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**Research Report**

## Understanding the links between Macroprudential Regulation, Financial Stability, and Growth

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# Understanding the links between Macroprudential Regulation, Financial Stability, and Growth\*

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The growth effects of financial volatility, and ways to mitigate them, have been largely absent from recent discussions about the implications of the global financial crisis for financial reform. However, understanding the longer run effects of financial regulation is essential because of the potential trade-off associated with the fact that regulatory policies, designed to reduce procyclicality and the risk of financial crises, could well be detrimental to long-run economic growth, due to their effect on risk taking and incentives to borrow and lend—despite contributing to a more stable environment in which agents can assess risks and returns associated with their investment decisions. Dwelling on a recent analytical contribution, this policy brief argues that macroprudential policy, especially in low-income countries, should internalize this trade-off. The case of reserve requirements is discussed, given the importance of this instrument in these countries.

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## ► Introduction

The global financial crisis led to a renewed debate about the nature and effectiveness of financial regulation. The consensus that emerged is that, to contain systemic risks and preserve macroeconomic and financial stability, it is essential to go beyond a microprudential approach, focused solely on the regulation of individual institutions, and adopt instead a macroprudential perspective, in the form of regulatory rules aimed at increasing the resilience of the financial system to systemic risks and limit disruptions to the provision of financial services that can cause serious negative consequences for the real economy. At the same time, the greater focus on systemic risk and financial vulnerabilities has stirred up a broad debate in academic and policy circles on how macroprudential regulation can help to mitigate the procyclicality of the financial system, by preventing unsustainable credit booms and the build-up of asset price bubbles. The current international banking standards, set by the Basel Committee on Banking Supervision (2011), incorporate a number of instruments aimed at addressing this issue.<sup>1</sup>

The focus of recent discussions on the implications of financial volatility for short-term economic stability and on the short-run benefits of financial regulation is warranted, given the cost of economic and financial crises. However, the growth effects of financial volatility, and ways to mitigate them, have been largely absent from these discussions. Yet, understanding the longer-run effects of financial regulation is essential because of the potential trade-off associated with the fact that regulatory policies, designed to reduce procyclicality and the risk of financial crises, could well be detrimental to economic growth, due to their effect on risk taking and incentives to borrow and lend. This

trade-off exists despite the fact that these policies may also benefit growth indirectly, by contributing to a more stable environment in which agents can assess risks and returns associated with their investment decisions.

In low-income countries, where sustaining high growth rates is essential to increase standards of living and escape poverty, understanding the terms of this trade-off is particularly important. These countries are often characterized by an underdeveloped formal financial system, and thus limited opportunities to borrow and mitigate the impact of shocks when they occur.<sup>2</sup> The real effects of financial volatility on firms and individuals can therefore be not only large but also highly persistent, thereby translating into not only transitory drops in output but also adverse effects on growth.<sup>3</sup> In such conditions, the benefits of regulatory measures aimed at promoting financial stability could be fairly substantial. Yet, if regulatory constraints have a persistent effect on the risk-taking incentives of financial intermediaries, or more generally if they constrain their capacity to lend, they may translate into high interest rate spreads, suboptimal levels of borrowing by entrepreneurs to finance investment, and shifts of activity to less-regulated financial intermediaries, which could affect negatively growth and welfare. Changes in risk-taking incentives could occur if, for instance, regulatory constraints induce structural shifts in banks' portfolio composition, in the form of a move away from risky assets toward safe investments. A key question therefore is to set macroprudential tools in such a way that they internalize this trade-off. Moreover, because the

1. See Caruana and Cohen (2014) for a discussion of the key elements of macroprudential policy.

2. See for instance Mecagni et al. (2015) for a discussion of the state of banking in Sub-Saharan Africa.

3. These adverse growth effects are consistent with the evidence showing that financial liberalization (to the extent that it is accompanied by greater financial volatility) may not contribute much to promoting growth; see for instance Misati and Nyamongo (2012) and the overview by Fowowe (2013). The latter study, in particular, highlights the need to strengthen prudential regulation to enhance the benefits of financial liberalisation. However, the potential adverse effects of prudential regulation itself are not discussed.

institutional environment in low-income countries is often weak, a related issue is what type of financial regulatory instruments should be implemented.

