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Lending to uncreditworthy borrowers

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ABSTRACT

We study optimal lending behavior in situations where borrowers' outside options increase with their creditworthiness. Creditworthiness is private information of borrowers. Lenders use collateral as a screening mechanism to address this adverse selection problem. A lender seeking to attract creditworthy borrowers with high reservation payoffs (while screening out uncreditworthy types) must offer contracts with sufficiently low interest rates and, consequently, high collateral requirements. Because higher collateral requirements raise screening costs, however, lenders favor pooling uncreditworthy borrowers over screening them—in essence, a lowering of credit standards. Lending costs determine break-even offers that rival incumbents can offer borrowers. Accordingly, a lender faces borrowers whose reservation payoffs depend on the lender's cost advantage over rival incumbent lenders. Our results imply that screening is more likely to occur in markets with a greater disparity in lending costs. Conversely, when funding markets are intensely competitive, lenders are more likely to resort to pooling. This paper also rationalizes the phenomenon of cream-skimming by outside (foreign) lenders as an equilibrium of the model. Surprisingly, we find that the presence of an informed rival actually facilitates cream-skimming by an uninformed lender.

1. Introduction

Traditional theories of financial intermediation typically assume that borrowers are homogeneous, especially in terms of opportunities outside the lending relationship. Such assumptions

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are fairly innocuous for "the period of quiescence" in banking in the United States from the mid-1930s until the 1990s. Indeed, banking in this period was characterized by limited entry and local deposit monopolies. Bank charters gave incumbents considerable, almost monopolistic, market power (Gorton, 2009). As a result, borrowers' outside options were fairly limited. Conditions have changed rapidly since the 1990s as branching deregulation, technological advances, and cross-border entry have increased lender competition and borrower poaching. Therefore, it is no surprise that outside options for borrowers have improved (Jayaratne and Strahan, 1996; Black and Strahan, 2002).

This paper studies optimal lending behavior under adverse selection.[2] We assume that borrowers are heterogeneous in their creditworthiness, which is private information of the borrower.[3] Borrower reservation payoffs increase with creditworthiness—that is, borrowers of higher quality have better outside options.[4] In this setting, we apply a model where lenders use collateral as a screening mechanism to address the adverse selection problem and to sort borrowers of different quality (Besanko and Thakor, 1987).[5] Screening is both costly and inefficient because we assume that lenders can recover only a fraction of the collateral posted—a salvage rate strictly less than unity (Barro, 1976).

The model we consider, in its simplest version, includes a new, uninformed lender that faces borrowers with exogenous reservation payoffs. The payoffs are assumed to reflect the terms under which a borrower could obtain loans from a rival incumbent lender that has complete information about the borrower's quality. A growing literature examines how lenders acquire information about borrower creditworthiness in the course of a lending relationship (Boot and Thakor, 1994; Boot and Thakor, 2000; Boot, 2000). Accordingly, new and entrant lenders are uninformed: They face borrowers whose creditworthiness is no longer just the private information of the borrower but also information available to rival incumbent lenders, possibly from a prior lending relationship. This form of multiple informational disadvantages exacerbates the standard adverse selection problem faced by lenders. Moreover, offers from any informed lender reflect borrower creditworthiness. Consequently, more creditworthy borrowers have higher reservation payoffs.

In addition to their creditworthy clients, informed rival lenders are likely to have identified a section of the borrower population that is uncreditworthy, i.e., potential borrowers whose likelihood of default is so high that it is not profitable to lend to them at any interest rate. Uncreditworthy borrowers are likely to be denied loans from informed lenders. Nevertheless, they may choose to apply for loans from new (uninformed) lenders (Sharpe, 1990; von Thadden, 2004). Thus, lenders must not only sort creditworthy borrowers of different risk quality, but also avoid lending to uncreditworthy borrowers. Note that the outside options of creditworthy borrowers vary according to offers from rival lenders, but the options for uncreditworthy borrowers are limited because they can borrow only from uninformed lenders.

An uninformed lender's ability to attract creditworthy borrowers depends on the size of the (second-best) loan surplus generated by its offers, net of screening and pooling costs.[6] Lower lending costs increase this loan surplus and consequently the lender's ability to secure creditworthy borrowers.[7] Additionally, lower lending costs reduce pooling costs by reducing the losses from lending to uncreditworthy borrowers. Therefore, lower lending costs tend to make pooling more profitable than

[2] Under adverse selection, riskiness is an exogenous and unobservable characteristic of agents. Accordingly, the characterization of risk throughout this article refers to unobservable risk (i.e., risk conditional on observables).

[3] We distinguish between two types of creditworthy (or good-risk) borrowers: high-risk and low-risk borrowers. A third category of borrowers is classified as bad-risk or uncreditworthy.

[4] Throughout this paper, we use the terms "creditworthiness," "quality," "risk," and "type" interchangeably.

[5] Jimenez et al. (2006) present evidence consistent with such adverse selection theories that, conditional on observable risk, there exists a negative association between collateral and a borrower's risk.

[6] The first-best social surplus—i.e., gains from trade under complete information—is obtained by subtracting lending costs and borrowers' reservation payoffs from the expected return on the loan. Under incomplete information, screening and pooling costs reduce this social surplus and, therefore, the second-best surplus is strictly smaller than the first-best.

[7] We assume lender heterogeneity where different lenders have different lending costs. The model allows for a broader interpretation of lending costs than suggested by deposit rates. Asymmetries in lending costs can arise from differences in operating cost, interest expenses, or even the cost of inefficiencies that arise due to deviations from best practices. See Berger and Mester (2003) for a more formal treatment of the lending costs of banks.