

Strategy and instruments of macro-prudential policy

ABSTRACT

The international financial crisis and its impact on the international economy were the key drivers of a number of reforms in the regulation and supervision of the financial systems at the global level. In this context, various countries have developed an institutional and operational framework for macro-prudential policy implementation, aimed at promoting financial stability. In Portugal, the authority to implement macro-prudential policy was conferred upon Banco de Portugal. Therefore, the Bank is responsible for defining a strategy and the instruments to prevent systemic risks. This

function implies analysing the risks deemed more relevant within the national financial system and selecting the appropriate instruments to prevent them. This article aims to contribute to this analysis: section 1 analyses the motivation underlying the definition of a macro-prudential policy strategy and the criteria to take into consideration when selecting its instruments; section 2 reviews the most relevant systemic risks within the national financial system; section 3 describes the appropriate instruments to prevent the various risks analysed; and section 4 concludes.

1. Motivation and criteria behind the definition of a strategy and selection of instruments for macro-prudential policy

The recent international financial crisis clearly showed that the supervisory model existing so far, focused on the solvency of individual institutions, was ill-suited to detect systemic risks – arising from externalities and interconnectedness in the financial system – that may propagate to the global economy.

In this context, various institutions responsible for supervising the financial sector have developed a regulatory and institutional framework to implement the appropriate macro-prudential policy and instruments to mitigate the systemic risks that may jeopardise financial stability. These reforms are enshrined, in particular, in the Basel III regulatory framework,¹ which defines the conditions regarding the enforcement of a number of available instruments for macro-prudential policy implementation.

Against this background, the European Systemic Risk Board (ESRB), which is the entity responsible for coordinating macro-prudential policy in the European Union (EU), has issued recommendations aimed at providing guidance to national macro-prudential authorities. These recommendations define, in particular, a number of intermediate objectives regarding the operationalisation of macro-prudential policy and of the various instruments available to meet such objectives² (Table 1). As part of the work undertaken at the ESRB level, criteria have also been set out regarding the use of these instruments and a number of indicators defined to guide their activation/deactivation.

Underlying the Community legal framework is the balance between the development of harmonised rules and the need to ensure some flexibility at the national level. The harmonisation aims to prevent distortions in competition between institutions operating in different Member States. National flexibility allows taking into account differences in terms of the structure and the credit cycle between the various countries – that materialise in specific risks – which require a higher degree of autonomy in using the instruments. In accordance with the ESRB recommendations, the national macro-prudential authorities shall define the intermediate objectives and instruments they deem more relevant by the end of 2014 and their policy strategy by the end of 2015.

Hence, several macro-prudential authorities have been selecting a number of instruments to be developed and operationalised for the implementation of the macro-prudential policy at the national level – the so-called macro-prudential toolkits. The definition of a national toolkit requires an individual analysis, taking into account the specific risks and the characteristics of the national financial system (without disregarding the risks that may arise from spillover effects between different countries). In particular, implementing the macro-prudential instruments implies (i) identifying a number of appropriate indicators to signal periods of crisis or financial stress and (ii) calibrating the instruments taking into account their expected impact on the financial system and economic activity, in order to activate them. These analyses are usually based on work undertaken at the ESRB level, adapted to the national context.

In turn, it is important to bear in mind that, although macro-prudential policy is incumbent upon the national authorities, the European Central Bank (ECB) – regarding the measures laid down in EU legislation – may, within the framework of the Single Supervisory Mechanism (SSM) of the banking union, propose more stringent requirements than those applied by the national authorities,³ addressed to the banking sector. This also increases the national authorities' need to reflect on and define a framework for the operationalisation of the macro-prudential policy.

Banco de Portugal as the competent national authority for macro-prudential policy is responsible for defining a number of instruments that can be used to mitigate systemic risk. These instruments will normally be selected from among those defined by the ESRB, which are available as part of the EU macro-prudential regulations and national jurisdiction.

A number of criteria are relevant for this selection. First, an appropriate balance must be ensured between, on the one hand, the coverage and the potential overlapping of risks that can be mitigated by the instruments and, on the other, the efforts to be made to make those instruments fully operational at the national level. The fact that the risks undermining financial stability may have a different origin and nature implies selecting a diversified range of instruments. Selecting a wider range of instruments allows for the coverage of a higher number of risks. However, the development of criteria to activate instruments, the collection and analysis of relevant data and their calibration require an in-depth analysis. Therefore, at a first stage, it may be advantageous to focus this analysis on a smaller number of instruments considered to be a priority to mitigate the most relevant risks. On the other hand, the existence of some overlapping between the effects and the risks covered by the various instruments also suggests that selecting a smaller range of indicators may not imply huge losses as regards the coverage of the said risks.

In addition, it is also important to ensure that the selected instruments are the most appropriate to mitigate the risks identified. This selection is normally based on effectiveness, efficiency and transparency criteria that seek to assess (i) the extent to which the instrument is appropriate to meet the objective; (ii) whether the cost or potential adverse effects arising from their activation

are proportional to the objectives pursued; and (iii) whether the instrument is clear and perceptible as regards its application and the objectives it aims to reach, to ensure that the policy is credible and accountable.

