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Debt Renegotiation with Collateral under Asymmetric Information

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The optimal design of credit contracts and bankruptcy procedures is an important policy question both in developed market economies and in countries with emerging markets. In this article we deal with several theoretical considerations related to these important policy problems. Our main concern is with the impact of relaxation of bankruptcy procedures providing for a possibility of a renegotiation of the debt instead of strictly imposing bankruptcy whenever the debtor falls into a default on his debt. We deal with this problem in a context of collateralized debt contracts in the conditions of imperfect information about the prospects of the entrepreneur and about the results of his project.

Our paper presents a simple incomplete contract model of a credit market with ex ante asymmetric information and ex post costly state verification. We consider an entrepreneur who has private knowledge about his probability of a success and who borrows from a lender in order to undertake a risky project. The borrower has private information about the outcome of the project and he is able to pledge collateral to secure his loan. After the realization of the outcome of the investment project there is ex post asymmetric information between the borrower and the lender, who is not able to observe the project's outcome. The results of the project become common knowledge only if the lender imposes costly bankruptcy on the borrower.

In order to analyze this problem we connect the standard adverse selection model of collateralized debt as described by Schmidt-Mohr (1997) with the debt renegotiation model of Bester (1994). We show how the introduction of an ex ante asymmetric information influences results obtained under an assumption of ex ante symmetric information and how the ex post costly state verification interacts with the sorting role of collateral in the incentive compatibility problem of adverse selection.

Bester (1994) has only one type of the borrower in his model and he does not include in his model the adverse selection effect of the ex ante asymmetric information. He repeatedly emphasizes that the results of his model are conditional on ex ante symmetrical information and he conjectures that when the entrepreneur knows more about the project's ex ante profitability than the creditor, the results of the model might change significantly and the renegotiation may in fact be harmful. We will show that in our setup the renegotiation under adverse selection increases welfare. Our model also provides a qualification for Bester's (1994) conjecture that the renegotiation may seriously undermine the role of collateral as a screening device.

Our model allows us to consider collateral both as a signaling instrument and as a factor determining the likelihood of bankruptcy. We show that the screening effect of collateral prevails but that the major qualitative result of a welfare-enhancing role of renegotiation survives the introduction of the ex ante asymmetric information into the model. Our explicit analysis of the interaction between credit renegotiation and the screening role of the collateral brings in this way a new contribution to an extensive literature dealing with adverse selection models of the credit market in general as summarized by Schmidt-Mohr (1997) and with a use of a collateral in particular as documented in a survey by Coco (2000).

Our result of welfare increase by relaxing the commitment of lender to imposing bankruptcy on defaulting entrepreneur supports the argument provided by Manove, Padilla and Pagano (2001) in favor of a more lenient bankruptcy procedures. They show in their model of collateral and project screening that the strict enforcement of bankruptcy decreases the efficiency of the credit market, which is consistent with our welfare results.

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SUMMARY

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This paper analyzes the adverse-selection model of the financing of high-risk investment projects with a possibility of utilizing collateralized debt contracts. Due to the costly verification of the project outcomes, debt renegotiation becomes a possibility. The author shows that debt renegotiation increases the welfare and does not preclude the use of collateral as a screening device.