The Corporate Bankruptcy Decision

Michelle J. White

The Journal of Economic Perspectives, Vol. 3, No. 2 (Spring, 1989), 129-151.

The Corporate Bankruptcy Decision

Michelle J. White

A central tenet in economics is that competition drives markets toward a state of long-run equilibrium in which those firms remaining in existence produce at minimum average costs. In the transition to long-run equilibrium, inefficient firms, firms using obsolete technologies and those producing products that are in excess supply are eliminated. Consumers benefit because in the long run, goods and services are produced and sold at the lowest possible prices. The legal mechanism through which inefficient firms most often are eliminated is that of bankruptcy. In 1984, around 62,000 business firms filed for bankruptcy. Two-thirds of them filed to liquidate in bankruptcy and the rest filed to reorganize in bankruptcy (Administrative Office of the U.S. Courts, 1985). The total liabilities of firms that filed for bankruptcy in 1985 came to approximately $33 billion (Dun & Bradstreet, 1986).[1]

Economic theory suggests that bankruptcy should serve as a screening process designed to eliminate only those firms that are economically inefficient and whose resources could be better used in some other activity. However, firms typically file for bankruptcy voluntarily. When they do, creditors are not all repaid in full and large redistributional effects occur. Managers of firms do not take creditors' losses fully into account in deciding either how to run the firm or whether and when to file for bankruptcy. This suggests that firms in bankruptcy might not always be economically inefficient and that inefficient firms might not always end up in bankruptcy. Rather, firms may shut down and file for bankruptcy versus continuing to operate because managers respond to the potential for redistribution from creditors to equity, rather

---

[1]This figure includes liabilities of firms (such as Chrysler) that did not formally file for bankruptcy, but whose creditors incurred losses.

■ *Michelle J. White is Professor of Economics, University of Michigan, Ann Arbor, Michigan.*

than because shutdown or continued operation is more economically efficient. This paper argues that none of the commonly considered bankruptcy priority rules give firms an incentive to choose bankruptcy or to remain out of bankruptcy only when that alternative is more economically efficient. Failing firms may liquidate even in circumstances when their resources are most valuable if they continued operating and they may continue to operate even when their resources could be better employed in some new use. When reorganization is added to liquidation as an additional bankruptcy alternative, the analysis suggests that too many failing firms are likely to continue operating in the same line of business in which they were previously making losses. Thus the U.S. bankruptcy system, rather than helping the economy move toward long-run efficiency, in fact appears to delay the movement of resources to higher value uses.

The paper is divided into separate sections on bankruptcy liquidation and reorganization. In examining each of those topics, it will consider the features of an economically efficient bankruptcy procedure and how such a procedure might differ from actual U.S. bankruptcy law. In a concluding section, I consider the costs of bankruptcy and some proposed reforms. I argue that some deadweight losses are the unavoidable consequence of having a bankruptcy procedure and cannot be eliminated by reforming it. These deadweight losses are the price of having limited liability for corporate equity holders.

Liquidation

A bankruptcy filing initiates a collective legal procedure by which all claims against the firm are settled.[2] Without such a procedure, individual creditors would engage in a costly and unproductive race to be first to sue the firm for repayment of their own claims. As in a bank run, those creditors who sued first would receive payment in full until the firm's assets were exhausted, after which other creditors would receive nothing. Resources would be consumed both by creditors' duplicative monitoring expenses and by the costs of the lawsuits themselves. Even with bankruptcy, there is still an incentive for creditors to race to sue the firm first, but the incentive is muted since any appreciable volume of suits will cause the firm to enter bankruptcy.

Liquidation is the basic bankruptcy procedure. Even for firms that decide to reorganize rather than liquidate, the liquidation procedure sets the framework for bargaining over a reorganization.

---

[2]A firm that closed down and paid all its debts in full would not use the bankruptcy process, nor would a firm in difficulties that merged with a profitable firm if the latter assumed its debts. However, subsidiaries of profitable parent corporations which are losing money normally do use the bankruptcy process, since the parent is not responsible for the subsidiary's debts if the subsidiary is separately incorporated, unless the parent specifically guaranteed some of the subsidiary's debts. If a firm in financial difficulties is going to merge with a profitable firm, then it is in their joint interests for the former to file for bankruptcy before the merger.

U.S. law of bankruptcy liquidation

When a firm files to liquidate under Chapter 7 of the U.S. Bankruptcy Code, the bankruptcy court appoints a trustee who shuts the firm down, sells its assets and turns the proceeds over to the court for payment to creditors.[3] (Note that creditors do not get actual ownership of the firm, as is often assumed. They get the proceeds of selling the firm's assets.) The bankruptcy priority rule then determines in what order individual creditors are paid and how much each receives.

The priority rule in bankruptcy liquidations is called the "absolute priority rule" (APR). The APR specifies that claims are paid in full in a particular order: first, administrative expenses of the bankruptcy process itself, including court costs, lawyers' fees, the trustee's expenses, and any loans incurred by the firm after the bankruptcy filing (with the court's permission); second, claims taking statutory priority, including tax claims, rent claims, consumer deposits, and unpaid wages and benefits which accrued before the bankruptcy filing;[4] and third, unsecured creditors' claims, including trade creditors, utility company creditors, holders of damage claims against the firm (such as claims by users injured by the firm's defective products or claims against the firm for breach of contract),[5] and claims of long-term bondholders. Unsecured creditors' claims rank equally in priority, unless there are subordination agreements between particular creditors and the firm specifying priority orderings within the class. Such agreements are common in long-term bond contracts, and they usually require that subsequent loans to the firm rank below the claims of the particular bondholders. These agreements are followed in bankruptcy by creating subclasses within the class of unsecured creditors. Finally, equity holders come last.

The APR also provides for secured creditors to be outside the priority ordering. Secured creditors are those who have bargained with the firm for the right to claim a particular asset (or its value) if the firm liquidates in bankruptcy. Their liens are recorded in public records. Thus, secured creditors may receive a payoff in bankruptcy even when all other creditors receive nothing.

If creditors perceive the firm's financial condition to be deteriorating, they have an incentive to try to raise their positions in the priority ordering. Creditors holding claims that are long term and due in the future have little bargaining power with management. But creditors holding short-term claims who are willing to make new loans to the firm have substantial bargaining power. These creditors often improve their positions in the priority ordering by bargaining with the firm to convert some or all of their claims from unsecured to secured status (Schwartz, 1981).

For example, suppose creditors A and B both make unsecured loans to the firm which are used to purchase inventory. As unsecured creditors, they have equal priority in bankruptcy. Creditor B's loan comes due first and in negotiating to renew it, the firm agrees to allow creditor B to take a "floating" lien on the inventory, perhaps in return for creditor B increasing the size of his loan. If the firm later files for

---

[3] No creditors' committees are appointed in liquidations.

[4] There are limits on the maximum size of claims in this category.

[5] Pennzoil's claim against Texaco and claims by victims of asbestos disease against the Johns Manville Company fit into this category.

bankruptcy, creditor B will have the right to claim the inventory, while creditor A will be at the bottom of the priority ordering and will probably receive nothing.[6]

It might be argued that unsecured creditors like A anticipate this and will either demand to be secured themselves or will lend on an unsecured basis, but raise the interest rate they charge to compensate for the added risk. However, some types of loans, such as trade credits extended by suppliers and tax claims, are too small or too short term to make arranging a security interest worthwhile. Other claims are involuntarily unsecured, such as damage claims against the firm. Still others, such as long-term subordinate bonds, may be unsecured, but are only extended to large, publicly traded firms whose probability of financial distress was viewed before the fact as being extremely small. While unsecured lenders may demand higher interest rates to cover extra risk, once their loans are made, the higher interest rate becomes merely a negative income effect to the firm. Afterwards, managers have an incentive to arrange new loans to the firm that rank high in the priority ordering, since the new loans will carry a lower interest rate due to their high priority.

