

# **Economics of Corporate and Personal Bankruptcy Law**

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Bankruptcy is the legal process by which financially distressed firms, individuals, and occasionally governments resolve their debts. The bankruptcy process for firms plays a central role in economics, because competition tends to drive inefficient firms out of business, thereby raising the average efficiency level of those remaining. Consumers benefit because the remaining firms produce goods and services at lower costs and sell them at lower prices. The legal mechanism through which most firms exit the market is bankruptcy. Bankruptcy also has an important economic function for individual debtors, since it provides them with partial consumption insurance and supplements the government-provided safety net. Local governments occasionally also use bankruptcy to resolve their debts and there has been discussion of establishing a bankruptcy procedure for financially distressed countries (see White, 2002).

For both corporate and individual debtors, bankruptcy law provides a collective framework for simultaneously resolving all debts when debtors' assets are less than their liabilities. This includes both rules for determining which of the debtor's assets must be used to repay debt and rules for dividing the assets among creditors. Thus bankruptcy is concerned with both the size of the pie—the total amount paid to creditors--and how the pie is divided.

For financially distressed corporations, both the size and division of the pie depend on whether the corporation liquidates versus reorganizes in bankruptcy and bankruptcy law also includes rules for deciding whether reorganization or liquidation will occur. When corporations liquidate under Chapter 7 of U.S. bankruptcy law, the pie includes all of the firm's assets but none of its owners' other assets. This reflects the doctrine of limited liability, which exempts owners of equity in corporations from personal liability for the corporation's debts beyond loss of the value of their shares. The corporation's assets are liquidated and the proceeds are used to repay creditors according to the absolute priority rule (APR). The APR carries into bankruptcy the non-bankruptcy rule that debt must be paid in full before equity receives anything. The APR also determines

how the pie is divided among creditors. Classes of creditors are ranked and each class receives full payment of its claims until funds are exhausted.

When corporations reorganize under Chapter 11 of U.S. bankruptcy law, the reorganized corporation retains most or all of its assets and continues to operate—generally under the control of its pre-bankruptcy managers. Bankruptcy law again provides a procedure for determining both the size and division of the pie in reorganization, but the procedure involves a negotiation process rather than a formula. Funds to repay creditors come from the firm’s future earnings rather than from selling its assets. The rule for division of the pie in reorganization is also different. Instead of creditors receiving either full payment or nothing, most classes of creditors receive partial payment regardless of their rank and pre-bankruptcy equity receives some of the reorganized firm’s new shares. This priority rule is referred to as “deviations from the APR,” since equity receives a positive payoff even though creditors are repaid less than 100%. Creditors and equity negotiate a reorganization plan that specifies what each group will receive and the plan must be adopted by a super-majority vote of each class of creditors and equity.

For individuals in financial distress, bankruptcy law also includes both rules for determining which of the individual’s assets must be used to repay debt (the size of the pie) and rules for dividing the assets among creditors (the division of the pie). In determining the size of the pie, personal bankruptcy law plays a role similar to that of limited liability for corporate equityholders, since it limits the amount of assets that individual debtors must use to repay. It does this by specifying exemptions, which are maximum amounts of both financial wealth and post-bankruptcy earnings that individual debtors are allowed to keep. Only amounts in excess of the exemption levels must be used to repay. An important feature of U.S. bankruptcy law is the 100% exemption for post-bankruptcy earnings, known as the “fresh start,” which greatly limits individual debtors’ obligation to repay. (Note that in 2005, Congress adopted limits on the availability of the fresh start.) In personal bankruptcy, the rule for dividing repayment among creditors is also the APR.

An important difference between personal and corporate bankruptcy law is that, while corporations may either liquidate or reorganize in bankruptcy, individuals can only

reorganize (even though the most commonly-used personal bankruptcy procedure in the U.S. is called liquidation). This is because part of individual debtors' wealth is their human capital and the only way to liquidate human capital is to sell debtors into slavery—as the Romans did. Since slavery is no longer used as a penalty for bankruptcy, all personal bankruptcy procedures are forms of reorganization in which individual debtors keep their human capital and the right to decide whether to use it.

