# Instruments designed to mitigate indebtedness

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Borrower-based instruments generally refer to measures aimed at mitigating the indebtedness of individuals or households. These instruments have most commonly been used to impose limits on housing loans. The purpose of borrower-based instruments is to contain household indebtedness and prevent house price bubbles. The most common instrument in Europe is the maximum loan-to-value (LTV) ratio for housing loans, i.e. the loan cap, which is also in use in Finland. Research has proven the effectiveness of borrower-based instruments in preventing both price bubbles and excessive indebtedness.

Banking crises have often been preceded by house price bubbles and increasing indebtedness. Prevention of house price increases and household indebtedness is therefore a meaningful macroprudential policy objective. According to Alpandra and Zubairy (2017), the feedback loop between indebtedness and house price bubbles fundamentally originates from expectations regarding future house prices. These expectations become self-fulfilling and strengthen household incentives to buy housing

on borrowed money. Regulation that mitigates price increases in a credible manner contains expectations and can thus dampen excessive growth in the stock of housing loans merely by its existence.

## Use of borrower-based instruments

Housing market vulnerabilities can be addressed by a variety of instruments. Many countries have mitigated excessive mortgage lending by limiting the amount of loan granted to an individual borrower. Instruments based on the borrowers' repayment capacity limit the loan amount or the debt-servicing costs relative to borrower income. In addition, instruments based on the loan collateral, such as the maximum loan-to-value (LTV) ratio[1], are indirectly aimed at the borrower. Housing market-related risks can also be managed by lender-based instruments, such as additional capital requirements for banks.

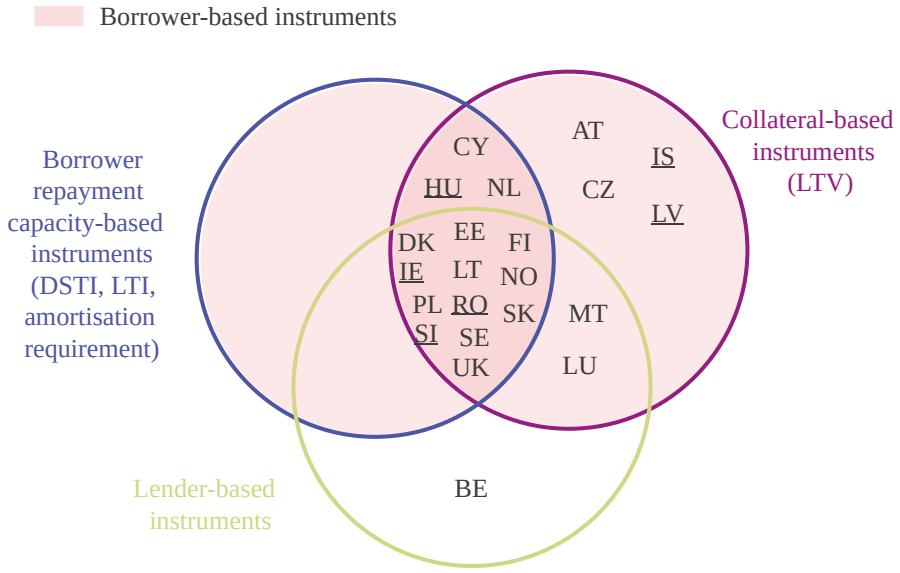
The use of borrower-based macroprudential instruments is common in Europe. At the end of 2017, over half of EU Member States had introduced at least one instrument in this toolkit. The use of borrower-based macroprudential instruments is also becoming more widespread: Portugal and Austria, at least, will introduce certain borrower-based tools in 2018. The most frequently used instrument is the maximum LTV ratio, i.e. the loan cap. The amount of housing loan relative to the value of a purchased property is typically limited to 80–95%. In many countries, regulation takes into account the intended purpose of housing. The loan cap is often higher, i.e. the size of the loan is larger, for first-home purchases, while in some countries the loan cap is significantly lower for investment property than for owner-occupied homes.

Other borrower-based instruments are not quite as common in Europe as the maximum LTV ratio. Nine countries have a limit on the debt-service-to-income (DSTI) ratio, and four countries on the loan-to-income (LTI) ratio. The United Kingdom requires an amortisation plan for new housing loans. Sweden and Norway have introduced an amortisation requirement for new loans with high LTV ratios. In addition, some countries have adopted other measures targeted towards the borrowers' repayment capacity. Besides borrower-based macroprudential instruments, 15 countries have in place lender-based macroprudential instruments, such as higher risk weights for mortgage-backed loans or limits on loan maturities.

