



Banc Ceannais na hÉireann  
Central Bank of Ireland

Eurosystem



# Review of residential mortgage lending requirements

## Mortgage Measures 2018

## Important information

This report discusses the annual 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)(as amended) ("the Regulations").

This report is for information purposes only. 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 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 most up-to-date text of the Regulations 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.

Data used in this report are as were available at 31 October 2018.

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# 1 Introduction

This report contains the main findings of the 2018 Review (the Review) of the Central Bank's macroprudential mortgage measures. The measures aim to strengthen both bank and borrower resilience and to reduce the likelihood and impact of a credit-house price spiral emerging. Overall, the analysis undertaken during the Review re-affirms that these aims are being met. As a result, the loan-to-value (LTV) and loan-to-income (LTI) limits, and the related lending allowances above those limits, will remain unchanged in 2019.

The Central Bank is committed to annually reviewing the calibration of the mortgage measures so that they continue to meet their objectives of:

- increasing the resilience of banks and borrowers to negative economic and financial shocks, and;
- dampening the pro-cyclicality of credit and house prices so a damaging credit-house price spiral does not emerge.

By limiting the extent of higher risk mortgage lending, the measures achieve these objectives within the context of the broader mandate of the Central Bank to contribute to the stability of the financial system, and in the Central Bank's role as the designated macroprudential authority in Ireland. The Central Bank serves the public interest by safeguarding monetary and financial stability and by working to ensure that the financial system operates in the best interests of consumers and the wider economy. Safeguarding financial stability is a major component in protecting consumers.

The mortgage measures promote a sustainable role for mortgage lending in the Irish housing market. Wider housing market sustainability, affordability issues and the delivery of optimal housing supply spatially, socially and from an economic perspective, is beyond the scope of the measures and the mandate of the Central Bank. However, as both Irish and international experience has shown, a fully functioning and sustainable housing market is not achieved by excessive leverage in the household sector and imprudent lending standards by banks. Relatedly, house prices are not in and of themselves a target of the mortgage measures, as they are determined by multiple factors in the wider market. Understanding house prices in the

context of their determinants is an important part of the Central Bank’s ongoing monitoring of systemic risk and informs macroprudential policy.<sup>1</sup>

As part of the Review, the systemic risk related to the mortgage and housing markets was evaluated. The calibration of the mortgage measures for 2019 considers the level of these risks given the resilience which is fostered by all macroprudential policy tools operational in Ireland. The analysis confirms that the mortgage measures as currently calibrated are achieving their objectives and are contributing to overall financial stability. As a result, the LTV and LTI limits for the various borrower categories, and the related lending allowances above those limits will remain unchanged from 2018 (Table 1).

**Table 1 | Details of the LTV and LTI Regulations - 2019**

<b>LTV Limits</b>	For primary dwelling homes (PDHs):	First-time buyers (FTBs): 90%	5% of new lending to FTBs allowed above 90%
		Non-FTBs: 80%	20% of non-FTB new lending allowed above 80%
	For buy-to-let borrowers (BTLs):	70% LTV limit	10% of new lending allowed above the BTL limit
<b>LTI Limit</b>	For PDHs:	3.5 times income	20% of new lending to FTBs allowed above 3.5 limit  10% of non-FTB new lending allowed above 3.5 limit
<b>Exemptions</b>	From LTV limit:	From LTI limit:	From both limits:
	Borrowers in negative equity	BTL borrowers	Switcher mortgages  Restructuring of mortgages in arrears

<sup>1</sup> Systemic risk is defined as the risk of a disruption to the provision of financial services, caused by an impairment of all or parts of the financial system, with serious negative consequences for the real economy.

The main features of the analysis supporting this decision are explained in this report. The key points are as follows:

- The pace of growth in new mortgage lending remains strong, but there is scope for further sustainable increases in mortgage activity. Mortgage lending is not generating a substantial divergence between house prices and underlying fundamentals (housing supply, income, interest rates) and there is little evidence of a credit-price spiral emerging (Section 2).
- While there have been shifts in the distribution of LTVs and LTIs in new lending, indicating the measures are more binding, there has been little change in average LTVs and LTIs and no sign of a generalised deterioration in lending standards at present (Section 3).
- The resilience of the Irish financial system to mortgage lending and housing market developments has been reinforced by the activation of the countercyclical capital buffer (CCyB), which will become effective in July 2019 (Section 4).

## 2 Mortgage and housing market developments

The pace of growth in new mortgage lending remains strong, but there is scope for further sustainable increases in mortgage activity. House price growth is moderating, with the level of prices being close to or above estimates of prices based on economic fundamentals. Mortgage lending is not generating a substantial divergence between house prices and underlying fundamentals (housing supply, income, interest rates). Market-wide price increases appear to be driven by more robust developments at the lower-end of the price distribution, where mortgage financing is less prevalent. Overall, there is little evidence of a credit-price spiral emerging.

The housing market continues to be characterised by a high level of demand based on positive economic conditions in terms of employment and incomes, as well as a supportive demographic profile. House price growth has broadly been explained by these factors in the context of a housing supply which, although rising, remains below demand overall, and particularly for certain property types in urban areas. Indeed, estimates of house price valuation now indicate that prices are close to or above fundamental values (Box A1). However, it is noted that equilibrium house prices may not be affordable to a significant proportion of the population and that only a significant expansion in housing supply can help address the affordability problem.

New mortgage lending continues to increase, but does not appear to be the most prominent driving factor in house price developments (Box A2). To the extent that the mortgage measures are becoming more binding (Section 3), the possibility of mortgage lending adding further stimulus to housing demand, in the context of constrained supply, is minimised. Prospective increases in housing supply and turnover should contribute to further moderation in house price growth. In this context there remains scope for further sustainable increases in mortgage activity.

Risks related to new mortgage lending must also be considered in the light of the scale of the existing stock of mortgages and the level of household indebtedness. Irish retail banks' loan-books are heavily concentrated in property-related lending. The level of non-performing loans (NPLs), although decreasing, remains elevated for residential mortgages. In addition, Irish

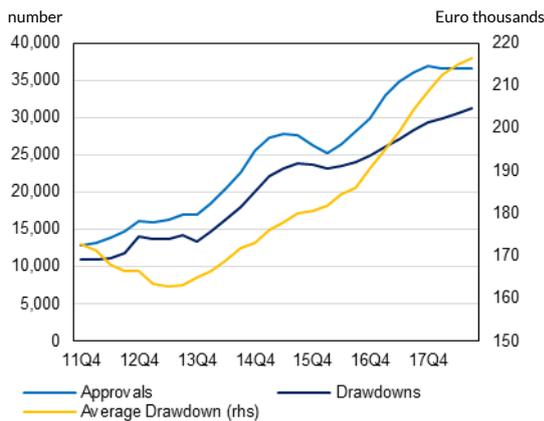
households remain amongst the most indebted in the European Union (EU) despite significant deleveraging since the onset of the last financial crisis.

As time passes since the introduction of the mortgage measures, an increasing share of banks' mortgage loans will be issued subject to the LTV and LTI limits. At present, approximately 13 per cent of the outstanding stock of mortgages by value (9 per cent by volume) have been issued in-scope of the measures.

## Mortgage market activity

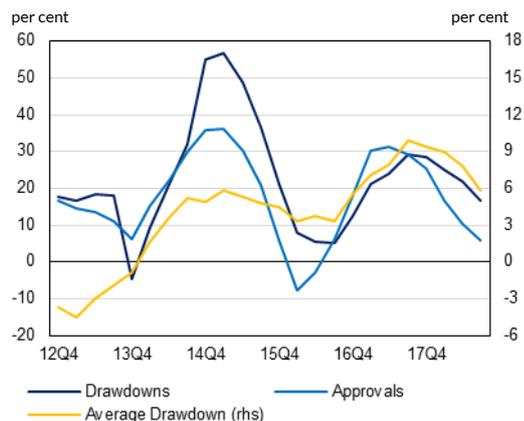
New mortgage lending in Ireland continues to grow, with the latest available data coming from the Banking and Payments Federation of Ireland (BPF), showing that over 31,000 new mortgages were drawn down in the year to 2018Q3 (Chart 1).<sup>2</sup> This represents a 10.4 per cent annual growth rate. A 16.8 per cent growth was seen in the value of drawdowns, to €7 billion. The pace of annual growth in new lending has moderated from the previous year, as figures for the growth in drawdown volumes and values have decreased from 17.5 and 29.1 per cent, respectively, in 2017Q3 (Chart 2). The slowdown in growth is also apparent in the number of mortgage approvals, which increased by only 1 per cent for the year to 2018Q3. Average loan values in the BPF data also continue to increase, but at a more moderate pace, with growth easing to 5.8 per cent in 2018Q3.

**Chart 1: Volume of mortgage drawdowns, approvals, and average drawdown value (4 quarter rolling total)**



Source: BPF  
 Note: Data refer to new loans only for FTB, SSB, and BTLs.  
 Last observation: 2018Q3

**Chart 2: Annual growth rate in value of mortgage drawdowns, approvals, and average drawdown value**

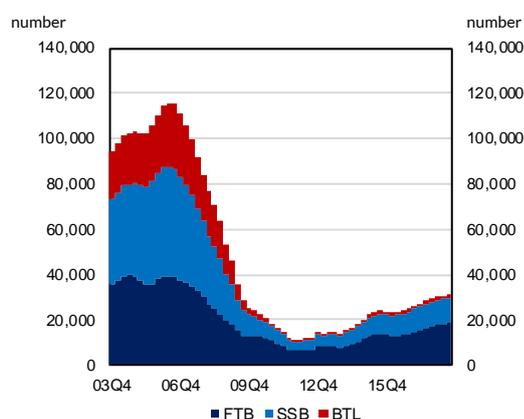


Source: BPF  
 Note: Data refer to new loans only for FTB, SSB, and BTLs.  
 Last observation: 2018Q3

<sup>2</sup> For this section, new mortgage lending refers to the FTB, SSB (second-and-subsequent buyer) and BTL loans only, i.e. those directly related to a property transaction.

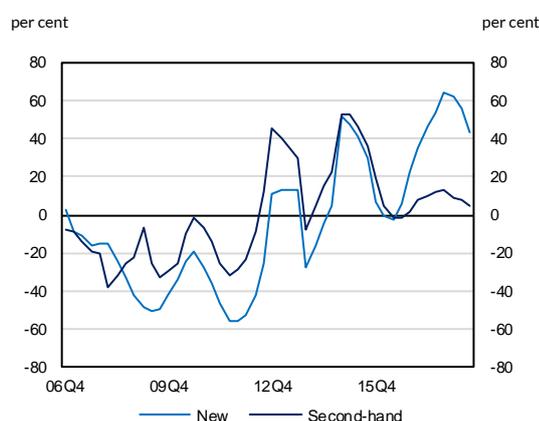
According to the BPF1 data, FTBs continue to account for the largest proportion of new lending activity with approximately 60 per cent of drawdowns by volume (Chart 3).<sup>3</sup> FTBs make up a greater share of mortgages related to new properties as they constitute 67 per cent of this lending. The value of FTB loans for new properties has increased from €292 million in 2014Q2 to €1.5 billion in 2018Q3, with loans for second-hand properties doubling to €2.6 billion over the same period. Loans for second-hand properties still represent the majority of mortgage activity for all cohorts with €4.8 billion (68 per cent) of loans annually to 2018Q3. The volume of loans for new properties is increasing at a faster annual rate (43.2 per cent) than for second-hand homes (5.2 per cent) (Chart 4). Average loan amounts for this property type are also growing at a greater rate (10.9 per cent) compared to for second-hand homes (3.7 per cent).

