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Macroprudential policy and financial stability, role and tools

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Abstract

The aim of macroprudential policy is to ensure financial stability by avoiding the outbreak of banking crises, which have a dangerous effect on the economy. Is macroprudential policy effective in the face of banking crises and systemic risks? Macroprudential policy has received significant interest from policy-makers and researchers. A few developing countries were using macroprudential policy tools well before the 2008 financial crisis, but significant progress has been made thereafter in both emerging and industrialized economies to put in place specific institutional settings for macroprudential policy. The fundamental objective of macroprudential policy is to maintain the stability of the financial system by making it more resistant and preventing the risk build-up. The objective of this paper is to analyze the important role of macroprudential policy in ensuring overall financial stability. Since the financial crisis of 2008, macroprudential policy has been increasingly used across economies. These measures aim at smoothing financial cycles and thereby mitigating the impact on the real economy, thereby allowing monetary policy to focus on price stability and promote growth and full employment. Macroprudential policy instruments fall into two categories, depending on their purpose, namely, to prevent procyclicality or to enhance the resilience and soundness of the financial system against shocks. The first category of instruments is used to stop bubbles from forming and smooth cycles, i.e. to force the debt-equity of economic operators on an income basis to prevent unsustainable credit bubbles, or to require dynamic loss provisioning rules. The second category of macro-prudential policy is to improve the resilience to shocks, such as capital surcharges for systemic institutions or the requirement to hold liquid assets to cope with market panics, and to make the financial system less complex.

Keywords: macroprudential policy, financial stability, tools and measures, systemic risks.

JEL Classification: G01, G21, G32.

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Introduction

After the rescue packages from the 2008 financial crisis, macroeconomic conditions in advanced economies have clearly improved. Among the essential elements of this progress, a very favorable global economic environment has undoubtedly followed the economic, financial and sometimes institutional progress of these countries. In particular, strong international liquidity, rising commodity prices and the emergence of current account surpluses in the economies helped to encourage growth in the financial sector and particularly the banking system.

However, while all countries appear to be entirely sound in terms of macroeconomic stability, many countries taken separately are fragile to economic volatility and global liquidity fluctuations. In some cases, massive capital inflows, resulting from sharp increases in asset prices and bank lending, are testing the sustainability of these trends. The question is therefore whether this character of financial developments creates difficult vulnerabilities to lead to serious panic, thus confirming financial crises. The credit cycle theory of Hyman Minsky (1964) and several theorists who have interpreted the capital-credit-investment relationship in

theorizing the fragility dynamics and financial crises as the basis.

Although in this study great importance is attributed to capital flows, the banking system remains at the heart of our work. Indeed, while real cycles have so far been widely studied and their evolution remains relatively predictable, the dynamics of the credit cycle (expansion, maturity and recession) are not always directly observed, even less so in emerging economies.

1. Financial stability actors

Several authorities and institutions play a key role in financial stability. These actors use economic policies to protect states from unexpected crises. In 2011, the Basel Committee, the International Monetary Fund, the Financial Stability Board and central banks demanded that the institutional context and the objective of prudential policy, like any economic policy, be clearly defined. Prudential policy may have conflicting objectives due to its interaction with other economic policies, micro-prudential policy, which generally ensures the financial soundness of each institution or financial institution. This policy has conflicts of objectives with several policies:

First conflict with macro-prudential policy: usually these two policies complement each other; a positive act at the level of one institution can lead to negative outcomes for the entire financial system. Consider the capital ratio requirements that focus for the purpose of micro-prudential policy in crisis management, can influence the overall financial system, by pushing banks to cut back on lending, causing a slowdown in economic growth. A second conflict of objectives with monetary policy, when it sets low interest rates that can produce bubbles in asset prices. Third conflict of objectives with fiscal and financial policy: excessive public deficits or debt levels can lead to a major increase in the vulnerability of the financial system.

After the 2008 financial crisis, the international superstructure and institutional contexts have moved forward to preserve financial stability. This has led to the creation of new players, starting with the creation of the Financial Stability Forum in 1997, which later became the Financial Stability Board in March 2009 represented by the G20 countries. Its main objective is to promote international financial stability based on the exchange of information and strong collaboration in supervision, oversight and monitoring.

