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Risk-taking channel, bank lending channel and the "paradox of credibility" Evidence from Brazil

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ABSTRACT

If from one hand credibility is important for the conduct of monetary policy, on the other hand, greater credibility may eventually stimulate the creation of bubbles in the credit market and asset prices through the *risk-taking channel*, and as a consequence, bring to reality the "paradox of credibility". The "paradox of credibility" is the new dilemma posed to central banking in the effort to conciliate monetary policy and banking regulation under inflation targeting regimes. Thus, the present work aims to: (i) analyze the impact of central bank actions and the macroeconomic environment on the risk perception of banks, and; (ii) analyze the influence of this risk perception of banks on the credit spread, considering both the credit channel and the risk-taking channel. Based on an econometric analysis, the work provides evidence about: (i) the "paradox of credibility" and the risk-taking channel; (ii) the influence of monetary policies on the risk perception of banks and, as a consequence, on the credit spread; (iii) the procyclical nature of banks in relation to economic activity, and; (iv) the adherence of the countercyclical indicator (called *credit gap*) proposed in Basel III for the Brazilian case.

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1. Introduction

Under inflation targeting, the conduction of monetary policy is closely related to the credibility of the regime. This is because higher credibility requires smaller changes in interest rates to control inflation (de Mendonça and de Guimarães e Souza, 2009). Despite the success of several central banks in promoting price stability through monetary policy, banking regulation has gained special interest due to the financial crisis that began in the US subprime market.

Banks play a critical role and tend to amplify the effects of economic shocks during periods of financial crisis. The banking industry is inherently procyclical, in the sense of reinforcing the business cycle: banks tend to decrease lending during recessions, exacerbating the economic downturn, and to increase it during expansions, thereby contributing to a potential overheating of the economy (Drumond, 2009).

Since price stability and a sound financial system are important, credibility emerges as a key variable for both monetary policy and banking regulation. If from one hand credibility is important for the conduct of monetary policy, on the other hand, greater credibility may eventually stimulate the creation of bubbles in the credit market and asset prices through the *risk-taking channel*, and as a consequence, bring to reality what Borio (2005a) called "paradox of credibility". In this sense, following Borio (2005a, 2006), it is possible to argue that though credibility and an environment of price stability represent significant gains and should be preserved; both may amplify the financial system's procyclical behavior. The "paradox of credibility" is the new dilemma posed to central banking in the effort to conciliate monetary policy and banking regulation under inflation targeting.

Based on the ideas above, the present work aims to: (i) analyze the impact of central bank actions and the macroeconomic environment on the risk perception of banks, represented by bank provisions, and; (ii) analyze the influence of this risk perception of banks on the credit spread, considering both the credit channel and the risk-taking channel.

The work contributes to the literature in the following ways: (i) provides evidence about the "paradox of credibility" and the risk-taking channel, and therefore the influence of credibility on the behavior of banks; (ii) provides evidence about the influence of monetary policies on the risk perception of banks and on bank provisions for expected losses on loans and, as a consequence, on the credit spread; (iii) presents evidence concerning the procyclical nature of banks in relation to economic activity, and; (iv) finds evidence for the adherence of the countercyclical indicator (called *credit gap*) proposed in Basel III for the Brazilian case.

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Although the empirical evidence regarding the functioning of credit channels in developed economies is well-known (Bernanke, 2007), empirical evidence for emerging economies are incipient. Furthermore, the literature concerning the risk-taking channel is new and scarce for emerging economies. Hence, as there is a vacuum in the literature concerning the risk-taking channel and the transmission of economic shocks through the credit market in developing economies, the present study is particularly concerned about the bank lending channel and the risk-taking channel, and how monetary policies, financial regulation and macroeconomic aspects (such as output fluctuations and credibility) affect the risk perception of banks and the credit spread.

In the present study it is shown that there exists a close link between the risk-taking channel and the bank lending channel, and that it is possible to establish a relationship involving monetary policy, the risk-taking channel, the "paradox of credibility" and the credit channel.

Besides this introduction, this paper is organized as follows. The next section presents the importance of both credibility and banking regulation for central banks operating under inflation targeting and the idea of "paradox of credibility". Section 3 presents the transmission mechanism of monetary policy through the bank lending channel and the risk-taking channel. Section 4 presents a brief review of the empirical literature for the Brazilian case. Section 5 provides empirical evidence through ordinary least squares (OLS), generalized method of moments (GMM) and System-GMM. Section 6 presents the conclusions of the paper.

2. Central bank credibility, "paradox of credibility" and banking supervision

The theoretical underpinnings of the importance of credibility can be found in the seminal article of Kydland and Prescott (1977). Credibility is often identified with strong aversion to inflation, incentive compatibility, or pre-commitment and it may be understood as the degree of confidence that economic agents have in relation to the commitment of the monetary authority to keep inflation low and stable. Besides, grater credibility makes disinflation less costly, helps hold down inflation once it is low and makes it easier to defend the currency when necessary. In this sense, credibility plays a key role in the conduct of monetary policy (Blinder, 2000).

