Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

The Central Bank's framework for the macroprudential mortgage measures

October 2022

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Executive summary

Over the course of 2021 and 2022, the Central Bank conducted a review of the mortgage measures framework. The purpose of the review was to ensure that the mortgage measures continue to remain fit for purpose, in light of the evolution of the financial system and the broader economy since the measures were first introduced in 2015. The conclusions of the review have been informed by the Central Bank's analysis based on a wide range of evidence, lessons from international experience and the feedback received through engagement with the public and other stakeholders.

The mortgage measures remain an essential macroprudential policy instrument to safeguard economic and financial stability. The measures foster sustainable lending standards and prevent an unsustainable relationship between credit and house prices from emerging. The mortgage measures cannot – and do not –target house prices, which are driven by broader factors, many outside the mortgage market.

Like all policy interventions, the mortgage measures entail both benefits and costs to society. In considering the design and calibration of the measures, the Central Bank seeks to balance these benefits and costs.

Over the past seven years, the Central Bank has concluded that the mortgage measures have worked as intended. The measures have strengthened resilience of both borrowers and lenders and guarded against the emergence of an unsustainable self-reinforcing "feedback loop" between house prices and credit.

At the same time, underlying structural challenges in the housing market remain and have intensified over the past seven years. At the heart of these challenges is an ongoing imbalance between the demand for, and supply of, housing. This imbalance has been driven by fundamental underlying forces, such as strong population growth which has not been matched by an equivalent increase in the housing stock.

Housing supply challenges are evident in the fact that fewer houses are being built in Ireland, for a given level of house prices relative to incomes, than was the case in the past, driven in part by a rising cost

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of construction and a changing composition of homes being built. These trends have resulted in growing affordability pressures, evident in both house prices and rents having continued to rise faster than incomes.

These underlying challenges in the housing market are best addressed by policies that focus on the level and composition of the supply of housing. The mortgage measures are not a policy lever that can address underlying housing supply challenges.

While outside the Central Bank's macroprudential policy mandate, these broader developments in the housing market and the economy since the measures were introduced have implications for the mortgage measures. While the benefits of the measures remain, the continued housing supply challenges, leading to persistently higher house prices relative to incomes, imply higher economic costs of the measures, relative to when they were introduced.

The Central Bank has concluded that a targeted recalibration of the measures (described in Box 1) can relieve some of the costs of the measures, without unduly reducing their benefits. The recalibration of the measures could imply a somewhat greater degree of macro-financial risk. However, broader developments over the past decade, including the strengthening of the resilience of the banking sector and continued deleveraging of the household sector as a whole, reduce the magnitude of these risks.

Box 1: Key outcomes of the mortgage measures framework review

The Central Bank's mortgage measures framework review has re-affirmed the benefits of the measures. Since 2015, the measures have strengthened the resilience of borrowers, lenders and the economy overall. By guarding against growth in high levels of indebtedness and unsustainable lending in the housing market, the economy as a whole is in a better position to withstand adverse shocks than in the past, including shocks stemming from interest rate increases or cost of living pressures.

The Central Bank has also concluded that many of the main design features of the measures remain appropriate. The dual instrument approach of utilising both a collateral-based and an income-based limit remains unchanged. On the choice of income-based instrument, the Central Bank judges that, while measures based on servicing capacity play an important role in lenders' own credit policies, a loan-to-income (LTI) measure better meets the Central Bank's objectives for these system-

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wide measures. The framework will also still leave scope for a proportion of lending to occur above the limits.

As a result of the review, the Central Bank assesses that the economic costs of the measures have increased since 2015, primarily arising due to structural developments that have led to persistently higher house prices relative to household incomes. As a result, the Central Bank reached the judgment that targeted changes were appropriate to re-balance the benefits and costs of the calibration of the measures and to ensure they remain fit for purpose into the future.

The changes to the measures will come into effect on 1 January 2023, from which point the calibration of the mortgage measures will be:

- **First-time buyers (FTB)**
  - The LTI limit for FTBs is being increased from 3.5 to 4 times income.
  - No changes are being made to the FTB LTV limit which remains at 90 per cent.
- **Second and subsequent buyers (SSB)**
  - The LTI limit will remain at 3.5 times income.
  - The LTV limit for SSBs is being changed from 80 per cent to 90 per cent.
- **Buy-to-let borrowers (BTL)**
  - No changes are being made to the mortgage measures relating to BTL lending where a 70 per cent LTV limit will continue to apply.
- **Proportionate allowances:**
  - The proportion of lending allowed above the limits will now apply at the level of the borrower type (e.g. FTB) rather than the individual limit (e.g. FTB LTI).
    - 15 per cent of FTB lending can take place above the limits.
    - 15 per cent of SSB lending can to take place above the limits.
    - 10 per cent of BTL lending can take place above the limits.

The Central Bank is also making a number of changes to the criteria required for a borrower to be considered a FTB for the purposes of the mortgage measures.

- From a "fresh start" perspective, borrowers who are divorced or separated or have undergone bankruptcy or insolvency may be considered FTBs for the mortgage measures (where they no longer have an interest in the previous property).

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- FTBs who get a top-up loan or re-mortgage with an increase in the principal may be considered FTBs, provided the property remains their primary home.

These changes acknowledge the feedback received by the Central Bank through the listening and engagement events held over the course of the review and look to reflect the society we live in.

Introduction

Over the course of 2021 and 2022, the Central Bank conducted a review of the mortgage measures framework. The purpose of the review was to ensure that the mortgage measures remain fit for purpose, in light of the evolution of the financial system and the broader economy since the measures were first introduced in 2015.

The review covered the overall framework for, and strategy around, the mortgage measures. The conclusions of the review have been informed by the Central Bank's analysis of a wide range of evidence, lessons from international experience and the feedback received through engagement with the public and other stakeholders. This document provides an overview of the revised framework for the mortgage measures arising from this review.

