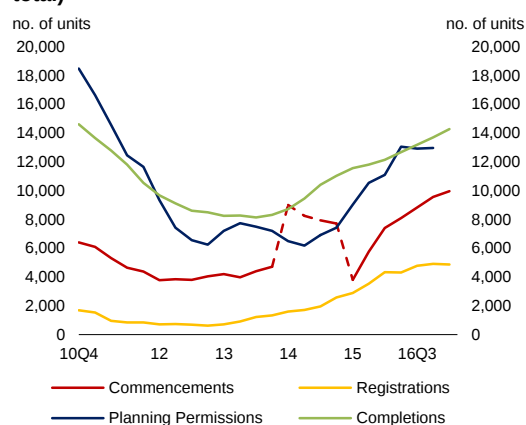
for sale has fallen sharply. Fewer than 25,000 units were offered on Daft.ie in September 2016, from a high of 63,000 properties in 2008 (Chart 10). Likewise, the 3,300 units for sale in Dublin are less than half the end-2008 figure. Property-turnover-time has also declined in recent years, with one-third of properties listed with Daft.ie selling in under two months, up from one-fifth at the start of 2013. The average time-to-sale agreed on MyHome.ie properties fell to a new low of four months in 2016 Q3.

Chart 10: Stock listed for sale or rent on Daft.ie



Source: Daft.ie.

Chart 11: Housing market activity: (Rolling 4Q total)



Source: Department of Housing Community and Local Government, CSO and Central Bank of Ireland calculations.

Note: The adoption of new building codes from March 2014 resulted in a significant front-loading of commencements in the first quarter of 2014, the impact of which remained in the statistics until 2015Q1. This period is represented by the jagged red line.

The supply of newly built residential units continues to lag behind housing demand. In 2012 and 2013, fewer than 10,000 units were built annually, which is low by historical standards. The fact that the recovery in housing output has been relatively slow following the housing and financial crisis is in line with the experience of other countries and with what the economic literature would suggest, namely that declines in housing completions tend to occur much more rapidly than subsequent recoveries.¹⁰ While an ongoing increase in homebuilding is evident in the latest house completions data (Chart 11), the rate at which new-builds are coming on-stream remains low by historical comparison and is still short of that required to satisfy a projected demand of circa 25,000 units per annum until 2030.¹¹ Approximately 12,700 houses were built in 2015, which is about 40 per cent of the long-run (1970-2015) average. The number of new houses added to the housing stock in the first three quarters of 2016 was 18 per cent higher than the equivalent last year.

Forward-looking indicators of residential construction activity, such as registrations and commencements, have also been higher of late, but, again, not to the extent required to address the current housing shortfall. The latest cumulative 4 quarter residential property planning permissions, guarantee registrations and commencements data were up

¹⁰ See Kennedy and Stuart (2016).

¹¹ See Duffy *et al.* (2014).

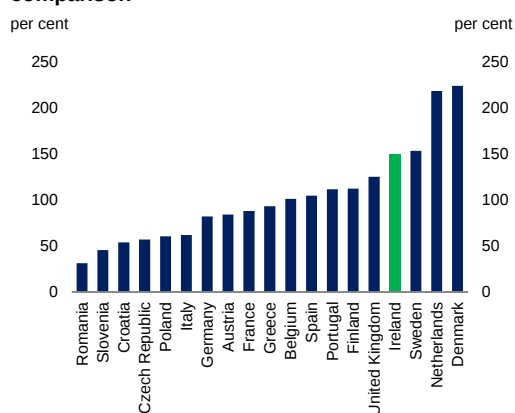
substantially from a year previously, to 13,000, 4,900 and 10,000 units respectively (Chart 11).¹²

6. Indebtedness, arrears and negative equity

The legacy of the financial crisis continues to hang over the household sector in Ireland with indebtedness levels among the highest in Europe, a large cohort with negative or low positive equity in their houses, and arrears still running at high levels. While these vulnerabilities have been declining steadily over recent years, they are still high and leave the economy at risk in the event of an economic or financial shock, particularly one that adversely affects the housing market.

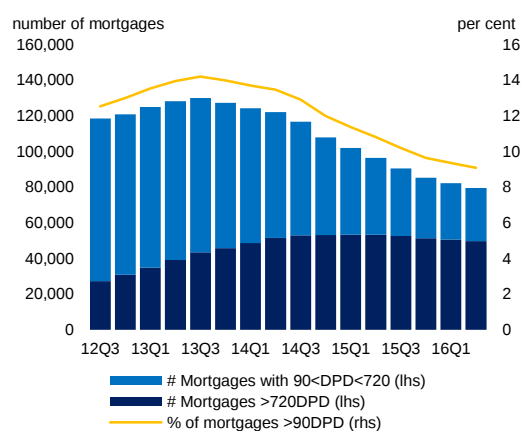
As can be seen in Chart 12, Irish household debt is among the highest in Europe with the ratio of debt-to-disposable income at around 150 per cent. This is despite the fact that the household sector has been steadily deleveraging in recent years, with household debt falling to its lowest level in a decade in 2016 Q2, having peaked at 215 per cent of disposable income in 2011 Q2. The majority of this debt, around 87 per cent, relates to mortgages.

Chart 12: Household vulnerabilities: household debt to disposable income - international comparison



Source: ECB, CSO and Central Bank of Ireland calculations.
Note: Debt is comprised of households' loan liabilities. Data as at 2016q1.

Chart 13: Household vulnerabilities: mortgage arrears >90 days past due

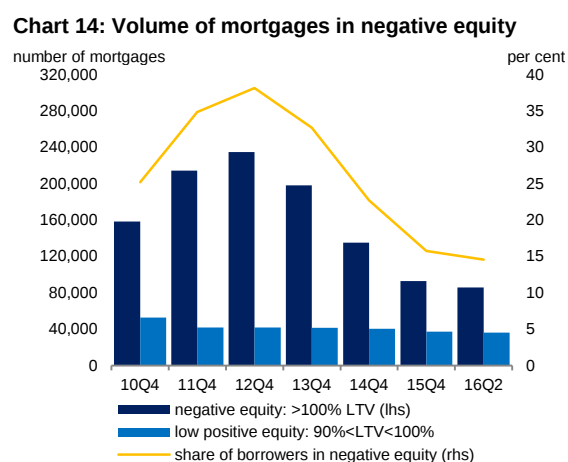


Source: Central Bank of Ireland calculations.

Mortgage arrears and defaults reached high levels following the financial crisis, peaking at around 14 per cent of total mortgages in 2013 (Chart 13). As will be noted in the following section, there has been a steady and significant decline over the past three years but the level of arrears remains high by international standards. While recent increases in house prices have seen the number of borrowers in negative equity fall from a peak of almost 235,000 at the end of 2012 to 86,000 in 2016 Q2, a sizeable portion of mortgage

¹² Commencement and registration data are available up to 2016q3, whereas the latest planning permission data are for 2016 Q2.

holders (15 per cent) are still dealing with this issue (Chart 14). A further 6 per cent of borrowers have low positive equity, with LTVs between 90 and 100 per cent.



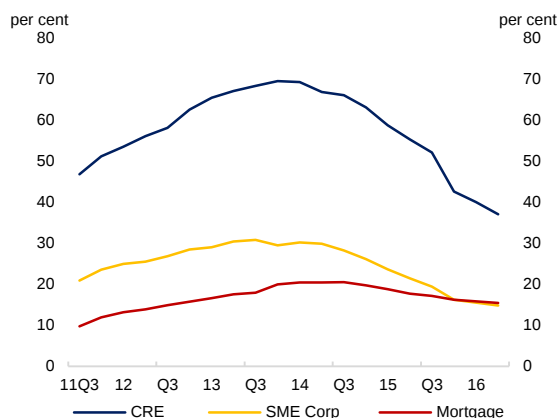
Source: Central Bank of Ireland calculations.
 Note: Numbers represent all mortgages in negative equity held at the domestic banks (AIB/EBS, BoI and PTSB).

