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Why bank capital matters for monetary policy[☆]

Leonardo Gambacorta^{*}, Hyun Song Shin

Leonardo Gambacorta (Bank for International Settlements and CEPR) - Hyun Song Shin (Bank for International Settlements and CEPR)

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ABSTRACT

One aim of post-crisis monetary policy has been to ease credit conditions for borrowers by unlocking bank lending. We find that bank equity is an important determinant of both the bank's funding cost and its lending growth. In a cross-country bank-level study, we find that a 1 percentage point increase in the equity-to-total assets ratio is associated with a four basis point reduction in the cost of debt financing and with a 0.6 percentage point increase in annual loan growth. These findings suggest that greater retention of bank earnings and hence higher bank capital would have aided the transmission of accommodative monetary policy to ease financial conditions faced by ultimate borrowers. In particular, we find that the effects of a monetary tightening are smaller for banks with higher capitalization, which have easier access to uninsured financing. These results suggest that if the banking system as a whole is weakly capitalized, there may be some tension between the monetary policy imperative of unlocking bank lending (i.e., expanding credit) and the supervisory objective of ensuring the soundness of individual banks (i.e., shrinking credit).

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1. Introduction

The drying up of the supply of bank credit in the immediate aftermath of the financial crisis has been a key backdrop in the debate on the appropriate post-crisis monetary policy response. Tighter credit supply impairs the transmission of monetary policy to the real economy. Unlocking bank lending to the real economy has therefore been a key objective of monetary policy. For instance, the asset purchase programme of the European Central Bank (ECB) has been explicitly couched in terms of unblocking the transmission of accommodative financial conditions through banks to ultimate borrowers (Coeuré, 2014; Draghi, 2014). The first phase of the Federal Reserve's asset purchase programme (QE1) was similarly couched in terms of channelling credit to the real economy through direct purchases of mortgage-backed securities (Adrian and Shin, 2009; Gagnon et al., 2010).

In parallel, bank capitalisation has received attention from financial supervisors and central banks, but here, the focus has been on the solvency of banks. For instance, the European Banking Authority's (EBA) 2014 asset quality review and stress test exercise for European banks focused on the capital adequacy of banks, where bank capital is viewed as a loss-absorbing buffer that enhances bank solvency in the face of adverse macroeconomic shocks (e.g. Steffen, 2014).

However, solvent banks may nevertheless refuse to lend. Indeed, a weakly capitalised bank may improve its solvency metric by cutting credit exposures. If the banking system as a whole is weakly capitalised, there may even be some apparent tension between the monetary policy imperative of unlocking bank lending (which entails expanding credit) and the supervisory objective of ensuring the soundness of individual banks (which entails cutting back credit). Nevertheless, our main finding is that this tension is more apparent than real; both the macro objective of unlocking bank lending and the supervisory objective of sound banks are better served when bank equity is high.

Our paper revisits the role of bank capital as a determinant of the supply of credit from banks. There is an extensive literature on the relationship between bank capital and lending, which we review below. Our distinctive contribution is to shed light on the mechanism involved in the bank lending channel. A bank is both a lender and a borrower; a bank borrows in order to lend. In this context, bank capital bears on the bank as a borrower, and in turn affects the bank's actions as a lender. Specifically, we find that a

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^{*} Corresponding author.

E-mail addresses: leonardo.gambacorta@bis.org (L. Gambacorta), hyunsong.shin@bis.org (H.S. Shin).

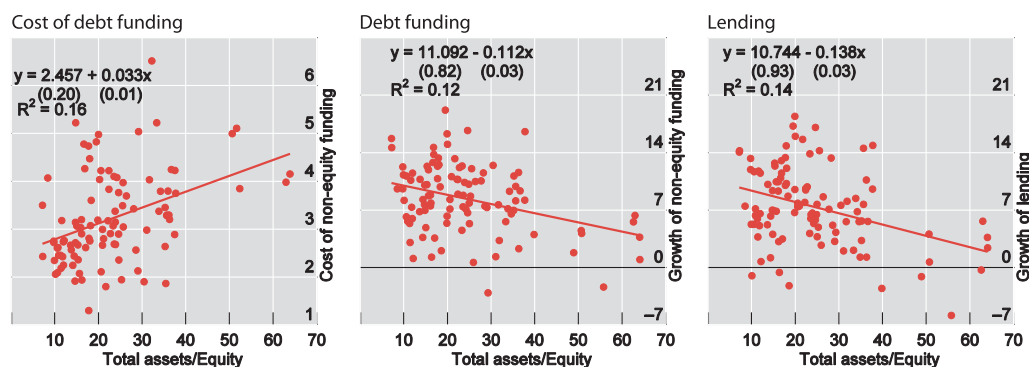


Fig. 1. Bank capital and loan growth. The panels represent scatter plots between the average level of leverage for a group of 105 international banks (details to be given below) and some bank-specific indicators: average cost of funding, average growth rate of non-equity financing; average annual growth rate of lending. Standard errors are shown in brackets. Sources: BankScope; authors' calculations.

higher level of bank capital implies a substantial cost advantage for the bank as a borrower, and in turn induces the bank to increase credit at a faster pace. In particular, we find that a 1 percentage point increase in the equity-to-total-assets ratio is associated with a reduction of approximately four basis points in the overall cost of debt funding (deposits, bonds, interbank borrowing, etc.).

