



THE ROOTS OF MACROPRUDENTIAL POLICY AND THE RISK-TAKING CHANNEL OF MONETARY POLICY

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Abstract

Purpose: the main objective of this manuscript is to confirm that since there is a direct link between macroprudential policies and monetary policy, it is worthwhile to analyze the inter-dependence with the risk-taking channel. **Methodology:** the analysis presented in this manuscript is based on an extensive literature review from reliable sources in order to support the research findings. **Findings:** The empirical research about macroprudential policies, as well as the conventional and unconventional monetary policies adopted by central banks since the 2008 financial crisis could be expanded by adding the credit shock and including Emerging Economies as part of the analysis. This interesting phenomenon could be investigated by estimating spillover effects associated to Advanced Economies' monetary and prudential policies on Emerging Economies' risk-taking channel.

Keywords: macroprudential policy, conventional and unconventional monetary policy, bank risk-taking channel and spillover effect.

JEL classification: E52, E58, G21, G28

Introduction

As documented by Clement (2010), the origin of the term “macroprudential” can be traced back to unpublished documents prepared in the late 1970s – minutes of a meeting of the Cooke Committee (the precursor of the present Basel Committee on Banking Supervision) and a document prepared by the Bank of England. During this period, the term generally denoted a systemic orientation of regulation and supervision linked to the macroeconomy. Public references to macroprudential policy surfaced only in the mid-1980s. BIS¹ (1986) discussed it as a policy aimed at supporting “*the safety and soundness of the financial system as a whole, as well as payments mechanism*”. George Blunden, the first chairman of the Basel Committee on Banking Supervision, highlighted in a speech how a systemic view could imply curbing banking practices that would appear to be prudent from an individual bank’s perspective (Blunden, 1987).

¹ BIS: Bank for International Settlements, www.bis.org

Nonetheless, in the early 2000s, the notion of a macroprudential approach to regulation and supervision received new impetus, particularly through an influential speech by Andrew Crockett, at the time General Manager of the BIS (Crockett, 2000). The use of the term macroprudential became much more common in the recent financial crisis. Many recent speeches on lessons from the crisis discuss macroprudential policy in detail (e.g. Shirakawa, 2009, Nijathaworn, 2009, Tumpel-Gugerell, 2009, Bini-Smaghi, 2009, Kohn, 2009, and Brouwer, 2010). Over the past five (5) years, there has also been a visible increase in research related to macroprudential policy and its direct link to monetary policy.

As Adrian and Liang (2016) point out, macroprudential policies can improve the inter-temporal trade-off for monetary policy by pre-emptively lowering vulnerabilities of the financial system. For example, increasing capital requirements may reduce risk shifting by insufficiently capitalized banks, which leads to lower quality loans and increases balance sheet exposures. Higher capital could be set through enhanced structural requirements, but may be more costly than a cyclical time-varying capital requirement, since it will remain at its constant high level at a credit-cycle peak, when investors and firms already are highly risk-averse and reluctant to extend credit.

However, decisions to implement cyclical policies raise difficult timing issues for policy makers, and may be subject to the criticism that macroprudential authorities are raising capital requirements to restrict credit too much when future costs to financial stability are highly uncertain or are releasing capital too soon when concerns about bank default are still high.

Notwithstanding, Adrian and Liang (2016) consider that macroprudential tools that could offset excessive risk taking in banking include the new Basel III countercyclical capital buffer, which can be built up in boom times when the cost of equity is relatively cheap, and deployed in downturns when the accumulation of capital is expensive. A build-up during extended boom times would result in a higher capital buffer, leaving banks better positioned to withstand large adverse shocks.

The release of the countercyclical capital buffer in a downturn would offset pressures for banks to deleverage, thus mitigating the potentially adverse amplification of forced deleveraging during an economic downturn. In principle, the build-up and release of the buffer would be a function of the pricing of risk, whereas capital required for microprudential objectives would be a function of physical default risks. In addition, higher bank capital ratios are found to reduce the probability of a crisis.