7. Banking sector

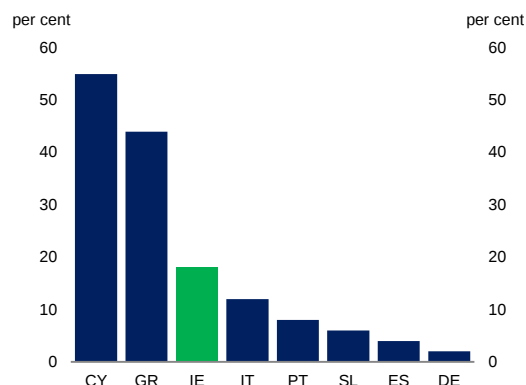
While the Irish banking sector is recovering from the recent crisis, there remain vulnerabilities. In a recent assessment by the European Banking Authority of the ability of 51 large EU and EEA banks to withstand adverse economic developments, the Irish banks were identified as being among the most vulnerable. This partly reflects crisis related legacy issues for the Irish banks, including a still high ratio of NPLs (Charts 15 and 16) and in particular a high proportion of mortgage arrears, which remain among the highest in Europe (Chart 16).

A recent ECB report on a selection of countries' national practices for dealing with NPLs found that at the end of 2015, Ireland had a household NPL ratio of 18 per cent, compared to 12 per cent in Italy, 8 per cent in Portugal and 4 per cent in Spain (Chart 16).¹³ There were approximately 80,000 mortgages in greater than 90 day arrears at end-2016 Q2, a decline of almost 40 per cent from the 2013 Q3 peak (Chart 13). The largest share of the remaining cases (about 50,000), however, are more than 720 days in arrears.

¹³ [Stocktake of national supervisory practices and legal frameworks related to NPLs, \(2016\).](#)

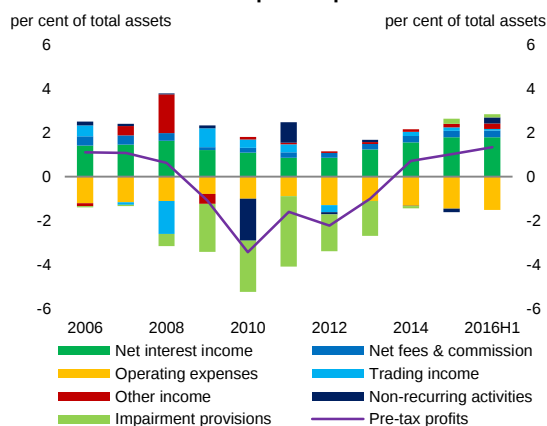
Chart 15: Non-performing loans as a share of loans to sector

Source: Central Bank of Ireland calculations.
 Note: Data from (AIB/EBS, BoI, KBC, PTSB and Ulster bank).

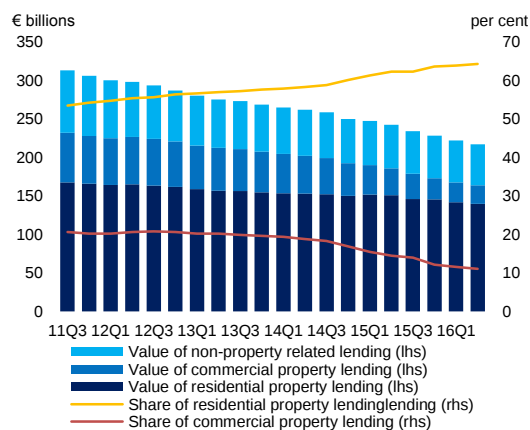
Chart 16: Cross-country non-performing household loans

Source: European Central Bank, "Stocktake of national supervisory practices and legal frameworks related to NPLs", September 2016.

Banks also face challenges to their profitability, despite recording positive profits since 2014 (Chart 17). Lower funding costs coupled with the write-back of loan-loss provisions contributed to the return to profitability. However, a number of medium-term challenges remain that could negatively impact the continued recovery. For example, interest income – Irish retail banks' main source of income – declined in the first half of 2016. While the low interest-rate environment has contributed to lower funding costs, it has also led to a reduction in revenues. Outstanding loan balances declined by 10.4 per cent in the year to 2016H1, as loan redemptions continued to outpace new lending. While lower net-interest income has been partly offset by the income generated from the disposal of assets, the combination of lower reoccurring income and rising operating costs have negatively impacted profit levels. In addition, while banks' profits continue to benefit from the write-back of provisions the level has halved in value compared to 2015H1. Overall, the level of profitability remains somewhat weak across the banking system.

Chart 17: Breakdown of pre-tax profits

Source: SNL Financial and Central Bank of Ireland calculations.
 Note: Data are based on published accounts of the three domestic banks.
 Data are annualised in 2016H1.

Chart 18: Irish banks' property related lending

Source: Central Bank of Ireland.

A concentration of lending to residential and commercial real estate also represents a vulnerability; approximately 65 per cent of Irish banks' loan portfolios are accounted for by residential mortgages while a further 11 per cent are for commercial real estate purposes (Chart 18). Coupled with outstanding vulnerabilities in the household sector and the still high proportion of households in negative equity, it is clear that Irish banks remain vulnerable to any reversal in trends in real-estate prices.

5. Impact Assessment

a. Market Access and Borrower Leverage

Key Messages:

- There is no evidence that the Regulations have changed the share of different borrower groups in the market, which might have been expected if the measures had adversely affected a certain group of borrowers.
- The characteristics of FTBs and SSBs are largely unchanged since the Regulations. However, there has been an increase in the share of couples and an increase in the average income of FTBs in the period since the measures were introduced.
- The use of allowances under the proportionate cap system varies by allowance type.
 - LTV allowances are more prevalent among SSBs, high-income borrowers and couples.
 - LTI allowances are more prevalent among FTBs, low-income borrowers and single persons.
- The average (mean) LTV and LTI ratios increased slightly after the introduction of the regulations for both FTBs and SSBs. However, the opposite pattern is observed for high leverage borrowers.
- For FTBs and SSBs with an LTV of 80 per cent or above, the average borrower registered a small reduction in their LTV after the Regulations. For FTBs, this result only applied to higher income borrowers, i.e. FTBs at the lower end of the income distribution had the same average LTV pre- and post-Regulations.

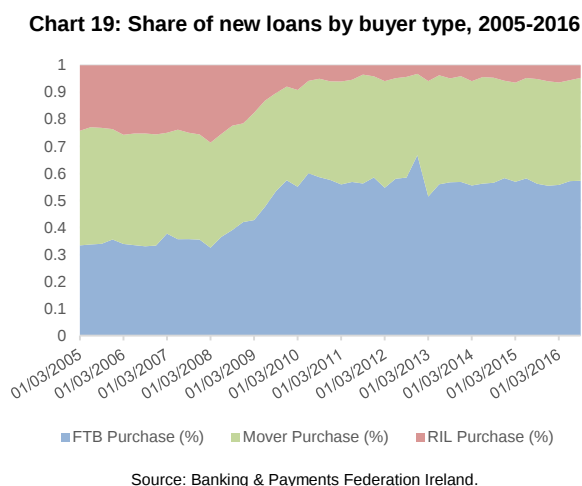
1. Introduction

While macroprudential rules which limit LTV and LTI ratios impact positively on borrower resilience, concerns have been raised about how the measures might affect market access for different groups, in particular, FTBs. At this early stage and in the absence of data on discouraged or rejected borrowers, it is difficult to assess this issue

fully.¹⁴ However, data on mortgage lending since the Regulations can provide some insights. Using data to H1 2016, this Section explores market access after the introduction of the Regulations. Furthermore, the effect of the Regulations on the leverage of Irish mortgage borrowers is assessed.

2. Market access

Chart 19 shows the share of new loans for house purchase by buyer type over the period 2005-2016.¹⁵ If the Regulations had an adverse effect on the access of a group of borrowers to the mortgage market, a change in the respective shares of FTBs, SSBs or BTLs might be expected. There has been no marked change in the share of new loans to FTBs, the borrower group where market access concerns might be most relevant. FTBs have accounted for close to 60 per cent of new mortgage lending since 2010, and this share has been maintained after the introduction of the Regulations.