The mortgage measures remain an essential element of the Central Bank's macroprudential policy framework. The objectives of the measures are to ensure sustainable lending standards in the mortgage market and to prevent an unsustainable relationship between credit and house prices from emerging.

The Central Bank's review included the objectives, design, calibration and implementation of the mortgage measures. Through extensive research and analysis over the course of 2021 and 2022, the review has considered the role the mortgage measures have played in the broader macro-financial system in Ireland since they were introduced.

The review has also considered structural changes in the housing and mortgage market since the introduction of the measures and

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the experience in Ireland and other countries with these types of measures over the last number of years.

The review has taken account of the evolution of best practice over time globally and has been informed by extensive public and stakeholder engagement.[1] This engagement showed strong support for having measures to ensure sustainable mortgage lending standards in place in Ireland.

The remaining sections of this document set out the key principles and elements of the Central Bank's mortgage measures framework.

The role and objectives of the mortgage measures

The review of the mortgage measures framework has re-affirmed the importance of the measures as guardrails in the Irish mortgage market and found that the measures have worked as intended since their introduction in 2015. The public engagement also found that there is widespread support for having some form of macroprudential measures as a permanent feature of the Irish mortgage market.[2]

Like all policy interventions, the mortgage measures entail both benefits and costs. The Central Bank has examined the economic benefits and costs of mortgage measures such as those in place in Ireland. This analysis has shown that, as well as affecting those drawing down mortgage finance, the mortgage measures can have both benefits and costs across the wider economy and society (Aikman et al., 2021).

The economic benefits of macroprudential mortgage measures are long-term in nature. These arise predominantly through the weakening of the self-reinforcing relationship between house prices and mortgage lending, lowering the probability and the severity of financial recessions, which can have large and persistent adverse

[1] See Summary Report of Listening and Engagement Events, Report on the Results of the Online Public Engagement Survey and Feedback Statement – Consultation on Mortgage Measures Framework Review (CP146).
[2] See Summary Report of Listening and Engagement Events, Report on the Results of the Online Public Engagement Survey.

economic costs. The economic costs of high debt levels arise from over-retrenchment of consumption among more indebted households, spillover effects of rapidly falling house prices across the economy, credit supply shocks from lenders in the face of higher losses, and potential fiscal risks to governments during periods of financial crises.

The economic costs of mortgage measures can arise through the limiting of effective mortgage demand. Short term costs operate primarily through mostly temporary effects on consumption and economic activity (Aikman et al., 2021). For example, there are likely to be time-specific consumption-reducing effects of savings requirements on some households accumulating a mortgage deposit, although they may be balanced by lower mortgage costs at a later point in time. Lower house prices and weaker aggregate mortgage demand may also reduce a wide range of economic activity that relies on a buoyant housing market. There are also longer-term costs which are more difficult to measure. For example, if the measures were to lead to lower homeownership than would otherwise be the case[3], this would give rise to lowered wealth accumulation and elevated housing costs in retirement.

This examination of benefits and costs has led to the following set of principles and a refreshed objective statement for the mortgage measures.

Principles underpinning refreshed objectives

The refreshed objectives of the mortgage measures will be underpinned by the following key principles:

[3] Over the long term, there are reasons to expect that the housing market may adjust to reflect preferences for homeownership. For example, if mortgage measures limit house price growth through the effect of reduced borrowing, but underlying demand for homeownership remains constant, the cost of housing relative to incomes may adjust over the long term through either private sector or policy initiatives, delivering a supply of owned housing to those demanding it, at lower prices than would otherwise have been the case. There is considerable uncertainty over the way in which these adjustments are likely to take place over the long term. Gaffney and Kinghan (2021) report that the transition rate into homeownership grew every year from 2012 to 2019 for those aged 25-39, but was highest in the 30-34 cohort, highlighting delayed, as opposed to reduced, entry to the mortgage market than before 2008. A full assessment of the effect of the mortgage measures on homeownership will not be possible until far into the future, when patterns of entry to the housing market have been observed across more cohorts of the population.

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- The mortgage measures do not aim to replace lenders' own prudent underwriting criteria, but aim to improve the resilience of borrowers, and by association lenders, to adverse economic shocks.
- As a macroprudential tool that acts to stabilise the relationship between the mortgage and housing markets and the wider economy, the benefits of the measures accrue across the entire population, and not just to those accessing mortgage finance.
- The mortgage measures framework operates at a system-wide level, and will take into account the costs and benefits of the measures as they are experienced across the population. The Central Bank will continue to develop tools that aid the assessment of trade-offs between benefits and costs.
- The Central Bank will aim to provide information and research on the potential distributional effects of the measures.
- The mortgage measures do not – and cannot –target house prices. House prices across the economy are driven by broader range of factors, many outside the mortgage market.

Based on the above, the refreshed objective statement of the mortgage measures is as follows.

With the mortgage measures, the Central Bank aims to ensure sustainable lending standards in the mortgage market.

In doing so, the Central Bank aims to:

- *prevent the emergence of an unsustainable relationship between credit and house prices;*
- *support the resilience of borrowers, lenders and the broader economy;*
- *take into account both the economic benefits and costs that the measures pose.*

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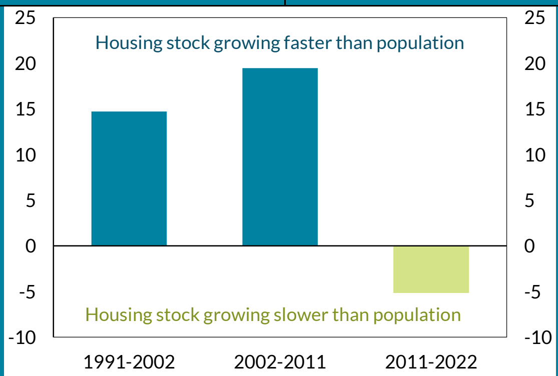
Box 2: Evolution of the benefits and costs of the measures since introduction

Since the measures were introduced in 2015, the stated objectives have been to increase the resilience of lenders and borrowers to negative economic and financial shocks, and to reduce the risk of a damaging "feedback loop", where house prices and mortgage credit increase and reinforce each other, from developing in the future. The annual reviews of the calibration of the measures since 2015 have found that the measures have met those objectives and this finding has been supported during this framework review.

