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***Past and Future of the Bankruptcy Law in  
Brazil and Latin America***

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# Past and Future of the Bankruptcy Law in Brazil and Latin America<sup>\*</sup>

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## Abstract

This paper studies the Bankruptcy Law in Latin America, focusing on the Brazilian reform. We start with a review of the international literature and its evolution on this subject. Next, we examine the economic incentives associated with several aspects of bankruptcy laws and insolvency procedures in general, as well as the trade-offs involved. After this theoretical discussion, we evaluate empirically the current stage of the quality of insolvency procedures in Latin America using data from Doing Business and World Development Indicators, both from World Bank and International Financial Statistics from IMF. We find that the region is governed by an inefficient law, even when compared with regions of lower per capita income. As theoretical and econometric models predict, this inefficiency has severe consequences for credit markets and the cost of capital. Next, we focus on the recent Brazilian bankruptcy reform, analyzing its main changes and possible effects over the economic environment. The appendix describes difficulties of this process of reform in Brazil, and what other Latin American countries can possibly learn from it.

*JEL classification:* G33; K40; K00

*Keywords:* Bankruptcy; Financial Distress; Legal System; Law and Economics

## I – Introduction

The modern economic theory recognizes more and more the relevancy of the legal and institutional structures for the good functioning and development of the economy. The present paper works specifically on the law that governs the bankruptcy procedure of corporations, its characteristics and effects over the economic environment, besides the recent reforms that occurred in Latin America focusing specially on the Brazilian case.

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Firms take debts for several different reasons. One important characteristic of this act is that such firms wish to repay their debts with their future gains. But, there is always the possibility, for some reason, of no fulfillment of such repayment promise. The bankruptcy law is concerned with what happens in such circumstances.

In the absence of a bankruptcy law, a creditor has two legal procedures at his disposal. First, in the case of secured loan, creditors can seize the firm's assets that serve as collateral for their loans. Second, in case of unsecured loans, creditors can go to court asking to sell some of the firm's assets. However, this method of debt collection runs into difficulties when there are many creditors and the debtor's assets do not cover his liabilities (i.e. when the firm is insolvent). Under these conditions each creditor will try to be the first to recover his debts. This uncoordinated race of creditors may lead to the dismantlement of the firm's assets, and to a loss of value for all creditors.

Given this situation, it is in the collective interest that the disposition of the debtor's assets be carried out in an orderly way, via a centralized bankruptcy procedure.

In a perfect world, there would be no need of a bankruptcy law because individuals could solve this problem via contracts, i.e. the debtor could specify as part of the debt's contract what would happen in case of default (like the division and the procedure). Writing such contracts is in fact very difficult, since debtors may acquire new creditors and assets as time passes and it may be very hard to specify how the division process should change as function of such adjustments. Besides, in practice, contracts like this are not written. Therefore, the bankruptcy law provides a default option for this problem of contract incompleteness.

To summarize the role of the bankruptcy law, we can say that it works to avoid problems of uncoordinated debt collection and contract incompleteness in a situation of no repayment of debts. But how should the bankruptcy law look like? Most countries have two bankruptcy procedures, one for liquidating assets of failing firms and another for reorganizing failing firms.

When a firm files for bankruptcy liquidation, the bankruptcy court appoints a trustee who shuts the firm down and sells its assets. This could be done in different ways: sale of the business or its productive

units or piecemeal sale of its assets, depending on the demand and which option maximizes the value of the company's assets. The Absolute-Priority Rule determines how the proceeds of sale are divided among the claimants. It specifies what claims are paid in full according to an order defined by the bankruptcy law of each country.

However, when capital markets are imperfect, what is very common in developing countries, the best managers may not be able to raise the cash necessary to buy the firm. The firm may be inefficiently dismantled and its assets sold cheaply. Therefore, reorganization provides a good alternative for countries that have problems in their capital markets. An additional explanation<sup>1</sup> for the loss of value in liquidation is that when a firm in financial distress needs to sell assets, its industry peers are likely to be experiencing problem themselves, leading the asset sales to prices below value in best use. Hence, in cases where asset specificity and the correlation of returns across the firm are high, reorganization is likely to maximize the insolvency return instead of liquidation.

An alternative solution for the liquidation procedure, especially for firms financially distressed<sup>2</sup> but not economically inefficient<sup>3</sup> is the reorganization procedure, where there is no actual sale of the company's assets. There are different approaches to choose between both proceedings. Some countries (like Germany, France and England) prefer to give the exclusive control of the proceeding to an outside official who makes the initial decision whether the firm will be liquidated or remain in operation while a reorganization plan is formulated. Other countries choose to supervise the manager with an impartial and independent administrator who assumes complete power if management proves incompetent or negligent or has engaged in fraud or misbehavior. And finally, there are countries (like the U.S.) that give managers the right to choose between filing for bankruptcy liquidation or reorganization together with exclusive power to propose a reorganization plan.

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<sup>1</sup>See Shleifer and Vishny (1992)

<sup>2</sup> A firm is in financial distress or insolvent when it can no longer meet its debt obligations with another firm or institution.

<sup>3</sup>A firm is economically efficient if the best use of its capital is the current use and it is economically inefficient if the value of its assets is greater in some other use.

Once the reorganized procedure is chosen over liquidation, there is a conflict between the secured creditors' right to claim their collateral versus the goal of reorganizing the firm. In order to reorganize successfully, it must retain assets, which are crucial to its operations, but secured creditors often wish to claim these assets. In some countries this conflict is resolved in the firm's favor by applying an automatic stay to secured creditors (like U.S.), making the reorganization process more appealing. This protection varies from one country to another, with some not applying it, like the United Kingdom and Germany, thereby weakening or even eliminating the possibility of reorganization.

The next step is to provide the reorganization plan that specifies how much each creditor will receive in cash or claims from the new firm. An appropriate majority of creditors should be required to approve a plan. Assuming that reorganizing the firm causes it to be worth more than its assets would bring in liquidation, usually the reorganization procedure provides a framework within which creditors and managers (with equity holders) bargain over the distribution of the extra value and eventually adopt a reorganization plan, otherwise, if there is no agreement, the firm is liquidated.

The law leaves the division of the reorganized company's value to a process of bargaining among the classes of participants. Each class of equity holders and debt holders whose interests are not aligned must vote to approve a reorganization plan, which should include a division of value. The outcome of this bargaining process often diverges from the legal rights of the classes since managers and shareholders have some bargain power. It should be noted that violations of absolute priority rule usually happen in the reorganization procedure.

Ideally, the bankruptcy law should provide a good balance between liquidation and reorganization procedures, in such a way that minimizes the so-called *Filtering Failure* problem. There are two different cases of filtering failure problem: the first is when economically efficient firms in financial distress are liquidated but should be reorganized (its value would be bigger in reorganization), which is called *Type I Error*; the second is when economically inefficient and financially distressed firms are saved in reorganization but should be liquidated, which is called *Type II Error*. Avoiding filtering failure problem

makes the efficiency of the economy higher since the good firms will stay alive and the bad ones will be closed, passing its assets to firms with higher efficiency.

A good design of bankruptcy law's procedures may influence in different ways the establishment of a healthy business environment. From an ex-post efficiency perspective, a bankruptcy law should maximize the total value of the company and consequently, the pay-off that creditors receive from insolvent firms. The positive effect comes over the cost of capital that is reduced since the expectation of recovery by creditors is higher in case of bankruptcy. As important as the ex-post efficiency is the ex-ante efficiency. At this perspective what matters is not the total value of the failed firm, but the division of its value among the participants. An ex-ante efficient bankruptcy law is capable to produce rights incentives over managers' decisions, in both the initial period of firm's life and after the firm goes to financial distress. Bankruptcy procedures should penalize managers adequately in bankruptcy states. Without any adverse consequence at all there is very little incentive to work hard in the early stage of a firm's life to pay its debts. This incentive has implications in the portion of insolvent firms and it is reduced when well provided. In the post-insolvency period, the management will tend to give rise to two inefficient bankruptcy decisions: first, undertaking excessively risky investments as a means of avoiding bankruptcy; second, delaying filing for bankruptcy aiming at extracting pecuniary gains as much as possible. A good insolvency system reserves some portion of value in bankruptcy for managers and shareholders to motivate actions in favor of efficient investment and timely decisions.

Notice that all mechanisms cited above contribute to a larger expected return of creditors, or by raising the return in bankruptcy states or by diminishing the probability of bankruptcy, reducing the cost of capital in the economy. Since an ex-ante objective of the bankruptcy law should be to maximize the project option set that creditors want to finance, lower capital costs are fundamental to reach this goal.

La Porta et al (1998) study empirically the impact of different bankruptcy laws in financial markets. The authors found that countries with a bankruptcy system that gives a higher protection to creditors have better and broader functioning financial markets than countries where the legal system provides weaker

support to creditors. They argue that better legal protections provide a high expected return in bankruptcy states, enabling the financiers to offer entrepreneurs money at better terms. Levine et al (2000), studying empirically the second-order consequence of changes in bankruptcy law, found a strong link between financial development (that could be boosted by changes in bankruptcy law) and growth. Their econometric results suggest that, for example, if Brazilian financial market increases in 10%, Brazil could grow 0.6% faster per year. The reason for this effect on growth comes from the reduction in the cost of capital, promoting entrepreneurship by the creation of new firms and investments and therefore, fostering the economic growth.

The severe economic crises experienced by Latin American countries in the early 80's served as a natural experiment to alert that most of them needed to reform their bankruptcy system. Bergoing et al (2002) compare the recoveries of the Mexican and Chilean economic crises in the early 80's. Chile carried out an administrative reform of the bankruptcy management service in 1978; the 1982 bankruptcy reform law clearly defined the rights of each creditor and replaced public officials for private officials. The old law does not provide for an efficient and timely bankruptcy management because it relied on poorly paid public officials and highly bureaucratic procedures. In contrast Mexico had an obsolete and unwieldy bankruptcy law from 1943 effective until 2000. The authors concluded that despite many similarities in initial conditions, such as appreciation of real exchange rates, large current-account deficits, inflation, and weakness in the banking sector, the reform of bankruptcy procedures in Chile had effects on both incentives to accumulate capital and efficiency with which that capital was accumulated<sup>4</sup>. Both effects are crucial to explain that Chilean faster recovery was due to its earlier bankruptcy law reforms.

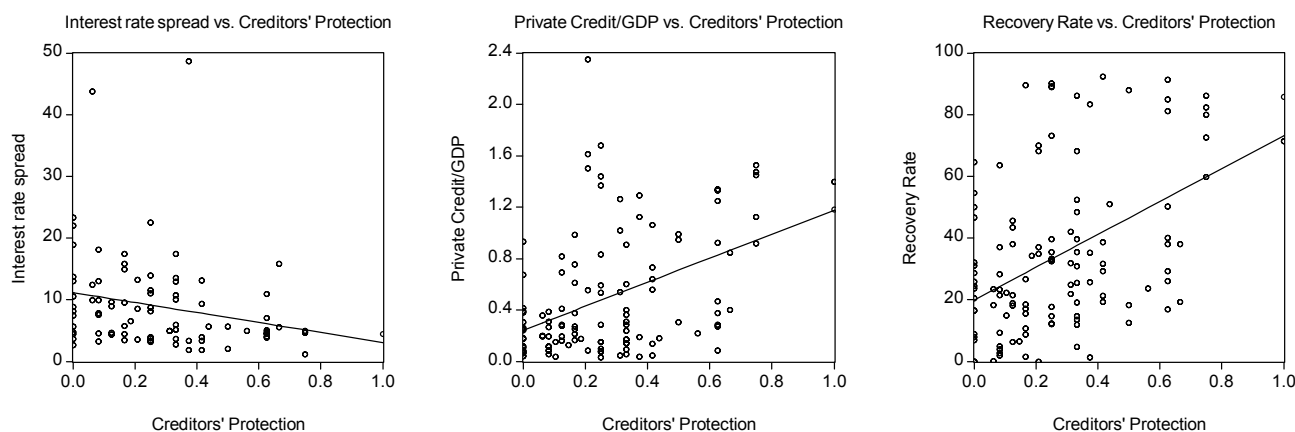
An extra relevant function of the bankruptcy law design is to avoid, as much as possible, fraud. Fraudulent actions have an important role in bankruptcy process mainly in Latin America. Mechanisms that contribute to raise the role of creditors (like an active participation in reorganization) and the expected return in bankruptcy, work to increase their incentive in monitoring the bankruptcy procedure, making fraudulent



actions more difficult. Taking the former Brazilian Bankruptcy Law as an example, due to the top priority of labor and tax claims, creditors receive almost nothing in bankruptcy states, eliminating their incentive in participating in the bankruptcy procedure. Another important source of fraud in Brazil was also provided by the top priority of labor credit. This structure of priority opened the possibility of managers to cheat the law by creating jobs to “friends” in such a way to receive as regular workers (for the manager) of the failing firm. Therefore, the structure of priorities acts to avoid fraud, besides reducing the cost of capital.

Nowadays, despite all research in bankruptcy there is no conclusion about the design of the optimal bankruptcy law. However, there exist two consensual points in this debate. The first concerns the protection that bankruptcy law must provide for creditors and the second is about the goals-of-insolvency procedure.

**Figure 1: Effects of Creditors' Protection over interest rate spread, private credit and creditors' recovery rate**



Note: Creditors' protection index is calculated by the interaction between the measure of creditors' rights of La Porta et al (1997) and the variable of legal enforcement “rule of law”.

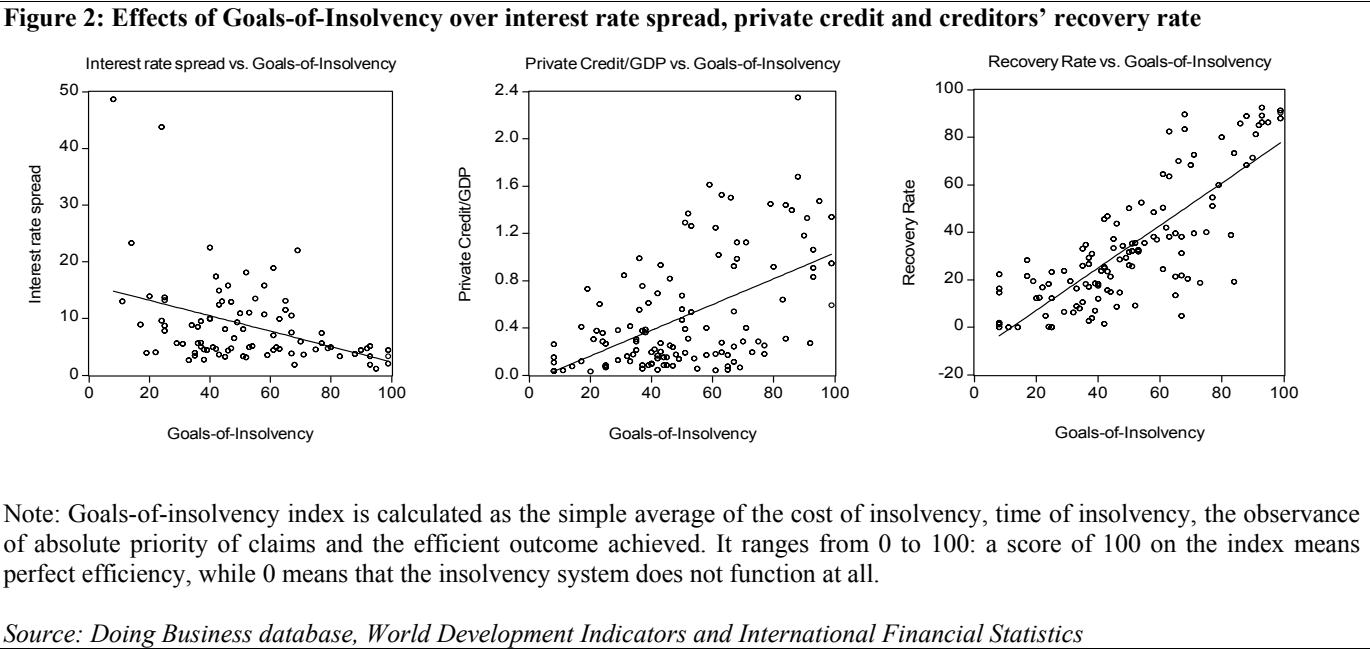
Source: *Doing Business database, International Country Risk Guide, World Development Indicators and International Financial Statistics*

Evidences in the empirical field show that countries with strong legal creditors' protection would provide for firms an easier access to external finance in the form of both high value and broader capital markets. This happens because creditors expect to recover a bigger portion of their loans in case of insolvency. In this case they will be more prone to supply credit, making it cheaper and easy to get. Figure 1 illustrates exactly this situation.