## ▶ Linking Macroprudential Regulation and Economic Growth

A recent contribution by Agénor (2016) provides one of the few analytical studies focusing on the link between macroprudential regulation and economic growth.<sup>4</sup> In the model considered, growth is endogenous and depends not only on technology and preferences, but also on policy. The focus of the analysis is on reserve requirements—a prudential instrument that has been used extensively in both low- and middle-income developing countries.<sup>5</sup> As in Holmström and Tirole (1997), investment and the production of capital is subject to a dual moral hazard problem: first, entrepreneurs, who need external funds to finance their investment projects, may be tempted to choose less productive projects (shirk) with higher non-verifiable returns. Second, although bank monitoring mitigates the moral hazard problem associated with the behavior of entrepreneurs, the fact that banks use deposits from households to fund their loans creates an incentive to shirk when monitoring is costly. In addition, households cannot lend

directly to producers; there is therefore only intermediated finance through banks. This assumption is quite appropriate for a low-income environment, where capital markets are underdeveloped—if not entirely absent. Second, the intensity of bank monitoring, which affects private returns from shirking, is endogenously determined.

The key insights from the analysis are as follows. When the monitoring costs that financial intermediaries face are exogenous, an increase in the reserve requirement rate—motivated by the desire to constrain banks' capacity to lend, reduce the private sector leverage ratio, and mitigate systemic risk—has unambiguously negative effects on investment and economic growth.<sup>6</sup> Making banks safer by requiring them to put away a fraction of the deposits that they receive reduces the supply of loanable funds. It also tends to reduce investment and growth because higher reserve requirements increase the threshold level of wealth below which an entrepreneur cannot borrow. However, when monitoring intensity is endogenously determined, an increase in the reserve requirement rate has conflicting effects on investment, growth and welfare. The reason is that, when monitoring intensity is endogenous, the adverse effect on lending may be offset by the fact that a higher reserve requirement rate also mitigates banks' incentives to monitor. In turn, this is because when monitoring is determined endogenously, the fact that a higher reserve requirement rate tends to lower directly investment (as noted earlier), and thus borrowers' expected income, also calls for a reduction in the intensity of monitoring, in order to increase the nonverifiable

4. Van den Heuvel (2008) was one of the first to study the effects of macroprudential regulation (in the form of bank capital adequacy requirements) in a standard growth setting. He argued that capital requirements entail a trade-off between banking efficiency and financial safety, because although they induce banks to hold less risky portfolios (thereby mitigating the probability of a financial crisis) this may lead to a shift away from risky, but more productive, investment projects, toward safer, but less productive, projects (thereby hampering growth). However, a crucial limitation of that paper is that, because growth is exogenous, the implications of this trade-off for long-run growth, and the extent to which policy can internalize it, cannot be fully explored.

5. See Agénor and Pereira da Silva (2016) and the references therein. Reserve requirements have recently been made part of the liquidity requirement guidelines under the new Basel arrangement (see Basel Committee on Banking Supervision (2013)).

6. In this framework, an increase in the reserve requirement rate can indeed be motivated by a desire to slow down the expansion of credit or to reduce across the leverage ratio of private borrowers, by constraining the capacity of banks to lend, and thereby increase the resilience of the financial system. In more conventional fashion this policy can also be viewed as an attempt by the financial regulator to mitigate the risk of bank runs or to provide partial deposit insurance to savers, by forcing banks to hold higher liquid reserves than they would otherwise.

private benefit that borrowers can earn when their projects succeed. This reduction in monitoring intensity translates into lower monitoring costs, which frees up resources to increase loans and mitigates the adverse direct effect of a higher reserve requirement rate on lending. Policymakers can internalize the trade-off between ensuring financial stability (high reserve requirements) and promoting economic growth (low reserve requirements) by choosing optimally the reserve requirement rate.