Despite these disadvantages, secured loans have an economic advantage in that they reduce transactions costs. Secured lenders need only to monitor the whereabouts and condition of the actual assets subject to their liens. For example, if a lender takes a lien on a drill press, she need only check when the agreement is made that the press is not already subject to a prior lender's lien and later that the press is not being misused. The lender has no need to monitor the firm's financial condition generally. This advantage for the individual lender is purchased at somewhat higher transactions costs, since the lender must agree on a contract with managers which specifies a particular asset to be subject to the security interest; also, the lien must be registered. If all creditors were secured, then no new lender could take a lien on an asset already subject to a lien (unless the new lien were subordinate to the old). This would make it impossible for later lenders to improve their position in the priority ordering at the expense of earlier creditors in bankruptcy. But I show below that even this would not necessarily prevent managers of firms from making inefficient bankruptcy decisions.

Characteristics of firms that liquidate in bankruptcy

In a sample of 500 firms that filed to liquidate in bankruptcy, a study done for the Department of Justice (Ames *et al.*, 1983) found that the ratio of total liabilities to assets at the time of the bankruptcy filing was 7.3 and the ratio of secured liabilities to

---

[6]There are many other ways in which creditors improve their positions in the priority ordering. One involves the practice of "setoff." Here, at the time of the bankruptcy filing, a bank having an unsecured loan outstanding can claim the firm's account balance with the bank in partial payment of the loan. This allows the bank to be paid before other unsecured and statutory creditors. Another involves the firm buying another as a subsidiary and guaranteeing its loans. This in effect allows the subsidiary's creditors to jump ahead of the parent's in the priority ordering. A third possibility is that an unsecured creditor might force the firm to file for bankruptcy as a condition of the creditor renewing its loan. Then the new loan is considered an administrative expense of the bankruptcy proceeding (regardless of whether the firm later liquidates or reorganizes) and is placed in the highest priority class.

assets was 1.0. With these high ratios of liabilities to assets at the time of the bankruptcy filing, it should not be surprising that unsecured creditors receive little in bankruptcy liquidations. White (1984) found that in a sample of 90 firms that liquidated in bankruptcy, the average payoff rate to creditors having statutory priority was 6 percent and the average payoff rate to unsecured creditors was 4 percent. But the average size of firms in this sample was small—the mean level of total liabilities was $1.6 million. Since large firms that file for bankruptcy are likely to reorganize rather than liquidate, the unobserved payoff characteristics of large firms that liquidate could differ substantially from the observed characteristics of firms that liquidate.[7]

Economic efficiency considerations of the liquidation procedure

Since bankruptcy implies that all creditors cannot be paid in full, what priority rule would be economically efficient? Consider three possibilities. The first is the well-known "me-first" rule of Fama and Miller (1972, pp. 150–152). Under this rule, all creditors of the firm are assumed to be unsecured (and no claims have statutory priority). Creditors are ranked in order of the date on which they made their loans to the firm, with the earliest claims ranked highest. In bankruptcy, the proceeds of liquidating the firm's assets are used to pay off claims in full in order of their ranking. If anything remains, it goes to equity holders, who otherwise receive nothing. The second rule is the "last-lender-first" rule, which is identical to the me-first rule except that creditors are ranked in reverse chronological order. Thus the most recent lender ranks first and the earliest lender ranks last. The third rule is the equal priority rule, in which all creditors have the same ranking in bankruptcy and are paid the same fraction of the face value of their claims.

The APR contains some elements of all three of these rules. The me-first rule is followed among long-term bondholders if the firm has several bond issues outstanding and each is covered by a subordination agreement. The equal priority rule applies to unsecured creditors not covered by subordination agreements. The last-lender-first rule frequently prevails among groups of creditors because creditors who make late loans to the firm bargain for high priority or for secured status. They then may be paid in bankruptcy even though unsecured creditors who made their loans to the firm earlier receive nothing.

To analyze the effects of these priority rules on economic efficiency, one must describe a model of how the decision to declare bankruptcy is made and under what circumstances. I will assume either that managers, representing equity, make decisions so as to maximize the value of equity, or else that decisions are made by a coalition of equity and a lender referred to as the "bank." The coalition assumption is used when the firm is failing; that is, when the firm has insufficient assets to pay obligations which are due in the current period, then it must obtain new financing to avoid

---

[7]Unfortunately, the government does not make data available concerning payoff rates to creditors in bankruptcy cases.

bankruptcy, which is assumed to take the form of a loan from the bank. In this case, the decision concerning whether or not the firm files for bankruptcy is made to maximize the total value of the coalition's holdings. The "bank" is a short-term lender that monitors the firm's behavior closely and has bargaining power since it is willing under some circumstances to make new loans to the firm. For simplicity, it is assumed to have no prior loans outstanding to the firm. Other creditors, referred to here as "debt," do not have such bargaining power and are unwilling to make new loans to the firm.[8]

I assume that the failing firm's bankruptcy decision is made in the first period of a two-period model. Suppose the firm has outstanding debt of amount D_1 due in period 1 and D_2 due in period 2. If it filed for bankruptcy and liquidated in period 1, then its assets (sold piecemeal) would be worth L after subtracting the transactions costs of liquidating. I also assume that if the firm was liquidated in period one, its value would be less than the sum of its debts, so equity holders would receive nothing. Alternatively, the firm might continue operating outside of bankruptcy for another period. But by assumption, it has no cash on hand. So in order to avoid bankruptcy in period 1, it must obtain a new loan of amount B_1 equal to the debt owed in period 1, which is D_1. (Interest and discount rates are assumed to be zero for simplicity.) The new loan would have to come from the bank. Since the coalition chooses whichever alternative maximizes the total value of equity plus the bank's claim, this means that equity holders are willing to give the bank up to the entire value of equity to induce it to make a new loan so that the firm can avoid bankruptcy this period. Equity holders are willing to do this since equity would be wiped out if the firm filed for bankruptcy in period 1.

If the firm gets a loan and continues, its earnings in period 2 after non-debt expenses are paid are assumed to be P_2 with certainty. Then from an economic efficiency viewpoint, it is efficient for the firm to continue operating if its period 2 earnings are greater than the amount that would have been received by liquidating in period 1, L, and to file for bankruptcy if its period 2 earnings are less than would be received by liquidating in period 1.

What decision will be made under each of the three priority rules? Consider the me-first rule. If the coalition chooses bankruptcy in the current period, then it will receive nothing. If the coalition chooses continuation, then it will receive P_2, but it must pay off both the debt owed in period 2 and the loan taken out in period 1. Thus, the coalition will choose continuation if $P_2 - D_2 - B_1 > 0$. But this condition must imply that the firm's earnings in period 2 are greater than the amount that would have been received if the firm had liquidated in period 1. After all, the amount received in liquidation was less than the sum of the debts owed, while the amount received in continuation is enough to pay off both period 2 debt and the bank loan

---

taken out to cover period 1 debt. Therefore, continuation will only be chosen when P_2 exceeds L, that is, if it is economically efficient. However, suppose that the known earnings from continuing are not enough to pay off period 2 debt and the bank loan. In this situation, both liquidation and continuation lose money, so the bank refuses to make the loan that allows the business to continue to period 2. But either alternative might be more economically efficient, since a loan might allow the business to lose *less* money than the alternative of going into liquidation immediately. When both alternatives lose money but continuation loses less, debt holders would gain the amount $P_2 - L$ if continuation were chosen. But this gain is ignored by the coalition, which chooses liquidation.