The economic objectives are similar in corporate and personal bankruptcy. One important objective of bankruptcy is to require sufficient repayment that lenders will be willing to lend—not necessarily to the bankrupt debtor, but to other borrowers. Reduced access to credit makes debtors worse off because businesses need to borrow in order to grow and individuals benefit from borrowing to smooth consumption. On the other hand, repaying more to creditors harms debtors by making it more difficult for financially distressed firms to survive and by reducing financially distressed individuals' incentive to work. Both the optimal size and division of the pie in bankruptcy are affected by this tradeoff. A second important objective of both types of bankruptcy is to prevent creditors from harming debtors by racing to be first to collect. When creditors think that a debtor is in financial distress, they have an incentive to collect their debts quickly, since the debtor will be unable to repay all creditors in full. But aggressive collection efforts by creditors may force debtor firms to shut down even when the best use of their assets is to continue operating and may cause individual debtors to lose their jobs (if creditors repossess their cars or garnish their wages). A third objective of personal bankruptcy law that has no counterpart in corporate bankruptcy is to provide individual debtors with partial consumption insurance. If consumption falls substantially, long-term harm may occur, including debtors' children leaving school prematurely in order to work or debtors' medical conditions going untreated and becoming disabilities. Discharging debt in bankruptcy when debtors' consumption would otherwise fall reduces these costs. An additional objective that applies only to corporate bankruptcy is to reduce filtering failure. Financially distressed firms may be either economically efficient or inefficient, depending on whether the best use of their assets is the current use or some alternative. Filtering failure in bankruptcy occurs when efficient but financially distressed firms shut down and when inefficient financially distressed firms reorganize and continue operating.

The cost of filtering failure is either that the firm's assets remain tied up in an inefficient use or that they move to an alternative use when the current one is the most efficient. Many researchers have argued that reorganization in Chapter 11 tends to save economically inefficient firms that should shut down.

Research on corporate and personal bankruptcy is discussed separately below. Small business bankruptcy is included with personal bankruptcy, because small businesses are often unincorporated and therefore their debts are legal liabilities of the business owner. When these businesses fail, their owners can file for bankruptcy and both their business and personal debts will be discharged. Note that most of the research on bankruptcy is focused on U.S. law and U.S. data. For a longer survey of research on corporate and personal bankruptcy that includes many references, see White, 2006.

#### *Corporate bankruptcy*

A central theoretical question in corporate bankruptcy is how priority rules affect the efficiency of decisions made by equity/managers, particularly whether the firm invests in safe versus risky projects and whether/when it files for bankruptcy. Inefficient investment decisions lower the firm's return and inefficient bankruptcy decisions result in filtering failure. Both reduce creditors' returns and cause them to raise interest rates and/or reduce the amount they are willing to lending.

Bebchuk (2002) compares the efficiency of corporate investment decisions when the priority rule in bankruptcy is the APR versus deviations from the APR, which he takes to represent liquidation versus reorganization in bankruptcy. A well-known result in finance is that equity prefers risky over safe investment projects, because equity gains disproportionately when risky projects succeed and bears only limited losses if risky projects fail. If the priority rule in bankruptcy is changed from the APR to deviations from the APR, then equity's preference for risky projects becomes even stronger. This is because equity now receives a positive return rather than nothing when risky projects fail, while equity still receives the same high return when risky projects succeed. This change makes risky projects even more attractive relative to safe ones, since the latter rarely fail and therefore their return is unaffected by the change in the priority rule. Thus when the

bankruptcy regime is reorganization rather than liquidation, investment decisions become less efficient because equity overinvests in risky projects.

But Bebchuk argues that the results are reversed when firms are already in financial distress. Here, deviations from the APR reduce rather than increase equity's bias toward choosing risky investment projects. This is because when the project is likely to fail and the firm to file for bankruptcy, equity's main return comes from the share that it receives of the firm's value in bankruptcy—the deviations from the APR. And since safe projects have higher downside returns, they generate more for equity. Thus the overall result is that neither priority rule in bankruptcy always leads to efficient investment incentives. Similar models have shown that none of the standard priority rules always lead to efficient bankruptcy decisions.