<sup>4</sup> However, since Chile also made changes in the banking law and the paper did not disentangle the dynamics effects of both

The other consensual point concerns goals-of-insolvency stated by Oliver Hart (1999). The author specifies characteristics of a good bankruptcy procedure, which are three-fold: first, it should deliver an ex-post efficient outcome, which maximizes the firm’s total value available to be divided among the interested parties; second, it should penalize debtors adequately in bankruptcy states, otherwise it could exacerbate the moral-hazard problem; and finally, but not least important, it should preserve the order of the claims defined when the contract was created, which helps to ensure that creditors receive a reasonable return in bankruptcy state and therefore encourages lending. Figure 2 illustrates the positive effects of goals-of-insolvency stated by Hart over the credit market.

Using both measures, we can feel that Brazil and Latin America have a quite inefficient bankruptcy procedure and that the bankruptcy law provides a low level of creditor protection, both results with negative effect on their credit market, cost of capital and creditors’ recovery rate. Notice by Table 1 how poorly the Brazilian bankruptcy law was doing in both crucial variables, much worse than the average of Latin American Countries.



reforms, it is possible that part of the differences between Chile and Mexico comes from the banking reform.

Table 1: Bankruptcy Law Indicators

	Creditors' Protection [0,1]	Goals-of-Insolvency [0,100]
Brazil	0.06	24.0
Mean of Latin American Countries	0.19	46.3
Mean of OECD	0.46	79.6

Source: Doing Business 2003

Despite both consensual issues, the design of this law is still a real challenge, which makes the reform process very difficult. In the economic literature there is no convergence of opinions about how an optimal bankruptcy law should be, especially concerning violations of the absolute priority rule (i.e. the violation in the receiving order in case of bankruptcy). This occurs due to trade-offs that exist in case of violation or not of the absolute priority rule (from here on APR).

The role of the APR is to determine how the division of the failing firms' value is done. It specifies that claims are paid in full in the following order: first, administrative expenses of the bankruptcy process; second, claims taking statutory priority, such as tax claims, rent claims, and unpaid wages and benefits; and third, unsecured creditors' claims, including those of trade creditors. Equity holders receive the remainder, if any. Usually<sup>5</sup> secured creditors are outside the priority ordering because they have bargained with the firm for the right to claim a particular asset or its value if the firm files for bankruptcy. Thus, they may receive a payoff in bankruptcy even when all other creditors receive nothing. This rule is easily followed in liquidation procedure because the cash received is simply distributed among claimants according to the priority of their claims defined by the bankruptcy law. However, in reorganization procedure the sale of the company's assets is fictional. Consequently, no verifiable objective figure is available for the total value to be distributed (like the cash in liquidation). In this situation, a conflict of interest among participants emerges. Senior creditors have an incentive to advance a low valuation of the firm's value, because a low valuation would entitle them to a larger fraction of the reorganized company. For a similar reason, managers and equity holders have an incentive to advance a high valuation. Reorganization procedures – like Chapter 11 of U. S. Bankruptcy Code – that chose firms' restructuring plan using a bargaining process between interested parties allow deviations from the order specified by the bankruptcy law. The violation of APR means that equity holders,

who always have bottom priority, get some amount of the firm's value even when secured creditors' claims are not paid in full.

Bankruptcy laws that do not offer a reorganization procedure like Chapter 11 to insolvent firms, rule out the possibility of APR deviations. This is valuable because the priority of creditors is maintained, guaranteeing bigger returns once the firm filed for bankruptcy. Moreover, the nonviolation of APR offers the correct incentive to managers' effort, minimizing problems of moral-hazard and therefore raises the possibility of firms' success. On the other hand, bankruptcy laws that provide the possibility of reorganization like Chapter 11, APR violations are possible. Despite its negative effect in the level of effort chosen by managers, such violation inhibits investments in inefficient risky projects when the firm is in financial distress; encourages desirable investments in firm's specific capital; and makes easier the transference of information to creditors, improving the timing of filing to bankruptcy. Such benefits tend to increase the firms' return in both bankruptcy states and non-bankruptcy states. Sometimes this higher return in bankruptcy states may offset creditors' direct losses of such violation (i.e. the part of the value that is given to managers and shareholders in bankruptcy), reducing the cost of capital.

Proposals of rigid legal structures that admit just the liquidation as a solution to insolvent firms were defended since the mid 80's until the beginning of the 90's by auctions' method, as a way to avoid deviations from APR. Under the auctions approach, the assets of the insolvent company will be always put on the block and auctioned off. Nevertheless, this method does not provide the possibility of reorganization for economically efficient firms (leading to a high frequency of type I error and to an inefficient allocation of assets); and it might result in systematic under-pricing<sup>6</sup>. With the evolution in the literature of bankruptcy, theorists began to defend reorganization as an alternative method to liquidation for economically viable firms. Bebchuck became a reference by his method called "options approach" that gives to the firm the opportunity of restructuring without deviations of APR. Under this approach, all participants in

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<sup>5</sup> However, the bankruptcy law of some countries does not maintain this top priority, putting labor and/or tax and/or another claim above claims of secured creditors (see Table A in Appendix A).

<sup>6</sup> See the arguments at page 4.

reorganization would receive certain options with respect to the new equities of the reorganized company. The division of value would result from the participants' own decisions concerning the exercise of the options given to them. The options would be designed so that, whatever the reorganized value of the firm, no participants would ever be able to complain that they would end up with less than the value to which they are entitled. This approach would be capable to reduce the frequency of type I error and to improve the efficiency of asset allocation. However, this view seems like to be changing again. Recently, several theorists of bankruptcy law have alerted to benefits brought by reorganization procedures that allow deviations from APR (like Chapter 11) through the bargain procedure between debtors and creditors.

It has been observed since the 80's that many Latin American countries, particularly in South America, have found themselves in the process of bankruptcy reforms to improve their system, aiming at providing a more attractive environment for business. In their majority, the main change concerns the creation or the improvement of the reorganization procedure, allowing specially the survival of viable business in financial distress. Besides, changes that reduce costs of the bankruptcy procedure were also an important target as in Brazil and Ecuador that simplify their legislations attempting to raise the agility of the procedure; and the creation of out-of-court reorganization procedure done in Brazil, Colombia, and Bolivia. Reaching this goal, the amount to be divided among creditors tends to increase, reducing the cost of capital.

Chile was the first to reform its system at the beginning of the 80's. The new law clearly defined the rights of each creditor and replaced public officials for private officials. The first change operates to improve the forecast of creditors' return in insolvency states; the second change reduces the bureaucracy, cost and time of the process. The reform diminished the cost of capital, raised investments and the efficiency, fostered a large ratio private credit/GDP and growth, all factors very important to the economy. Moreover, a good guarantee system, like mortgage for housing, and an efficient enforcement procedure support the well functioning of Chilean bankruptcy law. However, Chile still has many negative aspects in its insolvency system. The current law does not have the objective to keep viable business alive (high possibility of type I error); does not provide incentives to creditors in monitoring debtors (more possibility of fraud); the average

time of the procedure is (still) too long; it misses specialized courts in bankruptcy etc. All these problems motivate new recommendations<sup>7</sup> to reform the Chilean bankruptcy system.

In 1994 the Mexican bankruptcy law from 1943 proved to be insufficient to respond effectively to the problems provided by the economic crisis and a new commercial bankruptcy law began to be considered. The new law that passed in May 2000 was designed to provide restructuring for commercial debtors as an alternative for viable distressed firms and an orderly liquidation of the estate, if necessary. Both measures work to increase the return of the insolvent firm. The first one gives the opportunity to efficient firms to keep themselves alive, improving the balance between liquidation and reorganization and therefore reducing filtering failure problems – which enhance the efficiency of the production factors–; and the second one avoids the inefficient dismantlement of the firms’ asset caused by the uncoordinated debt collection. Even if it may seem that the new law favors restructuring, a careful reading reveals that the reform may be pro-liquidation, looking to strengthen creditors’ rights and enhance resource allocation (both liquidation and restructuring were secondary)<sup>8</sup>. Some of the most important features<sup>8</sup> of the reform were that: the federal district court is given original and exclusive jurisdiction over bankruptcy cases; the Federal Institute of Bankruptcy Specialists (“IFECOM”) was created to supervise insolvency administrators and establish rules of procedures for insolvency cases (good at first sight); guidelines were established for the administration and disposition of the bankruptcy estate; and international cooperation is facilitated by the adoption, with the reciprocity clause, of UNCITRAL Model Law on Cross Border Insolvencies. The negative aspect is that the whole process is too bureaucratic and very dependent on the IFECOM.

The Argentinean bankruptcy law, differently from Brazil and Mexico, suffered several changes in few years. In a period of seven years three reforms occurred. The current legal framework for corporate insolvency is concentrated on the *Ley de Concursos y Quiebras* (LCQ hereinafter) of 1995, which replaced the previous bankruptcy system that ruled from 1972 to 1995. The most recent law provides for both

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<sup>7</sup> See “Análisis y Recomendaciones para una Reforma de la Ley de Quiebras”, by Claudio Bonilla, Ronald Fischer, Rolf Lüders, Rafael Mery, José Tagle.

<sup>8</sup> The authors appreciate Sara Castellanos’ comments that were very useful to clarify this issue.

liquidation and reorganization proceedings, allowing the possibility of rescue of viable business and closing the inefficient ones. This change impacts positively on the aggregated economic efficiency and on filtering failure problem. Modified on several occasions, the new law establishes a liquidation proceeding with generally modern features and a reorganization proceeding that is reasonably modern and largely consistent with the best practices. These modifications tend to reduce the time of the procedure and its cost, increasing the expected return of creditors and credit market. In February 2002, on the occasion of external crises, an emergency law was enacted in Argentina to help stabilize the corporate sector, where many firms which were indebted in dollar went into bankruptcy and then were passing the control to creditors (usually Banks). The main change is that such law imposed moratoria on different enforcement actions and precautionary measures of almost all kinds of creditors. Despite the attitude to preserve interests of corporation in a period of serious crises, this reform may bring serious damage to the reputation related to the bankruptcy law, and since creditors see this attitude as a reduction of the chance of being repaid in bankruptcy states, it may increase the cost of capital. In May 2002, a new reform was introduced which abrogated most of the emergency measures.

The Brazilian reform was the most recent in the region, in force since June 2005. The former law that was enacted in 1945 was very fragmented. In practice the insolvency process always proved to be ineffective at maximizing asset values and protecting creditor rights in liquidation (see table 1). Both forces make capital costs very high. This could explain the bad situation of Brazilian credit market (see figures 1 and 2). The new law improves on existing legislation by providing an option to reorganize in (inspired in Chapter 11 of the U.S Bankruptcy Code) or out of court, and striking a reasonable balance between liquidation and reorganization that reduces the type I error. Also, changes that look to raise creditors' protection and improve the role of creditors in bankruptcy procedure were pursued, making credit cheaper and easier to get, with positive consequences in the development of the economy. Additionally, these measures pro-creditors work against fraud of managers. This paper will focus specially on the Brazilian bankruptcy reform, analyzing the main changes and difficulties of the reform, such as its potential effects over the economy.

The remainder of this work is organized as follows: Section 2 presents how the literature of bankruptcy theory evolves and what the current discussion is. Also, macro direct and indirect consequences of a successful reform that improves the bankruptcy procedure are discussed. Section 3 begins with a description of a simple model that captures economic effects and trade-offs involved in the bankruptcy law, showing how changes in the system could impact on a firm's investment, effort and other choices. Then, using data from World Bank<sup>9</sup> and IMF (IFS), in section 4 we take a picture of the Latin American situation to evaluate bankruptcy procedures by comparison with other groups of countries, in addition to testing empirically the effects that come from the quality of the bankruptcy law. In section 5 we discuss the Brazilian bankruptcy reform, emphasizing on its main changes and effects over the economic environment. In addition, the appendix presents the experience of one of the authors with this process, describing what he wanted to do but did not succeed, policy lessons that the Brazilian case provides and what other Latin American countries have to keep in mind when they reform their bankruptcy law. Section 6 concludes.

## **II – Review of the Literature**

Modern bankruptcy theory began with the recognition of the collective action problem among creditors of an insolvent firm. Jackson (1986) stresses this “common pool” problem. He argues that despite the objective of maximizing the value of the failing firms' assets, creditors tend to act in their own self-interest, making an uncoordinated debt collection possible, which proves very costly to the value of the firm. This happens because if unsecured creditors perceive that a firm is insolvent, they anticipate that it will not be able to repay all its creditors in full, giving them an incentive to race against each other to be first to collect from the firm. When creditors act uncoordinatedly in liquidation, the assets are sold piecemeal, disrupting the firm's operations and probably forcing it to shut down even when the best use of its assets is continued operation<sup>10</sup>, bringing social-welfare losses and not maximizing the firm's value. Moreover, such conflict delays the liquidation resolution, which leads to additional losses in the firm's value. A bankruptcy system can avoid

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<sup>9</sup> Doing Business database 2003 and 2004 and World Development Indicators 2004.

<sup>10</sup> Webb (1991) shows that this is a classical case of prisoner's dilemma.



this inefficient equilibrium by staying the creditors' collection effort to give a state official time to decide whether the firm is worth saving.

The ensuing debate attempted to specify how a bankruptcy law should do its job. The early economic view tried to avoid deviations from the absolute-priority rule as well as to cut costs associated with the bargaining present in the reorganization procedure called Chapter 11. Some of the economic theorists, such as Baird (1986) and Jensen (1991), were favorable to a market-auctions approach to cut costs implicit at reorganization. More concretely, a state official would auction insolvent firms to the market, free of current claims, distributing the proceeds to creditors according to absolute-priority rules. If economic value would be maximized by a piecemeal liquidation, the highest bids would be for individual assets; if continuing the firm as an economic entity, it would maximize value, then the highest bids would be for the firm as a unit.

Bebchuck (1988) argues that reorganization can capture a greater value than the liquidation process, especially when the assets of a company are worth much more as a going concern than if sold piecemeal, and if there are few or no buyers with both accurate information about the company and sufficient resources to acquire it. He, therefore, proposed an optional approach that homogenizes the interest of the holders and follows the Absolute Priority Rule, keeping alive the reorganization procedure without the burden of APR violations and the cost of bargain.

Bebchuck's idea received some significant support in subsequent literature; for example, it was adapted as the basis for bankruptcy reform in proposals by Aghion, Hart and Moore (1992), who combined it with auction, and by Hart, La Porta, Silanes and Moore (1997), who suggested a new procedure using multiple auctions. These procedures have also received their share of critical or skeptical reactions. The criticism is about the lack of liquidity (since the firms are in financial distress) what makes impossible for shareholders to exercise their options; and the skeptical reaction is due to the complexity that makes it difficult for the implementation of Aghion et al (1992) and Hart et al (1997) proposals.

Therefore, early theorists held that bankruptcy systems should follow absolute priority strictly. This requires creditors to be repaid so that the firm's contracts were created. An implication of the rule is that equity holders should receive nothing because the residual claim on an insolvent firm is worth nothing.

Modern theory relates the results of a bankruptcy procedure to earlier stages in the life of the borrowing firm. An ex-post efficient bankruptcy system maximizes the pay-off that creditors receive from insolvent firms. Turning to the borrowing stage, a competitive credit market would reduce the amounts that lenders can require solvent firms to repay when the lenders' expected insolvency pay-offs increase. Thus, interest rates fall as the efficiency of the applicable bankruptcy system increases. On the other hand, the ex-ante efficiency of the bankruptcy system is related to the optimal division of the firm's total value. This point of research is the main target of the current discussion.

We saw that much of the research on bankruptcy procedures and reform had assumed that the absolute-priority rule was the optimal division and had focused on procedures that could secure this rule. However, some substantial research has already been done on violations of the absolute-priority rule (APR), highlighting that the ex-ante effect of deviations from APR are actually beneficial. In particular, this line of research has shown that deviations from APR encourage desirable ex-ante investments in firm-specific human capital as in Berkovitch, Israel and Zender (1997); that they facilitate the transfer of information to creditors and improve the timing of decisions to file for bankruptcy, to liquidate, or to recapitalize as in Povel (1999) and Berkovitch and Israel (1999); and that they discourage excessive risk-taking by financially distressed firms as in Eberhart and Senbet (1993). Recently Bebchuck (2002) showed that ex-post deviations from APR also have negative effects on ex-ante decisions made by shareholders. He argues that such deviations have an adverse effect on ex-ante management decisions made prior to the onset of financial distress. The presence of APR deviations aggravates the moral-hazard problem but the final effect of such deviations is still inconclusive.

Also, direct and indirect consequences of a bankruptcy-law improvement are being investigated in the macroeconomic field. The first direct macro implication holds that reducing the cost of debt capital will

reduce the cost of capital generally. The equity holds a call option on a levered firm because shareholders can buy the firm by repaying the debt. The strike price for exercising the equity option is therefore the firm's cost of credit. Reducing this cost – i.e., reducing the strike price – makes stock more valuable to own. Hence, it becomes easier for firms to raise equity capital as their country's bankruptcy system becomes more efficient.