While borrower shares in the mortgage market did not shift after the Regulations, this does not imply that the within-group composition of borrowers was not affected, i.e. that the characteristics of FTBs, SSBs or BTLs have not changed. Kinghan et al. (2016a) test for differences in the average loan and borrower characteristics of FTBs and SSBs over the pre-announcement period, 2013 Q1 to 2014 Q3, and over the post-Regulations period,

¹⁴ In a submission to the call for evidence, survey data indicate that 5 per cent of borrowers had a mortgage application rejected at some point in the past. The same survey showed that 35 per cent of borrowers believe that deposit accumulation would inhibit their ability to purchase a new home. However, this was not limited to the group that is actively trying to purchase a home. See Behaviour & Attitudes (2016) 'Impact of Central Bank rules on the property market. Quantitative Research', August.

¹⁵ Note that this chart differs from Chart 4 in Section 4, which showed the share of housing transactions (mortgaged and cash) accounted for by different buyer groups.

2015 Q1 to 2016 Q2.¹⁶ Among FTBs, the analysis points to no sizeable differences over time in key borrower characteristics such as age, occupation status or region of residence. There is some evidence, however, of an increase in the share of couples and a small increase in the average income level among FTBs. For SSBs, the pattern is similar, with no sizeable change in the average age, occupation status or region of residence, but a small increase in the share of couples. There is no significant difference in income levels of SSBs between both time periods. On balance, while the data cannot conclusively say that no changes in composition have occurred, the early evidence does not point strongly to significant shifts in composition.¹⁷

3. Allowances under the proportionate caps

An important factor, in terms of market access concerns, relates to the use of allowances under the proportionate cap system. Specifically, as noted in Section 2, the Regulations allow for a certain amount of lending in excess of the limits. Such allowances can ease market access issues for credit worthy borrowers who would otherwise be constrained by the Regulations.

Keenan *et al.* (2016) and Kinghan *et al.* (2016b) provide insights on borrowers with and without allowances in 2015 and H1 2016 respectively. In both periods, they find that the proportion of borrowers with an LTI allowance was higher among FTBs and among younger, lower income and single borrowers, which may have eased market access for these groups. The proportion of borrowers with an LTV allowance was higher among SSBs, couples and higher income borrowers.

Furthermore, the sliding scale for LTV requirements for FTBs meant that borrowers purchasing a property under the €220,000 limit were subject to a maximum deposit requirement of 10 per cent, which did not differ considerably from average deposit requirements among FTBs prior to the measures. Table 2 provides a breakdown of lending to FTBs who were in-scope of the Regulations in 2015 and H1 2016, by property purchase price and LTV. A number of points emerge: firstly, almost 50 per cent of FTBs purchased a property in excess of €220,000 over the period. Given the sliding LTV scale, this group of borrowers would have been subject to a lower LTV (and hence a higher deposit) than

¹⁶ The data for q4 2014 are omitted from the pre-Regulations period due to the announcement of the measures in October 2014, which may have impacted lending in q4. The 2015 to q2 2016 period includes all loans that were in-scope of the measures. Please see Kinghan *et al.* (2016a) for details.

¹⁷ It is interesting to note that changes have been observed in the structure of the mortgage market since the crisis, but these changes pre-date the announcement or introduction of the mortgage measures. Lydon and McCann (forthcoming) find that during the boom period in Ireland between 2003 and 2008, loosening credit standards coincided with an increase in the participation of lower income households in the mortgage market. After the crisis, but predating the measures, the tightening of credit conditions coincided with a reduction in the participation of lower income households in the mortgage market.

FTBs purchasing below the €220,000 threshold. However, the majority of this group (73 per cent) posted a deposit that was larger than required under the Regulations, which may signal that the regulatory limit was not binding for many of these borrowers.

Among the group of FTBs purchasing a property in excess of €220,000, a certain proportion of these (11 per cent of the number of FTB loans) had an allowance to exceed their regulatory LTV limit. It is clear, however, that the majority of these borrowers had an LTV of between 85 and 90 per cent.

Table 2: House prices and LTV ratios of in-scope FTBs, 2015 – H1 2016

	No.	Value	% of No.
House price ≤ €220,000	6,745	823	52
House price > €220, 000	6,240	1,468	48
of which:			
Below Regulation LTV	4,559	1,020	73
At Regulation LTV	987	246	16
Above Regulation LTV	694	202	11
of which:			
80 < LTV ≤ 85	13	6	2
85 < LTV ≤ 90	614	179	88
90 < LTV ≤ 92	59	15	9
LTV > 92	8	2	1

Note: The data in this table are from the Monitoring Template dataset, which includes data for the 5 largest banks operating in the Irish market. See Kinghan *et al.* (2016a) for further details.

4. Impacts on borrower leverage

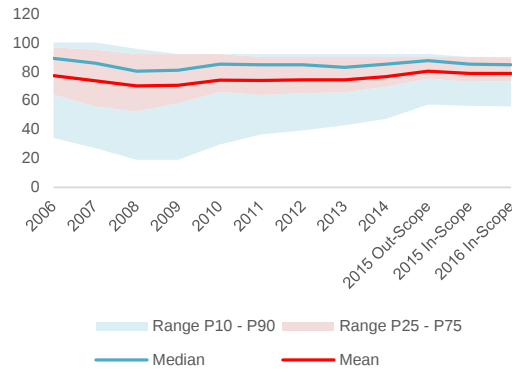
To understand more about the impact of the Regulations on borrowers, Chart 20 presents the LTV and LTI distributions for FTBs, SSBs and BTLs over the period 2006 to H1 2016.¹⁸ While LTVs and LTIs were high for all borrowers in the period 2006-2008, thereafter credit conditions tightened.¹⁹ There is no obvious change in the average LTV or LTI ratios after the Regulations, but a reduction in high LTV lending is observed.

¹⁸ BTL borrowers are not subject to an LTI limit.

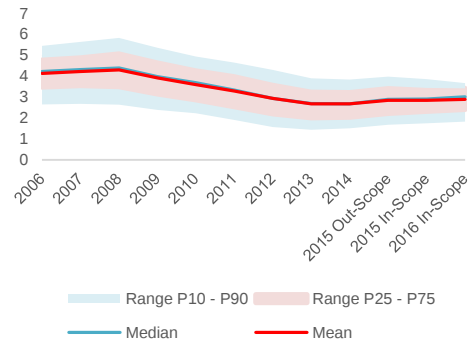
¹⁹ A notable exception was an observed increase in the average LTV of SSBs after 2008. This may reflect the fall in property prices which reduced the degree of equity which SSBs had available to invest in a new property.

Chart 20: LTV and LTI ratios by Borrower Type, 2006-H1 2016²⁰

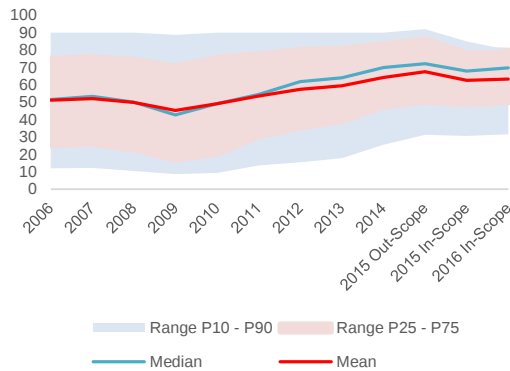
LTV FTB



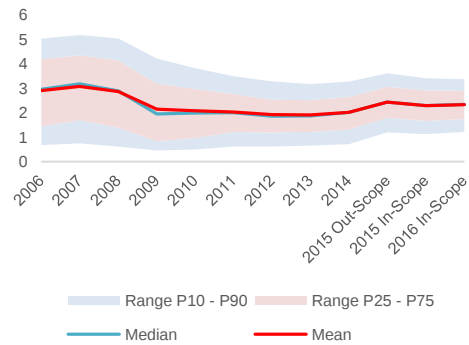
LTI FTB



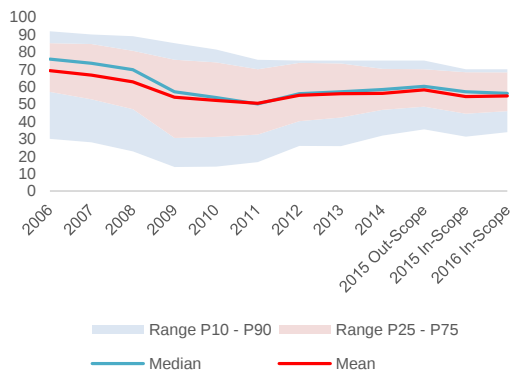
LTV SSB



LTI SSB



LTV BTL



Source: Kinghan *et al.* (2016a) using Central Bank of Ireland Loan-Level and Monitoring Template data. The charts show the average (mean and median) values for each ratio, in addition to the distribution of values over time; the P10 – P90 range captures observations between the 10th and 90th percentiles of the distribution; the P25 – P75 range captures observations between the 25th and 75th percentiles of the distribution.