1.1. Central banks

The central bank is the legislative monetary authority of the state. It manages monetary policy aimed at maintaining price stability and combating unemployment. The primary objective of central banks is the maintenance of price stability, without prejudice to the other objectives of monetary policy, i.e. the promotion of strong growth and the pursuit of an optimal level of employment.

In this respect, there seems to be a consensus today on the complementarity between this main objective and financial stability. Price control contributes to reducing uncertainty about the creditworthiness of borrowers, although it can also lead to potentially high risk-taking due to overconfidence. In addition, central banks are generally involved in banking regulation and supervision as well as in the security of payment systems. Finally, being the providers of central bank money, they are, by nature, one of the potential lenders of last resort, even if the usefulness of the existence of a lender of last resort has been the subject of an abundant literature, notably since Thornton (1802) and Bagehot (1873).

Indeed, the lender-of-last-resort function is based on the vulnerability of the banking system to liquidity and contagion risks, linked to the existence of information asymmetry between lenders and borrowers. Even if there seems to be a consensus on the responsibility of the central bank to play this role, the question remains as to the usefulness of this function and the institutions that should benefit from its support.

Thus, given their different responsibilities, they cannot be indifferent to the monitoring of credit institutions. Central banks have direct responsibilities in the money market and indirect responsibilities vis-à-vis the financial market. Because of their mission, therefore, they are required to have a very broad knowledge of how markets operate, even if their regulatory responsibilities are not the same in each compartment. They therefore have in-depth knowledge of the overall functioning of all markets, which is inherent to their mission. The different market segments are, in various ways, the grounds on which the signals and effects of monetary policy are transmitted.

Thus, through its traditional missions as issuer of central bank money and guarantor of the soundness of

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payment systems, but also through its regulatory and supervisory functions, the central bank plays a fundamental role in the smooth functioning of the financial system. However, the stability of the system depends on many other factors, including the soundness of real counterparties, the changing environment and infrastructure. Its role is considered essential for maintaining the stability of the banking system and, beyond that, the financial system.

Recent theory in monetary economics recommends seven basic principles that can serve as useful guides for central banks to help them achieve positive outcomes in their conduct of monetary policy. These are:

- Price stability provides considerable benefits;
- Fiscal policy should be aligned with monetary policy;
- Time inconsistency is a serious problem to be avoided;
- Monetary policy must be forward-looking;
- Accountability is a basic principle of democracy;
- Monetary policy should be concerned with outputs, as well as price fluctuations;
- More severe economic downturns are associated with financial instability.

1.2 The International Monetary Fund

The International Monetary Fund promotes international monetary cooperation and provides policy advice and technical assistance to help countries develop and maintain financial stability and a strong economy. It also provides loans and helps countries design adjustment programs to address balance of payments problems when sufficient financing on affordable terms cannot be obtained to meet international payments. IMF loans are short- and medium-term and are financed mainly by contributions from its members. Those with extensive experience in macroeconomic and financial policies mainly lead IMF staff. The fundamental mission of the International Monetary Fund is to ensure the stability of the international monetary and financial system.

a) First mission: Surveillance

The International Monetary Fund oversees the international monetary system and monitors the economic and financial policies of member countries. As part of this process, which takes place both globally and in individual countries, the IMF highlights possible risks to stability and advises on necessary policy adjustments.

b) Second mission: Credit provision

One of the main responsibilities of the International Monetary Fund is to provide credit to member countries with actual or potential balance of payments problems. This financial assistance enables countries to rebuild their international reserves, stabilize their currencies, continue to finance imports and restore the conditions for strong economic growth. Unlike development banks, the IMF does not lend for specific projects.

c) Third mission: Technical assistance

The International Monetary Fund helps member countries design economic policies and manage their financial affairs more effectively by strengthening their human and institutional capacities through technical assistance and training. The IMF aims to exploit synergies between technical assistance and training and aims to achieve capacity development to maximize their effectiveness.

2. Macroprudential policy

Since the 2008 global financial crisis, macroprudential measures have been increasingly used around the world. They include capping loan-to-value ratios, capping debt-to-income ratios, credit growth and other balance sheet restrictions, capital requirements, reserve requirements, etc.

