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## A Normative Theory of Business Bankruptcy

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# A Normative Theory of Business Bankruptcy

Alan Schwartz\*

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### *1. Introduction*

This article views bankruptcy through the lens of a single theory. Scholars, especially those of an economic bent, are coming to agree that a business bankruptcy law should function to reduce the cost of capital for firms. There appear to be few papers, however, that evaluate the basic structure of a modern bankruptcy code by a cost of capital yardstick alone. This partly is because disagreement exists about whether a bankruptcy law should pursue goals in addition to capital cost reduction. The novelty of this essay lies in its single minded application to bankruptcy of the cost of capital metric and in its argument that only this metric should matter. The essay focuses on US law for convenience.<sup>1</sup> Its conclusion holds that a bankruptcy law seriously committed to capital cost reduction would be considerably smaller and less centralized

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<sup>1</sup>Germany has recently amended its bankruptcy law to resemble more closely the American law and Italy is considering similar revisions. For a summary of German law, see The European Restructuring and Insolvency Guide 2002/2003 at 115-26. Thus, an analysis of American law may have more than parochial significance. An excellent history of American bankruptcy law is Skeel (2001). A thoughtful description of current conflicts among bankruptcy scholars is Baird (1999).

than the law we now have.

### 1.1 Early bankruptcy theory.

Formal bankruptcy theory began with the recognition that a bankruptcy system sometimes is necessary to solve a collective action problem among the creditors of an insolvent firm. Insolvency may be a function of economic distress, financial distress or both. Economic distress occurs when the firm cannot earn revenues sufficient to cover its costs, exclusive of financing costs. Such a firm has negative economic value. A firm is in financial distress alone if it would have positive earnings were it not required to service its debt. Since a firm's debt is sunk when insolvency occurs, the existence of debt is irrelevant to the question whether the firm should be continued or not. Social welfare is then maximized when economically distressed firms are liquidated but financially distressed firms are continued under altered capital structures.

Creditors are less interested in saving firms than in whether assets exist to satisfy their claims. If assets exist, creditors will attempt to seize them; and this likely will yield a piecemeal liquidation. When a firm is experiencing only financial distress, however, the creditors' total insolvency state payoff would be maximized were the firm continued. Saving a firm, though, will often require creditors to coordinate their collection efforts, and coordination costs sometimes are high. As a consequence, reasonable equilibria exist in which, without regulation, financially as well as economically distressed firms are liquidated piecemeal.<sup>2</sup> A bankruptcy system can avoid these inefficient equilibria by staying creditor collection efforts so that a state

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<sup>2</sup>Ghosal and Miller (2003), at 281-84, contains a concise description of the game among creditors. In the contexts considered here, they show that liquidation is the likely outcome.

official has time to decide whether the firm is worth saving.<sup>3</sup>

The next step is to specify how a bankruptcy system should do its job. The economic view was favorable to a market approach. More concretely, a state official should auction insolvent firms to the market, free of current claims, distributing the proceeds to creditors. If economic value would be maximized by a piecemeal liquidation, the highest bids will be for individual assets; if continuing the firm as an economic entity would maximize value, then the highest bids would be for the firm as a unit.<sup>4</sup> On this view, the Swedish system, which runs mandatory auctions, is preferable to the American system which, in Chapter 11, distributes the firm to current claimants through a judicially supervised bargaining process between the claimants and the firm's owners.<sup>5</sup>

Early theorists held that bankruptcy systems should follow absolute priority strictly. The absolute priority rule requires creditors to be paid in the order that the firm's contracts created.<sup>6</sup> An implication of the rule is that equity -- the owners -- should receive nothing because the residual claim on an insolvent firm is worth nothing. Only distributional goals could justify violating absolute priority, but using a bankruptcy system to pursue distributional goals is

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<sup>3</sup>The canonical statement of this approach to bankruptcy is Jackson (1986). Adler adds that bankruptcy law must reconcile "mutually insupportable obligations". Adler (2002).

<sup>4</sup>Auction approaches are advocated in Baird (1986) and Jensen (1991).

<sup>5</sup>Some scholars claim that there is a recent trend, triggered by creditor pressure, to sell more firms, or parts of firms, in Chapter 11 and to reorganize fewer firms. See Skeel (2003); Baird and Rasmussen (2003b); Baird and Rasmussen (2002); Same authors (2001). A contrary view that the number of traditional reorganizations has not declined is in LoPucki (2003). Creditor initiated sales are discussed in Part 5 below.

<sup>6</sup>For example, "A good bankruptcy law should maximize the *ex post* value of the firm, with an *appropriate* distribution of this value across claimants, one that respects the priority of claims among the various classes of creditors." Aghion (1998).

questionable on two grounds. First, the goals are difficult to implement because parties can undo distributional rules through the price term or through other terms. For example, if a bankruptcy system is amended to reduce senior creditor claims in order to shift wealth to junior creditors, senior creditors will respond with increased interest rates or more rigorous lending terms. Bankruptcy systems thus cannot achieve distributional objectives in the long run. Second, distributional objectives sometimes are cast in social terms (e.g., the law should attempt to save jobs), but early theorists believed that a bankruptcy system is a poor vehicle for achieving social goals.

### 1.2 Current bankruptcy theory

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 would maximize the payoffs that creditors receive from insolvent firms. For example, a system that rescues only financially distressed firms generates higher payoffs for creditors than a system that attempts to rescue all firms. Turning to the borrowing stage, a competitive credit market will reduce the amounts that lenders can require solvent firms to repay when the lenders' expected insolvency payoffs increase. Thus, interest rates fall as the efficiency of the applicable bankruptcy system increases. The lower is the market interest rate, in turn, the larger is the set of positive value projects that firms can fund with debt. A good bankruptcy law also improves investment incentives. Firms choose investment levels to maximize net expected profits. Because these profits rise as the interest rate falls, an efficient bankruptcy law increases the firm's incentive to invest effort in debt funded projects.

In addition, reducing the cost of debt capital will reduce the cost of capital generally. The

equity hold a call option on a levered firm because shareholders can buy the firm by repaying the debt. The strike price for exercising equity's option thus is determined by 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.

A number of concrete implications follow from a serious commitment to capital cost reduction, of which four are briefly summarized in this Introduction. First, the US bankruptcy Code gives trustees or debtors in possession what are called “avoiding powers”.<sup>7</sup> These powers permit the insolvent party or its representative to recover back certain pre-bankruptcy payments to creditors and to challenge liens that may not have been taken in full compliance with state law. The avoiding powers have been a central feature of bankruptcy law for a century, but their existence requires a better theoretical grounding. This is because the powers appear to function primarily to decrease the value of the bankrupt firm rather than to increase it. For example, let the trustee successfully use an avoiding power to demote a creditor from secured to unsecured status. The firm's assets will be reduced by the trustee's litigation costs but the total value available for distribution to creditors will not otherwise increase. A consistent practice of using the avoiding powers to police the use of secured credit thus will increase the cost of capital. Second, parties should be permitted to write contracts that permit customers and suppliers to cease dealing with an insolvent firm. As is shown below, when solvent parties have exit rights, debtors could still pursue efficient projects but would have difficulty continuing inefficient projects. Consequently, interest rates would be lower under free contracting than these rates now are, when contracts for

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<sup>7</sup>This phrase apparently was introduced into the scholarly literature in Jackson (1984).

exit rights are prohibited. Third, the Code authorizes bankruptcy courts to reimburse junior creditor expenses whose effect is to increase the amount available for distribution to the juniors, but the Code reimburses little senior creditor spending. This compensation scheme encourages rent seeking by the juniors, who sometimes litigate to defeat absolute priority rather than to increase the value of the insolvent firm. A better scheme would delegate the reimbursement decision to the debtor in possession. The debtor has no incentive to subsidize rent seeking and would sometimes enlist the seniors in the task of value maximization. Fourth, bankruptcy systems should be default procedures, just as corporate codes today are largely default procedures. Maximizing creditor payoffs will sometimes requires rules tailored to parties' particular circumstances. Hence, *any* bankruptcy system, however well designed, will be suboptimal some of the time.

This summary shows that while assigning the goal of capital cost reduction to a bankruptcy system is unlikely to be controversial, a serious pursuit of the goal would have important implications. A bankruptcy law with no avoiding powers, that suppliers and customers could contract out of, that reverses the scheme for compensating creditor expenses, and that is only a default procedure that parties are free to vary would differ greatly from the law we now have. Part 2 below argues for the centrality of the capital cost reduction criterion when evaluating bankruptcy systems by explicating the relationship between interest rates and a firm's ability and incentive to pursue projects. Part 3 criticizes central features of the US Bankruptcy Code, such as the avoiding powers, whose performance receives poor grades under a cost reduction metric. Part 4 shows that default bankruptcy systems, that let parties contract ex ante for the procedure they prefer, dominate mandatory systems. Part 5 develops criteria for deciding when courts



should enforce contracts, now becoming common, that require a distressed debtor to pursue a specified liquidation strategy, should it fail, in return for refinancing or forbearance. Part 6 is a conclusion that lists omitted issues and attempts briefly to justify excluding social goals from the purview of a business bankruptcy law.

Before reaching the analysis, it will be helpful to remark two “macro” features of US bankruptcy law. Initially, the US system is more market driven than its European counterparts. In Europe, when an important firm experiences distress, the government of the state in which the firm performs routinely petitions the European Union Directorate of Competition to approve a subsidy, the purpose of which is to inject needed liquidity into the firm. The Directorate’s practice is to approve a subsidy if it believes that the firm is, or can be made, viable. In the US, in contrast, the credit market decides whether to extend further liquidity to a distressed firm. Debtors that cannot persuade the market to provide further funds are forced into Chapter 7, where they are broken up and liquidated. As a consequence, the market, rather than a state agency, makes the initial decision whether a distressed firm should disappear or be given the opportunity to reorganize. The reforms proposed below thus would add market features to an already importantly market driven system.

Second, the US Code largely governs with standards the bankruptcy courts’ power to make the decisions the market permits courts to make.<sup>8</sup> Standards yield less predictability for parties than rules.<sup>9</sup> The uncertainty that the Code’s choice of regulatory style produces is a concern because firms hold real options on potential projects: That is, investing in a project today

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<sup>8</sup>These standards are summarized in Schwartz (2001) at 187-89.

<sup>9</sup>See Schwartz and Scott (2003).

eliminates the firm's ability to gather more information about the project's desirability. The value of an option increases in the variance of possible returns. Thus, a firm's decision *whether* to pursue a project is importantly a function of its cost of capital, while the firm's decision *when* to pursue a project is importantly a function of how uncertain the firm's legal environment is. From a private point of view, the value of the firm's option to delay is increasing in the degree of uncertainty the firm faces. From a public point of view, however, because interest rates are positive the social cost of delaying good projects also is increasing in the degree of uncertainty. This essay treats uncertainty indirectly. Firms free to choose often would prefer to substitute more explicit contractual rules for the law's standards. The argument for increasing contractual freedom in the bankruptcy area is grounded here on the property of free contracting to reduce interest rates, but a byproduct of expanding the use of contract will be to reduce uncertainty; this in turn will accelerate the pursuit of good projects.

## *2. The modern view: interest rates and investment.*

### 2.1 Bankruptcy systems and the interest rate

The relationship between the performance of a bankruptcy system, a firm's cost of capital and its incentive and ability to pursue projects can be exhibited with a simple model. There are six important assumptions:

A1: The borrowing firm is run by an owner/manager.

A2: Creditors are imperfect monitors of payoff related actions that the firm takes after it borrows.

A3: Capital markets are competitive.

A4: Creditors can predict the mean of their payoffs in the default state.

A5: A “firm” is the project that it pursues.

A6: Creditors and the firm are risk neutral.

Assumption A1 is made because this essay is not concerned with the agency problem between managers and shareholders. Assumption A2 captures the agency problem between the firm and its creditors, which is that the firm can affect the creditors’ expected return by what it does after it borrows. Assumption A3 is realistic and A5 is innocuous and made for convenience. A4 and A6 are domain assumptions. A4 rests on the view that professional creditors have considerable experience with default, which they commonly predict with sophisticated credit scoring models<sup>10</sup>, and A6 is more accurate when applied to firms than to individual proprietorships.<sup>11</sup> The analysis below thus applies to transactions between creditor professionals and corporate borrowers.