**Chart 3: New mortgage lending by borrower type (4 quarter rolling total)**



Source: BPF1  
Last observation: 2018Q3

**Chart 4: Annual growth rate in volume of FTB mortgage drawdowns**



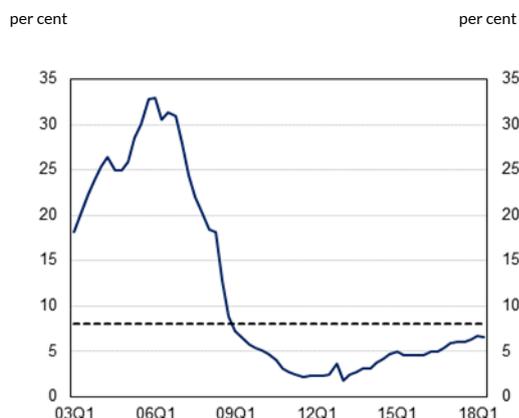
Source: BPF1  
Last observation: 2018Q3

Recent analysis by Central Bank staff has identified a benchmark threshold to examine the scope for cyclical risk emerging with respect to new mortgage lending activity.<sup>4</sup> The actual new mortgage lending to disposable income (NMDI) ratio is compared to an estimated NMDI threshold level determined by long-run structural factors such as demographics and long-run real interest rates, as shown in Chart 5. Instances where the actual ratio is above the estimated threshold would be consistent with cyclical drivers being more prominent, and suggestive of emerging cyclical systemic risk. The latest reading of the NMDI ratio for 2018Q2 is 6.7 per cent, which remains below the structural determined estimate of 8 per cent, albeit the gap has continued to close.

<sup>3</sup> Further distributional characteristics of new mortgage lending by borrower type are discussed with reference to the Central Bank Monitoring Template data in Section 3.

<sup>4</sup> See [Keenan and O'Brien \(2018\)](#).

**Chart 5: New mortgage lending to disposable income (NMDI) ratio**



Source: Central Bank of Ireland calculations

Last observation: 2018Q2

Note: The black dotted line denotes a NMDI ratio threshold derived based on long-run structural determinants.

Mortgage interest rates in Ireland for new loans have gradually decreased in recent years, but remain high in comparison to other European countries. While mortgage interest rates are not a factor in determining the LTI ratio at loan origination, they are an important factor in determining borrower loan sustainability. The interest rate on new mortgages in Ireland averaged 3.01 per cent over the first seven months of 2018, relatively unchanged from one year previous, and 139 basis points above the euro area average (Chart 6).<sup>5</sup>

New business rates in Ireland are also typically higher than rates on existing loans due to the large share of tracker loans in the existing stock (42 per cent), which are tied to the European Central Bank (ECB) monetary policy rate and are currently averaging 1.05 per cent. The average rates on new business masks a wider range of mortgage interest rates. Central Bank research has shown that many borrowers could make savings either by switching products with their existing provider or by switching provider.<sup>6</sup> A number of factors may explain the current levels of mortgage interest rates on new business and the cross-country variation in the same within the euro area. These include levels of competition in the various markets, the historical loss experience and its contribution to credit risk, the realisability of collateral, and the general performance and characteristics of the stock of existing mortgages.

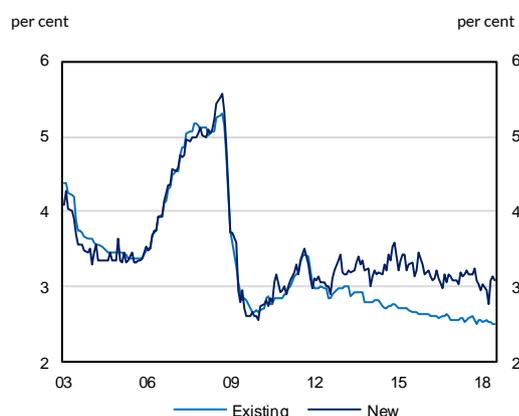
In recent years, a higher proportion of new mortgages have been issued on fixed rates. During the first half of 2018, approximately 70 per cent of new lending was on a fixed rate, with the majority of this being for fixation periods of over three years (Chart 7). While this dominance of fixed rate mortgages is a new characteristic of the Irish market, it is more common in many other

<sup>5</sup> ECB Statistical Data Warehouse: Bank interest rates - loans to households for house purchase with a floating rate and an initial rate fixation period of up to one year (new business).

<sup>6</sup> See [Devine, Frost and McElligott \(2015\)](#).

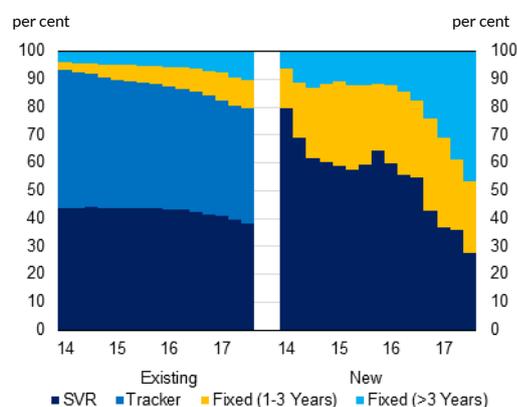
euro area countries, often with longer fixation periods. It still remains the case, even with the increased activity in the fixed rate market, that many mortgages are sensitive to re-pricing risk over the medium term.

**Chart 6: New and existing rates on loans for house purchase**



Source: Central Bank of Ireland calculations  
Last observation: 2018Q2

**Chart 7: Interest rate type for existing and new loans for house purchase**



Source: Central Bank of Ireland retail interest tables A.18 and B.3.1  
Last observation: June 2018

Risks related to new mortgage lending must also be considered in the light of the scale of the existing stock of mortgages and the level of household indebtedness. Irish retail banks' loan-books are heavily concentrated in property-related lending, with mortgages constituting approximately 57 per cent of the outstanding value of loan exposures. The overall value of the retail banks' outstanding Irish mortgages has declined steadily from the pre-crisis peak to €124 billion in 2018Q2, as repayments and loan-transfers outpaced new lending growth over that period.<sup>7</sup> However, the overall stock of mortgage credit has begun to rise, with annual growth of 0.7 per cent recorded for 2018Q2.<sup>8</sup> Underlying this growth in outstanding mortgages is a more significant rate of expansion in PDH mortgages, which have been persistently growing since mid-2016 and were 3.4 per cent higher over the year to 2018Q2. The outstanding amount of BTL mortgages continues to contract and, given they still account for almost 15 per cent of total mortgages, this contraction drags down the overall growth in mortgages. The level of NPLs also remains elevated for residential mortgages, but has decreased from 17.6 to 14 per cent over the twelve months to June 2018.<sup>9</sup> Meanwhile, Irish households remain amongst the most indebted in the EU, despite significant deleveraging since the onset of the last financial crisis. Household debt to disposable income was at 133 per cent in 2018Q1, compared with the euro area average of 93.7 per cent.<sup>10</sup>

<sup>7</sup> Central Bank regulatory data (FINREP).

<sup>8</sup> Table A.18.1 Central Bank of Ireland Personal Credit and Deposits Statistics.

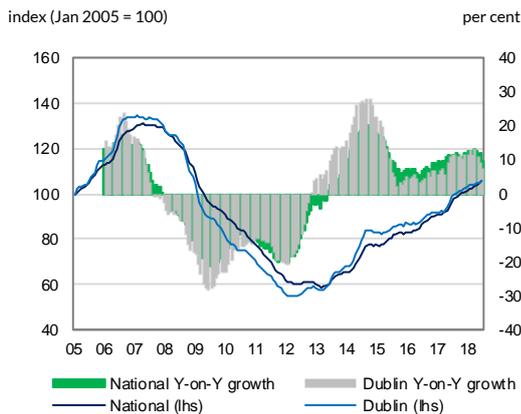
<sup>9</sup> Central Bank regulatory data (FINREP).

<sup>10</sup> [Central Bank of Ireland Quarterly Financial Accounts - Q1 2018](#).

## Price developments

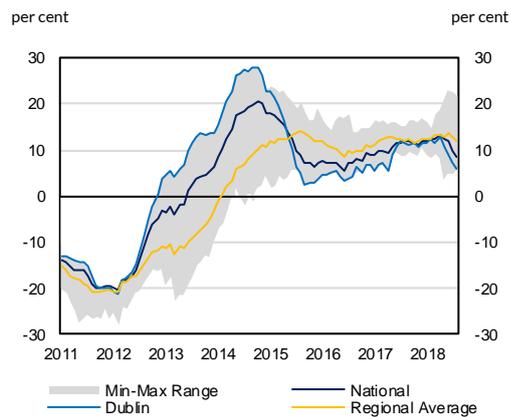
There has been a moderation in the rate of residential property price inflation in recent months with a national annual growth rate of 8.6 per cent being recorded in August 2018, as outlined in Chart 8. Overall, national residential prices are now at their highest point since February 2009. Dublin property prices increased by 6.1 per cent in the year to August compared to 11.4 per cent for the rest of the country (Chart 9). Prices for the Mid-West region are increasing at the fastest rate in the country at 21.5 per cent annually, followed by the West region at 12.8 per cent. Recent editions of the MyHome.ie property report have noted a slowdown in asking prices nationally, with figures rising by 5.9 per cent in the year to September and by only 2.5 per cent in Dublin, the slowest pace of increase in two years.<sup>11</sup> House price developments are supported by positive demand-side drivers of economic conditions, growth in the population, urbanisation, and trends in household formation. These factors together with housing supply, which remains below overall demand, have broadly explained house price growth.

**Chart 8: CSO residential property price indices: National and Dublin**



Source: CSO  
Last observation: August 2018

**Chart 9: Regional residential property price growth**



Source: CSO  
Last observation: August 2018

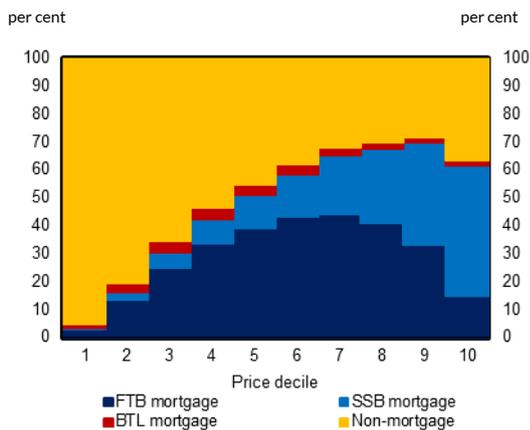
Box A1 presents an analysis of price developments with respect to simple statistical indicators such as price-to-rent and price-to-income, in addition to reduced-form econometric models estimating price misalignment.

