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Who lends to riskier and lower-profitability firms? Evidence from the syndicated loan market

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ABSTRACT

This paper exploits a unique data set on bank–firm relationships based on syndicated loan deals to examine the effect of banks' credit risk and capital on firms' risk and performance. Our data set is a multilevel cross-section, which essentially allows controlling for all bank and firm characteristics through respective fixed effects, thus avoiding concerns regarding omitted variables. We find that banks with higher credit risk are associated with more risky firms, with lower profitability and market value. In turn, we find that banks with higher risk-weighted capital ratios lend to riskier firms with less market value. Our results are indicative of a strong adverse selection mechanism and highlight the need to monitor the risky banks more closely, especially as we consider large and influential syndicated loan deals.

1. Introduction

What are the characteristics of banks that lend to firms with relatively high risk and low performance? The answer to this question has fundamental implications for the understanding of the bank–firm relationship lending, financial stability and real macroeconomic outcomes. Surprisingly, despite the presence of a prominent literature on relationship lending, this issue has been underresearched. In this paper, we aim to fill this gap in the literature by empirically analyzing the relation between firm risk and performance on the one hand, and bank capital and credit risk on the other.

The main proposition of our analysis is that banks with differential levels of credit risk and capital will be associated with firms with differential risk and performance. Specifically, risky and less profitable firms can have a difficult time obtaining credit from banks with relatively low levels of credit risk in their portfolios (risk-averse banks). In turn, banks with higher levels of credit risk are usually inclined to lend to more risky and less profitable firms (Peek and Rosengren, 2005). Thus, causality in this type of bank–firm relationship runs in both directions. The end result is one of a special type of cherry-pick, where the financially healthy banks are associated with financially healthy firms and the less healthy banks are associated with the less profitable firms (Jones et al., 2005).

The possible role of bank capital in the nexus between banks and firms is less straightforward. On the positive side, banks with higher capital ratios are those with more prudent behavior in all their activities, including lending to less risky and profitable firms (Diamond and Rajan, 2000, 2001; Gorton and Winton, 2000). On the negative side, a high capital ratio is a strong safety net for bank managers, who therefore face increased incentives to lend to risky borrowers that the bank would not be associated with if the level of capital was lower (Dahl and Shrieves, 1992; Bhattacharya and Thakor, 1993; Repullo, 2004; Murfin, 2012).

We test the presence of these bank–firm relationships using data from the syndicated loan market. This market is ideal for our empirical tests because it usually involves large, systemically important banks and firms and it is a relatively competitive market. Thus, we expect that the results in other more traditional bank–firm relationships would be even more pronounced if present in the syndicated loan market. Moreover, the data from the syndicated loan market have a unique characteristic. They represent the only source of information at the loan-level, with additional information on who is the lender (the lead bank–arranger

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of the loan) and who is the borrower (firm). This allows the matching of these data with information on the bank and firm characteristics, which are invaluable in the empirical examination of the question "who lends to risky and non-performing firms."

To this end, we build a unique data set on loan, bank, and firm characteristics, and analyze the nexus between firm risk and performance, and bank credit risk and capitalization. Theoretically, the direction of the causality in our analysis is not an issue. We aim to identify the nature of the bank–firm relationships and not which of the two parties initiates this relationship. However, a potential bias in our estimates may come from omitted variables bias, as there are many unobserved reasons behind the choice to lend to a specific firm or borrow from a specific bank. On this front, the structure of our sample has the additional merit that is a multilevel cross-sectional data set, with the different levels stemming from the fact that the same bank has given many loans in each time period and the same firm has obtained more than one loans within the same period. This allows including both bank and firm fixed effects, which effectively eliminate the omitted variables bias in our empirical models.

Our results show that banks with high credit-risk ratios are strongly associated with firms with high profit volatility, lower market value, and lower profitability. With small modifications, these findings hold irrespective of the variables used to proxy the credit risk of banks and are economically significant. Specifically, a 1% point increase in our preferred measure of bank credit risk is associated with an increase in the volatility of the return on assets for the mean firm from 0.022 to 0.026 and a decrease in the risk-adjusted returns of the mean firm from 20.3 to 14.5. These results reveal a disconcerting affiliation of risky banks with risky firms, yielding a bad equilibrium in the market for credit. Given that this equilibrium is observed in the syndicated loan market, which brings together relatively large banks and firms, this can be a recipe for a turmoil in both the banking (and by extension in financial) and the products markets.