²⁰ The charts are based on two loan-level datasets. The 2003 – 2014 period comes from the Central Bank's Loan-Level Dataset. Data for 2015 to H1 2016 are from a new data return for 5 Irish banks (S.I.47 Monitoring Template). Please see Kinghan *et al.* (2016a) for more details on the underlying samples. The samples underlying the LTV and LTI charts may differ due to missing data observations.

To provide further insight on the impact of the measures on borrower leverage, Table 3 shows the breakdown of new lending for FTBs and SSBs pre- and post- the measures by LTV bucket. Given the post-measures period covers 2015 to H1 2016, lending in a comparable period prior to the measures is also shown (2013 to H1 2014). While the share of lending that took place over the 90 per cent LTV level among FTBs prior to the measures has fallen from 14 per cent to 1 per cent, the share of lending between 89 and 90 LTV has increased by a similar amount. This suggests that the increase in deposit requirement for many FTBs at the top of the LTV distribution was relatively small, of the order of 1 to 3 percentage points.

Table 3: Distribution of LTV pre- and post-Regulations by buyer type*

FTBs (%)	(0, 80)	(81,84)	(85,88)	(89,90)	(91,92)	>92	No.
2013 - H1 2014	45	6	9	26	13	1	10,321
2015 - H1 2016	42	6	15	36	1	0	12,983
Difference	-3	0	6	10	-12	-1	

SSBs (%)	(0, 80)	(81,84)	(85,88)	(89,90)	(91,92)	>92	No.
2013 - H1 2014	73	4	6	12	4	1	7,765
2015 - H1 2016	89	2	3	6	0	0	11,492
Difference	16	-2	-3	-6	-4	-1	

Note: Data for 2015 to H1 2016 are from the Monitoring Template dataset. The table reports results for in-scope loans only (i.e. those loans to which the Regulations applied). Data for 2013 to H1 2014 are from the Central Bank's loan-level dataset. Both datasets include data for the 5 largest banks operating in the Irish market. Due to rounding differences, some numbers may not add.

Among SSBs, however, the table shows a significant shift in the distribution of LTVs pre- and post- the measures. Prior to the measures, almost 30 per cent of new lending among SSBs had an LTV in excess of 80 per cent; after the measures, this figure was reduced to 11 per cent.

While overall trends in the LTV and LTI distributions are informative, it is useful also to explore developments in LTV and LTI ratios, controlling for the composition of borrowers in the pre- and post-Regulations period. This tests whether similar borrowers faced higher or lower LTVs after the measures were introduced. Kinghan et al. (2016a) compare lending to FTBs and SSBs in two periods: 2013 Q1-2014 Q3 (pre-measures) versus 2015

Q1-2016 Q2 (post-measures).²¹ The authors employ a model that relates the LTV and LTI ratios to borrower and property characteristics in the period prior to, and after, the Regulations.²² A number of findings emerge:

- FTBs of the same average age, income, marital status and employment type, who purchased an equivalent property, had a marginally higher average LTV post- the Regulations. A similar result is found for SSBs.
- Focusing on FTBs with an LTV over 80 per cent, borrowers in this group registered a small reduction in their LTV, though this result was only present for higher income borrowers, i.e. borrowers at the lower end of the income distribution in this group had the same average LTV pre- and post-Regulations.
- Among the group of SSBs with an LTV over 80 per cent, a reduction in the average LTV was observed after the measures.
- In relation to LTI impacts, on average, LTIs were marginally higher for FTBs and SSBs following the measures. Among the group with a high LTI (defined as an LTI ratio of greater than 3), there was no difference pre- and post-the measures in the LTI for an equivalent FTB. For an equivalent SSB, however, with an LTI over 3, there was a marginal decline in the average LTI after the Regulations.

In summary, the results suggest that the impact of the measures on borrowers has been limited to those with the highest LTVs and, for FTBs, borrowers at the higher end of the income distribution.²³ Many borrowers were unaffected by the measures.

²¹ 2014 Q4 is omitted so as to control for any lending that took place following the announcement of the measures in October 2014 in anticipation of the restrictions. 2015-Q2 2016 includes all loans that were in-scope of the measures. Please see Kinghan et al. (2016a) for details.

²² The models control for borrower age, income, marital status, employment status, property characteristics (price, region, dwelling type) and also include controls for the bank, and the month in which the loan was originated.

²³ The sliding LTV scale for FTBs imposes a higher down-payment requirement on more expensive properties, which are more likely to be purchased by higher income households. For borrowers purchasing a property under €220,000 after the measures, the impact of the Regulations was minimal as these borrowers were subject to a 90 per cent LTV limit, which was not much changed from the pre-Regulations requirement.

b. Bank and Borrower Resilience

Key Messages:

- Higher LTV and LTI ratios at origination are associated with an increased likelihood of subsequent default and higher loss given default.
- The affordability of mortgages issued under the Regulations is more resilient to hypothetical interest rate and income shocks than loans issued up to 2008.
- The probability of default for loans originated under the Regulations is lower than pre-Regulations lending, partly reflecting the reduction in high LTV and LTI lending.
- The magnitude of loss experienced in the event of default would be lower for the portfolio of loans originated under the Regulations, assisting banking resilience.
- The default risk of FTBs is lower than that for SSBs. Furthermore, using the most recent data, the difference in default rate between FTBs and SSBs is now no lower for buyers who purchased lower valued houses.

1. Introduction

A central objective of the mortgage market measures is to enhance the resilience of banks and borrowers to financial shocks. The originating features of mortgage contracts are an important determinant of such resilience. From a borrower's perspective, mortgages issued at high LTV ratios leave little cushion to protect borrowers from negative equity if house prices fall.²⁴ Similarly, the heavy debt repayment burden associated with mortgages issued at high LTI ratios reduces the ability of borrowers to absorb financial shocks, such as a reduction in income or a change in family circumstances. A significant amount of high LTV and LTI lending took place during the housing boom that preceded the recent crisis in Ireland (McCarthy and McQuinn, 2016). Higher levels of LTV and LTI have been shown to increase the risk of mortgage default.²⁵

From a bank's perspective, the expected losses on a mortgage portfolio are a function of the probability of default on loans and the losses that accrue in the event of default. The increased probability of default associated with high LTV and LTI lending adversely affects the first component of expected losses. In relation to the second, where the resale value of a repossessed property falls below the value of the debt outstanding on that property and any transaction costs, the bank will face a loss on that asset.

²⁴ Negative equity refers to a situation where the value of a property is below the value of mortgage debt outstanding on that property.

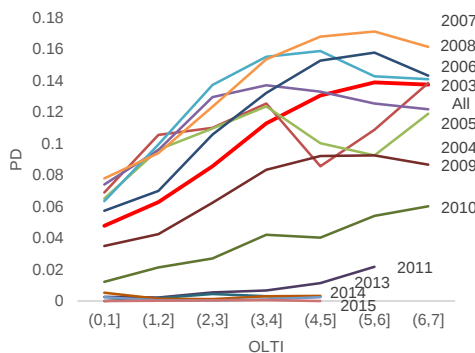
²⁵ See, for example, Kelly and O'Malley (2016), Kelly *et al.* (2015), McCarthy (2014), Lydon and McCarthy (2013).