Analysing the effectiveness and efficiency implies knowing the instrument's transmission mechanism, namely as regards the results envisaged and the potential unintended effects that may limit its effectiveness. At an early stage, this analysis will be essentially theoretical and conceptual, as enough experience has not been gained yet on the activation of the instruments that would allow an accurate empirical assessment. Therefore, the selection of instruments at the national level will likely be revised and updated over the coming years. In this context, the selection of instruments should not be seen as restrictive (in the sense that it does not prevent the activation of other instruments that have not been selected), but merely as indicative of the instruments regarded by the authorities as a priority and for which they will develop conditions for their operationalisation at the national level.

Table 1 shows a list of the instruments available for macro-prudential authorities, harmonised within the framework of the CRD IV/CRR, or which may originate from the national legislation. The instruments are grouped according to the intermediate objective they target, defined by the ESRB recommendation, and according to the type of risk targeted that may be more relevant in the context of the national financial system.

To ensure an appropriate coverage of the potentially more relevant risks in the national context, the selection of instruments shall include those intended to prevent cyclical risks associated with excessive credit growth overall and in specific sectors, such as the real estate sector. Moreover, given the relative concentration of the banking market in a reduced number of institutions, it is important to define instruments intended to prevent increased risk incentives by systemically more important institutions, more likely to propagate across the financial system. Likewise, it is essential to prevent risks of a structural nature, which may be correlated to the characteristics and interconnectedness within the financial system. These risks are largely associated with financial innovation, therefore frequently more difficult to fully anticipate. Another source of risk deemed relevant is the liquidity risk, which despite its cyclical nature, justifies the making available of a set of specific instruments.

In turn, the selection of a restricted number of instruments in the national toolkit does not prevent the use of other instruments that may be deemed necessary by the national macro-prudential authorities.⁴

In sum, defining a toolkit allows the macro-prudential authority to set more accurately its policy strategy and the instruments it deems more appropriate to prevent the most relevant risks, thereby granting higher legitimacy, credibility and accountability to this policy.

Table 1 • Instruments envisaged within the macro-prudential policy framework

Risk type	Intermediate objective (ESRB)	Instrument	Legal framework
Cyclical	To mitigate and prevent excessive credit growth and leverage	Countercyclical capital buffer (CCB)	CRD IV
		Leverage ratio	National
		Capital conservation buffer	CRD IV
Sectoral		Sectoral capital requirements	CRD IV
		Loan-to-value – LTV	National
		Loan-to-income – LTI/ Debt service-to-income – DSTI	National
Structural	To limit the systemic impact of misaligned incentives with a view to reducing moral hazard	Capital buffer applied to global systemically important institutions – G-SII	CRD IV
		Capital buffer applied to other systemically important institutions – O-SII)	CRD IV
	To limit direct and indirect exposure concentrations	Large exposures restrictions	CRD IV
		Tax Instruments	National
		Systemic risk buffer (SRB)	CRD IV
	To strengthen the resilience of financial infrastructures	CCP clearing requirements Margin and haircut requirements	European Market Infrastructure Regulation –EMIR
Liquidity	To mitigate and prevent excessive maturity mismatch and market illiquidity	Liquidity coverage ratio – LCR	CRR / CRD IV
		Net stable funding ratio – NSFR	CRR / CRD IV
		Loan-to-deposit ratio (LTD)	National

2. Relevance of the various types of systemic risk in the national financial system

A number of factors may trigger systemic risk, usually defined as a risk of disruption in the financial services arising from vulnerabilities in parts or in the entire financial system that may have serious negative consequences to economic activity.⁵

Globally, systemic risks may have a structural or a cyclical nature. The former result from the distribution of risks and from the interconnectedness between financial system institutions, markets and infrastructures. These characteristics may materialise through a high risk correlation resulting from common exposures of the various institutions, more likely to propagate across the financial system through a complex network of interconnectedness. The latter (temporal or procyclical) risks result from the fact that financial system vulnerabilities tend to build up during the upturn of the credit cycle. The smaller credit risk and the higher valuation of collateral in expansionary periods may foster credit growth and the financing of speculative bubbles.

As the structural vulnerabilities tend to be higher in the financial cycle upturn, it is not always easy to segment risks on the basis of these characteristics. As such, a more detailed classification, establishing a more direct connection between a given instrument and the mitigation of a specific type of risk, may be useful in operational terms. For instance, cyclical risks may extend to the whole economy or concentrate in specific sectors. Moreover, cyclical risks may also materialise in liquidity problems, whose mitigation requires specific instruments, and structural risks may originate from the different characteristics of the financial system.

This work analyses the relative effectiveness and efficiency of the instruments intended to mitigate four types of risk, considered potentially relevant given the characteristics and the recent developments in the national financial system: (i) cyclical; (ii) sectoral; (iii) structural and (iv) liquidity. The relevance of the risks considered in this analysis does not necessarily take into account the likelihood of these risks materialising in the short run. The preventive nature of macro-prudential policy implies the activation of the instruments before the build-up of vulnerabilities in the financial sector, which normally coincides with the expansionary phase of the credit cycle. Therefore, defining a strategy for macro-prudential policy should take into account the risks that may materialise in the several phases of the economic cycle and define a framework for risk mitigation ahead of their materialisation.