These measures are designed to mitigate financial cycles and thereby their impact on the economy, by containing the excessive expansion of credit and asset prices during the upward phase of the cycle (which reduces the likelihood of their sudden collapse), but also by containing their fall during the downward phase. Several studies have suggested that the central bank should have an explicit mandate to maintain financial stability by preventively tightening monetary policy during bull phases to curb advantage, speculation and asset price increases, at the risk of penalizing economic growth. However, the current consensus is rather that macro-prudential policy should be used to ensure financial stability (or at least to curb the boom-bust cycle),

which would allow monetary policy to focus on price stability and promote growth and full employment.

Several studies have examined the impact of macroprudential measures on housing markets and found that these measures do indeed contain an expansion of housing credit and house prices. Christopher Crowe, Deniz Igan, Giovanni Dell'Ariccia and Pau Rabanal (2011) found that measures such as capping the loan-to-value ratio are most likely to contain a housing boom. On the other hand, the IMF (2011) finds that these various tools are effective in preventing the expansion of credit from stimulating the rise in house prices or the latter from stimulating the former.

Using data from 57 countries over more than three decades, Kenneth Kuttner and Ilhyock Shim (2013) find that measures other than rising interest rates, such as capping the debt-service/income ratio; capping the loan-to-value ratio, or property taxes, particularly affect the growth of real estate credit. The tightening of debt-to-income ratio limits reduces real estate credit by 4 to 7%, while the tightening of loan-to-value ratio limits reduces real estate credit by about 1%.

All of these studies have shown that both loan-to-value and debt-to-income ratio limits can help stabilize the housing market and that it is more effective to tighten these limits than to relax them. Chris McDonald (2015) investigated whether this asymmetry depends on the position in the housing cycle where the measures are implemented. He infers that tightening is most effective when credit expansion is strong and when house prices are relatively high relative to income. Tightening these measures (e.g. reducing the loan-to-value ratio) during bull phases reduces the level of housing credit by 4-8% and the level of house prices by 6-12%. During bear phases, these measures reduce housing credit by 2-3% and house prices by 2-4%. It is more effective to tighten the caps on loan-to-value and debt-to-income ratios to force credit to ease the cap to stimulate credit. The differences in effectiveness between tightening and easing this cap are relatively small during downturns, i.e., when credit growth is weak and house prices are low, which is consistent with the view that easing is not very effective because it typically occurs during downturns.

Eugenio Cerutti, Stijn Claessens and Luc Laeven (2015) studied the use of a dozen macroprudential measures in 119 countries over the period 2000-2013 to determine their effectiveness in dampening business cycles. Emerging countries make most frequent use of macroprudential policies, particularly those associated with the exchange rate. Advanced countries use more borrower-based measures (e.g. ceilings on loan-to-value and debt-to-income ratios) than emerging countries. These measures are generally associated with lower credit growth, especially household credit, and lower increases in house prices. Borrower-based policies (such as ceilings on loan-to-value and debt-to-income ratios) and institution-based policies appear to be the most effective.

These policies are most effective when credit growth is strong, but less effective during collapses. The effects are also smaller in the most financially developed and open economies, suggesting some circumvention; their use is accompanied by greater cross-border borrowing, again suggesting some circumvention. For example, macroprudential policies are more effective during the collapse or recessionary phases of financial cycles, suggesting that macroprudential policy can take charge of maintaining financial stability, making it less necessary for central banks to tighten monetary policy preventively to prevent the formation of speculative bubbles. In contrast, central banks seek to intervene in phases of instability to stem the decline in asset prices, stimulate credit and contain the impact of the collapse on the real economy by easing monetary policy.

Macroprudential policy is considered the third pillar of macroeconomic stabilization plans, alongside monetary and fiscal policy. Macroprudential policy was one of the main new slogans of the 2008 international crisis. However, it means different goals for different people. For some, macroprudential policy is about managing economic cycles. For others, it combats the financial instability inherent in financial markets and financial institutions.