The role of bank capital in defining the bank–firm relationships is also quite important for the bank–firms relationships. We find that banks with high risk-weighted capital ratios are associated with firms with high volatility of returns and low market value. These findings are in line with the idea that overcapitalized banks will tend to take on higher risk in search for yield, which is in line with the adverse selection and moral hazard mechanisms of the capital-regulation theory (Hellmann et al., 2000). We contend that our results have important implications for prudential regulation in light of the recent revisions under the impulse of Basel III.

The rest of our paper is structured as follows. Section 2 analyzes the theoretical links between firm risk and performance, and bank credit risk and capital. Section 3 discusses the data and the variables used in the empirical analysis. Section 4 discusses the empirical identification method and presents the empirical results. Section 5 concludes with the policy implications of our findings.

2. Theoretical considerations

The literature on relationship lending highlights a number of beneficial effects of close bank–firm relationships. The most notable of these effects are the alleviation of liquidity constraints of firms due to the reduction in adverse selection and moral hazard problems and the longer-term horizon of investment decisions (e.g., Rajan, 1992; Hoshi et al., 1991). However, a more recent strand of this literature also highlights some wrinkles in the beneficial effects of relationship lending. For example, Giannetti (2003) shows that banks can renew lending to insolvent projects and accumulate losses, which leads to increased probability of bank insolvency and financial instability.

The seminal paper on the theory of the selection of borrowers by banks is the one by Stiglitz and Weiss (1981). In this model, banks are unable to observe the exact riskiness of borrowers, thus they offer the same type of loan contracts to all firms. One problem with this modelling framework is that, in the real world, bank managers tend to cherry-pick borrowers based on specific screening devices such as collateral (e.g. Bester, 1985). This immediately suggests that banks have a clear view about the different risk levels of potential borrowers, especially as informational asymmetry problems decrease.

The opposite argument concerning the decisions of banks with different level of capital and credit risk to lend to healthy or less healthy firms is quite under-researched. The theoretical debate on this front can be traced in the work of Peek and Rosengren (2005) for the misallocation of credit to relatively weak firms. In a world with relatively lax regulatory supervision, banks follow a policy of forbearance with the troubled borrowers to avoid increasing their own loan-loss reserves, which will impair their capital ratios. Subsequently, the risky banks will be incentivized to extend their line of credit to troubled borrowers, so as to enable these borrowers to make interest payments on outstanding credit.

This line of reasoning also works in the opposite direction as well, from troubled firms to the worse-performing banks. The less profitable and risky firms will have a tough time borrowing from a healthy bank, which is likely to have superior managerial and monitoring capacity as a means to reduce adverse selection and moral hazard in the lending process. Thus, these firms are likely to turn to less risk-averse banks, which have a history of lending to riskier firms. These banks will likely be characterized by higher levels of non-performing loans and loan-loss provisions, information which is ex post disclosed to the public on a quarterly basis. Thus, we expect that risky (worse performing) firms are likely to be affiliated with risky banks and vice versa, especially when we call risky banks those with a relatively high amount of credit risk in their portfolios.

The proposition on the relationship between risky banks and risky firms is a special type of a more hazard problem, which however has some element of adverse selection in that the problem precedes the loan deal. Thus, we are referring here to a variant of the Akerlof (1970) – type lemon's problem, whereby the low-quality firms will be left to choose the low-quality banks and vice versa, even if information is complete. This state of affairs creates a vicious cycle with an association of low quality firms and banks, which for markets as important as the syndicated loan market can be a recipe for banking instability.

In contrast, the role of capital in the banks' decision to lend to relatively riskier and lower-profitability firms is usually studied within the theoretical bank capital regulation literature. This literature makes contradicting predictions about the role of bank capital. Diamond and Rajan (2000), Diamond and Rajan, (2001) and Gorton and Winton (2000) propose a number of mechanisms (quoted as financial fragility mechanisms) through which higher bank capitalization reduces lending and, thus, credit risk. The highlight of this influential literature is that bank capital diminishes the financial fragility that facilitates the lending process and will "crowd out" deposits. The resulting effect is a safer banking system through the reduction of the credit risk of banks. However, this literature is, in general, silent on the type of firms that the well-capitalized banks tend to be associated with.

The opposite result is established by giving bank capital the role of risk buffer, which expands banks' risk-bearing capacity (e.g., Bhattacharya and Thakor, 1993; Repullo, 2004). In this framework, the well-capitalized banks have increased incentives to extend their credit to relatively risky borrowers, because holding too

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