

BANKRUPTCY AND THE RESOLUTION OF FINANCIAL DISTRESS*

EDITH S. HOTCHKISS

Boston College

KOSE JOHN

New York University

ROBERT M. MOORADIAN

Northeastern University

KARIN S. THORBURN

Dartmouth College

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Abstract

This chapter reviews empirical research on the use of private and court-supervised mechanisms for resolving default and reorganizing companies in financial distress. Starting with a simple framework for financial distress and a quick overview of the theoretical research in this area, we proceed to summarize and synthesize the empirical research in the areas of financial distress, asset and debt restructuring, and features of the formal bankruptcy procedures in the United States and around the world. Studies of out-of-court restructurings (workouts and exchange offers), corporate governance issues relating to distressed restructurings, and the magnitude of the costs and the efficiency of bankruptcy reorganizations are among the topics covered.

Keywords

bankruptcy, financial distress, bankruptcy costs, fire sales, bankruptcy auctions, reorganizations, Chapter 11

1. Introduction

Bankruptcy law and related out-of-court mechanisms governing default on debt contracts form one of the essential building blocks of a private economy. The law provides a general structure that helps claimholders resolve unforeseen conflicts arising when the firm defaults on its debt payments. It also determines the allocation of control over the distressed firm to various claimholders and the extent to which market mechanisms are used in resolving financial distress. This in turn affects investors' willingness to provide capital *ex ante* and thus firms' choice of capital structure and cost of capital.¹

The design of bankruptcy procedures varies widely across the world. Some countries, like the United States and France, have laws that are favorable to the incumbent management and the continuation of the firm as an ongoing entity. Other countries, like the UK and Sweden, rely on the market in allocating the failing firm's assets. With emerging economies striving to adopt adequate bankruptcy procedures, the relative efficiency of existing procedures has become an important topic for debate.

Furthermore, the use of high leverage in corporate restructuring and the popularity of junk bonds (original issue high-yield bonds) have been important aspects of the U.S. corporate finance scene since the 1980s. Leverage increases are accompanied by increased potential for default and bankruptcy. These structures raise the importance to financial economists, managers, and legal scholars of understanding how firms deal with financial distress.

An active academic literature that examines various aspects of the use of private and court-supervised mechanisms for resolving default has developed over the last two decades. The purpose of this chapter is to summarize and synthesize the empirical research in the areas of financial distress, asset and debt restructuring, and formal bankruptcy procedures in the United States and around the world.²

The survey is organized as follows. Section 2 presents a simple conceptual framework for analyzing financial distress that guides the organization of the empirical literature in the subsequent sections. The bulk of the evidence is from the United States, and we turn to the international evidence at the end (Section 8). We review the U.S. evidence in the following order: Evidence on asset restructurings is reviewed in Section 3. Studies of out-of-court debt restructuring (workout and exchange offers) are described in Section 4. Section 5 reviews corporate governance issues related to the restructuring of financially distressed firms. Sections 6 and 7 discuss different aspects of formal bankruptcy proceedings in the United States, in particular the magnitude of costs and the efficiency of the outcome. In Section 8, research on insolvency procedures in other countries is surveyed. Section 9 concludes by offering some comments and suggestions for the direction of future research.

¹ These *ex-ante* effects are analyzed in the literature on optimal security design and capital structure. See, for example, Allen (1989), Allen and Gale (1994), and Allen and Winton (1995) for security design, and Harris and Raviv (1991) and Part 3 of this book for capital structure. We focus here on the *ex-post* efficiency of the distress resolution mechanisms.

² See Wruck (1990), John and John (1992), John (1993), and Senbet and Seward (1995) for earlier surveys of this literature.

2. Theoretical framework

This section presents a simple framework describing financial distress and the mechanisms available to resolve distress. The framework provides an overview of the issues analyzed in the theoretical literature and hence a motivation for the questions examined in the empirical literature.

2.1. Restructuring of assets and financial contracts

The financial contracts of a firm can be broadly categorized into hard and soft contracts. An example of a hard contract is a coupon-paying debt contract that promises periodic payments by the firm to its bondholders. If these payments are not made on time, the firm is in violation of the contract, and bondholders can seek legal recourse to enforce the agreement. Lack of liquidity does not constitute a mitigating circumstance for non-payment. Obligations to suppliers and employees are other examples of hard contracts. In contrast, common stock and preferred stock are examples of soft contracts. Here, even though equityholders have expectations of receiving regular cash payouts from the firm, the level and frequency of these payouts are discretionary policy decisions made by the firm. Specifically, the payouts can be suspended or postponed based on the availability of liquid resources remaining in the firm after satisfying the claims of the hard contracts.

The assets of a firm also have a natural categorization based on liquidity. Cash and marketable securities that can quickly be converted into cash are liquid assets. Long-term investments, such as plant and machinery, which may only produce liquid assets in the future, are considered illiquid or hard assets.

These categorizations of the financing contracts of a firm and its assets form the basis for a straightforward definition of financial distress. A firm is in financial distress at a given point in time when the liquid assets of the firm are not sufficient to meet the current requirements of its hard contracts. Mechanisms for resolving financial distress do so by rectifying the mismatch through restructuring the assets or restructuring the financing contracts, or both. In this survey, we examine the costs of resolving financial distress using either method.

On the asset side, the hard assets can be wholly or partially sold to generate additional cash in order to meet the current obligations. Premature sale of illiquid assets, however, may result in the destruction of going-concern value and involves a cost of liquidation. This cost can be thought of as the difference between the going-concern value of the assets (i.e., the present value of all future cash flows produced by the assets) and the highest value that can be realized if the assets are sold immediately. The cost of liquidation, and hence the cost of the asset restructuring, depends on a variety of factors such as what fraction of the assets needs to be sold and what operational relationship the liquidated assets has to those that are retained. If the assets can be sold as a going-concern package instead of a piecemeal sale of assets, the liquidation costs may be lower. Similarly, if the assets are sold in a competitive auction to a buyer who can use these assets efficiently, liquidation costs may be very low or—if the buyer is a higher-value user than

the seller—even positive. In other words, the efficiency of the asset-restructuring channel will depend on the liquidation costs associated with the sale of the required assets.

Shleifer and Vishny (1992) analyze the determinants of liquidation costs related to asset sales in financial distress. They focus on different aspects of market liquidity, including credit constraints in the industry, asset fungibility (the number of distinct uses and users for a particular asset), and participation restrictions (e.g., regulations on foreign acquisitions and antitrust restrictions). In their model, industry outsiders are lower-valuation users of the assets. Shleifer and Vishny argue that the price received in a distressed asset sale may suffer from large discounts if the entire industry is financially distressed and industry insiders are unable to compete for the assets due to liquidity constraints.

An alternative way of dealing with financial distress involves restructuring the financial contracts. One mechanism for this restructuring is to negotiate with creditors and reformulate the terms of hard contracts such that the current obligations are reduced or are deferred to a later date. Another technique is to replace the hard contract with soft securities that have residual rather than fixed payoffs. In general, debt restructuring provides relief from financial distress by replacing the existing debt with a new debt contract that reduces the interest or principal payments, or extends the maturity, or exchanges equity securities for the debt.

An additional financial restructuring mechanism that helps correct the imbalance between current assets and requirements of the hard contracts is to raise current liquidity by issuing additional new claims against future cash flows. Although the original hard contracts are left unaltered, the claim structure of the firm is changed by the new financing undertaken. When the newly issued claims are a softer contract or have longer maturity, the total package of financing becomes less onerous on the firm, resolving financial distress. An infusion of private equity is an example of this type of restructuring.

Both asset restructurings and debt restructurings can be accomplished either through a formal court-adjudicated process or in a voluntary out-of-court workout. The choice of method used to resolve financial distress depends on the relative costs and benefits of each mechanism. For example, in an illiquid secondary market, the costs of asset restructurings are likely to be high, and financial restructuring may constitute a dominant restructuring mechanism. By the same token, if asset restructuring involves asset sales through efficient mechanisms such as auctions, the overall costs of resolving financial distress may be lower.

2.2. Efficiency issues in recontracting

The efficiency of the mechanisms for resolving distress can be measured by the loss in asset value incurred in the process of the asset and debt restructuring. A number of factors related to the structure of the firm's claims and to the institutional framework governing the process for restructuring contribute to these costs. To understand these factors, it is useful to first consider a simple theoretical setting in which distress can be resolved costlessly.

In this simple setting, a single lender has access to the same information as corporate insiders, and the debt contract is complete; that is, a complete state-contingent set of contracts can be written and are enforced by the legal system. Here, either an initial contract can be designed that imposes the financial restructuring necessary to avoid a premature liquidation of assets, or the contract will be renegotiated costlessly in default in order to avoid suboptimal liquidations. For example, if at any time the firm's current liquidity falls short of the current coupon obligations of the debt contract, the debt contract is renegotiated. In the negotiation, the lender is promised a combination of cash in the current period that the firm can pay without liquidating assets and additional cash flow in the future. The expected value of this combination is equal to the cash flow guaranteed by the old debt contract. Under symmetric information, the lender knows that the restructuring of the debt is such that he or she is indifferent between the new contract and the old one, and will accept the proposed contract. Moreover, the firm is no longer financially distressed under the new contract. In this example, the distress resolution is completely efficient and simply accomplished through a costless restructuring of the debt contract.

In practice, however, contracts are by nature generally incomplete. Neither outside investors nor the court system can verify the detailed information required to enforce many contracts. The current cash available, for instance, may not be observable to outside parties, preventing the enforcement of contracts that are contingent on these cash flows. Moreover, managers may have some latitude to divert a portion of the firm's cash flows according to their personal preferences. Hart and Moore (1998) show that when one cannot contract on cash flows, creditors must be given some rights to liquidate physical assets in order to make borrowing viable. Otherwise, managers would always choose to default strategically and divert available cash to them. Anticipating this situation, creditors would not be willing to lend money to the firm. In contrast, if creditors are given the right to sell assets following nonpayment (default), the threat of liquidation helps deter strategic defaults. To keep the threat credible, suboptimal asset sales may sometimes occur following liquidity-induced defaults.

Financial restructuring can provide a solution to this problem. Mechanisms facilitating debt restructuring will reduce the costs of premature asset sales following liquidity defaults. The same mechanisms, however, will reduce creditors' rights to liquidate assets following a strategic default, encouraging such defaults. The efficiency of the debt-restructuring mechanism ultimately depends on the relative importance of these two effects. Harris and Raviv (1991) and Bolton and Scharfstein (1996) develop related arguments.

In addition to the incomplete contracting problem, asymmetric information between debtors and creditors about the value of the assets—ongoing firm value and liquidation value—can impede a mutually beneficial debt renegotiation. As pointed out by Brown (1989), a private workout is always successful when there is symmetric information between management and a single creditor. Many of the theoretical models in the area examine the effect of incomplete contracting and asymmetric information on the efficiency of contracting, as well as the mechanisms necessary to resolve financial distress arising from a failure to meet the terms of the debt contract.

A third problem in practice is that there are usually multiple creditors with interests that are not congruent. Depending on the nature of the debt contract (private debt vs. public debt, syndicated vs. nonsyndicated debt), it may be difficult to achieve an agreement among creditors. Moreover, each creditor may have incentives to be the first to force a liquidation of the firm's assets in order to guarantee payment in full. It has been argued that one of the central reasons for needing a bankruptcy law is to curb the inefficiencies resulting from this "common pool" problem.

The presence of all these factors will influence the firm's choice of restructuring venue—that is, whether it will recontract privately or will instead choose to enter formal bankruptcy proceedings. We discuss this choice further in Section 2.4, following a brief review of the main ingredients of the formal bankruptcy process in the United States.

2.3. Rules and procedures of the U.S. bankruptcy code

For most firms in the United States, formal bankruptcy practices are governed by the Bankruptcy Reform Act of 1978 and, more recently, the Bankruptcy Reform Act of 2005. Bankruptcy petitions are filed in one of 94 regional bankruptcy courts, often based on the physical location of the company's assets.³ Corporations generally file for liquidation under Chapter 7 or for reorganization under Chapter 11. Although creditors may initiate an involuntary filing under Chapter 7, management is often successful in converting the case to Chapter 11, allowing an attempt to reorganize. Because management can challenge an involuntary petition, bankruptcy filings are more frequently initiated by management.

For firms filing under Chapter 7, the court appoints a trustee that organizes a sale of the firm's assets. Proceeds from the asset sales are distributed to claimholders according to the absolute priority rule, implying that junior claims do not receive any payment until senior claims are paid in full. Each claimholder's distribution depends on the seniority of his claim and the total amount of proceeds received from the sale of assets.

Filings under Chapter 11 are treated as corporate reorganizations, and the bankrupt firm is expected to continue as a going concern after leaving bankruptcy. Consistent with the objective of reorganization, the major provisions of Chapter 11 are designed to allow the firm to continue operating. In general, incumbent management continues to run the business in Chapter 11. To protect the firm during the reorganization, Chapter 11 imposes an automatic stay that stops all payment of interest and principal to creditors and prevents secured creditors from foreclosing on their collateral. The debtor firm may also obtain debtor-in-possession (DIP) financing, taking the form of a line of credit or new financing for routine business expenses. Firms typically file a motion for authorization of a DIP loan at the same time as the Chapter 11 petition or shortly thereafter. Under Section 364 of the Bankruptcy Code, these post-petition loans are granted a super-seniority status

³ LoPucki and Whitford (1991) examine the choice of venue for 43 large, publicly traded companies in financial distress. They find that firms often engage in "forum shopping," that is, file in a court where the firm has little physical presence, avoiding courts that appear hostile to extensions of exclusivity or aggressively regulate attorney's fees. See also Eisenberg and LoPucki (1999) for evidence on forum shopping.

that effectively strips seniority covenants from existing debt. This reduces the default risk of the new loan, hence encouraging new lending.

To manage the large number of creditors and equityholders that may be involved in the reorganization, the Bankruptcy Code provides for the appointment of committees to represent the interests of different claimholder classes before the court. Committees normally consist of the seven largest members of a particular class who are willing to serve, and they are empowered to hire legal counsel and other professional help at the expense of the firm. A committee representing unsecured creditors is almost always appointed. Other committees can be appointed at the discretion of the Executive Office for U.S. Trustees or the court to represent other claimholder classes, including stockholders.⁴

In order to emerge from Chapter 11, the bankrupt firm must develop a reorganization plan that restructures and reallocates the financial claims on the firm. Similar claims are grouped into classes depending on the priority and other characteristics of the claims. The plan specifies what each class of claimants will receive in exchange for their pre-bankruptcy claims. The distributions typically consist of a mix of cash, new debt securities, equity, and other distributions.

