Committee on the Global Financial System

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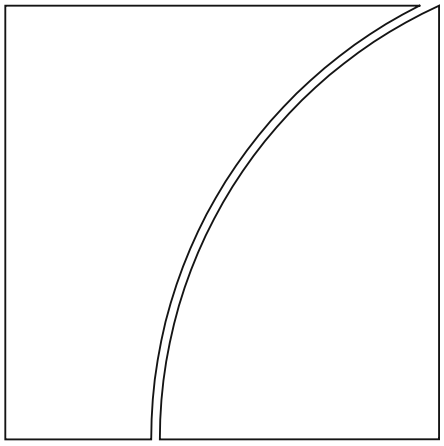

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Macroprudential policies to mitigate housing market risks

Country case study: United Kingdom

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Study group on policies to mitigate housing-related risks
Case study – United Kingdom

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Introduction

In the UK, the macroprudential regulator responsible for setting housing tools is the Bank of England's Financial Policy Committee (FPC). The FPC aims to ensure the UK financial system is resilient to a wide range of risks, including risks from the UK mortgage market. The Bank of England has an extensive toolkit to address these risks, which cover both owner-occupier and buy-to-let mortgage lending.[1]

1. Housing as a source of risk

Housing accounts for nearly half of the total assets of UK households. And around two thirds of house purchases are financed by mortgage debt. As a result, the UK mortgage market may pose risks to the UK financial system.[2]

Historically, the build-up of mortgage debt has been a key source of risk to UK financial and economic stability for the following reasons:

– Highly indebted households are more vulnerable to unexpected falls in their incomes or increases in their mortgage repayments.

– In an economic downturn, households report giving very high priority to repaying their mortgages, but as a result they may have to cut spending sharply, making the downturn worse.[3] This increases the risk of losses to lenders, not just on mortgages, but on other lending too.

– An increase in distress or defaults on mortgage lending could threaten lenders' resilience by lowering banks' capital,[4] particularly if this is associated with sharp falls in house prices that reduce the value of collateral held against such loans.

– Build-ups of mortgage debt can also be self-reinforcing. Lenders' underwriting standards can turn quickly from responsible to reckless due to the following factors:

– Housing is the main source of collateral in the real economy, so higher house prices tend to lead to higher levels of mortgage lending, feeding back into higher valuations.

– In an upturn, when risks are perceived to be low, lenders' underwriting standards can loosen quickly, as they seek to maintain or build market share. This increases the supply of credit further.

1 See Bank of England, *Financial stability*, 18 September 2023.

2 See Bank of England, *Financial Stability Report*, June 2017.

3 This channel may be particularly active due to the full-recourse nature of UK mortgage contracts, which means that if a borrower defaults on a mortgage and the value of the house does not cover the outstanding mortgage, the lender has a claim against other assets of the debtor. Thus, UK borrowers typically do all they can to pay their mortgages rather than default, including cutting back on spending.

4 This risk is mitigated by the Bank's stress testing and capital regimes, which focus on lender resilience and complement the FPC's mortgage market measures.

Over the past 25 years, house prices have risen significantly relative to incomes in the UK, so households now have to borrow more to buy a house (Graph 1). A significant factor contributing to high levels of house prices relative to incomes has been the relatively limited growth in the stock of housing. The main drivers of UK housing supply are not under the control of the Bank of England or the FPC.[5]

To monitor risks from the UK housing market, the FPC uses a suite of indicators and risk-assessment models, summarised in Table 1, supplemented by information from UK bank supervisors and regular conversations with property market participants.

Key indicators and models used to monitor risks from the housing market Table 1

Indicator/Model categories	Example Indicators/Models	Purpose
Indicators of household balance sheet stretch	• Cost of living-adjusted debt-servicing ratios (COLA-DSRs)[6] • Tail of highly indebted households (eg high-LTV or high-LTI lending) in the stock	• To assess how vulnerable borrowers may be to a negative shock, for instance to income or mortgage payments.
Indicators of lender balance sheet stretch	• Levels of riskier lending in the stock and flow • Provisions for expected credit losses	• To assess how vulnerable lenders may be to a negative shock, for instance to funding costs or to default rates on lending.
Indicators of market terms and conditions	• Number and volume of mortgage approvals • House price growth • Spreads on new residential mortgage lending	• To assess the level of market exuberance and riskiness of lending.
Aggregate indicators	• Aggregate mortgage debt-servicing ratio • Arrears, defaults	• To assess the current ability of households to service mortgage debt.
Economic modelling	• GDP at risk[7]	• To estimate macroeconomic tail risks originating from financial vulnerabilities.
Stress testing	• Lenders are subject to periodic stress testing.[8]	• To form a judgment on the resilience of the UK financial system to shocks and set bank capital requirements accordingly.