In terms of property type, the growth rate in the price of apartments has outstripped that for houses nationwide, and more specifically for Dublin, with prices rising by 12.8 and 16.4 per cent, respectively. The increase in prices may be reflective of greater pent-up demand for smaller housing units within urban markets from a younger cohort of the population, as well as the attractiveness of apartments for institutional investors. Prices for apartments nationally are yet to return to their pre-2005 values and are 29 per cent below their peak value in February 2007.

<sup>11</sup> See [MyHome.ie Property Report 2018Q3](#).

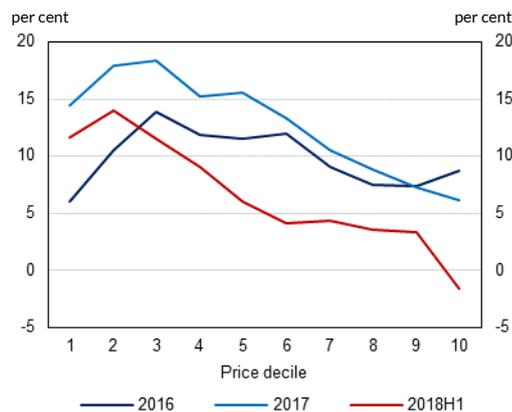
Recent analysis by Central Bank staff has shown that residential mortgages finance a greater share of property purchases at the higher-end of the price distribution, with less recourse to mortgage financing at the lower-end of the price distribution (Chart 10).<sup>12</sup> The analysis also highlights how overall price dynamics in the market are driven by developments in the lower-end of the price distribution. In 2018 to date, the moderation in price growth is more evident for homes at the higher-end of the price distribution, while price changes are more substantial at lower price bands, where there tends to be a higher proportion of non-mortgage financed transactions (Chart 11). This corresponds with the findings discussed in the 2017 Review, which highlighted the fact that price growth is more buoyant for transactions that are non-mortgage financed than for those that are mortgage-financed. These trends have continued into 2018.

**Chart 10: Residential property purchases by buyer type**



Source: PPR, Central Bank of Ireland supervisory data and calculations  
Last observation: 2018H1

**Chart 11: Annual growth rates of average residential property price in each decile**

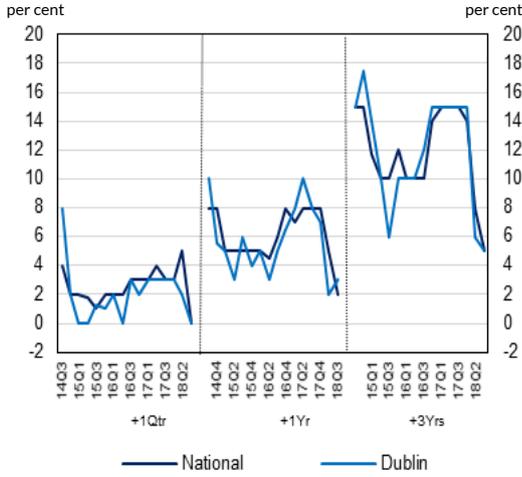


Source: PPR and Central Bank of Ireland calculations  
Last observation: 2018H1  
Note: 2018H1 annual growth rate since 2017H1 only.

Expectations of property price increases have eased as recent data from the 2018Q3 CBI/SCSI Survey of estate agents, auctioneers and surveyors shows that, while the majority expect a price increase, there has been a marked shift in responses towards price decreases or stagnation across national and Dublin markets. The median degree of expected price inflation nationally (Chart 12) and is 2 per cent (+1 Year) and 5 per cent (+3 Years). Over the three-year horizon, respondents similarly expect prices in Dublin to rise by 5 per cent. Among the main factors underlying anticipated price developments are the supply of new residential units, the perception of value in the market and broader performance of the Irish economy (Chart 13).

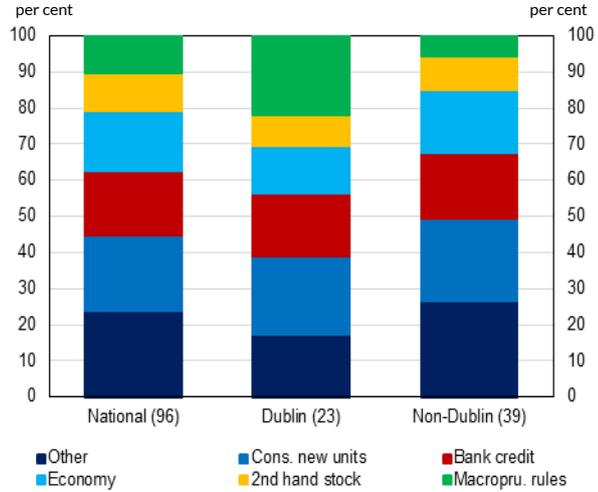
<sup>12</sup> See [Gaffney \(2018\)](#).

**Chart 12: Median expected change in national and Dublin residential property prices over selected time horizon**



Source: CBI/SCSI Residential Property Survey 2018Q3  
 Note Chart provides details of the results from the past 16 surveys (2014Q3 to 2018Q3). Number of observations vary from survey to survey. 2018Q1 survey did not occur.

**Chart 13: Number 1 ranked factor influencing regional expectations of house price developments: 2018Q3**



Source: CBI/SCSI Residential Property Survey 2018Q3  
 Note: Note: Number of observations for each region included in brackets. "Other" Includes: value, rental market developments, foreign exchange (FX) movements and interest rates.

Residential rent inflation continues to show signs of easing, with CSO data showing a 6.3 per cent increase in national private residential rents in the twelve months to August 2018. This figure is down from 7.4 per cent a year previously. Daft.ie analysis of new rental units highlights that national rents have risen for the twenty-fourth quarter in a row, and despite a nominal cap on rent increases of 4 per cent, the annual rate of rental inflation has been above 10 per cent nationwide for over two years.<sup>13</sup> Apartment rents for Dublin are 18 per cent higher than their pre-crisis peak in 2008. Quarterly data from the Residential Tenancies Board complements the trends evident in the CSO data in showing that rental prices for apartments are rising faster than for houses.

While Ireland’s rental sector has expanded significantly in recent years, it still falls short of European levels, with approximately half of all households renting in other European countries. At the end of 2017, 343,600 households rented accommodation from a private landlord, representing 18.8 per cent of all households. This trend is echoed in the numbers of people living in apartments, with just 10 per cent of Ireland’s housing stock accounted for by apartments, compared with between 30 and 50 per cent in various European countries. A lack of suitable residential supply will further add to price pressures, together with demographic changes in the form of increased net migration and decreasing household size towards average European levels.

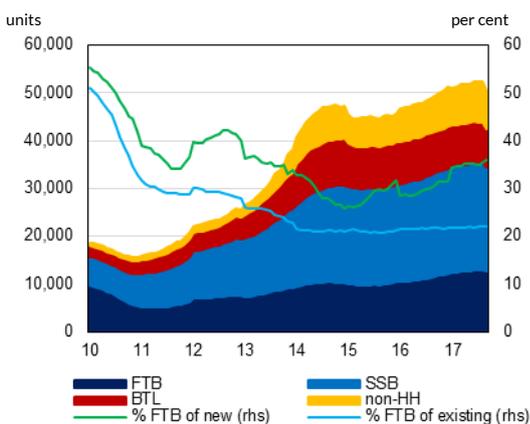
<sup>13</sup> See [Daft.ie Rental Report 2018Q2](#).

## Transactions and supply activity

Housing and mortgage market activity is heavily influenced by the level of turnover of existing stock and the supply of new residential units coming on-stream. Property transactions of new and existing stock have displayed strong increases over the most recent 12 months, as the introduction of new units has facilitated the ability for households to trade-up and down. The level of new supply coming onto the market is currently below estimated housing demand, and has been contributing to overall price growth. However forward-looking indicators point to continued robust expansion in supply, which is expected to contribute to more moderate price growth over the medium-term.

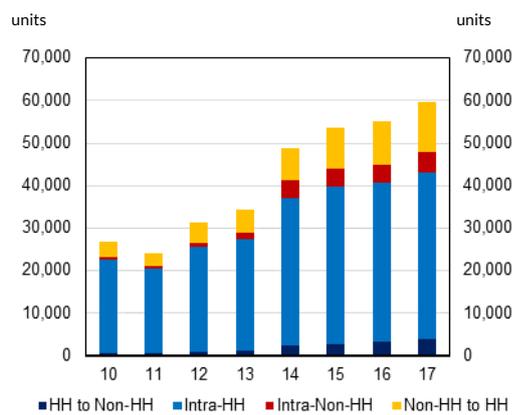
Market-based residential property transactions increased above 50,000 units in the twelve months to August 2018 (Chart 14). SSBs continue to account for the majority of activity (42 per cent), which has decreased slightly from 45 per cent in 2016 due to an annual rise of 9 per cent in FTB transactions to 13,000. The housing turnover rate, which represents the number of transactions as a share of the total housing stock, increased from 2.7 per cent in 2016 to 3 per cent for 2017. The ratio is below the 4 to 5 per cent rate that is estimated by international commentators to be typical of a well-functioning housing market, but is in line with current figures for many European peers.<sup>14</sup> Increasing property prices bring about a rise in the ability of some households to purchase, as the proportion of those in negative equity is reduced and, where desired, opportunities to trade-down increase. Higher turnover may be indicative of changes in underlying conditions in the housing market, such as increased migration, greater employment, and a higher volume of mortgage drawdowns.

**Chart 14: Market-based household transactions (12 month rolling total)**



Source: CSO  
Last observation: August 2018

**Chart 15: Sectoral flow of residential property sales**



Source: CSO  
Last observation: August 2018

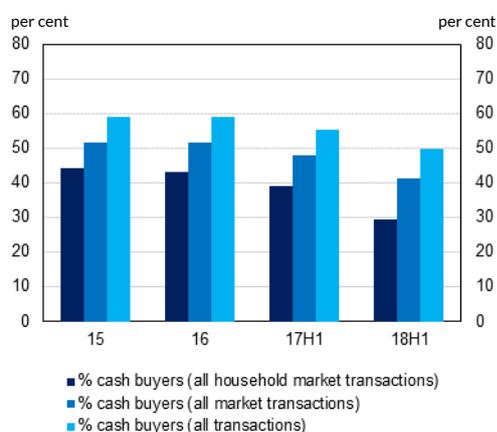
<sup>14</sup> See [TEGoVA \(2012\), Country-Specific Legislation and Practice – Country Chapter: Ireland](#).