1. The loan-to-value (LTV) ratio is a loan cap that limits the size of loan relative to the value of the financed housing. In Finland, real collateral other than the purchased housing can also be taken into account in calculating the loan cap.

Chart 1

Use of mortgage lending-based instruments in Europe in 2017




Countries that are underlined: regulation also pertains to the non-bank financial sector.
Source: European Systemic Risk Board.

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The LTV ratio is also a widespread instrument internationally. Canada, Hong Kong, Israel, New Zealand and Singapore, among others, have limited loan size relative to the purchased property. Cerrutti et al. (2017) have analysed the use of macroprudential instruments in 119 countries over the period 2000–2013. They document that 21% of these countries use caps on LTV ratios and 15% use caps on DTI ratios. Their analysis shows that LTV limits are used especially in high-income countries.

Comparing the stance of macroprudential policies related to mortgage lending and borrower-based instruments across countries is challenging. The objectives, definitions and regulatory details of the instruments differ significantly, which makes it difficult to compare policy measures internationally.

## Research on the effectiveness of the instruments

Academic research has discussed the effectiveness of the above-mentioned instruments. Credit growth can be slowed by regulation targeted at loan terms and conditions. More research in this area has been published very recently.[2]

2. For literature, see e.g. supplementary article 2 in the Bank of Finland's Macroprudential Report 1/2017.

South Korean data provides an excellent opportunity for impact analyses. South Korea has long experience in implementing tools focusing both on borrower income and collateral values. The limits imposed by the tools have been set depending on the district, and have not always been tightened or loosened simultaneously at the level of the country as a whole. This facilitates the conduct of ex post impact assessments. Jung and Lee (2017) have analysed the impact of limits on LTV and debt-to-income (DTI) ratios on loan amounts and housing prices in 1980–2016. The loosening of both limits seemed to boost house price growth, but paradoxically enough, the tightening of the LTV limit had no impact on house price dynamics. The analysis showed that the LTV suffered from dependence of the highest permitted loan amount on house prices: at the peak of the cycle, high house prices allow even substantial loan amounts, while during the downturn, the fall in house prices also reduces the maximum loan size.

House prices, bank lending and macroeconomic variables are intricately interconnected. In recent years, financial and banking markets have increasingly been incorporated in stochastic general equilibrium models. These models attempt to capture the macroeconomic effects of banking and financial market activities. For instance, real estate prices are an important macroeconomic variable due to the widespread use of real estate as collateral for bank loans.

Gross and Población (2017) have used micro-level data on household assets and a macroeconomic model to test the efficacy of policy-induced constraints on the availability of loans, and especially the related long-term benefits and short-term macroeconomic losses (primarily due to reduced credit demand). Their research shows that caps on the DSTI ratio are more effective in preventing indebtedness than LTV ratio caps. Alpanda and Zubairy (2017) have presented a theoretically more complex macroeconomic model, based on which adjustable LTV ratios and restrictions to the tax deductibility of mortgage interests are more effective in preventing household indebtedness than e.g. monetary policy tightening.

There is also evidence on the effectiveness of borrower-based macroprudential tools in the EU (ESRB, 2018). According to Member States' experiences, growth in lending and indebtedness can be mitigated by combining instruments targeted at housing loans. Borrower-based instruments curb house price increases and higher indebtedness in economic upturns, while collateral-based instruments strengthen the stability of the real estate markets especially in downturns.

## Extension of regulation beyond the banking sector

Non-bank lending for house purchase is on the increase in many countries. In the Netherlands, insurance companies and pension funds already finance about one fifth of new housing loans (DNB 2016, p. 11). In the United States, shadow banks surpassed banks in the provision of new housing loans in 2015. These actors are usually outside the scope of banking sector regulation. Since borrower-based macroprudential instruments generally apply to banks only, incentives may arise to shift mortgage lending outside the banking sector and the scope of regulation.

In EU Member States, macroprudential policy powers extend to the non-bank financial system. In most countries, however, mortgage lending-related macroprudential

measures are only targeted at banks. Only six countries have introduced activity-based macroprudential tools that focus on entities engaged in the same service – in these cases the provision of housing loans.[3]

The non-bank financial system is growing rapidly in terms of both size and significance. If mortgage lending shifts increasingly outside the traditional banking sector, macroprudential instruments should be modified to cover all actors providing housing loans. Otherwise, macroprudential policy measures will be ineffective in addressing excessive growth in housing debt levels.

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### Tags

housing loans, indebtedness, households, macroprudential instruments, macroprudential policy

3. Ireland, Slovenia, Iceland, Hungary, Latvia and Romania have also extended borrower-based instruments to cover non-bank financial institutions providing housing loans. France issued regulatory amendments for the same purpose in 2017.