2. Governance

The legal basis for the FPC comes from two main powers granted under the Financial Services Act 2012.[9] Under the 2012 legislation, the FPC can make recommendations to anybody, including the Prudential Regulatory Authority (PRA) and the Financial Conduct Authority (FCA) in the UK. The FPC can also give directions to those regulators to implement a specific measure to further the FPC's objectives.

5 Bank of England, Financial Stability Report, June 2017

6 December 2022 Financial Stability Report

7 Credit, capital and crises: a GDP-at-Risk approach | Bank of England

8 Stress testing | Bank of England

9 The Financial Policy Committee's powers over housing tools, July 2015

In April 2015, the UK Government gave the FPC powers of direction over the Prudential Regulation Authority (PRA) and Financial Conduct Authority (FCA) in relation to loan-to-value and debt-to-income limits for owner-occupied lending. This decision followed recommendations made by the FPC in September 2014 in response to a request from the Chancellor.[10]

3. Objectives

The primary responsibility of the Financial Policy Committee (FPC) is to contribute to the Bank of England's financial stability objective. It does this by identifying, monitoring and taking action to remove or reduce systemic risks, with a view to protecting and enhancing the resilience of the UK financial system. Within this framework, it supports the economic policy of the UK government, including its objectives for growth and employment.[11]

Against that background, the FPC is concerned about developments in the housing and mortgage markets for two main reasons:[12]

- **Lender resilience**: Mortgage lending is one of the largest asset classes on UK banks' balance sheets and so poses direct risks to the resilience of the UK's banking system and financial stability. An increase in distressed mortgage lending could lower banks' capital, particularly if it is associated with sharp falls in house prices that reduce the value of collateral held against such loans. Losses might also increase on related exposures, such as loans to the construction and commercial property sectors.
- **Borrower resilience**: Mortgages are the largest liability on the UK household sector's balance sheet. If incomes fall or interest rates increase, more highly indebted and savings-constrained households could sharply reduce their spending to make debt repayments. These behaviours can amplify macroeconomic downturns, further affecting household resilience, and potentially also increasing losses for lenders on other forms of lending. Survey data show that during the financial crisis the fall in consumption relative to income among UK households with loan-to-income (LTI) ratios above four was around three times larger than the fall for those with ratios between one and two (Graphs 2 and 3). Econometric studies confirm these results, even after controlling for other household characteristics (Bunn and Rostom (2015)).

4. Macroprudential instruments in practice

In June 2014, the FPC introduced a policy package consisting of two recommendations:[13]

- 1. An **LTI flow limit**: This restricts the number of mortgages extended at LTI ratios of 4.5 or higher to 15% of a lender's new mortgage lending.[14]
- 2. A **debt service-to-income** (DSTI) test, which in the UK is referred to as an affordability test. It assesses whether borrowers could still afford their payments if mortgage rates were 3 percentage

[10] Detail of outcome for FPC's housing market tools consultation

[11] Financial Policy Committee | Bank of England

[12] Bank of England, Financial Stability Report, June 2014

[13] Bank of England, Financial Stability Report, June 2014

[14] Originally, the LTI flow limit applied each quarter. It was re-specified in 2017 to apply on a rolling four-quarter basis. See Amendments to the PRA's rules on loan to income ratios in mortgage lending

points higher than their contractual reversion rate.[15] The test was intended to apply to mortgages with a fixed term of less than five years. It was implemented in 2014 and withdrawn again on 1 August 2022.

The rationale for implementing these tools was twofold:[16]

- 1. To provide insurance against the risk of a marked loosening in underwriting standards and a further significant rise in household indebtedness and the number of more highly indebted households. The tools were intended to affect mortgage lending only in circumstances in which lenders' underwriting standards loosened further.
- 2. To protect against an aggregate demand externality. As discussed above, there is empirical evidence that households with higher debt reduce their consumption to a greater extent in times of stress, thus amplifying any downturn.

The tools were expected to mitigate housing risk by strengthening borrower and lender resilience, alongside the Bank's stress testing and capital regimes, which focus on lender resilience.[17] The aim of the tools was to address structural risks. Thus they were not intended to be recalibrated during the financial cycle.[18]

Both mortgage market measures were implemented in 2014. As mentioned above, the DSTI test has since been withdrawn. The LTI flow limit is monitored and enforced by the PRA, which uses regulatory submissions to monitor ongoing compliance at company level.[19]