2.1. Risks associated with credit pro-cyclicality

Most financial crises emerge after excessive credit growth. Indeed, in the expansionary phase of the credit cycle, risks are frequently undervalued and consequently excessively taken. The transmission of these crises' effects to economic activity usually translates into serious macro-economic imbalances, such as high current account deficit and excessive indebtedness. These effects are particularly serious when credit growth is accompanied by expansionary fiscal policies, as the excessive indebtedness in both the public and private sectors makes the subsequent adjustment process more difficult, as shown by the recent sovereign debt crisis in the euro area.

Since the start of the 1990s, Portugal has recorded high credit growth. Higher financial integration and the fall in interest rates, following the Portuguese economy's nominal convergence process in the period prior to the adoption of the euro, reduced significantly credit access constraints and costs. The regulatory framework and the expansionary policies pursued in the years before the crisis, by facilitating leverage, enabled this trend to continue.

This credit rise was accompanied by the accumulation of macroeconomic imbalances (Chart 1) and a considerable increase in the indebtedness levels of the various institutional sectors of the Portuguese economy. The banking sector leverage and the high indebtedness levels of both households and non-financial corporations contribute to increase credit risk (Charts 2 and 3), which materialises in the cyclical downturn. Besides, a potential fall in collateral values, in the wake of the financial sector deleverage and the ensuing cyclical downturn, may contribute to higher losses resulting from credit default.

This evidence that the expansionary phase of the credit cycle is accompanied by an increase in risk, making the financial sector more vulnerable to losses that materialise in the cyclical downturn, strengthens the need for an instrument that, by acting in a preventive and countercyclical manner, contributes to counter the amplifying effects of the economic cycles, dampening its expansionary phase and strengthening the institutions' resilience to better absorb losses in the bust phase.

2.2. Sectoral risks

Vulnerabilities arising from an excessive rise in mortgage credit and from the emergence of speculative bubbles in the real estate market have been the main drivers of a considerable number of financial crises. The importance of the real estate sector for the wealth of economic agents and the fact that speculative bubbles in this market are usually financed with bank credit, make it an important source of risk for the financial system and the wider economy.

In Portugal, a significant share of bank credit extended to households relates to housing loans (around 80 per cent). Although in Portugal real estate price rises were lower than in other countries, where speculative bubbles were seen, this fact may have been due to an increase in construction and a subsequent rise in housing supply (Charts 4 and 5). Therefore, it is possible that the adjustment of market conditions, in a context of excess supply and higher funding constraints, will be accompanied by a decrease in real estate market prices.

Although the rates of default on housing loans to households remain at relatively low levels, they have increased over the past few years. This trend may become more marked with a potential rise in interest rates. The materialisation of a fall in real estate prices and consequently in the value of

Chart 1 •
Loans to households and non-financial corporations and the current account balance

Source: Banco de Portugal.

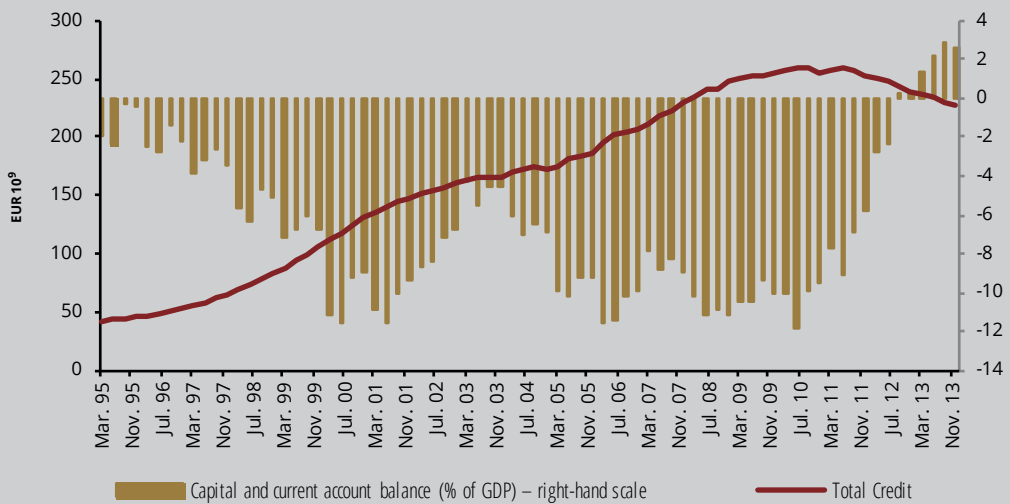
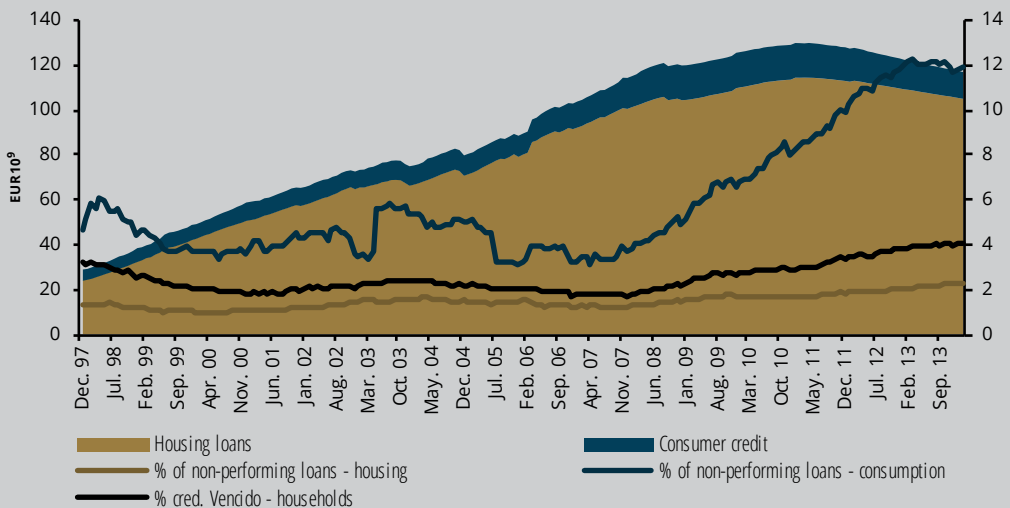