In the years since 2015, the housing market has continued to be characterised by weakness in housing supply, which has not matched strong population growth and demand for housing (Chart 1). While weak housing supply was already evident in 2015, the imbalance between demand and supply has been considerably more persistent than would have been expected when the measures were introduced. These developments reflect structural challenges with the supply of housing. Indeed, fewer housing units are being produced, for a given real house price level, when compared to the past (Chart 2). With housing supply failing to meet demand, both house prices and rents have risen faster than incomes (Chart 3).

Chart 1: Over the past decade, growth in the housing stock has fallen short of growth in population growth

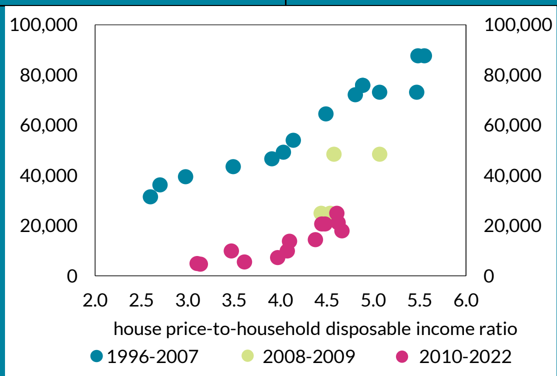
percentage points | percentage points



Source: CSO and Central Bank of Ireland calculations.
Notes: Percentage point difference between growth in stock of housing and growth in population. The past decade has seen growth in the housing stock falling short of population growth, with slowdown in structural trend of falling average household size. Last observation 2022.

Chart 2: Estimated dwelling completions and real house prices 1996-2022

number of annual RRE completions | number of annual RRE completions



Source: Kennedy and Myers (2019).
Notes: Horizontal axis: Estimated ratio of house prices to household disposable income. Vertical axis: housing units completed per year. Estimates of completions have been obtained by taking total estimates of electricity connections and removing average number of connections in each year that are unrelated to dwelling completions. Findings are robust to use of raw electricity connections data, or to using proportional estimates of completions. Last observation 2022.

Recent research has shown that housing supply in Ireland is similarly responsive to house price changes compared to the past when controlling for the costs of

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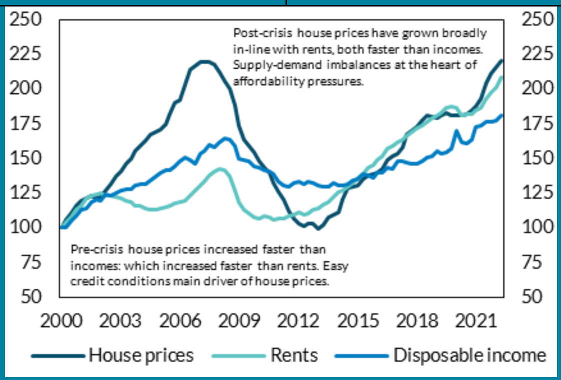
construction, but that – since the 2010s – the primary explanation for the weaker housing supply outturn has been the rise in construction costs (Lyons and Gunnewig-Moenert, 2022). More recent analysis describes how construction cost increases in 2022 have far outstripped those experienced in the preceding years (Arigoni et al., 2022a). This suggests that continued difficulties may be faced in increasing housing supply delivery towards levels required to meet estimated demand over the short-to-medium term.

Chart 3: House price, rent and household disposable income indices

index (2000 Q1 = 100) | index (2000 Q1 = 100)



Source: CSO and Central Bank of Ireland calculations.
Notes: Last observation house prices, rents, and household disposable income 2022 Q2.

Against the backdrop of rising prices and challenges to affordability, the resilience benefits of the measures can be seen in the sustainable evolution of lending standards, with much lower levels of high risk loans being issued now compared to periods when house prices were at a similar level relative to incomes (Chart 4). The credit risk of banks' mortgage lending is significantly lower for newer loans than for those issued before the financial crisis, owing both to a change in banks' risk appetite and to the effect of the mortgage measures. This holds when analysing recent defaults (Chart 5), as well as when analysing payment break usage during the COVID-19 pandemic (Gaffney and Greaney, 2020).

Assessing empirically whether the measures have been successful in meeting the objective of limiting the role of credit in house price developments is more challenging. House prices in Ireland have increased by 73 per cent since the introduction of the measures, but this has not been accompanied by an increase in aggregate levels of household indebtedness.[1] The Central Bank assesses that a key driver behind the price increases observed over the period has been the imbalance between supply and demand. Using a range of techniques, researchers at the Central Bank and ESRI[2] have concluded that house prices would have been significantly higher relative to incomes in

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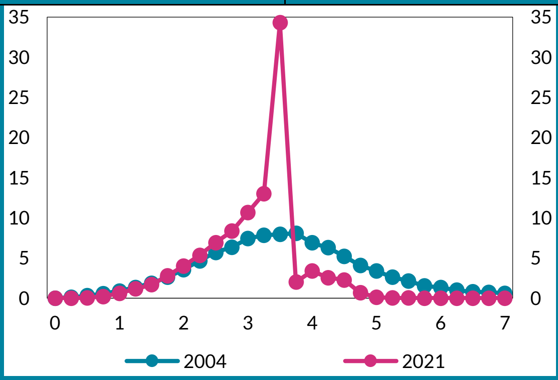
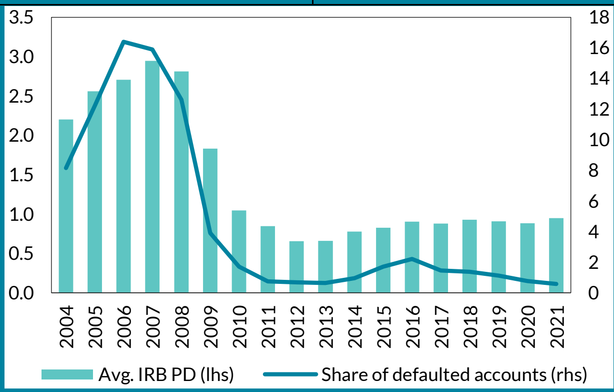
the absence of the measures, and that mortgage credit has not been an important driver of house price developments since 2015.