4.1. Tool calibration in 2014

The FPC took the prevailing economic conditions into account when it calibrated the tools in 2014. At that time, house prices were beginning a period of strong growth (Graph 1), supported by an improved economic outlook and easier credit conditions. High-LTI lending (defined as ≥ 4.5) was also increasing as house prices were growing in excess of earnings (Graph 4), due to factors such as falls in long-term gilt yields and the long-standing shortfall in the supply of new housing relative to housing demand growth (Miles and Monro (2019)). Moreover, household survey data at the time indicated that if interest rates were to rise by 3 percentage points and incomes remained unchanged, 50% of households with mortgages greater than or equal to 4.5 times their income would have to curtail their spending significantly or earn more. This compared to an average of just under 20% for all households with mortgages.[20]

The FPC's recommendation was calibrated to provide insurance against a significant increase in lending at very high LTI multiples. It conducted a quantitative assessment of its recommended action by estimating its impact in two alternative scenarios:

- A stable scenario, consistent with Bank projections at the time, in which house price inflation continued at 2014 levels before slowing to its long-term average, while income growth remained at its long-term average.

[15] Initially, the DSTI test did not specify the need to use the contractual reversion rate. This was clarified in 2017. See Financial Stability Report June 2017, Issue No. 41

[16] Bank of England, Financial Stability Report, June 2014

[17] See The countercyclical capital buffer (CCyB), Bank of England and Stress testing, Bank of England

[18] Financial Stability Report, December 2019

[19] The Financial Policy Committee's powers over housing tools (bankofengland.co.uk)

[20] See Graph 5.11 in the Bank of England, Financial Stability Report, June 2014

– An upside scenario, which assumed elevated house price inflation and mortgage approvals. The aim was to estimate how risks might evolve if momentum in the housing market continued to build.

The LTI flow limit was chosen to ensure that it would apply in the upside scenario, but not in the stable scenario. In the stable scenario, the share of mortgages with LTI ≥ 4.5 was projected to remain at around 15%. But the share of such mortgages was projected to increase to 25% in the upside scenario without policy intervention.

Similarly, the DSTI test was set in line with the way lenders were testing the affordability of mortgages at the time.[21] Major lenders had been using an interest rate of around 7% to stress test mortgagors' ability to cope with a potential increase in mortgage rates over the course of their loans. This was higher than the standard variable rates (SVRs) at the time of around 4–4.5%. This implied "stress" of 2.5 to 3 percentage points above the standard variable rates (SVRs),. The FPC judged that this level of stress testing was prudent, and it calibrated the test in order to prevent any relaxation in these standards. The FPC expected the impact of the DSTI test to be minimal.

The two tools were viewed as complementary. An LTI multiple of 4.5 implied that, at a stressed mortgage rate of 7% and a typical mortgage term of around 25 years, mortgagors' stressed DSTI ratios would not exceed 35–40%. The DSTI test was more likely to apply to mortgages with shorter terms, which tend to have higher monthly mortgage payments for a given income than longer mortgage terms. The LTI flow limit was more likely to apply if mortgage terms increased or lenders loosened their standards for assessing affordability. The DSTI test applied to every borrower individually, whereas the LTI flow limit applied to each lender's aggregate lending.

4.2. Withdrawal of the DSTI test in 2022

The calibration of the measures was regularly reviewed by the FPC following their implementation in 2014. The tools were deemed to be working together appropriately until 2022, when the FPC decided to remove its recommendation on DSTI testing for a number of reasons:[22]

Firstly, the FPC judged that the LTI flow limit was likely to play a stronger role than the affordability test in guarding against the risks associated with household debt. The increase in the share of households with high LTI mortgages under a scenario of rapid house price growth would be constrained by the LTI flow limit in isolation, with the DSTI test having a small additional impact (Graph 5).

Secondly, removing the recommendation on DSTI testing was designed to simplify the FPC's macroprudential regulatory framework and make it more efficient. For example, the link to lenders' reversion rates introduced uncertainty about how the stress rate encapsulated in the FPC's DSTI test might move in future.

Finally, lenders continued to be bound by the FCA's Mortgage Conduct of Business (MCOB) rules on responsible lending. The MCOB rules require lenders to stress test borrowers' ability to repay their mortgage over a minimum period of five years, while considering market expectations of likely future interest rates. If interest rates are expected to fall or rise by less than 1 percentage point, the lender must assume that interest rates will rise by a minimum of 1 percentage point. The FPC judged that in a hypothetical scenario of rapid house price growth, the LTI flow limit and the FCA's MCOB rules would work together to limit the growth in the share of highly indebted households and deliver the appropriate level of resilience to the UK financial system.