In practice, macroprudential policy is often described as part of banking regulation. It is the business of central banks and banking regulators. Its mechanisms are the instruments of banking regulation. The need for an effective macroprudential approach to banking regulation dates back to the 1970s, in response to growing concerns associated with the rapid evolution of bank lending to developing countries. However, despite numerous financial crises since the 1970s, the term macroprudential was little used before the recent international crisis in 2008 and its meaning has remained somewhat obscure, Clément (2010).

Unfortunately, there is much confusion about what constitutes macroprudential policy and little agreement on how to make it operational. Indeed, its objectives are not clearly defined. Moreover, the measurement and

theory of financial fragility and systemic risk in the financial system is still in its infancy, and there is little agreement on the scope of financial regulation and the institutional framework for macroprudential policy.

3. Banking macroprudential policy

New developments see macro-prudential regulation as a figure of banking regulation. The majority of reforms to date have sought to extend the traditional context of banking regulation to macro-prudential goals. Macroprudential regulation of banks is originally determined in contrast to micro-prudential regulation. Indeed, micro-prudential regulation is concerned with ensuring the individual stability of banks and therefore, by definition, forms a type of banking regulation. Micro-prudential regulation minimizes risk-taking by financial institutions as part of protecting unwary depositors and limiting the moral hazard induced by financial safety nets.

The application of value-at-risk (VaR) approaches by banks absolutely shows this specificity. Microprudential policy will argue that risk is properly understood if all banks reduce their exposure to market risk using VaR models. On the other hand, for macroprudential policy, stared VaR approaches may jointly generate systemic risk if they push all banks to sell the same assets in times of crisis, leading to falling asset prices (Shin, 2010). In addition, constant capital adequacy ratios could be pro-cyclical and exacerbate systemic risk even if they may appear appropriate from a microprudential perspective. A macroprudential policy would therefore conduct these tools (VaR or capital ratios) to ensure the stability of the system rather than that of individual institutions viewed separately.

The majority of macroprudential arrangements are the classical arrangements of microprudential banking regulation. Some arrangements, such as debt/income ratio or loan-to-value ratio restrictions, are aimed at specific features of bank lending. Other tools, still based on bank assets, attempt to reduce the increase in total bank loans, loans to a few sectors or loans denominated in foreign currencies. At the level of bank liabilities, capital-related regulation further reinforces macro-prudential objectives. These instruments are not new, but today they are used with a view to stop the participation of banks in systemic risk rather than to deal with the risk of individual banks. For example, time-varying capital requirements, which take the form of a capital surplus indexed to the associated increase in lending, will be considered in the new Basel III Accord.

In the future, these regulatory changes could be maintained in new standards for the contribution to systemic risk, such as Conditional Value at Risk or CoVaR (Adrian and Brunnermeier 2011) and systemic measures of capital adequacy (Acharya 2010). The available empirical research explains that macroprudential regulation of banks is effective on a few views. Based on aggregate data, Lim (2011) and Dell'Ariccia (2012) prove that some macroprudential measures effectively reduce the phenomenon of lending pro-cyclicality and advantage. Using disaggregated information for 2000 banks, Claessens (2013) studies the practice of 48 emerging markets and developed economies, 35 of which used macroprudential tools during the period 2000-2010. They analyze the impact of nine (9) separate macroprudential tools and find that these tools prevent overall changes in banks' advantage, total assets and non-deposit liabilities. Measures that subject borrowers' specificities, such as capping the loan-to-value (LTV) ratio or the debt-to-income ratio, appear to be as effective as capital adequacy ratios or provisioning rules.

Indeed, banking regulations protect neither the financial intermediation adopted by non-bank financial institutions nor that adopted by international banks. For the macro-prudential status to be effective, it is important that these two issues be eliminated. The new macro-prudential status directly targets credit creation and attempts to minimize highly leveraged borrowing in the real sphere, in addition to the banking sector.