The share of new properties in total transactions has increased from 13 per cent in 2016 to 20 per cent in August 2018, reflecting the stronger presence of FTBs in the housing market. In particular, FTBs account for 36 per cent of transactions in new residential properties and 22 per cent of existing homes. This trend is consistent with the targeted incentives for FTBs, such as the Help to Buy Scheme, which would tend to promote demand for newly built properties.

Market activity highlights that there is a rise in the share of apartments being transacted, with a greater share reported for existing apartments rather than new apartments. The sectoral flow of residential property exhibits that there has been a steady increase in sales to non-household entities from both households and other non-households in recent years (Chart 15). Of the 16 per cent non-household activity, 9 per cent is in relation to financial, real estate and construction entities, which may be indicative of firms purchasing residential properties for future letting opportunities. The remaining 7 per cent is split primarily between entities in the public administration, health, social work, and education sectors, which collectively could be considered to cover the various agencies and bodies involved in the provision of social housing. Overall, non-household entities are net-sellers in the housing market, returning 40 per cent more to the market than they purchase.

The estimated share of purchases not financed by mortgages has displayed signs of a slight decrease in the year to 2018H1 from 55.4 per cent to 49.7 per cent (Chart 16). When purchases by households are considered, the share not financed by a mortgage was 30 per cent in 2018H1, which again was lower than the 2017H1 equivalent. While decreasing, cash buyers may represent a significant cohort of the Irish residential property market participants in the future, as national average residential yields, according to Daft.ie data, have remained consistent at 6.1 per cent since mid-2013. Such yields remain attractive in a comparative sense, even with the expected gradual normalisation of the interest rate environment over the medium term.

**Chart 16: Share of cash purchases**

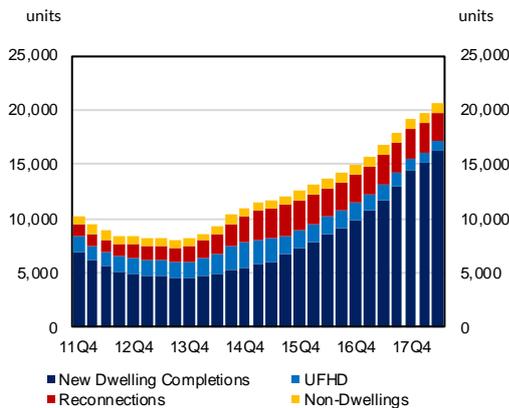


Source: CSO, BPF1, and Central Bank of Ireland calculations

While the growth in residential housing supply has been strong in recent years, it has been from a low base. Forward-looking indicators of supply point to further growth, but the level of new supply is still expected to remain below estimated housing demand for some time. CSO new dwellings data, as shown in Chart 17, reveals that 16,200 residential units were added to the housing stock in the twelve months to 2018Q2. A further 3,300 reconnections and unfinished housing developments (UFHD) were also brought on stream. Of the 16,200 new dwellings, the majority (58 per cent) are scheme houses constructed in the Dublin and Mid-East regions.<sup>15</sup> Only 14 per cent of new dwellings are apartments, with the Dublin region accounting for approximately 80 per cent by location (Chart 19).

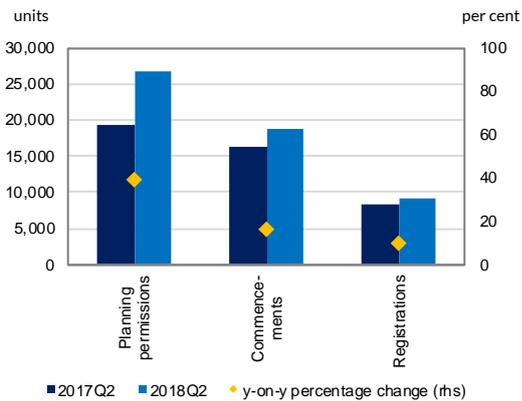
Forward looking indicators such as planning permissions and building commencements are shown in Chart 18. These point to annual increases in 2018Q2 of 39 per cent (26,700 units) and 15 per cent (18,800 units), respectively. The Ulster Bank Construction Purchasing Managers Index (PMI) also exhibits continued signs of expansion in the sector with August marking five years of consecutive monthly growth. Rising employment in the sector has been a main driver of expansion along with an increase in home building.

**Chart 17: CSO new dwellings**



Source: CSO  
 Note: UFHD refers to unfinished housing developments

**Chart 18: Housing activity indicators**

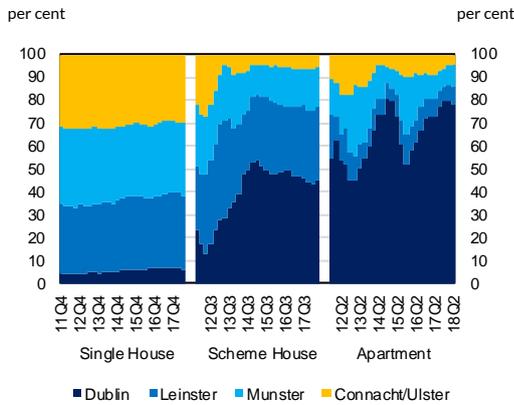


Source: CSO, Dept. of Housing, Planning, and Local Government

The lack of residential units in major urban locations is a driver of residential property price and rent developments. In September 2018, the total national stock available to rent increased by 4.8 per cent year-on-year to approximately 3,000 units, although this figure is far below 2013 levels of over 10,000 units (Chart 20). Properties available to rent in Dublin rose by 24.6 per cent (albeit from a low base) to just under 1,400 units, in the same period. Supply constraints are not confined to the rental market. Although, the number of residential properties listed for sale on Daft.ie has risen by 4 per cent to 25,000 in the year to September 2018, it is 60 per cent below its peak level of 60,000 in 2008, highlighting an overall shortage of new and second-hand homes for sale in many areas of the country.

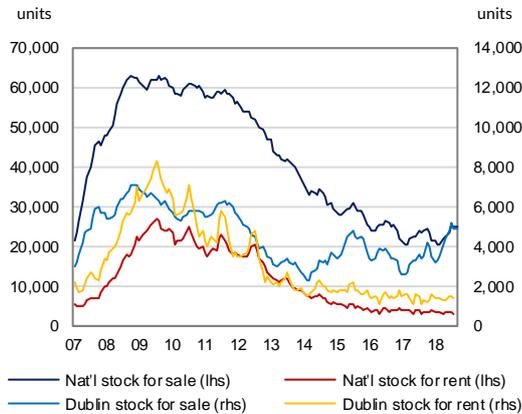
<sup>15</sup> Mid-East refers to Louth, Meath, Kildare and Wicklow.

**Chart 19: Type of property constructed by location**



Source: CSO

**Chart 20: Stock available to rent or buy on Daft.ie: Type of property constructed by location**



Source: Daft.ie  
Last observation: 2018Q2

Further increases in supply and in the turnover rate would, all else equal, provide more scope for further increases in the number of mortgages drawn-down in the market. At the same time, this increase in supply should have a moderating impact on house price growth.

### Box A1: Measures of residential property price misalignment

The sustainability of developments with respect to Irish residential property prices is regularly assessed by Central Bank of Ireland staff.<sup>1</sup> Statistical methods, such as house price-to-rent and house price-to-income ratios, more technical, and model-based approaches are used as the key early warning indicators for the identification of real estate risk. The latest findings provided by this suite of approaches, are set out in this Box.<sup>2</sup>

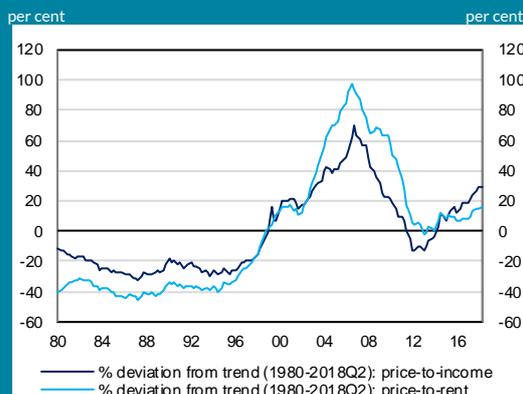
#### Simple statistical indicators - house price-to-rent and house price-to-income ratios

Using data covering the period 1980Q1 and 2018Q2, house price-to-rent and house price-to-income ratios are calculated. Comparing these values to respective long run averages, results in a series showing overall deviation of these ratios from trend (Chart A1). Since the trough of the market following the last crisis, the strong rebound in house prices has seen both indicators rise once more above their long-run average. However the rise in residential rent inflation has resulted in a more stable house price-to-rent ratio. As of 2018Q2 the price-to-income ratio was almost 30 per cent above its long-run average. The corresponding figure for the price-to-rent index was approximately 16 per cent.

Significant deviations of price-to-income and price-to-rent ratios from their long-run averages can persist for a long time, but they can be somewhat indicative of the potential for future corrections in house prices. To get a sense of how house prices may behave in the quarters ahead, in light of the price-to-income deviation, the historic cross-country relationship between positive misalignment in this indicator and subsequent house price growth for a number of Organisation for Economic

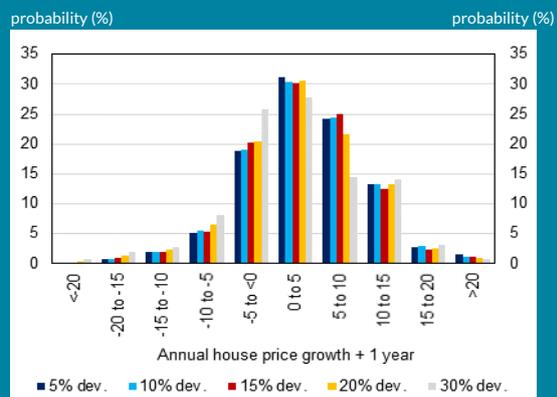
Co-operation and Development (OECD) countries is examined. Over 30 years of data covering 19 countries (including Ireland) are explored and indicator values compared to long-run averages for each. Periods when the value of the house price-to-income ratio was respectively 5, 10, 15, 20 and 30 per cent greater than its long-run average value were noted, and the one year ahead annual house price change recorded (Chart A2). According to this exercise, deviations of this magnitude are most commonly followed by a growth in annual house prices of between 0 and 5 per cent over the following year (approx. 30 per cent probability), with annual growth rates of between 5 and 10 per cent, the second most likely occurrence based on our sample.<sup>3</sup> The cumulative probability of a house price decline, ranges from 27 per cent in the event the ratio exceeds the average by 5 per cent, to 40 per cent following the identification of a 30 per cent deviation. The 0 to minus 5 per cent annual house price growth bucket is the most common, though the probability of such an outcome has been notably higher (26 per cent) in the wake of a 30 per cent differential.