The recommendation to withdraw the DSTI test also took into account evidence gathered from a consultation with a range of external stakeholders, including trade bodies, individual lenders and

[21] See page 60 of the Bank of England, Financial Stability Report, June 2014

[22] See December 2021 Financial Stability Report and the Technical Annex of the December 2021 report for more details.

members of the public.[23] The analysis concluded that the housing tools were working as intended, delivering economic benefits by preventing a loosening in lending standards and protecting against an aggregate demand externality. Moreover, the FPC concluded that the tools had a relatively small direct impact on mortgage market access and that raising a deposit was the most significant barrier to access.[24]

5. Effectiveness

5.1. Framework for measuring success in the UK

The FPC regularly reviews its mortgage market recommendations and updates its judgments on their effectiveness based on the latest available evidence and data. The FPC has carried out four reviews of the measures since their introduction in 2014.[25] These reviews concluded that the measures played an important role in guarding against the risks associated with rapid growth in household indebtedness and the number of highly indebted households.

Table 2 shows key indicators and models used in the UK to help the FPC update its judgments on its tools' effectiveness.

Our modelling framework in the UK uses loan-level regulatory data to simulate the impact of FPC measures on the stock of mortgage debt under different scenarios. We project forward the universe of mortgage stock and flows, using forecasts for household income, house prices, the Bank of England's base rate, mortgage approvals and mortgage interest spreads.[26] We then compare the distribution of household debt in different scenarios with different policy calibrations. Graph 6 shows the projection for the stock of debt in a scenario in which lenders' underwriting standards deteriorate and house prices rise rapidly relative to incomes. With no measures, the LTI distribution shifts significantly to the right (grey line). With both measures in place, there is no significant deterioration in lending standards (blue line). This experiment is also useful to assess the relative impact of the LTI flow limit versus the DSTI test. A comparison of the red and blue lines shows that the FPC's DSTI test would have a small impact on resilience in this scenario, as the LTI flow limit would be providing most of the insurance against risks from rising house prices. Hence this approach allows us to not only understand the impact of tools in different scenarios, but also to gauge the relative effectiveness of individual tools.

5.2. Evaluating the success of macroprudential policies in reducing housing risks and factors influencing success

In its most recent reviews (for instance the December 2019 Report and the December 2021 report), the FPC concluded that the measures helped to guard against a weakening in underwriting standards and an excessive build-up of household debt, including during a period of rapid house price growth. The FPC further judged that these benefits outweighed the limited macroeconomic costs associated with

[23] See An FPC Response - Consultation on withdrawal of the DSTI test Recommendation

[24] See the Technical Annex of the December 2021 report for more details on this analysis.

[25] See the November 2016 Report, June 2017 report, December 2019 Report and December 2021 report.

[26] See Levina et al (2019).

the measures, and that alternative actions to achieve similar outcomes – such as monetary policy steps or changes to banks' capital requirements – would have been more costly to the wider economy.[27]

Since the measures were introduced, aggregate mortgage debt as a proportion of income has remained broadly stable, as shown in Graph 1 and summarised in the last column of Table 2. And there has been little evidence of a deterioration in mortgage underwriting standards, including during a period of rapid house price growth relative to income (Graph 1). For example, Graph 4 shows that the proportion of new mortgages extended at LTI ratios of 4.5 or over has broadly remained flat at around 10% and there is a "bunching" of lending just below the 4.5 LTI flow limit. This has been highlighted by FPC members as evidence of the tools working as intended.[28]

Furthermore, as shown in Table 2, there has not been a significant increase in the share of highly indebted households in the stock of outstanding lending since the tools were implemented. The proportion of households with mortgage debt-servicing ratios at or above 40% has been steady at around 1–1.5% and remains significantly below levels seen just prior to the global financial crisis.[29]

Examples of measures for assessing tools' effectiveness — Table 2

	Models and indicators	Performance of key measures since implementation of tools in 2014
Measures to assess lenders' resilience	• Indicators of lenders' underwriting standards • Aggregate indicators of overall conditions in the market, eg: mortgage approvals, aggregate debt, measures of credit growth, measures of mortgage debt arrears or default rates.	• **Mortgage approvals** and **aggregate debt relative to disposable income** remained broadly flat from 2014 until the pandemic. Mortgage approvals were more volatile in the aftermath of the pandemic. • **Share of the stock of mortgages with LTV ratios ≥75%** remained well below GFC levels. • **Share of new mortgages with an LTI ratio ≥ 4.5** remained relatively stable at around 10% of new loans since 2014 → **in aggregate, there is headroom within the FPC flow limit.**
Measures to assess borrowers' resilience	• Indicators of household indebtedness and financial vulnerabilities – eg debt-service ratios, aggregate DTI • Indicators assessing pockets of risk: eg share of high-LTV/LTI lending; mortgage terms; market segments, for instance first-time buyers, buy-to-let investors and regional distribution.	• Between 2014 and the start of the pandemic, the **share of households with high debt-servicing** burdens remained well below the GFC peak. The share has increased during 2023 in part due to rising mortgage costs. • After falling during the crisis, **first-time buyers' (FTB) mortgage approvals** and the share of FTB recovered. It has stayed broadly consistent since 2014.