Chart 2 •
Loans to households and percentage of non-performing loans (housing and consumption)

Source: Banco de Portugal.



collateral, may contribute to higher losses given default. It should be noted that credit to companies is also frequently collateralised through commercial real estate. Therefore, the promotion of financial stability also implies the need to monitor developments in this market segment.

Although the real estate sector is particularly important, other sectors should also be monitored.

2.3. Structural risks

The interconnectedness and the distribution of exposures within the financial system may give rise to systemic risks with serious negative consequences to the economic activity. Structural risks are often related to higher financial innovation and therefore very difficult to prevent. For instance, the tendency to securitise credit, without making a distinction between the quality of the various assets and the consequent dispersion of risk across the financial system was a key factor behind the higher leverage in the period prior to the financial crisis.

Moreover, a high level of concentration in the financial system and, in particular, the existence of institutions which, due to their size or interconnectedness may be considered systemically important, may be an additional source of risk. The implicit guarantees from which these institutions

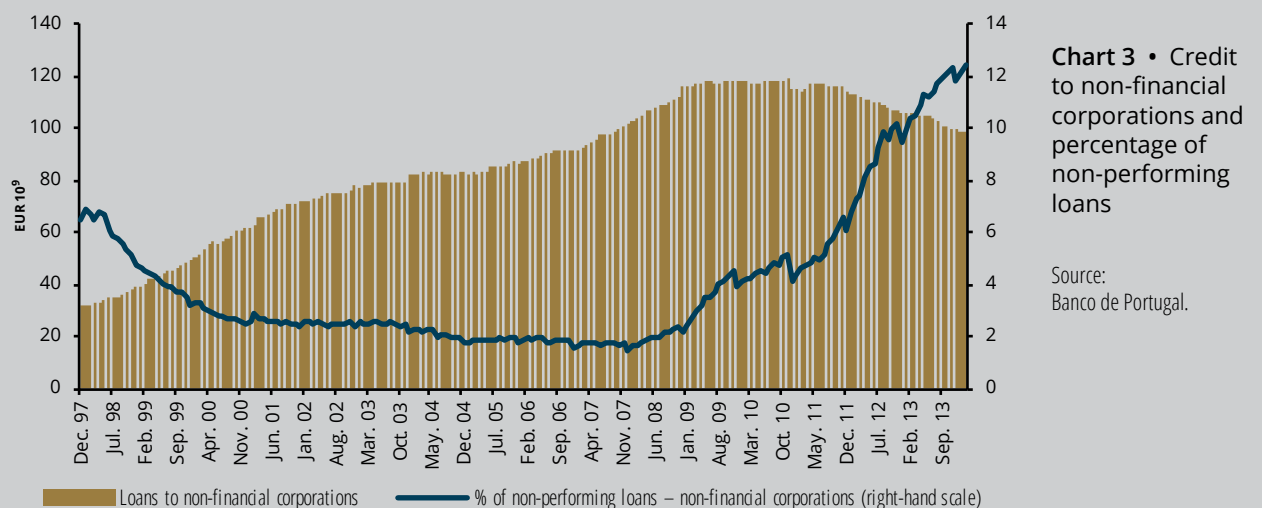
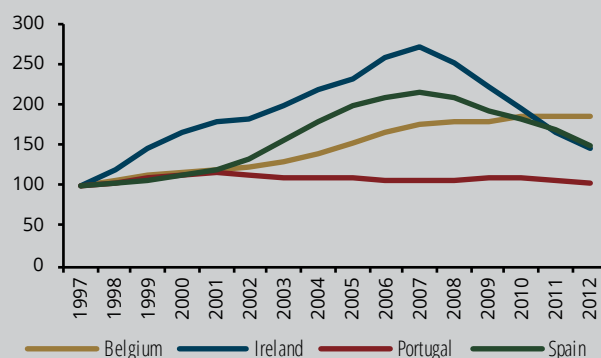
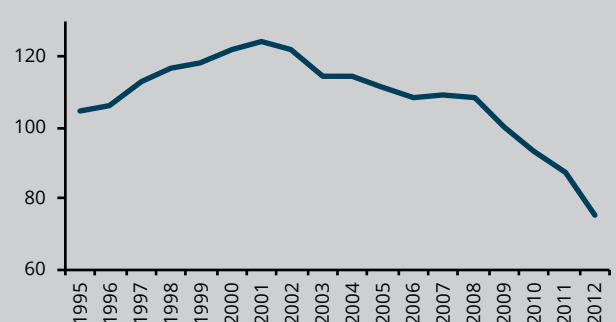


Chart 4 • Real price indices in the real estate market (basis: 1997)



Source: OECD.

