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Severe or gentle bankruptcy law: Which impact on investing and financing decisions?

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ABSTRACT

This research investigates how legal sanctions prevailing under bankruptcy may impact on debt contracting and on investing decision. We model firms having the opportunity to engage (or not) faulty management. In case of default, the firms may escape costly bankruptcy by reaching a private agreement with the bank. We show that such renegotiation process may depend on the level of severity of bankruptcy law.

Our approach helps in answering the following key questions: can bankruptcy costs always be internalized? Who benefits from accrued severity? Should the creditors accept a certain level of moral hazard from their debtors? Should bankruptcy law be extremely severe in order to ensure *ex-ante* efficiency? Does such severity depend on the financial environment?

The model focuses on three equilibriums. The first equilibrium describes honest firms that choose the best investment project (*ex-ante* efficiency). Here, we show that bankruptcy costs can be avoided through private renegotiation (*ex-post* efficiency). Yet, the legislator cannot directly implement this equilibrium as it does not depend on the level of legal sanctions. A second equilibrium describes tricky firms turning to the less profitable and riskiest project. Here, default is still privately resolved: the occurrence of such equilibrium can be avoided owing to a minimal amount of legal sanctions that depend on the level of interest rate. Last, we consider firms that adopt mixed strategies regarding their investment policy. Here, two post-default bargains prevail (pooling or separating) and costly bankruptcy may occur.

Simulations illustrate how the bank finally chooses between these equilibriums while the legal environment becomes more severe. For moderate levels of legal sanctions, banks may accept a certain level of faulty management, expecting to take advantage of bankruptcy punishment. An increase in sanctions, however, has a compelling effect on the companies towards honoring their commitments. Once the optimal equilibrium prevails, any additional increase in sanctions is ineffective as the players' strategies no longer depend on the legal environment. As a result, extreme severity is not required to ensure both *ex-ante* and *ex-post* efficiencies. Last, we find that a more severe bankruptcy law increases the protection of banks and may result in reduction of the contractual interest rate, which on the other hand benefits the debtors.

1. Introduction

Bankruptcy law has received considerable attention due to its implications on the financing and investing decisions. Two complementary aspects of the "efficient" bankruptcy law have been separately investigated. On the one hand, bankruptcy is *ex-post* efficient if it maximizes the value of firms that are already in default. On the other hand, bankruptcy is *ex-ante* efficient if it improves the incentives of all the firms' stakeholders, before any default.

The literature on *ex-post* efficiency of bankruptcy law mainly discusses the tradeoff between the rival ways of resolving financial distress: following the Coase theorem, Haugen and Senbet (1978, 1988) prove the superiority of private renegotiation (*i.e.* market solution) over bankruptcy procedure (*i.e.* legal solution) as the stakeholders manage to internalize the bankruptcy costs through renegotiation. This latter result has strong implications upon the literature on capital structure (Harris and Raviv, 1991). Indeed, bankruptcy costs and tax shields compensate each other to arrive at optimal capital structure, as shown by Stiglitz (1974). But, if either the shareholders or the creditors are able to save bankruptcy costs through renegotiation, this compensation mechanism becomes void.[1]

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[1] Following similar *ex-post* perspective, other authors discuss the advantages of implementing particular procedures to distressed firms (away from simple renegotiation): auctions and options (Bebchuk, 1988, 2000), or procedures allowing for deviations from the absolute priority rule (Baird and Picker, 1991; Blazy and Chopard, 2004; Jackson, 1986).

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The major drawback of such *ex-post* view is that it ignores the impact of bankruptcy procedures – irrespective of their design – on the strategies taking place before default. Introspection on the literature on *ex-ante* efficiency of bankruptcy reveals interesting views on how the legal environment influences the managers' and creditors' behaviors in the presence of asymmetric information (Aghion and Bolton, 1992; Berkovitch et al., 1998; Kolecek, 2008). Regarding the creditors, Cornelli and Felli (1997) show how bankruptcy laws are likely to change their behavior in terms of monitoring firms and granting loans. Moreover, some bankruptcy features may influence the way the debt contracts are designed (Gorton and Kahn, 2000; Jappelli et al., 2005). Following that view, Von Thadden et al. (2003) show how bankruptcy laws influence the firms' capital structure when they have the opportunity to default strategically. Most of the previous papers focus on rather large companies and/or complex debt contracting.[2] However, collateralization is not always easy to implement, especially for young and small companies that do not have sufficient assets to be collateralized. Additionally, the previous papers rarely provide explicit explanation of the impact of bankruptcy law on *both* investing and financing decisions.

Some other papers have focused on the linkage between the *ex-post* and *ex-ante* efficiency of bankruptcy law. Such papers are quite few. Namely, Ayotte (2007) provides a principal–agent framework close to Povel (1999), under which bankruptcy law may improve social surplus allowing for a “fresh start” providing higher debt relief than the bank would approve. Both papers capture moral hazard through the level of effort engaged by entrepreneurs. Povel's approach is very interesting as it explicitly distinguishes between “soft” and “tough” bankruptcy laws, showing that “one-size-fits-all” bankruptcy procedures cannot be optimal.