Thus under the me-first rule, the coalition chooses continuation only when that alternative is economically efficient, but it may sometimes choose to liquidate even when continuation is more efficient. Therefore some firms end up in bankruptcy when they should continue to operate from an economic efficiency standpoint. This occurs because whenever the coalition chooses continuation, it must share the efficiency gain with debt holders (the infra-marginal creditors) by paying them in full. Therefore the coalition only chooses continuation when the efficiency gain is great enough to pay debt holders their share and still have something left over.

Now let us play out the scenario using the rule of "last-lender first." The coalition's return under liquidation is the same as above. The coalition's net return under continuation remains equal to $P_2 - D_2 - B_1$, if this amount is positive. Here continuation is economically efficient and is preferred by the coalition since it is profitable. But now suppose P_2, the amount received in period 2, is between B_1 and $D_2 + B_1$. Then the coalition's net return is 0, since the bank is paid first in full, but there isn't enough money left to pay off the debt due in period 2 and still have anything left for equity. In this case, the coalition is indifferent between the two alternatives and has no incentive to make the choice that would pay more to debt holders. But while the coalition is indifferent, economic efficiency would require that it have an incentive to choose the more efficient option.

Finally, since under the equal priority rule the repayment of the bank loan is neither first nor last, the return to the coalition if continuation is chosen will fall between those under the other two rules. Thus the coalition also has an incentive under this rule to choose continuation only when it is efficient, but it sometimes will choose liquidation when continuation is more efficient.

In this simple model, all three bankruptcy priority rules have similar results. All have a "one-sided" efficiency property in that they give the coalition an incentive to choose continuation only when it is efficient, but also give the coalition an incentive sometimes to choose liquidation when continuation is the most efficient outcome. None of the three bankruptcy priority rules *always* gives the bank-equity coalition an incentive to make economically efficient bankruptcy decisions. The reason is that when continuation is more efficient but the coalition chooses liquidation, a cost is imposed on holders of debt since they are not repaid in full. But the coalition ignores this cost in making its decision. Therefore it chooses liquidation too often. The bias

toward choosing liquidation is worse under the me-first rule than under the last-lender-first rule, since debt holders rank higher under the me-first rule and therefore would have received more of the gains from the coalition making an efficient choice.[9]

Let us now examine the case when the firm's earnings under continuation are uncertain. Now, if the firm continues, it earns $P_2 \pm G$ in period 2, with probabilities p and $1 - p$. A higher value of G implies greater uncertainty. I assume that if the good outcome occurs in period 2, then the firm will be able to pay all its debts. If the bad outcome occurs, then the firm will not be able to pay all its debts and will file for bankruptcy then. However, I also assume that the firm's earnings will be positive in the second period, so $P_2 - G > 0$.

Suppose the me-first rule is in effect. If continuation is chosen, the coalition gets $P_2 + G - D_2$ in the good outcome, but gets no return in the bad outcome, since all the firm's earnings must go to debt holders, who have higher priority. The coalition's expected return is $p(P_2 + G - D_2) - B_1$. (This also presumes that in the bad outcome, second period earnings will be less than or equal to the amount of debt owed in period 2; that is, $P_2 - G \leq D_2$.) Assuming risk neutrality, continuation will be chosen if this expression is positive. But continuation is only economically efficient if the expected value of the firm's earnings in period 2 is greater than the value of its assets in liquidation, L.

The result introducing uncertainty is that continuation may be chosen even if liquidation is economically more efficient and *vice versa*. Continuation becomes more attractive to the coalition, even in situations when liquidation is more efficient, as the variation in earnings, G, and/or the probability of the good outcome occurring, p, gets larger, since the coalition receives all the profits after debtholders are paid in the good outcome, but loses only the amount of the first period bank loan (debtholders lose the rest) in the bad outcome. Continuation is also more attractive if the firm has relatively more debt due in period 2 rather than period 1, since the new bank loan required to finance continuation is smaller.

Introducing uncertainty into the coalition model thus has the effect of reversing the bias in the liquidation/continuation decision from the coalition choosing liquidation too often to the coalition choosing continuation too often. In the certainty case, the coalition had to repay period 2 debt in full if it chose continuation. But in the uncertainty case, choosing continuation forces period 2 debt holders to participate in a risky activity with uncertain returns. The coalition gets the upside benefit, while debtholders disproportionately bear the downside costs. Thus the well-known tension between debt and equity regarding risk-taking—debt holders prefer safer investments while equity holders prefer riskier investments—also emerges here in the bankruptcy decision. When the firm's earnings are risky, continuation itself is a risky investment. Then the coalition prefers continuation even though liquidation may be more eco-

---

[9]If interest rates are added into the model and they have risen in the market since the firm's long-term debt was issued, then an offsetting effect is introduced which may give the coalition an incentive to choose continuation under any of the three priority rules. This is because choosing liquidation causes debt holders to receive a windfall gain, since their claim in liquidation is for the face value of the debt, which is greater than its market value even ignoring default risk.

nomically efficient.[10] In both situations, the coalition has an incentive to choose the alternative in which it benefits from redistribution away from creditors. But the redistribution possibilities shift when uncertainty is introduced from favoring liquidation to favoring continuation.[11]

The results are similar but even stronger under the last-lender-first rule. In this case, the coalition's gain from choosing continuation is even larger than under the me-first rule, because repaying the bank loan now has priority over repaying previously owed period 2 debt and therefore the bank receives more when the bad outcome occurs. Assuming that the firm's earnings in the bad outcome are enough to pay off the bank loan in full, the coalition chooses continuation as long as it makes a profit in the good outcome; that is, if $p(P_2 + G - D_2 - B_1) > 0$. Thus the coalition has an extremely strong incentive to choose continuation over liquidation when the firm's earnings are risky, since it considers only the firm's earnings in the good outcome, when efficiency would require that it consider the firm's earnings in both the good and bad outcomes.

It is a common assumption in the finance literature that failing firms file for bankruptcy as soon as their liabilities rise to the point that they equal the value of the firm's assets. But if the last-lender-first rule is followed, firms observed in bankruptcy are likely to have liability-to-asset ratios well in excess of one. The reason is that a bank may be willing to loan money even if liabilities exceed assets, as long as it is assured of being repaid first. Many failing firms end up following the last-lender-first rule because banks that are willing to lend demand the security of knowing that they will be repaid first. The data presented above on the characteristics of firms that filed to liquidate in bankruptcy support the prediction of the last-lender-first rule that firms observed in liquidation have high ratios of total liabilities to assets.

Finally under the equal priority rule, the bank loan is neither first nor last in being repaid, so the coalition's return is between its return in the other two cases. Specifically, the coalition chooses continuation if its return,

$$p(P_2 + G - D_2) + (1 - p)\frac{B_1}{(B_1 + D_2)}(P_2 - G) - B_1,$$

is positive.