Chart 5 • Value-added index in construction (basis: 1995)



Source: OECD.

benefit – resulting from their “too big-to-fail” status – may be an incentive to take excessive risks, which are more likely to propagate due to the institution’s systemic nature.

In Portugal, the financial system is relatively concentrated in a small number of banks. Besides, these institutions have common exposures to a few selected counterparties, including the State. In addition, the economic and financial framework underwent a number of changes (e.g. financial crisis, Economic and Financial Assistance Programme (EFAP) and regulatory reforms). These may give rise to changes in the financial system structure, making the identification of potential risks more difficult.

Hence, the evolution of structural changes in the national financial system should be closely monitored and policy instruments developed to mitigate potential risks arising therefrom.

2.4. Liquidity risks

Systemic risk can also arise from the mismatch between the maturity of financial institutions’ assets and liabilities. For example, the funding of less liquid assets through short-term liabilities increases the institutions’ vulnerabilities to bank runs and sudden stop phenomena, as witnessed at the height of the recent financial crisis in euro area countries under pressure. The pressure to meet short-term liabilities, can lead to fire sales and a consequent fall in assets’ prices, also impacting on the balance sheets of other financial institutions holding similar assets. In addition, uncertainty about the quality and degree of liquidity of banks’ assets may cause disruptions in the interbank market, undermining the effectiveness of monetary policy and the liquidity situation of the general economy.

As shown by the sovereign debt crisis and the subsequent EU financial market fragmentation, the countries with bigger macroeconomic imbalances are subject to greater financial pressure. In this context, Banco de Portugal, within the framework of the EFAP, provided guidance to banks to adjust the respective structural liquidity position, as measured by the loan-to-deposit ratio. Moreover, Portuguese banks’ liquidity position has also benefited from the ECB’s standard and non-standard monetary policy measures.

The potential limitation of the ECB’s of the non-standard monetary policy measures and the need to regain market access with the conclusion of the EFAP may heighten the liquidity risk in the Portuguese financial system.

3. Appropriate instruments to mitigate risks

This section describes the instruments that could be made available to mitigate the risks described above. This selection is based on the instruments more frequently discussed at the international level, without ruling out the possibility of others being considered in the future.

3.1. Risk mitigation associated with credit pro-cyclicality

In accordance with the ESRB Recommendation, the countercyclical capital buffer aims to mitigate risk arising from excessive credit growth and leverage. This instrument consists in a capital buffer of equity Tier 1 capital (to be added to the ratio between Tier 1 capital and risk-weighted assets), which should be built up during the expansionary phase of the credit cycle in order to increase the resilience of the banking system to vulnerabilities associated with excessive credit growth. This capital buffer will be released during the downturn of the financial cycle, to enable

the absorption of losses without endangering the flow of credit to the economy, thereby contributing to reducing the pro-cyclicality of capital requirements.

This instrument is intended to enhance the resilience of the banking system and mitigate excessive credit growth. However, its impact depends on the options made by banks to comply with this regulatory requirement. In particular, to meet this additional capital requirement, banks will have to raise their levels of capital (by issuing additional capital or restricting the distribution of profit or dividends to shareholders), or to reduce their risk-weighted assets (by reducing assets or increasing the share of assets with lower risk weight). Any of these options enhances the resilience of institutions to absorb future losses, having however a different impact on credit supply conditions. The adjustment of capital ratios imposes costs on banks, which by being reflected on credit conditions, impact on the interest rate and on credit growth. Where the adjustment materialises through the reduction in assets, there is a direct effect on credit supply.

A number of factors can contribute to reducing this instrument's effectiveness, in particular regarding its impact on credit growth. First, should banks decide to release excessive capital buffers held the impact will be nil. This, however, does not undermine the institutions' resilience, as banks already have adequate capital levels, but makes the instrument ineffective to mitigate excessive credit. Alternatively, should the reduction in the average risk-weighted assets materialise through credit growth in sectors with low risk weights, the instrument's effectiveness on total credit can be limited. Again, this may not endanger the institutions' resilience provided that the weights adequately reflect the degree of risk. The limitations of this instrument concerning its impact on credit growth can be avoided by supplementing this instrument with the imposition of a leverage ratio. This ratio, by not considering risk-weights, also eliminates incentives to readjust assets according to it.

The possibility of regulatory arbitrage, by transferring operations to institutions not included in the regulatory perimeter (subsidiaries of foreign banks or the non-banking sector), is another factor that may reduce the effectiveness of the instrument in mitigating credit growth. However, this possibility is limited by the principle of reciprocity,⁶ according to which the countercyclical capital buffer (until a level of 2.5 per cent) also applies to the subsidiaries of foreign banks.

In addition, the effectiveness of the instrument's deactivation may be subject to higher uncertainty, as banks can easily opt for maintaining excess capital, thereby not contributing to minimise the reduction in lending to the economy. In this context, it is also crucial to ensure that the release of buffers does not materialise through the distribution of profit or dividends to shareholders, but contributes to increase the economy's financing capacity.