Measures to assess *longer-term* effectiveness of tools using economic modelling	• Modelling framework to simulate impact of FPC's measures on the stock of mortgage debt in different scenarios for the housing market.	• In a scenario of a housing boom:
		  ○ Overall household debt and the tail of highly indebted households could increase significantly in the absence of FPC measures.
		  ○ **FPC policy would limit the overall increase in debt and would shift the distribution to the left, meaning fewer highly indebted households.**

[27] These conclusions are also in line with academic literature. For instance, Greenwald (2018) shows that a cap on payment-to-income ratios, not LTV ratios, is the more effective macroprudential policy for limiting boom-bust cycles. And Millard et al (2021) use a model with multiple macroprudential tools, including capital and housing tools, to show that: (i) income-based measures have the smallest impact on welfare of all policies considered, as they achieve the largest reduction in the volatility of key economic variables during aggregate shocks; (ii) capital requirements and income-based measures seem to have similar effects on debt, but increasing capital requirements in the face of strong housing demand or a technology shock could be costly since it is a blunt tool that affects all types of lending, not just mortgage lending.

[28] My reflections on the FPC's strategy – speech by Anil Kashyap

[29] See the December 2021 report for further evidence.

5.3. Leakages and unintended consequences

The FPC regularly monitors developments in the housing market to assess any potential unintended consequences. So far, there has been limited evidence of leakages or unintended consequences arising from the tools.

There has consistently been headroom within the LTI flow limit since the tool's implementation in 2014. As Graph 4 shows, the proportion of new mortgages extended at LTI ratios of 4.5 or over has broadly remained flat at around 10%, which is well under the 15% limit.

The LTI flow limit is applied to all lenders which extend residential mortgage lending in excess of £100 million per annum. There is no evidence to date of a shift in lending to smaller lenders that are exempt from the flow limit.

Furthermore, an analysis by Bank staff in 2021 estimated that only around 6% of recent mortgagors had been limited in the amount they could borrow due to the DSTI test.[30]

In addition, an analysis by Bank staff suggests that housing tools had a limited effect on first-time buyers' (FTB) access to the housing market. The share of lending to first-time buyers has continued to recover post-GFC (Graph 7), but deposit requirements to meet LTV thresholds remain the most significant factor in preventing FTB access. The average FTB deposit has risen significantly in recent years, although growth has been much slower than in the pre-GFC period. An analysis by the Bank in 2021 of survey data suggested 83% of renters lacked the savings to afford a 5% deposit on the median-priced FTB property in their region.[31] A total of 0.8% of renters were constrained by the DSTI test, while 0.4% were constrained by the LTI flow limit (Graph 8).

Nonetheless, research on the impact of the tools identified a temporary unintended effect on lower-income borrowers. Tripathy et al (2020) found that lenders that were above the 15% LTI limit when the tools were implemented issued fewer high-LTI mortgages after the limit was introduced. This led to a reduction in mortgage lending for lower-income borrowers in local areas more exposed to these lenders. As the authors note, however, their identification strategy was only useful for estimating effects immediately after the introduction of the FPC's measures. It lost its validity over time, as borrowers were able to switch lenders, and lender practices and the housing market changed.

6. Costs and benefits of tools

The FPC considers the benefits and costs of its tools regularly, including when the measures were implemented in 2014 as well as in its subsequent systematic reviews. Consistent with the FPC's remit, this cost-benefit assessment focuses on the primary objective of UK financial stability and takes into account the FPC's secondary objective to support the UK government's economic policy.[32]

The framework for considering costs and benefits includes analyses of market indicators, economic modelling and consultation with external stakeholders. The impact of the tools is assessed on a forward and backward-looking basis, including analyses of counterfactual and modelled hypothetical scenarios to complement observed data.

For instance, the FPC identified a number of benefits in its June 2017 review:

30 Technical annex: evidence on the FPC's mortgage market recommendations – December 2021

31 Technical annex: evidence on the FPC's mortgage market recommendations – December 2021

32 Withdrawal of the FPC's DSTI test recommendation | Bank of England

– By limiting the number of highly indebted households, the policies reduce the potential for cuts in consumption in response to adverse shocks. There are significant uncertainties around the relationship between household indebtedness and cuts in consumption. Nonetheless, by mapping estimates based on international evidence (see Table A.2 in the June 2017 report) to the distribution of debt with and without the tools, the FPC has been able to understand the potential falls in aggregate consumption in the event of an adverse shock in various hypothetical scenarios.