Chart 4: Distribution of Loan to Income ratios in new mortgage lending across selected years	Chart 5: Internal model default probabilities and share (expressed as annual share of total count) of retail mortgage defaults occurring from 2018-2021 by origination year
per cent / per cent	per cent / per cent
	
Source: Central Bank of Ireland. Notes: Percentage of loans at each point on LTI distribution, new lending in each of 2004 and 2021.	Source: Lyons and Rice (2022). Notes: Defaults (observed from 2018 to 2021, and modelled in banks' internal models in 2021) by origination year. IRB: Internal models of Irish retail banks used for risk weight purposes. PD: probability of default.

The economic costs of the mortgage measures are even more difficult to measure empirically. However, as house prices have risen faster than incomes over the last number of years (Chart 3), access to the housing market has become more difficult for a larger cohort of households (Box 4). The Central Bank judges that part of the recent increase in the house price to income ratio reflects long-running structural reasons, including the weakness of housing supply. The Central Bank has, therefore, concluded that the costs of a given calibration of the mortgage measures have risen since the measures were introduced.

In summary, while the benefits of the measures remain, the continued housing supply challenges, leading to persistently higher house prices relative to incomes, imply higher economic costs of the measures, relative to when they were introduced.
The Central Bank judges that a targeted recalibration of the measures can relieve some of the costs of the measures, without unduly reducing their benefits. The empirical evidence supporting this judgment is summarised further in Box 4.

[1] Increase since the introduction of the mortgage measures in February 2015. Source: CSO's National Residential Property Price Index.
[2] Central Bank of Ireland estimates published Financial Stability Review 2019:II; ESRI estimates published in ESRI QEC Research Note February 2021.

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Framework design

The framework review considered in detail the key design features of the measures, related to the number, and nature, of instruments deployed, the differential treatment of FTB, SSB and BTL borrowers, as well as the role of the proportionate allowances relative to headline limits.

Instrument choice

Number of instruments

The Central Bank has concluded that a combination of a collateral-based (such as LTV) and income-based instrument (such as LTI) remains appropriate. A combination of instruments is most common internationally to address distinct sources of risk.[4]

Each instrument achieves different, but complementary, aims. The LTI limit provides a long-term link between developments in the housing market and the real economy, by restricting mortgage borrowing relative to household incomes. It also provides for affordability at mortgage origination, directly ensuring sustainable lending standards. An LTV limit provides a buffer against the risk of house price falls, which could leave borrowers in negative equity. The equity cushion provided by a minimum deposit requirement supports borrowers, as negative equity can lead to many negative economic and social outcomes, including limiting the ability to move home, switch mortgage, or avail of equity release to finance consumption.

A deeper examination of the role of both limits carried out during the review indicates that – given the elevated house-price-to-income ratio across the economy – the LTI instrument is the main driver in determining the credit amount available to the majority of those borrowers accessing the mortgage market. The LTI limit has become increasingly binding since 2015 as house prices have grown more quickly than incomes in aggregate. At the same time, the rapid house price growth has resulted in significant equity gains for those already owning a home, resulting in the LTV limit becoming less binding for second and subsequent buyers. Central Bank analysis conducted during the review has found that over 80 per cent of

[4] The Central Bank Governor's blog, 17 June 2021 provides insights on the combination of instruments used internationally.

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owners would be LTI- rather than LTV-constrained if purchasing a new home as an SSB, based on recent income and wealth data from the ECB's Household Finance and Consumption Survey (HFCS), undertaken with the CSO and Central Bank.

There is a relationship between the LTI and LTV limits. The LTI limit has also acted as an "effective LTV limit" for many borrowers since 2015. This is because some borrowers have needed to post larger deposits, leading to lower LTVs, in order to meet the limit of 3.5 times income (Gaffney, 2019) than they might have needed if only required to meet an LTV limit in isolation.

Choice of income-based instrument

The Central Bank judges that, while measures based on servicing capacity play an important role in banks' own credit policies, an LTI measure better meets the Central Bank's objectives for these system-wide measures.

The choice of income-based instrument was a key topic of consideration as part of the review. The Central Bank considered two alternatives to the LTI limit: a Debt-to-Income (DTI) and a limit based on mortgage (or all debt) repayments to net income, referred to here for simplicity as DSTI. When considering the alternative income-based instruments, as discussed in CP146, the Central Bank concluded that such measures are less appropriate than LTI limits for the Irish mortgage measures framework.

The benefits of the LTI measure from a macroprudential perspective are that:

- It is comprehensive, easy for the public to understand and simple for lenders to implement consistently;
- It is consistent with the macroprudential objectives of the measures, by focusing directly on risks stemming from unsustainable mortgage lending standards;
- It complements, but does not replace, banks' own lending practices, acting as a complement to lending standards, consistent with its macroprudential objective.

A DTI limit would restrict total borrowings of a household, rather than only mortgage borrowings. A DTI limit could reduce the risk of

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leakages from an LTI or an LTV measure due to borrowers taking on unsecured loans to meet these requirements. Central Bank analysis has shown that, in general, borrowers in Ireland reduce their non-mortgage debts prior to mortgage origination, and so a DTI limit at mortgage origination would only capture a relatively small amount of additional borrower indebtedness, while adding complexity and monitoring burden into the macroprudential regime.