The borrowing firm has a project that requires capital of  $I$  to do, which the firm must raise externally. The project succeeds with probability  $p$  and then earns  $v$  (in present value terms) net of production costs;  $v$  is drawn from a positive, compact support  $V_a \subset \mathfrak{R}_+$  by a cumulative distribution function  $G_a(v)$ . The expected value of a solvent firm is  $v = \mathbb{E}_a$

$\equiv \int_{V_a} v dG_a(v)$ . An insolvent firm is assumed to enter a bankruptcy system and continue to

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<sup>10</sup>The model assumes that the firm borrows from a bank or other private lender. The firm thus has “medium” or “low” credit quality, as high quality firms borrow from public sources. See Denis and Mihov (2003).

<sup>11</sup>Individuals sometimes start businesses with credit card debt. Because persons are risk averse, the availability of the discharge and a high exemption level encourage entrepreneurial activity by providing some insurance against business failure. See Wei and White (2003). Failure insurance, however, creates moral hazard. Hence, a business bankruptcy law that applies to individual proprietorships must resolve a tradeoff between risk and incentives. This tradeoff is not modeled here because risk neutral firms would not insure. For an analysis of the risk/incentive tradeoff when individuals borrow, see Adler, et al (2000).

function until the system runs its course. This implies, and it is shown below, that the value of the firm's project in the insolvency state is partly a function of the bankruptcy system that is in place. Denote the set of feasible bankruptcy systems as  $S$ , so that the system in place is  $s_i \in S$ . The insolvent firm's return  $v(s_i)$  is drawn from  $[0, \bar{v}(s_i)]$  by a cumulative distribution function  $G(v)$ . The system costs  $c(s_i)$  to run. A bankruptcy system thus can distribute to the creditors of an insolvent firm at most the sum  $x(s_i) = v(s_i) - c(s_i)$ .

The firm promises to repay creditors the sum  $F$ . Because the credit market is competitive,  $F$  is the smallest 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. Creditors in competitive markets earn zero pure profits, so creditors who lend  $I$  must expect to receive  $I$  in return. This expectation can be written as

$$(1) \quad I = pF + (1 - p)(x(s_i))$$

The first term on the right hand side of this equation is the creditors' expected return in the solvency state and the second term is the creditors' expected return in the insolvency state. It is assumed that  $v > F$ , so that the firm is solvent when its project succeeds, and that  $F > \bar{v}(s_i)$  so that the firm is insolvent when its project fails.

Equation (1) implies a value for  $F$ , which now is seen to be partly determined by the applicable bankruptcy system:

$$(2) \quad F(s_i) = \frac{I - x(s_i)(1 - p)}{p}$$

Because  $p > 0$ ,  $F(s_i)$  declines as  $x(s_i)$  increases. Intuitively, the more that creditors expect to

receive in the insolvency state, the less will creditors require the firm to repay in the solvency state. The firm's effective interest rate is

$$r(s_i) = \frac{F(s_i)}{I} - 1$$

Since  $I$  is a constant – it is the sum the firm needs to do its project – the effective interest rate is increasing in  $F$ , the sum the firm is required to repay.<sup>12</sup> And this sum, it has just been shown, is a function of the creditors' insolvency state return, falling as this return rises.

A bankruptcy system affects both elements of the insolvency state return. Thus, the firm's insolvency state value is higher in a system that liquidates economically distressed firms and saves financially distressed firms than value would be in a system that attempted to save all firms. The insolvency return also is increased when system costs fall. If auctions would generate at least as much value as Chapter 11 reorganizations, but at lower cost, then an economy with a bankruptcy system that requires auctions would, other things equal, have lower interest rates than those that US firms now pay. Perhaps obviously,  $F$ , and thus  $r$ , also will increase if creditors receive only a fraction of the insolvency return  $v(s_i)$ , so that systematic violations of absolute priority increase firms' cost of capital. And to summarize, bankruptcy systems have an important effect on interest rates: the bankruptcy system that maximizes bad state returns to creditors minimizes the interest rates that firms must pay to finance projects.

## 2.2 Interest rates and investment

### **A. Funding efficient projects.**

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<sup>12</sup>From now on, subscripts are suppressed for ease of exposition except where it is important to stress the dependence of relevant variables on the properties of a particular bankruptcy system.

Society prefers firms to pursue projects with positive expected returns. Denoting  $W$  as social welfare, a firm thus should undertake a project that costs  $I$  to do if

$W(s_i) = pv + (1 - p)[x(s_i)] - I \geq 0$ . The first term on the right hand side is the expected value if the project succeeds; the second term is the expected value if the project fails. To derive the minimum project return needed for social efficiency, denoted  $\underline{v}$ , let  $W = 0$ . Then

$$(3) \quad \underline{v} = \frac{I - x(1 - p)}{p}$$

The right hand side of Expression (3) is identical to the right hand side of Expression (2). Since (2) solves for the minimum repayment promise the firm must make to obtain financing and (3) solves for the minimum expected return to obtain social efficiency, Proposition 1 follows:

*Proposition 1: It is socially efficient for firms to take all projects that creditors will finance.*

In the model, creditors bear the costs of a firm's failure, in consequence of which creditors will fund only those projects that society would want pursued.

This Proposition may seem controversial because the analysis assumes away externalities. Two are worth noting: A firm's failure may harm (a) the local community; (b) persons injured by the firm's tortious acts. Regarding communities, Part 6 will argue that a market exists among firms and the local communities that want them so there actually is no externality. Regarding tort victims, firms purchase insurance to protect assets that are at stake for them. A firm of value  $V$  with debt  $D$  has  $V - D$  at stake. Creditors, however, require firms to have insurance that protects the creditors' interests. Therefore, the typical firm will purchase insurance of  $V - D + D = V$ . Because accident victims seldom have claims that exceed the value of the firm, the incentives of firms and the requirements of creditors combine to insure that in the usual case there is no tort

externality.

Firms will not insure against torts that greatly exceed the value of the firm, such as the claims brought by asbestos and dalkon shield victims. Tort victims are creditors whose claims reduce the assets available to others, however. To the extent that creditors can foresee large tort claims, the resultant interest rate increases will internalize this externality. Some scholars recently have contested this point, arguing that firms which anticipate large tort claims will issue secured debt. Because tort victims are only general creditors, security permits the firm to share with creditors the gains from externalizing accident costs to the victims.<sup>13</sup> There are two difficulties with this claim. The claim falls as a matter of theory because massive harms are difficult to anticipate. A firm will not choose a capital structure that would be optimal only in states of the world that the firm has no reason to believe will occur. The claim falls as a matter of fact because firms that do anticipate large tort claims (e.g., the cigarette companies) have *less* secured debt than otherwise comparable firms rather than more.<sup>14</sup> All in all, then, tort externalities are rare, so Proposition 1 stands as stated.

Turning to the borrower's incentives, the interest rate imposes on firms the *expected* costs of failure so that (in a bankruptcy system that follows absolute priority) a firm's expected return, when it borrows, becomes  $\pi(s_i) = -I + p(v - F) + (1 - p)(0)$ , where the second term on the right hand side is the firm's net return in the solvency state and the third term is its return in the insolvency state. Substituting for F from Expression (1) above and solving for the minimum return

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<sup>13</sup>See Bebchuk and Fried (1996); Hudson (1995).

<sup>14</sup>See Listoken (2004). Listoken suggests that firms anticipating large tort liabilities also anticipate the possibility that they will experience financial distress; firms then reject secured debt because it gives creditors considerable power in default states.

the firm must expect to earn in order to go forward also gives Expression (3). This yields

Proposition 2: A profit maximizing firm will pursue the projects that creditors will finance, which are the projects that society prefers.

A bankruptcy system that pursues efficiency should therefore maximize the set of fundable projects, which is best done by increasing the creditors' net insolvency return. Expressions (2) and (3) show that as this return increases a project must return less in the good state for it to be both socially efficient and undertaken.<sup>15</sup>

As an illustration, if the success probability for a project is .8, the project costs 100 to do and the insolvency return available for distribution to creditors is 80, creditors will require the firm to repay 105 when the project succeeds. If the insolvency return fell to 50, then creditors would require the firm to repay 112.5 in the success state. Under the former, relatively efficient, bankruptcy system, the firm will take the project if its good state return would exceed 105. In contrast, the relatively inefficient bankruptcy system would cause the firm to reject the project if its good state return would be between 105.01 and 112.5, because the firm would realize nothing after it repaid the debt, though in this range the project would generate expected returns in excess of production costs. To summarize, because higher bad state payoffs to creditors imply a larger set

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<sup>15</sup>Aghion, et al (2004) obtain a similar result in a model that attempts to explain differential growth rates among countries. In their analysis, "creditor protection" refers to the ability of creditors to be repaid and the "gap value" refers to the degree of a country's technological backwardness. Their definition of creditor protection is similar to the definition here of an efficient bankruptcy system as one that yields high net returns for creditors. Aghion, et al's model implies that "in countries with a high degree of creditor protection the critical gap value  $\underline{a}$  below which entrepreneurs become credit-constrained is lower than in countries with a low degree of creditor protection." (at 8). They find substantial empirical support for this prediction in a cross-sectional analysis of 71 countries during the period 1960-1995. Longhofer (1997) also shows that systematic violations of absolute priority create credit rationing; some firms cannot finance good projects.



of fundable projects, and because society wants firms to pursue every project in the fundable set, a bankruptcy system should maximize creditor payoffs.

### **B. Pursuing projects efficiently.**

A bankruptcy system also affects the effort level that firms financing with debt choose when pursuing projects. In the model above, the probability that the firm's project would succeed,  $p$ , was implicitly assumed to be exogenous;  $p$  did not depend on what the firm did. To make the story more realistic, let the solvency probability partly be a function of the firm's efforts, and partly be a function of a stochastic state variable denoted  $\theta$ .<sup>16</sup> Effort is assumed to involve not only money, but also the diligent and intelligent application of skill. Thus, it is difficult for creditors to know whether a borrowing firm chose the optimal effort level. In addition, it would be very costly to describe in a contract the various efficient actions the firm should take in each of the many possible states of the world that could materialize. For these reasons, this essay makes the standard assumption that effort is noncontractible.<sup>17</sup>

The success probability is assumed to increase in the firm's effort level, but effort is costly. Thus, society prefers the firm to exert effort in increasing the probability of project success until the marginal gain from further effort equals the marginal cost. The firm, however, will only exert effort until its private marginal gain equals marginal cost. Because the firm must share its success

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<sup>16</sup>The state variable  $\theta$  can be thought of as demand for the firm's products or as a composite of input prices. A firm that exerted high effort might still fail if demand fell sufficiently or input prices rose sufficiently.

<sup>17</sup>The paragraph states the contract theory implication of Assumption A2, that creditors cannot observe payoff relevant actions the firm takes after it borrows. Also, the model assumes that the firm finances with debt, which is plausible in light of A2. Debt is the optimal contract when creditors cannot observe effort and can observe project returns imperfectly. See Povel and Raith, "Optimal Debt with Unobservable Investments" (2004).

state return with creditors – it must compensate creditors for bearing the risk of nonpayment --, the firm's private marginal return is lower than the social marginal return. As a consequence, firms choose a lower effort level when pursuing debt financed projects than is socially optimal.

An inefficient bankruptcy system exacerbates this underinvestment effect by widening the gap between the creditors' good and bad state returns. When this gap widens -- when the bad state return falls --, the interest rate increases and the firm's incentive to exert effort falls. The underinvestment effect also can exacerbate the financing effect described above. A decline in the success probability as a result of lower effort may reduce the expected value of a project's success state return to below the critical level  $\underline{v}$  needed to support a loan; and then the project cannot be financed at all. Therefore, an inefficient bankruptcy system yields both a suboptimally low set of debt financed projects and a suboptimally low level of effort invested in funded projects.