The reorganization plan may embrace a substantial restructuring of the operations. For example, firms operating in Chapter 11, and particularly those with poor operating performance, undertake significant asset sales. In a successful reorganization plan, the firm must demonstrate to the bankruptcy court that, after emerging from bankruptcy, the firm is unlikely to refile for bankruptcy in the near future, either because of an inappropriate capital structure or because of continued poor operating performance.

The rules under which negotiation of a plan takes place give substantial bargaining power to the filing firm, or debtor. One source of bargaining power is that the debtor has the exclusive right to propose a reorganization plan for the first 120 days following the Chapter 11 filing. Prior to the 2005 Bankruptcy Reform Act, bankruptcy judges had considerable discretion to extend this exclusivity period. If the debtor retains exclusivity, then creditors can only accept or reject a reorganization plan that management proposes. Acceptance of the plan requires an affirmative vote by a majority (two-thirds in value and one-half in number) of the claimholders in each impaired class.⁵

The Bankruptcy Code encourages bargaining among claimholders and promotes achieving agreement over the reorganization plan with limited court intervention. However, if the plan is not approved by each impaired class, the court can unilaterally impose or “cram down” the plan on dissenting classes as long as the plan is “fair and equitable.” That is, the market value of the new securities distributed to each class under the plan must be at least equal to what the class would receive in a liquidation of the firm. In practice, cram-downs are extremely rare (Klee, 1979). It is in the joint interest of all classes to avoid a cram-down, because application of the fair and equitable standard requires the

⁴ Although firms file in specific bankruptcy courts, various aspects of the administration of the case are overseen by the Executive Office for U.S. Trustees.

⁵ An impaired class is one in which the distributions under the reorganization plan are insufficient to meet the terms of the original claims. Equityholders are always presumed to be impaired in bankruptcy.

court to determine the firm's going-concern value in a special hearing. These hearings are considered extremely time-consuming and costly.

Avoidance of cram-down also explains observed deviations from absolute priority, where stockholders or other junior claimants receive some payment under a reorganization plan that provides for less than full payment of senior claims. Since classes that receive nothing under the plan (including stockholders) are considered as objecting to the plan, more senior creditors have an incentive to voluntarily relinquish part of their claim in order to reach an agreement. Empirical studies show that deviations from absolute priority are a common feature of Chapter 11 reorganizations (see Sections 4.1 and 5.1).

The Bankruptcy Reform Act of 2005 enhances the rights of creditors in Chapter 11 reorganizations. Some of the more important changes are restrictions on the use and size of management bonuses and severance payments; limitations of the exclusivity period (for management to propose a reorganization plan) to a maximum of 18 months; extension of the fraudulent conveyance look-back period to two years; and reduction of the time that the debtor has to assume or reject leases.

2.4. The choice between private and court-supervised restructuring

With a single lender, complete contracting, and symmetric information, the efficient method of resolving financial distress would be a private restructuring of the debt contract. In a more realistic setting, however, a costless private workout is not feasible, and the firm must weigh the costs and benefits of a private workout against those of a court-supervised proceeding.

Impediments to reaching a settlement in a private restructuring include information asymmetries that arise between poorly informed outside creditors and better informed managers or insiders of the firm; holdout problems when the firm's debt is held by a large number of diffuse creditors; and various conflicts of interest exacerbated when a firm has multiple layers of creditors. Giammarino (1989) and Mooradian (1994) demonstrate that poorly informed creditors may prefer a more costly bankruptcy alternative when information problems are severe. Carapeto (2005) argues that informational asymmetries could lead to extended bargaining, requiring several plans of reorganization before an agreement is reached.

As proposed by Mooradian (1994), Chapter 11 bankruptcy may serve as a screening device when outsiders cannot observe the economic efficiency of the financially distressed firm. Given the debtor's bargaining power and the associated preservation of equity value in Chapter 11, inefficient firms prefer to restructure in court rather than mimic efficient firms in a private restructuring. The self-selection on the part of inefficient firms reduces the information asymmetry between management and outsiders, thus mitigating the impediment to private restructuring for efficient firms. Alternatively, Hotchkiss and Mooradian (2003) suggest that by submitting a bid for the bankrupt firm, a coalition of management and creditors convey positive information about the value of

the firm. This may encourage outsider bidders to enter the auction, hence facilitating an efficient redeployment of the bankrupt firm's assets.⁶

It is possible that Chapter 11 may fail to resolve information asymmetries, leaving creditors uncertain about the viability of the distressed firm. Kahl (2002) claims that with sufficient uncertainty, it may be optimal for creditors to postpone the liquidation decision and gather more information about the firm's survival characteristics. Under this strategy, some inefficient firms will be allowed to emerge from Chapter 11 and, if unsuccessful post-bankruptcy, instead be liquidated at a later date.

Gertner and Scharfstein (1991) focus on the conflicts that arise when there are multiple creditors. In particular, holdout problems can arise when a class of claims, such as public debt, is diffusely held. Under the Trust Indenture Act of 1939, a change in the interest rate, principal amount, or maturity of public debt outside of a formal bankruptcy requires unanimity. As a result, public debtholders cannot coordinate their out-of-court restructuring decision. If the out-of-court restructuring is successful and a more costly bankruptcy is avoided, holdouts are paid according to the original debt contract. The cost is borne entirely by the bondholders who participated in the exchange and accepted a reduction in the value of their claim. Small claimants, such as individual bondholders and trade creditors, may realize that their decision to hold out will not materially affect the outcome of the restructuring offer (Grossman and Hart, 1981), and therefore have few incentives to participate. Thus, even though it may be collectively in the interest of public debtholders to agree to the out-of-court restructuring and avoid bankruptcy, it is likely to be individually rational for bondholders to hold out. Chapter 11 is designed to resolve holdout problems, however, since a majority vote is binding on all members of a creditor class.

Abstracting from information and contracting problems, Haugen and Senbet (1978) suggest that bankruptcy is a capital structure decision that should not be linked to liquidation, which is a capital budgeting decision. If the capital structure problem can be resolved by restructuring the financial claims, then firms will avoid costly bankruptcy procedures and privately agree on a financial restructuring. Haugen and Senbet (1978, 1988) maintain that the costs of such private mechanisms are small and should form an upper bound on the costs of managing financial distress. Similarly, Jensen (1989, 1991) argues that since private restructuring represents an alternative to formal bankruptcy, it pays to avoid bankruptcy when the informal mechanism is cost-efficient. Roe (1983) has made similar arguments.

A complication to the restructuring choice is, however, that a redistribution of the financial claims on the firm may not be independent of the firm's asset restructuring decisions. For a highly leveraged firm in financial distress, different claimholders may have conflicting incentives as to the investment decisions. The issue is that the value of junior claims increases with the riskiness of the firm's assets, while the value of senior claims decreases with risk. At the extreme, a conflict can arise as to whether to liquidate or reorganize the firm. Senior creditors that are first in line may prefer an inefficient

⁶ Povel and Sing (2007) warn that outsiders may worry about overpaying when winning against a better informed insider, and suggest that bankruptcy auctions should be biased against insiders.

liquidation that converts the firm's assets into cash and provides senior debtholders with a safe distribution. In contrast, junior creditors or out-of-the-money shareholders may prefer inefficient continuation because it has a potential upside. The models in Bulow and Shoven (1978), White (1980), and Gertner and Scharfstein (1991) show that inefficient liquidation versus reorganization decisions may occur when there are multiple classes of creditors.

Zender (1991) models a distressed restructuring as a means of transferring control from equityholders to debtholders. He argues that the shift in decision making improves the efficiency of investment decisions. If decision making is transferred to the creditor who effectively is the residual claimholder, that is, holds the claim whose value is the most sensitive to a change in firm value, the incentives of the controlling security holder will be aligned with firm value maximization.⁷

It is often not only financial distress—that is, that the hard contract obligations are too large—but also economic distress that leaves the firm unable to pay its debts. Optimally, assets of economically inefficient distressed firms should be moved to higher value uses and users, while economically efficient distressed firms should be allowed to continue to operate.⁸ The problem is that economic efficiency or inefficiency may not be readily observable.

Moreover, managers may not voluntarily reveal that a firm is economically inefficient. A manager who has private benefits of control and who is interested in preserving his or her job may seek to continue to operate the firm as an ongoing concern and also when it is efficient to liquidate the firm. Aghion, Hart, and Moore (1992) and White (1996) argue that the incentives to undertake high-risk but negative net present value projects increase when managers expect to get a harsh treatment in bankruptcy, for example by losing his or her job. Eckbo and Thorburn (2003), however, suggest that the manager's desire to continue to run the firm following a successful restructuring may counteract any such incentives to overinvest at the expense of bondholders.

In a perfect world, claimholders of a financially distressed firm would always renegotiate and voluntarily agree to a restructuring of the firm's capital structure. In reality, however, with impediments such as information asymmetries, holdout problems, and conflicting interests, firms sometimes resort to bankruptcy for a court-supervised reorganization. In any restructuring of hard contracts or hard assets, the choice of restructuring venue ultimately affects the cost of the restructuring and the impact it has on the firm's investment decisions.

3. Asset restructuring

As outlined in the preceding, one set of mechanisms to deal with financial distress involves restructuring the asset side of the balance sheet in order to generate sufficient

⁷ One way of transferring the liquidation versus continuation decision to the marginal claimholder is to sell the bankrupt firm in an auction, where the highest bidder gets to decide over the future use of the assets.

⁸ The inefficient bankruptcy outcomes of allowing economically inefficient firms to continue and liquidating economically efficient firms are labeled Type I and Type II errors, respectively, by White (1989).

cash to meet the requirements of the hard contracts. Assets can be sold, either piecemeal or in their entirety, to other firms and new management teams. Asset sales can be done privately or through court-supervised procedures, for example, during bankruptcy reorganization (e.g., Chapter 11 of the Bankruptcy Code) or under a liquidation process (e.g., Chapter 7 of the Bankruptcy Code). Each of these alternatives has different costs attached. The incidence and efficiency of asset restructuring to resolve financial distress will depend on the structure of the bankruptcy system in place. This section describes the empirical evidence on the sale of individual assets by distressed firms in the United States. Studies of sales of entire firms in Chapter 11 are discussed in Section 5, and sales of bankrupt firms in other countries are described in Section 8.

The literature described here broadly addresses the following questions: how frequently do distressed firms sell assets; what determines whether distressed firms will sell assets in or out of bankruptcy court; do asset sales lead to efficient outcomes, in that assets are moved to higher value uses; and do “fire sales” exist, where assets are sold at depressed prices?

3.1. Frequency and determinants of asset sales

Financially distressed firms may face a liquidity shortfall, yet be constrained in their ability to raise external funds to meet their obligations. In this situation, asset sales may serve as an alternative source of funds by which liquidity-constrained firms can generate cash. Consistent with this view, Lang, Poulsen, and Stulz (1995) find that asset sales typically follow a period of poor stock performance. On average, these sales announcements are associated with a positive stock price reaction.

In contrast to the evidence for poorly performing firms, Brown, James, and Mooradian (1994) find insignificant returns to announcements of asset sales for a sample of 62 distressed companies. The announcement returns are, however, significantly lower for sellers who use the proceeds to retire debt than for sellers who use the proceeds for other purposes. Firms using sales proceeds to repay debt are more likely to sell assets in poorly performing industries. Also, the greater the proportion of short-term bank debt, the more likely are the sale proceeds to be paid out to creditors, indicating that creditors may influence the decision to liquidate assets. The asset sales appear to benefit the creditors of the financially distressed firm more than its equityholders, suggesting that creditors may force a premature liquidation of the assets.

Asset sales may also convey information about the financial condition of the seller. Sicherman and Pettway (1992) report lower announcement returns for firms divesting assets following a credit downgrade than for sellers with no such downgrade. Brown, James, and Mooradian (1994) examine the characteristics of distressed firms that sell assets and find that sellers typically have experienced a period of extremely poor operating performance and are in poor financial condition. Moreover, the selling firms tend to be distinguished by multiple divisions or subsidiaries. Leverage has also been found to be a determinant of asset sales. Ofek (1993) and Kruse (2002) show that the probability of asset sales increases in the firm’s debt level.

A number of papers more generally document the frequency of asset sales for financially distressed companies. Asquith, Gertner, and Scharfstein (1994), Brown, James, and Mooradian (1994), and Hotchkiss (1993, 1995) all demonstrate a high frequency of asset sales for distressed firms, whether out of court or as part of a Chapter 11 restructuring. For example, Hotchkiss (1995) shows that many firms that successfully emerge from Chapter 11 sell a substantial portion of their assets while in bankruptcy.

Asquith, Gertner, and Scharfstein (1994) find that significant asset sales are an important means of avoiding bankruptcy. They find that only 3 out of 21 companies (14%) that sell over 20% of their assets subsequently file for bankruptcy compared to 49% of firms with small or no asset sales. Firms that sell a large fraction of their assets are more likely to complete a successful debt exchange (62% versus 28%). The proceeds are often used to pay off senior private debt. Moreover, the probability of asset sales decreases with industry leverage, suggesting that asset sales may be limited by industry conditions.

3.2. Do “fire sales” of assets exist?

If creditors exert pressure on firms to inefficiently liquidate assets, the value of the firm declines. Not only should we see negative effects on the value of equity and junior debt claims, but firms should also be observed to sell assets at depressed prices in their “fire sale” attempts to raise cash. As discussed earlier, Shleifer and Vishny (1992) argue that distressed firms are likely to be selling assets at a time when potential buyers for those assets—firms in the same industry—are financially distressed as well, contributing to depressed prices. Their model predicts that distressed sellers will receive lower prices and be more likely to sell to industry outsiders in periods when the industry is financially distressed. Moreover, the more specialized the assets, the greater this fire-sale discount.

Several studies examine these issues and their implications for the efficiency of restructurings. An empirical caveat, however, is that it is almost impossible to know whether prices are low because industry demand is low or because industry insiders are liquidity constrained and unable to pay their full valuation. If industry demand has dropped, a low price simply represents an updated (and efficient) market valuation of the assets. If demand exists but a lack of liquidity prevents potential buyers from bidding aggressively, the discount is a true cost associated with the forced asset sale. Most studies construct a model price to represent the fundamental value of the asset, and they compute the fire-sale discount as the difference between this model price and the actual price. Obviously, any evidence on fire-sale discounts is limited by the quality of the estimate of such fundamental values.

