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Bank borrowing and corporate risk management

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ABSTRACT

We examine whether banks better protect themselves against risk-shifting as compared to non-bank lenders by comparing risk management polices across firms that borrow from different lenders using a unique, hand-collected data set of hedging and borrowing practices. Consistent with banks being effective monitors, we find hedging is positively associated with the proportion of bank debt amongst firms with large risk-shifting incentives. We present descriptive evidence showing that banks use covenants as one of the channels to mitigate risk-shifting.

1. Introduction

Debt financing engenders the agency problem of risk-shifting, as shown by Jensen and Meckling, 1976. Once debt is issued, equity holders have a payout similar to a call option on the firm's assets, giving them incentives to unduly increase firm risk to expropriate wealth from debt holders.

We examine whether expropriation of debt holders through risk-shifting systematically differs across different types of lenders. Financial intermediation theory suggests that banks have a comparative advantage over other lenders in preventing expropriation by their borrower. (See Diamond, 1991;

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Rajan, 1992.) Bank debt ownership is concentrated, making monitoring economically feasible.[2] A bank typically also provides investment and commercial banking services to its lenders, allowing the bank to collect lots of additional information about its borrowers operations. Therefore, a bank can potentially monitor its borrowers' activities much more effectively than other lenders.

Whether banks do in fact manage the risks of their borrowers more aggressively as compared to non-bank lenders is an empirical question, and we address it in this paper. We examine how firms that borrow from banks hedge their risks as compared to non-bank borrowers. We conduct our analysis using a unique hand-collected data set of hedging and borrowing practices for a sample of firms in the oil and gas exploration and production industry. This industry is particularly suitable for our analysis for several reasons. First, these firms have significant exposure to commodity price volatility and hedging this risk can reduce the likelihood of default. Second, firms in this industry raise debt from different sources, providing sufficient cross-sectional variation for identification in our econometric analysis. Restricting the sample to a single industry also eliminates the substantial variation in financial policies driven by cross-industry effects, albeit at the expense of a smaller sample.

Our main finding is that banks are more effective than other lenders in protecting themselves against risk-shifting. Among firms with large risk-shifting incentives, bank borrowers hedge a greater proportion of their exposure to commodity price volatility as compared to non-bank borrowers. Banks use hedging covenants as a channel for risk-mitigation, with explicit requirements for hedging being more common for larger loans. We also find that high insider ownership mitigates risk-shifting, possibly because the risk-aversion of undiversified managers aligns their risk-taking incentives with that of the debt holders.[3] This internal governance mechanism complements external supervision by a bank.

By demonstrating how the source of debt influences a firm's hedging behavior, this paper contributes to two areas of financial economics. First, it contributes to the financial intermediation literature by identifying a specific mechanism through which bank monitoring mitigates risk-shifting problems, namely, requiring borrowers to reduce exposure to market risks. Second, it improves our understanding of why firms hedge by documenting the role of institutional lenders on a firm's risk management decisions – a class of agents that have been ignored by the existing literature on corporate risk management. To our knowledge, we are the first to examine the role of *debt* ownership on hedging policy; the previous literature focuses on the *level* of debt and the nature of *equity* ownership on a firm's hedging policy. Our findings also offer a possible explanation for the puzzling variation in the association between hedging and leverage documented across different studies. Some studies suggest that hedging and leverage are positively related whereas others suggest they are unrelated. With the notable exception of Purnanandam (2008) and Nain (2005), hedging has been modeled as a linear function of leverage, which necessarily limits the relationship to be monotone. Our results suggest that the hedging-leverage relation will be monotone only if firms are financed with bank debt, but distinctly non-monotone if firms use non-bank debt. Hence, the linear specification used in earlier studies will systematically detect an association in samples where banks are a significant source of debt financing and fail to detect one in samples where non-banks are the primary source of debt financing.

The rest of the paper is organized as follows: Section 2 reviews the literature. Section 3 discusses the hypothesis and the data set. Section 4 describes the econometric specification. The main result is presented in Section 5. Robustness tests to address a series of potential concerns including endogeneity of the choice of leverage and source of debt is presented in Section 6. The role of insider ownership in mitigating the risk-shifting problem is analyzed in Section 7. Descriptive evidence on hedging covenants is presented in Section 8. Finally, Section 9 concludes.

2. Literature review

This paper is related to the risk management literature analyzing agency and leverage motivations for hedging, and the financial intermediation literature analyzing how bank borrowing mitigates agency conflicts.

[2] In contrast, public debt ownership is typically very diffuse, making monitoring difficult to coordinate and prohibitively costly for an individual bond holder.

[3] The incentives of managers to alter firm risk is discussed in greater detail in Section 7.