This and the next three paragraphs contain a formal statement of the underinvestment effect. Readers who find the intuitive explanation sufficient should skip to the summary section below. Denote the effort level the firm chooses as  $e$ . The probability that the firm's project succeeds, denoted  $p(e;\theta)$ , is increasing in the effort level.<sup>18</sup> Recalling that the insolvency return is  $v(s_i) - c(s_i) = x(s_i)$ , society wants the firm to maximize  $W = p(e;\theta)v + (1 - p(e;\theta))x - e - I$  with respect to  $e$ . The socially optimal level of effort is

$$(4) \quad p'(e;\theta)(v - x) = 1$$

The firm, however, does not choose effort to maximize the social return  $W$  but rather chooses effort to maximize its net revenue. It is initially assumed that absolute priority is followed, so that

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<sup>18</sup>More precisely, it is assumed that: (i)  $p(e;\theta)$  is differentiable and strictly concave in  $e$ ; (ii)  $\lim_{e \rightarrow 0} p'(e;\theta) = \infty$ ; (iii)  $p(\infty, \theta) < 1$ . Assumption (ii) holds that it is efficient for the firm to choose a positive effort level while assumption (iii) holds that the probability of insolvency is positive even at the maximum effort level.

the firm solves  $\max_{e \geq 0} p(e; \theta)(v - F) + (1 - p(e; \theta))(0) - e - I$ . The solution to this maximization problem is

$$(5) \quad p'(e; \theta)(v - F) = 1$$

The left hand side of Equation (5) is lower than the left hand side of Equation (4) because  $F$  is larger than  $x$ . To show this, substitute for  $F$  from Expression (3), which yields  $F \geq x$  if

$$\frac{I - x(1 - p)}{p} \geq x, \text{ which simplifies to } I \geq x. \text{ This inequality holds by assumption because the}$$

firm is supposed to be insolvent -- it cannot repay  $I$  -- when its project fails. Recall that  $F$  falls as  $x$  increases, and  $x$  increases with the efficiency of a country's bankruptcy system. This yields

Proposition 3: The gap between the socially optimal level of investment in debt financed projects and the actual investment level shrinks as a country's bankruptcy system becomes more efficient.

The firm exerts a suboptimal level of effort because it must share a portion of the success state return with its creditors. This makes success relatively less attractive to the firm, and therefore makes effort less valuable. As Equation (5) shows, the firm's effort level declines as the sum that creditors require the firm to repay in the solvency state,  $F$ , becomes larger. Since  $F$  is increasing as the net insolvency return falls -- as the bankruptcy system becomes less efficient -- the less efficient a country's bankruptcy system is, the less efficiently will firms in that country pursue projects.

This underinvestment effect is worsened if the bankruptcy system violates absolute priority. To show this, suppose that the firm anticipates being able to exact the sum  $g$  from creditors to ensure a smooth bankruptcy process if the firm's project fails. The firm thus solves

$$\max_{e \geq 0} p(e; \theta)(v - F) + (1 - p(e; \theta))(g) - e - I. \text{ The solution to this is}$$

$$(6) \quad p'(e;\theta)(v - F - g) = 1$$

The left hand side of Equation (6) is less than the left hand side of Equation (5); the firm exerts less effort when the applicable bankruptcy system fails to follow absolute priority. This yields

Proposition 4: The gap between the socially optimal level of investment and the actual investment level widens as a country's bankruptcy system fails to follow absolute priority.

When the firm gets a positive payoff in the insolvency state, it has less incentive to avoid insolvency. Another way to put this result is to observe that absolute priority violations partly insure the firm against project failure. This insurance, in turn, creates moral hazard.

The underinvestment effect exacerbates the financing effect derived above. The success probability  $p(e;\theta)$  declines as the firm exerts less effort. As  $p(e;\theta)$  falls,  $\underline{y}$ , the minimum success state return required to make a project credit worthy, increases.<sup>19</sup> This is because the firm must earn more in the success state to compensate creditors for the increased likelihood that they will realize only the low failure state return. Since  $\underline{y}$  is a hurdle value, the set of fundable projects shrinks as  $\underline{y}$  rises.

### 2.3 Summary.

A bankruptcy system should function to maximize the return that creditors earn when firms fail. The larger is this return the lower is the interest rate that creditors demand to lend. A lower interest rate is efficient for two related reasons. First, the set of economically viable projects that firms can pursue becomes larger as the interest rate falls. Second, the effort that firms exert in pursuit of funded projects increases toward the optimal level as the interest rate falls. As is seen

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<sup>19</sup>To check this statement, differentiating Expression (3) with respect to  $p$  yields  $\frac{-x}{p^2} < 0$ . Hence,  $\underline{y}$  increases as  $p(e;\theta)$  falls.

below, this focus on interest rates and investment will sometimes conflict with a traditional bankruptcy goal: to treat all creditors equally.<sup>20</sup> Because price equals cost in competitive markets, however, creditors are treated equally over time, in the sense that creditors are compensated for whatever costs the regnant system imposes on them. Bankruptcy law's intermittent efforts to realize ex post equality in particular cases have never been adequately justified. The policy task thus is to choose the efficient system.

An implicit premise in the analysis to here is that the firm makes only three decisions: it chooses whether to pursue a project, how to finance the project and what level to invest in the project. A firm that is in financial or economic distress, however, has two more decisions: when to enter the bankruptcy system, and which bankruptcy procedure to choose (if there is more than one). When the firm's bankruptcy payoff would be zero, the firm may make the latter two decisions inefficiently. In particular, the firm has an incentive to delay entry into the system in the hope that its fortunes will improve, thereby probably wasting assets, or to choose the procedure that maximizes private benefits for the firm,<sup>21</sup> thereby probably reducing the creditors' bankruptcy payoffs. Part 4 considers the extent to which the conclusions reached so far should be modified to take into account the disincentive that a strict adherence to the absolute priority rule creates for distressed firms to preserve value. Part 3 first considers the implications of these conclusions for contexts where bankruptcy initiation or the choice of a bankruptcy procedure is not a problem.

### *3. Legal Applications*

#### 3.1 The avoiding powers

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<sup>20</sup>The equality goal requires each creditor to receive a pro rata share of the debtor's assets unless the creditor has a property right, as for example by holding a mortgage.

<sup>21</sup>A private benefit could be the utility of running the firm or the consumption of perks.

It will be helpful, when discussing the avoiding powers, to derive a definition. Under the Bankruptcy Code, the “bankrupt estate” is defined as the set of assets that is available for distribution to general creditors.<sup>22</sup> Much of the Code attempts to maximize the estate so defined. This can be done in two ways: (a) increase the value of the insolvent firm; (b) shift assets from other claimants to the general creditors. Method (a) is desirable because when firm value increases, it is possible to increase the bad state payoff of at least one creditor without decreasing the payoffs of any other creditors. Thus, the effective pursuit of method (a) will reduce the cost of capital. Method (b) is undesirable because when the estate is defined as the set of assets available to general creditors, the trustee and other parties are encouraged to reduce the payoffs to those claimants who are not general creditors. Since these efforts are costly, the consistent pursuit of method (b) necessarily reduces the total value available for distribution to all claimants, and so necessarily increases the cost of capital. This reasoning yields a normative recommendation and a definition that is used below. Regarding the recommendation, the Bankruptcy Code should make the “bankrupt estate” be coextensive with the value of the insolvent firm. Regarding the definition, a bankruptcy law implements a “bankruptcy reason” if (i) compliance with the law will increase the value of the insolvent firm or (ii) the law improves the incentives of firms to invest optimally in projects. A bankruptcy reason, that is, follows from the basic goal of a bankruptcy law: to reduce the cost of debt capital for firms. Part 3 next argues that, apart from the prohibition on fraudulent conveyances, none of the avoiding powers implements a bankruptcy reason.<sup>23</sup>

### **A. Policing secured credit**

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<sup>22</sup>See Bankruptcy Code §541(a).

<sup>23</sup>A fraudulent conveyance occurs when an insolvent firm sells assets to favored buyers at below market prices. Such sales reduce the value available for distribution to creditors.

The Code gives the trustee the rights of a lender that had extended credit to and simultaneously obtained a judicial lien on the property of the debtor on the day the bankruptcy petition was filed.<sup>24</sup> These rights exist whether or not any such creditor actually existed.<sup>25</sup> Under the laws of every state, a lien creditor can “defeat” – that is, subordinate – the lien of a creditor whose security interest or real property mortgage had not been properly perfected.<sup>26</sup> Consequently, if proper perfection of an actual security interest had not occurred as of the date of the petition, the trustee can use her lien creditor powers to defeat that interest. The effect of defeat is to reduce the priority of the secured lender to that of a general creditor.

The Code also permits the trustee to assume the status of an actual creditor.<sup>27</sup> To understand the effect of this provision, suppose that an actual lien creditor had attached property of the debtor after the debtor made a secured loan but before the mortgagee had properly perfected; perfection occurred after the lien but prior to bankruptcy. The trustee could not defeat the security interest with her lien creditor powers because those powers come into existence as of the date of bankruptcy, and perfection had occurred by then. The actual lien creditor, however, could have taken the property had bankruptcy not intervened. The Code permits the trustee to assume the status of this creditor and thereby defeat the secured lien. This defeat subordinates the secured lien in its entirety, even if the actual lien creditor was attempting to enforce a smaller debt than the debt

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<sup>24</sup>Under the Bankruptcy Code, the trustee and a Chapter 11 debtor in possession have the same powers. The word “trustee” thus also refers to the Chapter 11 debtor.

<sup>25</sup>The trustee also has the status of a “bona fide purchaser of real property” of the debtor who had perfected the transfer “at the time of the commencement of the case, whether or not such a purchaser exists.” See Bankruptcy Code §544(a).

<sup>26</sup>See, e.g., Uniform Commercial Code §9-317.

<sup>27</sup>See Bankruptcy Code §544(b).

of the secured creditor. Secured lenders commonly do perfect properly, but the casebooks are filled with examples of their occasional mistakes; and the Code gives the trustee an incentive always to ask whether a mortgage on the debtor's property is vulnerable to attack.

This set of avoiding powers is traditionally justified as increasing the sanction that state law imposes on nonperfecting creditors. The state law sanction for failing to perfect in timely or appropriate fashion is to subordinate the secured lien to the lien of an *actual* later lien creditor or an *actual* later secured lender, and then in an amount *no greater than* the later creditor's claim. To this sanction the Code adds the relegation of the entire secured claim to general creditor status.

A bankruptcy reason cannot support this Federal intervention into state law security laws. No new value is created when a secured creditor becomes one more general creditor, but value is destroyed in the amount of the trustee's investigation and litigation expenses. In addition, increasing the sanction for noncompliance with state law increases the incentive of creditors to take precautions. Both of these effects raise the costs of secured lending and thus raise capital costs for firms. This set of avoiding powers should be repealed, then, because the powers do not implement a bankruptcy reason, and also because a state can increase the sanction for noncompliance with its recording laws should a need appear.

## **B. Preferences**

### *(i) Monetary transfers*

The trustee can recover payments to a creditor made in the 90 days before bankruptcy unless (a) the creditor made a contemporaneous transfer to the debtor; or (b) the payment was made in the ordinary course of the debtor's business. Payments in the former category do not reduce the value of the firm because cash out is replaced with cash or goods in. The exception for



payments in category (b) has a similar justification. Shipments in the ordinary course, over time, will offset payments in the ordinary course, so that the typical set of transactions will not deplete the firm's value. To see what the law prohibits, let a creditor lend \$100 on July 1, payment due on January 1. The firm repays \$75 on September 15 and files for bankruptcy on October 2. The trustee can recover back the \$75 payment and distribute it among the full set of general creditors.

A firm can contract out of the preference law by securing a creditor. An eve of bankruptcy payment to a secured creditor is not a preference: the creditor has a property right in the firm's assets, and it is entitled to realize that right in whatever way the security agreement permits. The firm internalizes the costs of giving security because interest rates reflect priority positions (the lower the position, *cet par*, the higher the rate). Preferring a creditor is equivalent to subordinating other creditors because fewer assets become available for general distribution. The firm also would internalize the costs of a law that permitted it to pay preferences because creditors expecting not to be preferred would raise interest rates. This reasoning suggests that firms should be permitted to contract out of the preference law as regards payments to unsecured creditors. Part 3, however, next argues that the better default would permit a debtor to pay whomever it chose whenever it chose; this proposal would require firms to contract in..