A DSTI limit considers the capacity of borrowers to service their debt relative to their income, focussing on monthly repayments rather than total loan balances outstanding. The relative merits of a DSTI ratio compared to an LTI ratio received considerable feedback in the public engagement and has been a key focus of deliberation by the Central Bank.

It is important to note that there is already a key role for measures based on debt servicing capacity in lenders' own assessments. Lenders are required to undertake an affordability assessment of prospective mortgage borrowers under the Central Bank's consumer protection framework.

However, from a macroprudential perspective, a DSTI limit has some shortcomings compared to the LTI limit:

- A DSTI limit would have **the potential to be excessively pro-cyclical**, unless accompanied by additional regulation, such as defining a stressed interest rate. For example, a DSTI limit would become looser at points in time when monetary policy is accommodative or mortgage spreads are particularly low (which is precisely the point in time when lenders might be underestimating risk). Guarding against that would require that the regulation defines a stressed interest rate for the purpose of the DSTI limit.
- A DSTI limit would **provide incentives to lenders and borrowers to extend the maturity of mortgage debt** to be able to borrow more, for a given level of income. There are risks associated with excessive extensions of mortgage debt maturity, including those associated with borrowers having to repay mortgage debt into retirement. Guarding against that would require additional regulation in the form of maturity limits.

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- Taken together, the above imply that **any move to a DSTI limit could add significant complexity to the mortgage measures framework**, including additional burden in monitoring compliance. Indeed, a DSTI limit with additional restrictions on stressed interest rates and maturity would become economically equivalent to an LTI limit, but with additional complexity.

On net income, the Central Bank concluded that its introduction would bring additional complexity into the regime, with decisions required around the range of deductions from gross salary that would be included or excluded, as well as the risk that the mortgage measures would then have their calibration directly tied to fiscal policy decisions, which have been previously shown to be cyclical in nature both in Ireland and globally.[5]

Differential treatment by borrower type

Justification for differential treatment

The differential treatment of mortgages by borrower type has been a key feature of the mortgage measures since inception. BTL, SSB and FTB borrowers have been subject to an LTV limit of 70, 80, and 90 per cent, respectively, in the years preceding the framework review. The Central Bank has concluded that differential treatment by borrower type should remain as a cornerstone of the framework.

The continuation of differential treatment is motivated by the following findings of the framework review:

- The **role of FTBs and SSBs in the housing cycle has been shown to differ in important ways** for macroprudential policy. For potential FTBs, house price growth implies that an LTV or LTI limit becomes more binding, i.e. additional income or savings are needed to purchase the same property at higher value. A fixed LTV limit in a growing housing market may therefore be *counter-cyclical*. For potential SSBs, who already own a home, the cyclicality is

[5] For illustration, the tax policy changes implemented in Ireland in response to the crisis in the public finances during the Global Financial Crisis had significant implications for the level of net income associated with a given level of gross income. In a macroprudential regime based on net income, these tax policy changes would have directly fed through to the mortgage market through sharp reductions in borrowing amounts available, with potential pro-cyclical effects on the housing market and wider economy. Carroll (2022) formalises evidence on the pro-cyclicality of tax policy in Ireland over the last century.

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inverted: as house prices grow, these buyers *benefit* from house price growth, and have additional resources available to leverage for future purchases, potentially amplifying the credit and housing cycle. A fixed LTV limit in a growing market can in fact be *pro-cyclical* for potential SSBs.

- The costs of the mortgage measures relating to **challenges entering the mortgage market are deemed to be higher for potential FTBs** than potential SSBs. In the former case, a lack of market access implies a lack of homeownership, with associated longer-term costs. On the other hand, the Central Bank has concluded that cases where existing homeowners are unable to transact as SSBs, while still undesirable, have lower aggregate costs.
- There is continued empirical evidence for **higher default risk** among SSBs than FTBs, for a given level of LTV or LTI. The original findings on mortgage default of Kelly et al. (2015) have been shown to hold more recently by Giuliana (2019) and for payment breaks during the pandemic by Gaffney and Greaney (2020).

Moving from an LTV to an LTI differentiation

However, when considering the rationale behind having different limits for FTBs and SSBs, the Central Bank has concluded that a higher LTI limit for FTBs is a more effective way to differentiate between these borrowers. While the LTV limit of 70 per cent will remain for BTL borrowers, FTBs and SSBs will now be subject to the same LTV limit, which will be set at 90 per cent.

The move from differential LTV to differential LTI limits is motivated by the following findings of the framework review:

- Given the growth in house prices relative to incomes since the measures were introduced, **the LTI has become the clear binding constraint for a majority of borrowers**.
  - Many FTBs have in recent years drawn down at or very close to the limit for LTI, or LTV, or both, but the constraints imposed by the LTI have grown disproportionately. In 2021, 45 per cent of FTBs purchased at or close to the LTI limit, compared to 25 per cent in 2017. For LTV, 41 per cent were at or close to the limit in 2021, similar to the 40 per cent in 2017.

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  - Based on information on income and deposits of recent FTB mortgages, analysis conducted during the review suggests that at prevailing limits the vast majority of *potential* FTBs are more likely constrained by the LTI than the LTV limit. Only a small cohort of higher-income, lower-wealth borrowers were likely constrained by the LTV limit, with a majority continuing to be constrained by the LTI limit, even when it was modelled to increase to 4.
  - Based on information on income and housing wealth, Central Bank analysis estimates that the LTI is the binding constraint for around three quarters of potential SSB purchasers currently. In this setting, a differential LTI limit rather than a differential LTV limit is more effective in determining differential credit outcomes for this group.
- With **FTB entrants being on average seven years younger than SSB entrants** in recent years, income growth potential after mortgage origination is higher for FTBs.[6] This greater earning potential allows a higher starting LTI to be sustained without the same risks to future borrower resilience. Similarly, the progressive tax system in Ireland, which imposes higher tax burdens on higher incomes, implies that an FTB (with lower average gross income) can sustain a higher LTI without necessarily experiencing a higher mortgage payment relative to after-tax income.
- In a rising housing market, the LTI limit is **more effective in reducing pro-cyclicality** than the LTV limit, as house prices rise faster than incomes.