**Chart A1: Deviation of statistical house price deviation indicators from long run average values**



Source: CSO and Central Bank of Ireland calculations

**Chart A2: Annual house price growth and the deviation of house price-to-income ratios from trend**



Source: Central Bank of Ireland calculations

Notes: Calculations are based on OECD house price-to-income data for a sample of 19 countries, between 1980Q1 and 2018Q2 for most countries. Data for DK, KO, NZ and UK available from 1981, 1986, 1986 and 1987 respectively.

### Empirical approaches

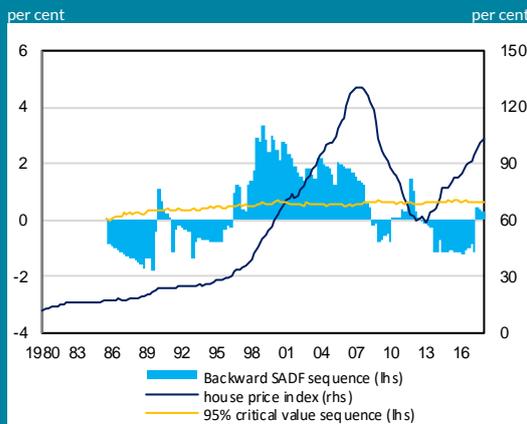
Two additional empirical approaches complete the suite of indicators used to assess house price developments from a systemic risk perspective. The first adopts a recursive unit root approach to investigate if there are emerging signs of explosive or bubble-like behaviour in house prices. As per Philips, Shi & Yu (2015), a right-sided Augmented Dickey Fuller (ADF) Test is applied to data on Irish residential property prices and the house price-to-rent and house price-to-income ratios (between 1980Q1 and 2018Q1). The identification and dating of periods of mildly explosive behaviour, where they exist in the data, is facilitated by this methodology, making it a potentially useful early warning tool for detecting unsustainable price developments. In terms of assessing recent house price developments, the results of this approach have not suggested a re-emergence of bubble type behaviour in the series at present (value of blue bars > value of yellow line in Chart A3).

The second approach consists of reduced-form econometric techniques, which model real Irish house prices as a function of a number of variables considered fundamental economic determinants of house price dynamics and test to see if actual prices are in line with estimated values. The difference between actual prices and these fundamental price estimates shows the

potential misalignment between actual and fundamental prices. If prices are persistently out-of-line with fundamentals, a correction may be likely in the future. Three different models are used in this exercise, thereby reducing the possibility of an evaluation of the market being dependent on modelling choices.<sup>4</sup>

Chart A4 presents the estimated values of the average, maximum and minimum percentage misalignment as per the reduced-form models. While actual house prices had been below the average fundamentally determined residential property value since early 2010, according to this methodology, prices are now roughly in-line with fundamental values.

**Chart A3: GSADF test - real national house prices**



Source: CSO and Central Bank of Ireland calculations

**Chart A4: Model based measure of Irish house price misalignment**



Source: Central Bank of Ireland calculations

### Conclusion

Understanding developments in house prices relative to economic drivers and other valuation metrics is an important part of the wider systemic risk analysis conducted by the Central Bank. A cross-check of these various approaches suggests house prices are, on average, close to or above long-run trends or fundamental determinants. It is not unusual for such a state of the world to persist for some time. However continued monitoring of these developments is warranted given the susceptibility for market corrections.

1 For more information on the background and methodology underlying these approaches, see Kennedy, O'Brien and Woods (2016).

2 Model results are sensitive to changes in the underlying data. In this regard, revisions to some series following the publication of results from Census 2016 have resulted in notable differences between earlier updates of the model and the output for 2017Q2.

3 An identical exercise using the cross-country house price-to-rent data resulted in a similar outcome.

4 Model 1 includes data on disposable incomes, the level of housing stock per capita and the average real mortgage interest rate. Model 2 includes data on the number of people in employment, the share of the population in the household formation cohort (25-44 years of age) and the average real mortgage interest rate. Model 3 is based on an annual measure of mortgage affordability and the level of housing stock per capita.

## Box A2: Historical decomposition of house price and new lending growth rates

Central to the timing and calibration of the mortgage measures is an understanding of the dynamics of the risk indicators related to the objectives of the policy. Of particular interest to the mortgage measures is the extent to which new lending is driving overall house prices and vice versa. The Bank assesses developments in new lending growth and house prices, to isolate the degree to which these variables are driving each other, separate from the effects of a range of other variables.

Using an econometric modelling technique known as a vector autoregression model (VAR) model, we examine how these variables, alongside disposable income growth, mortgage interest rates and housing supply, interact with and affect each other over time.<sup>1</sup> By examining quarterly data spanning the period 1993Q4 to 2018Q2, we use the VAR model to create in-sample forecasts for each of the variables, and then examine the extent to which actually-observed values deviate from their model-based forecasts, as well as the reasons for such deviations.

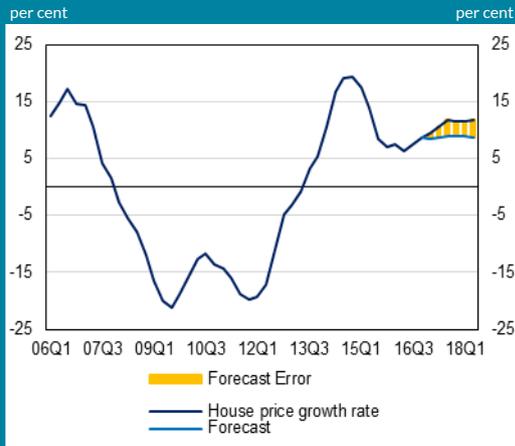
In a static world, forecasts would map closely to actual values observed. In a more realistic dynamic world, however, unexpected developments or “disturbances”, such as an interest rate change, cause the modelled variables to move away from their forecasts. The nature and severity of the disturbance determines the direction and extent of the deviation. Sometimes, disturbances exhibit lingering after-effects, i.e. their impact is apparent in current as well as subsequent periods, although the effects usually lessen over time. Confounding matters further, there may be multiple disturbances affecting some or all of the variables simultaneously. An advantage of the VAR model is that it allows us to disentangle these effects from each other and to examine each in turn. This process is known as “historical decomposition”.

Consider the first two figures below. In Chart A5 we graphically illustrate the year-on-year house price growth rate for Irish house prices over the sample period. In this chart, the VAR model forecasts commence in 2016Q4. The vertical bars depict the extent to which deviations of actual house price growth rates (navy line) from the VAR model forecasts (blue line) have occurred.<sup>2</sup>

Applying historical decomposition techniques, we extrapolate how unexpected developments in each of the variables in our VAR, contributed to these deviations, as shown in Chart A6. The forecast error depicts how actual house price growth outpaced the model’s forecast. During 2017 and 2018, we can see that unexpected increases in disposable income was the main positive driver in higher than expected house price growth. A smaller positive contribution is apparent from new mortgage lending, whereas mortgage interest rates and housing supply disturbances contribute less to overall house price shocks in this particular model.

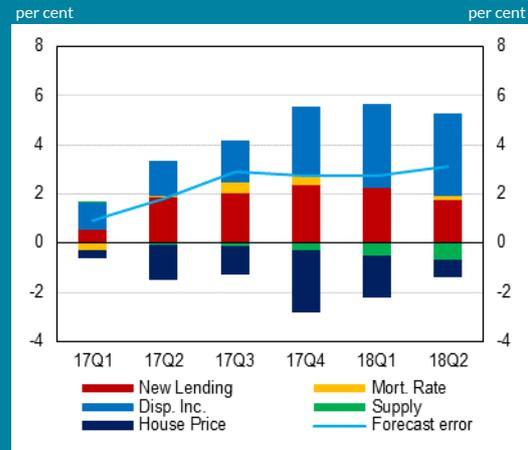
We apply the same techniques to the decomposition of new lending growth rates, with the corresponding charts shown below in Charts A7 and A8. Again, the most significant contribution to unexpected developments in new lending arises from stronger than expected growth in disposable income. Overall, the core finding from this analysis is that there does not appear to be an outsized reaction of house prices to developments in new lending and vice versa. This suggests that there is limited evidence of an unsustainable pro-cyclical relationship between lending and price growth at present.

**Chart A5: Actual and forecast house price growth rate**



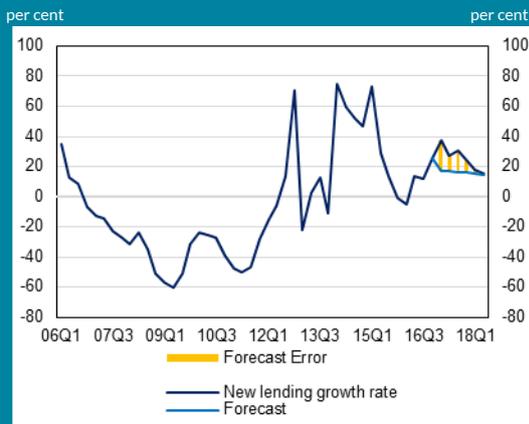
Source: CSO and Central Bank of Ireland calculations

**Chart A6: Decomposition of house price forecast deviation**



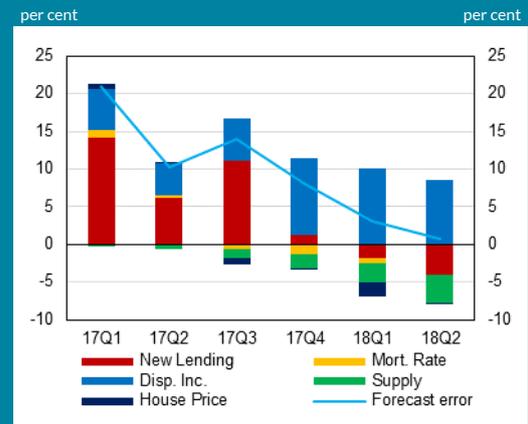
Source: CSO and Central Bank of Ireland calculations

**Chart A7: Actual and forecast new lending growth rate**



Source: CSO and Central Bank of Ireland calculations

**Chart A8: Decomposition of new lending forecast deviation**



Source: CSO and Central Bank of Ireland calculations

<sup>1</sup> VAR stands for vector autoregression model. Interested readers are directed to Stock and Watson (2001). In order to conduct the analysis discussed in this Box, it is necessary to use some "identifying" assumptions. The results discussed here average across all the possible combinations of those assumptions.

<sup>2</sup> In our model we subtract forecasted house price growth rates from the observed growth rates, thus a "positive" forecast error occurs whenever the actual growth rate exceeds the forecast growth rate

### 3 Risk characteristics of new mortgage lending

While there have been shifts in the distribution of LTVs and LTIs indicating the measures are more binding, there has been little change in average LTVs and LTIs and no sign of a generalised deterioration in lending standards at present. The relative prevalence of FTB and SSB loans with LTI and LTV allowances, respectively, remains broadly similar to that in 2017. Portfolio level analysis across the loan books of the Irish retail banks does not point to any significant weakening of resilience.