– By limiting the deterioration in the stock of household debt, the tools further reduce the probability of households defaulting on their mortgages.

– Finally, the recommendations can also reduce the size of future adverse shocks. For example, by preventing a marked loosening in underwriting standards, they reduce the risk of a self-reinforcing feedback loop between mortgage lending and house prices, which could amplify house price falls.

The FPC also considered the macroeconomic costs of its recommendations in different scenarios. It established that these arise mainly from the impact of the recommendations on housing market activity – and therefore also on broader economic activity. In particular, it reached the following conclusions:

– The FPC's policies may have some effect on housing market activity and consumer spending because its tools constrain mortgage approvals in scenarios in which underwriting standards loosen.. Hence, it could affect consumers' propensity to purchase durable goods, such as furniture and household appliances.[33]

– The tools could limit the collateral available for small businesses to borrow against by preventing a sharp increase in mortgage credit supply. The effect of this is likely to be small.[34]

– It is unlikely that the tools would have a material effect on the economy's longer-term growth rate or productive capacity.

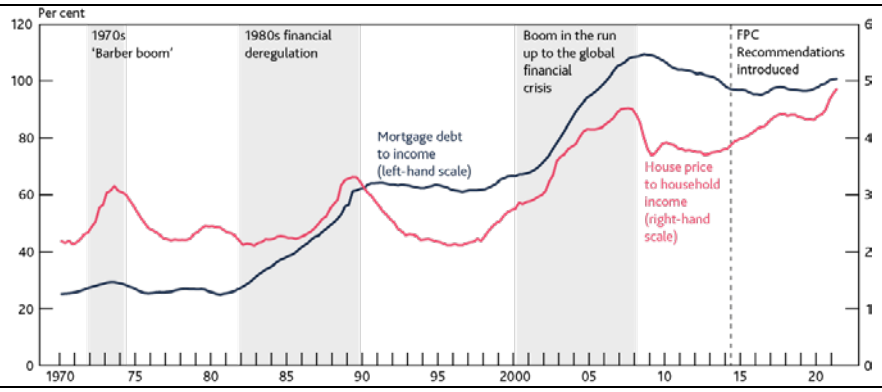
In reaching these judgments in 2017, the FPC considered different scenarios constructed by staff. These suggested that the benefits from the tools would rise as they became increasingly applicable relative to lenders' own underwriting standards. These judgments continued to prevail when the FPC conducted a cost and benefit analysis of its tools in subsequent reviews.

The Bank has also used a suite of macroeconomic models to estimate quantitatively how changes in mortgage debt in different scenarios could translate into impacts on GDP.[35] Graph 9 illustrates the estimated impacts on GDP in a scenario where an economic downturn follows rapid house price growth. The table shows the estimates from two academic studies, using different calibrations of the FPC's measures and different assumptions about future interest rates. The analysis suggested the LTI flow limit in isolation would lead to a boost in GDP of 0.4–1.5%, depending on what modelling calibration is used. The DSTI test would have a limited additional effect.

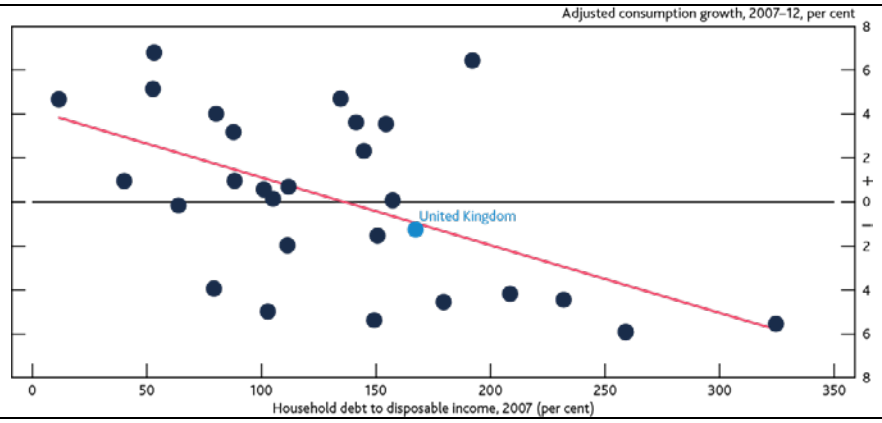
[33] See the box "The housing market and household spending" on pages 18–19 of the November 2016 Inflation Report
[34] Financial Stability Report December 2019
[35] In particular, see page 37 of the 2021 report.