2. Evidence on credit risk and originating mortgage characteristics

Central Bank research (Hallsisey *et al.*, 2014) presents evidence on the link between high originating LTV and LTI ratios and subsequent probability of default and loss given default. This relationship has been confirmed to hold using data to end-2015: Chart 21 shows that, as originating LTI increases, the default rate increases.²⁶ Chart 22 shows that for higher originating LTV ratios, there is higher loss given default at end-2015. The chart is based on a loan-level dataset for five Irish retail banks at end-2015. The red line indicates the relationship among all loans in the sample, while all other lines represent the relationship for loans issued in a specific year. In both cases, the importance of the property cycle for credit risk is made clear: for loans issued at the peak of the cycle (2005-2007), the probability of default for a given originating LTI, and the loss given default rate for a given originating LTV, are significantly higher.

Chart 21: Relationship between LTI ratios and Default rate at December 2015 by origination year

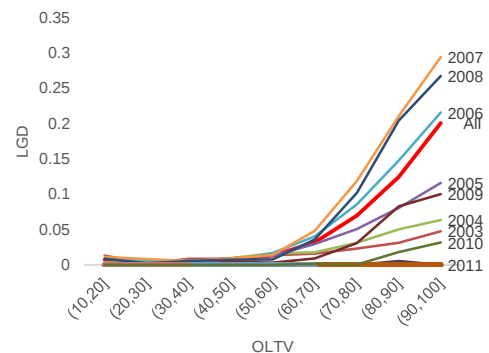
probability of default



Source: Central Bank of Ireland loan-level data for primary-dwelling purchase loans as of 31st December 2015.

Chart 22: Relationship between LTV ratios and Loss Given Default at December 2015 by origination year

loss given default



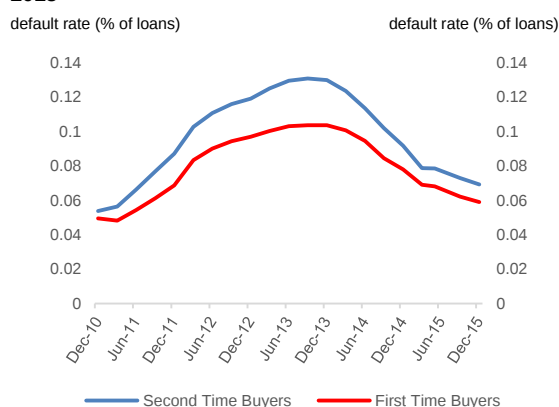
Source: Central Bank of Ireland loan-level data for primary-dwelling purchase loans as of 31st December 2015.

Previous Central Bank research showed that FTBs have a lower probability of default than SSBs. Furthermore, the differential between FTBs and SSBs varies with values of LTV and LTI (Kelly *et al.*, 2015). Chart 23 shows the average default rate of FTBs and SSBs for each quarter over the period 2010 Q4 – 2015 Q4. The default rate of FTBs is consistently lower across quarters. Employing the most recent data for 2015 Q4, O'Malley and O'Toole (forthcoming) revisit the issue of FTB default rates and show that this difference remains when common determinants of mortgage default are controlled for.

²⁶ While the relationship displayed in Chart 21 is unconditional (i.e. the graph does not control for any confounding factors that may explain part of the relationship between the two variables), the positive relationship between originating LTV and LTI and subsequent default has been shown to hold while controlling for a range of loan- and borrower-level factors in Kelly *et al.* (2015).

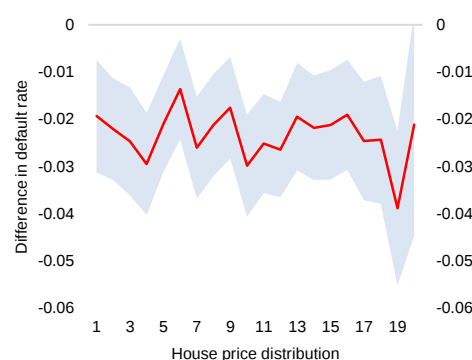
The authors re-examine how this difference changes by LTV and house prices and find that, in relation to LTV, the difference begins to decline, and is eventually eliminated, at very high originating LTVs. Regarding house prices, they find there is no observable pattern in the relation between the probability of default differential and the value of the property in the most recent data, i.e. default risk of FTBs is lower than that for SSBs, and the difference between the two groups is now no lower for buyers who purchased lower valued houses. This is displayed in Chart 24.

Chart 23: FTB and SSB default rates, Q3 2010 to Q4 2015



Source: Central Bank of Ireland, loan-level dataset.

Chart 24: FTB and SSB default differential by house price distribution



Source: Authors' estimate using Central Bank of Ireland loan-level dataset.
Note: Shaded area represents 95% confidence bound.

3. Assessment of bank and borrower resilience

The objective of the Regulations to increase bank and borrower resilience is a medium-term one and it is too early to assess empirically whether the Regulations have been effective in meeting this objective across the entire mortgage portfolio. Indeed, the true test of the resilience of banks and borrowers will come only if the economy and property market experience another crisis. However, as part of this review, a number of different approaches have been taken to assess whether new lending issued under the Regulations (in-scope loans) is more resilient to shocks than lending that was carried out previously. This analysis points to improved resilience post-Regulations.

Two methodologies are employed to assess the resilience of borrowers since the introduction of the Regulations. First, scenario analysis is used to assess the impact of adverse shocks on mortgage affordability.²⁷ This exercise, which is described in detail in Box 1 of the Central Bank of Ireland's Household Credit Market Report 2016H2, shows

²⁷ Scenario analysis is a commonly used tool to assess how borrower debt repayments might be impacted in the event of a negative affordability shock. For examples, see McCarthy and McQuinn (2011) or Sweden's Finansinspektionen "Report: [The Swedish Mortgage Market](#)", (2012).

that borrower resilience improved from 2009 on, and lending under the Regulations has continued this trend.

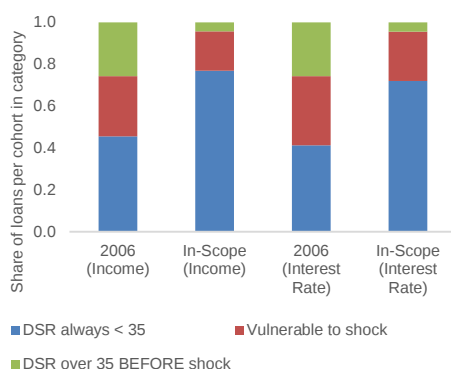
The exercise applies two separate shocks to loans: an interest rate shock, where interest rates on all loans increase by 242 basis points, and an income shock, where household income falls by 20 per cent.²⁸ The impact of both shocks on household vulnerability is measured through the debt service ratio (DSR), the ratio of monthly mortgage repayments to household income. Households are deemed vulnerable to a shock if their DSR exceeds 35 per cent after the shock.²⁹ A large majority of households (72 and 77 per cent) that took out their mortgages in 2015/H12016 (in-scope of the Regulations) would maintain resilience after the shocks, with a DSR of less than 35 per cent even after the adverse scenarios. In contrast, a sizeable portion of households in 2006 already had a DSR in excess of 35 per cent when they originally took out their mortgage. After the shocks, just over 40 per cent of households in 2006 would have a DSR of less than 35 per cent.

The second methodology applied Central Bank of Ireland probability of default (PD) models to assess the default likelihood of loans since the Regulations were introduced. The result of the exercise, which is detailed in Joyce and McCann (2016), is summarised in Chart 26. The chart reports the share of loan volumes in each year that is predicted to move into default over a one-year horizon, based on the *originating characteristics* of all loans.³⁰ The predicted PDs of 2015/H12016 loans were at their lowest since 2011. Furthermore, the predicted PDs in 2015/H12016 were only three fifths as high as the level for loans issued in 2008.

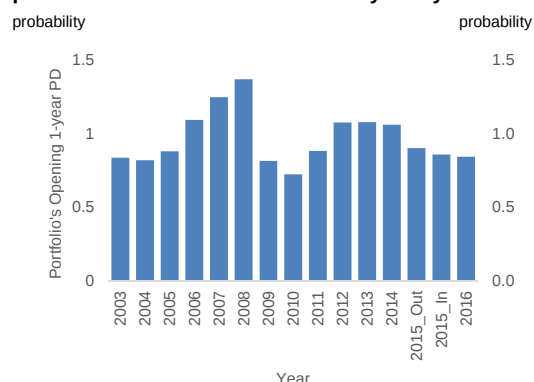
²⁸ The interest rate shock is taken from the adverse interest rate scenario of the European Banking Authority's 2016 stress tests.