The second direct implication of reducing the cost of capital by an improvement in the bankruptcy system is the expansion of the credit market (reduction on credit constraint). La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) present an important empirical study about legal systems and their influence in finance. They show that a bankruptcy law and an enforcement mechanism that protect the rights of creditors tend to generate more financial development. Araujo and Funchal (2004) examining the same relation argue that when the protection of creditors implies penalization of debtors, an extremely high level of protection reduces debtors' interest in demanding credit, fearing possible consequences<sup>11</sup>. Notice that the supply of credit is increasing in creditors' protection because of the moral-hazard problem, while on the other hand the demand for credit is decreasing in creditors' protection due to the fear of punishment. So there exists an intermediary level of creditor protection (neither too strong nor too weak) that provides the maximal level of credit in the economy.

However, this relationship is just a first-order consequence of the bankruptcy law. The most important impacts of an improvement of the law are second-order, that is, the consequences generated by financial development. They are two-fold: one is the impact of financial development on growth and the other is the impact on income distribution and poverty.

King and Levine (1993) study the impact on growth empirically with a sample of 77 countries over the period 1960-1989, using different measures of financial development and growth indicators. The result indicates a strong, positive relationship between each financial-development and growth indicators. The authors confirm these findings using alternative methods of robustness checks.

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<sup>11</sup> This is valid only if markets are incomplete. Otherwise, when markets are complete, there always exists the asset of promising to repay only in cases of success.

However, they do not deal formally with the issue of causality. It may be the case that financial markets develop in anticipation of future economic activity. To solve the possible problem of simultaneity bias, Levine, Loayza and Beck (2000) use La Porta et al (1998) measures of legal origin as instrumental variables. They analyze 71 countries, using two different econometric techniques: GMM dynamic-panel estimators and a cross-sectional instrumental-variable estimator. The results indicate a very strong connection between the exogenous component of financial development and economic growth. They use various measures of financial-development and conditioning-information sets. Furthermore the data do not reject legal origin as a good instrument for financial development. These results indicate that the strong link between financial development and growth is not due to simultaneity bias.

With regard to the relationship between financial development and both income distribution and poverty alleviation, the theory provides conflicting predictions. Some theorists claim that a financial-intermediary development makes financial services available to a larger portion of the population, rather than restricting capital to selective groups. Thus, by ameliorating credit constraint, financial development may foster entrepreneurship, formation of new firms and economic growth. On the other hand, some argue that it is primarily the rich and politically connected who benefit from improvements to the financial system. Especially at early stages of economic development, access to financial services, especially credit, is limited to wealthy and connected persons. Thus, it is an open question whether financial development will narrow or widen income disparities even if it boosts economic growth.

Other theorists analyze the relationship between financial development and income distribution as a non-linear form. Greenwood and Jovanovic (1990) show that the interaction of financial-intermediaries development and income inequalities can give rise to an inverted U-shape curve. At early stages of financial development, only a few relatively wealthy individuals have access to the financial market and hence higher return projects. With the aggregate economic growth generated, more people can afford to join the financial system with more positive consequences on economic growth. The distributed effect of financial deepening is thus adverse to the poor at early stages, but positive after the turning point.

Using cross-country regressions, a very recent research by Beck, Demirguc-Kunt, and Levine (2004) examines whether the level of financial-intermediaries development influences the growth rate of Gini coefficients of income inequality, the growth rate of the income of the poorest quintile of society, and the fraction of the population living in poverty. The results indicate that finance exerts a disproportionately large and positive impact on the poor and hence reduces income inequality.

### **III – Bankruptcy Law: Economic Issues and Trade-offs**

#### **III. 1 – The ex-ante financial distress effects**

The relevance of a good bankruptcy law is not present only when a firm goes bankrupt. It also has strong ex-ante effects on cost of capital and incentive to pursue projects that are as important as the ex-post bankruptcy effects. The relationship between the performance of the bankruptcy system, a firm's cost of capital and its incentive and ability to pursue projects can be exhibited with a simple model that we describe as follows.

There are five important assumptions:

- 1 – The borrowing firm is run by an owner/manager.
- 2 – Creditors are imperfect monitors of actions related to pay-offs that the firm takes after it borrows.
- 3 – Capital markets are competitive.
- 4 – Creditors can predict the mean of their pay-offs in the default state.
- 5 – Creditors and the firm are risk-neutral.

Assumption 1 is made because this essay is not concerned with the corporative-governance problem. Assumption 2 captures the asymmetric information between the firm and its creditors. Assumption 3 is realistic. Assumption 4 rests on the view that professional creditors have considerable experience with default and 5 is more accurate when applied to firms than to individual persons.

The borrowing firm has a project that requires capital of  $I$ , which the firm must raise externally. The firm promises to repay creditors the sum  $F$ . The project can return a value  $v$ , where the firm is solvent if  $v \geq F$  and insolvent if  $v < F$ . There are two states of nature in the future, one if the firm is solvent and the other if it is not.

The solvency and the insolvency state of nature returns to the firm  $v_{solv}$  and  $v_{ins}$  respectively, where  $v_{solv} \geq F > v_{ins}$ . The probability of solvency is  $p_{solv}$  and the insolvency probability is  $(1 - p_{solv})$ . This implies that the expected value of the project is  $E(v) = p_{solv}v_{solv} + (1 - p_{solv})v_{ins}$ , the expected return conditional to solvency state is  $E_{solv}(v) = v_{solv}$ , and the expected return conditional to insolvency state is  $E_{ins}(v) = v_{ins}$ . The bankruptcy system costs  $c$  to run. A bankruptcy system can thus distribute to the creditors of an insolvent firm at most the sum  $v_{ins} - c$ . Therefore the repayment to creditors is  $F$  if solvent and  $v_{ins} - c$  if it goes bankrupt.

Because the credit market is competitive,  $F$  is the largest sum that creditors can demand to fund the project. The risk-free interest rate is assumed to be zero, so that a borrowing firm's interest rate is a function only of the riskiness of its project and the properties of the bankruptcy system that is in place.

#### *Investment Problem*

Creditors who lend  $I$  should expect to receive  $I$  in return. This expectation can be written as:

$$I = p_{solv} \cdot F + (1 - p_{solv})(v_{ins} - c)$$

$$F = \frac{I - (1 - p_{solv})(v_{ins} - c)}{p_{solv}} \quad (1)$$

If the expected value that creditors receive conditional to insolvency increases (higher  $[v_{ins} - c]$ ),  $F$  declines, diminishing the interest rate charged by creditors. Intuitively, the more that creditors expect to receive in the insolvency state, the less creditors will require the firm to repay in the solvency state. The firm's interest rate is  $r = \frac{F}{I} - 1$ , that is increasing in  $F$ , which is the value that the firm is required to repay in solvency state. Denoting by  $v_{ins}^u$  and  $c^u$  the per-unit-of-investment ( $I = 1$ ) counterparts of  $v_{ins}$  and  $c$  we also have:

$$r = \frac{1 - p_{solv}}{p_{solv}} [1 - (v_{ins}^u - c^u)]$$

that is decreasing in the probability of success and/or in the return of insolvency states.

*Proposition 1: A higher (lower) expectation of return in the insolvency state reduces (raises) the interest rates charged by the creditors.*

The bankruptcy system affects both elements that compose the return in case of insolvency ( $v$  and  $c$ ). Agility in the bankruptcy procedure decreases the cost of the procedure ( $c$ ) and brings ex-ante gains. Moreover, the return is affected by the procedure choice. If the return in reorganization (liquidation) is greater than in liquidation (reorganization) ( $v_R > (<)v_L$ ), the firm should be reorganized (liquidated). Thus, the firm's insolvency-state value is higher in a system that liquidates economically inefficient firms and saves economically efficient (but financially distressed) firms than it would be in a system that attempted to save or liquidate all firms.

Obviously,  $F$ , and thus  $r$ , also will increase if creditors receive only a fraction of the insolvency return ( $v_{ins} - c$ ). Two characteristics of bankruptcy law may affect the insolvency return in this way. First, if reorganization is allowed, violations of the Absolute-Priority Rule may occur, with some portion of value in bankruptcy going to shareholders even when creditors are not paid in full. The second characteristic happens when the bankruptcy law decrees the priority of tax and/or labor claims over secured creditors' claims, very common in developing countries.

Suppose that  $l$  is the value of claims that came before creditors' claims or the expected amount that shareholders extract in insolvency states, thus:

$$I = p_{solv} \cdot F^l + (1 - p_{solv}) \max[v_{ins} - c - l, 0]$$

Defining  $[v_{ins} - c - l]^+ = \max [v_{ins} - c - l, 0]$  we have:

$$F^l = \frac{I - (1 - p_{solv})[v_{ins} - c - l]^+}{p_{solv}}$$

Notice that creditors' return may fall in this situation to zero, strongly increasing the cost of capital.

*Proposition 2: Violations in APR and priority of labor and/or tax claims over creditors' claims increase the cost of capital.*

An ex-ante objective of bankruptcy law should be to maximize the project option set that creditors want to finance. Lower cost of capital is fundamental to this objective.

Society prefers firms that pursue projects with positive expected returns. Denoting  $W$  as social welfare, a firm should therefore undertake a project that creates value, i.e.

$$W = p_{solv} v_{solv} + (1 - p_{solv})[v_{ins} - c] - I \geq 0$$

$$W = p_{solv} E_{solv}(v) + (1 - p_{solv})E_{ins}(v - c) - I \geq 0$$

As there always exists a minimum conditional expectation value of return ( $E_{solv}(\underline{v})$ ) needed for social efficiency, let  $W = 0$ . Then

$$E_{solv}(\underline{v}) = \frac{I - (1 - p_{solv})E_{ins}(v - c)}{p_{solv}}, \quad (2)$$

always remembering that  $F = \frac{I - (1 - p_{solv})E_{ins}(v - c)}{p_{solv}}$  is identical to the right side of  $E_{solv}(\underline{v})$ .

Since (1) solves for the minimum-repayment promise the firm must make to obtain financing and (2) solves for the minimum conditional expected return socially accepted, we have that it is socially efficient for firms to take all projects that creditors will finance. More precisely, since  $E_{solv}(\underline{v})$  is the minimum return conditional to solvency states accepted by the society, they will take every project that makes  $E_{solv}(v) \geq E_{solv}(\underline{v})$ , and consequently debtors will be able to fulfill their promises in solvency states since (1) = (2). Notice that if there are deviations from APR and/or claims with priority above creditors' claims,  $F$  would be higher and this equality no longer holds, with certain socially efficient projects not being financed. If the project returns  $E_{solv}(v) \geq E_{solv}(\underline{v})$ , and if  $E_{solv}(v) < F$ , despite the project creates value ( $W > 0$ ) – being accepted to the society – creditors would not be fully repaid for sure (i.e. there are no solvency states), eliminating their appeal in financing such projects. Therefore, projects with return between  $[E_{solv}(\underline{v}), E_{solv}(v^F))$ , where  $E_{solv}(v^F) = F$ , despite being socially efficient they would be no longer financed by creditors.



*Proposition 3: If creditors' claims have top priority and if there are no APR violations, then all socially efficient projects are financed.*

*Proposition 4: If APR violations are allowed and/or other claims come above creditors' claims, then there is a set of socially efficient projects that would not be financed.*

Until now we have studied the set of projects that are socially efficient, but it is important to see the borrowers' incentives to invest. The interest rate imposes on firms the expected costs of failure so that a firm's expected return, when it borrows, becomes under APR:

$$E(R^B) = p_{solv} [v_{solv} - F] + (1 - p_{solv})(0) \geq 0$$

$$E(R^B) = p_{solv} (E_{solv}(v) - F) \geq 0 \quad (3)$$

Substituting for  $F$  from expression (1) we have:

$$E(R^B) = p_{solv} E_{solv}(v) + (1 - p_{solv}) E_{ins}(v - c) - I \geq 0,$$

which is the expression that tells us that the project is socially efficient. For the minimum conditional expected return  $E_{solv}(v)$ , this equation holds with equality. Therefore, the borrower invests in all projects that creditors will finance and which are socially efficient.

*Proposition 5: If creditors' claims have top priority and if there are no APR violations, a profit-maximizing firm will pursue projects that creditors will finance and which are socially efficient.*

#### *Moral-Hazard Problem*

Now let us introduce an asymmetric-information problem that refers to the effort level that firms financing with debt choose when pursuing projects. As the variable effort is not observed by creditors, it is difficult for them to know whether a borrowing firm chose the optimal effort level. Until now we have implicitly assumed that the probability that the firm's project would succeed,  $p_{solv}$ , was exogenous, therefore  $p_{solv}$  did not depend on what the firm did. More realistically, when we consider effort in the problem we assume that the probability of success increases with the firm's effort level. In precise terms, it is assumed that  $p_{solv}(e)$  is differentiable, strictly increasing and strictly concave in effort variable  $e$ , that

$\lim_{e \rightarrow 0} p'_{solv}(e) = \infty$ , meaning that it is efficient for the firm to choose a positive effort level and that  $p_{solv}(\infty) < 1$  for the insolvency state is always possible.

The effort level, despite increasing the probability of the firm's success, is costly to the manager (borrower). The first problem emerges because the socially optimal effort is different from the optimal private effort. From the social perspectives we have:

$$\max_e W = p_{solv}(e) \cdot v_{solv} + (1 - p_{solv}(e)) \cdot (v_{ins} - c) - e - I$$

$$p'_{solv}(e_{soc}) = \frac{1}{v_{solv} - (v_{ins} - c)}$$

The effort socially optimal is the level of effort that makes equal the marginal gains from the higher probability of success and the marginal cost to exert such an effort.

From the manager's perspective we have:

$$\max_e W = p_{solv}(e) \cdot (v_{solv} - F) + (1 - p_{solv}(e)) \cdot (0) - e$$

$$p'_{solv}(e_{priv}) = \frac{1}{v_{solv} - F}$$

The manager exerts effort until its marginal private gain from the higher probability of success is equal to its marginal cost to exert such an effort. The difference between the social and private problem appears because the firm divides its gain with creditors in the success state while the marginal cost is the same to both. Therefore, since  $F > v_{ins} - c$  (otherwise the firm is solvent)  $p'_{solv}(e_{priv}) > p'_{solv}(e_{soc})$ , which implies that  $e_{priv} < e_{soc}$ .

*Proposition 6: Any bankruptcy system produces an effort lower than the socially optimal.*

Notice that some characteristics of bankruptcy law could reduce the private level of effort exerted by managers. First, let us consider the case where the law puts tax and/or labor claims before creditors' claims. As we saw above, this diminishes creditors' gains in insolvency states, making the payment in solvency states

higher ( $F^l > F$ ). This implies that  $p'_{solv}(e^*_{priv}) = \frac{1}{v_{solv} - F^l} > \frac{1}{v_{solv} - F} = p'_{solv}(e_{priv})$ , and  $e^*_{priv} < e_{priv}$ , reducing the private level of effort. Intuitively, closer pay-offs reduce the incentive to avoid insolvency states. In the second situation, let us consider a bankruptcy system that allows violations of APR. Suppose that managers extract  $l$  in insolvency states, thus:

$$\max_e W = p_{solv}(e) \cdot (v_{solv} - F^l) + (1 - p_{solv}(e)) \cdot (l) - e$$

$$p'_{solv}(e^{**}) = \frac{1}{v_{solv} - F^l - l}$$

This implies that  $p'_{solv}(e^{**}) = \frac{1}{v_{solv} - F^l - l} > \frac{1}{v_{solv} - F} = p'_{solv}(e_{priv})$ , and  $e^{**} < e_{priv}$ , also reducing the private level of effort. Intuitively when managers get a payoff in insolvency states, they have less incentive to avoid it creating a moral-hazard problem.

*Proposition 7: The private level of effort is reduced when the bankruptcy system gives priority to tax and/or labor claims over creditors' claims and when managers are paid in insolvency states.*

Sub-investment in effort exacerbates the financing problem shown before. The probability of success declines as the firm exerts less effort, making the minimum conditional expectation value of return increase and shrinks the set of fundable projects.

### **III. 2 – The ex-post financial distress and ex-ante bankruptcy effects**

Now suppose that some firms have become financially distressed, but have not filed for bankruptcy. Managers of failing firms may incur two types of effect: the gambling effect that occurs when managers attempt to avoid bankruptcy and the delay effect when managers attempt to delay filing for bankruptcy.

#### *The Gambling Effect*

This refers to the fact that managers of firms in financial distress have an incentive to undertake excessively risky investments as a means of avoiding bankruptcy. If risky investment succeeds, its high returns enable the firm to avoid bankruptcy, at least temporarily; if it fails, the firm goes bankruptcy but managers are no worse off since it would have done so anyway without the investment, since managers

cannot get less than zero, which is what they take in case of bankruptcy. Equity holders are also in favor of risky investments in this situation of financial distress, since equity is likely to be worth zero if bankruptcy occurs. Losses on risky investment go to creditors in the form of lower pay-off in bankruptcy, with the same pay-off holding in solvent state.

