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How does capital regulation react to monetary policy? New evidence on the risk-taking channel[☆]

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ABSTRACT

Before the subprime crisis, financial stability was a microprudential issue addressed by capital regulation and unrelated to monetary policy. The financial crisis put this paradigm to the test and turned the spotlight on the relationship between financial stability and monetary policy. Hence, the following question arises: how does capital regulation react to monetary policy? This article seeks to answer this question. We analyze the link involving monetary policy and capital regulation through the risk-taking channel in Brazil. The findings suggest that banks react to monetary policy by changing the amount of loan provisions as well as the capital adequacy ratio (CAR). An important novelty of the study is the evidence that there is no trade-off between provisions and CAR, which are important tools used by banking supervisors. The key result of the article is that banks react to the macroeconomic environment differently from what is expected by banking supervision, i.e., there exists a paradox between the microprudential view and the macroprudential view. Thus, in terms of practical implication, a banking supervision strategy for financial stability must take into account the effects of monetary policy.

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1. Introduction

Before the subprime crisis, financial stability was a microprudential issue addressed by capital regulation and unrelated to monetary policy. The financial crisis put the accepted assumptions of financial stability to the test and created an environment of uncertainty with potential impacts on the conduction of monetary policy. The aftermath of the crisis gave birth to a new view where coordination between monetary policy and financial stability had to be a part of economic policy (Poloz, 2015).[1] Thus, it is necessary to understand how monetary policy influences financial stability, once this relationship is part of the ongoing debate regarding the appropriate tools that central banks have for achieving financial stability.

Since the basic interest rate is the main instrument of monetary policy, the following question arises: is there a relationship between monetary policy and financial stability (the latter expressed in terms of capital regulation and its main index, the capital adequacy ratio[2] — CAR)? This study is a contribution to understand this relationship. The paper contributes with the literature since it analyzes the link involving monetary policy and capital regulation through a little explored transmission channel, namely the risk-taking channel (Borio and Zhu, 2012). Besides, the study contributes with important findings which bring practical implications: (i) banks react to monetary policy by changing the amount of loan provisions as well as the capital adequacy ratio (CAR), (ii) there is no trade-off between provisions and CAR, and, (iii) a banking supervision strategy for financial stability must take into account the effects of monetary policy.

The analysis is performed for Brazil. The Brazilian economy has some features that make it an important case study for the relationship

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[1] In consonance with this point of view, many financial stability committees were created around the world after the crisis (for instance, the Financial Stability Oversight Council was created in the United States in July 2010; in England, the Financial Service Act created the Financial Policy Committee in December 2012; in July 2011, Chile created the "Consejo de Estabilidad Financiera" and Mexico created the "Consejo de Estabilidad del Sistema Financiero" in July 2010).

[2] Capital adequacy ratio (CAR) is the ratio of a bank's capital in relation to its risk weighted assets. It is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process. This ratio is used to promote the stability of financial systems around the world.

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between monetary policy and financial stability.[3] After the adoption of Inflation Targeting (IT), in June 1999, Brazil initiated a period of low inflation, in which the Central Bank of Brazil (CBB) used the basic interest rate primarily to control inflation. In the same period, there was no noticeable problem with Brazilian banks, even during the subprime crisis. Brazil was considered a successful case of resilience of the financial sector and Brazil's financial supervision was praised.

The key result of the article is that banks react to the macroeconomic environment differently from what is expected by banking supervision, i.e. there exists a paradox between the microprudential view and the macroprudential view. The rationale for this is that in a microprudential dimension (at the contract level), provisions reduce regulatory capital (CAR) through provision expenses. On the other hand, in a macroprudential dimension, provision represents an expectational component that reflects banks' risk perception regarding the credit market. However, increasing provisions due to an increase in the interest rate (risk-taking channel) should not be done at the expense of capital, signaling a possible solvency risk to the market. Thus, an important novelty of the study is the evidence of an absence of any trade-off between provisions and CAR, at the aggregate level. This absence of trade-off means that, at the aggregate level, banks react to the macroeconomic environment in the same way vis-à-vis provisions and solvency, because both aspects of banking strategy are related to banking expectation. Banking expectation is a forward-looking behavior that has to be considered when formulating banking supervision strategy.

2. Risk-taking channel and financial stability

The initial approaches concerning the impact of monetary policy on banks were works concerned with asymmetric information (Akerlof, 1970; Stiglitz and Weiss, 1981), which revealed that the credit market is subject to failures and inefficiencies affecting aggregate economic activity (Greenwald et al., 1984). In particular, Bernanke noticed that problems of information create a set of mechanisms that propagate and amplify initial shocks to the economy (Bernanke, 1983). Two main types of such mechanisms, or credit channels, come into play: (i) the lending channel, which is affected by shocks that can affect the ability or willingness of banks to supply credit to bank-dependent firms, and (ii) the balance sheet channel, which is affected by shocks on the financial position of firms and households and thus their ability to access the credit market (Hubbard, 1995; Bernanke and Gertler, 1995).