#### Insights from monitoring template data<sup>16</sup>

The total value of loans originated during H1 2018 by the institutions reporting data to the Central Bank, was €3.75 billion, up from €3.09 billion in H1 2017 (Table 2). This represents an increase in value of 22 per cent year-on-year with a corresponding increase of 15 per cent in the number of loans issued. The majority of this lending (91 per cent) was in-scope of the mortgage measures. Less than 1 per cent of FTBs exceeded the LTV limit of 90 per cent. For SSBs 16 per cent of the total value of SSB lending exceeded the 80 per cent LTV limit for this group. Regarding allowances to exceed the 3.5 LTI limit, 23 per cent of the total value of FTB lending exceeded the limit, with the corresponding figure for SSBs at 9 per cent.

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<sup>16</sup> See [Kinghan \(2018\)](#). The data used therein, as well as that referred to in this Section, are drawn from detailed loan-by-loan supervisory returns which are submitted by mortgage providers to the Central Bank in order to monitor compliance with the Regulations. These returns, known as Monitoring Templates, are required to be submitted by lenders who advance at least €50 million of residential loans over a six-month period. At present, six lenders meet that criteria: Allied Irish Banks PLC, The Governor and Company of Bank of Ireland, KBC Bank Ireland PLC, Pepper Money Ireland, Permanent TSB PLC, and Ulster Bank Ireland DAC.

**Table 2 | Distribution of LTV and LTI by Borrower Type H1 2017 vs H1 2018**

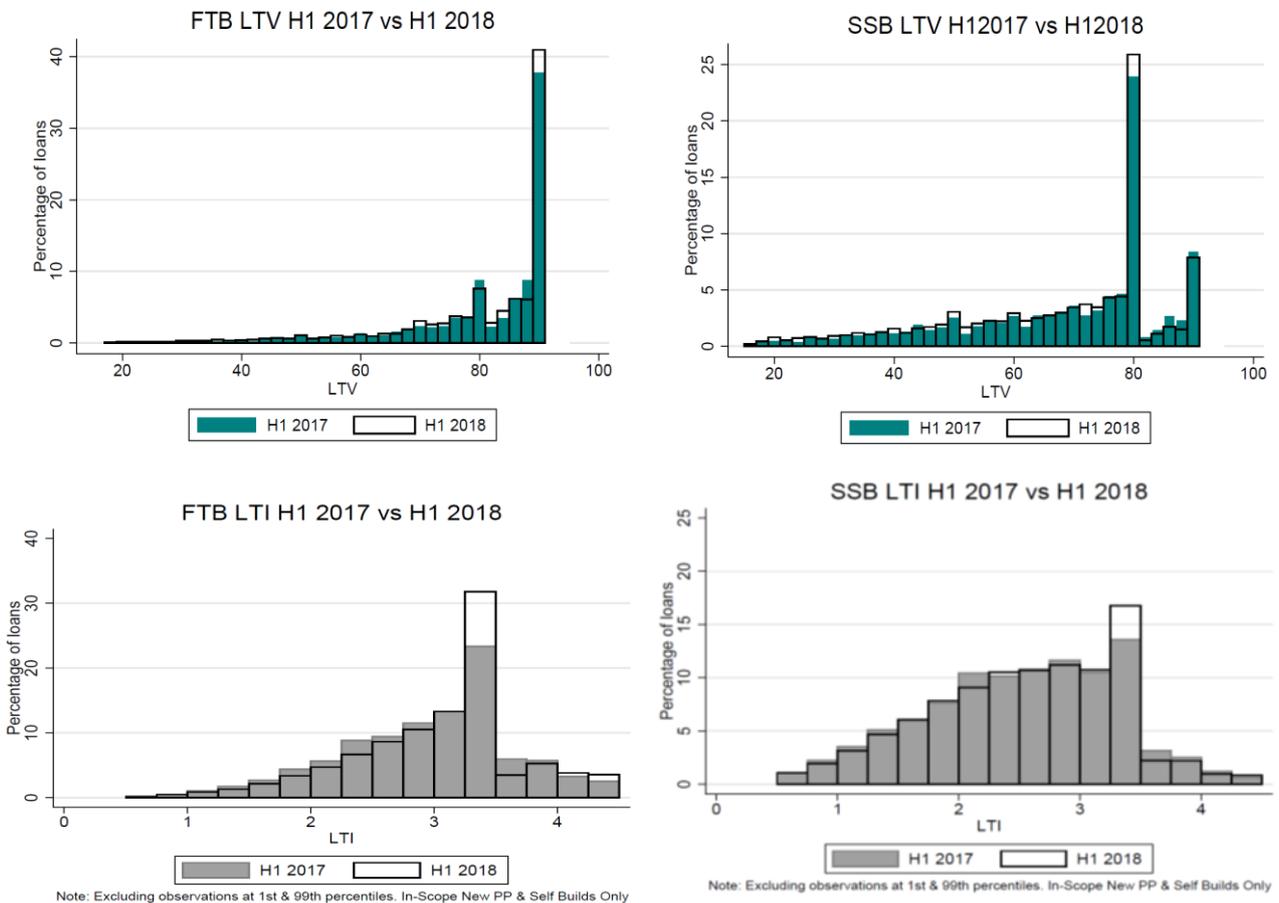
	Total Value (mn.)	No. of Loans	% Value H1 2018	% Value H1 2017
<b>Total Lending</b>	3,753	17,415	100	100
In-Scope of Regulations <i>of which:</i>	3,403	15,858	91	93
<b>PDH Lending</b>	3,310	15,168	97	97
FTB Lending	1,827	8,386	55	52
<i>of which FTB over LTV Limit</i>	2	7	0	0
<i>of which FTB over LTI Limit</i>	426	1,455	23	24
SSB Lending	1,482	6,782	45	48
<i>of which SSB over LTV Limit</i>	235	746	16	19
<i>of which SSB over LTI Limit</i>	130	428	9	10
<b>BTL Lending</b>	93	690	3	3
BTL over LTV Limit	2	14	2	4
Exempt from Regulations <i>of which:</i>	350	1,557	9	7
Switcher	323	1,352	92	78
Negative Equity	13	61	4	16
Other Exemption	15	144	4	7

Source: Central Bank of Ireland. In-scope lending excludes negative equity loans which are in-scope for LTI purposes only. These loans are included in the calculation of SSB loans over the LTI limit.

There is no indication at this stage of a general easing of credit standards. The average LTI for FTBs in H1 2018 was 3.1 times gross income and the average LTV was 79.6 per cent, compared to 3.0 and 79.5 per cent for H1 2017. The corresponding figures for SSBs in H1 2018 were 66.9 per cent, slightly lower than that observed in H1 2017 (67.8 per cent), with the average LTI at 2.6 compared to 2.5 in H1 2017. Average LTIs and LTVs have therefore remained relatively unchanged over the past year across borrower types.

As expected in an expanding market, the mortgage measures have, however, become more binding, with greater clustering of lending around the various thresholds for LTI and LTV limits, as can be seen in Chart 21. In H1 2018 we observe a higher share of lending at an LTV of between 89-90 per cent for FTBs, with a decrease in the share of lending with an LTV of 79-80 per cent and 87-88 per cent compared to H1 2017. For LTI, we see an increase in loans with a LTI between 3.25-3.5, just under the LTI limit of 3.5 times gross income in H1 2018. An increase in the share of FTB loans with an LTI greater than 4 is also evident, compared to H1 2017. For SSBs, we find a decrease in the share of lending over the 80 per cent LTV limit and an increase in loans originated with an LTV of between 79-80 per cent. An increase in the share of SSB loans with an LTI between 3.25 and 3.5 is found.

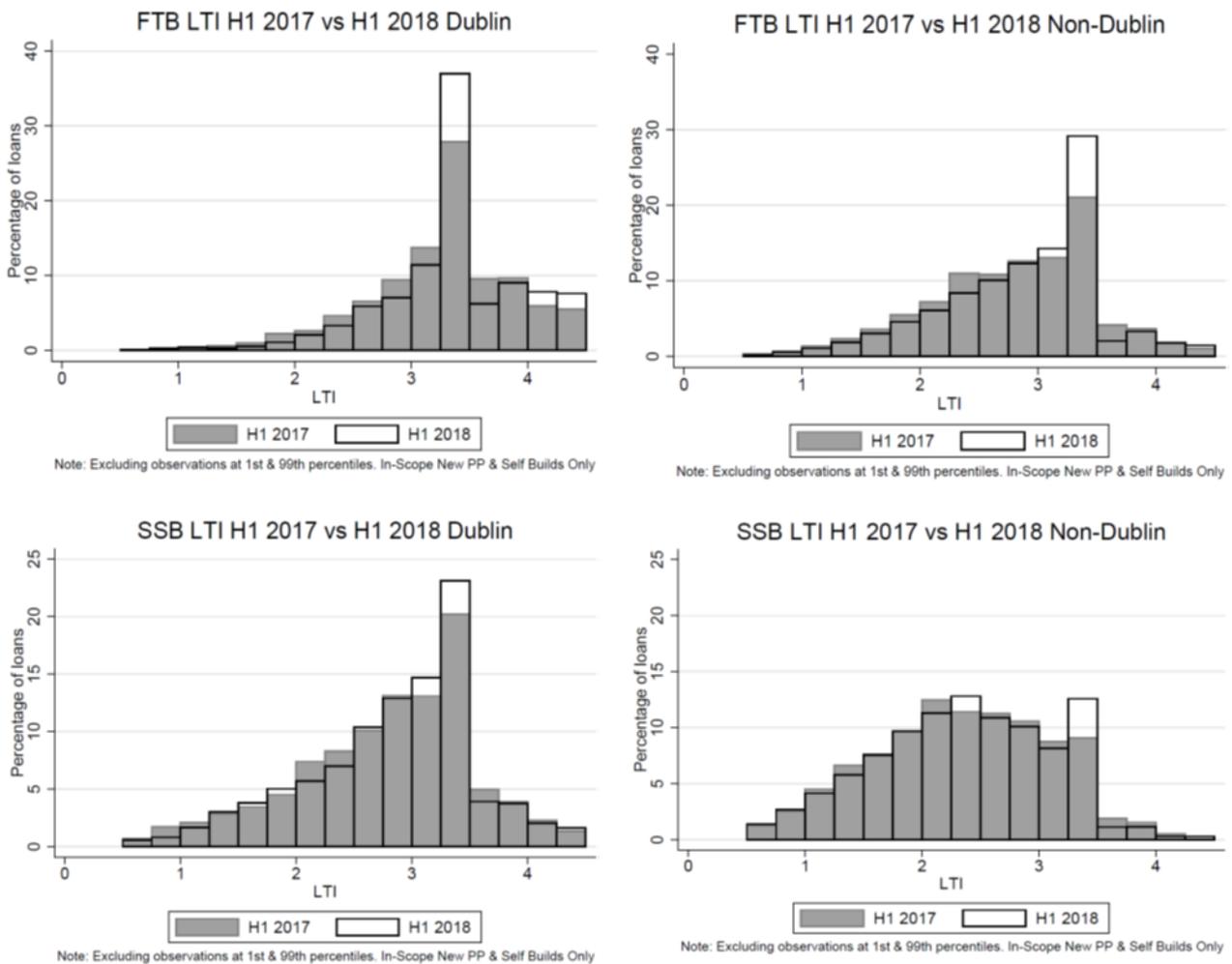
**Chart 21: Distribution of LTV and LTI by Borrower Type H1 2017 vs H1 2018**



Source: Central Bank of Ireland. Excluding observations at the 1<sup>st</sup> and 99<sup>th</sup> Percentile. New Property Purchase and Self-Build loans only.