Let us consider now a multi-period model following the model used in an earlier section<sup>12</sup>. At time  $t = 0$  the firm borrows  $I > 0$ , and agrees to pay  $F$  ( $F = I(1 + r)$ ) in solvency states. At time  $t = 1$  the firm enters financial distress, but it still owns an amount  $Z > 0$  ( $Z < F$ ) in cash that the manager will use to make a choice between two projects, one risky and another risk-free. Finally at  $t = 2$ , the firm's final output  $v$  is realized, and this is divided between equity holders and creditors. All the hypotheses of section III.1 still hold.

If managers choose the risk-free project, then the final output  $v$  will be  $Z$ , where  $Z < F = I(1 + r)$ . If they choose the risky project instead, then the final output  $v$  will be  $\gamma R$ , where  $R$  is the expected return, which is positive, and  $\gamma$  a random variable with expected value equal to 1. Let  $\gamma$  be distributed discretely in the interval  $[0, \bar{\gamma}]$ , where  $\bar{\gamma} > 1$ . At  $t = 1$  the equity holders observe  $R$  and the range, but the value of  $\gamma$  is realized in  $t = 2$ .

It is assumed that given the information available in  $t = 0$ , the parties know  $Z$  but only the distribution of  $R$  in  $[0, R]$ . The risky project may offer a higher or lower expected return than the risk-free project. The moral-hazard problem is that equity holders may choose the risky project even if  $R < Z$ . At  $t = 2$  the final output is realized and divided between equity holders and creditors. Assuming APR<sup>13</sup>, and that the cost to run bankruptcy is zero ( $c = 0$ ), if the firm is solvent equity holders receive  $v - F$  and creditors  $F$ . Otherwise, if the firm is insolvent, equity holders receive nothing (because  $v < F$ ) and creditors receive  $v$ . Therefore, the return for equity holders is  $\max[v - F, 0]$  and for creditors is  $\min[F, v]$ .

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<sup>12</sup> The model follows Bebchuck (2002).

<sup>13</sup> Later we will see the effect of APR violations.

Let us see how managers decide between projects at  $t = 1$ . Once managers observe the value of  $R$  and its distribution, they will choose the risky project if and only if:

$$E_{\gamma} \max[\gamma R - I(1 + r), 0] \geq \max[Z - I(1 + r), 0] \quad (4)$$

Let  $R_{AP}(r)$  be the smallest non-negative value of  $R$  that makes the left- and right-hand sides of (4) equal. Equity holders will choose the risky project if and only if  $R \geq R_{AP}$ .

If there exists any risky project with expected value equal to  $R \leq Z$  that does not always lead to insolvency ( $\gamma R > I(1 + r)$  in some state of nature), it makes the left-hand side strictly greater than the right-hand side and it is preferred by the managers over the risk-free project. This happens because since we are working with choices after the firm enters a financial distress, we have  $Z < I(1 + r)$  and  $\max[Z - I(1 + r), 0] = 0$  as the return to equity holders for the risk-free project, then by construction  $R_{AP}(r) = 0$ . It follows that for any given  $r$ ,  $R_{AP}(r) < Z$  (since  $R_{AP} = 0$  and  $Z > 0$ ). This inequality implies that managers may choose the risky project even if  $R < Z$ , it suffices to satisfy  $R > 0$  and  $\gamma R > I(1 + r)$  in some state of nature.

Then, equity holders may choose the risky project inefficiently because they have more gain from a favorable outcome of this project than they have to lose from an unfavorable outcome.

*Proposition 8: If a firm is in financial distress and the Bankruptcy System follows APR, managers will undertake risky projects even if this produces economic costs ( $Z - R > 0$ ).*

Now suppose that the reorganization procedure is available, allowing deviations from APR. In this case equity holders will be able to obtain some value regardless of how small  $v$  turns out to be. If the firm is in financial distress ( $Z < I(1 + r)$ ), equity holders will be able to obtain  $\alpha v$  (where  $\alpha > 0$ ). Moreover, by using or threatening to use the reorganization procedure<sup>14</sup>, equity holders will be able to get more than their contractual right if the firm is sufficiently close to insolvency, that is if  $v$  exceeds  $I(1 + r)$  by a sufficiently

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<sup>14</sup> The reorganization procedure provides the possibility of APR violations.

small amount<sup>15</sup>. For simplicity, it will be assumed that the equity holders will always be able to get at least  $\alpha v$  even if their contractual right  $v - I(1 + r)$  is less than that. On the other hand, debt holders will not get full payment but only  $(1 - \alpha)v < I(1 + r)$ . Thus, if violations of APR are allowed, equity holders will receive  $\max[v - I(1 + r), \alpha v]$  and creditors will receive  $\min[I(1 + r), (1 - \alpha)v]$ .

Let us see how managers decide between projects at  $t = 1$ . They will choose the risky project if and only if:

$$E_\gamma \max[\gamma R - I(1 + r), \alpha \gamma R] \geq \max[Z - I(1 + r), \alpha Z] \quad (5)$$

Let  $R_{VAP}(r)$  denote the value of  $R$  that makes left- and right-hand sides of (5) equal. Equity holders will choose the risky project if and only if  $R \geq R_{VAP}(r)$ . Let us compare the project choices at  $t = 1$  at two regimes.

Once the firm is in financial distress, we have  $Z < I(1 + r)$ , thus  $E_\gamma \max[\gamma R - I(1 + r), \alpha \gamma R] \geq \alpha Z$ . The left-hand side of (5) is strictly greater than the left-hand side of (4), since  $\alpha Z > 0$ . Furthermore, with  $R_{AP} = 0$  the left- and right-hand sides of (4) are equal and therefore  $E_\gamma \max[\gamma R_{VAP} - I(1 + r), \alpha \gamma R_{VAP}] = \alpha Z > E_\gamma \max[\gamma R_{VA} - I(1 + r), 0] = 0$ , where the first equality holds with  $R_{VAP} > 0$  because  $\alpha Z > 0$ , and the second holds with  $R_{AP}(r) = 0$ . Thus, since  $R_{VAP} > R_{AP}$ , the set of risky projects available to the equity holders decreases, diminishing the investment in risky projects relative to the bankruptcy system that does not provide reorganization, and always follows APR. Notice that under both regimes the equity holders capture benefits of favorable outcome of the risky project, however when APR violations are allowed, safe investments also provide gains for equity holders, and this reduces the set of risky projects that they could invest with higher expected gains, decreasing the amount of risky investment when compared with the regime that follows APR.

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<sup>15</sup>If the gains of bankruptcy reorganization are greater than solvency, equity holders will go or threaten to go bankrupt to raise their gains.

*Proposition 9: When firms are financially distressed, the amount of investment in risky projects is higher in regimes that always follow APR than in regimes that allow APR deviations.*

Thus, the availability of a reorganization procedure like Chapter 11 diminishes managers' incentive to invest in inefficient and risky projects.

Now, to see the aggregated gambling effect in the economy, let us denote  $G = Z - R$  the economic cost per failing firm. Suppose that  $(1 - p_{solv})$  is the probability that a firm is financially distressed and  $N$  the total number of firms. Therefore the aggregated gambling effect is  $(1 - p_{solv})NG$ . But notice that  $(1 - p_{solv}(e))$  is negatively related to the effort  $e$  by managers, since higher effort is less likely to be in financial distress. Therefore there is a trade-off in bankruptcy between the punishment effect and the gambling effect. As we saw in the earlier section, managers have an incentive to work hard when there are no pay-offs in bankruptcy states (APR). This makes fewer firms in financial distress because once  $p_{solv}(e)$  increases, the proportion of firms in financial distress ( $\downarrow (1 - p_{solv})N$ ) reduces. However, once firms are in financial distress, this system gives the manager the incentive to gamble to avoid bankruptcy, making  $G$  high. On the other hand, a lenient bankruptcy system that violates APR makes the effort smaller than the former, thus increasing the proportion of firms in financial distress. However, this system gives the manager the incentive to gamble less than the hard system. The final effect is ambiguous with a trade-off between effort and the incentive to gamble. If we consider the system that gives priority to other claims instead of creditors' claims, the final result is no longer ambiguous because it provides the negative effect in effort (*proposition 7*) and does not diminish the gamble of equity holders since they still gain nothing in insolvency state, therefore the proportion of financially distressed firms increases and the gamble remains constant, thereby increasing the aggregate gamble effect.

### *The Delay Effect*

This refers to the fact that managers of financially distressed firms have an incentive to delay filing for bankruptcy, in particular if they are automatically replaced in bankruptcy.

To analyze effects of APR violations it is necessary to introduce one more source of asymmetric information, where the two types of asymmetric information are the manager's effort choice and at an intermediate stage the manager alone receiving a signal about the prospects of his project. The idea is to analyze the trade-offs between these two conflicting goals. On the one hand, creditors want a bankruptcy procedure to be harsh on the borrower, following APR, as a severe punishment may increase the borrower's incentive to generate sufficient earnings to repay. On the other hand, creditors want to prevent the waste of resources that takes place if a rescue is necessary but not undertaken in time. The method to obtain this information is to reward for poor outcomes. This reward should be bigger (or at least equal) to the pecuniary gains that managers would receive during the delay period in such a way to incentive them to declare the financial problems at the right time. However, this works against effort incentives aggravating the moral-hazard problem because it diminishes the punishment in bad states of nature. It is not clear a priori whether one of the incentive problems is more relevant.

Let us consider a multi-period model variant of the earlier model<sup>16</sup>. In period 1 the manager must invest an amount  $I$ , which is lent by creditors. The manager must invest effort  $e$ , which creditors cannot observe. In period 2 the project type is realized and there are three possible states of nature: the project is a success with probability  $p_{solv}(e)$  and return  $v(s_{solv})$ ; the project is bad with probability  $q(1 - p_{solv}(e))$  with return  $v(s_{bad}) < v(s_{solv})$ ; and with probability  $(1 - q)(1 - p_{solv}(e))$  the project is a failure and returns  $v(s_f)$ . The firm agrees to repay lenders  $F$  where  $v(s_{solv}) > F > v(s_{bad}) > v(s_f)$ , thus the firm is solvent only if the project succeeds with or without rescue.

In period 3, the project can be rescued by buying information from managers at a cost  $y$ . This attitude could be necessary to implement changes<sup>17</sup> in the firm to help it to improve the possibility of success. If the project type is bad, the project becomes a good project, otherwise it does not change. The failed project must

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<sup>16</sup> The analysis follows Povel (1999).

<sup>17</sup> These changes could be in organizational structure, in market strategy or by an infusion of money.



be liquidated. In period 4 the information becomes public. The failed project that was not rescued in period 3 must be liquidated but the delay depreciates liquidation value by  $\delta$ , and the non-rescued bad project becomes good with probability  $g$  (the wait-and-pray strategy), and fails with probability  $1 - g$ , while a bad project that is rescued becomes good with probability  $G$  and fails with probability  $1 - G$ , where  $G > g$ . Finally, in period 5 the verifiabes are earned and if the manager stays all the periods he earns private benefit  $b$ , otherwise if he is excluded because the liquidation or reorganization (in this case the manager is replaced) the manager stops receiving the pecuniary gains in the third period.

The manager always accepts the reward if  $y + q\frac{3}{5}b + (1-q)\frac{3}{5}b > qb + (1-q)b \Rightarrow y > \frac{2}{5}b$  (i.e. if the reward is bigger than his gains from delay)

Now let us compare the pay-offs of equity holders and creditors if the firm is rescued and not rescued.

Not rescued (t = 5)			
<i>states</i>	<i>Payoff</i>	<i>Manager</i>	<i>Creditor</i>
<i>good</i>	$v(s_{solv})$	$v(s_{solv}) - F + b$	$F$
<i>bad</i>	$gv(s_{solv}) + (1 - g)v(s_f)$	$g(v(s_{solv}) - F) + (1 - g)(0) + b$	$g(F) + (1 - g)v(s_f)$
<i>failure</i>	$(1 - \delta)v(s_f)$	$b$	$(1 - \delta)v(s_f)$
Rescued (t = 5)			
<i>states</i>	<i>Payoff</i>	<i>Manager</i>	<i>Creditor</i>
<i>good</i>	$v(s_{solv})$	$v(s_{solv}) - F + b$	$F$
<i>bad</i>	$Gv(s_{solv}) + (1 - G)v(s_f)$	$G(v(s_{solv}) - F) + (1 - G)(0) + \frac{3}{5}b + y$	$G(F) + (1 - G)v(s_f) - y$
<i>failure</i>	$v(s_f)$	$\frac{3}{5}b + y$	$v(s_f) - y$

The optimality of the APR violation depends on economic parameters indicating rescue to be good for both lenders and borrowers. Otherwise, if the rescue is not good for lenders they will not rescue the firm in insolvency state and no deviations from APR are optimal.

Lets begin with the effect on manager effort comparing the level that they exerted in both cases.

If rescue occurs:

$$\max_e p(e) (v(s_{solv}) - F + b) + q(1 - p(e))[G(v(s_{solv}) - F) + \frac{3}{5}b + y] + (1 - q)(1 - p(e))[\frac{3}{5}b + y] - e$$

$$p_e^{*R} = \frac{1}{(1-qG)(v(s_{solv})-F) + \frac{2}{5}b - y}$$

If rescue does not occur:

$$\max_e p(e) (v(s_{solv}) - F + b) + q(1 - p(e))[g(v(s_{solv}) - F) + b] + (1 - q)(1 - p(e))[b] - e$$

$$p_e^{*NR} = \frac{1}{(1-qG)(v(s_{solv})-F)}$$

Thus we have  $p_e^{*R} = \frac{1}{(1-qG)(v(s_{solv})-F) + \frac{2}{5}b - y} > p_e^{*NR} = \frac{1}{(1-qG)(v(s_{solv})-F)} \Rightarrow e^R < e^{NR}$ , because  $y > \frac{2}{5}b$  and  $G > g$ .

Therefore, the level of effort chosen by the managers is bigger when there is no rescue.

Now let us analyze when lenders have incentive to rescue the insolvent firm. Their expected returns in case of rescue and non-rescue are:

$$E(R_i^R) = p(e_R)F + (1 - p(e_R))\{q[GF + (1 - G)v(s_f)] + (1 - q)v(s_f) - y\}$$

$$E(R_i^{NR}) = p(e_{NR})F + (1 - p(e_{NR}))\{q[gF + (1 - g)v(s_f)] + (1 - q)(1 - \delta)v(s_f)\}$$

$$E(R_i^R) - E(R_i^{NR}) = \Delta E = -\Delta pF + \{q[(G - g)(F - v(s_f))] + (1 - q)(1 - p(e_{NR}))\delta v(s_f) - (1 - p(e_R))y\} + \Delta p v(s_f) + q[F - v(s_f)][p(e_{NR})g - p(e_R)G],$$

where  $[p(e_{NR}) - p(e_R)] = \Delta p > 0$ .

Comparative static says more about some elements in trade-off and in which type of economy APR violations are optimal. Notice that:

- $\frac{\partial \Delta E}{\partial G} > 0$ , means that rescue is more (less) valuable when the chance of success in rescue is higher (lower).
- $\frac{\partial \Delta E}{\partial \delta} > 0$ , means that rescue is more (less) valuable when the depreciation rate is higher (lower).
- $\frac{\partial \Delta E}{\partial y} < 0$ , means that rescue is more (less) valuable when the information rent is lower (higher).
- $\frac{\partial \Delta E}{\partial (F - v(s_f))} > 0$ , means that rescue is more (less) valuable when the net gain to be solvent is higher (lower).

If parameters are such that  $E(R_i^R) > E(R_i^{NR})$  there is a positive gain of APR violations, otherwise if  $E(R_i^R) < E(R_i^{NR})$ , no gains exist in such violations being optimal following APR.

In summary, the optimal procedure depends on the parameters of the economy. A bankruptcy system that allows APR violations rewards the entrepreneur if he cooperates in a rescue by starting early. This reward violates APR because it must be paid even if some of the firm's debt is not paid in full. This procedure allows an efficient rescue or an efficient early liquidation, mitigating the delay effect. On the other hand it does not induce the firm to exert the right effort because the firm receives a non-zero pay-off in bad states. Therefore the optimal procedure depends on which incentive it is more important to the parties to encourage: optimal effort, at the cost of foregoing the opportunity of an efficient early intervention, or optimal disclosure at a cost of reducing the incentive to effort.