Pulvino (1998, 1999) addresses the question of whether fire sales exist. He shows that financially constrained airlines receive lower prices relative to a model price when selling used aircraft than their unconstrained rivals. He also finds that the conditional prices that bankrupt airlines receive for their used aircraft typically are lower than those received by distressed but nonbankrupt firms. Therefore, not only do distressed sellers

receive lower conditional prices, but the bankruptcy status of the seller appears to further influence the outcome. Moreover, when the airline industry is depressed—defined as periods when prices are generally low—capital-constrained airlines are more likely to sell to industry outsiders (financial institutions) than are unconstrained airlines. Overall, the evidence in Pulvino (1998, 1999) is consistent with the Shleifer and Vishny (1992) model.

Two related papers study the impact of asset and industry-level characteristics on asset sales. Ramey and Shapiro (2001) examine individual equipment sales that follow three California plant closures in the aerospace industry. They find that actual transaction prices take place at a discount from estimated replacement costs. This discount is greater for equipment that is more specialized to the aerospace industry and when the buyer is an industry outsider. Kim (1998) investigates the significance of asset liquidity in the contract drilling industry, measured by trading volume and the depth of the buyers' market. She shows that the turnover of illiquid assets drops when the industry is distressed, defined as periods of low crude oil prices and few active rigs. Moreover, sellers of illiquid assets are more financially constrained than sellers of liquid assets and buyers, suggesting that firms avoid selling highly specific assets until it is necessary.⁹

Maksimovic and Phillips (1998) examine whether assets sold by manufacturing firms are redeployed efficiently. Using plant-level data from the U.S. Census Bureau, they track changes in the productivity of assets and operating cash flows for firms entering Chapter 11 and their nonbankrupt industry rivals. Maksimovic and Phillips (1998) show that industry conditions are important in explaining economic decisions such as asset redeployment. Bankrupt firms in high-growth industries are more likely to sell assets than bankrupt firms in declining industries. Furthermore, in high-growth industries, the productivity of the assets sold increases under new ownership. This evidence is consistent with the efficient redeployment of assets to more productive uses and does not support the notion of fire sales in distressed industries. Interestingly, industry conditions are more important than Chapter 11 status in explaining changes in the productivity of assets, regardless of whether they are sold or retained by the firm.

Andrade and Kaplan (1998) also contribute to the body of evidence on asset sales by distressed firms. In a sample of highly leveraged transactions that subsequently became distressed, they find that the total costs of financial distress, measured as the change in the market value of the firm, are independent of the industry's stock performance. Since the market value includes the costs associated with asset sales, their evidence fails to establish that distressed industries force asset sales at greater discounts.

Overall, asset sales appear to be an important component of how firms deal with financial distress. The asset sales are often undertaken in conjunction with a restructuring of the firm's debt contracts. While such asset sales may be costly, because they are so commonly

⁹ Asset liquidity can also influence the firm's choice of capital structure. Firms with more liquid assets tend to have higher debt levels and longer maturities; see, for example, Alderson and Betker (1995) and Benmelech, Garmaise, and Moskowitz (2005).

observed, it is conceivable that they still constitute a relatively low-cost mechanism to help resolve financial distress.

4. Debt workouts

Debt restructurings can be used to soften the hard contracts that cause financial distress. As outlined in Section 2, the distressed firm may reduce or defer payments on its debt contracts, or replace the debt with soft securities that have residual rather than fixed pay-offs. We define a debt restructuring as a transaction in which an existing debt contract is replaced by a new debt contract with a reduction in the required interest or principal payments or an extension of maturity, or exchanged for common stock or securities convertible into common stock. In an out-of-court debt restructuring, claims are renegotiated via a workout or an exchange offer, without resorting to formal bankruptcy proceedings. A workout typically involves renegotiation of bank debt and other privately held claims. Publicly traded debt is restructured through an exchange offer, in which the distressed debt is exchanged for new debt or equity securities. This section surveys the empirical evidence related to different types of debt restructurings.

4.1. *The choice between out-of-court restructuring and formal bankruptcy*

Many firms first attempt to resolve financial difficulties via a workout or exchange offer. Private mechanisms to restructure a financially distressed firm are expected to be less costly than formal bankruptcy proceedings. The greater are the cost savings, the greater are claimholders' incentives to settle privately. However, as discussed in Section 2.4, there are substantial impediments that hinder private restructurings, including asymmetric information, conflicts of interest among claimants, and holdout problems. When private mechanisms to resolve financial distress fail, the firm enters Chapter 11.

Early empirical work indicates that a substantial fraction of firms fail to successfully restructure out-of-court and file for Chapter 11 bankruptcy. Gilson, John, and Lang (1990) examine 169 financially distressed public companies that experienced extreme stock price declines and for which a debt restructuring is mentioned in the *Wall Street Journal*. Of these distressed firms, 80 (47%) restructure their debt out-of-court, while the remaining 89 firms (53%) fail to privately restructure their debt and subsequently file for Chapter 11. Franks and Torous (1994) investigate 161 firms that are downgraded to CCC or below by Standard and Poor's. They identify equal proportions of firms that complete a distressed exchange offer (76 firms) and firms filing for Chapter 11 (78 firms).

It is possible that the proportion of firms that successfully restructure out-of-court has declined. Altman and Stonberg (2006) track the size of the defaulted public bond and private debt markets. Recently, approximately 60% of defaults are concurrent with a bankruptcy filing, and many more defaulted bonds subsequently enter Chapter 11. This

is an increase from the earlier years of Chapter 11 and suggests that private workouts have become relatively less common for distressed firms. One explanation could be legal rulings related to the treatment of claims in the event of a subsequent bankruptcy that discourage out-of-court restructurings relative to bankruptcy (Jensen, 1991).¹⁰

Following the legal rulings that discourage out-of-court restructurings, prepackaged bankruptcies (prepacks) became more widely used in the early 1990s and now replace some out-of-court restructurings, particularly for firms with public debt (Tashjian, Lease, and McConnell, 1996). Prepacks are a hybrid through which a reorganization plan is negotiated with creditors prior to bankruptcy and filed concurrently with the bankruptcy petition. They are sometimes done in conjunction with an out-of-court exchange offer; if the exchange offer fails to receive sufficient support, the firm can enter Chapter 11 and use votes solicited simultaneously with the exchange offer to confirm a reorganization plan in bankruptcy. Thus, firms filing prepacks can take advantage of certain attractive features of a Chapter 11 filing, such as beneficial tax treatment and voting rules to overcome a holdout problem, without going through long and costly bankruptcy proceedings (Betker, 1995a). Baird and Rasmussen (2003) estimate that one quarter of 93 large-firm Chapter 11 bankruptcies in 2002 were prepackaged bankruptcies.

Gilson, John, and Lang (1990) examine the determinants of firms' choice between formal bankruptcy and out-of-court restructuring. They find that the probability of completing an out-of-court restructuring is higher the greater proportion of the firm's assets that is intangible. The value of intangible assets is more likely to erode in bankruptcy, for example, through asset fire sales or perishing customer demand. Since bankruptcy is relatively more costly for firms with more intangible assets, these firms have greater incentives to preserve value via an out-of-court restructuring.

The study by Gilson et al. (1990) further shows that private workouts are more common when the firm has fewer distinct classes of debt outstanding and a greater proportion of the firm's long-term debt is bank debt. Conflicts of interest among different classes of creditors are more manageable the smaller the number of distinct creditor classes. Moreover, because banks are better informed than public debtholders, reducing potential information asymmetries, it is easier and therefore less costly for firms with banks as dominant creditors to renegotiate their debt. The bank debt is also more likely to be pivotal to the restructuring the greater is the proportion of bank debt, forcing the bank to internalize some of the restructuring costs. In contrast, with a greater proportion of diffusely held debt, such as public debt or trade credit, holdout problems become more severe.

Franks and Torous (1994) compare characteristics of the financial recontracting for firms completing public debt exchange offers and firms entering Chapter 11. They find

¹⁰ One such decision was made in the LTV Corp. bankruptcy case. The bankruptcy case was filed on July 17, 1986 in the Southern District of New York, U.S. Bankruptcy Court. The court ruled on January 32, 1990 that debtholders who had participated in a prior out-of-court restructuring could only make a bankruptcy claim for the new reduced principal amount, while holdouts could claim the original principal amount. This decision discourages creditors from agreeing to reduce the principal of their debt claim in an out-of-court restructuring.

that the firms restructuring out-of-court are more solvent and liquid, and have less negative stock returns prior to the restructuring. Unlike Gilson et al. (1990), however, Franks and Torous do not find that firms restructuring out-of-court have a greater proportion of bank debt. This could be because the firms in their sample are larger and therefore rely less heavily on bank debt or because the bank loans of these firms often are syndicated and hence involve a larger number of banks. James (1995) and Asquith, Gertner, and Scharfstein (1994) also show that the presence of public bonds junior to the bank debt may impede restructurings.

Chatterjee, Dhillon, and Ramirez (1995) show that the firm's level of debt, its short-term liquidity, and the potential for coordination problems among creditors jointly determine the choice of restructuring mechanism. Firms filing for Chapter 11 are characterized by poor operating performance, high leverage, and coordination problems among creditors, whereas firms restructuring out-of-court tend to have relatively strong operating cash flows. They also examine firms filing prepacks and find that they typically have relatively strong operating performance but, in contrast to firms doing workouts, face an immediate liquidity crisis.

Asquith, Gertner, and Scharfstein (1994) provide similar evidence on the relationship between the firm's liability structure and the form of the restructuring. In particular, companies with more secured private debt and those with more complex public debt structures are more likely to enter Chapter 11. The larger fraction of secured debt may indicate a relatively low proportion of intangible assets, and thus less costly bankruptcy proceedings. They also find that 59% of firms whose banks agree to a debt restructuring ultimately enter bankruptcy, which suggests that these firms either did not reduce leverage sufficiently or did not adequately restructure assets to avoid bankruptcy. Altogether, the evidence indicates that conflicts between classes of claimants and holdout problems impede out-of-court restructurings, constrain the structure of out-of-court restructurings, or limit the effectiveness of out-of-court restructurings in the resolution of financial distress.

Although there are substantial impediments or limitations to out-of-court restructurings, the direct restructuring costs are likely to be substantially lower for an out-of-court restructuring than for a court-supervised bankruptcy. Measuring the direct costs of an out-of-court restructuring is often difficult because these costs are typically not reported separately from other nonrestructuring related operating expenses of the distressed firm. For example, although several studies of bank loan restructurings have been made, researchers have been unable to identify the related expenses. The costs can be observed, however, for the restructuring of public debt via a formal exchange offer. Gilson, John, and Lang (1990) document an average cost for 18 exchange offers of 0.6% of the book value of assets. The cost for 29 exchange offers studied by Betker (1997) is somewhat higher, with a mean of 2.5% of the pre-exchange assets (median 2.0%). In addition, out-of-court restructurings take significantly less time than Chapter 11 proceedings, suggesting that various indirect costs may be lower as well.

These estimates are useful in two respects. First, relatively low direct costs may make an out-of-court restructuring desirable relative to formal bankruptcy, particularly for firms

with less severe impediments to a privately negotiated solution. Second, in considering a firm's ex-ante optimal leverage, relatively low costs of reorganizing would encourage firms to take advantage of the tax benefits of debt through higher leverage.

The stock market reaction to the announcement of a workout versus a bankruptcy filing corroborates the lower costs of workouts. Chatterjee, Dhillon, and Ramirez (1995) report less negative abnormal returns for announcement of workouts than Chapter 11 filings. Gilson, John and Lang (1990) show that stock returns on the announcement of debt renegotiations are more negative for firms that subsequently file for Chapter 11, suggesting that the market is able to identify firms that are more likely to succeed in restructuring their debt out-of-court.

Another circumstance indicating that there is greater firm value to share in workouts than in bankruptcy is documented by Franks and Torous (1994). They find that senior creditors in workouts are willing to forego a greater share of the value of the reorganized firm in favor of equityholders through deviations from the absolute priority rule. In exchange offers, all creditor classes relinquish some financial consideration to equity (on average 9% of the value of the reorganized firms), while the magnitude of these deviations is much smaller for firms in Chapter 11 (on average 2% of firm value). The fact that senior creditors are willing to give up a greater fraction of the firm to junior claimants in a workout suggests that on average firms attempting workouts may be less severely financially insolvent than bankrupt firms. Alternatively, if senior creditors prefer a smaller fraction of a potentially more valuable firm in a workout than a larger fraction of a potentially less valuable firm in bankruptcy, then this suggests lower overall costs of a workout compared to a bankruptcy.

4.2. *Characteristics of debt restructurings*

A number of studies have documented various aspects of out-of-court restructurings such as the medium of exchange and debt recovery rates. Asquith, Gertner, and Scharfstein (1994) study the characteristics of private bank debt restructurings. They report that bank lenders respond to financial distress in various ways, including requiring accelerated payments and reducing further lending. Banks also waive covenants but rarely agree to a reduction in the principal amount of their claim. James (1995) expands on these results for a sample of 102 debt restructurings. He shows that banks make concessions only if public debtholders also agree to restructure their claims. In general, banks are more likely to forgive principal and take equity when a smaller fraction of the debt is held by public creditors.

James (1996) demonstrates that bank participation in the workout is important because it facilitates public debt exchange offers. Compared to restructurings in which banks do not participate, exchange offers accompanied by bank concessions have a higher likelihood of succeeding and involve significantly greater reductions in public debt outstanding and less senior debt offered to bondholders. Thus, the characteristics of a firm's debt structure help explain what form of restructuring will be feasible.

Evidence on the characteristics of distressed public debt exchanges is presented by Franks and Torous (1994). They find that a majority of the payments in exchanges of senior public debt are in the form of cash (29%) and new senior debt (38%), whereas the majority of payments in exchanges of junior debt constitutes common stock (67%). They further show that creditor recovery rates tend to be substantially higher in distressed exchange offers than in Chapter 11 reorganizations. Also, relative to Chapter 11 reorganizations, cash is used less extensively and equityholders typically get to retain a larger fraction of the reorganized firm's equity.

Brown, James, and Mooradian (1993) examine how the type of securities offered in a debt restructuring relates to information asymmetries about the firm's prospects. When firms offer equity to private lenders, who tend to be better informed about the firm, and senior debt to public debtholders, this conveys positive information about firm value. In contrast, abnormal announcement returns are negative when private lenders are offered senior debt and public lenders are offered equity.

The participation of investment banks in public debt exchange offers is investigated by Mooradian and Ryan (2005). Firms can choose to conduct a public debt exchange offer without involving an investment bank. Though costly, 61% of the sample firms engage an investment bank as an intermediary in the distressed exchange offers. Mooradian and Ryan show that investment bank participation decreases with the level of commercial bank debt outstanding and increases with bank loan concessions, firm size, number of public debt contracts outstanding, and size of the proposed debt reduction. This suggests that financially distressed firms hire an investment bank to manage their exchange offers when the debt structure is complex and there is a greater need for help in mitigating potential impediments to an out-of-court restructuring. Interestingly, the investment-bank-managed exchange offers involve less senior debt to bondholders, achieve greater debt reduction, and result in better post-restructuring operating performance.