Chart 22 examines the distribution of the LTI ratios of new lending in H1 2018, compared to H1 2017 for Dublin and non-Dublin for FTBs (top panel) and SSBs (bottom panel). This shows that the measures have become more binding for Dublin borrowers in H1 2018 than for borrowers outside of Dublin. Approximately 30 per cent of FTBs in Dublin in H1 2018 had an LTI over 3.5 times, while the comparable proportion for FTBs outside of Dublin was 11 per cent. The regional difference is even stronger for SSBs, where the distribution of new lending is much more dispersed for SSBs outside of Dublin than it is for SSBs in Dublin. Less than 5 per cent per cent of new lending to SSBs outside of Dublin was over the LTI limit, compared to almost 13 per cent of new lending to SSBs in Dublin.

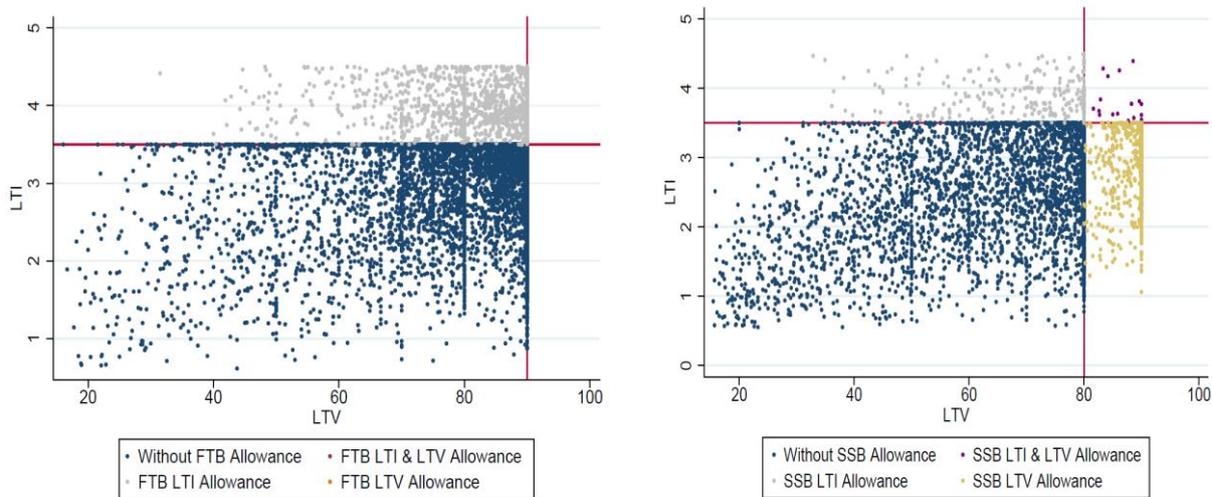
**Chart 22: Geographical distribution of LTI lending**



Source: Central Bank of Ireland

Chart 23 displays the intersection of LTV and LTI by borrower type and allowance type. The majority of new lending for both FTBs and SSBs was within the bounds of the LTV and LTI limits. There are three noteworthy features of new mortgage lending in this representation. First, there are very few instances where loans are issued with both a LTV and a LTI allowance. Second, the LTI allowance is dominant for FTB loans, whereas LTV allowances are exclusively used for SSB lending. Third, the market itself has established a limit of 90 per cent LTV across all new mortgage lending.

**Chart 23: Allocation of allowances by borrower type, H1 2018**



Source: Central Bank of Ireland

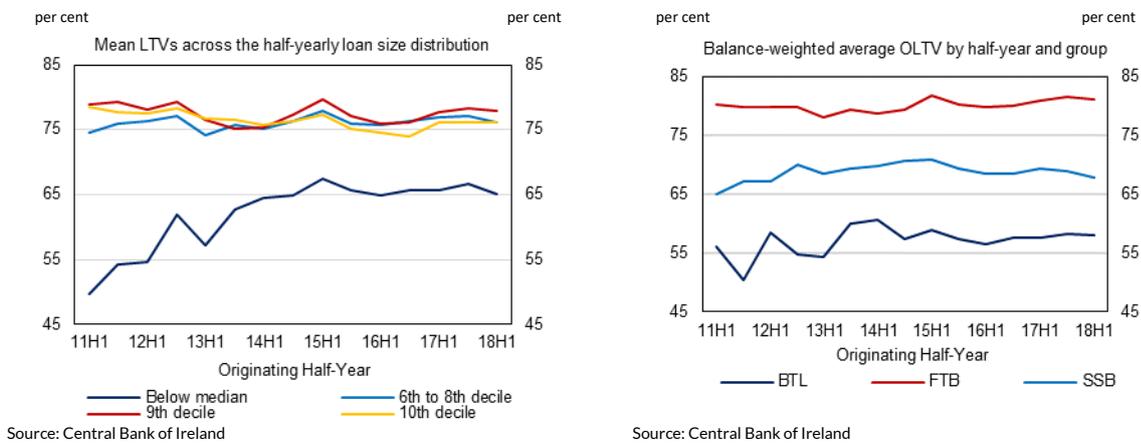
## Portfolio-level analysis

In this section we examine developments in aggregate cohort-level indicators of LTV and LTI distributions for the entirety of the new loans issued in each half-year since 2011H1. Such an analysis takes an aggregate-level view of developments in credit originations, as opposed to the loan-level view taken in the previous section.

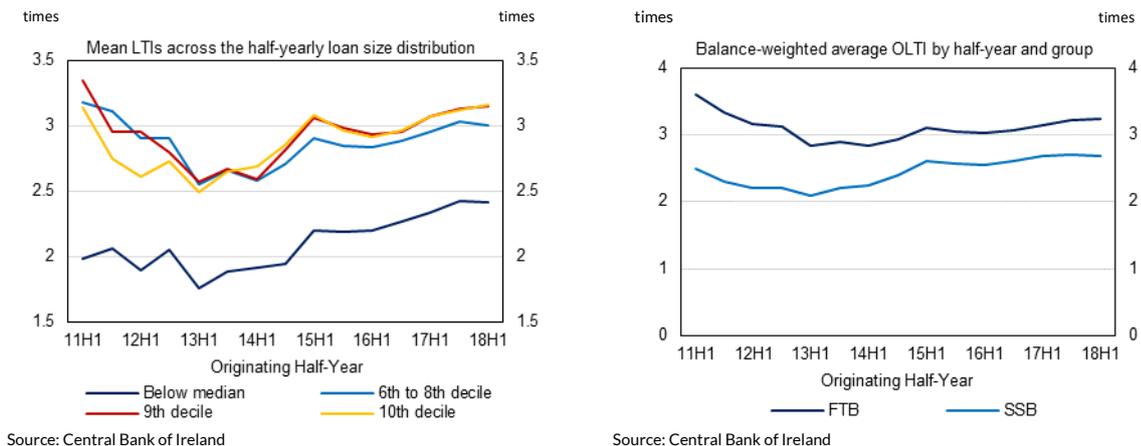
First, the evolution of the portfolio LTV for each half-year cohort of new loans issued since 2011H1 is considered (Chart 24). The left-hand panel outlines that, below the median loan size within each half-year, there has been substantial growth in originating LTVs. However, in the top deciles, LTVs have been stable across the 2011 to 2018 period. In the right hand panel, the LTV of each newly-issued loan is weighted by its originating loan size to calculate a “portfolio level LTV” separately for FTBs, SSBs and BTL loans. Again, the figure is notable only for the stability of the trends over the period, with only a slight increase in the balance-weighted average LTV since 2017 among FTBs.

These exercises across the loan size distribution and on a weighted portfolio-level basis are repeated for LTI ratios (Chart 25). Here there is clearer evidence on the left hand side that LTIs have risen in recent years, with the average LTI in all loan size groups rising since 2013. The average LTI above the 6<sup>th</sup> decile of loan size is now 3, with the analogous figure in the top decile being 3.1. When these are converted into balance-weighted portfolio averages on the right hand side, a slight increase in the aggregate LTI is observable over time in each borrower group. If portfolio level LTI were to increase substantially from current levels that would pose concern from an aggregate risk-taking perspective. The mortgage measures are designed to contain such developments. The annual review cycle ensures that should it be warranted, the measures can be adjusted to effectively mitigate this risk.

**Chart 24: Portfolio-level developments in LTV ratios, 2011-2018**



**Chart 25: Portfolio-level developments in LTI ratios, 2011-2018**

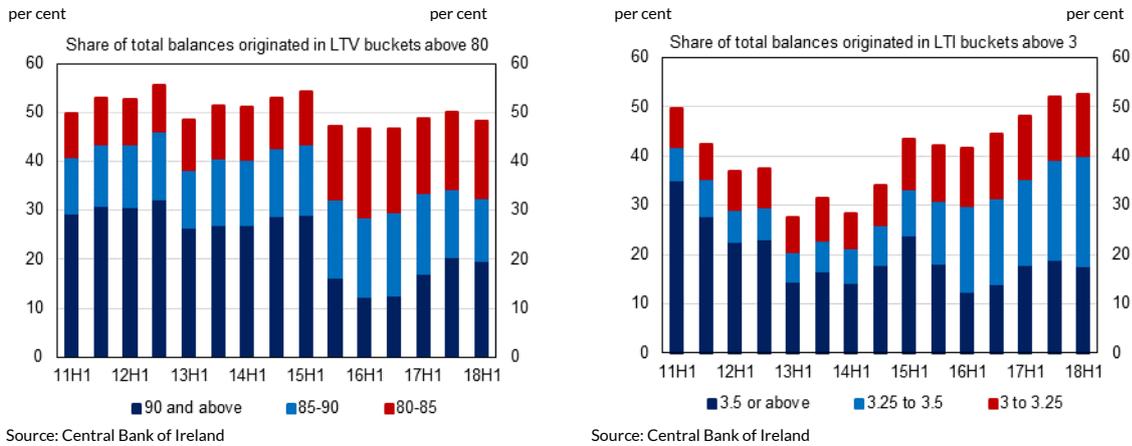


The share of the entire mortgage balance issued by the five retail banks in a six-month period is then categorised into buckets at the higher end of LTVs and LTIs (Chart 26). On LTVs, the panel on the left shows that between 40 and 50 per cent of all mortgage balances have been issued at or above 80 LTV since 2011, with this number changing little in recent years. The share issued at 90 or above (dark blue bar) has risen from just over 10 to 20 per cent since 2016.