Moving the differential treatment from LTV to LTI would maintain the current deposit requirement for FTBs but would provide these borrowers with additional policy support by allowing these borrowers a higher income multiple than for those who already own their own home.

[6] Roantree et al. (2021) analyse historical data on earnings by birth cohorts since the 1950s in Ireland, with the evidence suggesting that future earnings growth was substantially higher at younger ages among those moving from average FTB entrant ages (late 20s and early 30s) towards average SSB entrant ages (late 30s and early 40s).

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The role of allowances in the framework

The Central Bank has concluded that the principle of proportionate allowances, that facilitate lenders in issuing a certain volume of lending above the limits set out in the mortgage measures, remains important. The allowances give flexibility for individual circumstances to be taken into account by lenders, and for issues faced in particular segments of the market to be addressed. For example, the Dublin area has been disproportionately represented among loans with an allowance since 2015, as one would expect given the higher house price level relative to incomes there.[7]

The Central Bank has, however, concluded that the existing system of allowances was overly complex. In addition, compared to other countries, the previous framework had an unusual combination of higher allowances and tighter limits. The public engagement also highlighted challenges related to the allowances framework, in particular in relation to uncertainty and a lack of transparency around how allowances are allocated.

In the refreshed framework, the increase in the FTB LTI limit to 4, and the SSB LTV limit to 90, are both expected to reduce the importance of the allowances in overall credit allocation. The move to a single allowance pool of 15 per cent of each of FTB and SSB lending is intended to reduce complexity in the framework.

As part of the annual review in 2021, the Central Bank made changes to the allowances with the introduction of a "carry-over" system. The aim of this amendment is to increase the flexibility available to lenders to manage their allowances throughout the year and this feature will remain in the refreshed framework.

Box 3: Rental payments and prospective home buyers

The Central Bank is acutely aware of the challenges facing prospective home buyers in saving for a deposit while making rental payments. This was also one of the strongest themes coming out of the public and stakeholder engagement throughout the course of the mortgage measures framework review. The combination of high rents, which make it difficult to save, and rapidly increasing house prices, which

[7] Central Bank data for 2021 indicate that 63 per cent of loans with an FTB LTI allowances were to borrowers in Dublin, compared to 24 per cent for those without an allowances. The share was even higher for SSB LTI allowances at 74 per cent versus 34 per cent.

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constantly increase the amount of what is needed as a deposit, is causing a real sense of frustration among those trying to purchase a property.

The review of the framework considered this issue and the feedback received in depth.

Looking first at what is driving this problem, the growth in rents relative to incomes in Ireland reflects the underlying imbalance between the demand and supply of housing, including in the rental market. Indeed, despite the continued growth in population in recent years, the number of registered privately-rented tenancies has been falling, by around 7 per cent between 2017 and the latest data as of 2020. Many of these properties have shifted to owner-occupation, a pattern which has likely increased the availability of properties for purchase by prospective home-buyers (relative to what might otherwise have been the case), but reduced the stock of available properties in the private rental sector. Changes to the mortgage measures cannot address that underlying imbalance between housing demand and supply. The best path to an increased ability to save for a deposit is a higher supply of rental properties, which will lower rental cost burdens for those in the rental sector.

Turning to the role of the mortgage measures, the revised measures still entail a minimum deposit by borrowers through the LTV limit. The requirement for a deposit is a crucial element of sustainable lending standards as it provides a buffer against the effects of house price falls, which could push borrowers into negative equity. Negative equity can have a series of adverse impacts on households, relating to capacity to switch mortgage, borrow to finance consumption, or move home in light of changing personal or financial circumstances. From the lenders' perspective, losses on mortgages are predominantly experienced when negative equity prevails.

In practice, though, the Central Bank's analysis suggests that the LTI limit has been the most binding constraint for FTBs in recent years, given the elevated house price to income ratio in Ireland (Box 1, CP146 Mortgage measures framework review). Analysis of recent FTB incomes and deposits suggests that, at prevailing calibration levels, a large majority of potential FTBs will be constrained by the LTI rather than LTV limit. The LTI limit can indirectly result in borrowers seeking a bigger deposit to reduce their loan amount relative to income, compared to what might have been implied by the LTV limit alone (Gaffney, 2019).

The Central Bank recognises that – in the context of the high house price to income ratio across the economy currently – the costs of the mortgage measures can fall disproportionally on potential FTBs. This is one of the reasons why it has embedded a differential treatment between FTBs and SSBs in the mortgage measures. As part of the revised framework, the recalibration of the LTI limit for FTBs will indirectly

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reduce the size of the deposit that potential FTBs need to accumulate to access mortgage finance, easing the constraints for those seeking to enter the owner-occupier segment of the housing market for the first time. The proportionate allowances within the mortgage measures also allow flexibility for lenders to issue mortgages to FTB borrowers at LTVs greater than 90 per cent.

Lenders' own credit policies also play an important role here. From an affordability perspective, before providing a mortgage, lenders are required to undertake thorough creditworthiness assessments to ensure a borrower will be able to repay the mortgage. This assessment must take into account the individual circumstances of the borrower. In general, lenders do take account of rental payments when making their affordability assessment as part of regular underwriting process to assess borrowers' ability to repay a mortgage. In the context of deposit requirements, the limited issuance of LTV allowances above 90 per cent points to lenders having very limited appetite to lend at LTVs of greater than 90 per cent.

More broadly, additional policy support in the form of the Help to Buy scheme implies that the effective deposit required can be relatively small for large cohorts of FTBs.[1]

[1] Approximately 30 per cent of FTB transactions over the past number of years have taken place with the aid of the Help to Buy scheme.