Despite the fact that empirical evidence regarding the functioning of monetary policy through the risk-taking channel is scarce, the available literature is useful to understand the link between monetary policy and financial stability.

The risk-taking channel refers to how changes in monetary policy rates affect either risk perceptions or risk tolerance (Borio and Zhu, 2012). According to this perspective, easy monetary conditions represent a standard element in boom-bust type business fluctuations, i.e., low interest rates may lead to financial imbalances through a reduction in banks' risk aversion, affecting the supply of credit and credit spread, and, as a consequence, economic decisions causing business fluctuations. Although several authors have studied the relationship between monetary policy and business fluctuations, Borio and Zhu (2012) argue that insufficient attention has been paid to the link between monetary policy and the perception and pricing of risk by economic agents, i.e., the risk-taking channel.

Regarding the relationship between monetary policy (through the basic interest rate) and the risk-taking channel, Altunbas et al. (2014) and Gambacorta (2009) emphasize there are two main ways in which low interest rates can influence bank risk-taking. First, low interest rates affect valuations, incomes and cash flows, which in turn can influence how banks measure risk (Adrian and Shin, 2009, 2010; Borio and Zhu, 2012). Second, low returns on investments, such as government (risk-free) securities, may increase incentives for banks, asset managers and insurance companies to take on more risk for behavioral, contractual or institutional reasons — for example to meet a nominal return target (Brunnermeier, 2001; Rajan, 2005).

Unequivocally, monetary policy influences the risk-taking of banks. However, there are other possible causes of changes in banks' risk perception. The work of Tabak et al. (2011) analyzes the relationship between economic cycles and capital buffers held by banks in Brazil. They evaluate the effects of bank capital on lending activity and how these effects vary among banks with different ownership structures. They use unbalanced panel data of Brazilian institutions from 2000 to 2010 to estimate an equation for capital buffers and loan growth. The results reveal that the economic cycle negatively affects the surplus capital. These results have important implications in terms of capital regulation.

The work of Tabak et al. (2013) investigates the effects of monetary policy on banks' loans growth and non-performing loans for the period 2003–2009 in Brazil. The results suggest the existence of a bank lending channel by showing that during periods of monetary tightening/loosening, banks' outstanding loan amounts decreased/increased. They also found that the financial crisis had a large impact on lending activity and that state-owned banks seem to respond more to monetary policy changes than private banks. Moreover, by analyzing the impacts of monetary policy on non-performing loans, they found that during periods of increase/decrease in the interest rate, banks experience a higher/lower growth rate of non-performing loans, which may aggravate/alleviate their performance. In addition, state-owned banks have a different lending profile, since they present a lower proportion of non-performing loans. Furthermore, the results also support the existence of a risk-taking channel, in which lower monetary policy rates increase banks' risk-taking. During periods of low interest rates, large and liquid banks increase their credit risk exposure.

Despite the increase in the number of researches concerning the risk-taking channel after the crisis, the literature associating such risk-taking with financial regulation is still sparse. In this regard, the work of Montes and Peixoto (2014) is a first step in this direction. They found evidence that both the lending channel and the risk-taking channel operate in the Brazilian financial system. Banks react to monetary policy by altering the amount of provisions (expected loss) of their loan portfolios as well as the spread. In an environment of lax monetary policy, banks take more risks, reducing expected losses (provisions) and spreads. Moreover, this study found evidence that banks increase loans when the economy booms, thereby enhancing the procyclical nature of the banking system. Besides confirming the criticism found in the literature concerning the procyclicality of the banking system, the approach used in Montes and Peixoto (2014) sets the stage to explore banking capital ratios (solvency) in terms of loan provisions. As defined by the Basel Accords, loan provisions (expected loss) directly affect the equity of banks; therefore it is a crucial constituent of CAR.

Prudential supervision – broadly construed – involves government regulation and monitoring of the banking system to ensure its safety and soundness. Considering the asymmetry in the banking business and aiming to create incentives that minimize banks' exposure to bankruptcy risks, prudential supervision chooses capital requirements as its main regulatory tool (García-Suaza et al., 2012). Essentially structured as a leverage ratio, the capital requirements have converged to the so-called CAR. Supported by the seal of the Bank for International Settlements (BIS), the third Basel Accord, although not fully deployed, defines the amount of capital divided by the risk-weighted assets as 10.5% minimum. Capital and risk-weighted assets are constructs developed by the Basel Committee on Banking Supervision (BCBS),

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[3] Despite the fact that the Brazilian economy did not suffer huge effects from the crisis, in May 2011 the Central Bank of Brazil (CBB) created the Financial Stability Committee (COMEF). The aim is to achieve an institutional upgrade in the accomplishment of the CBB's mission, namely price and financial stability. Hence, there is a clear opportunity for coordinated action of monetary policy and financial stability management.

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