The analysis has shown that no single priority rule in bankruptcy gives the bank/equity coalition an incentive to choose continuation or liquidation only when that alternative is economically efficient. When the firm's future earnings are certain, all three priority rules sometimes discourage continuation decisions even when they

---

[10]Stiglitz (1972) was the first to make the point that managers of firms have incentives to engage in risky investment projects when there is a possibility that the firm might go bankrupt.

[11]This conclusion may seem odd to those familiar with the finance literature, which has tended to emphasize the desirable properties of the me-first rule. In most finance models, the value of the firm's assets in bankruptcy is assumed to be the same as their value if the firm continues. This assumption means that the firm's decision whether to continue operating or to file for bankruptcy has no economic efficiency implications. Thus the question that is of interest here is assumed away (Kim et al., 1977; Kim, 1978; Scott, 1977; Warner, 1977).

are economically efficient, with the me-first rule having the worst bias. But as the firm's future earnings become increasingly uncertain, all three rules begin to encourage too many firms to continue operating, even when the most efficient outcome is for them to liquidate. The me-first rule works best at discouraging inefficient continuation decisions, but none of the rules always works. Thus, not only does none of the priority rules lead to economically efficient results in all situations, but none of the three rules seems to dominate the others. Inefficient bankruptcy decisions and inefficient investment incentives appear to be the price society pays for limiting the liability of equity holders. From the standpoint of economic efficiency, no simple bankruptcy priority rule works as well as unlimited liability by the firm's owners.

It should be noted that inefficient outcomes might be reversed under any of the priority rules by debt holders offering a side payment to the coalition to induce it to choose the efficient outcome. But transactions costs are likely to be high in bargaining over bankruptcy, because severe free rider problems come up in attempting to collect money from debt holders to pay the transactions costs of bargaining with the coalition and the costs of the side payment itself. Debt holders' interests thus tend not to be actively represented.

Reorganization

Firms filing for bankruptcy have a choice between liquidating under Chapter 7 of the U.S. bankruptcy code and reorganizing under Chapter 11 of the Code. In a reorganization under Chapter 11, the existing managers of the firm usually remain in control and the firm continues to operate. A reorganization plan must be adopted which settles the claims of all pre-bankruptcy creditors. In many reorganizations there is never a sale of the firm or its assets on the open market. Instead, the reorganization plan substitutes for a sale. The reason for having two separate bankruptcy procedures seems to be that Congress has tended to view the role of reorganization as one of providing breathing space to save the jobs of supposedly viable firms that are in temporary financial distress. In contrast, liquidation is viewed as the process of winding up the operation of firms that are not viable.

The coalition model suggested that not all firms observed in bankruptcy liquidation should shut down. Rather, in both the certainty and uncertainty cases, the coalition in some situations has an incentive to choose liquidation even when the expected value of the firm's future earnings if it continues to operate exceeds the liquidation value of its assets. This finding suggests that the additional option of reorganization could potentially improve efficiency by allowing firms for which the expected value of future earnings exceeds shutdown value to continue operating, even though they would end up in liquidation if that were the only bankruptcy procedure available. However, if two separate procedures exist, managers will tend to choose the alternative that is best for themselves and for equity, regardless of whether the firm's assets are more or less valuable if it shuts down or continues operating. Thus a dilemma of reorganization is that, while it may allow some efficient firms to continue

operating which would otherwise liquidate, it also is likely to facilitate the rescue of some economically inefficient firms.

U.S. law of bankruptcy reorganization

Firms that file under Chapter 11 must adopt a reorganization plan.[12] There are two separate procedures for formulating a plan. The first is referred to as the "unanimous consent procedure" or UCP, under which all classes of creditors and equity as a class must consent to the plan. The assumption behind the UCP is that the firm's assets will have higher value if it reorganizes than if it liquidates. This value differential—which under the APR would go entirely to high priority creditors—must be divided up among all classes of creditors and equity via a negotiating process, with all parties sharing the gain. The plan must incorporate what is often an inflated valuation of the firm's assets, which makes them worth more than its liabilities under the plan. This makes the firm "solvent," which is required in order that the old equity be retained. (If instead it were determined that the firm is insolvent, then old equity must be eliminated, which means equity is deemed to disapprove the reorganization plan and the UCP cannot be used.) The UCP requires that all classes of creditors and equity as a class vote to approve the plan. For each class of creditors, the required voting margin in favor is at least two-thirds in amount of claims and one-half in number of claimants. For equity, the required voting margin is at least two-thirds in amount.

Thus reorganization plans under the UCP provide for a different division of the firm's assets than would occur under the APR liquidation rules. Under the UCP, everyone must receive something. Under the APR, equity and low priority creditors may quite possibly receive nothing at all.

Management is in a strong bargaining position in negotiations over the reorganization plan under the UCP. During the first six months after the bankruptcy filing (and lengthy extensions are often granted), only a plan proposed by management can be adopted. Managers also can threaten to transfer the firm's bankruptcy filing from Chapter 11 to Chapter 7 if creditors do not agree to a plan—a threat which is often effective in prodding unsecured creditors to accept the plan, since they anticipate receiving little or nothing if liquidation occurs. Managers also run the firm during the negotiating process, so secured creditors often fear that the value of their lien assets is declining. Finally, even after the period when only they can propose a plan, managers remain in a strong bargaining position. Individual creditors are often unrepresented and severe free rider problems crop up when creditors attempt to form groups to raise funds to take an active part in bargaining.

One justification for having a procedure such as the UCP is that something like it would seem likely to emerge in bargaining over the bankruptcy decision if transactions costs were low and all creditors were to participate. For example, suppose liquidation

---

[12] The new U.S. Bankruptcy Code, adopted in 1978, made major changes in bankruptcy reorganization procedures as well as some minor changes in the liquidation procedure. The law as described here is that prevailing under the Code. For a description of differences between provisions of the Code versus the pre-1978 Bankruptcy Act, see White (1984).

were the only bankruptcy procedure and the coalition had decided to liquidate. Then non-coalition debt holders might offer a side payment in the form of a reduction in the interest rate on their debt in return for the firm continuing to operate. Such an agreement would be similar in substance to the UCP, since creditors would accept a reduced return voluntarily in return for the firm continuing to operate.

The second scheme for adopting a reorganization plan is aptly named "cram-down." It comes into play if a reorganization plan is voted on, but fails to meet the standard for approval by all classes under the UCP, or if the firm is clearly insolvent and old equity must be eliminated. In that case, as long as at least one class of creditors has voted in favor of the plan, the bankruptcy court can confirm the plan anyway, or a modified version of it, as long as each dissenting class is treated "fairly and equitably." The "fair and equitable" standard closely reflects the APR in that it requires that all unsecured creditors either receive full payment of the face value of their claims over the period of the plan (usually 6 years) or else that all lower ranking classes receive nothing. It also requires that secured creditors retain their pre-bank-ruptcy liens on assets (or the "indubitable equivalent") and that they receive periodic cash payments equal to the value of their claims. Cramdown plans usually involve higher transactions costs than UCP plans, since the bankruptcy judge is likely to require appraisals by outside experts and more court hearings before approving the plan.