Calibration

Like all its macroprudential policy interventions, the Central Bank's calibration decisions seek to balance benefits against costs for the economy as a whole. In the context of the mortgage measures, these benefits and costs are described in detail in the work of Aikman et al. (2021). The Central Bank's strategy is to set the LTI and LTV limits at the level that maximises *net benefits* to the Irish economy and society: the levels beyond which further credit easing would lead to an overly large increase in overheating risks and erosions of borrower and lender resilience, relative to the costs that would be alleviated through greater access to the mortgage market.

The Central Bank's calibration decisions are informed by a range of evidence, but ultimately guided by policymaker judgment. A single model for weighing up all benefits and costs of policy action quantitatively does not exist. More broadly, over-reliance on any single model or approach would entail its own risks, since all models

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involve necessary simplifications. The calibration strategy for the mortgage measures, therefore, involves a combination of quantitative impact assessment and judgment around harder-to-measure elements of the cost-benefit relationship.

The Central Bank's strategy focusses on the evolution of slower-moving forces which may warrant long-term changes to the calibration of the measures. In general, the Central Bank considers the mortgage measures to be permanent in nature and their calibration to be largely driven by structural factors, so does not foresee regular changes to calibration. Structural factors are slow-moving features which play a role in determining, for example, the magnitude of risks to affordability or the sustainable level of house prices relative to incomes.

In guiding policy decisions, the Central Bank assesses the implications of calibration choices using empirical models that can proxy certain benefits and costs of the measures. The Central Bank assesses the impact of LTI and LTV calibration on policy benefits using models of borrowers' indebtedness, new mortgage lending, credit availability, borrower credit risk, and the aggregate house price to income ratio. In assessing how costs of policy would be alleviated through higher LTI or LTV ratios, an assessment of housing market access across the income distribution, as well as viable demand at indicative construction cost levels can be conducted, along with the use of economic models of the broader effects of calibration choices. Box 4 provides an overview of these analyses as they were used for the review of the framework.

International evidence on the effects of an LTI or LTV increase, is, as of yet, limited. Given the life-cycle of macroprudential mortgage measures internationally, the majority of the research literature on the effects of policy change has studied instances where policy "tightening", or more restrictive credit conditions, have been implemented. This evidence base will increase as experience with both loosening and tightening of these measures increases. The Central Bank has carried out an assessment of the policy change implemented in 2017, whereby the LTV limit was increased to 90 for all FTBs, representing a credit easing for those FTBs purchasing higher-priced homes. McCann and Durante (forthcoming) find that borrowers did respond to the LTV limit increase by increasing their

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leverage. However, they do not find evidence that borrowers used the opportunity to purchase more expensive property. Rather, they show that borrowers took higher LTV loans by reducing the amount of own-funds used as a deposit to purchase similar-priced properties, and retaining more of their own liquidity. This suggests that the transmission mechanism of changes in the calibration of the limits can vary, depending on behavioural responses by borrowers.

Given the complexity of the housing and mortgage markets, as well as the uncertainties in formally measuring the full set of costs and benefits of policy action, it is necessary to combine modelling exercises with policymaker judgment. Important factors which will guide policymaker judgment will vary depending on the broader environment at the time of any recalibration. These factors will include the macro-financial outlook, the wider set of policies implemented in the Irish housing market, and broader factors that determine the resilience of the household sector and the financial system. Longer-term structural developments will also inform a cost-benefit assessment of policy action, including demographic changes, and longer-running structural changes on the supply side of the housing market, such as those discussed in Box 2.

Box 4: Empirical assessment informing the calibration of the measures as part of the framework review

The Central Bank's assessment toolkit consists of four broad elements, comprising models of credit available and drawn down, borrower resilience, the aggregate house price to income ratio, and borrowers' access to the housing market. This box outlines how this toolkit informed the calibration decisions as part of the deeper review of the framework.

Credit outcomes

The starting point of the analysis involves a quantitative assessment of how much credit might be available across the market under different LTV and LTI calibrations, along with a model of the full distribution of indebtedness levels among new loans drawn down. Models of credit availability follow the methodology of Kelly et al. (2018), where information on borrowers' income and wealth is combined with the prevailing market-wide LTV and LTI limits to ascertain a *maximum* amount of credit available across all potential borrowers. The enhanced model used in 2022 also includes a detailed treatment of the borrowers potentially accessing an allowance.

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Three separate versions of the model were run during the framework review, one focussing solely on those borrower types recently accessing a mortgage, another focussing on the income and wealth of all households using the Household Finance and Consumption Survey (HFCS), and another focusing on the LTI channel using the Survey of Income and Living Conditions (SILC). The model average of this exercise suggests that – everything else equal – credit *available* across the household sector would be estimated to rise by 8 per cent as a result of the changes announced in this framework review, relative to the previous calibration of the measures.

The model of LTIs on new mortgage lending is detailed in Gaffney (2022). The model estimates how previously-constrained borrowers at the 3.5 LTI limit are likely to shift their LTI choices once the LTI limit is relaxed. The model then allows for potential housing market accelerator effects, using an internal model of the house price to income ratio to assess how those *previously unconstrained* are also likely to increase their drawn LTI, if they bid for more expensive properties once credit constraints are eased. Finally, the model also allows for "extensive margin" effects, with an internal model of the relationship between LTI limits and the number of mortgage transactions being used to predict how many new entrants to the market may arise due to the LTI limit increase. The model estimates that average LTI on new mortgage loans may rise by 0.25 compared to its pre-policy level (to 3.2 from 2.95) with an increase of 0.28 among FTBs (to an average LTI of 3.47 from 3.19) as a result of the changes arising from the framework review.