The use of coercive tactics to alleviate holdout problems can be beneficial to the firm. A coercive offer involves a consent agreement to issue a more senior class of debt (which only requires a two-thirds majority vote) combined with an exchange offer replacing the current debt with a more senior debt issue requiring lower interest payments, less principal, or longer maturity. The offer is coercive because if the exchange offer is successful, a creditor holding out ends up with a more junior claim, albeit with more favorable terms. Chatterjee, Dhillon, and Ramirez (1995) report higher completion rates and a higher proportion of bonds tendered or exchanged when exchange offers are coercive, indicating that the coercion helps alleviate the holdout problem. They also show that the equity and debt price reactions to the announcement of the exchange offer indicate that coercion may benefit stockholders without being detrimental to bondholders.

The general conclusion from much of this literature is that absent holdout problems and other coordination problems, private debt restructurings such as exchange offers provide a lower cost restructuring mechanism than formal bankruptcy. Moreover, various characteristics of the financially distressed firm's capital structure and asset composition determine the severity of the impediments to a successful out-of-court restructuring.

5. Governance of distressed firms

The governance structure in bankruptcy determines the relative influence of different stakeholders over the process and hence the outcome of the reorganization. Because bankruptcy is a likely event if an out-of-court restructuring fails, the governance structure in bankruptcy also affects the relative power of claimants outside of bankruptcy and is thus influential in shaping any out-of-court restructuring.

Many aspects of a firm's governance are affected when a firm becomes financially distressed. The fiduciary duties of managers and directors, normally owed to the firm's shareholders, expand to include creditors. With conflicting interests between various debtholders and equityholders, corporate executives may be caught in the middle. Both managers and directors typically experience a higher turnover than normal. Also, most significant restructurings lead to large changes in ownership, with creditors often emerging as new owners of the firm. The mechanisms through which the change in control occurs, however, can be quite different from those for nondistressed firms. This section discusses various aspects of governance and their impact on the incentives of managers and other participants in the restructuring process.

5.1. *Conflicts of interest and the fiduciary duties of managers and directors*

When a corporation is solvent, the managers and directors have fiduciary duties to the corporation and its shareholders. When a company is in financial distress, however, decisions increasing the value of equity may in fact reduce total firm value. Thus, it is no longer clear that the decision making should be left to agents whose incentives are aligned with equity. The courts recognize this problem by extending the fiduciary duties of directors and officers to also include creditors when the firm becomes insolvent (Branch, 2000). This expansion of the fiduciary duties creates potential difficulties in defining managers' responsibilities, however, since shareholders and senior creditors often have opposing interests.

The 1989 bankruptcy of Eastern Airlines, described by Weiss and Wruck (1998), illustrates the potential magnitude of such conflicts. Relying on an offer to purchase the company, Weiss and Wruck estimate the equity going-concern value at the time of filing at approximately \$1.2 billion. Based on the perceived continuation value, creditors and other groups initially supported management's attempts to reorganize. However, even as Eastern continued to experience large operating losses, it was granted the right to use cash available from asset sales to continue operating. Weiss and Wruck estimate a decline in the value of the airline of more than \$2 billion over a 22-month period in bankruptcy. If management were acting solely in shareholders' interests, its best strategy was to continue operating the airline, hoping for a recovery of the business. Given the decline in asset value, however, creditors would have fared better if the cash had been used to pay their claims rather than continue funding unprofitable operations. Reorganization attempts ultimately failed, and Eastern was liquidated under Chapter 7 in 1991.

While Eastern Airlines' bankruptcy provides an extreme example of the tensions between incentives to reorganize versus liquidate, conflicts between different claimholders are manifested in many reorganization cases. Macy's bankruptcy is another example of conflicting interests between stakeholders (Noe and Rebello, 2003). After filing for bankruptcy in 1992, Macy's management embarked on a plan to restructure the operations and close underperforming stores with the objective of ultimately emerging from bankruptcy as an independent company. Negotiations between management, shareholders, and creditors over the reorganization plan remained deadlocked, however. To break the deadlock, Macy's creditors enlisted Federated Department Stores to make a bid for the bankrupt company. Management contested the acquisition and repeatedly sought extension of the exclusivity period to prevent competing reorganization plans. A fraction of the board headed by a bondholder, Laurence Tisch, opposed management's plan. Eventually, Federated and Macy's creditors jointly filed a plan under which Federated gained control of the company, providing no distribution to shareholders.

Until a debt restructuring is completed, the interests of different claimholders regarding the firm's investment decisions can deviate substantially. Chapter 11 provides features that are aimed at balancing such conflicts of interest. The "pro-debtor" provisions of the Bankruptcy Code yield considerable influence to incumbent management over the course of the restructuring and development of the reorganization plan. At the same time, both creditors and the court are granted substantial oversight of the proceedings. Unsecured creditors typically are represented by a committee, giving them influence over the negotiation process. The appointment of other committees, however, is more uncertain. Betker (1995b), for example, documents the formation of an equity committee in one-third of his sample of 75 large Chapter 11 cases.

To speed up the confirmation of a reorganization plan, preventing further deterioration of asset values, senior creditors may agree to a side-payment to junior creditors and equityholders. Such side-payments show up as deviations from the absolute priority rule. The priority of claims is violated for three-quarters of the Chapter 11 cases in Franks and Torous (1989), Eberhart, Moore, and Roenfeldt (1990), and Weiss (1990). For a more recent sample of Chapter 11 filings, Bris, Welch, and Zhu (2006) find violations of the absolute priority rule in only 12% of the cases. The much lower incidence of deviations from the priority of claims could partly be explained by a smaller firm size in Bris et al. (2006) and thus a less complex proceeding, and partly by a change in the view and enforcement of creditor rights. This trend is, however, corroborated by Bharath, Panchapegesan, and Werner (2007), who examine 531 large firms that filed for Chapter 11 between 1991 and 2005. While 26% of the bankruptcy cases in the 1990s involve deviations from absolute priority, such deviations are recorded for only 9% of the cases after year 2000.

Similarly, for a sample of 153 large corporate Chapter 11 filings in 2001, Ayotte and Morrison (2007) report that very few reorganization plans (6% or less) violate absolute priority rules by distributing any value to equityholders.¹¹ They argue

¹¹ This measure does not account for distributions to equityholders of warrants, which are usually the right to buy out the creditors at the face value of their claims.

that governance in Chapter 11 has shifted to emphasize creditor control and creditor conflict. Senior lenders exercise control through pre- and post-petition lines of credit, which limit the debtor's access to financing and impose strict requirements on business activity. Three-quarters of their sample firms obtain DIP financing, typically secured by a lien on all corporate assets. The vast majority of loans contain covenants imposing line-item budgets, profitability targets, and deadlines for reorganization plans. If these covenants are violated, the lender is generally free to seize collateral unilaterally, without seeking court approval. Ayotte and Morrison (2007) further document that junior lenders use claims trading, committees, and other tactics to gain control over the reorganization process. Acting through the unsecured creditors committee, junior creditors file objections in over half of the sample cases. In almost as many cases, DIP lenders object to actions proposed or taken by incumbent management. Amendments to the U.S. Bankruptcy Code effective October 2005 have further increased creditor influence in Chapter 11.

In sum, when a firm becomes financially distressed, the residual claim often shifts from equityholders to creditors. This creates conflicts of interest regarding the firm's investment and continuation decisions that have an important effect on bankruptcy outcome.

5.2. *Management and board changes*

Critics of Chapter 11 bankruptcy suggest that the process protects bad managers from being removed. Bradley and Rosenzweig (1992) argue, on the one hand, that bankruptcy law allows management to go relatively unpunished, retaining control over corporate assets, even when their own actions helped to render the firm insolvent. On the other hand, operating decisions of healthy firms will be affected by an increased likelihood that managers are replaced in the event of financial distress. For example, managers may be reluctant to undertake highly profitable (positive net present value) but also highly risky investments if they are likely to be fired should the investment fail.

Several academic papers examine whether financial distress is costly to managers in the sense that they are likely to lose their jobs. Gilson (1989) examines the turnover of managers carrying the title of CEO, chairman, and president over a four-year period beginning two years prior to bankruptcy filing or debt restructuring. For 69 firms filing for bankruptcy, 71% of managers are replaced over the four years. This turnover rate is significantly higher than that of financially distressed firms that successfully restructure their debt out of court. None of the executives who lose their position are employed by another publicly traded firm over a three-year period following their departure, suggesting that the personal costs are significant.

Other studies of management replacement rates for failing firms show similarly high turnover. Betker (1995b) reports a 91% turnover of CEOs in office two years prior to filing by the time the firm emerges from bankruptcy. In comparison, Weisbach (1988) and Warner, Watts, and Wruck (1988) document substantially lower CEO turnover rates for nondistressed firms. Moreover, both studies show that management turnover increases

as firm performance deteriorates. In a more recent study, Ayotte and Morrison (2007) find that 70% of CEOs are replaced within two years of a bankruptcy filing.

While the turnover of managers is abnormally high for distressed firms in general, certain bankruptcy courts (e.g., Delaware) have been alleged to maintain relatively strong pro-debtor biases. LoPucki (2004) argues that managers choose to file for bankruptcy in such districts, where they expect to receive favorable rulings that help them retain control of the reorganization process. The documented high turnover of managers, however, runs counter to the notion that they are overly protected by the process. Gilson (1989), Betker (1995b), and Hotchkiss (1995) show that although a significant fraction of managers is able to stay in place until a plan is proposed, it is unlikely that they still remain when the firm emerges from bankruptcy.

Financial distress also leads to significant changes in the membership and composition of boards. Distressed firms require a substantial commitment of time and attention from managers and directors to address the firm's operating problems and develop a restructuring plan. Some directors may resign in anticipation of the firm's problems and the implications for the board. Such concerns can potentially make it difficult to recruit new outside directors. Countering the problems with a shrinking board is that certain parties, such as large creditors or outsiders investing in the distressed firm, may seek board seats to protect their interests in the restructuring.

Gilson (1990) finds that although average board size declines for distressed firms, replacement directors often possess some special skill or interest in managing troubled companies (for example, investment bankers or workout specialists). On average, only 46% of the board members prior to financial distress are still present two years after a reorganization or debt restructuring. Hotchkiss and Mooradian (1997) show that "vulture" investors are frequently active in the governance of firms defaulting on their public debt. These investors join the board of directors for 28% of the firms they study, often maintaining these positions for at least one year after emergence from bankruptcy.

In summary, the literature documents the increase in top management turnover rates as firms become financially distressed, suggesting large personal costs for incumbent managers. Director turnover is also high, often resulting in new restructuring specialists joining the board.

5.3. Management compensation in financial distress

Compensation contracts are a common means to align managers' incentives. In financial distress, the compensation policy is often an integral part of the firm's overall restructuring strategy, for example, through providing incentives that facilitate negotiations with creditors or encourage a speedy resolution. Once in bankruptcy, contracts with key employees are subject to the approval of the bankruptcy court.

Gilson and Vetsuypens (1993) examine the compensation contracts of managers that are in place as the firm enters financial distress and the contracts of the managers replacing them. They find that managers who retain their position through a debt restructuring often take a substantial cut in salary and bonus. Replacement CEOs who were

previous employees of the firm earn a median of 35% less than their predecessors. In contrast, the median outside replacement CEO earns 35% more than the manager he or she replaces.

The compensation of CEOs of emerging firms exhibits high sensitivity to the post-bankruptcy stock performance (Gilson and Vetsuypens, 2003). For a sample of 63 Chapter 11 cases, Gilson, Hotchkiss, and Ruback (2000) show that half of the managers receive stock and options in the reorganized firm. Stock-based incentive compensation, however, may be associated with a downward bias in cash flows projected for the reorganized firm. A low reorganization value can create a windfall for managers if the option exercise price is set to that low value or the number of shares that managers receive increases with a lower initial stock price. Nevertheless, the form of the compensation contract for managers of the reorganized firm will affect management's efforts in developing a reorganization plan.

A common approach in financial distress is to tie management compensation to the successful resolution of the firm's bankruptcy or debt restructuring, or to the recovery of certain creditor groups. Gilson and Vetsuypens (2003) describe cases in which the CEO is granted a substantial salary increase as a reward for successfully bringing the firm through its financial restructuring or in which part of the CEO's compensation is deferred until the financial restructuring is completed. They further observe cases in which the CEO incentives are tied to the value of creditor claims, for example, by awarding claims with similar characteristics as those held by creditors, or paying a bonus based on the amount of cash creditors receive under the reorganization plan or as a result of asset sales.

Another prevalent practice that has been criticized is the granting of generous retention plans to certain executives and key employees for remaining with the company during the course of the bankruptcy reorganization. Such key employee retention plans (KERPs) led to widespread controversies since they were often accompanied by massive layoffs and wage concessions, and they are now severely limited by the 2005 amendments to the U.S. Bankruptcy Code. Two recent court rulings, however, circumvent these limitations by allowing the debtors to use bonus compensation plans to provide adequate financial incentives to management during the reorganization.¹²

The repricing of executive stock options for firms that have performed poorly has also received much attention. Repricing refers to the practice of lowering the strike price of previously issued employee stock options, typically following a significant stock price decline. Although repricing may reward management following a period of poor performance, it may also be necessary in order to restore appropriate incentives for management.¹³ Chidambaran and Prabhala (2003) show that a majority of the repriced options have a new vesting period or exercise restrictions related to continued employment. This suggests that repricing may be useful in the motivation and retention of key employees.

¹² In re Global Home Products, LLC 1 and In re Nellson Nutraceutical, 2.

¹³ See Acharya, John, and Sundaram (2000) for a theoretical analysis of the trade-off between reducing current-period incentives and restoring continuation incentives that determine the optimality of repricing options.

Repricing has more recently been replaced by a practice known as rescission. In a rescission, shares received by the employee from exercise of the options are returned to the company in exchange for a refund of the strike price. Similar to repricing, this practice has been criticized as symptomatic of poor governance, yet it may be necessary to restore incentive structures.

Overall, CEO salaries tend to decline when their firms become financially distressed. The distressed firms, however, often put in place new management compensation contracts that increase the sensitivity of pay either to a successful resolution of the restructuring or to post-bankruptcy equity performance. Stock or option grants in the emerging firms risk leading to a downward bias in the valuation on which a reorganization plan is based.

5.4. Changes in ownership and control

A distressed debt restructuring typically results in a substantial change in the ownership of the firm. The primary reason is that the poor performance has eroded the equity value, so that shareholders often receive little or no equity in the reorganized firm. Much of the reorganized firm's stock is distributed to a subset of existing creditors, who become the new owners of the firm.

