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## Implications of bank ownership for the credit channel of monetary policy transmission: Evidence from India

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### ABSTRACT

Using bank-level data from India, we examine the impact of ownership on the reaction of banks to monetary policy, and also test whether the reaction of different types of banks to monetary policy changes is different in easy and tight policy regimes. Our results suggest that there are considerable differences in the reactions of different types of banks to monetary policy initiatives of the central bank, and that the bank lending channel of monetary policy is likely to be much more effective in a tight money period than in an easy money period. We also find differences in impact of monetary policy changes on less risky short-term and more risky medium-term lending. We discuss the policy implications of the findings.

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### 1. Introduction

The recent financial crisis brought to the fore the debate about the bank lending channel of monetary policy transmission. Traditional macroeconomic models such as the IS-LM representation assume that monetary policy affects the real economic activity by changing interest rates which, in turn, affects the investment demand of the firms. However, this line of argument has increasingly come under scrutiny.<sup>1</sup> To begin with, evidence suggests that investment decisions of firms are affected much more by factors such as cash flows than by the cost of borrowing (Bernanke and Gertler, 1995). Evidence also suggests that banks are not passive intermediaries between the central bank and end users of money such as the firms. For example, in an early discussion of this issue, Bernanke and Blinder (1992) demonstrate that the composition of banks' portfolios

change systematically in response to monetary policy initiatives. They conclude that the impact of monetary policy on the investment of firms is not entirely demand driven, and that at least part of it can be explained by the supply side or the bank lending channel. Kashyap and Stein (1993) demonstrate that if a central bank pursues tighter monetary policy, there is a decline in the amount of bank loans to firms and simultaneously a rise in the issuance of commercial paper, and conclude that contractionary monetary policy reduces loan supply.

Importantly, research suggests that there might be significant heterogeneity in the reaction of banks to monetary policy initiatives. It may, for example, depend on the extent of competition in the banking sector. Olivero, Li and Jeon (2011) argue that an increase in competition in the banking sector weakens the transmission mechanism of monetary policy through the bank lending channel.

Banks' reaction to monetary policy initiatives also depends on the quality of their balance sheets. Peek and Rosengren (1995) argue that an important determinant of a bank's reaction would be its capital-to-asset ratio. If banks find it difficult (or expensive) to raise capital, for example, they could be reluctant to lend even if there is ample demand for credit in the aftermath of easing of monetary policy. This hypothesis finds support in the empirical litera-

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<sup>1</sup> There are a number of attempts to theoretically extend the IS-LM framework to a multi-asset framework with imperfect substitutability among the assets. As such, the lending channel view of monetary policy is a special case of these extended frameworks, with money, bonds and loans as three imperfectly substitutable assets (Kashyap and Stein, 1995).

ture. Kishan and Opiela (2000) find that small and undercapitalised banks are most affected by monetary policy. Gambacorta (2005) too finds that lending of undercapitalised Italian banks is adversely affected by contractionary monetary policy, even though lending is not correlated with bank size. Further, there is a directional asymmetry in the impact of monetary policy on the lending behaviour of undercapitalised banks (Kishan and Opiela, 2006). In the event of contractionary monetary policy, there is a sharp tightening in loan disbursement by undercapitalised banks, but in the event of an expansionary monetary policy there is no corresponding expansion of credit disbursement.

The reaction of banks to monetary policy also depends on the composition of their assets. The traditional or money view of monetary policy transmission assumes that all asset classes are perfect substitutes of each other. If, therefore, contractionary monetary policy leads to a reduction in deposits, a bank is capable of substituting for this loss of deposits dollar for dollar, using other assets like CDs, such that loan supply is not affected. Stein (1998) argues that, contrary to this view, assets included in a bank's balance sheet are not perfect substitutes. For example, since deposits are guaranteed by the FDIC (or its overseas counterpart), while CDs are not, there may be adverse selection in the market for CDs, such that banks do not use these instruments to compensate for loss of deposits dollar for dollar. This results in a decline in loan supply. It follows that banks that have less liquid assets such that they cannot quickly and costlessly compensate for loss of deposits in the event of contractionary monetary policy or, alternatively, those that cannot raise funds quickly to the same end, would react more to monetary policy changes. Kashyap and Stein (2000) find that monetary policy has greater impact on loan supply of banks with low securities-to-assets ratios.

The literature does not, however, empirically examine the impact of bank ownership on the lending channel of monetary policy transmission.<sup>2</sup> This is hardly surprising, given that much of the literature is based on the United States and Western European experiences,<sup>3</sup> where private ownership of banks overwhelmingly dominates. However, as pointed out by La Porta et al. (2002), state-ownership of banks is ubiquitous in much of the world, especially in emerging economies. Indeed, the 2007–09 financial crisis has led to significant state-ownership of banking assets even in developed countries such as the United Kingdom, and concerns about the lending activities of the de facto nationalised banks have brought into focus the impact of bank ownership on the lending channel in the developed country context as well. In this paper, we address this lacuna in the literature, and examine whether the impact of monetary policy on lending differs across banks with different ownerships.