This quantitative result represents an important benchmark. Given that debt funding represents around nine-tenths of total liabilities, the effects of bank capital on the overall cost of bank funding is substantial. A back of the envelope calculation indicates that the greater retention of net income by the bank as retained earnings would almost pay for itself through lower cost of debt, even if the cost of equity, typically approximated by the Return on Equity, is presumed to be quite high. More importantly, a bank with a larger equity base can be expected to lend more. Indeed, consistent with this reasoning, we find that banks with higher capital have higher lending growth. A 1 percentage point increase in the equity-to-total-assets ratio is associated with a higher subsequent growth rate in lending, of 0.6 percentage points per year.

Our result adds to the accumulating empirical evidence that higher bank capital is associated with greater lending. A recent study by the European Banking Authority (EBA (2015)) finds substantial beneficial credit supply effects of greater bank capital in a cross-country study of European banks. Michelangeli and Sette (2016) use a novel micro dataset constructed from web-based mortgage brokers to show that better capitalised banks lend more. More generally, empirical evidence shows that in economic systems underpinned by relationship-based lending, adequate bank capital allows financial intermediaries to shield firms from the effects of exogenous shocks (Bolton et al. 2016; Gobbi and Sette, 2015).

Our paper is also related to the literature that examines shocks to bank capital on expected cash flows and market value of equity rather than its book value (see, among others, Calomiris and Wilson, 2004). Other related studies focus on actual (not regulatory) bank capital ratios. As natural experiments, Peek and Rosengren (2000), Puri, Rocholl and Steffen (2011) and Mora and Logan (2012) exploit negative shocks to multinational banks with origins abroad, while Rice and Rose (2016) use the loss in value of U.S. banks' holdings of preferred shares in Fannie Mae and Freddie Mac. Jiménez et al. (2012b) use detailed credit registry data for Spain to analyse the impact of the countercyclical capital buffers held by Spanish banks on the supply of credit to firms and their subsequent performance. They find that dynamic provisioning helps to smooth credit supply cycles and in bad times uphold firm credit availability and performance.

Fig. 1 gives a preview of our main findings. The three panels in Fig. 1 are summary plots of the raw data from the empirical

database of 105 advanced economy banks used in our empirical analysis. A more detailed description of the dataset follows below. For now, Fig. 1 plots the average levels of leverage defined as the ratio of total assets to equity for the 105 banks over the sample period. The three panels show how bank leverage is related to debt funding cost (left panel), growth of debt funding (middle panel) and the growth of lending (right panel).

The scatter plots in Fig. 1 overstate the noise in the slope relationships, as the plots are from the raw data without controls; our panel regressions that control for bank and macro variables reveal an even clearer pattern. Nevertheless, even from the noisy scatter charts, we see the key underlying relationships. Lower leverage is associated with lower debt funding costs and a higher growth rate of lending.

Our results highlight the possible tensions between the interests of some bank stakeholders and the wider public interest of maintaining a smoothly functioning banking system that can supply credit in support of economic activity. New equity issuance is not the only way that banks could increase capital ratios. Reducing cash dividends would similarly achieve the aim of raising bank equity through retained earnings. Nevertheless, banks have chosen to pay out substantial cash dividends, even in those regions (such as the euro area) where bank lending has been widely recognised as being inadequate in supporting economic activity. Back-of-the-envelope calculations indicate that the total dividends paid out by euro area banks since 2007 amounts to almost 50 percent of their aggregate end-2013 retained earnings – the core of banks' book equity (Shin (2014)).

Our findings suggest that greater retention of bank earnings, and hence higher bank capital, hold implications for monetary policy transmission, as well as for bank soundness. Indeed, to the extent that credit is an essential ingredient in the transmission of monetary policy to the real economy, our results hold implications for the monetary policy mandate of the central bank, as well as for its mandate as a financial supervisor.

The remainder of the paper is organised as follows. The next section reviews the literature on bank capital and lending behaviour and derives some testable predictions. Section 3 discusses the data and some stylised facts concerning bank capital. Section 4 presents our empirical results and the robustness checks. The last section summarises the main conclusions.

2. Bank capital and lending: some testable implications

The effects of bank capital on lending have been extensively debated, especially after the 1988 Basel Capital Accord. A vast empirical literature has examined the impact of capital requirements on

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