²⁹ The DSR Chart (25) is arrived at from a combination of internal Central Bank analysis on the evolution of default rates at differing DSR levels, as well as banking industry rules of thumb.

³⁰ The model relates the probability of default to borrower and loan characteristics including affordability and housing equity factors, and is estimated using data on mortgage default transitions from mid-2008 to end-2015.

Chart 25: Mortgages with DSR above and below 35% under income and interest rate shock

Source: Box 1, Household Credit Market Report 2016H2.

Chart 26: Share of originated loan balance predicted to enter default over one year by cohort

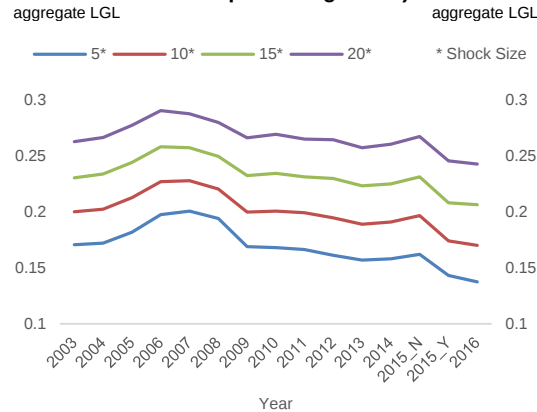
Source: Joyce and McCann (2016).

Improvements in the resilience of mortgage borrowers impacts positively on the resilience of banks' loan books. Another way in which changing lending patterns can affect banking resilience is through the Loss Given Default (LGD) channel. McCann and Ryan (2016) estimate Loss Given Liquidation (LGL, the loss incurred in the event of foreclosure, a key component of LGD) by year of loan origination. Comparing the originating characteristics of mortgages issued in Ireland since 2003, they note that the severity of losses in the event of default would be lower for the portfolio of loans originated under the Regulations than for any other cohort of loans under study, as evidenced in Chart 27. The reduction in LGL post-Regulations is driven firstly by the shift in the distribution of origination LTVs towards lower-LTV lending.³¹ Secondly, as noted by Joyce and McCann (2016), the relationship between loan size and originating LTV weakened after 2008, implying that the largest loans are less likely now to have the highest LTV, a positive development for bank and borrower resilience.³²

³¹ The simulation in McCann and Ryan (2016) assumes no amortization after loan origination, and applies shocks to house values at origination with reductions of 5, 10, 15 and 20 per cent. Additional costs of repossession are applied to the shocked housing value to arrive at the amount that the lender would recover in the event of default, subsequent repossession and property resale.

³² As part of this evaluation, the Central Bank also conducted a review of credit institutions' governance and controls relating to the measures; their operational processes; lending above the Regulations; lending policies and data practices via a questionnaire and subsequent interview. The examination revealed that all banks have embedded the Regulations, including the use of the proportionate caps on LTV and LTI, and continue to enhance their capabilities in this area.

Chart 27: Aggregate LGL (magnitude of losses among those loans experiencing a loss)



Source: McCann and Ryan (2016).

c. *Real-Financial Feedback Loops*

Key Messages:

- Although mortgage credit growth remains weak, house prices continue to grow, albeit at a slower pace than in 2014.
- The level of national prices remains around 34 per cent below the 2007 peak. Model-based indicators do not point to overvaluation in real house prices or emerging unsustainable behaviour. However statistical indicators such as the price-to-rent index and the price-to-income index are above their long-term values.
- Comparing realised outcomes with Central Bank estimates before the Regulations were introduced, actual new lending and house prices have been lower than predicted while housing completions have been slightly higher.

1. Introduction

The secondary aim of the mortgage market measures is to reduce the potential for property price and credit spirals to recur in the Irish market. The role of the interplay between property prices and credit growth in financial crises has been shown using international evidence, and the recent Irish crisis was no exception to this.³³

³³ See for example, Reinhart and Rogoff (2009, 2013), Borio and Drehmann (2009) and Jorda *et al.* (2016) on the link between credit, property prices and financial crises. See Honohan (2010) and Regling and Watson (2010) for a discussion of the origins of the Irish crisis and McCarthy and McQuinn (2016) who investigate the link between house prices and credit conditions in Ireland over the period 2000-2011 using a mix of micro and macro data sources.

As discussed in Section 4, mortgage credit growth is subdued at present and the level of housing market transactions is well below historical levels. Despite this, house prices have continued to rise rapidly, particularly in certain segments of the market. This sub-section first explores recent house price developments using a range of valuation indicators. The objective is to identify any misalignments between recent house price movements and fundamental levels (i.e. the level of house prices that is justified by demand and supply factors). Deviations from fundamental values warrant attention, particularly in cases where house prices exceed fundamental values and credit growth is strong. While the results are mixed and signal the need for further monitoring, on balance, there does not appear to be conclusive evidence of unsustainable price behaviour based on available data.

The second part of this section provides an update to Cussen *et al.* (2015) which informed the original calibration of the measures by assessing the potential impact of the measures on the housing market. While new mortgage lending has increased, it has been lower than was expected prior to the introduction of the Regulations. However, house completions have been slightly higher than expected, whereas house prices have been slightly lower.

2. House prices

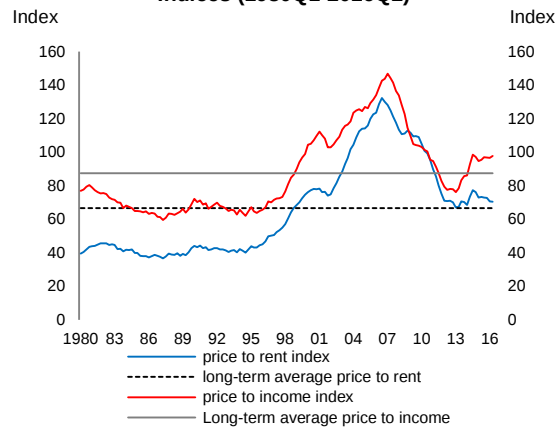
Following a rapid recovery from the market trough in 2013, the pace of annual growth in Irish house prices has declined since late-2014, coinciding with the introduction of the macroprudential rules for new mortgage lending.³⁴ As noted in Section 4, house prices are, however, still growing nationally by 7.3 per cent per annum as at September 2016. Although targeting house prices is not an explicit aim of the measures, it is important to assess the sustainability of house price developments. House prices can be assessed relative to historical trends or they can be benchmarked to levels that would be justified by economic determinants (i.e., “fundamentals”). These fundamentals are typically factors that are expected to drive housing demand (e.g., income, interest rates, and demographics) or housing supply (e.g., existing housing stock, new development or construction costs) in the long run. If house prices differ from fundamentally justified levels, they are considered misaligned. A sustained period of positive misalignment or overvaluation poses a financial stability risk.

Irish house prices have been volatile over the past 20 years, with a period of almost sustained increase recorded between the late-1990s and 2007, followed by a significant collapse and the start of a subsequent recovery. Given the modelling challenges posed by this volatility, a suite of models is employed to determine valuation, and these models are discussed in detail in Kennedy *et al.* (2016a). The authors show that statistical indicators of house price misalignment, the price-to-income and the price-to-rent indices, are currently

³⁴ Section 4 also notes a link between the Regulations and reduced house price expectations among a sample of property market experts (CBI/SCSI quarterly survey of property professionals).

above their historical averages (Chart 28).³⁵ This result holds even if the indices are benchmarked relative to the Euro area average.³⁶ However, drawing on a new methodology in Philips *et al.* (2015) to detect “bubble-like” property price dynamics, the Irish price-to-rent ratio does not currently display evidence of unsustainable price behaviour.

Chart 28: House price-to-rent and house price-to-income Indices (1980Q1-2016Q2)



Source: CSO and Central Bank of Ireland calculations.

Note: The chart shows the house price-to-rent index and the house price-to-disposable income per household index for Ireland. The historical averages over the period 1980q1 to 2016q2 are also included.