On LTIs, the right hand panel shows that the share of the total mortgage balances per half-year issued above 3, has risen from 28 per cent in 2014H1 to just over 50 per cent in 2018H1. This increase is predominantly related to a rise in the amount of loans in the 3.25-3.5 bucket.

Considering bank-level portfolio analyses with the risk characteristics of new lending, allows us to take a view on whether bank and borrower resilience, with respect to mortgage lending is in danger of being excessively compromised. At this point in time, the evidence does not point to any immediate concern in this regard.

**Chart 26: Portfolio shares of “higher risk” lending, 2011-2018**



## 4 The mortgage measures within the wider macroprudential policy framework

The resilience of the Irish financial system to mortgage lending and housing market developments has been reinforced by the activation of the countercyclical capital buffer (CCyB), which will become effective in July 2019.

As the macroprudential authority in Ireland, the Central Bank has a number of tools available to it in order to mitigate systemic risk. The ultimate objective of macroprudential policy is to maintain the stability of the financial system, through building resilience, so that it can withstand shocks and through countering the build-up of risks in the system. Individual macroprudential tools have different objectives, operate through different transmission channels and look to address different sources of systemic risk (Chart 27).<sup>17</sup> Nonetheless, the application of a number of instruments can potentially have positive reinforcing effects from a financial stability point of view.<sup>18</sup> One such instance of this is the interaction between the mortgage measures and the CCyB.<sup>19</sup> While the Central Bank's mortgage measures have been in place since 2015, a positive CCyB rate was announced for the first time in July of this year.<sup>20</sup>

Both the mortgage measures and the CCyB were introduced to address different aspects of the financial stability objective. The objective of the mortgage measures is to increase resilience in households and banks to shocks in the housing market and to reduce the link between bank credit and house prices in Ireland. The objective of the CCyB is to increase the resilience of the banking sector to cyclical systemic risk. While the policy goal of each instrument is different, both measures contribute to increasing the resilience of the financial system, but through different transmission channels. The capital-based CCyB and the borrower-based mortgage measures act upon the stock of lending and the flow of lending respectively. The CCyB, acting on the stock of lending, has a direct effect on the resilience of the banking system, as it increases the loss absorbing capacity of institutions and the system as a whole.<sup>21</sup> The mortgage measures enhance the resilience of households by providing a level of protection against a shock to household income or a decline in property values.<sup>22</sup> The mortgage measures also build bank resilience incrementally through the flow of new lending as they limit

<sup>17</sup> See [Grace et al. \(2015\)](#) for further discussion of the macroprudential policy toolkit.

<sup>18</sup> De Niccolo et al. (2012).

<sup>19</sup> [O'Brien & Ryan \(2017\)](#) discusses the use of the CCyB and borrower-based measures in more detail.

<sup>20</sup> The Central Bank [announced](#) in July that a 1 per cent CCyB rate would come into effect on Irish exposures in July 2019.

<sup>21</sup> [Lozej & O'Brien \(2018\)](#).

<sup>22</sup> [Lozej & Rannenberg \(2017\)](#).

(new) lending relative to household incomes and/or property values. A further complementarity relates to a potential unintended consequence of policies such as the mortgage measures, in that they could lead to institutions shifting lending towards riskier categories that are not impacted by the measures. This may particularly be the case in circumstances where the mortgage measures were relatively more binding. The CCyB can however, help to mitigate against risk-taking in non-mortgage lending, as it applies broadly across all asset classes. Institutions have to hold the required level of capital against lending, regardless of the distribution across sectors.

Thus the mortgage measures and the CCyB act in tandem to enhance the resilience of the macro-financial system to the materialisation of systemic risk. This is particularly important for a small open economy like Ireland, where the macroeconomy and the property market are susceptible to external shocks and cyclical reversals. Building resilience at the current juncture is an important objective for the Central Bank, given the risks evident internationally (e.g. Brexit) and domestically (e.g. overheating in the economy, property prices moving above fundamentals). Furthermore, the overhang of household indebtedness and NPLs are still sources of vulnerability.

Turning to the cyclical aspect of systemic risk, the effectiveness of the different types of instruments varies. International evidence for macroprudential policies (effectively) leaning against the cycle, remains more limited than the resilience effect of such policies. However, the evidence does point to borrower-based measures being more effective at leaning against the cycle than capital-based measures such as the CCyB.<sup>23</sup> While conceptually the CCyB may potentially lean against the cycle as mentioned before, the evidence for this remains limited.

Notwithstanding the reinforcing nature of these instruments, the mortgage measures and the CCyB are targeted at different aspects of systemic risk and their calibration is based on different data. In addition, there are varying drivers for changes in the calibration of the measures.

The mortgage measures, focused as they are on risks around residential property, look to mitigate the risk of credit-house price spirals emerging. As such, the underlying reason for house price growth (i.e. credit fuelled or otherwise) is crucial in motivating potential changes to the calibration of these measures. While the fundamental features of the Central Bank's mortgage measures should be viewed as a permanent feature of the market, the calibration can be tightened or loosened depending on prevailing dynamics. Were rapid mortgage credit growth to be seen to be fuelling house price appreciation, the mortgage measures may be modified to lean against the wind. This is not the case at present however, where rates of aggregate mortgage credit growth in Ireland, although strengthening, remain modest/contained and where broader issues around the supply and construction of residential property have been heavily influencing price

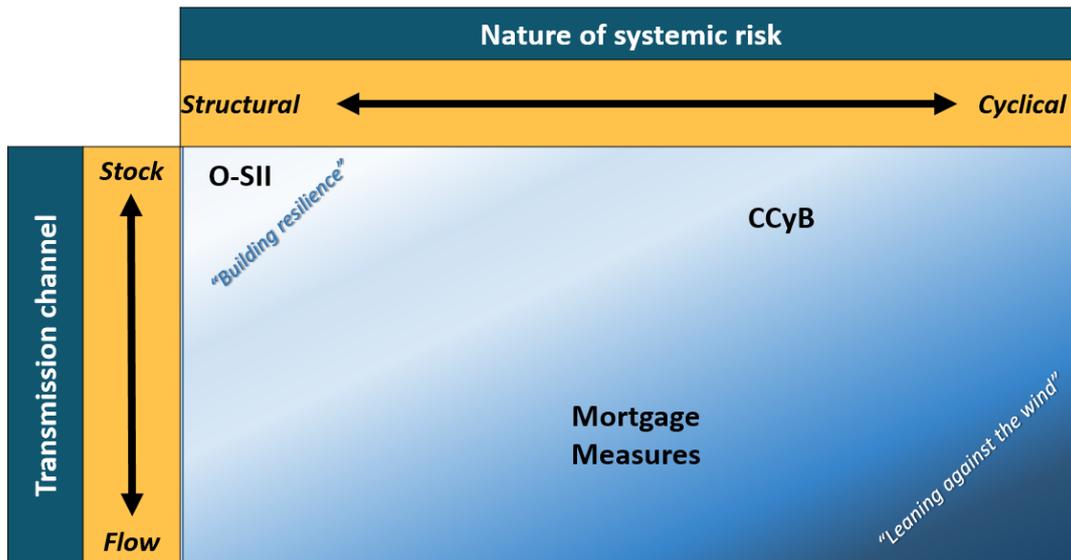
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<sup>23</sup> [Galati & Moessner \(2018\)](#).

dynamics. Indeed, as housing supply increases, mortgage lending volumes could continue to grow without a loosening of credit standards.

The CCyB is a much broader instrument and is motivated by risks beyond residential real estate, albeit these too play a role. The setting of the CCyB rate takes account of broad cyclical dynamics including developments in credit, the macroeconomy, property (both commercial and residential), private sector indebtedness, as well as the strength of the banking sector and financial market conditions. From a resilience perspective, and in contrast to the mortgage measures, rapid house price growth itself (regardless of the cause) can be indicative of growing risk, as a subsequent fall in house prices will lead to increased loan loss provisions on bank balance sheets. Thus sustained rapid price growth and in particular, when it is accompanied by evidence that prices may be moving above fundamental values can, along with other indicators of cyclical dynamics, provide a motivation for CCyB activation or recalibration.

**Chart 27: Characterising macroprudential policy instruments**



Source: Central Bank of Ireland. The chart presents the various macroprudential policy instruments, based on the nature of systemic risk they are designed to mitigate (structural to cyclical), the relevant exposures through which the policies becomes effective (stock to flow) and the objective or impact of the measures ("Building resilience" to "Leaning against the wind"). All three dimensions are, to an extent, not mutually exclusive. This is especially the case for the latter dimension where there is significant overlap and complementarity.

## 5 Conclusions

The mortgage measures as currently calibrated continue to promote a sustainable role for mortgage lending in the wider housing market and are contributing to financial stability.

The analysis carried out for the 2018 review of the mortgage measures has confirmed that the aims of these measures, to increase bank and borrower resilience and reduce the risk of bank credit-house price spirals from emerging, are being met. The analysis indicates that the mortgage measures as currently calibrated, are achieving their objectives and are contributing to overall financial stability. As a result, the LTV and LTI limits for the various borrower categories and the related lending allowances above those limits will remain unchanged in 2019.

The analysis found that while the pace of growth in new mortgage lending remains strong, there is scope for further sustainable increases in mortgage activity. Mortgage lending is not generating a substantial divergence between house prices and underlying fundamentals (housing supply, income, interest rates) and there is little evidence of a bank credit-house price spiral emerging.

Analysis of new lending shows that the measures have become more binding, but there has been little change in average LTVs and LTIs and no sign of a generalised deterioration in lending standards at present.

The activation of the CCyB, which will become effective in July 2019, reinforces the operation of the borrower based measures and is a further tool used by the Central Bank to foster financial stability. The basis for calibration and the motivation for changes in the CCyB and the borrower-based measures are different, owing to the differing objectives and transmission channels of each instrument.

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# Glossary

ADF	Augmented Dickey-Fuller Test
BPFI	Banking and Payments Federation Ireland
BTL	Buy-to-Let
CBI	Central Bank of Ireland
CCyB	Countercyclical Capital Buffer
CSO	Central Statistics Office
ECB	European Central Bank
EU	European Union
FTB	First-Time Buyer
LTI	Loan-to-Income ratio
LTV	Loan-to-Value ratio
NMDI	New Mortgage Lending to Disposable Income
NPL	Non-Performing Loan
OLTV	Originating Loan-to-Value ratio
OECD	Organisation for Economic Co-operation and Development
PDH	Primary Dwelling Home
PMI	Purchasing Managers Index
SCSI	Society of Chartered Surveyors Ireland
SSB	Second-and-Subsequent Buyer
UFHD	Unfinished Housing Developments
VAR	Vector Autoregression Model



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