In operational terms, the instrument's effectiveness requires an appropriate real-time assessment of the credit cycle phase and an estimation as accurate as possible of the degree of excessive credit above the level justified by fundamentals (in the expansionary phase). This implies the definition of appropriate indicators for that assessment and, consequently, for the activation of the instrument.

The countercyclical capital buffer has the advantage of being probably the most extensively reviewed macro-prudential instrument. A number of analyses carried out made it possible to identify the credit-to-GDP gap and the respective long-term trend as the globally most appropriate indicator to signal financial crises, as well as a set of other relevant indicators for activating this instrument.⁷

Potentially more relevant indicators for activating this instrument*

Credit-to-GDP gap and its long-term trend

Other variables for the activation/deactivation of the countercyclical capital buffer:

- Alternative credit measures
 - Debt service ratios
 - Macroeconomic variables
 - Variables related to house prices
 - Market indicators
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* See ESRB (2014).

Transparency and adequate communication are also crucial to ensure the efficiency of the countercyclical capital buffer. Communication credibility is particularly important (i) during downturns, to make it clear that the release of the buffer, when vulnerabilities materialise, is compliant with the objective of not undermining banks' solvency, (ii) during upturns, to clarify the reasons leading to the introduction of a measure that in the short run may have a negative impact on credit granted to the economy and on economic activity.

Compared with the other instruments intended to mitigate risks associated with excessive credit growth and leverage (leverage ratio and capital conservation buffer) the countercyclical capital buffer has the advantage that its activation and calibration have been explicitly defined as a function of the credit cycle, making it particularly well suited to mitigating cyclical risks. Compared with the leverage ratio, the countercyclical capital buffer has also the advantage of imposing capital requirements based on the assets' risk-weights, which, admitting that these adequately reflect risk levels, can better contribute to the sector's resilience. As referred to above, in some circumstances, using both instruments to complement each other can be justified.

3.2. Mitigation of sectoral risks

Although the countercyclical capital buffer may be considered an effective and efficient instrument to mitigate cyclical risks, it is too encompassing and not particularly geared to situations in which the risk factors are concentrated in a specific sector of the economy. In such cases, it can be more efficient to use instruments that specifically target sectoral risks, without posing costs to the wider economy – like sectoral capital requirements or instruments intended to tighten access to credit, like the limit on the amount of a loan relative to the value of the underlying collateral (loan-to-value – LTV) or the limit on the amount of the loan relative to the borrower's income (loan-to-income – LTI).

The sectoral capital requirements translate into additional capital requirements applicable to exposures to a specific sector (frequently the real estate sector). These requirements can be imposed directly (e.g. through an additional capital requirement applied to mortgage credit) or indirectly, through changes in the parameters setting capital requirements: higher risk weights (RW) applied to real estate lending; or limits on the loss given default (LGD), a variable used to calculate risk weights by some banks (using the IRB approach⁸).

These instruments are intended to further enhance the resilience of the banking sector and mitigate excessive credit growth in particular in the real estate sector. Their transmission mechanism is, in various aspects, similar to that of the countercyclical capital buffer. To meet more stringent capital requirements, banks may increase capital or reduce exposures to the sector. Both contribute to strengthening the financial system capacity to absorb losses, and can also help to mitigate credit growth and, consequently, real estate price rises.

As is the case for the countercyclical capital buffer, the impact of this instrument on credit growth is conditioned by the fact that banks do not release voluntary capital buffers. Besides, it may

be difficult to calibrate the instrument so that the increase in the credit cost, resulting from the additional capital requirements, is sufficient to discourage investment in an expansionary sector – in this regard, the instrument is generally considered less effective when credit growth is at an advanced expansionary phase. Additionally, where capital requirements are applied as a minimum limit on the variables used in risk weights (RW or LGD), banks can make up for the costs arising from such requirements through higher risk exposures. These constraints can be minimised if the capital requirements are supplemented by an instrument that conditions access to real estate credit, such as LTV or LTI.

A maximum limit on LTV can contribute to the banking sector resilience, as it reduces the value of LGDs. Imposing limits on LTV has a direct impact on access to credit and can also help to contain rises in asset prices.

This instrument is less prone to regulatory arbitrage, as it can be applied on total credit (including credit granted by foreign banks) if imposed as a financial consumer protection measure. Moreover, this instrument can easily be explained and communicated to the general public.

The limits on LTV - should be applied in a countercyclical manner, given their pro-cyclical effects, if applied as a fixed limit–: they are less restrictive in the expansionary phase given the collateral valuation.

In operational terms, limits on LTV are usually only applied on new loans – their application to the total credit portfolio would require a constant updating of the collateral value and periodical provisions of more collateral by the borrowers.

These instruments' efficiency is largely dependent upon the definition and measurement of the variables underlying their calculation. A correct assessment of the collateral value and an estimate regarding its evolution are essential to limit future losses in the event of default. In particular, the numerator of the LTV ratio must be broadly defined (considering total credit guaranteed by a mortgage) to avoid the possibility of circumventing the instrument through a second mortgage or loan splitting.

LTVs can be combined with other instruments (e.g. differentiated RWs according to the LTV level) to increase their effectiveness.