In Gilson's (1990) study of 61 firms filing for bankruptcy, on average 80% of the common stock in the reorganized firm is distributed to creditors. The distribution of stock in exchange for pre-petition debt claims can frequently lead to a change in control. Federal and state banking laws provide U.S. banks with authority to hold common stock received in loan restructurings. For three-quarters of all 111 financially distressed firms in Gilson's (1990) sample, bank lenders and other creditors receive significant blocks of voting stock in the restructured firm. Banks receive on average 36% of the firm's common stock and frequently appoint representatives to the board of directors. James (1995) studies 102 distressed bank debt restructurings and finds that banks take equity positions in 31% of the transactions. Moreover, the banks typically maintain a substantial equity stake for at least two years following the restructuring.

Although asset sales are common, early studies of ownership changes of firms in Chapter 11 detect relatively few acquisitions of the bankrupt firm as a whole by other operating companies (Hotchkiss and Mooradian, 1998). A possible explanation is that Chapter 11, by allowing incumbent management to retain control, discourages potential acquirers. Furthermore, industry rivals may be distressed and lack the financial strength to bid for the bankrupt firm.

Hotchkiss and Mooradian (1998) examine a sample of 55 acquisitions of firms in Chapter 11 by other public companies. The bidding firm is often in the same industry and frequently has some prior relationship (such as a previous asset purchase) with the target. One-third of the transactions they examine involve multiple bidders, indicating substantial competition for the bankrupt targets. Transactions prices, however, are significantly lower than those paid for nonbankrupt firms matched on size and industry. More recently, as sales of businesses through Section 363 of the bankruptcy code have become

more common, M&A activity involving bankrupt targets is observed more frequently (Baird and Rasmussen, 2003).

Along with the increase in takeover activity in Chapter 11, changes in control through claims trading have also become more commonplace. The market for trading claims of distressed firms has grown dramatically since the early 1990s. This market provides banks and other creditors with an opportunity to exit the process earlier, with new investors taking the place of existing creditors in the negotiation of a restructuring plan. A common strategy for an investor who specifically seeks control of a distressed company is to purchase a large block of debt. With a stake sufficiently large to block a reorganization plan, the investor gains influence over the course of the restructuring. Depending on the final negotiated terms of the plan, the stake potentially can be converted into a controlling ownership position. The debt security that will ultimately be exchanged for equity is commonly referred to as the “fulcrum” security. Examining a sample of 288 firms defaulting on their debt between 1980 and 1993, Hotchkiss and Mooradian (1997) find that vulture investors become blockholders (owning more than 5% of the reorganized firm’s stock) for half of the sample firms and gain control of 16% of the firms. Some investors have developed a reputation for using this strategy to gain control of firms in bankruptcy, and as a result, they manage a portfolio of reorganized firms (Apollo Advisors, for example).

Equity infusions in the reorganized firm can also shift control to a new investor. Gilson, Hotchkiss, and Ruback (2000) find such equity investments for 12 of the 63 firms (19%) in their sample, resulting in the investors owning a median of 54% of the reorganized firm’s stock. The activity of these investors, together with high management and board turnover, contributes to significant changes in the governance of distressed firms.

6. Bankruptcy costs

A restructuring can be costly because of asymmetric information, coordination problems among creditors, and conflicting interests of different claimholders. Distressed firms incur direct expenses for lawyers, accountants, financial advisers, and other turnaround professionals. In addition, over the course of a distressed restructuring, the firm may pursue a suboptimal investment policy or inefficiently liquidate assets due to insufficient liquidity and limited ability to obtain new financing. Indirect costs of financial distress include unobservable opportunity costs, such as lost sales driven by the firm’s deteriorating financial condition and lack of management attention on the business itself. This section reviews estimates of the different costs related to financial distress and bankruptcy.

6.1. Direct costs

Studies estimating the direct costs for firms reorganizing in Chapter 11 are listed in Table 1 (Altman and Hotchkiss, 2006). The sample-size weighted average direct cost across the seven studies of Chapter 11 is 6.5% of the book value of assets. Since there is no single

Table 1
Estimates of direct costs of formal bankruptcy proceedings in the United States

Study	Sample	Time period	Estimated costs
Traditional Chapter 11 cases:			
Warner (1977)	11 bankrupt railroads; estimated mean market value \$50 million at filing.	1933–1955	Mean 4% of market value of firm one year prior to default.
Altman (1984)	19 Chapter 11 cases; mean assets \$110 million before filing.	1974–1978	Mean 4% (median 1.7%) of firm value just prior to bankruptcy for 12 retailers; 9.8% (6.4%) for 7 industrial firms.
Weiss (1990)	37 cases from 7 bankruptcy courts; average total assets before filing \$230 million.	1980–1986	Mean 3.1% (median 2.6%) of firm value prior to filing.
Betker (1997)	75 cases; mean assets FYE before restructuring \$675 million.	1986–1993	Mean 3.9% (median 3.4%).
Lubben (2000)	22 cases; median assets \$50 million.	1994	Mean 2.5%.
LoPucki and Doherty (2004)	48 cases from Delaware and Southern District of NY; mean assets at filing \$480 million.	1998–2002	Mean 1.4% of assets at beginning of case.
Bris, Welch, and Zhu (2006)	225 cases from Arizona and Southern District of NY; mean pre-bankruptcy assets \$19.8 million.	1995–2001	Mean 9.5%, median 2%.
Prepackaged bankruptcies:			
Betker (1997)	48 prepackaged Chapter 11 cases; mean assets FYE before restructuring \$675 million.	1986–1993	Mean 2.8% (median 2.4%) of pre-bankruptcy total assets.
Tashjian, Lease, and McConnell (1996)	39 prepackaged Chapter 11 cases; mean book value assets FYE before filing \$570 million.	1986–1993	Mean 1.8%, median 1.4% of book value of assets at fiscal year-end preceding filing.
Chapter 7 cases and liquidations:			
Ang, Chua, and McConnell (1982)	86 liquidations, Western District of Oklahoma; estimated mean pre-bankruptcy assets \$615,516.	1963–1979	Mean 7.5% (median 1.7%) of total liquidating value of assets.
Lawless and Ferris (1997)	98 Chapter 7 cases from 6 bankruptcy courts; median total assets \$107,603.	1991–1995	Mean 6.1% (median 1.1%) of total assets at filing.
Bris, Welch, and Zhu (2006)	61 Arizona and S.D.N.Y. Chapter 7 cases; mean pre-bankruptcy assets \$501,866.	1995–2001	Mean 8.1%, median 2.5% of pre-bankruptcy assets.

Source: Altman & Hotchkiss (2006), p. 95.

source of comprehensive information for Chapter 11 cases, studies make use of court documents collected from one or more of the federal bankruptcy courts. The studies cover a wide variety of firms, including everything from large railroads (Warner, 1977) to relatively small firms (Lawless and Ferris, 1997). The range of estimates of direct costs is therefore quite wide, with means ranging from 1 to 10% and medians from 2 to 6%.

Researchers generally interpret these numbers as evidence of relatively low direct costs, particularly in relation to the potential tax benefits of using debt. The direct costs also appear to have a fixed component, explaining why a Chapter 11 reorganization may not be feasible for some smaller firms. For large public companies in bankruptcy, the mean professional fees as a percentage of pre-filing assets ranges from 1 to 3% (Lubben, 2000; Weiss, 1990). Though relatively small on a percentage basis, the dollar amount of fees in large public bankruptcy cases can be significant.

Firms undertaking prepackaged bankruptcies seek agreement among claimholders on terms of the financial restructuring prior to filing. Prepackaged bankruptcies generally allow firms to exit bankruptcy within months and are therefore expected to have lower direct costs than a lengthier bankruptcy proceeding. Betker (1997) finds direct costs for prepackaged bankruptcies of on average 2.8% of the pre-bankruptcy total assets. This cost estimate includes all the pre-bankruptcy expenses of informal bondholder committees and banks, where most of the costs are incurred and for which the bankrupt firm routinely pays. Tashjian, Lease, and McConnell (1996) show that direct costs for prepacks average 1.8% of the book value of pre-filing assets and 1.6% for the subsample of cases that are pre-voted. Thus, the costs of prepackaged bankruptcies appear to fall somewhere between those observed for traditional Chapter 11 cases and those documented by Gilson, John, and Lang (1990) for out-of-court exchange offers.

While most attention is devoted to the costs of Chapter 11 proceedings, a few studies examine the costs of liquidations under Chapter 7. Bris, Welch, and Zhu (2006) document bankruptcy expenses of on average 8.1% (median 2.5%) of pre-bankruptcy assets for a sample of 61 smaller nonpublic firms. Based on their estimates of the post-bankruptcy remaining value, however, the bankruptcy fees exceed the value of the entire estate in two-thirds of the cases. Lawless and Ferris (1997) find that the fees in Chapter 7 on average amount to 6.1% of total assets.

Bankruptcy costs are likely to increase with the time that the firm spends in bankruptcy. Franks and Torous (1989) report that the average bankruptcy takes 2.7 years for 14 firms filing after the 1978 Bankruptcy Code took effect. The average time from filing of the bankruptcy petition to resolution is 2.5 years in Weiss (1990) and 2.2 years in Franks and Torous (1994). For the sample in Bris, Welsh, and Zhu (2006), which is both more recent and contains smaller firms, the average Chapter 11 proceeding lasts 2.3 years (median 2.4 years). They show that the length of the bankruptcy procedure is independent of firm size but varies with the specific judge overseeing the case. The duration of Chapter 11 reorganization is further found to decrease with the operating profitability of the industry

(Denis and Rodgers, 2007). Bharath, Panchapegesan, and Werner (2007) show that the time to resolution in Chapter 11 has declined and on average is 16 months in the 2000–2005 period. Morrison (2007) finds a median duration of 8 months for the 36 small business Chapter 11 cases in 1998 that emerge as going concerns.¹⁴

The relatively low direct costs of exchange offers discussed in Section 4.2, as well as the increasing use of prepackaged bankruptcies, suggest that cost savings can be significant for firms that successfully restructure without entering a traditional Chapter 11 procedure.

6.2. Indirect costs

The magnitude of indirect costs relative to direct costs, and therefore their importance to theories of debt structure and reorganization, can be large. Indirect costs, however, are unobservable and therefore more challenging to estimate empirically.

One of the first attempts to study indirect costs is Altman (1984). Altman compares expected profits to actual profits over the three years prior to bankruptcy (years -3 to -1) for a sample of 19 firms entering Chapter 11. Expected profits are based either on a comparison of each firm's sales and profit margin to industry levels prior to year -3 or on security analyst estimates. He finds that the indirect costs, that is, the difference in profits, average 10% of firm value just prior to bankruptcy. The combined direct and indirect costs are on average 17% of firm value. It is, however, impossible to distinguish whether the decline in profits is a result of the financial distress itself (and therefore is an indirect cost) or a result of the same economic factors that caused financial distress in the first place.

Opler and Titman (1994) address this causality problem by selecting firms in industries that experience economic distress, defined as declining industry sales and median stock returns below -30% . They find that firms with higher leverage ratios prior to the onset of industry economic distress experience a greater decline in market share and operating profits, consistent with the notion that there are significant indirect costs of financial distress.

Subsequent studies recognize that in order to provide specific estimates of indirect costs, it is useful to separate the effects of financial versus economic distress. Andrade and Kaplan (1998) examine 31 firms that become distressed subsequent to a highly leveraged transaction. Given the high ex-ante leverage of these firms, they are largely financially distressed but not economically distressed, allowing an observation of the costs of "pure" financial distress. Andrade and Kaplan (1998) report that the distressed firms cut capital expenditures, sell assets, and delay restructuring or filing for Chapter 11 in a way that appears to be costly. Based on changes in firm market value over time, they estimate the net costs of financial distress to range from 10 to 20% of firm value. In addition, they find that these costs are concentrated in the period after the firm becomes distressed, but

¹⁴ See also Flynn (1989), Gilson, John, and Lang (1990), Hotchkiss (1995), and Betker (1997) for evidence on the length of Chapter 11 proceedings.

before it enters Chapter 11, suggesting that the indirect costs are not caused by Chapter 11 itself.¹⁵

As discussed in Section 3.2, Maksimovic and Phillips (1998) show that industry conditions are much more important than bankruptcy status to explain the productivity, asset sales, and closure decisions of Chapter 11 firms. Similar to Andrade and Kaplan (1998), this indicates that few real economic costs are attributable to Chapter 11 and that bankruptcy status is marginal to indirect costs. Pulvino (1999), in contrast, finds that bankrupt airlines sell aircrafts at prices that generally are lower than those received by distressed but nonbankrupt firms, implying that bankruptcy status could influence these costs.

A bankruptcy filing may convey negative private information about industrywide business conditions. Studying the effect of the bankruptcy announcements of 59 failing firms, Lang and Stulz (1992) find a 1% price decline in a value-weighted portfolio of competitor stock. The effect is greater for relatively highly leveraged industries. In contrast, competitors in concentrated industries with low leverage experience positive announcement returns, perhaps because the exit creates a windfall for the surviving rival firms. The negative stock price reaction of industry rivals to the bankruptcy announcement of large firms is confirmed by Ferris, Jayaraman, and Makhija (1997). They further show that competitors who subsequently file for bankruptcy experience the greatest decline in equity value. Haensly, Theis, and Swanson (2001), in contrast, find insignificant announcement returns for industry rivals. The stock returns are negative, however, in industries with relatively high leverage. Hertzler, Li, Officer, and Rodgers (2007) show that distress related to bankruptcy filing also is associated with negative and significant stock price effects for suppliers, in particular when intra-industry contagion is severe.

Debt recovery rates, defined as the bankruptcy payoff to creditors as a fraction of the face value of their claims, reflect the value of the distressed firm's assets net of all direct and indirect costs. Franks and Torous (1994) report total recovery rates of on average 51% for 37 Chapter 11 cases. Bris, Welch, and Zhu (2006) document average recovery rates in Chapter 11 of 69% (median 79%). A caveat with these recovery rate estimates, however, is that a majority of the distributions are in the form of new claims valued at face value. For a subsample of 12 firms in Frank and Torous with available market values for all claims in the reorganized firm, the median recovery rate is a lower 41%.

Although the evidence is mixed with respect to whether indirect costs are largely incurred during the period of financial distress prior to bankruptcy or while in formal bankruptcy, such costs appear to be of greater magnitude than the direct bankruptcy costs. Thus, firms with potentially large opportunity costs of operating in financial distress are more likely to choose lower debt levels *ex ante* and, once in financial distress,

¹⁵ Kaplan (1989, 1994) provides an illustration of the indirect costs of financial distress in the context of Campeau's acquisition of Federated. See also Cutler and Summer's (1988) analysis of the Texaco-Pennzoil litigation.

select a restructuring mechanism that resolves the financial distress both faster and more fully.