To see the aggregate effect consider  $A = \text{losses of delay per insolvent firm}$ . As the number of firms in financial distress is  $(1 - p_{solv}(e))N$ , the total cost of delay is  $(1 - p_{solv}(e))NA$ . As in gambling, a bankruptcy law with strong punishment to debtors raises their incentive to work hard ( $\downarrow (1 - p_{solv}(e))N$ ) but with negative effect in delay declaring bankruptcy ( $\uparrow A$ ). On the other hand a lenient bankruptcy system leads to the opposite result. The final effect is ambiguous with a trade-off between effort and the incentive to delay. If we consider the system that gives top priority to other claims instead of creditors' claims, the final result is no longer ambiguous because it provides a negative effect in effort (*proposition 7*) and does not reward debtors to incentive optimal disclosure, increasing the proportion of financial distressed firms and remaining constant the delay, increasing the aggregate delay losses.

### III. 3 – The ex-post Bankruptcy Effects

From an ex-post efficiency perspective, a bankruptcy law should maximize the total value of the company. There are three main elements behind this objective: first, as little value as possible should be dissipated during the process (minimizing the cost  $c$ ), therefore it is desirable to minimize the time that the process will take – essentially the part of time that is spent on delay tactics of equity holders, and not the time spent

on complexity of claims – and the direct and indirect costs incurred during this process. Second, when the reorganizing process ends, the company's assets should be located at their highest value of use. Finally, when a firm enters bankruptcy the procedure should be chosen correctly, otherwise the company's assets will not produce their highest value.

From an ex-ante efficiency perspective, the ex-post bankruptcy division of firms' value among the participants has important ex-ante consequences as we saw in earlier sections. However, it is quite indeterminate whether the beneficial effects of deviations from APR exceed the negative effects.

Here we will analyze how the characteristics of bankruptcy will affect both the maximization and the division of companies' value.

### *Filtering Failure*

There are two types of firms in financial distress: firms that are economically efficient, i.e. the best use of its capital is the current use, and firms that are economically inefficient, i.e. the value of their assets is greater in some other use. When an economically inefficient firm enters bankruptcy, the best outcome is for its assets to be liquidated, thereby releasing its capital to move to higher-value uses. On the other hand, when an economically efficient firm enters bankruptcy, the best outcome is for it to continue operating, since its capital has no higher-value use. Therefore, there is an economic justification for having two separate bankruptcy procedures.

Nevertheless, while financial distress is observable, economic efficiency depends on some unobservable variables such as the earnings of the firm's assets in the best alternative use, so it is difficult to surely assert which type they are. This situation produces the so-called Filtering Failure in bankruptcy. There are two cases of failure: the first is when economically efficient firms in financial distress are liquidated but should be reorganized, which is called *Type I Error*; the second is when economically inefficient and financially distressed firms are saved in reorganization but should be liquidated, which is called *Type II Error*.

Each country has its own means of assigning financially distressed firms to a liquidation or reorganization procedure, so the levels of type I and type II errors vary from country to country. Countries where reorganization is rare, like England, have high levels of type I error probably occurring. Conversely, in countries where liquidation is rare, high levels of type II error probably occur.

One important factor in filtering failure is who decides whether or not to save failing firms. In countries where the court appoints officials to take this responsibility, if their decisions are unbiased, they do not influence the frequency of both types of error. But in countries like the United States, where managers have the right to choose between liquidation and reorganization, it is implied that high levels of type II error are likely to occur<sup>18</sup>.

As a general rule, ex-post efficiency requires the availability of both bankruptcy procedures, as like a careful balance between them. Let us suppose that a financially distressed and economically efficient firm goes bankrupt. The optimal solution in this case is reorganization that returns  $v_R$ . But if type I error occurs, it returns  $v_L < v_R$ . This eliminates ex-post efficiency and by *proposition 1* increases the cost of capital. The same logic is valid for type II error.

Notice that besides the positive effect on credit market, the minimization of *filtering failure* also improves the efficiency of production factors of the economy. This happens because it allows that the most efficient firms continue to operate, or by the rehabilitation of firms economically efficient or by the liquidation that transfers the assets of firms economically inefficient to a more efficient use.

### *Bargaining in Reorganization*

First of all let us consider how the features of reorganization process – like Chapter 11 – affect the division of value. The model of Bebchuck and Chang (1992) identifies three reasons why equity holders might be able to extract value even when creditors are not paid in full. First, if equity holders delay agreement over a plan, there may be a favorable resolution of uncertainty that would cause the value of the firm to exceed the value of its debt. These equity holders have an option value, and to forgo it they must be

compensated. Second, if equity holders delay agreement, the company can be expected to incur during the process of bargaining financial distress costs that will dissipate some of the value that debt holders can expect to receive at the end of the process. Therefore, expecting these costs, creditors agree with a plan to save these costs, obtaining a share of these savings in return for their consent. Third, which is valid only for countries that give management the power to propose reorganization plans (like the U.S.), the bargaining power of equity holders is enhanced, strengthens the bargaining position and obtains a bigger share of the extra value<sup>19</sup>.

As a consequence, this bankruptcy design provides for violations of APR and the trade-off exposed in earlier sections, with benefits in gambling and delay effects, but with negative result in effort incentive and maybe at the cost of capital.

The reorganization process under the existing bargaining-based rules takes substantial time<sup>20</sup>. The delaying tactics of equity holders and the complexity of the firm's claims dictate the length of the process. During this time, substantial value might be dissipated. Potential buyers may be reluctant to deal with the company, or may demand especially favorable terms while insolvency hovers over the company. Moreover, the reorganization process involves substantial administrative costs, and more importantly, the company under reorganization might incur substantial "indirect" costs from functioning throughout the reorganization process. All these costs grow bigger as time passes.

All these factors increase the cost in insolvency states. If the return in reorganization is  $v$ , creditors get  $v - c$  where  $c$  is the cost of procedure. A bankruptcy law that minimizes such costs ( $c^m < c$ ) by reducing either the delay tactics of equity holders or the administrative and/or the indirect cost of the procedure, diminishes the bargain power of managers ( $l^m < l$ ), which increases creditors' return in insolvency state ( $v - c^m - l^m > v - c - l$ ) and makes (by *proposition 1*) capital less costly. Notice that a reorganization procedure

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<sup>18</sup>See White (1994), who uses an asymmetric information game to model whether U.S. Bankruptcy procedure led to filtering failure.

<sup>19</sup>See Franks and Torous (1989), Lopucki and Withford (1990), and Eberhart et al (1990) for empirical studies.

<sup>20</sup>See Lopucki and Withford (1990)

that minimizes managers' bargain power produces the same benefits of APR violations at lower costs, where lower costs mean lower payment to managers ( $l$ ) and alleviation of the moral-hazard problem related to the manager's effort.

## **IV – Evaluating Bankruptcy Law in Latin America**

Our challenge here is to evaluate the current stage of bankruptcy law in Latin American countries. Nowadays there is little to say about the design of optimal bankruptcy law. However, there exist two consensual points in this debate. One refers to the protection that bankruptcy law must provide to creditors, and the other is about the goals-of-insolvency procedure. The measure of bankruptcy procedure goodness comes from these two sources. The creditors' protection variable tells us if the bankruptcy law is good enough to make loans attractive to creditors, providing the firms with easier access to external finance. The goals-of-insolvency procedure represents the consensus about the characteristics of an efficient bankruptcy procedure. For a comparative analysis, we use seven groups of countries: the OECD, Latin America & the Caribbean<sup>21</sup> (LAC), the Middle East & North Africa (MENA), Europe & Central Asia (ECA), East Asia & the Pacific (EAP), South Asia (Sas) and Sub-Saharan Africa (SSA). The data used is from Doing Business 2003 and 2004, World Development Indicators 2004 and International Finance Statistics 2004.

### **IV. 1 – Creditors' Protection**

The literature of Law and Finance points to the fact that a good bankruptcy law has to provide legal protection to creditors. In section *III.1* we saw that better legal protections enable financiers to offer entrepreneurs money at better terms, which induces to a broader credit market.

Several forms of bankruptcy laws are being used around the world. Some of them are too favorable to creditors, giving them a strong protection, like the English Law, where liquidation is nearly always used. Its cost is the elimination of good and still healthy firms. On the other hand there are countries like Brazil, where

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<sup>21</sup> Latin American and Caribbean block is composed by: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela.

the law provides a weak protection to creditors, giving priorities to labor and tax claims before claims of secured creditors.

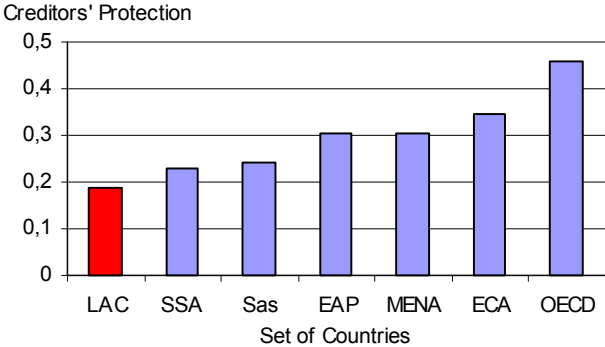
It is possible to compare the creditor protection provided by bankruptcy law in different groups of countries and rank the current situation of Latin America. As a measure for creditors’ protection we use the index constructed by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997)<sup>22</sup> that summarizes creditors’ rights<sup>23</sup> in bankruptcy law interacted with a measure of enforcement. This interaction between law and enforcement is important because if rules and regulations are not enforced, creditor rights will be inadequate regardless of what is written in the bankruptcy-law procedure codes.

Creditors’ rights is an index that is formed by adding 1 when: secured creditors are paid first; the manager does not stay in reorganization; there is no "automatic stay" imposed by the court; and creditors need to consent to file the reorganization petition. As a measure of legal enforcement was used the variable “rule of law”<sup>24</sup> that is an assessment of the law and order tradition in the country. Therefore the creditor-protection measure is defined as:

$$\text{Creditors' Protection} = \text{creditors' rights} \times \text{measure of enforcement.}$$

Since we normalize this measure, it will vary between [0, 1], where the score 1 means that the country provides the strongest level of protection to creditors; while zero means that the country does not protect creditors at all.

**Figure 3: Creditors’ Protection in each set of countries**



Source: Doing Business database and International Country Risk Guide

<sup>22</sup> Their creditors’ rights measure was calculated from a sample of 49 countries and is referent to 1996.

<sup>23</sup> Creditors’ rights is computed by Doing Business 2003 from World Bank.

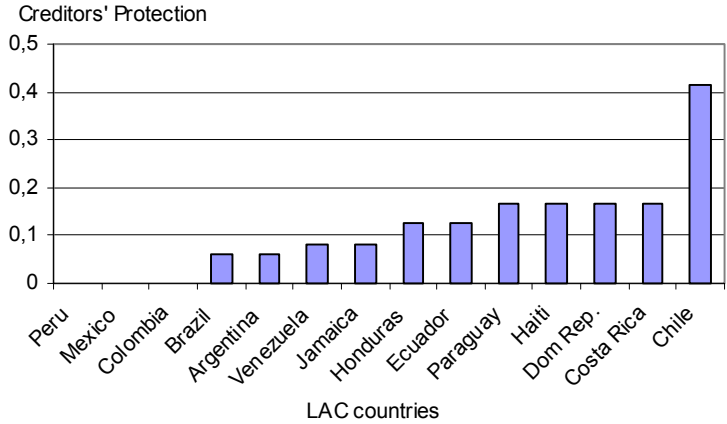
<sup>24</sup> Rule of Law index is computed by International Country Risk Guide.



Looking at Figure 3 that shows creditor protection in different sets of countries, we notice that the OECD has the highest level of creditor protection, while Latin America and the Caribbean have the lowest. Latin America and the Caribbean protect their creditors very poorly (even less than Sub-Saharan Africa), reducing the interest of creditors in the credit market, increasing the cost of capital and the difficulty for firms to finance their investments with debt.

Looking more specifically at LAC countries (Figure 4), Chile has the highest creditor protection provided by the legal system, with a degree similar to the average of OECD countries. However, most countries vary between 0.05 and 0.17, which is a very low level in a measure ranging between 0 and 1.

**Figure 4: Creditors' Protection in LAC countries**



*Source: Doing Business database and International Country Risk Guide*

A common notion in the literature of Law and Finance is that a good bankruptcy law has to provide strong protection to creditors. La Porta, Silanes, Shleifer and Vishny (1997, 1998) were pioneers in studying empirically the relevance of this relationship. Using a sample of 49 observations, they show that countries with a high level of creditor protection have higher levels of financial development.

Controlling for log (GDP), log (population), information-sharing and quality of enforcement, we explore the relation between the credit market development (measured by log (Private Credit/GDP)) and Creditors' Protection, in a sample of 120 countries. We control for the total GDP (log (GDP)) on the theory that larger economies may have bigger credit markets because of economies of scale in organizing the supporting institutions. We control for population on the theory that countries with large population tend to be poorer in per capita terms (log (GDP) – log (population) = GDP per capita) with negative effects on credit

market. We use the number of days that the court takes to enforce a simple debt contract as a proxy for the efficiency (or quality) of legal system. Finally, we control for information-sharing<sup>25</sup> – that refers to data on the existence of public- and/or private-credit registries – to capture the adverse-selection problem in the credit market. In Table 2 we see that the coefficient of the creditor protection is statistically significant at the 5% level and reveals that the bigger the protection provided by law to creditors is the larger is the credit market. According to the result if, for example, the Brazilian bankruptcy reform shifts its protection of creditors of 0.06 to the mean of Latin America (0.19) or to the mean of OECD (0.46), it would increase credit market in approximately 9% and 30% respectively.

Also, the GDP, GDP per capita, information-sharing, population and quality-of-enforcement controls are all significant, the first three being positive and the last two negative, as we expected. The effect of information-sharing on credit market is considerably large but it is not important to Latin America once that except for Jamaica, the rest of the countries have the mechanism of information on credit registry. If Jamaica implements such mechanism it would increase its credit market in more than 70%. An increase in the quality of enforcement also produces a relevant effect on credit market. The average time that Latin America takes to enforce contracts is the highest between regions, 462 days. A fall of the average to OECD level (230 days) means an increase of 11% in Latin American credit market. Looking exclusively to Guatemala that has the lowest quality of enforcement (1459 days), an improvement in its mechanism that brings to Latin America average means an expansion of 60% of its credit market.

Table 2: OLS regression of Private Credit/GDP on Creditors' Protection  
Dependent Variable: log (Private Credit/GDP) – 120 observations (average 2000 – 2003)

Independent Variable	Coefficients	t-statistic
Constant	-1.06	1.19
Creditors' Protection	0.66 <sup>b</sup>	2.28
log GDP	0.40 <sup>a</sup>	9.30
log Population	-0.25 <sup>a</sup>	4.40
Quality of Enforcement	-0.0005 <sup>c</sup>	-1.93
Information-Sharing	0.55 <sup>a</sup>	3.35
Obs	120	
R-squared	0.66	
Adjusted R-square	0.64	

Note: a=significant at the 1% level; b=significant at the 5% level; c=significant at the 10% level.  
Standard errors and covariance robust to heteroskedasticity.

<sup>25</sup>It is equal 1 if either public registry or a private credit bureau operates in the country, zero otherwise.

To examine which components of creditors' rights index are responsible for its effect on credit market, we regress the measure of credit market development on each sub-index of creditors' rights. We find that creditors' consent to reorganize and priority have positive effect on credit market, with automatic stay, and the exclusion of managers in the process of reorganization having no significance at all.

Table 3: OLS regression of Private Credit/GDP on each sub-index of Creditors' Rights  
Dependent Variable: log (Private Credit/GDP) – 120 observations (average 2000-2003)

Independent Variable	Coefficients	t-statistic
Constant	1.32	1.51
Consent of creditors	0.23 <sup>c</sup>	1.74
Priority	0.24 <sup>c</sup>	1.83
No Autostay	-0.05	-0.37
Manager out	0.17	1.27
Quality of Enforcement	-0.0006 <sup>b</sup>	-2.40
Information-Sharing	0.60 <sup>a</sup>	3.58
log Population	-0.27 <sup>a</sup>	-5.11
log GDP	0.42 <sup>a</sup>	11.23
Obs	120	
R-square	0.67	
Adjusted R-square	0.64	

Note: a=significant at the 1% level; b=significant at the 5% level; c=significant at the 10% level.  
Standard errors and covariance robust to heteroskedasticity.

These results are aligned with theoretical claims in earlier sections that highlight: the negative effect when other claims such as labor and/or tax claims have priority over creditors' claims, and the relevance of the role of creditors in reorganization, mainly due to the provision of protection and incentive against fraud. According to results in table 3 any country that reforms its bankruptcy law giving top priority to secured creditors tends to increase its credit market in 27% in absolute terms. Also, creditors' consent in reorganization may expand credit market in 26% in absolute terms. The null effect of automatic stay and exclusion of managers in case of reorganization illustrates the ambiguity of both variables. The existence of automatic stay makes the reorganization procedure easier and reduces type I error – which increases the firm's value in bankruptcy –, while its absence guarantees the fast recovery of secured creditors. The exclusion of managers in case of reorganization weakens their bargain power in reorganization, which increases creditors' return in bankruptcy and their appeal in supply credit, but such a punishment may incentive managers to delay filing for bankruptcy as well as to gamble with firm's investments as a means of

avoiding bankruptcy, both attitudes reduce creditors' return. Using the same controls as the last regression their results are practically the same.

