EUROPEAN CENTRAL BANK
EUROSYSTEM

RESEARCH BULLETIN NO. 56

Interactions between monetary and macroprudential policies

26 March 2019

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Should monetary policy be concerned with financial stability? Or do financial supervisory and regulatory policies suffice to achieve this goal? These questions have been prominent in the policy debate since the global financial crisis. To address them, I develop a tractable monetary model in which systemic risk and economic activity both depend on financial conditions. I show that there are benefits from using monetary policy, i.e., interest-rate policies, to enhance financial stability. These benefits are quantitatively moderate, however, and partly offset by costs in terms of inflation variability.

A central outcome of the global financial crisis has been the development and/or enhancement of financial supervisory and regulatory policies aimed at curbing excessive risk-taking behaviour and containing systemic risk in financial markets. Notable developments in this regard include the establishment of the Single Supervisory Mechanism (SSM), the principal role of which is to ensure the safety and soundness of the European banking system, and the introduction of the countercyclical capital buffer (CCyB), which stipulates the amount of additional Tier 1 capital banks should hold as a share of their risk-weighted assets during periods of high credit growth and rapid financial expansion.[2] A key question that arises is whether these supervisory and regulatory policies are enough to safeguard financial stability, or whether – through its control of short-term nominal interest rates – there is also a role for monetary policy.

In a recent paper (Van der Ghote, 2018), I develop a tractable general equilibrium model to address this question. At the heart of the model lies the banking system, which intermediates funds between households and firms and is thus central to the determination of investment and economic activity. This ability to intermediate is limited by funding constraints, however, which restrict the amount of funds that banks can raise from households – and thus lend to firms – to a multiple of their net worth. This gives rise to a natural and tight interrelation between financial conditions and economic activity. If investment is productive, for instance, output is high and so is the net worth of banks: this relaxes financial conditions and provides an additional boost to economic activity. On the other hand, if investment is unproductive, output is low and so is the net worth of banks: this tightens financial conditions and further depresses economic activity.

Like many economic models of its kind, a key feature of this environment is that it may lead to “excessive” risk-taking by banks. The reason is that the severity of crises increases with the leverage of the banking system. When a crisis erupts, banks need to liquidate assets to reduce their leverage, but this liquidation reduces the price of assets, further reducing the net worth of banks and thereby leading to further liquidation. The more leveraged banks are, the stronger this “fire sale” is. However, because each bank is relatively small, it does not correctly take into account the contribution of its own decisions on leverage to the overall severity of the crisis. As a result, there may be excessive risk taking and inefficiently severe crises in equilibrium. This is why financial regulation is potentially beneficial.

Another important feature of the study is that, unlike most previous work, it explicitly allows for the type of complex and nonlinear dynamics that arise from the interaction between economic activity and financial conditions. In particular, the study acknowledges that this type of economy will fluctuate continuously and spend most of its time outside and far away from what economists usually refer to as “steady state” – i.e., the situation attained ultimately in the long run once temporary effects of unforeseen disturbances vanish. This feature makes the model suitable to assess the effectiveness of policy interventions not just over the long term, but also over a shorter horizon as well as throughout the financial and economic cycles.

Equipped with this model, I evaluate and contrast two different policy scenarios. In the first scenario, as is usually the case in developed economies, monetary policy targets only inflation stability, while macroprudential policy targets only financial stability, and both policies disregard any potential effect they could have on the other's objective. In the second scenario, monetary and macroprudential policies jointly aim to achieve both inflation stability and financial stability. To keep the analysis simple, monetary policy is limited to the setting of short-term, nominal interest rates, while macroprudential policy is limited to the determination of capital requirements for banks.[3] Monetary and macroprudential policy rules, however, are allowed to be nonlinear, and contingent, in particular, on aggregate financial conditions. In the model, a proxy indicator of those conditions is the net worth or capital of banks. Capital requirements bind if they restrict banks' debt-to-asset ratios below those that they would choose of their own accord.