Giving an insolvent firm an unfettered right to pay may appear to contradict the thesis here because the prohibition of preferences is said to prevent depletion of the estate through eve of bankruptcy payments. This justification overlooks an important distinction. The seizures of the debtor's property that concerned early bankruptcy theorists were beyond the ability of a firm to prevent, except by filing a petition. In the absence of a filing, creditors will attach property pursuant to judicial orders. The debtor itself can prevent late cash drains by not making payments. Creditors can threaten suit, but the debtor can respond with a credible threat to file. Thus, it is the

ability of the debtor to get a stay, rather than the ability of the trustee to recover preferences, that preserves the estate while the system decides what to do next. When a firm enters bankruptcy, general creditors are paid pro rata. The current preference law would be a good default, then, if the typical borrower would prefer to extend the pro rata rule to the 90 day period immediately preceding the bankruptcy petition.<sup>28</sup>

To see whether it would, it is helpful to begin by asking when a firm would want to default asymmetrically – to pay only some creditors in full before bankruptcy. A distressed firm would reject this strategy when its continuation value would exceed its debt ( $V > D$ ). Continuation is then profitable for the firm. The best payment strategy, to ensure continuance, is for the firm to offer each creditor a sum just low enough to prevent the creditor from suing. This preserves the firm's revenue generating assets – preserves  $V$  – while minimizing the firm's cash drain. A firm that cannot realize this strategy through bargaining, because some creditors insist on payment, will then file. The pro rata rule of distribution followed in bankruptcy does minimize total payments to creditors while the automatic stay preserves assets. Thus, a distressed firm would file rather than default asymmetrically when continuation would be efficient.<sup>29</sup> An economically distressed firm, on the other hand, could prefer asymmetric default if it regards liquidation as inevitable. The firm may pay important creditors to obtain good will for its principals or may pay the principals themselves if the principals also are creditors.

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<sup>28</sup>The issue is put this way because creditors in competitive markets earn zero profits in any equilibrium; the interest rate will adjust to the contract and to the legal institutions in place. The firm, in contrast, has an incentive to offer creditors the contract that minimizes the interest rate. Thus, the question is what preference law default would the typical firm want.

<sup>29</sup>This justification for making bankruptcy distributions according to the pro rata rule is in Von Thadden, et al (2003).

The precise issue, then, is whether a typical firm would prefer the current preference law to govern its affairs should it become economically distressed, or whether it would prefer the ex post freedom to pay creditors whenever it was convenient. The case for freedom follows from the view that current preference law appears not to implement a bankruptcy reason. Requiring the preferred creditor to disgorge does not increase the total value available to creditors; rather, disgorgement reduces the payoff of the preferred creditor in order to increase the payoffs of all creditors by a total sum equal to the sum that has been disgorged. This transfer is costly: the insolvent firm must compensate the trustee or debtor in possession for searching out and recovering preferences. Creditors anticipate the later value loss, so that the preference rules today raise interest rates.

The case for current law (as a default) comes in a transaction cost and an uncertainty version. Regarding costs, if there were no preference law, creditors will attempt to collect. The resultant costs may well offset the costs that trustees now incur recovering preferences. This argument assumes that current law deters collection, but few bankruptcy scholars accept the assumption. A preferred creditor is not punished, but need only give the money back. Hence, even when it is costly to collect a debt, and to reverse a completed transaction, the best strategy for a creditor today usually is to collect.<sup>30</sup> As a consequence, current law actually adds costs (of discovering and recovering preferences) to costs that have already been incurred. Regarding uncertainty, creditors who are unsure whether the firm will prefer anyone may protect themselves by charging interest rates that assume preferences will be paid. These new interest rate increases could exceed that portion of rates that the preference law causes today. Repealing the preference

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<sup>30</sup>A rigorous, clarifying statement of this view is in Adler (1997). A good summary of traditional justifications for permitting the trustee or debtor to recover preferences is Tabb and Brubaker (2003) at 441-44.

law is unlikely materially to increase uncertainty, however. As said, an economically distressed firm would prefer to pay insiders or powerful creditors. Insider payments today are largely deterred because lenders require insiders to guarantee the firm's debt. A powerful creditor usually is the firm's bank. Bank lenders commonly require borrowers to keep their accounts with the bank, and a bank will set off the borrowers debt to it against the bank account. Set offs are not preferences now, so that current creditors must price the banks' ability to get them. The transaction cost and uncertainty objections to a no-preference-recovery default thus appear material only in a minority of cases, which suggests that the better rule would permit the firm to pay whenever it chose.<sup>31</sup>

Firms could conveniently contract out of this proposed default. A firm's best response to the uncertainty concern often will be to offer a "no preference" covenant, promising creditors that if it became insolvent it would pay all unsecured creditors pro rata.<sup>32</sup> This covenant would be enforceable just as negative pledge clauses, covenants to maintain specified ratios between debt and assets and covenants to achieve specified earnings or net worth targets are enforceable. A violation of the covenant would trigger immediate acceleration of the debt, and would also impose good will costs. A possibly better general solution would permit parties to specify in the lending

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<sup>31</sup>Daniels and Triantis (1995) argue that current preference law encourages early exit by an informed creditor because the creditor knows it will have to disgorge payments made shortly before bankruptcy. According to these scholars, early exit is good because it signals to the market that the debtor is distressed, and thus facilitates rescue. This view is questionable on the argument here because a viable debtor would file rather than fully pay off a large loan, and an unviable debtor could not be rescued. In addition, Part 4.1 below shows that when early rescue is a possibility, parties have available to them contracts that would encourage it more efficiently than the preference law appears to do.

<sup>32</sup>Schwartz (1997(a)) shows that the equilibrium borrower response to a creditor strategy of charging "assume the worse" interest rates is to offer covenants.

agreement that the preference sections of the current Code (or some of them) would apply to pre-bankruptcy payments. And to summarize, the current preference law is mandatory as regards monetary payments, but it should be a default that would permit insolvent firms to make irreversible payments to creditors at any time preceding the filing of a bankruptcy petition.

*(ii) Securing antecedent Debt*

The trustee can defeat a mortgage lien given within 90 days of bankruptcy to secure an antecedent debt. The prohibition on security transfers, unlike the prohibition on monetary transfers, may increase creditors' bad state payoffs, but this possibility cannot justify the law. To understand the Code's possible contribution, realize that an insolvent firm may sometimes have an opportunity to overinvest: to pursue a project that has a negative net present value but also has a sufficiently high upside to return the firm to solvency if the project succeeds. The firm may take such a project because it could capture much of the upside value while creditors bear the entire downside risk. Suppose then that a firm has such a project available to it, but needs external financing. New creditors will not lend into bad projects, but an existing creditor might if given security.

To see why, let a creditor hold a debt whose expected value is below face. The creditor is asked to make a new loan, but loans into bad projects will have values below face when made. The creditor may nevertheless finance the bad project if it is given security for the prior unprotected debt. The resultant increase in the creditor's expected insolvency payoff for the earlier loan may more than offset the creditor's expected loss on the new bad loan. Hence, a firm that can secure antecedent debts may be able to finance a negative net present value project -- to overinvest. The preference law precludes this possibility by permitting the trustee to avoid the late lien, thereby

preserving value for creditors as a group.<sup>33</sup>

An existing creditor, however, may be the best, or only, source of new financing for a financially distressed firm. This creditor too may refuse to lend if its existing debt remains unprotected. Thus, the prohibition on security transfers makes it harder for distressed firms to obtain working capital. The issue is whether it is better to risk chilling new financing for possibly salvageable firms in order to deter overinvestment by probably failing firms. The former appears to be the more serious danger. Distressed firms commonly need working capital but few firms, it seems, have attractive overinvestment opportunities: the availability of a negative value project with an upside large enough to restore the firm to solvency.<sup>34</sup> Relaxing the prohibition on security transfers, so that financially distressed firms could borrow more easily, thus would increase the value of troubled firms on net.<sup>35</sup> An objection to this claim is that giving firms the power to secure antecedent debts would reduce certainty for creditors as a group, but this objection lacks force. Firms today can secure prior debts if they do so more than three months before bankruptcy, and creditors who care can deter this practice with negative pledge clauses.

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<sup>33</sup>This consequence of §547 was identified in Adler (1997).

<sup>34</sup>Eckbo and Thornburn (2003) rejects the overinvestment hypothesis on Swedish data. The authors explain this result with the theory that the managers of distressed firms have a strong incentive to invest conservatively in order to preserve private benefits of control. Andrade and Kaplan (1998), in a study of defaulting debtors, also reports (at 1445): "... we find no evidence that distressed firms engage in risk shifting/asset substitution of any kind." Similarly, Dahiya, et. al (2003) finds little evidence of overinvestment in a sample of firms that received DIP financing.

<sup>35</sup>The issue discussed here reappears during bankruptcy when debtors in possession ask courts to approve working capital loans from prior lenders who demand cross collateral clauses (i.e., who will lend only if their prior unsecured debt is covered by new mortgages). Bankruptcy courts have been sympathetic to these requests, but this type of financing may not survive appellate attack. See *In re Saybrook Manufacturing Co.*, 963 F.2d 1490 (11<sup>th</sup> Cir. 1992) (holding that bankruptcy courts lack the power to approve cross collateral financing).

To summarize, the avoiding powers create incentives for the trustee and other parties to waste the bankrupt firm's resources in the service of redistributing value among creditors. These rent seeking efforts seldom, if ever, increase the total value available to all. The presence of avoiding powers in a bankruptcy law thus increases net capital costs.

### 3.2 Compensating experts

Creditors often retain experts such as lawyers, investment bankers and accountants during the course of a Chapter 11. The Code authorizes the bankruptcy court to reimburse many junior creditors' expert expenses<sup>36</sup> and courts commonly grant reimbursement requests.<sup>37</sup> Apart from attorneys' fees in some cases, senior creditor expert expenses are not reimbursed.<sup>38</sup> A compensation scheme based on a bankruptcy reason would reverse this allocation, authorizing the payment of compensation to seniors but not to juniors.

To see why, consider a simple model in which the insolvent firm has a senior creditor whose claim is in the money and a junior creditor whose claim is not.<sup>39</sup> Parties may employ experts for productive or for redistributive reasons. An investment banker acting for a creditors' committee composed of juniors would be productive if she helped to develop a better business plan for the

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<sup>36</sup>Creditors are authorized to form committees to assert their interests and the court can reimburse the expenses for professional services that these committees incur. See §§330(a) and 1103.

<sup>37</sup>LoPucki and Doherty (2004).

<sup>38</sup>Section 9-610 of the UCC permits secured creditors to contract for the recovery of reasonable attorneys fees incurred in connection with repossession out of "the cash proceeds of disposition" and these contracts are enforced in bankruptcy. §506(b). The Code otherwise makes no provision for the reimbursement of senior creditor expert expenses. A reorganization plan that reimburses senior expenses for professionals would be confirmable but the extent of senior compensation under plans appears unknown.

<sup>39</sup>Firms commonly are in Chapter 7 when the senior claim is out of the money; the focus here is on Chapter 11. The analysis below follows Bris, et al. (2004).

insolvent firm. She would be rent seeking if she attached an inflated value to the plan she proposed in order to increase the juniors' stake in the reorganized company. Courts seldom can distinguish clearly between productive and redistributive spending because often the same expert activity – proposing and evaluating a plan – can have both effects.<sup>40</sup>

In this model, the senior creditor would not spend productively – to increase firm value -- because, her claim being in the money, there is value enough. The junior creditor has an incentive to spend productively because he is the residual claimant. On the other hand, the junior also has an incentive to engage in rent seeking because his payoff increases as the value of the senior claim falls. Thus, this essay has just shown that juniors or their representative will spend to defeat senior liens. A court that could distinguish efficient from inefficient spending would only reimburse productive junior expert costs; and this would eliminate redistributive spending by both creditor types.