Concerning inflation targeting regimes, when the target is credible and the monetary authority presents an increased capacity of affecting the expectations of the public, less effort is necessary to achieve the inflation target. The work of de Mendonça and de Guimarães e Souza (2009) analyzed the impact of different credibility indices on the volatility of interest rates. They found evidence that higher credibility implies lower variations in the interest rate for controlling inflation, i.e., due to the increased capacity of affecting the public expectations, the central bank needs less effort to achieve the inflation target. Hence, the gain in credibility is a powerful instrument for reducing inflation without increasing social costs since less effort is required by the central bank in terms of changes in interest rate.

Credibility represents a key variable to the effort of conducting monetary policy; but also a variable capable of amplifying the procyclical behavior of the financial system. If from one hand, credibility is important to create a more stable macroeconomic environment and thereby improves the process of expectations formation, decreases the volatility of interest rates and improves the agents' ability in terms of risk assessment (de Mendonça, 2007; de Mendonça and de Guimarães e Souza, 2009; Montes, 2010), on the other hand, the better macroeconomic environment created by this greater credibility may eventually stimulate the creation of bubbles in the credit market and asset prices, i.e., the stable macroeconomic environment will lead to reduced interest rates, and these low interest rates will influence the postures of banks, which will assume riskier positions. This paradoxical case is denominated by Borio (2005a) as "paradox of credibility". Borio (2005a) argues that such stable context favors the creation of expectations that tend to amplify the procyclical behavior of the financial system. The "paradox of credibility" is the new dilemma posed to central banks under inflation targeting. In order to overcome this new challenge, a set of innovations on banking regulation and financial supervision was discussed in Basel III.

Basel III proposed new instruments of financial supervision and regulation in order to deal with failures identified in the subprime crisis.[1] Among the failures observed in this last crisis, the new regulatory approach seeks to identify and curb systemic financial risk and mitigate procyclical features of the banking system.

In order to correct regulatory failures revealed by the crisis, the Basel III agreement incorporates new capital requirements designed to deal with systemic risk and liquidity risk. Regarding liquidity risk and pro-cyclicality of capital requirements, the new agreement suggests the formation of additional regulatory reserves that vary depending on the degree of leverage and the level of credit in the economy, which are called capital conservation and countercyclical capital. The countercyclical capital buffer[2] proposal aims at dampen excessive credit growth. Thus, following the proposal, this capital would be formed taking into account deviations of credit/GDP ratio from its long term trend. According to the Basel Committee on Banking Supervision, the primary aim of the proposal is to use a buffer of capital to achieve the broader macroprudential goal of protecting the banking sector from periods of excess aggregate credit growth that have often been associated with the buildup of system-wide risk. Protecting the banking sector in this context is not simply ensuring that individual banks remain solvent through a period of stress, as the minimum capital requirement and capital conservation buffer are together designed to fulfill this objective. Rather, the aim is to ensure that the banking sector in aggregate has the capital on hand to help maintain the flow of credit in the economy without its solvency being questioned, when the broader financial system experiences stress after a period of excess credit growth. This should help to reduce the risk of the supply of credit being constrained by regulatory capital requirements that could undermine the performance of the real economy and result in additional credit losses in the banking system (BIS, 2010a).

The adoption of measures on banking supervision and macroprudential regulation is seen as a solution to deal with the dilemma that arises with the "paradox of credibility". The Committee on International Economic Policy Reforms (CIEPR) recognizes that the traditional approach offered by inflation targeting is insufficient to resolve risks arising in the financial system. In this sense, the CIEPR recommends that central banks should go beyond their traditional emphasis on low inflation to adopt an explicit goal of financial stability and macroprudential tools should be used alongside monetary policy in pursuit of that objective (CIEPR, 2011).

The financial (subprime) crisis showed that central banks must give great attention to institutions that are responsible for creating credit and liquidity, because such institutions are inherently procyclical and can cause a slowdown or even an economic stoppage, by restricting credit in times of economic collapse and uncertainties.

3. The bank lending channel and the risk-taking channel

The standard literature on monetary policy transmission mechanisms often emphasizes five transmission channels: interest rate, exchange rate, assets prices, credit and expectation (Mishkin, 1995). Although an analysis concerning all these transmission channels is relevant, recent episodes (e.g., the subprime crisis) increased the need to study the credit channel.[3]

[1] For more details in relation to Basel III, see, BIS (2010b, 2010c and 2010d).

[2] For more details about countercyclical capital buffer, see, Drehmann et al. (2010).

[3] Although the credit channel can be split into two different channels, the *bank lending channel* and the *balance sheet channel*, the present study focuses on the bank lending channel. This paper is not intended to provide detailed descriptions of these two channels. For more details, see Bernanke and Gertler (1995).

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