In addition, there appears to be an inverse relationship between the optimal reserve requirement rate and the efficiency of monitoring; the economy is better off if policymakers impose high required reserve ratios on banks when their ability to monitor borrowers is weak. This result is consistent with the evidence suggesting that reserve requirements continue to be used extensively in developing countries, and much less so in industrial countries.

## ► Policy Lessons

The foregoing discussion suggests that the trade-off between financial stability and economic growth that policymakers typically face when setting macroprudential instruments can, in principle at least, be addressed by setting these instruments in such a way that they balance positive and negative effects on growth and welfare. Although the discussion focused on a particular instrument—reserve requirements aimed at reducing banks' capacity to lend, private sector leverage, and mitigating systemic financial risks—it is very possible that similar results may also characterize the choice of other macroprudential tools, such as bank capital requirements and loan-loss provisions.

Nevertheless, at a more practical level there are two important considerations regarding the feasibility of these “optimal” solutions. The first is

that in principle a model should be used to calibrate them; but while the discussion here has focused on the long run, the short-run benefits of financial regulation (in the form of lower fluctuations in credit, output and prices) should also be taken into account to obtain the full picture of the benefits and costs of using each instrument. This calls for a more detailed framework than the one discussed here. In an environment where capacity is weak (as is the case in many low-income countries), developing such models may not be feasible. However, even though precise calibrations may not be available, it is important for policymakers to keep in mind the longer-run effects of regulatory policies when setting their instruments. This is still better than simply ignoring these effects

The second relates to the possibility that by setting (optimally) instruments at levels that are either too high or too low may alter behavior and create distortions. Indeed, in the present case, if reserve requirements are (optimally) set at prohibitive levels, they may foster disintermediation away from the formal banking system and toward less regulated channels, which in turn may distort markets, weaken financial stability, and reduce investment and growth. The risk of disintermediation (or regulatory arbitrage) means therefore that financial supervision may also need to be strengthened, and the perimeter of regulation broadened, when more aggressive macroprudential policies are implemented. This is also an important message for policymakers.

## ▶ References

- **Agénor, P.-R.** (2016) "Growth and Welfare Effects of Macroprudential Regulation," Working Paper No. 218, Centre for Growth and Business Cycle Research (February 2016).
- **Agénor, P.-R.** and **Pereira da Silva, L.** (2016) "Reserve Requirements and Loan Loss Provisions as Countercyclical Macroprudential Instruments," Policy Brief No. IDB-PB-250, Inter-American Development Bank (February 2016).
- Basel Committee on Banking Supervision (2011) "Basel III: A Global Regulatory Framework for more Resilient Banks and Banking Systems," Report No. 189 (revised, June 2011).
- — (2013) Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools, Report No. 238 (January 2013).
- **Caruana, J.** and **Cohen, B.H.** (2014) "Five Questions and Six Answers about Macroprudential Policy," *Financial Stability Review*, Banque de France, No. 18 (April 2014), 15-23.
- **Fowowe, B.** "Financial Liberalization in Sub-Saharan Africa: What do we Know?," *Journal of Economic Surveys*, 27 (March 2013), 1-37.
- **Holmström, B.** and **Tirole J.** (1997) "Financial Intermediation, Loanable Funds, and the Real Sector," *Quarterly Journal of Economics*, 112 (September 1997), 663-91.
- **Mecagni, M., Marchettini, D.** and **Maino R.** (2015) *Evolving Banking Trends in Sub-Saharan Africa: Key Features and Challenges*, IMF Publications, Washington DC.
- **Misati, R.N.** and Nyamongo, E.M. (2012) "Financial Liberalization, Financial Fragility and Economic Growth in Sub-Saharan Africa," *Journal of Financial Stability*, 8 (September 2012), 150-60.
- **Van den Heuvel, S. J.** (2008) "The Welfare Cost of Bank Capital Requirements," *Journal of Monetary Economics*, 55 (March 2008),







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