4. The role of macro-prudential policy

States pursue a number of economic policies, be they monetary, fiscal, exchange rate or structural, which serve to promote financial stability. Macro-prudential policy has been developed with the explicit and primary aim of ensuring the stability of the entire financial system and avoiding the build-up and materialization of systemic risk. Macro-prudential policy takes into account endogenous and exogenous risks, previously supervised by micro-prudential regulation of the financial sector. Macroprudential policy has a dual purpose:

a. The first goal of macroprudential policy is to combat the "pro-cyclicality" of financial systems, i.e. the impact where financial systems amplify economic cycles, either by encouraging the occurrence of excessive expansionary periods during which risks are undervalued and accumulate or, symmetrically, by enhancing disruptions in periods of recession due to excessive risk aversion. These empirical facts are reflected in the establishment of asset price bubbles. Nevertheless, the task of dealing with pro-cyclicality is not to stop

financial cycles. Indeed, financial cycles, as long as they remain of reasonable magnitude, are the normal expression of economic activity. Rather, they prevent volatility of an exaggerated magnitude.

b. The second goal of macroprudential policy is to strengthen and improve the soundness of the financial system, i.e. its capacity to absorb financial or economic shocks without serious adverse effects. In other words, the main objective is to minimize the risk of a chain of failures of financial institutions, caused by a complete market shock or the failure of an institution with macroeconomic outcomes. To this end, macroprudential policy is specifically targeted at systemically serious institutions, where failure could jeopardize the composition of the financial system. Second, the aim is not to prevent a collapse, but to prevent or make the financial system unsustainable.

In this vision, macroprudential policy seeks to limit the occurrence of general failures, whether they are linked to strong interconnections or massive exposures to the same risk. By reducing the probability and impact of systemic failures.

5. The challenges of implementing macroprudential policy

In a further reading on systemic risk and macroprudential regulation by Freixas et al (2015), he proposes a framework for assessing and operationalizing macroprudential policy and discusses challenges in the implementation of macroprudential policy and its limitations. The analysis is based on a growing body of academic and policy-oriented literature, including that based on lessons from the history of financial crises and country experiences of macroprudential policies.

Capital levels have been put on the implicit assumption of creating buffers to absorb unexpected shocks in individual banks. The system as a whole was safer. Yet, by responding to capital regulation with only their own self-interest in mind, banks could potentially behave in ways that collectively undermine the system as a whole. For example, banks affected by a negative shock may prefer to deleverage when faced with capital linkage constraints, causing a credit crunch and a generalized decline in asset prices, which exacerbates the initial negative shock. The negative spillovers can be substantial, prompting financial institutions to take correlated risks in credit and asset price bubbles, so they are deeply interlinked.

To control systemic risk that could jeopardize financial stability with strong real adverse effects on the economy, regulation and supervision will need to become more macro-prudential, addressing the stability of the financial system, and its relationship with the wider economy. In addition, the failures and regulatory constraints of economic policy in addressing the build-up of financial imbalances are seen by many as also, more importantly, underlying causes of the global crisis. A discussion of macroprudential policy cannot therefore take place without considering the policy and regulatory motivations, particularly at the time of financial crises.

Some financial regulations were poorly designed at the outset, paying excessive attention to correlated risks. As a result, financial regulators have failed to identify the accumulation of correlated risks early enough. Important parts of the financial system are not regulated where regulatory arbitrage has been readily accepted.

Some regulatory failures may be related to gaps in the regulatory framework, including a lack of insight into macro-prudential regulation and systemic risks. Indeed, in the aftermath of the 2008 financial crisis, the consensus among policy-makers and academics was that regulators did not pay sufficient attention to the financial fragility of the financial system as a whole. As correlated risks in the financial system arise from perverse incentives, there is a need to monitor systemic risk through a macro-prudential regulatory framework.

Although, some of the shortcomings within this framework have been addressed by recent financial regulatory reform - such as the Basel III rules, EU directives, and US financial reform under the Dodd-Frank Act. Other fundamental questions remain unanswered; among others, the "resolution of the too big to fail", the problem of implementation and the macroprudential policy interactions related to monetary policy remain open questions.

The future success of banking regulation will largely depend on changes to the current regulatory framework for banks. New regulations that restrict bank activities or increase capital requirements will force banks to become less indebted, and therefore less risky. At the same time, however, there is a risk that bank activity will shift to less regulated areas of the financial system, including the banking shadow, institutional investors and financial markets. While there are strong advantages to having a more diversified financial system without

additional regulation, the risk could concentrate in unregulated entities and take on systemic proportions. As a result, systemic risk could increase even as banks become less risky.