Borrower resilience

The second part of the assessment toolkit relates to borrower resilience. Firstly, the Central Bank assesses the "DSTI equivalence" of LTI calibration choices for FTBs and SSBs. Due to the differing ages of borrowers in the two segments, a 30 year mortgage is modelled for illustration in the FTB market, with 25 years modelled in the SSB market, with average incomes in 2021 in the two market segments used. Typically, "rules of thumb" indicate that a burden of 35-40 per cent of monthly net income is considered a threshold beyond which financial distress becomes more likely. The analysis assumes an increase in interest rates from current levels, given that the measures are intended to safeguard resilience not just to prevailing conditions, but also in the face of adverse shocks. For average FTB income levels, with an LTI of 4 and a 30-year mortgage term, a 2-3pp increase in mortgage rates would result in a stressed DSTI of between 32-36 per cent. For average SSB incomes, with an LTI of 3.5 and a 25-year mortgage term, a 2-3pp increase in mortgage rates would result in a stressed DSTI of between 35-38 per cent. The Central Bank judges that, while these stressed DSTI estimates would put pressure on some households' finances, the LTI

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limits provide an appropriate cushion in terms of affordability to reasonable adverse shocks.

The Central Bank also uses the output of the LTI model of Gaffney (2022) to assess the default probability implications of increased LTI. Using a model of loan features at origination to predict defaults in the previous economic cycle, and payment breaks during the COVID-19 pandemic, the model predicts that the change in calibration will increase short term default risks by less than 2 per cent (e.g. a default rate of 2 per cent rising to 2.04 per cent) relative to those in the 2021 cohort of new loans. By comparison, if the 2006 distribution of LTI was applied in the model, and everything else was constant, the equivalent result would be an increase in short-term default risk of 26 per cent. The magnitude of this difference suggests that the new calibration continues to guard against the type of high-risk lending seen in the period before the financial crisis. These estimates do not account for any broader economic changes that may arise as a result of calibration changes, focussing solely on the direct effects of higher LTI on credit risk in the short run.

House prices

The third element of the toolkit relates directly to the main stated objective of the mortgage measures, guarding against an unsustainable relationship between credit and house prices from emerging. There is significant uncertainty in seeking to estimate the impact of the changes to the framework on house prices. Two models of the economic relationship between new mortgage lending and a range of macro-financial variables, including the house price to income ratio (HPI), are explained in detail in Arigoni et al. (2022b). In both cases, the changes resulting from this framework review are estimated – everything else equal – to only modestly increase the national HPI. These estimates of the impact on the house price to income ratio do not take into account possible variation in a range of other factors that could influence house prices, which include rising interest rates and a fall in household real incomes.

Costs of policy

The final element of the toolkit aims to measure the costs of LTI and LTV calibration in restricting access to various property types. The assessment uses information on household incomes and wealth from the HFCS, and calculates based on the distribution of potential borrowers, what proportion would be able to purchase properties above various price thresholds at given LTI and LTV limits. The methodology can also estimate viable effective demand for new construction supply, calculating the size of groups with purchase capacity above the cost of construction.

Focussing on renters' access to various points on the property price distribution, the Central Bank estimates that, if applied to properties sold in 2021, an increase in the

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FTB LTI limit from 3.5 to 4 would have restored the share of renters able to purchase the median property sold to 2015 levels. This methodology deals only with the immediate boost to purchasing power, and does not model the possibility that at higher LTI limits, the price to income ratio will also adjust across the economy, which would offset some of the gains experienced by potential purchasers.

Looking at viable levels of demand for new housing, the methodology suggests that the share of renters that can purchase at the latest estimated build price of an indicative three-bed semi-detached home in Dublin has fallen since 2015. The methodology also estimates that the increase in LTI to 4 in the FTB market will increase the share with estimated viable demand to around the level experienced in 2015.

Summary of impact assessment
Taken in its totality, and incorporating the judgment around the gradual increase in the costs of the measures since their introduction due to structural factors relating to the imbalance between housing supply and demand, the Central Bank has concluded from the impact assessment that there was policy space for a proportionate recalibration of the measures. The new calibration entails a targeted increase in the FTB LTI, equalization of the 90 LTV limit across SSB and FTB, retention of the SSB LTI limit at 3.5 and a reduction in the size of the allowances. The assessment indicates that –everything else equal – there could be modest increases in macro-financial risks as a result of these changes. However, the assessment also suggests that there may be alleviation of costs of the measures related to FTB access to property purchases (increasing renters' purchase capacity), which may increase transactions both for FTBs as well as across the entire housing market. The analysis suggests that the reduction in the size of the allowances will provide a partial, but not full, offsetting of the recalibration of the limits. Taking these changes in benefits and costs together, the Central Bank judges that the targeted recalibration announced in this framework review is of a level that will deliver *net benefits* to the Irish economy and society.

Conclusion

The Central Bank has carried out an in-depth review of the mortgage measures framework, in light of the changes to the financial system and broader economy since the measures were introduced in 2015. As a result of this review, the Central Bank is making targeted changes to the mortgage measures framework in Ireland and to the calibration of that framework.

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These changes will come into effect on 1 January 2023. The Central Bank will continue its regular monitoring of the mortgage measures and housing markets more broadly and communicate its findings and judgments on these in the biannual *Financial Stability Reviews*.

The Central Bank will continue to deepen its analysis of the benefits and costs of the measures over time. In addition, the Central Bank deems it good practice to undertake a review of the strategy around the mortgage measures on a periodic basis. A periodic review acts as a complement to the regular monitoring, analysis, engagement and communication relating to the measures undertaken by the Central Bank on an on-going basis.

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Glossary

BTL Buy to let

CSO Central Statistics Office

DSTI Debt service to income ratio

DTI Debt to income ratio

ECB European Central Bank

ESRI Economic and Social Research Institute

FTB First time buyer

HFCS Household Finance and Consumption Survey

LTI Loan to income ratio

LTV Loan to value ratio

SILC Survey of Income and Living Conditions

SSB Second and subsequent buyer

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