Bankruptcy law also affects other economically important decisions, including whether managers default strategically, whether they reveal important information about the firm's condition to creditors, and how much effort they use. Strategic default occurs when firms default on their debt even though they are financially solvent. In the financial contracting literature, there is a tradeoff between strategic default and filtering failure (see Bolton and Scharfstein, 1996). Suppose a firm borrows  $D$  in period 0 to finance an investment project. The firm will either succeed or fail. If it succeeds, it earns  $R_1 > D$  in period 1 and an additional  $R_2 > L$  in period 2. If it fails, then its period 1 earnings are zero, but it still earns  $R_2$  in period 2. Regardless of whether the firm succeeds or fails, the liquidation value of its assets is  $L$  in period 1 and 0 in period 2. The firm's earnings are assumed to be observable but unverifiable. The loan contract calls for the firm to repay  $D$  in period 1 and it gives lenders the right to liquidate the firm in period 1 and collect  $L$  if default occurs. The contract does not call for any repayment in period 2, since promises to repay are not credible when the firm's liquidation value is zero. Liquidating the firm in period 1 is inefficient, since the firm would earn more than  $L$  if it continued to operate. Under these assumptions, the firm's owners always repay in period 1 when the firm is successful, since they benefit from retaining control and collecting  $R_2$  in the following period. But if the firm fails, then its owners default and creditors liquidate it. Thus there is no strategic default, but filtering failure/inefficient liquidation occurs. If lenders instead allowed owners to remain in control following default, then

there would be no filtering failure, but a high level of strategic default. Because of incomplete information, strategic default and filtering failure cannot both be eliminated.

Bankruptcy law also affects managers' choice of how much effort to use and whether to delay filing for bankruptcy. Povel (1999) analyzes a model in which managers make an effort level decision and also receive an early signal concerning whether the firm will succeed. When the signal is bad, managers decide whether to file for bankruptcy or continue operating outside of bankruptcy. Filing for bankruptcy is assumed to be economically efficient in this situation, since it allows creditors to rescue the firm. Neither the effort level decision nor the signal is observed by creditors. Povel considers two different bankruptcy laws, reorganization versus liquidation. In the model, if the bankruptcy procedure is reorganization, the result is that managers choose low effort and file for bankruptcy when the signal is bad. Filing for bankruptcy is economically efficient, but low effort by managers is inefficient. Conversely, if the bankruptcy procedure is liquidation, the result is that managers use high effort and avoid bankruptcy when the signal is bad. This tradeoff suggests that the best bankruptcy procedure could be either reorganization or liquidation, depending on parameter values.

Berkovitch, Israel and Zender (1998) analyze a similar model, but they explore alternative bankruptcy procedures. In their model, managers again make an effort-level decision that creditors cannot observe and there is an early signal of the firm's future return. But the signal is observed by both creditors and equity, so that there is no strategic default or delay in filing for bankruptcy. The interesting case in their model occurs when the signal is intermediate. In this situation the most efficient outcome is for the firm to continue operating without any additional investment by creditors. But this cannot occur without renegotiating the loan contract, since the owner/manager would abandon the firm if creditors had to be repaid in full. Berkovitch et al analyze a bankruptcy procedure in which the firm is sold as a going concern, creditors receive the value of its assets if it liquidated immediately, and the manager/owner receives all of the firm's final period earnings net of its liquidation value. This procedure results in entrepreneurs choosing an efficient effort level, since they keep the entire marginal product of their extra effort. But a bankruptcy liquidation procedure that uses the APR does not achieve this outcome and a bankruptcy reorganization procedure that uses

deviations from the APR only implements it in special cases. The model suggests that an efficient bankruptcy procedure could involve auctioning firms as going concerns in bankruptcy, allowing equity to bid, and giving the entire proceeds of the auction to creditors.

There is a large literature on reforms of bankruptcy law. Most articles start from the premise that too many firms reorganize in bankruptcy under current law, since reorganization under Chapter 11 has both high transactions costs and high costs of filtering failure. One proposal is to auction all bankrupt firms and use the proceeds to repay creditors according to the APR. This procedure has the dual advantages that it would be quick and that the new owners would make efficient decisions concerning whether to save or liquidate each firm. See Baird (1986). Another proposal is to use options to divide the value of firms in reorganization (Bebchuk, 1988). Both auctions and options would establish a market value of the firm's assets, so that creditors could be repaid according to the APR and deviations from the APR could be eliminated. Another proposal, called bankruptcy contracting, would allow debtors and creditors to adopt their own bankruptcy procedure when they write their loan contracts, rather than requiring them to use the state-supplied mandatory bankruptcy procedure. Schwartz (1997) showed that bankruptcy contracting could improve efficiency in particular circumstances. But whether bankruptcy contracting or any of the other reform proposals would work well in a general model that takes account of other complications--such as the existence of multiple creditor groups and strategic default--has not been established.