Likewise, the Basel Committee on Bank Supervision (2010) study finds that higher capital requirements lower tail risk, but also lower GDP² growth for a number of years. Aiyar, Calomiris, Wieladek (2016) use UK³ minimum bank capital requirements to estimate the impact of capital on credit supply and find that bank lending reacts substantially to capital requirement changes. However, Aiyar, Calomiris, Wieladek (2014) find substantial leakage of capital regulation as foreign banks partially offset the impact of capital requirements on bank credit supply.

The organization of the paper is as follows: section 1 presents an alternative analysis and its relation to the risk-taking channel; section 2 talks about how monetary policy and financial leverage are closely-related; section 3 explains how macroprudential and monetary policies complement each other; and finally a conclusion is presented

² GDP: Gross Domestic Product.

³ UK: United Kingdom.

1. Alternative analysis and the risk-taking channel

Another way to evaluate macroprudential tools is in the context of DSGE⁴ models. Analysis of macroprudential tools in the presence of banking frictions within equilibrium models is rapidly developing. For example, Kiley and Sim (2012) examine a setting where banks face an external finance premium. Modigliani-Miller is assumed to fail so that debt is cheaper than equity and outside equity is the most expensive form of funding.

Since the transmission channels for macroprudential and monetary policies are intertwined, consideration should be given to whether monetary policy should incorporate financial stability objectives (Adrian and Liang, 2016). An early contribution by Bernanke and Gertler (1999) evaluates whether monetary policy should react to asset valuations. They argue for a flexible inflation-targeting regime which considers asset prices only to the extent that they impact the inflation-activity tradeoff. This view used to be accepted widely, especially with respect to equity market bubbles, as the burst of the late 1990s tech bubble appeared to be successfully offset by easing monetary policy.

As mentioned before, since there is a direct link between macroprudential policies and monetary policy, it is worthwhile to analyze the inter-dependence with the risk-taking channel. Besides its impact on asset valuations, monetary policy has traditionally been considered to work through the banking sector, mainly as lower policy rates lead to an increase in the volume of lending (see Peek and Rosengren, 2003 for a review). The bank lending channel posits that easier policy relaxes borrowing constraints of banks, shifting credit supply (Bernanke and Blinder, 1988; Kashyap and Stein, 1994). Bernanke and Blinder (1992), Kashyap, Stein and Wilcox (1993), and Bernanke and Gertler (1995), provide empirical support for the bank lending and balance sheet channels, based on aggregate data, as monetary policy tightening leads banks to shrink lending. Kashyap (1995) and Stein (2000) show that banks that are small and less liquid, and have fewer margins to adjust to a loss of reservable deposits, reduce loans by more when policy tightens.

Capital requirements may influence the impact of monetary policy on bank lending. Peek and Rosengren (1995) show that an adverse capital shock that makes a capital constraint binding will cause banks to shrink assets and liabilities. When comparing capital-constrained to unconstrained banks, the unconstrained were more able to increase loans in response to an easing of policy.

An increasing number of papers have focused on the link between the stance of monetary policy and the risk-taking behavior of banks, which increases vulnerabilities and risks to financial stability. Loose monetary policy can encourage banks to take on more risk on both the asset side and the liability side. On the asset side, banks can reach for yield (Rajan, 2005), which will increase the share of risky assets. On the funding side, loose monetary policy increases incentives to use more short-term funding. Stein (2012, 2013) and Adrian and Shin (2010) show that increases in policy rates are associated with declines in short term liabilities.

Recent papers provide cross-sectional evidence of the risk-taking channel, in which monetary policy affects not just the quantity but the quality of credit. The risk-taking effects depend importantly on the amount of bank capital, where higher levels of capital mitigate incentives to reduce the quality of credit. Jiménez et al (2012) use detailed credit register data in Spain to show that lower rates lead to greater risk taking, more credit to riskier firms, and this effect is greater at banks with lower capital. Dell’Ariccia, Laeven, and Suarez (2013) look at this channel in the US, and find a relationship between ex-ante riskiness of loans and bank capital.