Studying how bank ownership plays a role in the credit channel of monetary policy transmission is important because public sector banks account for a significant portion of the banking assets and loan portfolio emerging economies, and, at the same time, many of these countries are fiscally constrained such that monetary policy may be the only instrument available to policy makers to induce growth. This indeed is currently the situation in a wide range of developed countries as well. Our analysis provides an empirical basis for this policy debate concerning the relative effectiveness of monetary policy when a significant proportion of the

banking sector is under state ownership.<sup>4</sup> This is one of the key contributions of the paper. Further, by isolating the response of foreign-owned banks, it adds to the small but growing literature on the impact of foreign banks on credit growth, especially in emerging economies context.

Our second important contribution is that we separately examine the reaction of different types of banks (i.e., private, state and foreign) in easy and tight monetary policy regimes. As mentioned earlier, reaction of banks to monetary policy changes may be asymmetric: a change in interest rates might have very different outcomes, depending on whether these rates are low or high to begin with. If an asymmetry does exist, a greater understanding of the differences in the impact of monetary policy in easy and tight money regimes would be imperative for successful monetary policy interventions. The richness of our contribution is enhanced by the fact that, for each of these monetary policy regimes, we estimate the reaction of the different types of banks based on ownership.

Finally, we examine whether impact of monetary policy differs with respect to different maturities, and hence riskiness, of lending activities. Specifically, we examine the impact of monetary policy on disbursement of (more risky) medium term credit and (less risky) short-term credit. We estimate the impact for tight and easy monetary regimes, and also for the different types of banks.

We use bank-level data from India to examine these issues. We focus on India for several reasons. First, India is a fast growing emerging market that embraced the market economy in the early nineties and has since liberalised its economy substantially. Importantly, in the absence of a well developed market for corporate bonds,<sup>5</sup> banks are by far the largest source of credit for Indian companies,<sup>6</sup> and hence bank lending plays an important role in the transmission of monetary policy in India. Second, the Indian banking sector is also marked by the presence of a number of state-owned and private-owned (including foreign) banks, who compete on a level playing field. Third, the state-owned banks themselves have autonomy regarding lending decisions, and many of them have sold shares to private (and even foreign) shareholders, thereby opening themselves up to greater scrutiny. Indeed, Indian state-owned banks resemble the de facto nationalised banks of the United Kingdom much more closely than state-owned banks in former transition economies of Central and Eastern Europe (see, e.g., Bonin and Wachtel, 2002). The state maintains an arms-length relationship with the banks in which they have majority (or complete) ownership, such that these banks are autonomous and focussed on profitability.<sup>7</sup> In that respect, the state-owned and privately-owned banks are similar, and hence the presumption of profit focus that underlies the analyses of banks in the stylised literature is applicable to all Indian banks. There are, nevertheless, important differences between state-owned and privately-owned banks in terms of their customer base (Berger et al., 2008), and also in terms of factors that affect their lending (Bhaumik and Piesse, 2008). Therefore, there are likely to be differences in ways in which the state-owned and privately-owned banks

<sup>4</sup> Note, for example, the public policy debate in the United Kingdom, an industrialised economy, where two large banks are currently in public ownership. The easy monetary stance adopted by the Bank of England has not resulted in credit growth to the desired extent, and there is an on-going debate about the role of these nationalised banks in delinking expansionary monetary policy and credit growth, at a time when economic growth is perhaps of greater importance than inflation targeting.

<sup>5</sup> Corporate bonds account for only 3% of the Indian bond market.

<sup>6</sup> Domestic credit provided by banking sector increased from 44.1% of GDP in 1995 to 64.2% of GDP in 2007 (Source: World Bank Development Indicators).

<sup>7</sup> The state-owned banks are somewhat less efficient than their privately owned counterparts (Kumbhakar and Sarkar, 2003). However, evidence suggests that, contrary to the popular wisdom about state-owned companies, ownership does not significantly affect profitability of Indian banks (Sarkar, Sarkar and Bhaumik, 1998; Bhaumik and Dimova, 2004).

<sup>2</sup> Andries and Billion (2010) develop a theoretical model that demonstrates that state-owned banks are more able to counteract restrictive monetary policy because they have greater capability to raise additional deposits.

<sup>3</sup> See, for example, the following related recent studies focusing on Western European countries: Altunbaş, Fazylov and Molyneux (2002), Huang (2003), Hülsewig, Mayer and Wollmershäuser (2006), De Graeve, De Jonghe and Vennet (2007), and Dovern, Carsten-Patrick and Vilsmeier (2010).

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