7. The success of chapter 11 reorganization

One measure of a “successful” restructuring is that a consensual agreement between claimants is ultimately reached, putting in place a modified set of financial contracts and/or liquidating all or a portion of the firm’s assets to meet its obligations. In terms of Chapter 11, however, “success” implies that the firm is able to reorganize rather than liquidate. If the Bankruptcy Code is structured such that some inefficient firms are allowed to reorganize (i.e., their estimated going-concern value is less than their unobserved liquidation value at the time of reorganization), researchers need to consider the performance of the firm some time after it has emerged to ultimately argue whether the restructuring has been successful. In this section, we focus on these aspects of Chapter 11 restructurings, rather than on outcomes of private restructurings, as this literature relates to the important debate over the efficient design of a bankruptcy code.

7.1. Outcomes of chapter 11 filings

The Executive Office for U.S. Trustees provides statistics for confirmation rates of Chapter 11 cases in the United States. It is clear from their statistics that many firms entering Chapter 11 ultimately are not successful in having a plan of reorganization confirmed; for the years 1990 through 2003, confirmation rates do not exceed 45% in any single year. The national average confirmation rate for this time period is only 29% of cases. Furthermore, many of the plans that are confirmed are “liquidating Chapter 11” plans, providing an alternative mechanism for liquidation other than the Chapter 7 process. The large number of cases that do not reach confirmation are ultimately closed with no remaining value, or converted to a Chapter 7 case.¹⁶

For the subset of Chapter 11 cases successfully confirming a plan, the disposition of the firm’s assets can still vary in significant ways. Unfortunately, information is generally not available for nonpublic companies, and for public firms it must be compiled from various sources including news services. Hotchkiss and Mooradian (2004) examine 1770 public companies that filed for Chapter 11 between 1979 and 2002. A publicly cited resolution of the outcome by June 2004 is available for some 1400 cases (80%). The remaining cases are either still in bankruptcy as of 2004 or have likely ended in liquidation. The bankrupt firm emerges as a public company (44% of cases) or a deregistered private company (27%), is liquidated (21%, including conversions to Chapter 7), or merges with another operating company (8%). Similar proportions are

¹⁶ Statistics are available at <http://www.usdoj.gov/ust>. Statistics include all states except Alabama and North Carolina.

reported by Hotchkiss (1995) for the subset of firms filing prior to 1988. Using data from two courts (Arizona and the Southern District of New York) where bankruptcy documents are available electronically, Bris, Welch, and Zhu (2006) find that 52% of 150 firms reorganized under Chapter 11 firms continue as independent companies.¹⁷

A smaller number of firms merge with another operating company while in bankruptcy. Hotchkiss and Mooradian (1998) show that the combined cash flows of the merged company increase by more than is observed for similar nonbankrupt transactions, suggesting that these mergers represent a successful restructuring outcome. For smaller firms, acquisitions are more common. White (1984) finds that in a sample of 64 small corporations in Chapter 11, 23% of the firms are sold as going concerns, 47% adopt reorganization plans, and the remaining 30% are eventually liquidated. Examining 95 relatively small corporate bankruptcy filings in Chicago during 1998, Morrison (2007) reports that 9 firms (9%) are sold as a going concern and another 27 firms (28%) exit as a reorganized entity, while 28 firms (29%) are shut down in bankruptcy and the remaining 31 firms (33%) exit Chapter 11 without a new capital structure, typically followed by a subsequent liquidation.¹⁸

Several studies have examined factors influencing the probability that a firm successfully emerges from Chapter 11. Hotchkiss (1993) shows that firm size, measured by pre-petition assets, is the utmost important characteristic determining whether a firm will be successfully reorganized rather than liquidated. Many of the emerging firms have considerably downsized while in bankruptcy. She suggests that the ability to divest assets and use the proceeds to fund the remaining operations is critical to the firm's survival in Chapter 11. Similarly, Denis and Rodgers (2007) provide documentation that firms with significant reductions in assets and liabilities in bankruptcy are more likely to emerge as going concerns. If asset prices are temporarily depressed by low industry demand, a liquidation or sale may be relatively costly to the creditors of defaulted firms. Acharya, Bharath, and Srinivasan (2007) show that most distressed firms emerge as restructured entities during periods of industry distress, possibly as a way of avoiding costly asset fire sales.

Carapeto (1999) and Dahiya, John, Puri, and Ramirez (2003) argue that access to DIP financing is an important factor in a successful reorganization. The availability of DIP financing is particularly important to firms in desperate need of fresh working capital, such as retailers whose suppliers might otherwise discontinue business. Using a sample of 538 public companies in Chapter 11, Dahiya et al. (2003) show that the probability of emerging as a reorganized entity is higher for firms receiving DIP financing. The benefits from DIP financing are further documented by Chatterjee, Dhillon, and Ramirez (2004), who report significantly positive abnormal stock and bond returns at the announcement of DIP loans.

Another factor that could affect the reorganization is the individual judge's interpretation and application of the bankruptcy law. Chang and Schoar (2006) find significant

¹⁷ For evidence on the outcome of public firm Chapter 11 reorganization, see also Weiss (1990), LoPucki and Whitford (1993), Denis and Rodgers (2007), and Kalay, Singhal, and Tashjian (2007).

¹⁸ See also Flynn (1989) for the outcome of small-firm bankruptcies.

differences across judges in the propensity to grant or deny creditor motions (e.g., to dismiss a case, lift an automatic stay, extend the exclusivity period, and use cash collateral). Their evidence is consistent with Hotchkiss (1995): she uses a dummy variable to indicate cases filed in the Southern District of New York, which at the time had a reputation for pro-debtor rulings favoring management attempts to reorganize (Weiss, 1990; LoPucki and Whitford, 1991). Cases filed in this district have a somewhat higher probability of subsequently entering a second bankruptcy or distressed restructuring.

Baird and Rasmussen (2003) argue that modern Chapter 11 practices are quite different from those observed a decade ago, with creditor control now being a dominant theme. They examine the 93 public large firms that completed their Chapter 11 reorganization in 2002. Of these, 52 (or 56% of the sample) are sales under Section 363 of the Bankruptcy Code or as part of a reorganization plan. Of the remaining cases, two-thirds (26 firms) reach an agreement with creditors prior to filing a prepackaged bankruptcy and one-third (15 firms) are reorganized in a traditional Chapter 11 proceeding.

Although the use of Chapter 11 may have changed over time, it is still true that large public firms are more likely to survive Chapter 11 as a going concern, while small firms have a higher probability of liquidation.

7.2. *Post-bankruptcy performance*

In choosing a restructuring mechanism, firms consider both the cost of the restructuring itself and the extent to which the restructuring is able to resolve the financial difficulties. Distressed firms with plenty of intangible assets, and thus high indirect costs of bankruptcy, are more likely to choose a restructuring mechanism that minimizes the chance of a subsequent bankruptcy filing. In other words, these firms may choose to incur the immediate high costs of a comprehensive restructuring as long as it leads to greater debt reduction and a superior post-restructuring operating performance.

Conflicts of interests may further explain why firms fail to fully correct corporate investment policy in a restructuring. Incumbent managers are more likely to push for a continuation of the operations that preserves their private benefits of control rather than a more comprehensive restructuring involving the sale of a substantial part of the firm's assets. Management looking out for the interests of equityholders may also choose to file for Chapter 11 in order to take advantage of the bargaining power allocated to equity and the preservation of shareholder value.

If financial distress is not fully resolved for firms reorganizing in bankruptcy or if Chapter 11 suffers from economically important biases toward continuation of unprofitable firms, poor investment decisions will be reflected in the post-bankruptcy performance of emerging firms. Hotchkiss (1995) examines the operating performance of firms that emerge as public companies from Chapter 11 by 1989. Over 40% of the firms continue to experience operating losses in the first three years following bankruptcy. Accounting ratios such as return on assets and profit margins are substantially lower than for industry

rivals. In the first year after emerging from Chapter 11, almost 75% of the sample firms have a lower operating performance (EBITDA/sales) than that of nonbankrupt firms in the same industry. Hotchkiss and Mooradian (2004) find similar results for a more recent time period. More than two-thirds of their sample firms underperform industry peers for up to five years following bankruptcy, and over 18% of the firms have negative operating income in the year following emergence.

Maksimovic and Phillips (1998) examine changes in the asset composition for firms that survive Chapter 11. By tracking the productivity of individual plants, regardless of whether these plants are sold or closed down, they are able to avoid the impact of survivorship bias, since they can examine asset performance even if the original owner of the assets is liquidated or emerges from Chapter 11 as a private company. They show that plants that are retained by bankrupt firms have lower productivity compared to the assets that are sold off, suggesting that firms in bankruptcy retain their least profitable assets. Thus, the performance changes may partially be a result of asset sales and closures, and not of changes in the efficiency of the retained assets.

In a recent paper, Kalay, Singhal, and Tashjian (2007) study changes in the operating performance of 113 firms that reorganized in Chapter 11 in the 1990s. The failed firms experienced significant profitability improvements while in bankruptcy in absolute terms as well as compared to industry rivals, suggesting that the reorganization may provide net benefits to the distressed firms. The performance improvements are smaller for firms with complex debt structure (more classes of debt) and greater for firms with higher pre-filing debt ratios, possibly because the automatic stay on debt payments is particularly valuable to these firms.

An alternative to examining accounting-based performance measures is provided by Alderson and Betker (1999), who estimate the return that could have been earned by liquidating the firm's remaining assets and investing the proceeds in a portfolio of securities. Alderson and Betker (1999) compare the market value of 89 firms five years after emerging from bankruptcy (including all cash distributions to claimholders) to an estimated value if the assets would have been liquidated at emergence. The annualized return is then compared to the return of the S&P index over the same time period. They find that reorganized firms on average neither underperform nor overperform the S&P index. One interpretation of this study is that based on cash flow returns, emerging firms perform at par with the market overall, ignoring any differences in systematic risk.

Measures of operating profitability after emergence are likely to be strongly related to stock price performance as well. However, studies of stock price performance largely address the efficiency of pricing the securities at emergence, rather than the efficiency of the decision to reorganize. Still, these studies provide yet another view of post-bankruptcy success, in particular from an investment point of view. One difficulty in interpreting studies of emerging firm stock returns, however, is that only a fraction of firms that emerge relist their stock. For example, only 60% of the emerging firms studied by Hotchkiss (1995) relist their stock on NYSE, AMEX, or NASDAQ post-bankruptcy. If the worst firms are systematically unable to relist their stock, studies of post-bankruptcy stock performance may be biased to reflect the better performing firms.

The most comprehensive study of post-bankruptcy stock price performance to date is that of Eberhart, Altman, and Aggarwal (1999), who examine the equity performance of 131 firms emerging from Chapter 11 by 1993. They report large positive excess stock returns over the 200 trading days following emergence using different benchmarks. Compared to the return of a portfolio of nonbankrupt firms matched on industry and size, the average cumulative abnormal return (ACAR) is 25% (median 6%). Using the market model, the ACAR of the reorganized firms over the same period is 139% (median 5% to 7%). In sum, emerging firms exhibit large positive and significant abnormal stock returns in the first year post-bankruptcy. For a smaller sample but over a much longer time interval (five years subsequent to distress), Goyal, Kahl, and Torous (2003) document average abnormal returns close to zero using a value-weighted reference portfolio, but highly negative abnormal returns (−51%) using a size and book-to-market reference portfolio.

As a whole, the research suggests that a considerable portion of firms emerging from bankruptcy continue to perform poorly based on various performance measures. Under-performance may be related to firms that insufficiently reduced their debt burden with the restructuring, or that failed to undertake sufficient asset restructuring, enabling them to implement a feasible reorganization plan. The ultimate measure of success, therefore, is whether the firm is able to subsequently avoid another distressed restructuring or bankruptcy.

A number of studies have documented the incidence of repeated failures of distressed firms. The high rate of subsequent failures occurs despite the Chapter 11 requirements that the company must demonstrate the feasibility of the reorganization plan before it can be confirmed.¹⁹ Among the earliest, LoPucki and Whitford (1993) report that 32% of 43 large Chapter 11 cases confirmed by March 1988 reenter Chapter 11 within four years. Hotchkiss (1995) shows that one-third of the emerging firms in her sample need to again restructure either through a private workout, a second bankruptcy, or an out-of-court liquidation. Gilson (1997) reports a failure rate of 25% for 108 distressed firms that recontracted with creditors in Chapter 11 or out of court. More recent statistics for the incidence of “Chapter 22” filings show that this pattern continues.

The high rate of subsequent failures has several potential explanations. One possibility is that firms have not sufficiently reduced their debt in the restructuring. Gilson (1997) finds that firms remain highly leveraged after emerging from Chapter 11, though less so than firms completing an out-of-court restructuring. Firms emerging from bankruptcy have a median ratio of long-term debt to total capitalization of 47%, and three-quarters of the firms are more highly levered than their industry rivals. Another explanation is that management is overly optimistic about the prospects for the reorganized firm. Hotchkiss (1995) shows that the continued involvement of incumbent management in the restructuring process increases the probability of post-bankruptcy failure. Finally, it has been

¹⁹ According to §1129(a)(11) of the Bankruptcy Code, the reorganization plan must be feasible. The statute specifically requires the bankruptcy judge to find that approval of the reorganization plan “is not likely to be followed by the liquidation or the need for further financial reorganization of the debtor.”

suggested that the pro-debtor orientation of the Bankruptcy Code and the courts permit inefficient firms to reorganize.²⁰ It is likely that all these factors combined play a role in the high failure rate of firms reorganized under Chapter 11.

The governance structure of the reorganized firm, however, appears to have an important relationship to post-bankruptcy success. Hotchkiss and Mooradian (1997) find that when a vulture investor remains active in the governance of the firm post-Chapter 11, the fraction of firms experiencing operating losses is a mere 8%. Improvements in performance relative to pre-default levels are greater when a distressed investor joins the board, becomes the CEO or chairman, or gains control of the firm. When there is evidence of vulture involvement but this investor subsequently is passive in the restructured company, performance appears no better than for those firms with no evidence of vulture involvement. Thus, the continued presence of distressed investors in the governance of the restructured firm is strongly related to different measures of post-bankruptcy success.

To sum up, a majority of large public firms emerge from Chapter 11 as independent companies, while small private firms are more likely to be liquidated in bankruptcy. Surviving firms frequently exhibit poor operating performance and frequently default on their debt again. Nevertheless, stock returns of surviving firms exceed various benchmarks in the first year following bankruptcy, raising the possibility that the market initially undervalues some reorganized firms.