Furthermore, Paligorova and Santos (2012) evaluate loan spreads on syndicated loans in the US and find that the required spreads for more risky to less risky borrowers are lower in

⁴ DSGE: Dynamic Stochastic General Equilibrium.

periods of looser monetary policy and stronger for banks with greater risk appetite. Maddaloni and Peydro (2011) find that low rates lead to softer lending standards in both the US and Euro area, which is greater if rates have been low for an extended period, supervision is weaker, and securitization activity is greater. Altunbas, Gambacorta, and Marques-Ibanez (2010) show that unusually low rates for an extended period led to a sharper rise in expected default probabilities for banks, consistent with greater risk taking.

2. Monetary policy and financial leverage

Easing of monetary policy leads to lower leverage costs for banks, which increases risk taking and lowers risk premia. A theoretical setting that studies this risk shifting effect is presented by Dell’Ariccia and Marquez (2013), and Dell’Ariccia, Laeven, Marquez (2014) state that monetary policy tightening can put financial institutions closer to default, resulting in risk shifting incentives, leading them to take on more, not less risk. In addition, Drechsler, Savov, and Schnabl (2014) model the effects of monetary policy by affecting the external finance spread that banks pay to leverage, showing that monetary policy indeed affects the leverage of financial institutions.

Christiano, Motto and Rostagno (2006) also argue that monetary policy which focuses narrowly on inflation may inadvertently contribute to welfare-reducing boom-bust cycles in real and financial variables.⁵ The authors show that a policy of monetary tightening when credit growth is strong can mitigate such problems. In addition, Christiano, Ilut, Motto and Rostagno (2010) document that stock market booms tend to be accompanied by low inflation. As a result, interest rate rules that focus narrowly on inflation targets will destabilize asset markets and the broader economy. Interest rate rules should thus be adjusted for asset valuations, for example by allowing an independent role for credit growth, to reduce the volatility of output and asset prices.

More generally, a theory of the interdependence of macroprudential, fiscal, and monetary policies is provided by Brunnermeier and Sannikov (2011, 2014a, 2014b). Their “I-Theory” stresses the importance of spillover effects that link price stability, financial stability and fiscal stability, and the difficulties of separation of the stability concepts. For example, financial instability prompts financial intermediaries to shrink their balance sheets and create less inside money. Consequently, the money multiplier collapses and Fisher deflation pressure emerges. This increases the real value of banks’ liabilities and worsens financial instability. Also, monetary policy redistributes wealth to the ailing sector by changing the relative value between government debt and money in order to stabilize the overall economy.

Additionally, since the financial crisis, the new Keynesian literature has focused on incorporating credit supply into monetary policy models. Gertler and Kiyotaki (2010) develop a canonical framework to analyze credit market frictions and aggregate economic activity in the context of the 2007-09 crisis, augmenting Bernanke and Gertler (1989) and Bernanke, Gertler, Gilchrist (1999) with a financial sector. Gertler and Kiyotaki (2015) add a banking sector that features bank net worth and liquidity mismatch, which gives rise to bank runs, as in Diamond and Dybvig (1983). Woodford (2010) proposes a Keynesian IS-LM model augmented with financial intermediary frictions, based on Curdia and Woodford (2010). In that setting, the financial intermediation friction gives rise to a state variable in addition to inflation and real activity. That state variable can be mapped into credit spreads (loan less policy rate), which in turn enters the optimal monetary policy rule. Optimal policy thus is explicitly dependent on credit supply conditions. Woodford (2011) studies optimal monetary policy in a setting with

⁵ See Adrian and Shin (2006) and Gertler (2006) for related arguments.

financial crises and finds that inflation-targeting rules should consider explicitly the possibility of financial crises.

For instance, Gilchrist and Zakrajšek (2011, 2012) evaluate monetary policy rules that augment the Taylor rule with a credit spread. They use a New Keynesian model, augmented with the standard Bernanke, Gertler, Gilchrist (1999) financial accelerator mechanism, which can produce the dynamics of the U.S. economy during the recent financial crisis. The benefits of a monetary policy rule that incorporates credit spreads arise as asset prices anticipate the beneficial effects of such a rule in mitigating the financial frictions.