If no reorganization plan is adopted using either the UCP or cramdown, then sometimes managers will voluntarily sell the firm as a going concern on the open market. In that case, the proceeds of sale are paid to creditors according to the APR. This "liquidating reorganization" is similar to a Chapter 7 liquidation, except that the firm is sold as a going concern, rather than shut down and its assets sold piecemeal. (However, since most firms probably go through extended bargaining and months of disruption before such a sale occurs, their value when sold is likely to be less than if they were offered for sale immediately after filing for bankruptcy.) Finally, if no progress is being made toward completion of the Chapter 11 reorganization, then normally some creditor petitions the bankruptcy judge to order a shift of the firm's bankruptcy filing to a Chapter 7 liquidation. Thus all of the alternatives to adopting a reorganization plan under the UCP involve paying off creditors more or less according to the APR.

Characteristics of firms that reorganize in bankruptcy

In the DOJ study of 500 firms that filed to reorganize in bankruptcy, the average ratio of total liabilities to assets at the time of the filing was 1.4 and the ratio of secured liabilities to assets was 0.60. These ratios are lower than for the DOJ sample of firms that filed to liquidate, suggesting that failing firms which file to reorganize tend to be in better financial condition. In White's (1984) study of 64 firms that filed to reorganize and completed the reorganization process, only around 40 percent of the firms agreed on a reorganization plan under the UCP. For the rest, bargaining over a plan under the UCP did not succeed. Thirty percent of the sample then converted their filings to liquidations under Chapter 7. The remaining firms went through

liquidating reorganizations. No firms in the sample formally used cramdown to adopt a reorganization plan.[13]

In the White sample, the average payoff rate to unsecured creditors under the UCP reorganization plans was 16 percent in cash plus 18 percent (undiscounted) in installments payable over up to 6 years. The payoff rate to unsecured creditors of firms that were sold as going concerns while in bankruptcy was 13 percent in total. This evidence suggests that unsecured creditors do better when firms reorganize than when they liquidate and also do better when firms reorganize using the UCP than when bargaining over a plan under the UCP fails. The data are only suggestive, since important characteristics of firms in the different samples are not held constant.

Economic efficiency considerations of the reorganization procedure

The three-way bankruptcy decision among liquidation, reorganization and continuation outside of bankruptcy can be modeled as an extension of the bank/equity coalition decision. Suppose as a third alternative that the coalition might reorganize in bankruptcy using the UCP. I assume that the firm has both unsecured and secured debt which may be due in either period 1 or 2. Managers propose a reorganization plan under which all unsecured claims will receive a payoff rate in period 2 equal to u percent of face value and all secured claims will receive a payoff rate of s percent of face value. The payoff rate on secured claims is likely to be higher, so that s exceeds u. (What values these payoff rates would be likely to take is discussed below.) The amount not paid to creditors under the plan, equal to $(1 - u)$ percent of unsecured debt plus $(1 - s)$ percent of secured debt, is referred to as debt forgiveness. The firm also incurs a fixed transactions cost of reorganizing, T, which I assume must be paid in period 1. This includes court costs, lawyers' fees and the cost of lost management time. If the firm's earnings fall in reorganization as a result of disruption, this can be thought of as part of the fixed cost of reorganization.

The bank/equity coalition makes the decision between the firm reorganizing versus liquidating in bankruptcy. Assume that equity will receive nothing if liquidation is chosen. For the firm to reorganize, the coalition bank must be willing to extend a new loan to the firm that covers the fixed costs of reorganization, T, which is the only payment that must be made in the first period. I assume that the new loan will be available if giving it last-lender-first priority (as a loan made after the bankruptcy filing, it receives highest priority) makes it certain to be repaid. From the coalition's standpoint, one advantage of reorganizing over continuing outside of bankruptcy is that the new loan from the coalition bank is likely to be smaller and easier to obtain if the firm reorganizes. This is both because of debt forgiveness under the reorganization plan and because payments to creditors under actual reorganization plans are spread out over several years (six years is common), making the amount that must be paid in the first period smaller.

---

[13]These firms were again quite small—the average level of total liabilities was around \$2 million. Large firms are probably much more likely either to adopt plans using the UCP or to use cramdown.

It is useful again to distinguish between cases when the firm's future earnings are certain versus uncertain. Suppose the firm's future earnings if it reorganizes are P_2 with certainty. Then, neglecting interest and discount rates, the coalition chooses reorganization if P_2 minus the total amount of secured and unsecured debt *not* forgiven under the plan exceeds the fixed cost of reorganizing, T.

What are the efficiency implications of the reorganization/liquidation choice? The economic efficiency gain from the firm reorganizing is the difference between the value of its future earnings, P_2, and the liquidation value of its assets, L, if this difference is positive. The economic efficiency cost of the firm reorganizing is the fixed cost, T. Thus reorganization is economically worthwhile if the efficiency gain $P_2 - L$ exceeds T. But the coalition chooses reorganization if P_2 minus the amount of debt not forgiven under the plan exceeds T. Therefore the coalition may choose reorganization even when liquidation is more economically efficient or may choose liquidation even when reorganization is more economically efficient, depending on whether the firm's liquidation value is larger or smaller than the amount of non-forgiven debt owed to creditors.

Recall the discussion of the liquidation/continuation decision under certainty in the previous section. There, the coalition had an incentive to choose liquidation too often, since it ignored the gain to creditors from continuation being chosen, which was $P_2 - L$, unless the coalition also profited from continuation being chosen. Here exactly the same effect occurs, but with an additional factor affecting the coalition's choice. This additional factor is that when reorganization rather than continuation is the alternative to liquidating, there is a transfer from non-coalition creditors to equity in the form of debt forgiveness on secured and unsecured debt. This subsidy makes reorganization more attractive. As a result, while the coalition may choose either reorganization or liquidation when the other outcome is more efficient, it is more likely under reorganization that inefficient decisions will favor continuing the firm's operations rather than shutting it down.

Since the amount of debt forgiveness affects the coalition's choice between liquidating and reorganizing, there is a level of debt forgiveness under which the coalition has an incentive to make the economically efficient choice. This occurs when the amount of debt not forgiven under the plan equals the liquidation value of the firm, L. The average payoff rate to all creditors under the reorganization plan then must equal the liquidation value of the firm divided by the total face value of non-coalition debt. Thus a justification for using the APR as a default standard in reorganization when bargaining over a plan under the UCP breaks down is that in the certainty case, paying creditors in total an amount equal to the firm's value in liquidation gives the coalition an incentive to make the economically efficient choice between liquidation and reorganization. (However, this result does not hold when the firm's earnings are uncertain.)

Now suppose the firm's future earnings if it reorganizes are uncertain rather than certain. In this situation, reorganizing becomes much more attractive to the coalition than liquidating. The reason is the same as in the previous section: by reorganizing,

the coalition forces creditors to invest their remaining claims in a risky activity—the continued operation of the reorganized firm. Again equity receives the upside benefit and creditors disproportionately bear the downside risk. If the firm's earnings are again assumed to be $P_2 \pm G$ with probabilities p and $1 - p$, then the coalition can be shown to choose reorganization whenever the expected value of its earnings in the good outcome are positive. Thus the coalition bases its choice only on its earnings in the good outcome, when economic efficiency would require that the decision be based on both the good and the bad outcomes. The attractiveness of reorganizing increases as both G and/or p rise, and as the payoff rates s and/or u fall.