The Code, however, creates perverse spending incentives on the assumption that courts cannot make this distinction. The senior today primarily spends defensively, to fend off the junior's redistributive efforts, while the junior allocates his spending between productive and redistributive activities, depending on which would most increase his payoff. As a consequence, cases exist in which the senior could make a constructive contribution but will not because her claim is in the money; and the junior could make a constructive contribution but will not, because he does better litigating to subordinate the senior claim. Total firm value falls in consequence, both because value enhancements are foregone and because the court sometimes reimburses junior

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<sup>40</sup>Juniors may attack absolute priority by, among other things, attempting to subordinate senior liens, attempting to recover preferences from seniors, proposing an inflated value for the firm, delaying proposing a plan unless compensated, and proposing a high variance business strategy for the reorganized firm (which can reduce the value of senior debt).



efforts to defeat absolute priority. A reimbursement scheme animated by a bankruptcy reason instead would attempt to increase senior and reduce junior spending.

A simple reform would authorize the bankruptcy court to reimburse senior spending on experts but not junior spending. It may be possible to do better. To see how, suppose that the insolvent firm itself wanted to maximize value. The firm likely is more competent than the court at distinguishing spending by type. Therefore, the firm would be less likely than the court to compensate the juniors for rent seeking, and would enlist the seniors in value maximization when feasible. The reimbursement power thus should be given to the debtor in possession. Regarding the key assumption, there is an increasing tendency to write compensation contracts with the firm's managers (often new ones) that reward the managers for effective turn around efforts. Also, while the managers of insolvent firms have incentives sometimes inefficiently to extend the firm's life and otherwise to consume private benefits, they seemingly could seldom profit from subsidizing rent seeking by others. Whether the reimbursement power should be given to the court or the to firm, however, a focus on capital cost reduction shows that the power is used perversely today.

### 3.3 Opting out by solvent parties

Parties cannot contract out of the current Code.<sup>41</sup> To see why this matters, realize that in the analysis above creditors already had transferred money or goods to the insolvent firm or rendered services to it. These creditors are owed debts. Some creditors, however, have contracts requiring them to provide goods or services to or to buy goods or services from a firm that later becomes

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<sup>41</sup>The rule against contracting out applies to the United States and Continental systems. Parties can effectively contract out of the English bankruptcy law by using the floating charge; this permits the secured party to take the collateral in the event of bankruptcy. The secured lending agreement thus becomes a contract that permits the secured party to avoid bankruptcy whenever the return from foreclosure would exceed the return from participating in the system. The efficiency properties of the floating charge are analyzed in Armour and Frisby (2001).

insolvent. Such a creditor may prefer to cancel the contract rather than to continue dealing with an insolvent contract partner. The default rule in commercial law permits a solvent firm to exit.<sup>42</sup> The bankruptcy default rule once required the creditor to continue to deal but, prior to 1978, a party could expressly condition its future performance on the solvency of a contract partner, or on the partner's avoidance of bankruptcy. Today, terms with such conditions, termed "ipso facto" clauses, are unenforceable.<sup>43</sup> As a consequence, an insolvent firm that has entered bankruptcy may "assume" an ongoing contract and thereby require the solvent firm to perform it.

The prohibition on ipso facto clauses inefficiently increases firms' capital costs.<sup>44</sup> To see how, consider a model in which the firm has a financial creditor – the investor – and a supplier – the seller. As before, the firm has a project that requires the sum  $I$  to pursue, and whose success probability is partly a function of the effort the firm exerts. The firm's project cannot succeed without the seller's product. The seller's production cost is a random variable  $j$ , drawn from  $[0, j^h]$  by a cumulative distribution function  $F(j)$ . The investor supplies funds to permit the firm to operate. A successful project returns  $v_s$  drawn from a positive compact support  $V_s$ ;  $v_s$  is sufficient to pay off the seller and the investor. An unsuccessful project returns  $v_f$  drawn from a positive compact support  $V_f$ . It is assumed that  $I > \max \{v_f\} > j^h$ . The former inequality holds that no failed project will earn enough to pay off the investor; the latter inequality holds that it may turn out to be efficient for the seller to perform on some unsuccessful projects. The seller, however, prefers breach whenever its production cost turns out to exceed the contract price, which is denoted  $k$ .

An insolvent buyer will sue a breaching seller, and the threat of suit will ensure efficient ex

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<sup>42</sup>See Uniform Commercial Code §2-609.

<sup>43</sup>E.g., §365(e).

<sup>44</sup>The analysis that follows is drawn from Che and Schwartz (1998).

post trade if the court can find the buyer's expectation damages accurately. These damages will be  $\max\{v_f - k, 0\}$ . The seller thus will perform when its loss  $(j - k)$  would be less than the buyer's loss  $(v_f - k)$ , which the seller would have to pay as damages; and the seller will breach otherwise. The value of the firm's project,  $v_f$ , is the present discounted value of future returns, however, and courts seldom can observe predicted future returns perfectly. Thus, a court may err in calculating damages. In a standard formulation, the possibility of judicial error is represented by denoting the expected damages that the seller would pay on breach, estimated from when the seller learns what its production costs would be, as  $E(d) = \max\{v_f - k + \epsilon, 0\}$ , where  $E(\epsilon)$  has mean zero and positive variance. In less technical words, courts are assumed to find expectation damages accurately on average, but in any given case a court may err on the high or the low side.

The possibility of judicial error implies that the *expected damages* the seller faces, when it must decide whether to perform or breach, will exceed the true damages. From the seller's point of view, the damage distribution is truncated at the lower tail: the seller does not benefit from a court's highly negative errors, because the buyer pays no damages when the seller breaches, but the seller is harmed by the court's highly positive errors, because the buyer's damages are unbounded from above. The seller must pay the damages a court finds, however large they turn out to be.

In a world where courts can err, a solvent seller could be compelled by the threat of an erroneously high damage judgment to render an inefficient performance (when the seller's cost to perform would exceed the buyer's value from performance). The seller will exit rather than perform inefficiently, however, when its loss would exceed even its excessive damage estimate. In this case, the buyer's damage remedy functions as an exit fee.

An ipso facto clause would prevent inefficient continuance or the payment of exit fees. The seller would exercise its right under the clause to exit without paying damages whenever its

performance cost would exceed the price. An insolvent buyer could pay the seller not to exit only when it would be efficient for the seller to perform; that is, when the return from the buyer's project would exceed the seller's cost. Otherwise, the buyer would lack the liquidity to prevent exit. Ipso facto clauses thus replicated the ability of accurate expectation damages to ensure efficient trade. Conversely, making these clauses unenforceable permits insolvent firms sometimes to continue inefficient projects.

Turning to the contract stage, the seller and investor will anticipate that the buyer may continue an inefficient project or that the seller will have to pay a bribe in order to exit. Both possibilities reduce the solvent parties' payoffs below those that would have obtained were costless seller exit possible. Part 2 has shown that when creditors' bad state payoffs decline, creditors require the firm to increase the sum it must pay to them in the event of project success. Prohibiting contracting out thus increases credit costs.

In Congress' view, the prohibition of ipso facto clauses follows from a bankruptcy reason. If solvent parties could costlessly refuse to deal with bankrupts, it was believed, there would be mass exits of suppliers and customers from insolvent firms. These exits would have the same result as an unregulated creditor right to collect: financially as well as economically distressed firms would be liquidated. This view is mistaken. As just shown, a firm whose projects generate returns in excess of costs can compensate solvent parties for the costs of dealing with it; an economically distressed firm, whose projects generate less than they cost, cannot compensate solvent parties. Therefore, it is the prohibition of ipso facto clauses, not their presence, that reduces the value available for distribution to creditors. A bankruptcy reason thus cannot support the refusal to enforce contracts that permit customers and suppliers to condition their continued performance on the solvency of their contract partners.

#### *4. Contracting for bankruptcy procedures*

This essay has argued that a business bankruptcy system should reduce capital costs for borrowing firms, showed that traditional parts of the US Code should be repealed because they actually increase capital costs, and argued that permitting solvent parties to opt out of whatever system is in place also will reduce capital costs. The essay now focuses on a unique feature of bankruptcy systems in Western countries: these systems are mandatory, in the sense that parties cannot use lending agreements to require or induce the borrowing firm to use a particular bankruptcy procedure. In the US, the insolvent debtor decides when to enter a bankruptcy system and can pick, subject to ultimate court approval, which of the state supplied procedures it will use. The prohibition on procedural contracts distinguishes bankruptcy from other branches of business law. For example, parties to commercial contracts (when insolvency is not an issue) can use the state supplied courts, or contract for a dispute resolution system such as arbitration. Part 4 will show that the prohibition on procedural contracts raises capital costs relative to a system that permits these contracts. This showing raises the question whether the penchant of firms to incur debt over time and from multiple creditors creates practical obstacles to the writing of procedural contracts. Part 4 concludes with two claims: the obstacles to coordinating on “bankruptcy contracts” likely could be overcome; and there is no harm in permitting parties to try.

##### 4.1 The bankruptcy initiation problem

Parties free to contract apparently would require the debtor to choose a bankruptcy procedure that would give the debtor nothing if it filed for bankruptcy. This contract would maximize ex post creditor returns, with the efficiency effects that Part 2 describes. Driving the firm’s bad state payoff to zero, however, would create a disincentive for the firm to use the procedure. Rather, the insolvent firm would have an incentive to delay filing; for it receives

nothing if it files today but could consume resources if it files tomorrow.<sup>45</sup> A contract that gives the insolvent firm a portion of the insolvency return ameliorates this problem, but would worsen the firm's incentive to invest. Thus, at the lending stage, parties face a tradeoff between two incentive problems: to encourage the firm to exert optimal effort; but to induce the firm, conditional on project failure, to enter a bankruptcy system without first wasting assets. The relative strength of these conflicting incentives turns out to vary with the parties' circumstances, so that no single contract would be optimal all of the time. It follows that no single mandatory bankruptcy system would be optimal all of the time.<sup>46</sup>

Continuing with a multi-period variant of the model introduced in Part 2<sup>47</sup>, after the firm borrows, it exerts effort in period one. As before, project success is a function of the firm's effort level and a stochastic state variable. The project's "type" is realized in period two. The project will be (i) a success for sure that returns the value  $v_s$ ; (ii) a failure for sure that returns  $v_f$ ; or (iii) a success that will return  $v_s$  with probability  $p$  if run as originally planned, but will return  $v_s$  with probability  $q > p$  if further credit is extended and the project is restructured. The firm agrees to repay lenders the sum  $F$  where  $v_s > F > v_f$ ; thus, the firm is solvent only if the project succeeds. In period two, the firm observes a "signal", private to it, that reveals the type of project it turns out to

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<sup>45</sup>Decamps and Faure-Grimaud (2002) also show that when the game between the owners of a levered firm and its creditors is analyzed in a dynamic option framework, the owner's option always induces excessive continuance; the firm, left to its own devices, will operate longer than is optimal.

<sup>46</sup>A number of authors observe that if the firm is insolvent but has a possible good new project, the firm's incentive to pursue the project would increase if the firm is permitted to share in the returns. For analyses of this suggestion and its effect on ex ante incentives see Rasmussen (1994) and Adler (1992). A contract theory approach that also reaches this conclusion is in Schwartz (1994). The model here considers only a firm's original projects.

<sup>47</sup>The analysis below follows Povel (1999).

have. In period 3, creditors and the market can observe the project's type. In this variant of the model, it is efficient to extend further credit to type (iii) projects in period 3 or before: the marginal increase in the expected value of success is assumed to justify the additional infusion of funds. In period 4, project returns are realized. A rescue of a type (iii) project is assumed to be futile by that time: bad projects commonly deteriorate. Of significance, the firm's owners earn a private benefit from operating the project in periods one to three.