In a recent study, Gambacorta and Signoretti (2014) compare the performance of Taylor rules augmented with asset prices and credit supply, building on the setting of Curdia and Woodford (2010), to more standard rules with flexible inflation targeting. They find that even if financial stability is not an explicit target for monetary policy, monetary policy rules that respond to borrower balance sheets and credit supply in the presence of supply shocks result in a better trade-off for inflation and output stabilization. In particular, indicators of financial sector leverage should directly enter into an augmented Taylor rule, and pre-emptive monetary policy enhances welfare. López-Salido, Stein, and Zakrajšek (2016) also suggest the importance of asset prices and credit supply conditions for the setting of monetary policy.

Kiley and Sim (2015), in a model with financial intermediaries and asset prices, find that monetary policy acting according to a simple rule reacting to financial imbalances may not improve welfare, and will depend on the source of the shock, which is difficult for policymakers to identify in real time. For example, tighter policy to respond to shocks at financial intermediaries might enhance welfare, but monetary policy to offset a rise in credit-to-GDP because of a positive technology shock would not. The combination of macroprudential and monetary policy can generally improve welfare in their setting.

Similarly, Korinek and Simsek (2016) consider the relative efficiency of macroprudential and monetary policies in a setting where borrowers do not take the negative aggregate demand externality of leverage into account, resulting in excessive risk taking. Monetary policy is constrained at the zero lower bound, giving rise to a shortfall in aggregate demand. An interesting result of their model is that debt limits (or mandatory insurance) can improve welfare, while a rise in rates to reduce leverage could prompt a recession, and borrowers may want to borrow even more to smooth consumption. In addition, a rise in rates transfers wealth from borrowers to savers, providing another incentive to borrow.

Based on the most recent macroeconomic events, one view is that macroprudential policy might completely substitute for policy interest rate moves in stabilizing the economy, insofar as the transmission channels are similar (Cecchetti and Kohler, 2012). Indeed, as noted by Shin, (2015) and in BIS (2015), both sets of policies affect the demand for credit (by influencing the timing of consumers' spending decisions) and the financing supply (by impacting banks' funding choices and leverage situation). Another view is that macroprudential tools cannot replace policy rate adjustments (Stein, 2013), because interest rates are the universal price of leverage which apply to all agents in the economy and present virtually no scope for regulatory arbitrage.

3. The complementary policies

The recent literature has come to consider macroprudential and monetary policies as complementary (see Figure 1), for two reasons. First, the policy interest rate alone may be too blunt a tool to address financial stability risks, which often have a sectorial dimension. While interest rates apply uniformly to all parts of the economy and the financial system, macroprudential policies can be tailored to specific sectors, regions, institutions, products or practices. Targeted macroprudential measures can thus usefully complement monetary policy.

Second, financial booms may simply be too powerful to be addressed with one type of policy: considering macroprudential and monetary policies as complementary can make it easier to jointly pursue the objectives of price stability, output stability and financial stability (Borio, 2014b; Shin 2013).

For instance, macroprudential tools can be deployed to balance the effects of an overly loose monetary policy, although tensions and contradicting incentives may be created when the two sets of policies are pulling in opposite directions. (Shin, 2015). In sum, we can conclude that macroprudential policies are more efficient than monetary policies for reducing excessive leverage.