Among the main causes of failures in financial regulation and supervision are ineffective macro-prudential policy and weak supervisory oversight. This was one of the main causes of the financial and banking crisis. The G20 meeting on 2 April 2009 in London, raised the importance of this policy by strengthening the regulatory system first and helping authorities to address macroprudential risks.

In March 2009, the G20 produced a report with recommendations that emphasized effective financial regulation as the frontline to protect and preserve financial stability. The G20 recommendations had highlighted financial instability during mid-2007 that represented the accumulation of systemic vulnerabilities related to excess leveraged liquidity, risk-taking and systemically important concentrations in the global financial system. The financial crisis of 2007 prompted the importance of strengthening the macro-prudential oversight mechanism.

In Europe, the de Larosière report insists on the establishment of a body responsible for macro-prudential supervision at the European level (see below). Thus, the European Central Bank has stressed the importance of developing the macro-prudential context of the European Union. In 2009, Jean Claude Trichet stressed that macro-prudential policy enhances market stability. In addition, an important component of the overall single market project is the single financial market. Several important questions were raised related to the aims, means and methods of macro-prudential supervision when implementing a macro-prudential process. Papademos, also in 2009, insisted on the need to integrate macro-prudential supervision with other central bank policies that seek to help achieve financial stability. In addition, the ECB also indicated that the financial crisis has led to a better understanding of systemic risk, to strengthen the macro-prudential policy of financial management, and to increase the intervention of central banks in this area.

Lorenzo Bini Smaghi indicated in 2009 that the creation of a body such as the European Systemic Risk Board "ESRB" responsible for the macro-prudential oversight of the financial system in the EU contributes to the prevention or mitigation of systemic risks to financial stability arising from developments in the financial system. The "ESRB" also contributes to the smooth functioning of the internal market and ensures a sustainable contribution of the financial sector to economic growth.

In the United States, US President Barack Obama unveiled on 17 June 2009 the need for an overhaul of the financial regulatory system by creating a Financial Services Oversight Council (FSOC) to facilitate information flow and coordination, to identify emerging risks and to advise the Federal Reserve System on the identification of institutions whose failure could threaten financial stability. The role of the FSOC is to identify risks and respond to new threats to financial stability to assist in the identification of emerging risks. For financial stability, the FSOC can provide guidance, data, and analysis from a newly created Financial Analysis Office (FAO) located within the U.S. Treasury.

The Financial Conduct Authority (FCA) has shown the importance of macro-prudential policy to prevent systemic risks, i.e. the absence of macro-prudential instruments would cause crises arising from any specific failure in the supervisory process of individual institutions. The Geneva World Economic Report states that micro-prudential policy has shown many shortcomings not only in managing crises but also in protecting the stability of the financial system. For this reason, macro-prudential regulation has become a complementary necessity. In February 2010, the G30 established its Working Group on Macroprudential Policy, led by Roger W. Ferguson, to address the role that macroprudential policy could play in strengthening financial stability, the future resilience of markets and financial institutions in the event of global financial crises.

The objective of macroprudential policy is the welfare of the financial system, as opposed to the objective of prudential supervision, which is the safety of individual financial institutions. A fundamental concern of macro-prudential policy is that the interdependence of institutions, financial markets and their common exposure to various economic variables may increase the level of risk and fragility of the financial system as a whole in general and to an extent that will not be reliably addressed by a focus on the regulation of individual institutions.

Indeed, the financial system represents an inherent trend, namely a succession of periods of expansion and contraction, augmented by the strict linkage of financial institutions and markets. The detection of systemic risks and the preparation of accommodative responses represent the macroprudential methods, which are consistent with the focus of the research from the onset of the financial crisis.

In general, the financial crisis has highlighted the fragility and weakness of the regulatory framework for macro-prudential oversight of the stability of the international financial system. Despite the remarkable development, prudential frameworks failed to keep the international financial system in balance, which was due to an exaggerated increase in credit and a surge in prices in a context of widespread underpricing of financial risk during periods of strong non-inflationary economic growth.