Using standard determinants of real house prices, Kennedy *et al.* (2016a) find that house prices are just below fundamental levels at 2016 Q2 (Chart 29). This result is robust to a number of model specifications.³⁷ Estimates of the extent of undervaluation in the market had, however, begun to decline prior to the announcement of the mortgage market measures in 2014 Q4 as actual prices began to catch-up with higher fundamental values. The relative easing in house price growth since 2015 has meant that the model-based estimates are still showing some undervaluation.

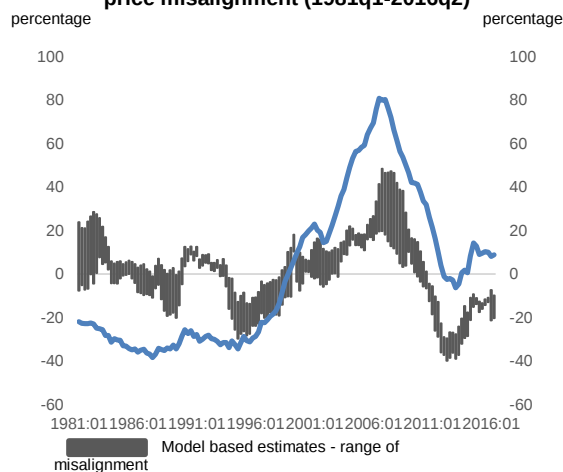
Although the fundamental factors driving house prices are currently favourable, this could change due to a negative economic shock or factors outside of the models may exert a greater influence on prices (e.g. fiscal factors, a change in market sentiment or a change in credit availability). Furthermore, as the statistical indicators remain above historical averages, the market clearly warrants continued monitoring.

³⁵ Using data up to 2016 Q2, the price-to-rent index is 5.7 per cent above its historical average while the price-to-household income index is almost 12 per cent above its long-run average.

³⁶ Certain international real estate markets are displaying higher deviations from long-run averages than Ireland as at 2015 Q4/2016 Q1.

³⁷ The models include fundamental determinants such as real household disposable income, employment, real mortgage interest rates, a measure of affordability from McQuinn and O'Reilly (2006), housing stock per person and the share of population at household formation age.

Chart 29: Statistical and model-based estimates of Irish house price misalignment (1981q1-2016q2)



Source: Central Bank of Ireland calculations.

Note: Statistical indicators are the average of the deviation of the price-to-rent ratio and price-to-income indices from their long-run averages (i.e., 1980q1-2016q2). Model based estimates of misalignment are drawn from three reduced form models of Irish real prices using a demand/supply cointegrating framework and estimated over period 1981q1-2016q2.

3. Broader housing market and macroeconomic effects

In evaluating the impact of the measures on the wider housing market, it is useful to compare actual outcomes to expected outcomes in advance of implementation of the measures. Given available data at the time of writing, it is possible to do this comparison over the period 2015 Q2 to 2016 Q2 inclusive, which captures the period post-implementation.

Prior to the introduction of the Regulations, Cussen *et al.* (2015) considered the potential impact of the measures on the wider housing market relative to a “no policy” scenario.^{38,39} In both instances (“policy” or “no policy”) new mortgage lending was expected to grow. However, the ex-ante expectation was that the value of new PDH mortgage lending would be approximately 7 per cent below the “no policy” scenario over the first five quarters after the policy was introduced (second row of Table 4).

³⁸ See Cussen *et al.* (2015) [Assessing the impact of macroprudential measures](#), Central Bank of Ireland, Economic Letter No.3.

³⁹ The model considered was a Bayesian Vector Autoregression (BVAR) model including 4 lags of the value of new PDH mortgage lending, the residential mortgage interest rate, the unemployment rate and housing completions. It was estimated in log levels (except for the interest rate) and shrinkage was achieved using the standard Minnesota prior. For the impact assessment presented here the model was estimated over the period 1992q3-2015q1.

The outcomes over the period for the housing market variables considered in the pre-implementation analysis relative to the “no policy” scenario are set out in the first row of Table 4. As referenced in Section 4, the value of new mortgage lending has increased over the period since the Regulations were introduced. However, this outturn was lower than expected in the pre-implementation analysis, with the deviation from the “no policy” scenario being -12.6 per cent. Housing completions turned out to be slightly higher than expected ex-ante (0.4 per cent) and the unemployment rate was slightly lower (-0.5 percentage points). House prices were on average 1.5 per cent lower than the “no policy” scenario.

Table 4: Deviation from Pre-implementation “No Policy” Forecast Scenario Levels 2015 Q2-2016 Q2 (average or sum where relevant, per cent)

		House Prices	House Completions	Unemployment Rate (percentage points)	Mortgage Interest Rate (percentage points)	New PDH Lending
Outturn Relative to “No Policy” Scenario		-1.5	0.4	-0.5	-0.1	-12.6
Expected Outturn Relative to “No Policy” Scenario Given:	<i>Pre-implementation New Lending Shock</i>	-0.6	-1.9	0.1	0.0	-7.1
	<i>Actual New Lending</i>	-1.0	-3.4	0.1	-0.1	-12.6

It is informative to consider the outturn that would have been expected following the methodology used in Cussen *et al.* (2015) had there been perfect foresight on the new lending impact. This is shown in the last row of Table 4. Focussing on house prices and house completions, which are most prominent, it can be seen that the model underestimates the impact of the shock to new lending on house price dynamics yet overestimates the impact on house completions.

As it is unlikely that any model will capture all the dynamics of a given set of variables in a specific time period, it is necessary to examine a number of approaches for policy analysis purposes. In particular, it may be necessary to consider a broader set of macroeconomic variables than those specific to the housing market considered in the Cussen *et al.* (2015) model, as well as accounting for any fundamental changes in the relationships between the variables given alternative policy regimes and other structural factors. In this regard, work in O’Brien and O’Toole (forthcoming) and Lozej and

Rannenberg (forthcoming) will outline alternative modelling strategies to support policy analysis and design.⁴⁰

d. Other Sectors

Key Messages:

- There has been a strong rebound in the rental market in recent years; rental price increases and reductions in supply levels have been a feature of the market since 2011.
- Under a range of assumptions, the time-to-save for a mortgage deposit (TTS), given rental levels and house prices at 2016 Q2, is between 2.5 and 4 years in Dublin, 1.5 years in other cities, and under one year in the rest of the country. In Dublin, this represents an increase of over one year relative to 2014 Q2.
- Using a range of models, rents nationally are shown to have moved into a period of high growth and above levels expected by demand- and supply-side factors in 2013, in advance of the Regulations. This pattern is confirmed in the case of Dublin and its commuter belt in a regional model.
- New non-mortgage lending remains low by historical reference. There is no evidence of significant increases in non-mortgage credit following the introduction of the measures.

1. The Rental Market

As discussed in Section 4, the rental market has been characterised by a rapid growth in rents and a shortage of supply in recent years. The level of rents is now above its pre-crisis peak. Against this backdrop, a number of public submissions raised concerns about the impact of the mortgage market measures on the rental market, and in particular on rental prices (see “Feedback Statement on Call for Submissions”). Deposit requirements have risen in the period since the introduction of the Regulations; Kelly and McCann (2016) show that average deposit requirements for FTBs for a three-bedroom property increased by between 50 and 75 per cent in most regions over the period 2014 Q2 to 2016 Q2. This change is due to rising house prices, in addition to higher proportionate deposit requirements resulting from the Regulations. If borrowers do not have sufficient savings or other sources available to fund a higher deposit requirement, they will need to save for

⁴⁰ Lozej and Rannenberg (2016) consider the broader macroeconomic effects of the mortgage market measures in a DSGE model. They find that while any tightening of such measures is contractionary in the short run, the long run benefits of lower household leverage and default contribute to higher consumption and a more favourable net foreign position. These offset the permanently lower trajectory of investment, such that GDP is unaffected in the long run.

longer periods and hence may remain in the rental market for longer. At the same time, the household's ability to save is affected by changes in rental prices. Kelly and McCann (2016) show that over the period 2014 Q2 to 2016 Q2 the average time-to-save for a hypothetical FTB who is currently renting has increased by between one and two years in Dublin and between six months and one year in the rest of the country.⁴¹

While the deposit requirement for a given house value has increased, the analysis in Section 5(a) shows that the average LTV of an FTB after the Regulations was in line with the average LTV of the same type of borrower prior to the Regulations. This implies that the average FTB did not in fact post a higher deposit after the Regulations, despite changes in deposit requirements. An impact is noted, however, for higher income FTBs securing higher leverage loans, who did post a slightly larger deposit after the introduction of the Regulations.