How are the payoff rates s and u determined? Without a more complete model of the bargaining process in reorganization, the actual payoff rates in reorganization cannot be predicted. However, the bankruptcy rules discussed above suggest the strength of the bargaining power of different creditors' groups. If bargaining over a reorganization plan failed and the firm liquidated, secured creditors could reclaim their lien assets. Each of these assets has an individual liquidation value. Secured creditors are each likely to demand a payoff rate equal to the liquidation value of their assets divided by the face value of their claims. Since individual secured creditors are usually each a separate creditors' class, they can individually block a UCP reorganization plan by voting against it. Therefore, they are in a fairly strong bargaining position. However, they may settle for a payoff rate less than this to avoid prolonged bargaining over a UCP reorganization plan, if disruption to the firm during the bargaining process would cause their lien assets to decline rapidly in value.[14] Unsecured creditors as a group also have the power to block a reorganization plan under the UCP, but if they do and the firm liquidates or goes through a liquidating reorganization, the data discussed above suggest that their returns will be quite low. Their payoff rate u will be at least equal to what unsecured creditors expect to receive if the firm were liquidated.

Since earnings uncertainty increases the attractiveness of reorganization to the coalition compared to the alternative of liquidation, giving non-coalition creditors a total payoff in reorganization equal to the firm's liquidation value, L, would still leave the coalition with an incentive to choose reorganization too often. Thus using the APR as a default standard in reorganization when voluntary bargaining does not succeed leaves the coalition with an incentive to choose reorganization more often than is economically efficient. To give the coalition economically efficient incentives, the default standard in reorganization would have to give creditors more in total than the firm's liquidation value.

The arguments concerning firms' decisions to reorganize in bankruptcy thus suggest that as long as firms' future earnings are risky, too many firms will reorganize in bankruptcy. They are motivated to file for bankruptcy reorganization both by the

---

[14]See Gordon and Malkiel (1981) for discussion of bargaining strategies of high priority creditors in reorganization which suggests that they are willing to give up 20 to 30 percent of their claims to facilitate quick adoption of a plan.

transfer from non-coalition creditors in the form of debt forgiveness under the plan and by the incentive to gamble with creditors' remaining claims by investing them in the firm's continuing operation.

Subsidies to firms that reorganize

Reorganizing firms benefit from some important subsidies relative both to firms that liquidate and to firms that continue outside of bankruptcy, subsidies the model above did not consider. These subsidies come either from the government or from creditors. They give firms in reorganization advantages relative either to firms that continue operating outside of bankruptcy or relative to firms that liquidate.

First, firms that reorganize retain most of their accrued tax loss carryforwards, which would be lost if they liquidated. These loss carryforwards shelter the firm from having to pay corporate profits taxes for a period, even if their operations start to be profitable. They make reorganization attractive relative to liquidation, but do not affect the choice between reorganization and remaining out of bankruptcy. Second, when reorganizing firms settle liabilities for less than their face value, the amount of debt forgiveness is deducted as a loss by the creditor but is not taxable income to the reorganizing firm. However, since 1980, the loan forgiveness amount becomes taxable (although with a long lag) if the reorganized firm becomes profitable, by reducing either its tax loss carryforward or its depreciation allowances.

Third, firms reorganizing under Chapter 11 have the right to terminate under-funded pension plans, and the U.S. government picks up the uncovered pension costs. Three large firms that have recently filed for bankruptcy—LTV, Wheeling-Pitts-burgh Steel and Allis-Chalmers—terminated their pension funds and together trans-ferred around $3 billion of uncovered pension liabilities to the government. Several years before its bankruptcy filing, Allis-Chalmers made an agreement with its union simultaneously to raise pension levels (which were insured by the government) and to lower pension funding. When it filed for bankruptcy, the assets in its pension plan only equalled 3 percent of its guaranteed benefits. The Pension Benefit Guaranty Corporation has attempted recently to transfer LTV's pension plan back to the company on the grounds that LTV is financially able to cover its pension costs, and the matter is being litigated.

Fourth, the Bankruptcy Code provides that when firms file for bankruptcy, their obligation to pay interest to pre-bankruptcy creditors, both secured and unsecured, ceases. They do not have to begin paying interest again until a reorganization plan is approved. The unpaid interest does not become a claim against the firm. This subsidy clearly gives managers of failing firms an incentive to file for bankruptcy earlier and to delay proposing a reorganization plan.

Fifth, firms in reorganization can reject any of their contracts which are not substantially completed. Thus they can get out of any contracts which are unprofita-ble. They are liable for damages to the other party to the rejected contract, but such damage claims are unsecured claims which are likely to receive only a low payoff rate. Thus, the cost to the firm of shedding unprofitable contracts is small. Firms in reorganization can sometimes also reject their collective bargaining agreements,

although since 1984 this step has required the approval of the bankruptcy judge. The ability of the firm to "decontract" selectively makes reorganization attractive both relative to continuing outside of bankruptcy (where firms must perform all their contracts) and relative to liquidating (which cancels all contracts).[15]

These subsidies increase the attractiveness of reorganizing to the coalition relative to the alternatives of liquidating or continuing outside of bankruptcy, by increasing the total amount of debt forgiveness in reorganization. However, the subsidies also cause the firm's earnings to become relatively less risky. Therefore the coalition will find reorganization more attractive, but the effect will be smaller than if the subsidies increased rather than reduced the riskiness of the firm's earnings. Finally, the subsidies have no effect on the economic efficiency of reorganization relative to liquidation or continuation. Thus if too many firms were already choosing reorganization, then to the extent that the subsidies cause failing firms to choose reorganization more often, they worsen the problem.

In practice, the subsidies are also likely to change the nature of the bargain made between creditors and the coalition in reorganization. Under the UCP, all creditors' classes and equity must consent to the plan, so that the subsidies strengthen the bargaining position of creditors generally and probably cause all payoff rates to rise. In this case, the subsidies are in effect divided among creditors' groups and equity, with the firm itself retaining equity's share. Alternately, if a liquidating reorganization occurs and the firm is sold on the open market, then the subsidies will cause the firm's sale price to rise, although probably by less than the full amount of the subsidies (since the new owners will also focus primarily on equity's earnings in the good outcome in deciding how much to bid for the firm). In this case, since the sale proceeds must be distributed according to the APR and will be exhausted before paying off all creditors' claims in full, creditors will get the entire increase in the sale price. The new owners of the reorganized firm will get the benefit of whatever proportion of the subsidies was not capitalized into its sale price. In either case, creditors are likely to demand and receive a substantial proportion of the value of the subsidies.

If we assume that the intent of Congress in providing the subsidies was to improve the viability of firms that reorganize and save their jobs, then to the extent that the subsidies "leak" out of the firm as increased payments to creditors, they fail to accomplish their purpose and are wasted. The subsidies could theoretically accomplish their purpose at lower cost if the reorganization procedure were changed to prevent them from leaking out. But it is difficult to see how this could be done. Eliminating at least some of the subsidies, such as by requiring that all firms fully fund their pension plans, seems desirable from an efficiency standpoint.