The LTV has several advantages compared with other instruments that also target credit conditions – for example, limits on loan-to-income (LTI) or on debt service-to-income (DSTI). More specifically, the evaluation of the denominator is easier in the case of LTVs, and their evolution over time is subject to a smaller degree of dispersion. Besides, the application of caps that restrict credit in relation to the borrower's income, by excluding access of some individuals to the real estate market based on income, can be politically more sensitive. However the latter instruments have the advantage of contributing to reducing the probability of default (in general strongly dependent on the borrower's income) as well as of targeting uncollateralised loans.

As LTVs have already been used in various countries, empirical analyses of their impact and effectiveness can already be made.

Similarly to the countercyclical capital buffer, the efficiency of sectoral instruments (sectoral capital requirements or LTVs) requires the definition of indicators signalling the increase in vulnerabilities in the sector in question. The analysis made at the ESRB level has already enabled the selection of some indicators that can be used by national authorities when implementing macro-prudential policy.

Potentially more relevant indicators for activating instruments targeting the real estate sector*:

Total credit (as a percentage of GDP)
Value-added in construction (as a percentage of GDP)
Credit to households (as a percentage of GDP, or deviation from trend)
Ratio of household indebtedness in relation to income
Nominal prices of houses (growth rate, or deviation from trend)
Ratio of house prices in relation to income (growth rate)
Ratio of house prices in relation to rent prices (growth rate)
Real estate investment (as a percentage of GDP)
Credit to non-financial corporations (growth rate, as a percentage of GDP, or deviation from trend)
Prices of commercial real estate (growth rate, or deviation from trend)

* See ESRB (2014).

3.3. Mitigation of structural risks

The capital buffer applied to global systemically important institutions and other systemically important institutions (G-SIIs and O-SIIs) is an instrument intended to mitigate the higher risk associated with systemically important institutions. This buffer is composed of Common Equity Tier 1 capital. The CRD IV/CRR identify two types of systemically important institutions: G-SIIs, important at EU level, and O-SIIs, important at domestic level. In Portugal no banks are identified as G-SIIs, therefore, only the O-SIIs buffer can be applied. The O-SIIs' capital buffer (identified at individual level, subconsolidated level or according to the systemic level considered) is capped at 2 per cent of the total amount of positions at risk.

This instrument is intended to limit misaligned incentives and reduce moral hazard associated with systemically more important institutions. Indeed, the implicit guarantees from which these institutions benefit – as they are considered 'too big to fail' – may create incentives to take excessive risks, with a potential impact on taxpayers, in the event of insolvency.

The main advantage of these capital buffers applied to systemically important institutions is that they increase the robustness of these institutions and, hence, of the system as a whole, given their importance. In addition, they contribute to mitigating contagion risk, as the O-SIIs' buffers increase the capacity of banking groups to absorb immediate losses, without affecting the rest of the financial system.

Similarly to the other instruments consisting in capital requirements, regulatory arbitrage can also be used through the transfer of operations to entities that are not included in the same supervision.

In accordance with the CRD IV, the systemic importance should be assessed on the basis of at least one of the following criteria: size; importance for the economy of the EU or of the Member State in question; importance of cross-border activities; and interconnectedness of the institution or group within the financial system.

The capital buffer for systemic risk (Systemic Risk Buffer – SRB) is another instrument that can be used to mitigate structural systemic risks, stemming for example from common exposures or from the interconnectedness within the financial system. This instrument consists in additional Tier 1 capital requirements to all, or to a subset of banks that may be a source of long-term systemic risk of a non-cyclical nature. This instrument is intended to enhance the resilience of the banking sector and of financial infrastructures.

Depending on the reasons for activation and determination of the SRB level, as well as on the group of institutions to which it applies, this instrument can also be used to limit the concentration

of direct and indirect exposures, e.g. by limiting the systemic impact of misaligned incentives with a view to reducing moral hazard.

The transmission mechanism of this instrument, as well as its indirect effects, are similar to those of the other capital requirements. In particular, the instrument's impact can be limited to the national regulated sector (although reciprocity is allowed, it is not compulsory).

This instrument has the relative advantage of being targeted to a specific type of risk, although it cannot be applied to certain exposures. Moreover, it is flexible, as it can be applied to all or to a subset of financial institutions and has no maximum level or cap, although the notification and authorisation obligations regarding European authorities vary according to the level applied. Finally, it can be applied to a specific type of geographical exposures (specifically, a systemic risk buffer can be applied to exposures located in a Member State other than the one setting the level of the buffer, to exposures located in third countries and in other Member States).

Like in the cases above, the ESRB set a number of more relevant indicators for activating this type of instrument:

Potentially more relevant indicator for activating this instrument*

Relevant indicators to determine the likelihood and size of shocks for the financial system (of a non-cyclical nature):

Financial sector indebtedness;
 Overvaluation of asset prices;
 Other macroeconomic imbalances;
 Size of the non-regulated sector and share of banks held by non-residents or of subsidiaries of non-resident banks.