Now turn to empirical research on corporate bankruptcy. It has focused on measuring the costs of bankruptcy and the size and frequency of deviations from the APR. Studies of the costs of bankruptcy include only the legal and administrative costs of the bankruptcy process, i.e., the costs of bankruptcy-induced disruptions are excluded. Most studies have found that bankruptcy costs as a fraction of the value of firms' assets are higher in liquidation than in reorganization, but this may reflect the fact that larger firms tend to reorganize rather than liquidate. Unsecured creditors generally receive nothing in liquidation, but are repaid one-third to one-half of their claims in reorganization. This higher return in reorganization could be due to selection bias, if firms that reorganize are in relatively better financial condition. Other studies provide

evidence that Chapter 11 filings are associated with an increase managers' and directors' turnover, suggesting that the process is very disruptive. In addition, many firms that reorganize in Chapter 11 end up requiring additional financial restructuring within a short period. This is consistent with the theoretical prediction that too many financially distressed firms reorganize. Deviations from the APR have been found to occur in around three-quarters of all reorganization plans of large corporations in bankruptcy. See Bris et al (2004) for a recent study and references.

### *Personal bankruptcy*

When an individual or married couple files for bankruptcy under Chapter 7 (the most commonly used procedure), most unsecured debts are discharged. Debtors are obliged to use their non-exempt assets, but not their future earnings, to repay debt. Exemption levels—unlike other features of U.S. bankruptcy law--differ across states. The most important exemption is the “homestead” exemption for equity in owner-occupied homes, which varies widely from zero to unlimited. Because debtors can convert non-exempt assets such as bank accounts into home equity before filing for bankruptcy, high homestead exemptions protect all types of wealth for debtors who are homeowners.

Theoretical research on personal bankruptcy has focused on deriving optimal exemption levels for debtors' wealth and their future earnings. Higher levels of both exemptions benefit individual debtors by providing them with additional consumption insurance, but harm debtors in general by reducing the availability of credit and increasing interest rates. However the two exemptions have differing effects on debtors' incentives to work after bankruptcy. A higher wealth exemption unambiguously reduces work incentives, while a higher earnings exemption increases work incentives as long as the positive substitution effect outweighs the negative income effect. The model suggests that the optimal earnings exemption is 100%--i.e., the “fresh start”, while the optimal wealth exemption is an intermediate level. This is both because a higher earnings exemption encourages additional work effect and because a higher earnings exemption can provide better consumption insurance than a higher wealth exemption.

An important feature of personal bankruptcy law is that it encourages opportunistic behavior by debtors. Although bankruptcy debt relief is intended for debtors whose consumption has fallen sharply due to factors such as job loss or illness, in fact debtors' incentive to file has little relation to these adverse events. Debtors' financial benefit from bankruptcy equals the amount of debt discharged minus the sum of non-exempt assets that must be used to repay and the costs of bankruptcy. White (1997) calculated that at least one-sixth of U.S. households would benefit financially from filing for bankruptcy and this figure rose to more than one-half if households were assumed to pursue various strategies, such as borrowing more on an unsecured basis, converting non-exempt assets into exempt home equity, and moving to states with high homestead exemptions. These features of bankruptcy law are probably responsible for high filing levels (more than 1.6 million U.S. households filed for bankruptcy in 2003) and for the fact that the U.S. Congress recently changed Chapter 7 to make bankruptcy less attractive to many debtors.

Most of the empirical research on personal bankruptcy makes use of the variation in exemption levels that causes bankruptcy law to differ across U.S. states. Gropp, Scholz and White (1997) found that if households live in states with high rather than low exemptions, they are more likely to be turned down for credit, they borrow less, and they pay higher interest rates. They also found that in high exemption states, credit is redistributed from low-asset to high-asset households. Households in high exemption states demand more credit because borrowing is less risky, but lenders respond by offering larger loans to high-asset households while rationing credit more tightly to low-asset households. Similar results have been found for the effect of high exemptions on the availability of small business credit. Fay, Hurst and White (2002) found that households are more likely to file for bankruptcy when their financial benefit from filing is higher. Since households' financial benefit from filing is positively related to the size of the exemption, this means that households are more likely to file if they live in states with higher bankruptcy exemptions. Individuals are also more likely to own or start businesses in states with higher exemption levels, presumably because the additional consumption insurance in these states lowers the cost of business failure. Finally, since higher exemption levels provide households with additional consumption insurance, the variance of household consumption is predicted to be smaller in states that have higher

exemption levels. Grant (2003) found macro-level support for this hypothesis using data on the variance of consumption across state-years.

JEL classification: K2, G3

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