Table 1: Benefits from monetary and macroprudential policies

	First policy scenario (non-coordinated policies)	Second policy scenario (coordinated policies)
Benefits from inflation stability (1)	0.00%	-0.04%
Benefits from financial stability (2)	0.61%	0.72%
Total benefits, (1)+(2)	0.61%	0.68%

Note: Benefits are measured relative to a real, laissez-faire version of the model and are expressed in permanent changes in aggregate per annum consumption levels.

Table 1 reports benefits from conducting monetary and macroprudential policy optimally in accordance with their respective objectives under each policy scenario. Benefits from inflation stability are reported in the first row, those from financial stability in the second row, and the third row reports totals. For convenience, benefits are measured relative to levels attained in a real, laissez faire version of the model in which monetary policy has no effect on the real side of the economy and there is no macroprudential policy. They are expressed in terms of permanent changes in aggregate per annum consumption levels.

A first important takeaway from the exercise is that, under both policy scenarios, optimal capital requirements bind when aggregate financial conditions are sound but not fully resilient to adverse disturbances. In other words, binding capital requirements are needed when the net worth of banks is high but not too high: at such times, banks as a whole have enough net worth to finance most firms, but they do not have enough net worth to absorb adverse disturbances without unwinding their positions. By reducing bank leverage, binding capital requirements mitigate the fire sales that would arise – and the inefficiencies that they would entail – should such adverse disturbances occur. They achieve this, moreover, at relatively low cost in terms of reductions in aggregate financing to firms. In numerical simulations, as Table 1 shows, the benefits from such prudential capital requirements for banks are large. The main reason is that, by lowering systemic risks while banks are relatively well capitalised, these policies significantly reduce the frequency and intensity of periods of deep financial distress.

But what about the role of monetary policy? In the first policy scenario, monetary policy adjusts nominal interest rates to keep the economy stable around what economists usually refer to as the neutral growth path. This essentially means that monetary policy is concerned solely with keeping inflation and unemployment rates low and stable at their structural levels. In the second scenario, monetary policy instead contributes to financial stability by (i) stimulating aggregate demand relative to that neutral benchmark during periods of financial distress, and (ii) slowing down aggregate demand relative to that same benchmark during tranquil periods. This temporarily stimulates banks' excess returns during distress periods, speeding up their recapitalisation and thus the economic recovery at precisely those times when banks are severely undercapitalised and capital requirements are not useful for stabilising the economy. As Table 1 shows, however, the financial stability gains from this additional contribution of monetary policy are quantitatively modest. The reason is that monetary policy does not stray too far from its natural benchmark, both because it still aims to maintain inflation and unemployment rates close to their structural levels and because – given the presence of optimal macroprudential policies – the additional benefits from further enhancing financial stability remain moderate. In fact, the use of monetary policy to enhance financial stability generates costs in terms of increased inflation variability, as shown in Table 1.

To conclude, I develop a tractable model to analyse the effects of interest-rate and capital-requirement policies throughout the financial and economic cycles. I find that prudential capital requirements for banks significantly help to enhance financial stability. The use of monetary policy for further promoting financial stability, however, generates positive but only moderate gains, which are partly offset by costs associated with an increase in the variability of inflation.

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[1] Disclaimer: This article was written by Alejandro Van der Ghote (Economist, Directorate General Research, Monetary Policy Research Division). It is based on a paper entitled "Coordinating monetary and financial regulatory policies" by the same author. The author gratefully acknowledges the comments of Matthieu Darracq Paries, Paul Dudenhefer, Michael Ehrmann, Alberto Martin, Carl Sholl and Zoë Sprokel. The views expressed here are those of the author and do not necessarily represent those of the European Central Bank and the Eurosystem.

[2] For further details on recent policy developments in financial supervision and regulation in the EU and the European Economic Area, see the websites of ECB Banking Supervision and the European Systemic Risk Board (ESRB).

[3] Policy scenarios that consider other, less conventional monetary policies, such as large scale purchases of government bonds, and/or other macroprudential policies are outside the scope of this paper.