These subsidies vary in importance for different industries. But they have the potential to enable unprofitable firms to reduce their costs substantially by filing for bankruptcy under Chapter 11. For example, in the steel industry, there is overcapacity

---

[15] Firms not in bankruptcy also have the right to avoid performing their contracts by paying damages. But for firms not in bankruptcy, the damage payment is considerably higher, making it not worthwhile to default except in very unusual cases.

and a need for contraction overall. But analysts have estimated that LTV, one of the large steel companies, was able to reduce its steelmaking costs from $460 to $380 per ton as a result of filing to reorganize in bankruptcy. LTV's costs were then estimated to be $60 per ton below average steel industry costs.[16] This may affect the entire steel industry. The subsidies both enable LTV and other reorganized steel firms to continue to produce steel and put pressure on their competitors to file for bankruptcy (and receive the subsidies) as well. One viewpoint is that the subsidies may enable inefficient firms to remain in operation and slow the contraction of the industry and the movement of assets out of steel production to more valuable uses. An alternative viewpoint is that the subsidies may put previously uncompetitive steel firms on a more even footing with competitive steel firms in other countries. In either case, the subsidies probably save some jobs that would otherwise have been lost, but at a very high cost.

Bankruptcy Costs and Proposed Bankruptcy Reforms

Bankruptcy costs

The previous discussion suggests that bankruptcy costs play an important role in firms' three-way choice among liquidation, reorganization and continuation outside of bankruptcy. Thus it is of interest to know how high these costs actually are. Research on bankruptcy costs has tended to divide them into two categories. The first is the set of administrative costs for which bankruptcy courts keep records—including lawyers' costs, trustees' fees, and auction and appraisal costs. The second, referred to as indirect costs of bankruptcy, consists of lost sales and profits due to disruption, the value of foregone investment opportunities during the bankruptcy procedure, and the lost value of funds that are tied up during bankruptcy.

White (1984) compared the administrative cost items to the total amount paid to creditors in samples both of firms that liquidated and firms that reorganized. The figures were 21 percent for firms liquidating, 3.4 percent for firms that reorganized using the UCP and 10 percent for firms that went through liquidating reorganizations. In a similar study, but only of firms that liquidated, Ang, Chua and McConnell (1982) found a figure of 7.5 percent. These figures seem relatively low. An alternative approach to measuring administrative costs is suggested by Baird (1986), who gives a typical cost estimate of $100,000 for a firm going through a "straightforward" Chapter 11 proceeding. If half of the 17,000 firms that filed for bankruptcy under Chapter 11 in 1985 spent $100,000 each, this would imply a total expenditure on bankruptcy administrative costs of around $0.85 billion per year—which again seems low.

There have been a few efforts to measure indirect bankruptcy costs in reorganization. White (1983) used a coalition model similar to the one discussed above to show

---

[16]See "LTV is Healthier Under Chapter 11, but Not Cured," by C. F. Mitchell and J. E. Beazley, *The Wall Street Journal*, Friday, July 24, 1987, p. 5, col. 1.

that when firms choose reorganization but liquidation is more efficient, then the transfers to the coalition resulting from the decision to reorganize are an upper bound on the level of indirect bankruptcy costs resulting from the inefficient decision. These deadweight costs are in addition to the direct bankruptcy costs. White estimated that direct bankruptcy costs due to reorganization were $0.85 billion in 1980 dollars and that the direct plus indirect bankruptcy costs of inefficient decisions to reorganize were bounded from above at $9 billion in 1980 dollars. Thus total deadweight bankruptcy costs could be as high as 11 times the level of direct bankruptcy costs alone.

Another way to measure the upper bound on the level of total bankruptcy costs involves use of the risk premium on corporate bonds. The spread between interest rates on high risk and low risk corporate bonds having the same term measures investors' expectations of the probability of being repaid less than the contractual amount, converted to an even level over the term of the bond.[17] The spread between Moody's Aaa and Baa corporate bond rates, which are highest quality and medium quality corporate bonds, averaged 0.017 during the period 1980 and 1985. Since the average level of liabilities of U.S. financial corporations from 1980 to 1985 was $1,045 billion, these figures imply that investors expected to lose around $18 billion per year over the period. Actual losses in fact averaged $18 billion per year.[18]

Finally, another indicator of bankruptcy costs is the length of time that the bankruptcy procedure takes. White (1984) found that firms which reorganize using the UCP take 17 months on average in the bankruptcy process. Ang, Chua and McConnell (1982) found that bankruptcy liquidations are somewhat faster but still time-consuming—the average firm in their sample spent 14 months in bankruptcy. These data suggest that reforms of the bankruptcy process might well be directed toward speeding it up.

Proposed reforms of the bankruptcy procedure

The arguments of the previous section suggest that substantial inefficiencies result from having two separate bankruptcy procedures. In liquidation, equity interests rank last, while equity is maintained intact in reorganization under the UCP. This means that managers, representing equity, always prefer reorganization over liquidation, because by reorganizing they can transfer income from creditors to equity. (Managers may not always succeed in attracting a bank lender who will finance reorganization, but they always prefer reorganization over liquidation.) In addition, managers' personal interests also strongly favor reorganization because existing management is usually retained in reorganization, while in liquidation managers' jobs are eliminated. This preference for reorganization over liquidation causes too few firms to liquidate

---

[17]Actually this amount should exceed creditors' expected losses by the costs investors expect to incur if a default occurs (such as costs for participating in bankruptcy negotiations), plus a premium for idiosyncratic risk.

[18]However, during the period, the actual level of failed liabilities rose more quickly than the level expected by investors. Data on interest rates and actual losses are from the *Economic Report of the President* and data on total corporate liabilities are from the *Federal Reserve Bulletin*.

and generates inefficiency by delaying the movement of assets from less productive to more productive uses.

This suggests that reforming bankruptcy by combining the two procedures would improve economic efficiency. For example, suppose that new bankruptcy procedures required all bankrupt firms to be sold on the open market, but as going concerns rather than as piecemeal assets after shutdown. The proceeds of the sale would be paid to creditors and old equity holders according to the APR. The new owners of the firm would choose whether to shut it down or continue its operations. Since they would have an incentive to choose whichever alternative has greater value, the shutdown/continuation decision would be made efficiently. The new owners would also decide whether to keep the old managers on or replace them, and would have an incentive to make the efficient choice. The amount that the firm would sell for is the maximum of what the new owners would pay for its piecemeal assets versus what would be paid for it as a going concern. This would guarantee the maximum total compensation to pre-bankruptcy creditors and equity holders. Requiring that all bankruptcies take place under a single legal procedure would thus eliminate the deadweight cost that arises when firms continue to operate even when their resources are more valuable in some alternative use or when bad managers remain in control.

A number of writers have suggested reforms along these lines. All of the proposals involve establishing a market valuation of the bankrupt firm by selling some or all of its new equity on the open market. The resulting market valuation would be used as a basis for compensating pre-bankruptcy creditors and equity according to the APR. Some of the proposals involve changing the current reorganization procedure to make it more like the liquidating reorganization described above, while others advocate combining reorganization and liquidation into a single bankruptcy procedure.[19] An advantage of these proposals is that the firm would end up with an all-equity capital structure at the end of the bankruptcy procedure, in contrast to the often high debt burdens established by reorganization plans. The all-equity capital structure would make it much easier for the firm to attract a new working capital lender. Another advantage of these proposals is that the bankruptcy procedure would proceed much more quickly, since there would be no need for creditors and managers to bargain to an agreement concerning how each group is compensated. Assuming that length of time in bankruptcy is positively related to indirect bankruptcy costs, any reform which eliminates the need for bargained agreements is likely to reduce deadweight costs.

