Bank Credit and Firm Default Risk:
an implicit contract perspective

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Abstract

In a model with non-relationship risk-neutral lenders, credit spreads should move one-for-one with the default risk of firms. However, using credit registry data from Mexico, I show that within a bank-firm relationship such pass-through is close to zero: banks implicitly overcharge safe firms and subsidize credit conditions for riskier borrowers. Instead, when a firm switches bank, the pass-through is closer to one-for-one.

To rationalize my empirical findings, I build a model of long-term relationships between banks and firms. Endogenous borrowing frictions give rise to an insurance demand from firms: without insurance, riskier firms would pay overly high credit spreads and would be forced to downsize from the first-best level of capital. In the model, the cost for firms to switch lender allow banks to obtain some level of commitment on informal state-contingent promises, and optimally deviate from the firm-specific implied credit spread. In a stylized version of the model, I characterize analytically the pass-through emerging from the optimal contract and show that, consistently with the data, the optimal contract prescribes limited pass-through from firm risk to credit conditions.

I then extend a canonical model of heterogeneous firms to incorporate bank lending and implicit contracting. I use my model to quantify the role of bank insurance for allocative efficiency and for the dampening of business cycle fluctuations. Finallt, I highlight the separate roles of *insurance* and *evergreening*. .

1 Introduction

One of the central challenges that firms face is that of securing sufficient funds to operate at the desired scale across all possible contingencies. In the presence of credit market imperfections, firms might be forced to costly downsizes, distorting the socially optimal allocation of capital. In this project, I study the role of long-term banking relationships in overcoming such frictions and I highlight the role of banks as providers of insurance to firms.

Empirically, I use a rich loan-level dataset from Mexico to estimate the pass-through from firm default risk to the credit spreads applied by the bank, which should be equal to one for a risk-neutral non-relationship lender. Default risk for each loan is reported by banks under clear guidelines provided by the Banco de Mexico. In the data, I find that banks dampen this pass-through, which is close to zero. I use as a benchmark the pass-though for firms that start borrowing from a new bank, and I find a pass-through which is closer to one. Therefore, I interpret these findings as suggesting that banks only pass-through about one third of the firm risk changes to credit conditions. Notice that this result is broadly symmetric: banks mitigate increases in credit spread to riskier borrowers, but also restrain from lowering rates when firms became safer. I find a similar result using a smaller sample of syndicated loans where I use outstanding bonds to measure firm default risk.

I control for endogenous selection using two instruments that affect the probability of switching but are arguably unrelated to firm-specific fundamentals. The first instrument I use is branch activity in the municipality where the firm is located, with net openings from other banks and net closure from the current bank positively predicting the probability to switch banks. The second instrument is a bank-specific credit supply shock that I estimate for each bank-month using a methodology in Amiti and Weinstein (2017). The methodology is a generalization of Amian and Sufi (2008), and leverages on multibank firms to isolate the component of bank credit growth that is orthogonal to firm credit demand.

My model and empirical findings are closely related to the literature on zombie lending. Since the Japanese and the global financial crisis, a large literature has emerged documenting that banks have an incentive to roll over loans to their clients, to prevent delinquencies on previous loans, a practice known as *Evergreening*. Empirically, I show that the limited pass-through from default risk to credit spreads, rather than being limited to the tail of firms on the brink of bankruptcy, is a widespread phenomenon. First, it is common also to firms with low default probability; secondly, such pass-through does not depend on the presence of loans maturing in the months around the origination of the new loan, suggesting that deviations from fair loan pricing are not solely attributable to rollovers of nearly-defaulted loans. Theoretically, the full version of the model allows to clearly distinguish the *insurance motive*, which arise from the objective of increasing match surplus by keeping the firm capital close to its firm best level, and the *evergreening motive*, which arise because banks want to prevent firm defaults by providing subsidized credit. An estimated version of the model can therefore speak to the quantitative importance of the two mechanisms.