6. Risks arising from systemic institutions

Systemically important financial institutions (SIFIs), also known as large institutions, where failure would have a significant impact on the financial system and the global economy in general, represent one of the important topics in the work of enforcing macroprudential regulation. This logic was not taken into account in micro-prudential regulation. FISIs have two types of impacts, one is purely domestic or national (domestic FISI), and the other is global (global FISI).

The best example of this type of impact is the bankruptcy of the international chain Lehman Brothers. To combat this, contagion effects must be reduced by minimizing the loss in value of one or more systemic institutions. The failure of such institutions that produce macroeconomic results, in a local or international framework, are a priori of the same replica where public authorities do not let these institutions declare bankruptcy "To big to fail". Indeed, systemic institutions take many risks, relying on the role of the State, which bears the losses through its budget. Other problems arise such as the distribution of the fiscal burden of intervention, creating instability in the financial system and consequently systemic risk develops. An institution with cross-border shareholders, when it fails, foreign countries will feel the macroeconomic effects, but only the country of the parent company, which will not be able to cope in the event of an overextension of its banking sector.

7. Macroprudential policy tools

Monitoring and analyzing the drivers of financial and economic stability, diagnosing systemic risk, and developing plans and strategies for crisis resolution are the three key steps to financial stability. Several regularly published reports analyze financial stability, both internally (ECB's Financial Stability Review, Risk Dashboard of the European Systemic Risk Board - ESRB) and internationally (International Monetary Fund's Global Financial Stability Report - IMF). New means were being implemented for the monitoring and management of systemic risks.

Central banks developed indicators for measuring and determining systemic risk based on statistics and market data. More developed methods, such as network theory and stress tests, were used to show interdependencies between financial institutions and to identify channels and contagion effects.

Conclusion

The objective of macro-prudential instruments is to limit risk, and to prevent its development. This is seen as the crucial step after risk identification. Generally, macroprudential instruments are divided into two types. The first type is specifically devoted to macroprudential policy, as a countercyclical capital cushion, which requires the generation of prudential capital reserves at the peak of the cycle, which will be used to prevent unstable cyclical downturns. The second type is used as reconfigured instruments to achieve and improve the stability of the financial system. This is in line with the use of other economic policies. This type of instrument can be translated as bank capital requirements, i.e. the solvency ratio defined in the international Basel agreements, which represents a micro-prudential instrument ensuring the financial soundness of institutions. The aim of financial institutions is to minimize losses and limit risks by improving the means and capacities to absorb shocks.

In addition, macroprudential policy instruments fall into two categories, depending on their purpose, namely, to prevent procyclicality or to enhance the resilience and soundness of the financial system against shocks. The first category of instruments is used to stop bubbles from forming and smooth cycles, i.e. to force the debt-equity of economic operators on an income basis to prevent unsustainable credit bubbles, or to require dynamic loss provisioning rules. The second category of macro-prudential policy is to improve the resilience to shocks, such as capital surcharges for systemic institutions or the requirement to hold liquid assets to cope with market panics, and to make the financial system less complex. Macro-prudential policy is very effective with the support of macroeconomic policies. In other words, the combination of different macroeconomic policies is

necessary for the success of macroprudential policy. In addition, the importance of communication between authorities in designing effective macroprudential policy should be noted. This includes harmonious communication between central banks, finance ministries, and ministries of the economy.

It should also be noted that macro-prudential policy is much more effective than the effectiveness of other economic policies. First, macroprudential policy is effective in preventing banking crises. It aims to limit dangerous credit spillovers and ensure the stability of banking systems. Second, it should be noted that monetary policy is necessary for the performance of macroprudential policy. Macroprudential policy is effective only in countries that have adopted inflation targets. Macroprudential policy would be effective in achieving banking stability by affecting the volume of credit. Third, exchange rate regimes are also crucial for the effectiveness of macroprudential policy. Fourth, macroprudential policy is effective in avoiding banking crises in countries without capital controls, but not in countries with capital controls. These conclusions are important for policy makers, including monetary and financial regulators. With the current covid 19 crisis, the interaction between macroeconomic and macroprudential policies is important, supported by transparent and effective communication.

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