Our paper belongs to the last set of papers, and aims at filling the gap between the *ex-post* and *ex-ante* approaches to SMEs bankruptcy. We provide a theoretical framework for post-default renegotiation under asymmetric information, and attempt to link this framework to the pre-default investing and financing decisions. We suggest that the design of bankruptcy law plays a crucial role in this process, as it may impact on the level of interest rates. Further, this may also influence the firms' investing decisions. Consequently, we question as to what extent the legislator can use the *ex-post* bankruptcy rules in order to ameliorate the *ex-ante* behaviors, and/or affect profits sharing.

By following this approach, our objective is to provide some insights into the following key questions, either related to *ex-post* or to *ex-ante* efficiency of bankruptcy law: [1] From an *ex-post* perspective, can bankruptcy costs always be internalized through private renegotiation? [2] From an *ex-ante* perspective, who benefits from accrued severity: the debtors or the creditors? [3] Should the creditors accept a moderate level of moral hazard from their debtors? [4] Should bankruptcy law be extremely severe in order to implement *ex-ante* efficiency? [5] Does such severity depend on the financial environment? *I.e.* should the legislator adapt the bankruptcy law to the changing financial environment in order to improve *ex-ante* efficiency?

When focusing on the fundamentals of bankruptcy codes, the literature isolates three major functions of the “Court solution”.

First, bankruptcy codes help in coordinating interests between diverse claimants: without any coordination, the distressed firms are likely to be dismantled through an anarchic creditors' run, which eventually reduces the value of the firm. This “common pool problem” has been widely addressed by Bulow and Shoven (1978), Gertner and Scharfstein (1991), Asquith et al. (1994), and more recently by Longhofer and Peters (2004). Through specific legal mechanisms (stay of claims, specific voting procedure, and/or Court enforcement, *etc.*), the design of bankruptcy codes helps in solving the lack of coordination between the creditors. As coordination has been extensively investigated by the literature, we do not focus on this specific issue here, and consider the case of a SME financed by one main bank.

Second, bankruptcy codes produce information, through the implementation of audit procedures, monitored (directly or not) by the Court. A similar issue has been addressed by the literature on the theoretical justification of standard debt contracts (Gale and Hellwig, 1985; Townsend, 1979): such contracts are efficient as they limit the occurrence of situations when the creditors have to investigate the actual value of the debtor's assets. Here, the costly state verification process takes place only when the debtor cannot repay its debt anymore, which is the most common triggering criterion of formal bankruptcy. In this paper, we explicitly model audit mechanisms taking place under bankruptcy.[3]

Before the middle of the twentieth century, most of the bankruptcy codes did not distinguish between the fates of the firms and of the managers. Financial distress had to be punished and the punishment of decision makers was a consequence of the breach of previous financial commitments. This view has been evolving as most economies now admit that default may be attributed to bad luck or unfavorable environment. However, bankruptcy procedures should penalize the faulty managers. This third feature of bankruptcy law has become pivotal and plays a crucial role in the modern approach to bankruptcy. This perspective is fundamental: legal sanctions should apply to faulty managers only, whose reckless or tricky behaviors increase the financial consequences of default. Following Bester (1985), one could argue that implementing personal guarantees on the manager/shareholder's wealth reduces incentives to moral hazard. Indeed, personal collateralization is a good way of discriminating between good and bad risks. Yet, the systematic use of such collateral, by breaking limited liability, may lead to under-investment. We rather focus on the role of legal sanctions, which have the advantage over personal guarantees to be enforceable whenever moral hazard is discovered. Of course, this implies a costly state verification process, which is one of the fundamental functions of modern bankruptcy codes. For instance, in France, legal administrators have to engage a (costly) audit of the firm as soon as bankruptcy is triggered (“*période d'observation*”): since 1985 (Code no 85-98, 25th of January 1985, Title V, Art. 180 to 182), the Court can sanction managers if the administrator's report reveals faulty management. The “fault” covers asset substitution, tricky behavior, and, more generally, any action that might have worsened the financial situation of the firm. Sanctions are either penal and/or pecuniary. The latter makes the manager pay for the firm's debt using his/her own personal wealth.

In this paper, we model a three-stage lending relationship between a monopolistic bank and a small firm (SME), directed by a manager–shareholder. The bank proposes a contractual interest rate to the firm, which directly influences its probability of default.[4] The firm's manager has initial incentives to substitute assets at the time of investment: once funds are leveraged, (s)he can undertake a riskier investment project, contrary to the one announced to the bank (this information remains confidential to the manager only). In case of default, a bankruptcy procedure may be triggered off: a costly state verification process takes place and legal sanctions may apply against the managers, if they are found to be guilty of tricky behavior. However, costly bankruptcy procedure can be avoided if the firm manages to enter private renegotiation with the bank.

The structure of the paper is as follows. Section 1 presents the general structure of the model. Section 2 computes the equilibriums and

[2] For instance, Von Thadden et al. (2003) focus their analysis on collateralized loans.

[3] For the bank, the cost of engaging an audit on its own may be too high regarding a SME. But when considering bankruptcy procedures, an audit is justified as *all* the firms' stakeholders need to get informed.

[4] Contrary to other models, the probability of default is not constant here, but directly depends on the level of the interest rate, which we consider as a much more realistic description of the bankruptcy process. This feature directly stems from the way we model earnings, as a continuous random variable.