Either of two lending agreements could be optimal in this story. The first contract, denoted an incentive contract --  $k_e$  --, would transfer the firm immediately to its creditors when they learn the project's type, unless the project will be a success for sure. The creditors would liquidate a type (ii) project and refinance a type (iii) project. A firm that borrows under this contract would not disclose its period two signal. Rather, the firm will continue to operate into period three, even if the period two signal indicates that the firm has a type (ii) project, that should be liquidated promptly, or a type (iii) project, that should be refinanced promptly. The firm gets a private benefit from operating a type (ii) project, though it later will fail, and it gets this benefit plus the possibility of a monetary payoff if it operates a type (iii) project without further funds. The  $k_e$  incentive contract thus foregoes the possibility of an efficient early rescue (refinancing a type (iii) project) or an efficient early liquidation. On the other hand, this contract induces the firm to exert high effort because the firm's bad state payoff is zero. The second contract commits creditors to two strategies: (a) to pay the firm the value of the firm's private benefit if it reveals in period two that its project is a failure for sure, thereby permitting early liquidation; or (b) to refinance if the firm discloses that it has a type (iii) project, thereby permitting early rescue. The latter commitment has

positive expected value for the firm.<sup>48</sup> Denote this the “disclosure contract”,  $k_d$ .

A firm will exert less effort under  $k_d$  than under  $k_e$  because failure would be less costly to it.<sup>49</sup> That the firm works less hard reduces the probability that its project will succeed and pay creditors off in full. The  $k_d$  contract, however, by creating the possibility of an efficient early rescue or early liquidation, maximizes the creditors’ return in the state of world in which the project fails. Therefore, which contract is optimal turns on which incentive it is more important for parties to encourage: optimal investment, at the cost of foregoing the opportunity of an efficient early intervention, or optimal disclosure, at the cost of a reduced incentive to invest.

The incentive contract  $k_e$  often would be best if type (iii) projects are rare; for then, early rescue would not be a serious concern. When the choice is between success or failure, avoiding failure -- encouraging high effort -- often is best. The disclosure contract  $k_d$  is more likely best if the firm’s project will with positive probability need more funds to avoid failure; for then a prompt rescue or early loss cutting may be needed. The optimal contract thus is parameter specific: parties would not *always* use one of these contracts in preference to the other because the nature of projects and the ability to carry projects out differ across firms.

The disclosure contract  $k_d$  is analogous to a “soft” bankruptcy procedure, in which absolute

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<sup>48</sup>Recalling that  $v_s > F$ , refinancing permits the firm to earn an additional expected return of  $(q - p)(v_s - F) > 0$  if the project is refinanced.

<sup>49</sup>Any payment to the firm in the bad state reduces the wedge between the firm’s good and bad state returns, and thus worsens its incentives. Formally, denote by  $s$  either payment the firm receives under the disclosure contract. Then the firm will choose its effort level to maximize

$$R = p(e;\theta)[v_s - F] + (1 - p(e;\theta))s - e - I.$$

The solution to this problem is  $p'(e;\theta)[v_s - F - s] = 1$ . The left hand side of this expression is less than the left hand side of Equation (5) set out in Part 2, so the firm exerts less effort when it receives a payment in the bad state than when it receives nothing in the bad state.



priority is violated (the firm gets a share of the insolvency return), and the firm's managers sometimes retain their jobs. Firms functioning under such a procedure may enter bankruptcy in time to be rescued. The incentive contract  $k_c$  is roughly analogous to a "tough" bankruptcy procedure that liquidates the firm, follows absolute priority in distribution and dismisses the old managers. Firms functioning under this system may unduly delay entering bankruptcy. Chapter 11 reorganizations resemble soft procedures and Chapter 7 liquidations resemble tough procedures. The analysis here thus suggests that parties want multiple bankruptcy procedures to exist. When more than one procedure could be optimal, a borrower can offer lenders the contract that will induce the appropriate procedural choice for the particular parties.

This case for multiple procedures is incomplete, however, because the soft contract would solve the bankruptcy initiation problem were only Chapter 7 to exist. That contract induces the firm to disclose its circumstances by paying the firm a bribe equivalent to its private benefit and committing the lender to refinance. It is disclosure that permits early rescue. A refinanced firm still fail with positive probability, though, and then can be offered to the market, in one piece or broken up, in a Chapter 7 like procedure. Consequently, it takes further argument, set out below, to justify the case for free contracting over multiple bankruptcy procedures.

#### 4.2 Contracting for procedures.

##### **A. State dependency**

It is helpful to introduce the argument for multiple bankruptcy procedures, and for giving parties the ability to contract among them, by addressing a question that the existence of Chapter 11 raises. The assets of solvent firms are reallocated to higher valuing users in the market for corporate control. Corporate law requires a firm that agrees to be sold to sell itself to the highest bidder, but other sales of solvent firms are largely unregulated. In contrast, the assets of insolvent firms

commonly are reallocated to higher valuing users in a complex and costly administrative proceeding – Chapter 11. Shouldn't the same economic task – to reallocate assets efficiently – be performed in the same way? A positive answer to this question could justify the existence of just one bankruptcy procedure: an auction of the insolvent firm. A positive answer would be incorrect, however, because there are material differences between sales of solvent and insolvent firms. These differences follow from two facts: bankruptcy auctions must be conducted shortly after insolvency, and bankruptcy auctions are less likely to maximize revenue than acquisition auctions. The implications of these facts are pursued here by comparing a procedure that requires the insolvent firm to be auctioned to the market with a procedure that permits reorganization - a sale of the firm to its current claimants.

Auctions have attractive features. An auction permits the market rather than a public decisionmaker to make the continuation versus liquidation decision. A firm that wins the auction has better incentives and more expertise than a public official at choosing correctly between continuing the firm or shutting it down.<sup>50</sup> Also, auctions can be conducted quickly relative to procedures such as Chapter 11 and appear to have lower transaction costs than reorganizations.<sup>51</sup> Finally, auctions decouple the task of deciding what to do with the insolvent firm from the task of deciding which claims are paid. This increases the chance that absolute priority will be followed.

These advantages may be offset when the insolvent firm's assets have a substantial industry specific component.<sup>52</sup> As an example, firms in many industries use computer systems but only firms in the steel industry use annealing machines. These machines thus are worth only their scrap value to

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<sup>50</sup>See Baird and Morrison (2001).

<sup>51</sup>If the insolvent firm is large, investment banker and legal fees associated with auctions, some practitioners claim, may eliminate much of the cost difference between liquidation and reorganization.

<sup>52</sup>This was originally noted in Schleifer and Vishney (1992).

buyers outside the industry. When asset specificity is high, industry firms will be the more likely buyers of an insolvent firm's assets and will pay the most. Economic and financial distress may be correlated across firms in an industry, however. When this correlation is high, (barely) solvent industry firms may lack the liquidity to buy insolvent firms. Hence, in cases when asset specificity *and* the correlation of returns across firms are high, a Chapter 11 reorganization likely will maximize the insolvency return relative to an auction.

The relation among these economic factors may be made more precise by letting  $L$  be the liquidation (or auction) value that a firm's assets will bring,  $z$  the probability that a firm outside the industry will win the auction and  $\gamma$  the degree of industry specificity the firm's assets possess, where  $0 \leq \gamma \leq 1$  and  $\gamma = 1$  denotes complete asset specificity. The firm is assumed to bring  $v$  if sold to another firm in the same industry. Thus, the sale value of the firm's assets is

$$L = (1 - z)v + z(1 - \gamma)v$$

The first term on the right hand side is the expected value of a within industry bid and the second term is the expected value of an outsider bid. The expression simplifies to

$$L = (1 - z\gamma)v$$

When the likelihood that a within industry bidder will appear is low ( $z$  is high), and when the industry specific character of the firm's assets increases ( $\gamma$  is high), the auction value  $L$  falls.

Asset specificity is significant because financial distress creates a need to make prompt decisions regarding the future of the firm. A solvent firm with industry specific assets would not offer itself for sale during an industry recession because a sale would bring little revenue. In contrast, insolvent firms that are not reorganized must be sold.

Regarding data, bankruptcy auctions are mandatory in Sweden. As expected, these resolve insolvencies more quickly than Chapter 11 does. The model sketched here regarding auction results

also has been tested on Swedish data<sup>53</sup>, with three results. First, auctions dissipate between 23% and 39% of asset value, depending on the economic parameters.<sup>54</sup> Second, creditors will finance sales to themselves and the firm's old owners when market sales would have produced an even larger value loss. Third, sales to the old owners occur more than 60% of the time. A bankruptcy system that always requires auctions, or never permits them, thus is less efficient than a system that permits the method of maximizing value to turn on the economic parameters that obtain when insolvency occurs. This conclusion is strengthened when the potential for an inefficient auction is considered.

An auction is efficient when assets are sold to the bidder with the highest valuation. This goal may be frustrated when one of the bidders has an initial stake in the auctioned object and the object's value is not transparent.<sup>55</sup> To see why, consider a coalition between an impaired creditor (its claim is out of the money) and management bidding against an outsider.<sup>56</sup> The creditor may join with the firm if the firm has some private information and the firm may prefer dealing with a party it knows rather than a stranger. The coalition has a stake in the sense that, holding debt and equity, it will receive some of the auction proceeds. The outside bidder can acquire information about firm value at a cost that exceeds the coalition's cost (because coalition members are informed in virtue of their status).

Inefficiency may result because the coalition has an incentive to bid more than the value of

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<sup>53</sup>See Stromberg (2000).

<sup>54</sup>This is consistent with Pulvino (1999), which finds that bankrupt airlines sell planes at discounts that range from 14%-46% relative to sales by nondistressed airlines, and with Hotchkiss and Mooradian (1998), which finds that bankrupt targets (entire firms) are purchased at a 45% discount on average, relative to prices paid for solvent firms in the same industry.

<sup>55</sup>This claim presupposes asymmetric information between at least some creditors and the firm regarding the mean auction value for the insolvent firm. This assumption is consistent with the view that bankruptcy proceedings reveal information about the value of insolvent firms.

<sup>56</sup>The analysis here follows Hotchkiss and Mooradian (2003).

the firm to it. This incentive has two sources. First, overbidding forces the price up; this increases the coalition's gain if it loses the auction because the coalition will then sell its stake to the winner. Second, the coalition is subsidized to overbid because, having a stake, it actually pays part of the bid price to itself if it wins. Overbidding can yield inefficiency when the outside bidder has a higher valuation for the firm's assets than the coalition has. If a coalition overbid exceeds such an outsider's valuation, the outsider will drop out even though it would have won had the coalition bid truthfully. As a result, the party with the lower valuation rather than the higher will win. More seriously, outsiders who must pay a cost to enter – to become informed – know that they are bidding against insiders with an incentive to push prices up. This knowledge may cause an outsider with the highest valuation for the firm's assets not to enter.

The extent of inefficiency is a function of who the members of the coalition are. To see why, realize that a creditor whose claim is not impaired would not bid above the value of that claim; for any excess would go to junior creditors. Senior creditors are less likely than juniors to hold impaired, or seriously impaired, claims. Therefore, a coalition between a senior creditor and juniors or equity will probably run an efficient auction. In contrast, junior creditors whose claims are far out of the money will try harder artificially to inflate auction revenues. Whether an auction would maximize ex post value thus partly depends on the firm's capital structure when it becomes insolvent. Auctions are more likely best if much of the debt is held by a few seniors, and less likely to be good if there is considerable junior debt. Once more, requiring auctions in every case would be unwise.<sup>57</sup> Also, recalling the question with which this Part began, the bidders for solvent firms are unlikely to hold

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<sup>57</sup>Baird and Rasmussen (2003b) report an increasing number of asset sales in Chapter 11, and claim that creditors played a major role in causing these sales to be made. Regrettably, their data set does not indicate who the initiating creditors were and the number of bidders in each case. Thus, it is difficult to evaluate the efficiency of these auctions.

large stakes in them. Consequently, acquisition auctions in theory should not be, and in practice appear not to be, as seriously plagued by coalition concerns.<sup>58</sup>

As a final note, under the new value exception to the absolute priority rule, the firm's equity cannot join a creditor coalition to purchase the firm unless the equity contribute "money or money's worth".<sup>59</sup> Human capital contributions are prohibited. This ancient prohibition should be dropped. The old owners often are liquidity constrained. Hence, when a sale to the old owners would maximize value, the owners should be permitted to pay in any coin that creditors will accept. Otherwise, an insolvent firm could be sold to a lower valuing buyer.