## **IV. 2 – Goals of Insolvency**

Despite all the research on bankruptcy, today there does not exist a consensus on the best procedure to adopt. It is hard to design an optimal bankruptcy procedure from first principles, given that economists do not at this point have a satisfactory theory of why parties cannot design their own bankruptcy procedures (i.e., why contracts are incomplete). Frequently, suggestions for new bankruptcy procedures emanate from different visions<sup>26</sup>. However, it is possible to identify a consensus on certain issues, such as some characteristics of an efficient bankruptcy procedure.

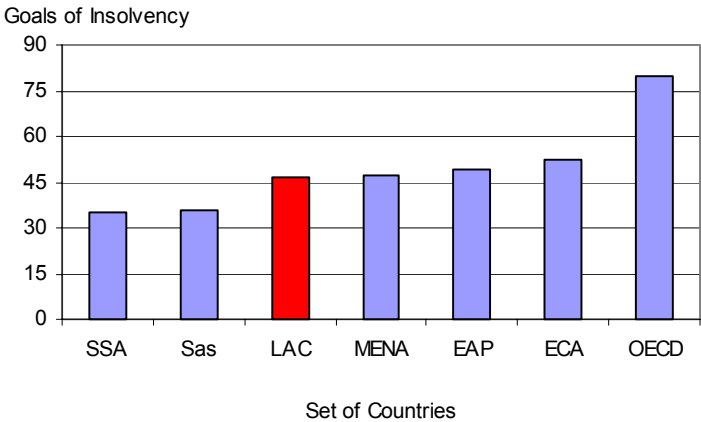
Oliver Hart (1999) states the characteristics of a good procedure. First, there is a strong argument that a good bankruptcy procedure should deliver an ex-post efficient outcome, that is, it should maximize the total value available to be divided between the debtor, creditors and possibly other interested parties. The second goal concerns ex-ante efficiency, and says that a good bankruptcy procedure should preserve the bonding role of debt by penalizing managers and shareholders adequately in bankruptcy states. Without any adverse consequence at all, there is very little incentive to pay their debts. The third goal, concerned with the stability of priority claims, says that a good bankruptcy procedure should preserve the order of the claims defined when the contract was created, except that some portion of value should possibly be reserved for shareholders. This goal has two advantages: first, it helps to ensure that creditors receive a reasonable return in bankruptcy state, what encourages them to lend; second, it means that bankruptcy and non-bankruptcy states are not threatened differently. However, it should be remembered that criticism can be made against APR: the management, acting on behalf of shareholders, will have an incentive to avoid bankruptcy even if this gives rise to inefficient bankruptcy decisions like the gamble and delay effects. For this reason, there may be a case for reserving some portion of value in bankruptcy for shareholders.

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<sup>26</sup> See section II.

Doing Business from World Bank computed a measure that documents the success in reaching the three goals-of-insolvency, as stated in Hart (1999). It is calculated as the simple average of the cost of insolvency (from 0 to 100, where higher scores indicate less cost), time of insolvency (from 0 to 100, where higher scores indicate less time), the observance of absolute priority of claims, and the efficient outcome<sup>27</sup> achieved. The total Goals-of-Insolvency Index ranges from 0 to 100: a score of 100 on the index means perfect efficiency, while 0 means that the insolvency system does not function at all.

**Figure 5: Goals-of-Insolvency Index in each set of countries**



Source: *Doing Business database*

Looking at figure 5, we notice that LAC countries do not have an efficient bankruptcy procedure, performing better than Sub-Saharan Africa and South Asia alone, while the OECD has the best insolvency system.

Figure 2, in the introduction, shows that an efficient bankruptcy system has a positive effect on the credit market, making access to credit cheaper and easier; both results being aligned with propositions 1 and 3 respectively. This happens because creditors are more confident in having their loans repaid when a firm fails. Notice that figure 2 (third graphic) also shows they are right to have this expectation.

Table 4 reports results of regressions between goals-of-insolvency versus credit market development (log (Private Credit/GDP)), interest rate spread and creditors’ recovery rate. The regression between the

<sup>27</sup> The efficient outcome is defined as any bankruptcy procedure that results in a going-concern sale without an interruption in operations, or a successful rehabilitation.

interest-rate spread and the goals-of-insolvency index is statistically significant at the 1% level<sup>28</sup>, controlling for log (GDP per capita)<sup>29</sup>. This means that for each point increased in the insolvency efficiency, the interest-rate spread decreases by 0.13%.

Credit market development and recovery rate are positively related with goals-of-insolvency and both statistically significant at the 1% level, also controlling by log (GDP per capita). In this case, for each point increased in the insolvency efficiency, log (Private Credit/GDP) and recovery rate increase by 0.02 and 0.83 cents on the dollar respectively.

Table 4: Effects of goals-of-Insolvency  
Independent Variable: Goals-of-Insolvency

Dependent Variable	OLS regression
Interest rate spread	-0.13% <sup>a</sup> (2.58)
log(Private Credit/GDP)	0.02 <sup>a</sup> (5.70)
Creditors' recovery rate	0.83 <sup>a</sup> (12.95)

Note: a=significant at 1%.

t-Statistic are in parentheses.

Standard errors and covariance robust to heteroskedasticity.

R-square varies between 0.16 and 0.67, considering all cases.

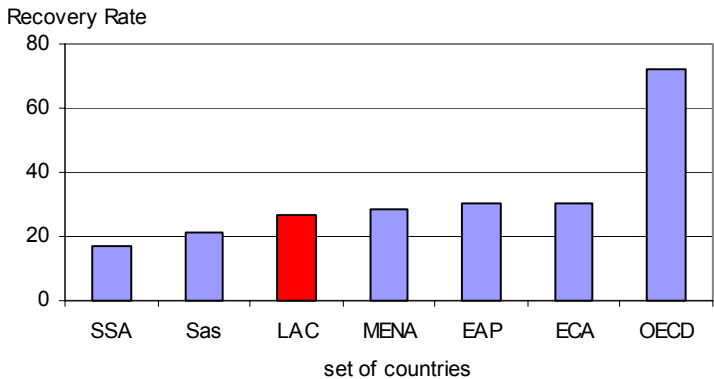
To exemplify the impact of an improvement in bankruptcy efficiency, let us consider a case where Brazil (24) increases its insolvency efficiency up to the Latin American average (46). Its interest-rate spread will fall approximately 3% (7% in relative terms), and its private credit and creditors' recovery rate rises by 19.79% (credit market expands in 55%) and 17.6 cents on the dollar respectively. If the Latin America average increases to OECD level (80), its interest-rate spread falls 4% (33% in relative terms), its private credit and recovery rate increases by 32.77% and 24.8 cents on the dollar respectively (approximately 97% and 93% respectively in relative terms).

Recovery rate varies widely among countries, the most desirable being to have as big a recovery rate as possible, because this increases creditors' return in bankruptcy states, reducing the cost of capital. Figure 6 shows that the OECD has the highest recovery rate, with creditors recovering more than 70 cents on the dollar when a firm fails. The average in Latin America is 26 cents on the dollar of recovery, higher than

<sup>28</sup> To verify if outliers (two observations in the upper left-hand side in the first graphic of figure 2) were driven the result we use a

South Asia and Sub-Saharan Africa alone. The worst result among Latin American countries (Figure 7) comes from Brazil, with a recovery rate of 0.2 cents on the dollar, and the best result is from Mexico, where creditors recover 64.5 cents on the dollar. The highest recovery rate in the world is Japan, with 92.4 cents on the dollar.

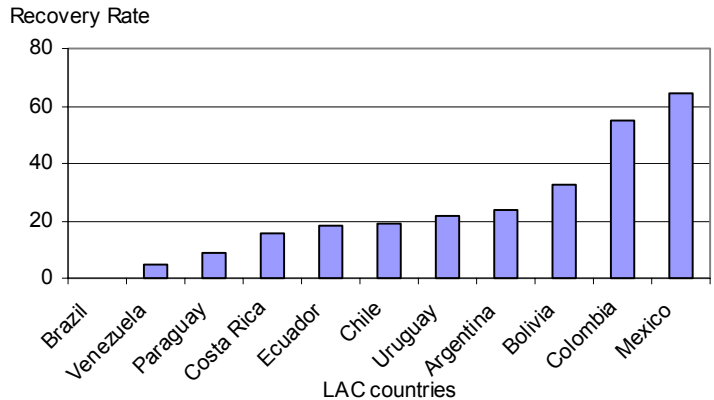
**Figure 6: Recovery rates in each set of countries**



Source: Doing Business database

Therefore, it would be interesting for Latin American countries to concentrate efforts on reforming their bankruptcy systems in the direction of the characteristics listed by Hart (1999) to improve the efficiency of bankruptcy procedure and ensuing credit market conditions.

**Figure 7: Recovery rates of LAC countries**



Source: Doing Business database

quantile regression in the median. We find that the coefficient is still negative and significant.  
<sup>29</sup> We also regress against GDP per capita to control effects of richness or poorness over the credit market.

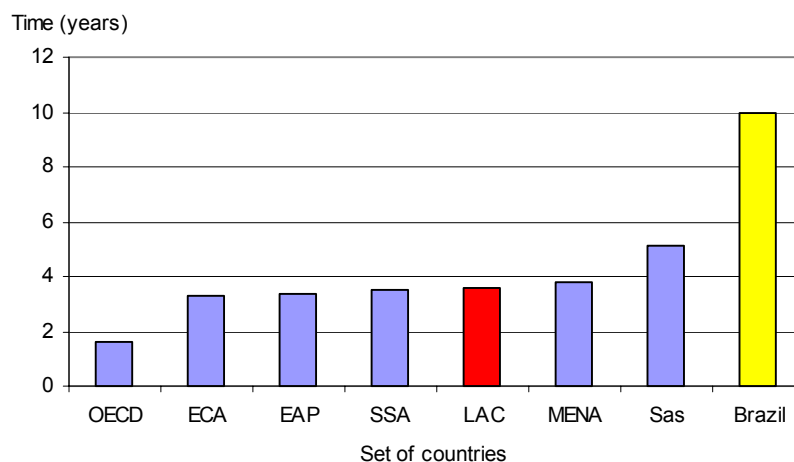
## V – Brazilian Bankruptcy Reform<sup>30</sup>

In the last decades, a legislative reform has taken place in several Latin American countries. Particularly, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, México and Peru focused on their insolvency system, reforming their legal framework for bankruptcy. The most recent reform occurred in Brazil in a process that began in 1993, concluded in June 2005. This section will focus on such reform, explaining the characteristics of the former law, its main changes and effects over the Brazilian economy.

### V. 1 – The Former Brazilian Bankruptcy Law

The former legal framework for corporate insolvency in Brazil was very fragmented, with the core of legislation for bankruptcy proceedings enacted in 1945. The *Lei de Falências* regulates both liquidation (*falência*) and reorganization (*concordata*) proceedings for merchants (i.e., a legal entity that engages in commerce in its usual course of conduct). State-owned corporations and private-public joint-stock companies were excluded from bankruptcy proceedings until 10.31.2001, when a modification allowed the bankruptcy of private-public joint-stock companies.

**Figure 8: Average time involved in the insolvency proceeding per region of countries**



*Source: Doing Business database*

Despite providing both proceedings and intending to prevent or avoid liquidation of enterprises, in practice the insolvency process has proven to be ineffective at maximizing asset values and protecting creditor rights in liquidation – bad to the cost of capital (*proposition 1 and 2*) – or at salvaging viable

<sup>30</sup>In Appendix A, the co-author Aloisio Araujo, explains the process of the reform in Brazil.



distressed businesses incurring type I error. The insolvency proceeding is very slow, taking ten years on average to complete the whole process. The average time of insolvency proceeding in Brazil is the slowest in the world and much higher than the mean of Latin America countries (figure 8). Liquidation is marked by severe inefficiencies, and the reorganization process is obsolete and excessively rigid to provide meaningful rehabilitation options for modern business.

The process of disposing of assets is slow and highly ineffective, due to court and procedural inefficiency, lack of transparency and the so-called *problema da sucessão*, i.e. the transfer of liabilities, notably tax and labor liabilities to the buyer of property sold in liquidation, thus deteriorating the assets market value of an insolvent company. In addition, the priority given by bankruptcy law to labor and tax claims has the practical effect of eliminating any protection to other creditors. The process has led to an informal use of the system to promote consensual workouts<sup>31</sup>. An insufficient legislative framework otherwise hampers workouts.

As a consequence of shortcomings in the present Brazilian legal and institutional system concerning insolvency, it is possible to conclude that:

- creditors' rights are only weakly protected and financial markets are characterized by a relatively low credit volume and high interest rates (the ratio Private Credit/GDP is only 35% and the spread of interest rate is 49% in average for the period of 1997 to 2002),
- distorted incentives and the lack of effective mechanisms to support corporate restructuring result in disproportionately high default rates of potentially viable companies,
- exit costs for non-viable companies are increased,
- productivity and employment are reduced.

In 1993 Brazil initiated efforts to update its corporate insolvency legislation. Since then, the original project has undergone several amendments until the House of Representatives approved its latest version in October 2003. The project was sent to the Senate that introduced some further improvements to the new law,

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<sup>31</sup> Workout (out-of-court): Informal renegotiation of loans.

being approved in July 2004. In December 2004 the modified project that had returned to the House of Representatives was approved again, put in effect in June 2005.

## V. 2 – Credit Market and Changes in Brazilian Bankruptcy Law

As we saw in earlier sections, the bankruptcy law has a strong effect on the credit market, and this is not different in Brazil, whose credit market is not well developed, with scarce and expensive credit. To make the analysis more attractive, we will compare several indicators of the Brazilian credit market and bankruptcy law against the mean of Latin American countries and rich countries.

Table 5: Credit Indicators

	Private Credit/GDP (1997-2002)	Interest-Rate Spread (1997 – 2002)
Brazil	35.00%	49.00%
Latin American Countries	44.23%	11.00%
OECD	102.748%	3.87%

Source: World Development Indicators 2004.

Table 5 reports credit characteristics in Brazil, Latin America and the OECD. We present the 1997-2002 mean because it is the period in which all countries had observations for private credit and interest-rate spread. At first sight we tend to think that Brazilian private credit as a proportion of GDP is very low when compared with the OECD, but it is not so inferior to the mean of Latin America countries. However, this situation is even worse than it seems, since a significant part of credit came from a development bank (BNDES) that is controlled by the government. The Development Bank finances a large share of non-housing investments at a subsidized interest rate. Looking at the interest-rate spread confirms this chaotic situation. This rate is more than four times bigger than the average rate in Latin American countries and more than twelve times bigger than the average rate in OECD countries.

One important reason<sup>32</sup> for this situation in the credit market is the design of the Brazilian bankruptcy law. Using the same measures as section IV, we see in Table 1 (in the introduction) that creditors have a very low protection in Brazil even when compared with the mean of Latin American countries. This characteristic reduces the expected return of creditors in insolvency states, what raises the interest rate spread and inhibits the supply of credit. Also from the Goals-of-Insolvency Index we see that the bankruptcy procedure is very

inefficient, being long, costly and rarely achieving efficient outcome, reducing the return in bankruptcy states and raising the cost of capital (see *proposition 1*). We can see this return in bankruptcy states as the creditors' recovery rate in the case of bankruptcy, which is 0.2 cents per dollar in Brazil, while the average of Latin American and OECD countries is 26 and 72 cents respectively.

So the recent reform in the Brazilian bankruptcy law is on the way to improve the efficiency in insolvency procedure, with potential positive effects on the credit market and on the economic efficiency of the productive factors. The new law improves on existing legislation by integrating the insolvency system with the country's broader legal and commercial systems, providing an option to reorganize in or out of court, and striking a reasonable balance between liquidation and reorganization. It also would significantly improve the flexibility of the insolvency legal system, by allowing the conversion of recuperation proceeding in liquidation, permitting the debtor's application for rehabilitation during the procedural term awarded to respond in the liquidation proceeding filed against him, and introducing a new out-of-court reorganization system for pre-package restructuring plans.

The new liquidation procedure suffered a series of changes itself. Its main changes are:

C1 – Limitation of labor credit (until 150 minimum wages).

C2 – Credit with collateral above tax credit.

C3 – Unsecured credit above some of the tax credit.

C4 – Firms will be sold first, preferably as a whole, and the constitution of the creditors' list will come later, thus speeding up the process and increasing the value of the bankruptcy state.

C5 – No more transference of liabilities, notably tax and labor liabilities, to the buyer of property sold in liquidation.

C6 – New credit given in the reorganization step will be given first priority in liquidation.