Indicators of amplification channels for these shocks (e.g. common exposures, interconnectedness, sectoral concentration):

Common exposures:

Sector: mortgages/total assets; (domestic and foreign) general government debt/total assets; asset-backed securities/total assets, Herfindahl Index

Geographical area: cross-border claims/total assets; exposures to the single most important foreign country/total assets; Herfindahl Index

Currency: share of foreign currency loans; share of most important foreign currency/total assets; share of households' loans in foreign currency; Herfindahl Index

Activity: (proprietary) trading book/total assets

Interconnectedness:

Balance sheet: intra-financial assets/total assets; intra-financial assets (by type of asset)/total assets

Network effects: mean geodesic distance

Bank default: probability of simultaneous defaults, number of banks failing due to contagion; banking sector-wide losses/banking sector capital

Concentration: Herfindahl Index; Herfindahl Index of banks' turnover in particular markets; market share of SIs relating to the balance sheet of the banking sector or to the aggregated lending

Indicators of importance of the financial sector to the real economy (e.g. size of the financial sector): total domestic assets/GDP; total assets/GDP; total deposits/GDP; resolvability

Indicators of the systemic importance of some institutions (see indicators relating to G-SSIs and O-SSIs)

* See ESRB (2014).

3.4. Mitigation of liquidity risk

The Basel III framework envisages two instruments to mitigate risks arising from excessive maturity mismatch and illiquidity in the market: the liquidity coverage ratio – LCR and the net stable funding ratio – NSFR.

The LCR aims to ensure that institutions hold adequate prudential liquidity buffers to address potential imbalances resulting from liquidity inflows and outflows under aggravated stressed conditions over a period of 30 days. The NSFR aims to ensure that the institutions' illiquid assets are funded through stable sources under both normal and stressed conditions.

In accordance with EU regulations (CRD IV/CRR), these minimum liquidity coverage requirements shall be applied from 2016 in the case of the NSFR, and from 2018 in the case of LCR (with respect to the latter, there is a transitional period starting in January 2015, when the institutions must comply with a liquidity coverage requirement of 60 per cent, which is increased by 10 percentage points each year until it reaches 100 per cent in 2018).

These requirements can help to mitigate maturity mismatches and liquidity risk. To comply with these requirements, banks will have to increase the maturity of their funding or change the structure of their assets, in order to hold a larger stock of liquid assets. Given that these changes in the balance sheets imply costs for banks, their repercussion on credit conditions can also help to limit excessive credit growth.

These regulatory requirements, being minimum levels, are considered micro-prudential tools. In fact, the use of these ratios as a macro-prudential policy tool should also envisage the possibility of using them in a countercyclical manner: i.e. imposing stricter requirements than the regulatory minimum in periods of excessive liquidity (usually characterised by the over-valuation of collateral assets, reduced interest rate spreads and when liquidity risks are usually underestimated) and release these liquidity buffers in periods of higher market turbulence.

However, given that these minimum requirements can help to reduce liquidity risk – a macro-prudential objective – and their impact has not been tested yet, it may be premature, at this stage, to consider the macro-prudential adjustment of liquidity ratios.

4. Conclusion

As evidenced by the conditions for the activation of the instruments described above, the macro-prudential policy has a preventive nature. Globally, the instruments aim to increase the institutions' capacity to absorb losses in crisis situations. This implies their activation in the expansionary phases of the credit cycle, before risks materialise. Hence, the macro-prudential policy strategy should be defined well in advance, thereby contributing to making the policy legitimate and credible, facilitating its implementation.

Defining a strategy for macro-prudential policy implies the selection and operationalisation of the instruments: definition of indicators for the activation/deactivation and calibration of the instruments, depending on the intensity of the risks to be mitigated. Considering the limited experience on the use of these instruments for macro-prudential purposes, the analyses made on the operationalisation of the instruments are still preliminary. However, this has not prevented a number of countries from selecting a set of instruments, considered more appropriate for application at the national level (a macro-prudential toolkit). In fact, this selection, by promoting the collection, compilation and monitoring of relevant information, contributes to improve the quality of the analysis. It is important to bear in mind that this selection will be updated and revised, on the basis of additional experience with policy implementation.

The effectiveness and efficiency of the macro-prudential instruments can be limited by the occurrence of unplanned events that have a bearing on achieving the intended objectives.

Therefore, it is necessary to monitor the instruments' transmission mechanism to avoid that their impact is limited by regulatory arbitrage or by the potential transfer of risks within the financial system.

Adequate communication is crucial to ensure the transparency and credibility of the macro-prudential policy. Monitoring and regular publication of the indicators relevant for activating the instruments can help to reduce the uncertainty about the regulatory framework.

References

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Notes

1. In the European Union, these provisions were substantiated in Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 (CRDIV) and in Regulation (EU) No 575/2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms (CRR).
2. http://www.esrb.europa.eu/pub/pdf/recommendations/2013/ESRB_2013_1.en.pdf?0c06f147ee0a53d177b98f2245486698
3. The adoption of these measures is however subject to the prior notification to the national authority, which can oppose the measures proposed by the ECB, but the reasons for disagreeing must be duly justified.
4. The transposition of Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 (CRD IV) into Portuguese law makes available the whole range of instruments therein envisaged, the others being already embodied in the national legislation.
5. FSB-IMF-BIS (2011) and Committee on the Global Financial System (2010 and 2012).
6. Reciprocity means that the regulatory requirements applied to national banks in any given country also apply to the subsidiaries of foreign banks operating in that country.
7. See Bonfim and Monteiro (2013) for an assessment of the performance of the credit-to-GDP ratio as an indicator to signal banking crises.
8. Internal Ratings Based (IRB) approach is a model used by banks for determining capital requirements on the basis of internal ratings based models.