To explore further the potential impact of the Regulations on the rental market, it is useful to examine trends in rental prices pre- and post-the Regulations. Kennedy *et al.* (2016b) employ a suite of techniques to ascertain if developments in national rents changed after the introduction of the Regulations. Using data over the period 1990 Q1 to 2016 Q1, they find that, relative to historical trends, Irish rents moved into a period of high growth around 2013, with no evidence of a further switch up to 2016 Q1.

Kennedy *et al.* (2016b) also model national rents using data from 1985 Q1 to 2016 Q1, controlling for both long- and short-run determinants. Employment and housing stock per capita are found to influence rents over the long-run. Since late-2013, Irish rents are assessed to be above the estimated long-run levels predicted by the model. These results are in line with analysis at the regional level by McCann (2016), who shows that in Dublin and its commuter belt there is evidence that from mid-2013 rents in these regions began to surpass levels explained by supply and demand factors.⁴² Both studies, however, acknowledge that rents have continued to surpass the levels expected given demand- and supply-side factors after the introduction of the Regulations.

While these models cannot conclusively say that the mortgage Regulations have had *no impact* on rental prices, they provide evidence that there had been movements into disproportionately high rental levels in advance of the announcement of the Regulations.

⁴¹ Time-to-save measures the length of time it is expected to take a household to accumulate the deposit for a particular house purchase while renting. The household modelled by Kelly and McCann (2016) is a couple with no children, renting a two-bedroom property while saving for a deposit for a three-bedroom property. Time-to-save estimates for 2016 Q2 are between 2.5 and 4 years in Dublin, one year to eighteen months in other urban areas, and under one year in the rest of the country. In all cases, estimates are based on a hypothetical household with income matching the average level observed among FTB purchasers in a region in 2015 and H12016. Expenditures on non-housing items are set using recommendations from the Insolvency Service of Ireland's reasonable living expenditure amounts. Rent and purchase price data come from www.daft.ie.

⁴² McCann (2016) estimates a regional panel model for eight regions in Ireland over the period 2006 Q1 to 2016 Q1. The model incorporates demand- and supply-side factors (local unemployment rates and population, the supply of rental properties and local house prices).

This suggests that, if the Regulations are having an impact on the rental market, it must be understood in the context of longer-running changes where other factors such as supply shortages, changing expectations among landlords and tenants around future rental growth, low rates of mortgage and housing transactions and the improving economy have also been exerting an influence.

2. Non-Mortgage Lending

While the mortgage measures are designed to limit household indebtedness, in their current form, they only target mortgage related indebtedness.⁴³ As part of the assessment of household resilience, it is important also to monitor developments in other credit channels. This sub-section examines recent developments in non-mortgage credit.

While the stock of non-mortgage credit continues to decline, there is recent evidence of a recovery in certain segments of the market. In particular, consumer credit returned to positive growth in April 2016, and the most recent data show a growth rate of 2.8 per cent (September, 2016). This followed a seven-year period of net loan redemption.

The recovery in consumer lending can be attributed to strong growth in medium-term lending, i.e. with maturity over one year but less than five years. This category represents the fastest growing segment of consumer lending and also the largest share of outstanding consumer credit. Other categories of consumer lending, with maturity of up to 1 year and maturity over 5 years, continue to decline. The available evidence shows vehicle registrations moving in line with medium-term consumer lending flows, which may suggest that the pick-up in lending is linked to vehicle purchase.⁴⁴

One potential side effect of the Regulations that was highlighted during the initial consultation on the mortgage measures was the potential for borrowers to use unsecured credit to meet deposit requirements. In the absence of data on total household indebtedness, it is difficult to explore this issue in depth. However, as noted above, non-mortgage credit growth is subdued at present and the low level of growth that has been recorded seems to correlate with vehicle registrations, suggesting that this potential side effect is not evident at present. Furthermore, as noted previously in the feedback statement to the initial consultation, the Consumer Protection Code contains provisions in terms of how Irish lenders should assess the affordability of a mortgage for an individual borrower.⁴⁵ Irish credit institutions, as part of their mortgage credit underwriting process, currently verify the source of the borrower's deposit and any changes to this approach will

⁴³ The Central Bank has noted that a Debt-to-income (DTI) ratio would be its preferred alternative to LTI as DTI captures total borrower indebtedness whereas LTI captures only the mortgage portion (see, for example, [Feedback Statement on CP87 \(2015\)](#)).

⁴⁴ New consumer lending is taken from the banks' monthly interest-rate statistics and captures new lending, unlike the net flows data which shows banks' net positions (new lending less redemptions).

⁴⁵ See [Feedback Statement on CP87 \(2015\)](#).

be reviewed by the Central Bank. They also consider other debts held by borrowers. This should limit the ability of borrowers to circumvent the deposit requirements set under the Regulations. The Central Credit Register, which will begin collecting household data in 2017, will also allow for a more detailed analysis of household total debt burdens. Once the Credit Register has been fully operationalised, the Central Bank will consider a move towards a Debt-to-Income ratio.

6. Conclusions

As the designated macroprudential authority, the Central Bank has a responsibility to utilise appropriate tools to mitigate systemic risks. Systemic risks are those risks that, if they materialise, would impair the Irish financial system to the point that economic growth and consumers would be adversely affected. Ireland's recent financial crisis, which entailed significant fiscal and economic costs, and required an external assistance programme, reinforces the importance of vigilance in the face of emerging financial stability risks. The macroprudential mortgage measures were introduced in the interests of safeguarding financial stability and protecting the system as a whole.

This report constitutes the first review of the Central Bank's macroprudential mortgage market measures since their introduction in February 2015. The objectives of these Regulations are to strengthen the resilience of banks and households to financial shocks and to dampen, in a precautionary way, the pro-cyclical dynamics that can exist between property lending and house prices. An extensive analytical framework underlies this review, which examines the early performance of the measures against their stated objectives as well the potential side effects of the measures since their introduction. A public call for evidence supported the review process as further elaborated on in the "Feedback Statement on Call for Submissions", which accompanies this report.

The review finds that the overall framework of the Regulations is appropriate and effective in meeting the objectives of the measures. A number of structural refinements to the Regulations are warranted at the current juncture. Taking into account the medium-term orientation of the measures, the desire for a sustainable framework, and the evidence arising from the review, the property value threshold (€220,000) for FTBs will be removed.

In the absence of this amendment, the economic and financial context for the €220,000 inflection point would shift every year with movements in income levels, house prices and other factors. With the removal of the €220,000 threshold, a 90 per cent LTV limit for FTBs at all house prices will apply. The 80 per cent LTV for SSBs will remain unchanged. Evidence confirms that the differential treatment of FTBs and SSBs remains appropriate

with the default risk of FTBs lower than that for SSBs, and this result holds across all property values.

Secondly, to reflect this amendment, the framework for proportionate caps on LTV ratios is also being changed. Effective from 1 January 2017, no more than 20 per cent of the total aggregate value of SSB lending at each credit institution will be permitted to exceed the 80 per cent SSB LTV limit while no more than 5 per cent of the total aggregate value of FTB lending at each credit institution will be permitted to exceed the 90 per cent LTV limit applying to FTBs. These amendments will allow for more targeted calibration of the measures in the future.

Thirdly, the review highlighted a need to increase the valuation period specified in section 7 (3) of the Regulations from two months to four months, as this was causing operational challenges. Finally, the last amendment arising from the review is a technical amendment to the application of the 70 per cent LTV for non-primary dwelling homes.

Taken in their entirety, the amendments arising from this first review of the mortgage market measures are deemed appropriate based on the analytical evidence and public submissions. The Central Bank has committed to an annual review of these measures and considers ongoing evaluation to be an integral component of macroprudential policy.

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