Notice that C1, C2 and C3 provide several expected effects on the life of firms. In the period ex-ante financial distress is expected a reduction of the cost of capital (*proposition 2*), an expansion of the credit

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<sup>32</sup> Other factors not treated in this paper contribute to this bad credit-market situation, such as poor competition in the banking

market and the set of socially efficient projects that would be financed (*proposition 4*), and a reduction of the sub-investment in effort that is exacerbated when the bankruptcy system gives priority to tax and/or labor claims over creditors' claims (*proposition 7*). In the period ex-post financial distress the portion of financially distressed firms probably will be reduced because the investment in effort increases, and despite the gamble and delay effects remaining constant, the aggregate gamble and delay effect are diminished. The expected effect of C4 and C5 is that the value of firms in bankruptcy states will increase and the more those creditors intuitively expect to receive in the insolvency state the less they will require the firm to repay in the solvency state, reducing the cost of capital (*proposition 1*). Also, C5 will speed up the process of putting the capital of liquidated firms to more efficient use. C6 is important for reducing the indirect costs in reorganization procedure, where potential buyers could be more reluctant to deal with the company or may demand more especially favorable terms than if C6 did not exist. This factor tends to increase: creditors' return in the insolvency state, and the chance of success in reorganization.

Notice that all these changes work to raise both measures of bankruptcy efficiency. C1 and C2 improve secured creditors' protection, while C4, C5 and C6 diminish costs and improve goals of insolvency.

Reorganization was inspired in Chapter 11 of the U.S Bankruptcy Code. Unlike the old process called "concordata" that does not permit any renegotiation between the interested parts and with only few of them being entitled to recovery, now managers make a sweeping proposal of recuperation that should be accepted by each one of the three classes: workers, secured creditors and unsecured creditors (including trade creditors). Creditors, now with a more significant role at the procedure, will have to negotiate and vote for the reorganization plan. Looking to increase the chance of reorganization success, two changes were introduced by the new law. First is the application of the automatic stay by 180 days, when creditors cannot take any of the firm's goods, even those given as collateral, having in view not to disturb the firms' activities. The second one is related to the new credit obtained by reorganizing firms. Credit that is given in post-bankruptcy period will have priority over older credits if liquidation occurs (see C6), motivating creditors to

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sector, high yield of treasury bills, high banking costs, etc.

make new loans at better terms, and reducing indirect cost brought by the insolvency. These changes may permit more economically efficient firms to recover, improving the balance between liquidation and reorganization and reducing filtering failure problems (type I error). Such balance between bankruptcy procedures allows for a more efficient allocation of the productive factors by both saving economically efficient firms that are suffering from financial distress and transferring assets of economically inefficient firms to more efficient use.

An additional effect of the new reorganization procedure is the possibility of APR violations. As we saw in former sections, such violation incentives managers to make more efficient decisions when the firm is in financial distress, diminishing the perverse gambling and delay effects. On the other hand, this violation reduces managers' incentive on effort at the earlier stages of firms' life, what makes the aggregated result ambiguous if it were the only change in the law. However, several modifications made in liquidation and in reorganization should produce a reduction of the cost of capital for firms in the economy, which makes the gap between the return in solvency and insolvency states bigger than before the reform<sup>33</sup>, generating a positive final effect on managers' effort. Therefore, the aggregated cost of gambling effect and delay effect will be reduced and no longer ambiguous.

An extrajudicial procedure was also created, which is very important in Brazil since it saves the high court costs. The off-the-court reorganization is a "pre-packaged" mechanism, where the majority imposes the decision on the minority. The private renegotiation between groups of creditors and debtors avoids several losses during the firm's rehabilitation that is observed in case of open renegotiation procedure.

Due to the relevancy of fraud in bankruptcy, important changes were made in the new law to avoid it. Changes in liquidation like C1 (limitation of labor credit), C2 and C3 (Credit with collateral above tax credit and unsecured credit above some of the tax credit) as like the important role of creditors in reorganization provide incentives against fraud in bankruptcy procedure. The limitation of labor credit (until 150 minimum

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<sup>33</sup> Let  $v_{solv}$  e  $F$  be the pre-reform values of firm's return and creditors' payment in solvency states,  $v_{solv}^R$  and  $F^R$  be the post-reform values and  $l$  the amount that managers get with APR violations. If changes in the bankruptcy law are such that  $v_{solv} - F^R - l > v_{solv} - F$  (where  $F^R + l < F$ ), then  $p'(e) = 1/(v - F) > 1/(v - F^R - l) = p'(e^R)$ , and therefore  $e^R > e$ , i.e., given these changes the manager's effort is bigger than in the pre-reform stage.

wages) diminishes the possibility of the manager to cheat the law by creating jobs to “friends” in such a way to receive as regular workers (for the manager) of the failing firm. Secured credit above tax and labor claims that makes higher the recovery of creditors in case of bankruptcy and the important role of creditors in reorganization raise creditors’ incentive in monitoring the bankruptcy process, mitigating fraudulent actions. There were several reasons for indictment for fraud in the old law, but these were not cumulative and each one stipulated a maximum of two years of penalization. Since the judicial process was very slow, most penalties were prescribed and as a result there was always the possibility of no punishment at all. Under the new law, those two years of penalty are cumulative and the judicial process is accelerated, hence the cost of fraud is expected to increase considerably. Another important change in the new law is that all frauds are remitted directly to the procedures of general criminal law, which is much more punitive than the special bankruptcy-crime law and the old special bankruptcy-crime law. Moreover, since private creditors expect to receive more under the new law, they will be watching the judicial procedures of bankruptcy more closely and most likely they will be important allies in enforcing fraud penalty.

Besides the reform in bankruptcy law, many other changes in laws have been important to credit-market development. Changes in mortgage law allow for the house to remain in the possession of the creditor, thereby circumventing the difficulty of the judiciary not to transfer property from the debtor to the creditor in case of default due to an ideological bias. This has caused the collapse of mortgage in Brazil. However, it is not clear that the situation will improve. Also, changes were made in contractual laws that allow for fast collection in case of unpaid debt.

### **V. 3 – The Relevancy of the Judiciary**

The role of the judiciary is fundamental to the fulfillment of the law. If rules and regulations are not properly enforced, even if the law is well designed it will not attain its objectives in full.

There are two measures of enforcement that can qualify the quality of courts. The first one is the “quality of enforcement”, that is, the number of days that the court takes to solve a payment dispute. The second is called “rule of law”, which is the measure of the “law and order” tradition of a country. Table 6

indicates that under both measures, the quality of the Brazilian Judiciary is inferior to the mean in Latin America. Contracts take more time to be enforced and the tradition of fulfilling the law is weak.

Table 6: Judiciary's Quality Indicators

	Quality of Enforcement (days)	Rule of Law [0, 6]
Brazil	566	1.50
Latin American Countries	440	2.35
OECD	230	5.33

Source: Doing Business 2004 and International Country Risky Guide 2004.

Castelar (2001, 2003) made a careful study of the Brazilian Judiciary. Following his research, it is possible to find explanations for the low quality of the judiciary in Brazil. Castelar reports an interview held with entrepreneurs and magistrates. Entrepreneurs evaluate agility as bad or worse in 91% of the cases, while even magistrates themselves evaluate it as regular or worse in 86.4% of the cases. Like agility, the low capacity to forecast judiciary decisions was pointed out as an important feature of the Brazilian Judiciary. Asked when the decision of the magistrate reflects his political views, only 22% answered *rarely* or *never*. Therefore the decisions of the majority of magistrates are affected by political views. Finally, magistrates were asked how they would behave in the case of a conflict between (a) compliance with contracts and (b) the interests of less privileged social segments: only 19.7% answered option (a), that is, that they would follow contracts.

Therefore, all these answers indicate an environment unfavorable to credit, indicating why expectations of recovery are low when a firm goes bankrupt and courts enter the process.

However, recent changes have occurred in the Brazilian Judiciary. Congress approved a law that establishes the higher court's decision as binding, which means that if a superior magistrate's court makes certain decisions, a lower court cannot make a different decision in similar cases. This change reduces the burden of the judiciary and decreases the court's time. There is also a law in Congress that changes the procedural code in order to eliminate several procedures that contribute to court delays. Both changes contribute to raise the efficiency of the judiciary and help to develop the credit market.

## **VI – Conclusion**

As a theoretical basis, we understand that a bankruptcy system should seek ex-post and ex-ante efficiency. Ex-post efficiency means that the procedure maximizes the total value of the firm's assets, providing higher return to creditor in insolvency states and consequently lower cost of capital and larger set of financed projects in the economy. Ex-ante efficiency treats the optimal division of value in case of bankruptcy. Violations of APR have positive effects in situations of financial distress by providing incentives to reduce delay and investments in inefficient risky projects, but also have negative effects ex-ante financial distress by reducing the incentive of managers' efforts. The effect over the cost of capital is ambiguous. Therefore its optimality depends particularly on the country's characteristics that will determine which effect is more relevant. Priority of creditors' claims over tax and/or labor claims proves to be more efficient than otherwise because of the significant positive impact on both cost of capital and managers' effort, without negative impact. Additionally, it offers incentive to creditors to monitor actions of managers in bankruptcy, which helps to avoid fraud.

In practice, our empirical analysis says that Latin American countries have a poor system of bankruptcy with problems in both measures of bankruptcy procedure goodness. Their inefficient procedure does not allow maximizing the firms' value, reducing significantly the creditors' recovery rate and increasing the cost of capital. In addition, the protection for creditors is the lowest in the whole world, reducing their interest in supply credit, and increasing the negative impact on the credit market.

Due to the severe inefficiency of the bankruptcy law in Latin America, many governments have initiated efforts to change this picture, and a series of reforms in the bankruptcy system have occurred. The Brazilian case has been emphasized since it is the most recent reform in the region. Improvement in liquidation and reorganization procedures, as well as the creation of an extra-judicial procedure should have a strong and positive impact on the Brazilian credit market. The new law works to reduce the inefficiency of bankruptcy procedure, making it less costly and faster and providing a good balance between liquidation and reorganization. Moreover, the new law tries to increase both protection and the role of creditors in the



insolvency procedure. Also, despite the performance of courts in Brazil indicating an environment unfavorable to credit, efforts are being made to change this image.

These changes tend to provide a more attractive business environment to entrepreneurs. Using our findings in theoretical and empirical field it is possible to describe expected consequences that emerge from this reform. The theoretical model suggests that gains in efficiency of the procedure – that produce an increase in firm's value in insolvency states – as well as the higher priority to creditors will be reflected into a lower cost of capital to firms and in a bigger set of financed projects, promoting entrepreneurship by the creation of new firms and investments, and therefore fostering the economic growth as a consequence. Besides, moral-hazard effects related to managers' effort are reduced, diminishing the possibility of financial problems in companies. As to the efficiency of production factors, the new reorganization procedure may offer a good balance with liquidation, allowing that economically efficient firms continue their operations, and closing economically inefficient firms, moving their assets to more efficient business, what promotes economic gains. Therefore reforms like the Brazilian bankruptcy law reform will possibly bring significant and positive consequences to both the credit market and general economic efficiency.

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## Appendix A

Personal participation and comments of Aloisio Araujo<sup>34</sup> in Brazilian Bankruptcy Reform.

### A. 1 – Brazilian bankruptcy reform

#### A. 1.1 – History

The current Brazilian bankruptcy law is very old, dating from the forties. In 1993 the Executive sent the draft of a new law, which was viewed with skepticism by specialists since it tried to save firms at all costs. In 2001 the president of the Central Bank, Arminio Fraga Neto, and the director of economic studies, Sergio Werlang, invited me to participate as a consultant in a group to study the new law from both the economic and juridical points of view.

The first decision of the group was to choose between going ahead for a new law, which would take an enormous amount of work both in terms of convincing and the intellectual effort of adapting the draft, taking into consideration economic incentives, or simply amending the current one by eliminating its main distortion. With arguments such as that the old law contained jargon and concepts that were already in the domain of courts all over Brazil, which were even more convincing since business bankruptcy is under state rather than federal domain, and also that the draft of the new law was so bad in terms of its economic impact. This position also had the support of important lawyers like the eminent Luis Bulhões Pedreira, who has a high reputation for having written in the sixties a corporate law which at the time was quite advanced in terms of economic reasoning. However, it was clear that Congress was going to pass a law which preserved firms, or no law at all. So, the decision was made (correctly, in my view) that a new law should be pursued, a difficult task taking in consideration that there was a strong anti-creditor political and juridical bias, in part due to the high real interest in the last few years, to the much higher returns on capital and to bad income distribution (which, although due to differences in education, is not perceived this way).

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<sup>34</sup> I would like to thank Eduardo Engel the invitation to write this article and in special this appendix, relating my personal experience with the Brazilian bankruptcy reform. His patience and interest were particularly important in giving me the energy to write this paper, together with my co-author, which I hope will be useful to the much-needed microeconomic reforms in Latin America.

With this decision in mind, the group in charge of the project, which involved many lawyers and economists as well as international consultants, kept working and bargaining with Congress and in particular with the staff of Congressman Biolchi, the author of the original draft and an important figure in the process until the end. However, the former administration did not put the project to a vote, due to other priorities such as the independence of the Central Bank.

In the new government, Ilan Goldfajn and Henrique Meireles, the new director of economic studies and president of the Central Bank, respectively, invited me to remain as a consultant. Also, due to the positive influence of Marcos Lisboa<sup>35</sup>, the project became high priority. The Lower House approved it at the end of 2003. It contained some very sound principles, such as strengthening the creditors' opinion on reorganization and eliminating some of the fiscal priorities in the selling of assets, as mentioned below. However, some very important elements were missing.

At that point many economists, executives and lawyers thought that it was better not to have a new law since this would create even more uncertainty to creditors than the old one. Fortunately, the Senate presented a much more positive prospective for the new law. I happen to be a teen-age friend of the influential Senator of the political opposition, Tasso Jereissati, who gave me full access to all the important Senators in the matter, including Lucia Vania, Ramis Tebet (the head of the economic commission of the Senate) and Aloisio Mercadante (the leader of the government in the Senate). I found a very positive environment for the discussion of an important law. The Senate withdrew the fiscal priority and limited the labor priority in liquidation. Also, at considerably high cost the Senate allowed for an extra-judicial procedure of the pre-packed type that exists in the United States. Many other improvements were made.

The challenge now is how the Judiciary is going to interpret the new law.

#### *A. 1.2 – The previous situation and the main changes*

- Introduction: The bad mechanics of credit.

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<sup>35</sup> Secretary of Treasury Ministry.

Total credit was scarce: just 26% of GDP<sup>36</sup>. But even worse, banks had low priority in case of liquidation. Therefore, in the case of any bad signs as to the economic health of a firm, banks would reduce credit even further since the recovery rate was so low<sup>37</sup>. So firms would finance themselves with a delay in paying taxes. Since tax authorities had the priority in case of liquidation that would scare banks even further, and so on. Credit would just collapse to many types of firms.

Banks do not have incentives to liquidate firms, even if they have no perspectives of recuperation. On the other hand, few firms are successful in recovering. This is so due to the high priority of tax in liquidation, combined with the Brazilian tax structure, which relies too much on indirect taxes. The situation could have been better if corporate taxes were more important in the tax structure, since in this case firms would not accumulate such a big tax debt: firms in financial distress do not have profits. Hence, banks would not fear liquidation so much, increasing the banks' incentive and recovery in case of bankruptcy.

- The reasons for optimism

As described above, the credit market in Brazil was in total disorder. Certain changes seemed impossible at the beginning of the process five years ago. The modifications obtained will introduce incentive mechanisms that will enable the development of credit markets in Brazil. The main changes obtained were:

In liquidation:

- Limitation of labor credit
- Credit with collateral above tax credit
- Unsecured credit above some of the tax credit
- Firms will be sold first, preferably as a whole, and the constitution of the creditors' list will come later, what will speed the process and increase the value of the bankruptcy state.
- New credit given in the reorganization step will be given first priority in liquidation.

In reorganization:

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<sup>36</sup> Data from Brazilian Central Bank 2004.

Inspired by Chapter 11 of the U.S Bankruptcy Code, here some of the well-known problems might be found, but it is certainly much better than the alternatives that try to save firms at all costs that were proposed initially in Brazil. Creditors will have to vote for the reorganization plan. The alternative of a new manager appointed by the judges was also rejected. A simplified version of it was adopted in Brazil, having some advantages in terms of the simplification of court procedure but missing some of the credit strength by making heterogeneous creditors vote together.

The adoption of extra-judicial procedure:

This is very important in Brazil since it saves the high court costs.

The elimination of the provision on tax-inheritance debt:

This almost eliminates any possibility of asset-selling for firms in distress, since the new owner would inherit all the labor and tax liabilities, even the hidden ones. This change will speed up the process of putting the capital of firms to new use, giving new incentives to mergers and acquisitions.