To summarize, an analysis of state dependency implies that the state should supply parties with at least two bankruptcy procedures (resembling Chapters 7 and 11). This analysis also may be thought to imply that the parties or a court should make the procedural choice *ex post*, when the circumstances the parties actually face are apparent. Part 4.B, however, next extends the model of Part 2 to show that lending agreements that induce insolvent firms to make particular procedural choices will sometimes maximize creditor returns relative to post-insolvency decisions.

## **B. Inducing optimal choice**

In this version of the model,<sup>60</sup> two bankruptcy procedures exist, denoted L and R. The L

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<sup>58</sup>Baird and Rasmussen (2003a) appears to suggest that there are few synergies among the factors of production in a modern firm, which implies that liquidation would be optimal most of the time. This position fails to adequately account for the presence of these factors in the particular firm initially.

<sup>59</sup>Case v. Los Angeles Lumber Products, 308 US 106 (1939).

<sup>60</sup>The following is based on Schwartz (1997(b)). An informal version is in Schwartz (1998). Gigler and Kareken (2004) show that the set of bankruptcy contracts that can implement efficient or second best efficient outcomes is larger than that in the Schwartz papers, and obtain an efficiency ranking over possible contracts. It is enough here to show that some bankruptcy contracts in the theoretically feasible set are efficient; ranking these contracts is not necessary.

system auctions firms to the market while the R system reorganizes them<sup>61</sup> When a firm borrows to finance its project, which of these systems will be optimal should the firm become insolvent is unknown ; as Part 4.A showed, the optimality of a bankruptcy system depends on the later state of the world. The firm's owners and managers receive a private benefit from operating the firm during a bankruptcy procedure. This benefit is larger in the R procedure because a reorganization takes longer to realize and thus permits the owners to be in charge for a longer period (and to have a greater probability of remaining in charge permanently). Only private benefits matter to the firm because, being insolvent, it has no claim to the monetary return a procedure could generate. Therefore, the firm will always choose the R procedure unless constrained.

The firm submits lending agreements to potential creditors, who function in competitive credit markets. Two contract types are considered. The first contract, denoted an R contract, is silent about bankruptcy, thereby implicitly delegating the choice of procedure to the firm ex post. If the L system turns out to be optimal, parties to the R contract can renegotiate to use the L procedure. The marginal gain from using the optimal procedure can sustain the payment of a reorganization bribe to the firm to forego the greater private benefits of a reorganization. Just how the surplus from avoiding an inefficient reorganization is divided in particular cases is a function of the parties' bargaining power.

The firm also can offer potential creditors a different agreement, denoted the L contract, that would pay the insolvent firm a share of the monetary return that an insolvency procedure will

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<sup>61</sup>The model assumes for convenience that every creditor with a financial claim will prefer the same type of auction procedure; the choice is between this procedure and reorganization. There may be conflicts between the senior and junior debt concerning the type of procedure each prefers, however. For example, the seniors may prefer an auction procedure that generates a lower mean but a lower variance to a procedure with a higher mean and a higher variance because the seniors have first claim on the auction returns. See Stromberg. Ex ante contracts among the debt could generate agreement on an optimal auction procedure if these contracts were legally enforceable. See Bhattacharyya and Singh (1999).

generate, regardless of the procedure the firm chooses.<sup>62</sup> The firm's share is set to compensate the firm for foregoing the greater private benefits of the R procedure when the L procedure would be optimal. In the model, both contract types yield ex post efficiency: that is, the insolvent firm will always make the efficient procedural choice. Hence, the optimal contract will maximize the creditors' expected monetary return given the correct choice of procedure. An example is set out next to show that the L contract sometimes is optimal in this sense. This is significant because, as said, parties today can only write R contracts: ex ante contractual constraints on the power of insolvent firms to choose the bankruptcy procedure are unenforceable.

In the example, the L procedure returns 300 for distribution to creditors when it is optimal; the R procedure returns 200 when it is optimal; and the R procedure would return 100 when the L procedure is optimal but the firm uses the R procedure instead. The L procedure is optimal with a 50% probability. The firm is assumed to have 75% of the bargaining power in a renegotiation, which is plausible if much of the debt is unsecured because creditor coordination costs are high then.<sup>63</sup> The firm's owners receive a private benefit of 30 in the L procedure and a private benefit of 80 in the R procedure.

The creditors' return under the R contract is calculated as follows: The creditors receive the

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<sup>62</sup>This essay does not take a position on whether bankruptcy auctions should permit noncash bids, as argued by Aghion, Hart and Moore (1992). Rhodes-Kropf and Viswanathan (2000) have shown that participants in noncash auctions are likely to bid with debt, so that firms may emerge from bankruptcy substantially leveraged, a prediction that is consistent with the evidence. See Gilson (1997).

<sup>63</sup>If the debt is widely held and the firm can credibly threaten to use the suboptimal procedure, it can make a take it or leave it offer to the creditors that will deprive them of much of the surplus from using the correct procedure. See Schwartz (1993). Such a threat may be possible to make here because the firm always prefers the R procedure. In addition, if a creditor has market power and thus would earn positive profits by continuing to deal with the firm, the firm can exploit this dependency in a renegotiation. See Wilner (2000).



full monetary return of 200 when the R procedure is optimal because the firm will choose the R procedure without having to be bribed. The creditors receive 25% of the marginal gain from using the L procedure when it is optimal; this gain here is 200 (300 under L rather than 100 under the suboptimal R); the rest of the gain goes to the firm as an ex post bribe. Hence, the creditors' expected return under the R contract is

$$R_k = .5(200) + .5[100 + .25(200)] = 175$$

The L contract requires the firm to receive a portion of the monetary return from the procedure it chooses. This share must compensate the firm for foregoing the larger private benefit it would realize under the R procedure.<sup>64</sup> Letting  $t$  be the requisite bribe ( $0 < t < 1$ ),  $t$  solves

$$t(300) + 30 \geq t(100) + 80$$

The first term on the left hand side of this inequality is the firm's share of the L procedure monetary return when L is optimal; and the second term is the firm's private benefit from using the L procedure. The first term on the right hand side is the firm's share of the suboptimal R procedure monetary return; the second term is the firm's private benefit from using the R procedure. On these values,  $t \geq .25$ . Thus, the creditors' maximum expected return under the L contract is

$$L_k = .75[.5(300) + .5(200)] = 187.50$$

The firm will choose the optimal procedure under this contract so the term in brackets is the expected value of an efficient procedural choice. The firm must be paid at least 25% of this return. On these parameters, the firm thus would like to offer creditors the L contract when it borrows.

The L contract, though not always optimal, has two advantages. The contract induces the

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<sup>64</sup>The firm has all of the ex ante bargaining power because creditors function in competitive markets. Consequently, the contractual bribe to the firm is determined only by the value of the private benefits the firm may have to give up.

choice of L when L is optimal. Further, the L contract addresses the bankruptcy initiation problem because it pays the firm a portion of the bankruptcy return. A distressed firm is less likely to waste assets before bankruptcy if it earns a positive payoff in a bankruptcy procedure. On the other hand, the R contract may be best when creditors have considerable bargaining power ex post (much of the debt is secured, for example); when the R procedure is likely to be optimal (for the R contract permits creditors to capture the entire R monetary return without having to pay a bribe); or when the R procedure would generate relatively high returns when it is optimal.

To generalize, then, parties to lending agreements face a multi-faceted contracting problem: to induce the debtor to invest optimally, to enter bankruptcy at the optimal time, and to choose the optimal bankruptcy procedure. The L contract described here and the soft  $k_d$  contract described in Part 4.1 thus would be combined in an efficient contracting strategy. Permitting parties the freedom to pursue this strategy would reduce credit costs relative to the current prohibition of ex ante bankruptcy contracting.

### **C. Impediments to bankruptcy contracting.**

There is a question whether parties would write bankruptcy contracts were they free to do so. An initial impediment to bankruptcy contracting is creditor conflict. Conflict could arise from two sources: creditors have different maximands and the juniors and seniors may disagree over the investment strategies the firm could pursue. Regarding the former source, financial creditors want to maximize the return on the outstanding debt; for they have ceased to lend. In contrast, a creditor who is a customer or supplier of an insolvent firm may prefer the R procedure, whether it is optimal or not, if the insolvent firm would be difficult for such a creditor to replace. The profit the creditor would earn during the more lengthy R procedure may outweigh the loss the creditor could suffer from collecting less of its pre-bankruptcy debt. Creditors that anticipate sharing the firm's preference

always to use the R procedure would reject a bankruptcy contract that sometimes would induce the firm to choose the L procedure.

Creditor conflict of this kind is dealt with inside bankruptcy by a combination of majority and supermajority voting rules. A similar solution should be implemented in the contracting field. A bankruptcy contract should bind all creditors if a majority in amount of creditors have signed it. Thus, conflict among financial and trade creditors would not preclude bankruptcy contracting under an efficient bankruptcy law.

Conflict also could exist among senior and junior creditors. The firm does not choose a business strategy under the L procedure because it is sold at auction. The firm does choose a business strategy under the R procedure, and so can affect the degree of risk it will assume. The juniors thus may prefer the firm to choose the R procedure if their claims are out of the money; under it, they perhaps could induce the firm to choose a strategy with an especially high upside.<sup>65</sup> The R procedure thus could increase the juniors' expected payoff. In contrast, seniors commonly prefer the low variance L procedure, when it is optimal, because their claims are in or close to the money. Juniors may be reluctant to sign a bankruptcy contract that could prevent them from increasing risk ex post.

This conflict should not prevent bankruptcy contracting because the firm could bribe a dissenting junior to sign the optimal contract. To see how, assume that the L procedure would be optimal ex post. Denote the marginal gain from using this procedure as  $b = v_L - v_R$ . Let  $y$  be the incremental value to the juniors from using the R procedure when the L procedure is optimal. The seniors hold the fraction  $\zeta > 0$  of the firm's debt and the juniors hold the fraction  $1 - \zeta$ . Total value in

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<sup>65</sup>This is a variant of the concern that insolvent firms will overinvest.

the L procedure is the sum of the parties' gains less the junior creditors' loss:  $V_L = \zeta b + (1 - \zeta)(b - y) = b - y(1 - \zeta) > 0$ . To say that the L procedure is optimal implies that  $b > y$ . Therefore, the firm could make the junior creditors better off if they signed the optimal L contract by sharing with the juniors a fraction of the marginal surplus that this contract will generate.<sup>66</sup>

A perhaps more serious contracting problem stems from the state dependency of bankruptcy procedures. As an example of the concern, let the R contract be optimal when the firm first borrows but the L contract become optimal before earlier debt is repaid. The firm's lending agreements would then be time inconsistent. This problem also has an apparent solution, which is to include in every agreement a term that would convert the agreement into the form, as regards the choice of a bankruptcy procedure, that is optimal in light of current circumstances. In the posited example, the early R contract thus would convert to an L contract. A creditor would be willing to sign a contract with an updating term for two reasons. In an informationally efficient credit market, the best estimate of the economic parameters that will obtain when the loan is to be repaid is given by the parameters that obtain when the loan is made. The creditor thus would not expect the contract to change. Second, the creditor actually prefers the contract to change when change would be efficient; for the creditor's expected insolvency payoff increases as the likelihood that the firm will choose the optimal procedure increases. Hence, firms could make their lending agreements time consistent as regards

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<sup>66</sup>The juniors are residual claimants, and thus actually have conflicting incentives. On the one hand, they prefer the firm to choose the efficient investment strategy; this will maximize the expected size of the pie and so maximize the chance of a return for juniors after the seniors have been paid. On the other hand, because the juniors have a call option on the firm, they sometimes will prefer the firm to pursue a strategy that has a lower mean return but a higher variance. As it happens, when the juniors' choice is analyzed formally, it appears that the juniors would prefer the risky strategy only when the variance it generates would be very high. Consequently, the conflict discussed in text is uncommon. For a demonstration of this point see Schwartz (1999).

bankruptcy.<sup>67</sup>

An analysis of the parties' contracting problem – to create efficient incentives for firms to invest, not to delay filing for bankruptcy when insolvent, and to choose the optimal bankruptcy procedure – implies that one size does not fit all: any single system would be suboptimal for some sets of parties some of the time. As a result, theoretical reasons exist for believing that bankruptcy contracting would be efficient. The state therefore should create a menu of bankruptcy procedures from which firms and creditors could choose. If contracting difficulties are surmountable, firms' capital costs would be materially reduced; if few bankruptcy contracts would be written, nothing would be lost.<sup>68</sup>

##### 5. *Ex post contracts.*

Creditors today sometimes offer distressed firms two variants of the L contract. Under either, creditors supply more funds, or forebear from immediate collection, if the firm agrees to a form of liquidation. The “auction contract” requires a firm to auction itself, commonly in bankruptcy, if it

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<sup>67</sup>It has been argued that bankruptcy contracts are not strategy proof: the firm could request a suboptimally low bribe in early borrowing, to obtain an artificially low interest rate, and then raise the bribe to the correct level in later contracts, thereby exploiting initial creditors. Anticipating exploitation, an early creditor would refuse to sign the contract, thereby unraveling the contractual scheme. See LoPucki (1999). There are three problems with this claim: (i) The firm would be committing fraud, which is rare for solvent borrowers to do; (ii) The firm would be reluctant to behave in this fashion if it expected to borrow again because the behavior would cause the firm to lose considerable good will; (iii) The firm could credibly commit not to raise the bribe on the eve of bankruptcy, when it may be desperate, by offering what is described above as a “tough” contract, that would result in an immediate transfer of control to creditors if the firm proposed a nontrivial increase in the bribe percentage.