8. International evidence

Bankruptcy laws vary considerably across the world. All countries provide liquidation procedures, where control over the firm shifts to creditors and assets are sold piecemeal or as a going concern. There are, however, major differences in the provisions for court-supervised reorganization—that is, a court settlement that permits the firm to continue as an ongoing concern while the financial claims are restructured. Some countries offer few alternatives to a sale of the distressed firm's assets. Other codes provide substantial shelter for incumbent management and equityholders, typically favoring a continuation of the operations. The degree to which the company's business is protected from creditors also varies. In some bankruptcy systems, the existing debt contracts are stayed and new debt receives super-priority status. Under other codes, secured claimholders have the right to seize collateral, potentially thwarting a continuation of the business.²¹

Although there is substantial variation, two distinct systems stand out: reorganization and auction codes. A reorganization code provides strong provisions for a court-supervised renegotiation of the firm's capital structure. Creditors have limited influence over the bankrupt firm, and incumbent management is typically allowed to continue to

²⁰ See, for example, Bradley and Rosenzweig (1992). The Southern District of New York and Delaware have been mentioned in this context.

²¹ For a specific situation related to the enforcement of a debt contract against a hotel, Djankov, Hart, McLiesh, and Shleifer (2006) show that the contract is enforced more efficiently in countries with higher per capita income and quality of contract enforcement, and predicts debt market development.

run the operations. Chapter 11 of the U.S. Bankruptcy Code is a prominent example of a reorganization code. An auction code, in contrast, mandates a public sale of the bankrupt firm's assets.²² The bidder offering the highest price decides whether the firm is liquidated piecemeal or survives as a going concern. Creditor interests are at the forefront, and the fate of management is determined by the buyer in the auction. As discussed later in this section, the Swedish bankruptcy code is a good example of an auction code.

Proponents of reorganization codes point to the perceived weaknesses of auction codes. There are concerns that the markets for distressed firms' assets are illiquid, forcing fire sales at depressed prices and perhaps producing a suboptimal allocation of assets. Moreover, bidding costs may be prohibitive due to uncertainty about the distressed firm's prospects, deterring potential bidders from entering the auction (Aghion, Hart, and Moore, 1992). It has also been suggested that managers, dreading the uncertainty about their position that the auction implies, may delay filing and engage in value-destroying, risk-shifting activities in an attempt to entirely avoid bankruptcy (White, 1996; Hart, 2000). In contrast, managers may be encouraged to file promptly under a management-friendly reorganization code, hence preserving firm value and increasing the likelihood of a successful reorganization.

Obviously, reorganization codes embrace a different set of inefficiencies. While an auction makes use of the market, the reorganization code uses negotiations to determine the value and future use of the bankrupt firm's assets. Since a restructuring of the capital structure entails the distribution of new financial claims, the negotiations also involve how much and what type of securities the various creditors will receive. Reaching one negotiated solution covering all these aspects can be a lengthy and costly procedure for the distressed firm. The auction, on the other hand, separates these decisions and thus provides a speedier resolution.

Another potential issue associated with a reorganization code is the substantial control rights given to incumbent management, effectively removing the residual claimholders (creditors) from the decision making. While this approach may encourage management to file without delay, it also opens the way for decisions that benefit self-interested managers. It is possible that the default is a result of managerial incompetence. Allowing the incumbent managers to retain control of the firm may delay a necessary change in management or prevent closure of the operations when a piecemeal liquidation of the assets is optimal.²³ In contrast, in the auction, the highest bidder who has its own money at stake determines whether the firm will continue to operate as a going concern or whether the assets are to be redeployed.

The total costs imposed by the bankruptcy code determine claimholders' incentives to voluntarily restructure the claims outside of the formal bankruptcy procedure. Claessens

²² Mandatory auctions are often referred to as liquidations. In this context, however, liquidation simply implies that the assets are redeployed through a sale. This may or may not imply a termination of the operations.

²³ Franks and Loranth (2005) suggest that lack of court oversight and poorly designed trustee compensation contracts lead to inefficient continuation of poorly performing firms under the Hungarian reorganization code.

and Klapper (2005) find that the bankruptcy filing rate generally is higher in countries with an efficient judicial system. Moreover, controlling for judicial efficiency, bankruptcy tends to be used more frequently in countries where the insolvency procedures give creditors more rights.²⁴ Thus, when comparing outcomes under different bankruptcy codes, one should keep in mind the caveat that a distinct set of firms may file for bankruptcy under each code.²⁵

The magnitude of the potential inefficiencies in different bankruptcy systems is an empirical question. Nevertheless, evidence on bankruptcy reorganization outside the United States is sparse. In the following section, we review evidence on the restructuring of distressed firms in the UK, Sweden, France, Germany, and Japan.

8.1. *The United Kingdom: receivership*

UK companies have access to several court-supervised procedures. In the dominant procedure, *Receivership*, a secured creditor appoints a receiver representing the interests of this creditor. The receiver realizes the security and, after deducting his expenses and paying any higher priority claims, uses the proceeds to pay off the appointing creditor. If the claim is secured by floating charge collateral, an administrative receiver gets full control over the firm and can reorganize the firm or sell assets without permission from other creditors or the court.²⁶ There is no automatic stay of debt claims. Creditors secured with fixed liens on particular assets have the right to repossess their collateral, even if the assets are vital for the firm's operations. Any excess balance is distributed to remaining claimholders according to the absolute priority of their claims. Unsecured creditors have little influence over the procedure.

The UK also provides two court-administered reorganization procedures, *Administration* and, for small firms, *Company Voluntary Arrangements (CVAs)*, which give the firm temporary relief from its creditors. A secured creditor can veto these procedures, however, and instead appoint a receiver. Thus, in practice, the court can appoint an administrator that represents all creditors only in the absence of secured creditors. Reformed UK insolvency procedures took effect in 2003. The new UK law cuts back the rights of creditors secured by floating charge, including that to appoint an administrative receiver. Holders of floating charge claims issued prior to September 15, 2003, however, retain the same rights as before. Overall, UK insolvency procedures are considered to be creditor-oriented.

In general, the UK receivership code provides little protection of the operations. The liquidation decision is typically left to secured creditors, who lack incentives to generate

²⁴ See also Claessens, Djankov, and Klapper (2003) for an examination of the use of bankruptcy in East Asia.

²⁵ The design of the bankruptcy code may also have other ex-ante effects. Acharya and Subramanian (2007) suggest, for example, that firms generate more patents in economies with weaker creditor rights.

²⁶ The collateral of a floating charge claim includes inventory, accounts receivables, working capital, and intangible assets.

proceeds above the value of their claim. Franks, Nyborg, and Torous (1996) propose that the allocation of control rights to secured creditors leads to underinvestment and excessive termination of economically viable firms. Franks and Nyborg (1996), however, argue that premature liquidation can be avoided if the creditor appointing the receiver has large private benefits of control associated with the survival of the bankrupt firm.

Interestingly, the evidence indicates that a large fraction of distressed UK firms indeed survive as ongoing concerns. Franks and Sussman (2005) examine 542 small-to-medium-sized financially distressed UK firms that are transferred to their bank's workout unit. They report that 60% of sample firms filing for the UK receivership code continue to operate as going concerns after bankruptcy. In a sample of UK firms filing for administrative receivership, Kaiser (1996) finds that almost half are sold as going concerns. Similarly, Davydenko and Franks (2006) show that 43% of small UK firms that default on their debt are liquidated piecemeal.

Franks, Nyborg, and Torous (1996) suggest that the UK receivership code is speedy, which would imply low direct costs. Nevertheless, Franks and Sussman (2005) report direct costs averaging 33% of asset values. They note that a lack of competition among receivers may explain the high costs and point to much lower costs (mean 14%) when the Royal Bank of Scotland recently required receivers to tender for their appointments. We are not aware of specific data on the duration of the UK bankruptcy procedure. Nevertheless, the firms in Franks and Sussman (2005) spend on average 7.5 months in the bank's workout unit, and the median length of reorganization is 1.4 years for a subset of the defaulted firms in Davydenko and Franks (2006).

Secured creditors seem to fare relatively well in the UK procedure, as expected. Franks and Sussman (2005) document average bank recovery rates of 75%, with a median of 100%. Nearly all of the firms' assets are pledged as collateral to the bank. Interestingly, banks tend to liquidate collateral at prices close to the face value of the secured claim, possibly because secured creditors have few incentives to generate additional proceeds for junior claimants. Similarly, Davydenko and Franks (2006) report an average bank recovery rate of 69% (median 82%).

Since secured creditors fare relatively well in formal bankruptcy, one would predict voluntary workouts to be relatively rare in the UK. Davydenko and Franks find that 75% of small firms that default on their debt enter formal bankruptcy, with the remaining 25% of firms reorganizing out of court. When large distressed companies issue new equity, however, UK banks appear quite willing to make concessions out of court. Franks and Sanzhar (2006) show that banks make concessions for one-third of 111 financially distressed, publicly traded UK firms that issue new equity. These concessions include forgiveness of principal, debt for equity swaps, and provisions for new loans. Concessions are offered to firms with higher leverage and greater debt impairment, representing situations where the expected wealth transfer to debtholders is relatively large.

Acharya, John, and Sundaram (2005) contend that the allocation of control rights in bankruptcy determines the impact of asset specificity on the firm's optimal capital structure. On one hand, when assets are specific to the industry, liquidation values may

be low and a forced liquidation relatively costly to the firm. On the other hand, when assets are nonspecific, the costs from inefficiently continuing the firm may be high. Thus, firms with high asset specificity will choose a lower debt level under a creditor-friendly system, which is prone to inefficient liquidations, than under a reorganization-oriented code. In contrast, firms with low asset specificity will choose a lower debt level under a debtor-oriented code, which risks allowing excessive continuation. Contrasting firms in the UK and the United States—classified as having creditor-friendly and debtor-friendly bankruptcy systems, respectively—Acharya, John, and Sundaram (2005) find variations in debt ratios consistent with their predictions.²⁷

Overall, the weak protection of the firm's operations and the strong rights allocated to secured creditors in UK bankruptcy may raise concerns of excessive liquidations. Nevertheless, firm survival and recovery rates in the UK compare well to the U.S. Chapter 11. Thus, the strong creditor orientation in formal bankruptcy does not appear to be detrimental to the restructuring of distressed UK firms.

8.2. Sweden: auctions

In Sweden, bankruptcy is resolved through a mandatory auction. The proceeding is run by a court-appointed trustee with fiduciary responsibility to all creditors. This trustee organizes the sale of the firm in an auction. The winning bidder determines whether the firm is liquidated piecemeal or continues to operate as an ongoing concern. Payment must be in cash, and creditors are paid strictly according to the absolute priority of their claims.

The trustee typically retains the incumbent management team to run the operations of the firm in bankruptcy. In contrast to the UK, the Swedish code restricts the liquidation rights of creditors. Debt payments are stayed, and collateral cannot be repossessed. Moreover, trade credits and other debt raised while in bankruptcy get super-priority. These provisions help protect the operations until the firm is auctioned off.

Swedish insolvency law provides a forum for renegotiation of unsecured debt called composition (*ackord*). Secured debt and priority claims (taxes and wages) must be offered full repayment, and junior creditors at least 25% of their claim. These high thresholds make composition unfeasible for the vast majority of distressed firms. A new reorganization law was enacted in 1996, but Buttwill and Wihlborg (2004) argue that the new law shares many of the weaknesses of the old composition procedures and is rarely used. Thus, in Sweden, court-supervised renegotiation of the firm's debt contracts is effectively not an alternative to auction bankruptcy.

Thorburn (2000) examines a sample of 263 small, private Swedish firms filing for bankruptcy between 1991 and 1998. Her evidence counters widespread fears that bankruptcy auctions tend to excessively force liquidation. She demonstrates that three-quarters of firms continue as a going concern under the buyer's reign, with the remaining

²⁷ See also Vig (2007), who argues that a recent change in bankruptcy law in India that strengthens the rights of secured creditors has had an important influence on capital structure and the use of secured financing.

one-quarter of firms being liquidated piecemeal.²⁸ The probability for a going concern sale increases in the fraction of intangible assets, perhaps because these assets generate little value in a piecemeal liquidation. To gauge the quality of the continuation decision, Eckbo and Thorburn (2003) examine the operating profitability of the Swedish firms emerging from bankruptcy. They show that auctioned firms perform at par with industry competitors for several years, also when the incumbent CEO retains control. This contrasts to the evidence in Hotchkiss (2005) that firms emerging from U.S. Chapter 11 tend to underperform their industry rivals.

Thorburn (2000) also estimates the costs of Swedish bankruptcy proceedings. She reports direct costs of on average 6% of pre-filing book value of assets, with an average of 4% for the one-third largest firms in her sample.²⁹ When measured as a fraction of the market value of assets in bankruptcy, costs average 19%, with a median of 13%. The direct costs decrease with firm size and increase with measures of industry distress, suggesting that trustees may increase their sales effort in periods when auction demand is relatively low. Importantly, the auction is speedy, with an average time from filing to sale of the assets of only two months, implying relatively low indirect costs.³⁰

The value of the assets remaining at the end of the bankruptcy process reflects all the different costs imposed on the financially distressed firm. This value is split between the firm's creditors. The higher the total costs of bankruptcy, the lower are creditor recovery rates. In Swedish bankruptcy, creditors' claims are paid with the cash generated in the auction. Thorburn (2000) reports average recovery rates of 35% (median 34%). Recovery rates are higher in going-concern sales (mean 39%) than in piecemeal liquidations (mean 27%). Secured creditors receive on average 69% (median 83%).³¹

A potential issue with a creditor-oriented code is that it may encourage management to delay filing and undertake value-reducing risk-shifting investments in an effort to stay out of bankruptcy. Eckbo and Thorburn (2003) argue, however, that managerial incentives to preserve private benefits of control may counteract potential risk-shifting incentives. Specifically, managers may implement a conservative value-maximizing investment policy for the financially distressed firm in an attempt to increase the joint likelihood that the firm survives as a going concern and that current management gets rehired by the buyer in the auction. For the sample of Swedish small-firm bankruptcy filings, Eckbo and Thorburn (2003) show that the probability that the incumbent manager continues to run the auctioned firm increases in a measure for the private benefits of control. They

²⁸ Prior to 1993, Finnish bankruptcy also mandated a sale of the firm. In a sample of 72 small firms filing under the old Finnish code, Ravid and Sundgren (1998) find that only 29% of the firms are sold as a going concern.

²⁹ Ravid and Sundgren (1998) report average direct costs of 8% of pre-filing book value of assets for the small firm bankruptcies in Finland.