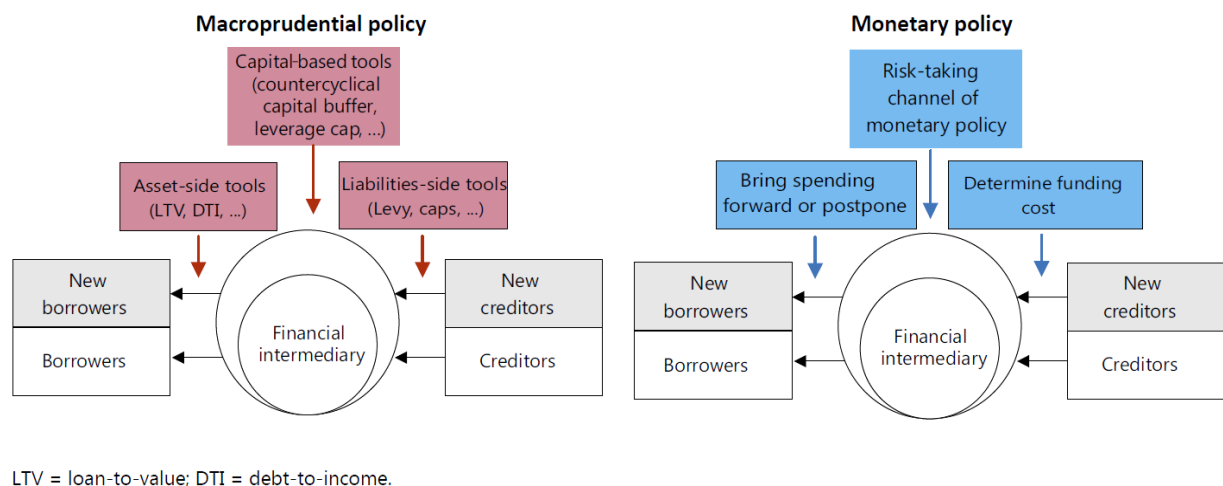


Figure 1. Macroprudential tools and monetary policy are inter-related

Source: Shin (2015), and 85th Annual Report (2015).

In terms of policy, the recent financial crisis has highlighted the need to go beyond a purely micro-based approach to financial regulation and supervision. As Galati and Moessner (2011) point out, the policy debate is focusing on the usage, implementation and effectiveness of macroprudential tools, as well as their impact on macroeconomic outcomes and their relationship with monetary policy.

Conclusion

The empirical research on macroprudential policies, as well as the conventional and unconventional monetary policies adopted by central banks since the 2008 financial crisis could be expanded by adding the credit shock and including Emerging Economies as part of the analysis. This interesting phenomenon could be investigated by estimating spillover effects associated to AEs' monetary and prudential policies on EEs' risk-taking channel.

For instance, Cetoreli (2008) and Goldberg (2010) point out that although it is widely known that credit plays a crucial role in the economic dynamics of Advanced and Emerging Market Economies (EEs), as well as in the spread of shocks across countries, the most part of the empirical literature on spillovers focused on fundamental variables such as: (i) GDP growth, (ii) industrial production, (iii) consumption, and (iv) investment, yet the risk-taking channel and its correspondent credit shock is not treated in depth.

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ŹRÓDŁA POLITYKI MAKROOSTROŻNOŚCI I KANAŁ RYZYKA W POLITYCE PIENIĘŻNEJ

Streszczenie

Cel: głównym celem niniejszej pracy jest dowiedzenie, że ze względu na bezpośredni związek pomiędzy politykami makroostrożnościowymi a polityką pieniężną, warto jest

dokonać analizy ich wzajemnych zależności z tzw. kanałem ryzyka. **Metoda:** analiza przedstawiona w niniejszej pracy bazuje na rozległym przeglądzie literatury z rzetelnych źródeł, mająca na celu wsparcie wyników badań. **Wyniki badań:** badanie polityk makroostrożnościowych oraz konwencjonalnych i niekonwencjonalnych polityk pieniężnych przyjmowanych przez banki centralne od kryzysu finansowego w 2008 r. można rozszerzyć o analizę szoku kredytowego i gospodarek rozwijających się. To ciekawe zjawisko można zbadać poprzez pomiar efektów ubocznych związanych z polityką pieniężną gospodarek wysoko rozwiniętych dotyczących kanału ryzyka w gospodarkach rozwijających się.

Słowa kluczowe: polityka makroostrożnościowa, konwencjonalna i niekonwencjonalna polityka pieniężna, kanał ryzyka bankowego i efekty uboczne

JEL classification: E52, E58, G21, G28

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