Despite these advantages, a unified procedure involving market valuation or sale of all bankrupt firms would not be a panacea for bankruptcy ills. The efficiency of the bankruptcy process itself would probably improve if reforms along these lines were adopted. But improving the bankruptcy procedure itself would be likely to exacerbate

---

[19]See Roe (1983), Bebchuk (1986), Baird (1986), and Jackson (1986). Roe's proposal involves selling 10 percent of the bankrupt firm's new equity on the market to establish a valuation for the firm. Under Bebchuk's proposal, the firm's new equity would be issued to high priority creditors, but subject to an option held by low priority creditors to purchase the equity for a pre-specified price. Low priority creditors would in turn be subject to an option given to old equityholders to buy the new shares at a pre-specified, but higher, price. Baird and Jackson both advocate eliminating bankruptcy reorganization completely.

the problem of inefficient decision-making outside of bankruptcy. The critical problem is that the reform proposals all involve compensating pre-bankruptcy creditors according to the APR. But the model of the coalition's liquidation versus continuation decision developed in the first section suggests that managers have an extremely strong incentive (except in the certainty case) to avoid bankruptcy if the bankruptcy procedure follows the APR and puts equity last. Therefore if the unified bankruptcy procedure used the APR, only firms in the worst possible financial shape would file for bankruptcy. Managers would have an incentive to choose the riskiest investment projects, to waste the firm's assets, to do anything possible and for as long as possible to avoid walking into bankruptcy court. A unified APR-based bankruptcy procedure would probably increase dramatically the deadweight costs of inefficient bankruptcy decisions. Only when the worst outcomes occurred and the firm's assets were exhausted would managers consider filing for bankruptcy.

The current two-pronged bankruptcy procedure has the effect of reducing the deadweight costs of inefficient bankruptcy decisions by allowing firms to reorganize in bankruptcy under rules which are more favorable both to equity interests and to managers themselves. In reorganization under the UCP, equity interests are maintained intact even while creditors' claims are cut back. Managers remain in control during the reorganization process. Thus, managers of firms in financial difficulty have less incentive to take extreme steps to avoid bankruptcy when reorganization is an option. The data presented above suggest that a result is for firms to file for bankruptcy reorganization when their financial condition is better on average than that of firms filing to liquidate in bankruptcy. Thus bankruptcy reorganization, which makes the bankruptcy procedure itself more complicated and costly than if all firms were liquidated, has an offsetting advantage in reducing deadweight costs outside of bankruptcy. A further advantage of having reorganization as a bankruptcy alternative is that once the firm has filed under Chapter 11, there is some supervision of managers' decisions by the bankruptcy court, which probably prevents at least the worst abuses.

Thus there is a tradeoff between improving the bankruptcy procedure itself and improving the efficiency of decision-making outside of bankruptcy. As long as streamlining the bankruptcy procedure involves compensating creditors according to the APR, then managers will have an incentive to gamble with creditors' assets as they try desperately to avoid bankruptcy's draconian treatment of equity under the APR. Ironically, while bankruptcy is supposed to be the procedure by which the economy moves toward long-run efficiency, the bankruptcy liquidation procedure gives managers of failing firms incentives to engage in inefficient behavior trying to avoid it.

Are there any possible solutions to this dilemma? One, not very practical on other grounds, would be to eliminate limited liability completely and make equity holders responsible for the firm's losses. This would take away from managers the ability to make transfers from creditors to equity—the source of their incentive to make economically inefficient decisions. Another possibility might be to unify and streamline the bankruptcy procedure along the lines of the reforms discussed above, but with old equity and management treated more favorably than under the reform procedures

just discussed. All bankrupt firms could be sold as going concerns on the open market, but existing management would be kept in place during the sale, and the sale proceeds could be divided among various creditors' classes and equity in a way which provides partial compensation to all groups. A reform along these lines would in effect try to strike a balance between conflicting efficiency objectives. But the basic problems of bankruptcy are not caused by design flaws in the bankruptcy system and tinkering with the design of bankruptcy procedures will not "solve" them. As with any tradeoff, the best that can be done is to strike the right balance.

References

Administrative Office of the U.S. Courts, *Federal Judicial Workload Statistics.* U.S. Government Printing Office, Washington, D.C., 1985.

Ames, Nancy, et al., *An Evaluation of the U.S. Trustee Pilot Program for Bankruptcy Administration:* Findings and Recommendations. Consultants' study for the U.S. Dept. of Justice. Cambridge, MA: Abt Associates, 1983.

Ang, James S., and Jess H. Chua, "Coalitions, the Me-first Rule, and the Liquidation Decision," *Bell Journal of Economics,* Spring 1980, *1,* 355–359.

Ang, James S., Jess H. Chua, and John J. McConnell, "The Administrative Costs of Corporate Bankruptcy: A Note," *Journal of Finance,* March 1982, *37,* 219–226.

Baird, Douglas G., "The Uneasy Case for Corporate Reorganizations," *Journal of Legal Studies,* January 1986, *XV,* 127–147.

Bebchuk, Lucian, "A New Method for Corporate Reorganization," unpublished paper, Harvard Law School, 1986.

Bulow, Jeremy I., and John B. Shoven, "The Bankruptcy Decision," *Bell Journal of Economics,* Autumn 1978, *9,* 437–456.

Dun & Bradstreet, *The Business Failure Record,* 1986.

Fama, Eugene R., and Merton H. Miller, *The Theory of Finance.* New York: Holt, Rinehart and Winston, 1972.

Gordon, Roger H., and Burton Malkiel, "Corporation Finance." In Aaron, Henry, and Joseph Pechman, eds., *How Taxes Affect Economic Behavior.* Washington, D.C. Brookings Institution, 1981.

Jackson, Thomas H., *The Logic and Limits of Bankruptcy Law.* Cambridge, MA. Harvard University Press, 1986.

Kim, E. Han, "A Mean-Variance Theory of Optimal Capital Structure and Corporate Debt Capacity," *Journal of Finance,* March 1978, *XXIII:1,* 45–63.

Kim, E. Han, J. J. McConnell, and P. R. Greenwood, "Capital Structure Rearrangements and Me-First Rules in an Efficient Capital Market," Journal of Finance, June 1977, *XXXII:3,* 789–810.

Roe, Mark, "Bankruptcy and Debt: A New Model for Corporate Reorganization," *Columbia Law Review,* April 1983, *83:3,* 527–602.

Schwartz, Alan, "Security Interests and Bankruptcy Priorities: A Review of Current Theories," *Journal of Legal Studies,* January 1981, *X,* 1–38.

Scott, James H., "Bankruptcy, Secured Debt, and Optimal Capital Structure," *Journal of Finance,* March 1977, *XXXII:1,* 1–19.

Stiglitz, Joseph E., "Some Aspects of the Pure Theory of Corporate Finance: Bankruptcies and

Take-Overs," *Bell Journal of Economics and Management Science*, Autumn 1972, *3*, 458–482.

Warner, Jerold B., "Bankruptcy, Absolute Priority, and the Pricing of Risky Debt Claims," *Journal of Financial Economics*, May 1977, *4:3*, 1–38.

White, Michelle J., "Bankruptcy Liquidation and Reorganization." In Logue, Dennis, ed., *Handbook of Modern Finance*. Boston: Warren, Gorham & Lamont, 1984 chapter 35, pp. 1–49.

White, Michelle J., "Public Policy toward Bankruptcy: Me-First and Other Priority Rules," *Bell Journal of Economics*, Autumn 1980, *11*, 550–564.

White, Michelle J., "Bankruptcy Costs and the New Bankruptcy Code," *Journal of Finance*, May 1983, *XXXVIII:2*, 477–487.