³⁰ Note that while the firm's operations are auctioned off quickly, the bankruptcy proceeding continues and last on average around three years.

³¹ Ravid and Sundgren (1998) find average recovery rates of 34% in going-concern sales and 36% in piecemeal liquidations in Finnish bankruptcy.

also find that bidders screen managers on quality in the rehiring decision and that CEOs suffer large income declines conditional on bankruptcy filing (about 40% relative to CEOs of nonbankrupt companies). Their evidence supports the notion that managers' drive to retain control of the operations conditional on default may counterbalance ex-ante incentives to risk shift.

Most European countries hold directors and managers personally liable and impose civil and criminal penalties if they fail to file in a timely manner or to inform creditors when the firm becomes insolvent. To the extent that these laws are enforced, such penalties may help trigger prompt action, further offsetting potential tendencies to delay filing.

A common objection to auctioning firms in bankruptcy is the concern that markets for distressed firms' assets are illiquid, forcing fire sales at depressed prices. Stromberg (2000) suggests, however, that salebacks may help avoid costly asset fire sales in periods of industry distress. He shows that the probability that the old owner buys back the firm in the bankruptcy auction increases with industry leverage and operating performance, and decreases with the proportion of nonspecific assets.

Eckbo and Thorburn (2008) model the participation in the auction of a secured creditor with an impaired debt claim on the bankrupt firm. The more impaired the secured claim, the greater incentive the creditor has to provide financing to rival bidders and encourage aggressive bidding, thus increasing the expected recovery. Eckbo and Thorburn show that the bankrupt firm's bank frequently enhances auction liquidity by providing bid financing. The premiums paid by the winning bidder decrease with an estimate of the secured creditor's expected recovery in the event of piecemeal liquidation, consistent with the predicted bidding behavior.

In a companion paper, Eckbo and Thorburn (2007) test the implications of industry distress using prices paid and debt recovery rates in the bankruptcy auctions. They estimate fundamental values of the auctioned assets in a cross-sectional model and examine how industry liquidity factors (leverage and interest coverage ratios) affect the standardized residuals from the price regression. There is some evidence of fire-sales discounts in piecemeal liquidations, but not when the bankrupt firm is acquired as a going concern. Neither industry-wide distress nor the industry affiliations of the buyer affect the prices in going-concern sales. Eckbo and Thorburn (2007) further show that bids often are structured as leveraged buyouts, which relaxes liquidity constraints and reduces bidder underinvestment incentives in the presence of debt overhang. It is possible that distressed industry insiders overcome liquidity constraints by using LBO financing. Eckbo and Thorburn (2007) also find evidence that prices are lower in prepackaged filings than in other going-concern sales, suggesting that prepacks may help preempt excessive liquidation when the auction is expected to be illiquid. Liquidation preemption seems to be a risky strategy, however, as prepackaged bankruptcies have much higher refiling rates than firms sold in a regular auction.

Overall, the evidence on Swedish bankruptcy filings suggests that mandatory auctions provide a relatively efficient mechanism for restructuring financially distressed firms.

Survival rates, direct costs, and recovery rates compare well with extant evidence from the United States and the UK. Moreover, there is no evidence that firm value is destroyed because of distorted ex-ante incentives to risk-shift. While bankruptcy auctions risk forcing asset sales at depressed prices, the evidence suggests that the incentives of secured creditors and old owners combined with opportunities for LBO financing help increase auction demand, effectively counteracting fire-sales tendencies.

8.3. France: weak creditor rights

France provides very strong protection of distressed businesses through its formal reorganization procedure, *Redressement Judiciaire*.³² The objectives of the procedure are, in order of priority, to continue the firm's operations, to maintain employment, and to pay back creditors. A court-appointed administrator oversees the reorganization. Debtholders are restricted from directly participating in the restructuring process. They are represented by a court officer and can raise their concerns only through this court-appointed creditor representative. Employees, however, may appoint their own representative.

The administrator evaluates the prospects for reorganization and presents a reorganization plan to the court. Creditors cannot reject the court's decision, nor does confirmation of a reorganization plan or sale of collateral require approval of secured creditors. Creditors are offered new, altered claims in place of their old impaired debt claims. Although the court cannot force creditors to write down their claims, it can redefine the terms of the loan, including maturity. Thus, in practice, creditors often prefer to accept a write-down with timely repayment to a promised repayment in full in an uncertain distant future.

Debt payments are stayed during the bankruptcy process, and the administrator can raise new super-priority financing without creditor approval. If the firm is sold, the court can choose a lower bid that provides better prospects for continued operations and employment. Moreover, government and employee claims have first priority to proceeds generated in a sale of collateral, effectively forcing a deviation from absolute priority rules.³³

The French code, with its explicit objective to maintain operations and preserve jobs, has a predisposition to allow continuation of inefficient firms. Nevertheless, the evidence indicates that relatively few firms survive bankruptcy in France. Kaiser (1996) reports that only 15% of filing firms continue to operate as a going concern after bankruptcy reorganization. In a broader sample comprised of bankruptcy filings and voluntary work-outs, Davydenko and Franks (2006) find that 62% of French firms are liquidated piecemeal, which is a higher fraction than in the UK. Despite the poor odds for survival, they show that a vast majority (87%) of firms that default on their debt enter formal bankruptcy.

³² French insolvency law also provides a separate proceeding for liquidation (*Liquidation Judiciaire*) and a rarely used procedure for renegotiation of debt contracts prior to default (*Reglement Amiable*).

³³ Certain types of collateral, such as receivables and guarantees, are exempt from this rule.

The low survival rates in France translate into relatively low creditor recovery rates. Davydenko and Franks (2006) document an average bank recovery rate in French proceedings of 47% (median 39%), which is much lower than the recovery rates reported for UK banks. The median reorganization takes three years. Moreover, French banks take more collateral than bank lenders in the UK and Germany, possibly reflecting the poor standing of banks in French bankruptcy.

Overall, although bankruptcy law in France is set up to promote firm survival, the actual result seems to be the opposite. Firm survival rates and creditor recovery in France compare poorly with evidence from the UK and the United States. It is possible that the costs associated with the extremely creditor-hostile French insolvency procedures ultimately are borne by the distressed firms and their claimholders. Or perhaps French firms restructure their debt prior to default in order to entirely avoid reaching the point where they are subject to insolvency laws, leaving only the lemons to the bankruptcy procedure.

8.4. Germany: bank-driven reorganizations

The German 1999 reorganization procedure, *Insolvenzordnung*, gives the financially distressed firm three months to engineer a reorganization plan under the supervision of a court-appointed administrator.³⁴ This plan outlines the financial and asset restructuring of the firm, including a potential sale of the firm as a going concern. The reorganization plan must receive creditor approval before it can be implemented. Creditors vote with a simple majority rule. Similar to the United States, the court may cram down a plan on a dissenting class of creditors as long as the plan leaves the class better off than would be the case with a piecemeal liquidation of the assets. Creditor claims are stayed during the three-month reorganization period. The firm can raise new debt financing with super-priority subject to creditor approval.

The evidence on distressed firms in Germany primarily dates from the period before the new reorganization code took effect. Davydenko and Franks (2006), for example, examine firms that defaulted on their debt between 1984 and 2003. They document that 57% of distressed German firms are liquidated piecemeal, which is higher than liquidation ratios reported for Sweden and the UK and lower than liquidation ratios in France. The median duration of the reorganization procedure in Germany is 3.8 years, and banks recover on average 59% (median 61%) of their claims.

An important impediment to out-of-court agreements is holdout problems among dispersed creditors. In Germany, the debt is typically concentrated with a house bank that often also has an equity interest. As a result, one should expect coordination failures to be relatively rare in Germany. According to Kaiser (1996), most German firms with a chance of survival are reorganized in an out-of-court workout. Davydenko and Franks (2006), however, find that 78% of the distressed firms in their sample enter formal

³⁴ Prior to 1999, German insolvency law offered an auction liquidation process (*Konkursordnung*) and a rarely used procedure for the reorganization of unsecured claims (*Vergleichsordnung*).

bankruptcy, with the remaining 22% of sample firms working things out with creditors informally.

Elsas and Krahnert (2002) study the role of lending relationships for 75 financially distressed German firms initiating private workouts. They find that house banks and banks holding a secured claim are more likely to participate in a voluntary restructuring. Brunner and Krahnert (2004) show that German bank lenders often coordinate their reorganization efforts by forming a bank pool when medium-sized firms become financially distressed. They report that banks strike a formal contractual pool arrangement for 45% of the distressed firms, and the probability of bank pool formation increases with the number of bank relationships and the degree of distress.

While the German procedure has some resemblance to the U.S. Chapter 11, it imposes a strict three-month limit on the reorganization. This period risks being too short to allow a firm with complex operations and capital structure to carefully develop a reorganization plan. The evidence on the new reorganization procedure, however, is at this point insufficient for us to draw any conclusions about how well the new German code works.

8.5. Japan: *keiretsu* banks

Japan's bankruptcy code has historically been oriented toward a liquidation of the filing firm. Managers typically lost their jobs, and creditors controlled the outcome of the bankruptcy proceeding. Over the last decade, however, Japan has undertaken a series of revisions of its insolvency procedures aimed at strengthening the provisions for restructuring financially distressed firms as ongoing concerns.

A prominent feature of the Japanese business environment is industrial groups called *keiretsus*. At the core of a *keiretsu* are banks, which finance much of the industrial operations, both as creditors and equityholders of the firms affiliated with the group. Hoshi, Kashyap, and Scharfstein (1990) examine the role of a *keiretsu* affiliation for a sample of 125 publicly traded firms that become financially distressed. They find that distressed firms associated with a *keiretsu* invest more and sell more than non-*keiretsu* firms in the years following the onset of financial distress. This suggests that *keiretsu* banks help relax financial constraints, possibly mitigating the costs of financial distress.³⁵ Helwege and Packer (2003) study the role of *keiretsu* banks for the outcome of bankruptcy for 172 troubled Japanese firms. They report that the probability of liquidation is higher for firms affiliated with *keiretsu* banks than for non-*keiretsu* firms, controlling for firm size. However, since there is no discernible difference in the profitability of the liquidated firms, they conclude that there is no evidence that *keiretsu* banks force excessive liquidations.

In sum, Japan has traditionally provided creditor-oriented insolvency procedures often dominated by large *keiretsu* banks. There is insufficient evidence at this point, however, to determine whether financial ties with *keiretsu* banks help or are detrimental to the reorganization of distressed firms.

³⁵ Claessens, Djankov, and Klapper (2003) show that financially distressed firms in East Asia are less likely to file for bankruptcy if they are owned by banks or affiliated with a business group.

9. Conclusion

This chapter surveys the body of empirical research that focuses on the use of private and court-supervised mechanisms for resolving default by restructuring companies in financial distress. We organize and synthesize this literature in the context of a simple model of financial distress. After a quick overview of the theoretical issues, we identify some main themes to anchor the empirical research in the areas of financial distress, asset and debt restructuring, and the formal bankruptcy procedures in the United States and abroad. Studies of out-of-court restructurings (workouts and exchange offers), corporate governance issues related to distressed restructurings, the magnitude of costs and outcomes of bankruptcy reorganizations, and the relative efficiency of bankruptcy codes in different countries are among the topics surveyed.

It is customary (as we have done in this survey) to make a distinction between two types of systems for resolving default: one in which the business is sold to a third party, possibly through an auction; and another in which the firm is reorganized under the current claimholders. Although these two philosophies of resolving default—liquidation and reorganization—have been viewed as entirely different approaches (we have discussed their relative merits in Section 8), claimholders in the U.S. Chapter 11 reorganization system are increasingly relying on the market to mimic solutions provided by an auction (liquidation) system. Most of the research on firms reorganizing under the U.S. Bankruptcy Code, however, dates from the 1980s and early 1990s. The peak in default rates in 2002, combined with creeping changes in insolvency practices and an escalation in the enforcement of creditor rights, has caused a growing demand for new research that can help us understand the process that governs the restructuring of financially distressed firms in the current environment.

The active trading of distressed debt at all priority levels combined with the participation of sophisticated investors is significantly affecting Chapter 11 mechanisms. The extensive trading in distressed debt has led to high turnover in the identity of the creditors of companies in financial distress. Nontraditional investors, such as private equity investors and hedge funds, have increased their role in these markets and therefore as creditors of troubled firms. Based on their estimate of the value of the business and the legal priority of the various claims, many strategic investors acquire the fulcrum class of claims, that is, the securities where they expect that the equity value will reside after the reorganization is completed. Taking a private equity perspective on their investment, these investors seek to become owners of the enterprise, fix it, and then sell it at an optimal time. In this manner, the multiple creditors basically replicate the characteristics of a third-party sale, although the restructuring process is that of a conventional reorganization. Moreover, creditors frequently require, and courts are more willing to approve of, an outright sale of major assets of the distressed firm, either through an auction under Section 363 of the U.S. Bankruptcy Code or as part of the reorganization plan. The overall effect of all these changes on the efficiency of the U.S. bankruptcy procedures yet remains to be documented and analyzed.

With emerging economies searching for an optimal bankruptcy system and the opportunity for the European Union to harmonize its insolvency rules, the efficiency of various systems across the industrial economies has received increasing attention. The differences in the insolvency codes of the advanced economies and the differential degree of creditor rights available in the legal systems of those economies have been the focus of policy makers in many countries. It is also recognized that changes in insolvency codes and their enforcement could have important influence on how firms access capital as well as on the efficiency of investment in the economy. It is evident from our review of the research on insolvency procedures outside the United States that a lot still remains to be done in this area. One important and still mainly unanswered question is how different institutional characteristics of individual countries interact with their respective insolvency rules. For example, to what degree is the success of Swedish bankruptcy auctions tied to the dominant role of banks in this economy?

The argument has often been made that the direct costs of bankruptcy seem too small to justify the relatively low leverage ratios that we typically observe. A response to this observation has been that leverage and financial distress might have other indirect costs that need to be taken into consideration. Our understanding of the nature and magnitude of these indirect costs of financial distress is still very preliminary. In some sense, the indirect costs of bankruptcy arise from the value lost from investments that optimally should but in practice are not undertaken (an opportunity cost). Finding reliable measures of such unobservable phenomena is very difficult and requires clever empirical strategies.

In designing bankruptcy systems, it is important to consider their effect on a variety of issues, including capital structure choices, investment incentives, and risk choices that arise from the law and its implementation. For obvious reasons, most of the existing literature has focused on the ex-post efficiency of the mechanisms for resolving default, that is, on events following the onset of financial distress. In order to assess the optimality of various mechanisms for resolving default, however, we also need to consider their ex-ante efficiency. The international evidence plays an important role in the search for an optimal bankruptcy system.

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