<sup>68</sup>This proposed reform is consistent with Rasmussen (1992), who argues that the state should supply potential borrowers with a menu of bankruptcy procedures that firms can put in their corporate charters. Parties would be required to use the system the firm's charter selected. This proposal has the disadvantage that the applicable procedure would not turn on the current economic parameters (because corporate charters are difficult to amend), but it has the advantage of avoiding contracting difficulties.

fails to meet specified financial targets by a named date.<sup>69</sup> The “foreclosure contract” requires a firm to waive the automatic stay as against a secured creditor if the firm files for bankruptcy. The secured lender would then foreclose and conduct its own auction. These “ex post contracts” have received little appellate review, and bankruptcy courts appear divided on enforceability. Their use raises two questions. First, are the contracts efficient? Second, are the contracts adequate substitutes for ex ante contracting? Auction contracts, Part 5 argues, are efficient while foreclosure contracts sometimes may not be. Neither contract can substitute adequately for an ex ante agreement.

To evaluate ex post contracts, let current law obtain, so that lending agreements necessarily are silent regarding bankruptcy. In this version of the story, the firm first borrows, then it invests effort in pursuing a project, and finally creditors observe a public signal of the firm’s prospects. The signal will reveal whether the firm is solvent, insolvent for sure or may become insolvent if not refinanced.<sup>70</sup> A firm that is insolvent for sure files for bankruptcy. The signal also reveals, for a firm that may be salvageable, whether the L or the R procedure would be optimal in the event of failure. For example, signs of general industry distress would suggest that the R procedure would generate greater monetary returns than the L procedure. Creditors would not contract regarding bankruptcy if the R procedure would be optimal because the firm chooses this procedure when unconstrained. In contrast, creditors may condition the further provision of funds to a distressed firm on the firm’s choice of a procedure if some form of liquidation would be optimal.

### 5.1 Auction contracts

Parties would write an auction contract only when that would make creditors and the firm

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<sup>69</sup>These contracts are discussed in Baird and Rasmussen (2003b).

<sup>70</sup>The model here thus is similar to the bankruptcy initiation model used in Part 4.1 above.

better off: creditors because the auction will increase their expected payoffs; the firm because it gets a share of the expected marginal increase in surplus. An auction contract thus is analogous to the renegotiation bargain modeled above, pursuant to which parties agree ex post to use the L procedure when it turns out to be optimal. Part 4.2 showed that renegotiation bargains yield ex post efficiency – the firm chooses the optimal procedure -- but sometimes would not maximize the creditors’ expected bad state return. As a consequence, interest rates are higher when parties are restricted to renegotiation ex post than rates would be if parties could put procedural terms in the credit agreement.

It follows that not to enforce auction contracts would make a bad situation worse. Ex post contracts nevertheless are controversial. They often are obtained by secured lenders, and these lenders are thought to have poor incentives, requiring liquidation just when and because an immediate sale would pay them close to in full rather than when liquidation would maximize total firm value.<sup>71</sup> This objection is inapplicable to the auction contract, under which the firm is offered to the market. An efficient auction will maximize revenue.<sup>72</sup>

## 5.2 Foreclosure contracts

A foreclosure contract, or stay waiver, may be inefficient. To see how, let the borrower be insolvent and consider the three possible states of the world: (a) The secured claim exceeds the value of the lien assets; (b) The secured claim is less than the value of the lien assets, but the firm’s total assets are worth less than its total debt; (c) The firm’s total assets are worth more than its total

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<sup>71</sup>See Skeel (2003); Bergstrom, et al. (2002).

<sup>72</sup>When a coalition of creditors and the firm are permitted to bid, an auction could be inefficient for the reasons Part 4.2.A set out. This possibility is not pursued here because ex post contracts appear mainly to be exacted by senior lenders. As said above, coalitions including seniors are likely to run efficient auctions.

debt. A foreclosure contract would be efficient in case (a). The secured lender's claim is out of the money. Thus, this creditor has an incentive to maximize the value of the collateral to minimize the size of its loss. A foreclosure contract would not be written in case (c), if the credit market were efficient, because the firm would then refinance and pay off the senior lender. A foreclosure contract also would not be written in case (b) if junior creditors could coordinate their activities. In this case, the juniors would bribe the senior to foreclose efficiently or to permit the juniors to foreclose. The bribe would be paid from the increase in expected surplus that would be realized from a maximizing sale. A foreclosure contract thus would be inefficient – the firm's assets would be sold by the wrong party – when case (c) obtains but the market will not finance a viable firm, or when case (b) obtains but creditors cannot coordinate collection efforts.

A bankruptcy court will see efficient foreclosure contracts when case (a) obtains, and will see inefficient foreclosure contracts when cases (b) or (c) obtain. The secured creditor's claim is in the money in the latter two cases, so the court's best response when asked to enforce a foreclosure contract is to conduct a valuation hearing. The secured party should be permitted to foreclose on a showing that its claim is out of the money, but not otherwise. Ex ante contracting would be superior to this second best practice. Under a procedural contract, Part 4.2 showed, the costs of an ex post hearing would be saved: for the bribe to the insolvent firm would be set such that the firm would choose liquidation, and the form of liquidation, that would maximize creditor returns.

## *6. Conclusion.*

This essay makes three claims. First, a business bankruptcy law should reduce the costs of debt capital for firms. These costs fall as payoffs to creditors increase. When firms' capital costs fall, the set of positive value projects that credit markets can fund increases, as do the incentives of firms to invest effort in funded projects. Second, bankruptcy law should largely be a set of defaults,



as business law is generally. These two claims imply, among things, that a bankruptcy law should have no avoiding powers, that parties to lending agreements should be permitted to contract ex ante for the bankruptcy system they prefer and that parties should be free to contract out of bankruptcy altogether. Bankruptcy law should be voluntary rather than mandatory because the diversity of parties and of circumstances in advanced economies is so great that no single bankruptcy system could create optimal incentives for every borrower and its creditors.

This essay is incomplete in three respects regarding these two claims. Initially, the essay fails to relate the firm's choice of capital structure to the efficiency of particular bankruptcy systems. To illustrate this link, a firm may choose the number of creditors to have, or the ratio of secured to unsecured debt, in order to maximize its liquidation value in the event of failure.<sup>73</sup> A firm also may choose a sufficiently low debt level such that, if that level cannot be sustained, the firm will be economically distressed with certainty.<sup>74</sup> Such a capital structure can yield roughly the same outcomes as the L contract described above; for a necessary implication of the insolvency of a firm with the posited capital structure is the efficiency of liquidation. Capital structure issues have been neglected here because they are relatively neglected in the literature.<sup>75</sup> Further, the essay fails to analyze a recent practice under which creditors induce the firm to write compensation contracts that condition managerial payoffs on value increases. For example, a manager may receive a bonus if the

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<sup>73</sup>See Repullo and Suarez (1998); Bolton and Sharfstein (1996).

<sup>74</sup>See Adler (1997); Alderson and Betker(1995).

<sup>75</sup>An extensive literature attempts to explain a firm's capital structure choice as a response to various agency problems. A concise review is Hart (2001). Analysts in this literature seldom model the effect of a particular bankruptcy system on the firm's choice of debt or consider the firm's preferences over possible systems. Empirical tests of agency cost explanations for the debt decision, that omit explicit consideration of bankruptcy issues, are promising but inconclusive. See Dessi and Robertson (2003).

firm emerges promptly from Chapter 11 with a viable business plan. Good contracts seldom can entirely eliminate the effect of bad laws, however, so this essay focuses on how to improve the system.

Finally, this essay discusses few Code sections in detail. This partly is a consequence of space constraints. Perhaps more importantly, it is a current practice to analyze a small set of rules while holding constant the rest of the current structure.<sup>76</sup> A goal of this essay, in contrast, is to call a constitutive feature of the structure itself into question. This feature, of course, is the law's mandatory nature. This essay is relevant to the analysis of particular rules, however, because the essay attempts to state what the goal of a business bankruptcy law should be. Keeping the object in mind should help analysis on the ground.

This essay's third claim is that bankruptcy law should not respond to two related sets of social issues: the effect of firm failure on employees and on local communities.<sup>77</sup> Regarding jobs, an employee has two types of human capital, broadly speaking: firm specific human capital, which is useful in the current firm; and general human capital, which is useful to the labor market. Understanding how best to make a particular production line work is firm specific human capital; knowing how to program a computer is general human capital.

Firm specific human capital is partly protected by a bankruptcy system that preserves financially distressed firms because these are continued as entities. A bankruptcy system that minimizes credit costs also creates jobs by increasing the set of projects that firms will pursue; and the system preserves jobs because it maximizes the likelihood of project success (through the effect

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<sup>76</sup>For excellent work in this vein, see, e.g., Adler and Ayres (2001); Aghion, et al. (1994); same authors (1992); Bebchuk (1988).

<sup>77</sup>For claims to the contrary, see, e.g., Blum (2000); Warren (1987).

of low interest rates on the firm's effort choice). The liquidation of economically distressed firms, in turn, will not affect workers whose human capital is primarily general because these workers are employable elsewhere. Thus, the social goal of protecting jobs and the economic goal of eliminating inefficient firms conflict only when the employees of an economically distressed firm possess firm specific human capital. Liquidation makes this capital redundant, but nevertheless is preferable to continuing the firm for two reasons. First, when a firm has negative economic value, the firm specific human capital of its employees also has negative economic value. Such human capital is best redeployed. Second, unemployment is a general social problem, not a special bankruptcy problem. Social programs that respond to unemployment thus help the workers of all closed firms .

Bankruptcy law also should not respond to local communities whose welfare may be reduced by firm failure. Healthy firms in decentralized economies commonly close, reduce the scale of, or move plants. These economic choices in the aggregate help society but can hurt particular localities. Perhaps social programs should be created to help communities suffering from the consequences of economic change. Such community assistance programs also would respond to plant closings resulting from the liquidation of economically unviable firms. Also, communities can, and sometimes do, use tax breaks, industrial zones and the like to buy the presence of firms that would generate positive externalities. These "local community markets" can allocate otherwise failing firms to places that value their continuance.

The importance of facing firms with hard budget constraints has been clearly demonstrated by the contrasting performances of firms in market and mercantilist economies. Firms that are not allowed to fail, in order to protect workers and localities, employ too many people, fail to innovate, produce poor products and lose large sums of money. A good bankruptcy law must have a high

degree of toughness because it is being hard on failure that causes capital costs to fall.



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