#### *A. 1.3 – What ideas failed in the Brazilian experience?*

When I first started working on the new law, I thought it would be a good idea to have a very simple procedure which would strengthen creditors' rights, save on court costs and at the same time avoid a possible bias on the part of the judges. This last point is very well documented in Castelar and Cabral (2003). One possibility was to follow the suggestions of Bebchuck (1988) and Hart (1997). Their idea is simply to give the firm in financial distress to the senior creditor and allow the more junior creditor to buy from the senior for the price of his credit, and so on. Although ingenious, this idea received much opposition from lawyers and politicians in Brazil. Lawyers alleged that rights of the parties involved would not be fully preserved in the sense that the court does not have a prominent role. In general, the justice culture is against any summary resolution. At the political front the Congress had a bias in favor of the firms' owners. So I had to give it up. Another idea was to try to follow a law of the type in England, where the creditor has more power and there is no effort to save firms as a whole. This could be important in countries that are reluctant to close firms,

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<sup>37</sup> See the data in the previous section.



even those without sound economic prospects. However, the Brazilian Congress was in the mood to pass a law where the emphasis was on saving firms, and Chapter 11 fulfills this role, at least it gives creditors a strong role in the process, although perhaps this is too complex for a poor country.

One problem with the Brazilian law is that it is the Judge who appoints the clerk in charge of liquidation, rather than the creditors.

Another problem is the solution found for tax liabilities under reorganization. As mentioned before, firms under distress in Brazil tend to have many tax liabilities. The solution that I proposed was for the government to organize an auction of the tax liabilities of firms that asked for reorganization. This way the auction would attract many new specialists interested in reorganizing the firm. The owner would avoid having too many tax liabilities for the fear of losing the control of the firm. This solution was scrapped for fear that it might be unconstitutional. The solution adopted was to give an automatic reorganization of the tax debt in 8 years. This could give firms the incentive to keep accumulating tax debts and to ask for reorganization within five years. This could also be very bad for credit.

## **A. 2 – Policy Lessons**

### *A. 2.1 – The Brazilian Case*

What I learned from the Brazilian experience is that first of all the main distortions that I found are probably very specific to Brazil, at least I have never seen them mentioned in the international literature. The first distortion is the priority given to taxes over security credit. In a paper by Araujo & Lundberg (2003), it was shown that only four countries out of thirty-five share this unfortunate property (see Table A). Actually this was an important argument in convincing the Senators to change the law in a moment when everything looked hopeless. The fact that the tax authorities were able to collect the insignificant amount of less than four million dollars in a recent year makes one wonder why there was so much fighting over this, although corruption could be an explanation. An equally distortional aspect of the old law was the labor and tax-inheritance provision. Again, when carefully explained by a neutral party, Congressmen understood the economic argument and voted to create the right incentive, but this took time. Compared with this type of

distortion, the usual debate about bankruptcy seems far less important. Countries, mainly the poor ones, create very distortional institutions, sometimes in the attempt to solve other distortions. In this example I think the distortions were created just to avoid tax evasion rather than to benefit any special group in particular.

Another lesson that I learned is that it is sensible to separate the law itself from the judiciary, although the two problems are to some extent related. For example, it is good to have a simpler – even if more imperfect – law in a less developed country. It is a big mistake to think the entire credit problem is due to the pro-debtor bias of the judiciary. I believe that the very low recovery rates and the very long time of liquidation, as shown in the World Bank data for Brazil<sup>38</sup>, are in great part due to the lack of interest of creditors in a liquidation procedure from which they are not going to benefit anyhow. With the change in the priority in liquidation, the whole governance of liquidation is bound to change. However, the judiciary plays a very important role. For example, I have been giving talks to many audiences and many judges are considering not calling for liquidation even if creditors vote not to accept the plan to reorganize the firm, although the new Brazilian legislation does not have the figure of the cram down<sup>39</sup> in chapter 11 of the American Code.

#### *A. 2.2 – Relations with reforms in other Latin America countries*

Although countries do obviously learn from each other, I think each country has its own distortions. Brazil, for example, is in the top 40% less corrupt but in the bottom 5% with respect to credit according to the World Bank. So, the reforms have to take into consideration what the country has already achieved. I think the reforms should be conducted, as in Brazil, by a multidisciplinary group of lawyers, judges and economists, mainly micro-economists who have an intuition of the incentives<sup>40</sup> of the several parties involved. The main goal should be a better system, since there is no agreement among economists about what constitutes an optimal bankruptcy.

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<sup>38</sup> Figures 7 and 8 respectively.

<sup>39</sup> This is a procedure whereby reorganization can be adopted by the bankruptcy judge despite being voted down by one or more classes of creditors.

<sup>40</sup> Some of these are described in section III.

Table A- Priority order in bankruptcy (35 countries)

Countries	Priorities			
	1	2	3	4
Australia	Secured Credit	Post-Bankruptcy Credit	Wages	
Austria	Secured Credit	Post-Bankruptcy Credit		
Belgium	Secured Credit	Post-Bankruptcy Credit	Tax and and Social Welfare claims	
Bermudes	Secured Credit	Wages and Assignments	Post-Bankruptcy Credit	Tax claims
Brazil	Labor claims	Tax Claims	Post-Bankruptcy Credit	Secured Credit
Bulgaria	Secured Credit	Post-Bankruptcy Credit		
Canada	Secured Credit	Post-Bankruptcy Credit	Wages (bounded)	Tax claims
China	Secured Credit	Post-Bankruptcy Credit	Labor claims	Tax claims
Czech Republic	Secured Credit	Post-Bankruptcy Credit	Labor claims	
Estonian	Post-Bankruptcy Credit	Secured Credit	Labor claims	Tax claims
Finland	Secured Credit	Post-Bankruptcy Credit		
France	Wages	Post-Bankruptcy Credit	Secured Credit	
Germany	Secured Credit	Post-Bankruptcy Credit		
Hong Kong	Post-Bankruptcy Credit	Secured Credit	Labor claims	Tax claims
Hungary	Post-Bankruptcy Credit	Secured Credit	Wages	Tax claims
Ireland	Secured Credit	Tax Claims (bounded)	Labor claims	
Israel	Secured Credit	Post-Bankruptcy Credit	Labor claims (bounded)	Tax claims
Italy	Post-Bankruptcy Credit	Tax and Labor claims	Secured Credit	
Japan	Secured Credit	Post-Bankruptcy Credit	Labor claims	
Korea	Secured Credit	Post-Bankruptcy Credit		
Malasya	Secured Credit	Post-Bankruptcy Credit	Labor claims	Tax claims
Netherlands	Secured Credit	Post-Bankruptcy Credit	Tax claims	Labor claims
Poland	Tax claims	Post-Bankruptcy Credit	Secured Credit	
Portugal	Secured Credit	Labor Claims	Post-Bankruptcy Credit	Tax claims
Russia	Post-Bankruptcy Credit	Labor Claims	Secured Credit	Tax claims
Scotland	Secured Credit	Post-Bankruptcy Credit	Tax claims	Labor claims
Singapore	Secured Credit	Post-Bankruptcy Credit	Labor claims (bounded)	
Slovak Republic	Secured Credit	Post-Bankruptcy Credit		
Spain	Wages (last 30 days and maximum of 2 mimimum wages)	Tax Claims	Secured Credit	
Sweden	Post-Bankruptcy Credit	Secured Credit	Tax claims	labor claims
Switzerland	Secured Credit	Post-Bankruptcy Credit	Labor claims (bounded)	
Thailand	Post-Bankruptcy Credit	Secured Credit	Labor claims	
UK	Secured Credit	Post-Bankruptcy Credit	Tax and and Social Welfare claims	Labor claims
United States	Secured Credit	Post-Bankruptcy Credit	Labor claims (bounded)	Tax claims
Vietnam	Post-Bankruptcy Credit	Secured Credit	Labor claims	Tax claims

Source: Araujo, A., Lundberg, E., 2003: "A Nova Lei de Falências: Uma Avaliação", *Workshop of Banking and Credit, Central Bank of Brazil.*

## Appendix B

Table B- Data from countries

Country	creditor rights between [0,1]	rule of law between [0,1]	Days to enforce contracts	credit info. registry	Goals of Insolv. between [0,100]	Private Credit/GDP 2000-03	% Interest Rate 2000-02	Recovery Rate
Algeria	0,25	0,33	407	0	45	0,08	3,25	37,1
Angola	0,75	0,50	1011	1	8	0,04	48,65	1,2
Argentina	0,25	0,25	520	1	43	0,20	12,43	23,5
Armenia	0,5	0,50	195	0	65	0,08	11,54	39,6
Australia	0,75	1,00	157	1	80	0,92	4,98	80
Austria	0,75	1,00	374	1	71	1,12		72,5
Bangladesh	0,5	0,17	365	1	25	0,26	7,83	23,2
B&H	0,75	0,00	330	1	51	0,39	8,17	32,1
Belgium	0,5	0,67	112	1	93	0,91	5,11	86,2
Belarus	0,5	0,67	250	1	40	0,09	10,03	11,9
Benin	0,25	0,00	570	1	33	0,12		8,8
Bolivia	0,5	0,50	591	1	53	0,53	11,05	32,5
Botswana	0,75	0,58	154	1	77	0,18	5,66	50,9
Brazil	0,25	0,25	566	1	24	0,36	43,73	0,2
Bulgaria	0,75	0,25	440	1	48	0,18	6,58	34,2
Burkina Faso	0,25	0,58	458	1	29	0,13		6,4
Burundi	0,25	0,00	512	1	8	0,26		16,4
Cameroon	0,25	0,33	585	1	44	0,09	13,00	21,4
Cambodia	0,5	0,00	401	0	25	0,07	13,74	0
Canada	0,25	1,00	346	1	93	0,83	3,38	89,1
Chad	0,25	0,00	526	1	11	0,04	13,00	0
Chile	0,5	0,83	305	1	19	0,73	3,96	19,3
China	0,5	0,75	241	1	51	1,29	3,33	35,2
Colombia	0	0,17	363	1	77	0,25	7,39	54,6
Congo	0,5	0,17	909	0	8			1,9
Ivory Coast	0,25	0,42	525	1	44	0,15		14,8
Costa Rica	0,25	0,67	550	1	43	0,27	14,96	15,5
Croatia	0,75	0,83	415	0	50	0,47	10,95	26,1
Czech Republic	0,75	0,83	300	1	22	0,37	4,05	16,8
Denmark	0,75	1,00	83	1	79	1,45	4,70	59,8
Dom Rep.	0,5	0,33	580	1	37	0,38	9,52	17,1
Ecuador	0,25	0,50	388	1	24	0,29	9,61	18,1
Egypt	0,25	0,67	410	1	39	0,61	4,46	18,4
El Salvador	0,75	0,42	275	1	42	0,05		24,9
United Arab Emir.	0,5	0,67	614	1	23	0,60		4,7
Ethiopia	0,75	0,83	420	0	75	0,29	4,55	40
Finland	0,25	1,00	240	1	99	0,59	3,33	90,2
France	0	0,75	75	1	43	0,93	3,60	46,6
Georgia	0,5	0,00	375	0	69	0,07	22,02	20,4
Germany	0,75	0,83	184	1	61	1,25	7,04	50,3
Ghana	0,25	0,33	200	1	17	0,12		28,2
Greece	0,25	0,50	151	1	42	0,69	4,66	45,6
Guatemala	0,25	0,25	1459	1	40	0,20	9,95	18,3
Guinea	0,25	0,42	306	1	8	0,04		22,2
Haiti	0,5	0,33	368	1	42	0,17	17,43	1,5
Hong Kong	1	0,75	211	1	63	1,53	4,66	82,3
Honduras	0,5	0,25	545	1	17	0,41	8,95	21,5
Hungary	0,5	0,67	365	1	38	0,36	2,76	30,8
India	0,75	0,67	425	0	21	0,31		12,5
Indonesia	0,5	0,33	570	1	35	0,21	3,44	10,6
Iran	0,5	0,67	545	1	84	0,31		19,1
Ireland	0,25	1,00	217	1	88	1,68	3,73	88,9
Israel	0,75	0,83	585	1	67	0,92	3,86	38
Italy	0,25	0,50	1390	1	46	0,82	4,34	43,5
Jamaica	0,5	0,17	202	0	63	0,19	9,93	63,5
Japan	0,5	0,83	60	1	93	1,06	1,83	92,4
Jordan	0,25	0,67	342	1	37	0,76	5,76	26,7
Kazakhstan	0,5	0,67	400	0	65	0,17		13,4
Kenya	1	0,33	360	1	47	0,24	12,97	14,7
Korea	0,75	0,83	75	1	91	1,33		81,1
Kuwait	0,5	0,83	390	1	83	0,64	3,33	38,7
Kyrgyz Republic	0,75	0,00	492	0	61	0,04	18,90	24,4

*Cont.*

Lao PDR	0	0,00	443	1	14	0,08	23,33	0
Latvia	0,75	0,83	189	1	92	0,27	4,73	85
Lebanon	1	0,67	721	1	31	0,84	5,55	19,3
Lithuania	0,5	0,67	154	1	54	0,14	5,15	52,4
Macedonia, FYR	0,75	0,00	509	1	34	0,18	8,80	7,9
Madagascar	0,5	0,42	280	1	25	0,09	13,25	0
Malawi	0,5	0,50	277	0	40	0,10	22,46	17,6
Malaysia	0,5	0,50	300	1	52	1,37	3,19	35,4
Mali	0,25	0,50	340	1	32	0,16		6,3
Morocco	0,25	0,83	240	1	36	0,55	8,58	34,8
Mexico	0	0,33	421	1	61	0,18	4,44	64,5
Moldova	0,5	0,83	280	0	49	0,14	9,32	29,3
Mozambique	0,5	0,50	580	1	25	0,08	8,72	12,3
Nepal	0,5	0,00	350	1	35	0,30		25,8
Netherlands	0,75	1,00	48	1	95	1,48	1,19	86,2
Nicaragua	1	0,67	155	1	58	0,40	15,84	38,1
Nigeria	1	0,25	730	1	45	0,15	8,10	33,2
Niger	0,25	0,33	330	1	37	0,05		2,6
Norway	0,5	1,00	87	1	99	0,95	2,08	87,9
New Zealand	1	1,00	50	1	90	1,18	4,48	71,4
Oman	0	0,83	455	0	29	0,38	5,66	23,6
Pakistan	0,25	0,50	395	1	63	0,28		38,1
Panama	1	0,50	355	1	36	0,99	5,62	18,2
Paraguay	0,5	0,33	285	1	46	0,25	15,80	8,7
Peru	0	0,50	441	1	67	0,24	10,54	31,1
Philippines	0,25	0,33	380	1	38	0,39	4,53	3,9
Poland	0,5	0,67	1000	1	70	0,28	5,93	68,2
Portugal	0,25	0,83	320	1	66	1,50		69,9
Romania	0	0,67	335	1	39	0,08		6,9
Russia	0,5	0,67	330	0	58	0,17	10,75	48,4
Rwanda	0,25	0,00	395	1	8	0,11		0
South Africa	0,75	0,42	277	1	53	1,26	4,98	31,8
Saudi Arabia	0,5	0,83	360	1	50	0,56		31,7
Senegal	0,25	0,50	485	1	73	0,19		18,8
Singapore	0,75	0,83	69	1	99	1,34	4,46	91,3
Sierra Leone	0,5	0,50	305	0	20	0,03	13,93	12,1
Slovak Republic	0,5	0,67	565	1	71	0,40	3,60	39,6
Slovenia	0,75	0,75	1003	1	41	0,22	4,93	23,6
Spain	0,5	0,75	169	1	68	1,12	1,81	83,4
Sri Lanka	0,5	0,50	440	1	35	0,29	3,95	33,1
Sweden	0,25	1,00	208	1	84	1,44		73,2
Switzerland	0,25	0,83	170	1	59	1,61	3,50	37
Syrian Arab Rep.	0,75	0,83	672	0	37	0,09	5,00	29,2
Tanzania	0,5	0,83	242	0	65	0,05	13,15	21,3
Taiwan	0,25	0,67	210	1	68	0,98		89,6
Thailand	0,75	0,42	390	1	62	1,02	4,90	42
Togo	0,5	0,50	535	1	8	0,15		14,6
Tunisia	0	0,83	27	1	50	0,67		50,1
Turkey	0,5	0,75	330	1	51	0,19		25,7
Uganda	0,5	0,67	209	0	55	0,05	13,53	35,5
UK	1	1,00	288	1	86	1,40		85,8
Ukraine	0,5	0,67	269	0	42	0,14	17,42	25,5
Uruguay	0,75	0,42	620	1	67	0,54		21,9
USA	0,25	0,83	250	1	88	2,35		68,2
Venezuela	0,5	0,17	445	1	67	0,11	7,58	4,9
Vietnam	0	0,67	404	1	33	0,42	2,61	16,4
Yemen	0	0,33	360	1	47	0,08	4,71	28,6
Zimbabwe	1	0,08	350	0	52	0,31	18,10	9,2

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