7. Appendix

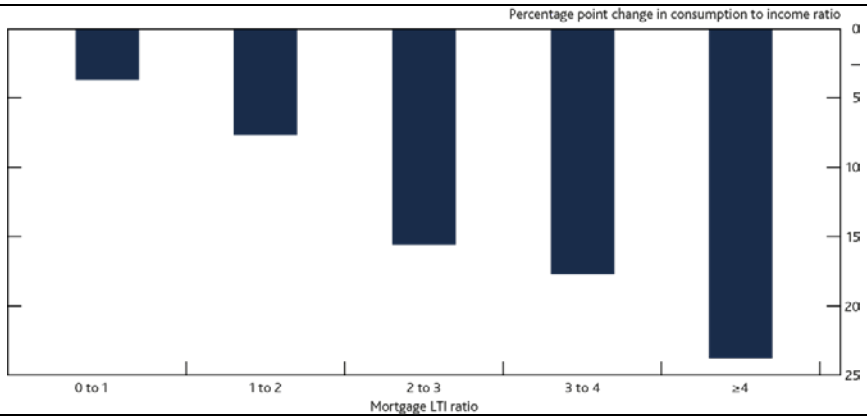
Graph 1 - Aggregate mortgage debt to income and house price to income ratios



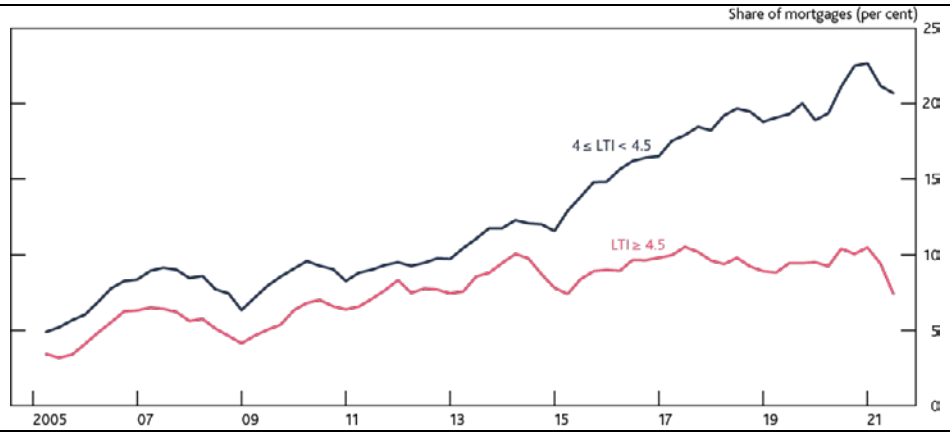
Graph 2 - Relationship between household indebtedness and falls in consumption during the GFC



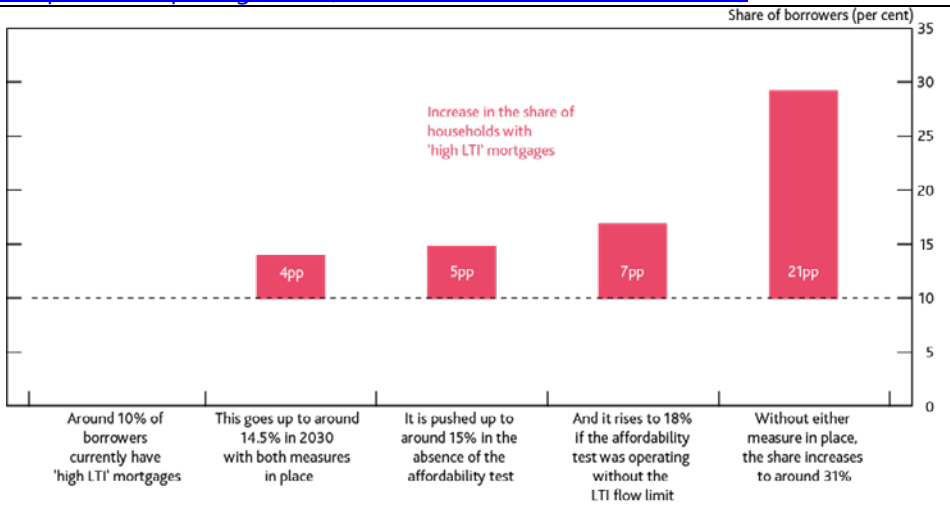
Graph 3 - Relationship between mortgage debt and falls in consumption during the GFC



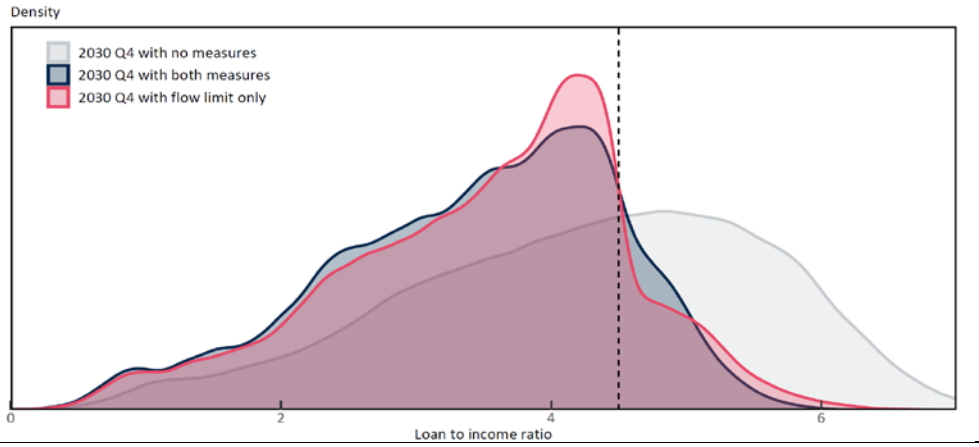
Graph 4 - Share of lending across LTI buckets



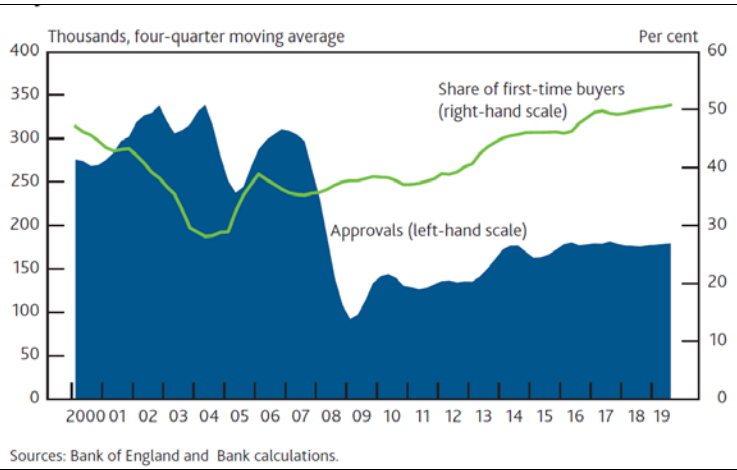
Graph 5 - Change in proportion of mortgages outstanding with an LTI ratio of 4.5 or higher in a scenario of rapid house price growth (scenario where reversion rates rise)



Graph 6 - LTI distribution of the flow of mortgages in a scenario of rapid house price growth

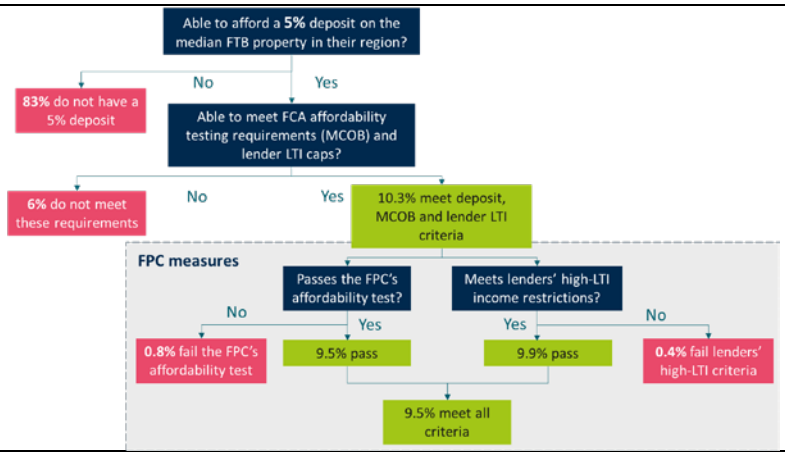


Graph 7 - Owner-occupier mortgage approvals and share of approvals to first-time buyers



Sources: Bank of England and Bank calculations.

Graph 8 - Visualisation of prospective FTBs and reasons for not being able to afford a property. Based on Wealth and Assets Survey, ONS and FCA Product Sales Database Data and Bank calculations.



Graph 9 - Modelled impact of different housing tool calibrations on growth during economic downturn following a rapid house price growth scenario.

Calibration	Estimated boost to GDP three years after a downturn, relative to no FPC mortgage market measures	
	Scenario with reversion rates rising	Scenario with reversion rates flat
Direct impact on GDP via consumption cuts (Kovacs et al 2018)		
Both measures	0.47%	0.46%
LTI flow limit only	0.43%	0.46%
FPC DSTI test only	0.39%	0.23%
Impact on GDP including amplification and other channels (Aikman et al 2019)		
Both measures	1.5%	1.5%
LTI flow limit only	1.5%	1.5%
FPC DSTI test only	1.3%	1.0%