Creditor pre-filing actions, asset dispositions and CEO wealth effects of bankruptcy *

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Abstract

We document a wide range of creditor monitoring actions and debtor asset dispositions prior to auction bankruptcy filings in Sweden, and we estimate the effect of these actions on debt recovery and the CEO's personal wealth. Creditor actions range from debt forgiveness to tightening credits and forcing bankruptcy filing. Debtor actions include downsizing through asset sales and layoffs, sale-lease-backs, equity issues, and engineering a prepackaged bankruptcy sale of the firm. We show that CEO's personal bankruptcy costs (wealth decline) is typically high, greater for CEOs owning a substantial fraction of the bankrupt firm's equity, and greater when the firm issues equity prior to filing. Actively promoting a restructuring of the firm's assets lowers the CEOs' subsequent wealth loss. Moreover, CEO wealth declines are lower in cases where the bank refuses to forgive principal or interest and pressures the firm to file for bankruptcy without delay. Some cases involve charges of accounting fraud and fraudulent conveyance. Charges of fraudulent behavior are associated with lower debt recovery rates and a lower probability that the CEO is rehired by the buyer in the bankruptcy auction.

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1 Introduction

Since the seminal contribution of Jensen and Meckling (1976), the argument that debtors have an incentive to substitute high-risk for low-risk assets in order to stay out of bankruptcy (risk-shifting through asset substitution) has become a cornerstone in the theory of corporate finance and contracting. Recognizing the bondholder-stockholder conflict of interest, most jurisdictions require that the fiduciary duty of company directors be shifted towards creditors when the firm is approaching bankruptcy (Gilson, 1990; LoPucki and Whitford, 1993). Financial contracts include covenants designed to lower the costs of detecting and prohibiting certain forms of asset dispositions potentially harmful to creditors, such as merger, sale-leaseback, and asset collateralization (Smith and Warner, 1979). Some financing instruments, like convertible debt and convertible preferred shares, where creditors have the option to convert their debt claims into equity, directly reduce shareholder risk-shifting incentives (Green, 1984).

The literature on optimal wage contracts and executive compensation also recognizes that the incentive structure of the firm's chief executive officer (CEO) is important for how the bondholder-stockholder conflicts are actually played out. This literature shows that in a multi-period setting with a finite time horizon, the CEO does not bear the full cost to shareholders of deviating from shareholder wealth maximization. That is, the CEO's career concerns are insufficient to fully "settle up" the cost of her actions, implying that CEO incentives are only partially aligned with those of shareholders (Fama, 1980; Harris and Holmstrom, 1982). Specifically, the CEO may prefer a "conservative" (relatively low risk) investment policy over the one which maximizes shareholder wealth. This effectively mitigates the risk shifting problem when the firm is in financial distress (Hirshleifer and Thakor, 1992; Zwiebel, 1995; Eckbo and Thorburn, 2003). As a result, CEO incentives are important to the design of optimal capital structures (Ross, 1977; Berk, Stanton, and Zechner, 2006).

These theoretical advances notwithstanding, our empirical knowledge of how these incentives actually play out in financial distress is extremely sparse. On the one hand,much is known about CEO turnover following distress and bankruptcy. This literature suggests that CEOs are generally concerned about the effect of distress and bankruptcy on their future career opportunities.[1] There

[1] Warner, Watts, and Wruck (1988), Weiss (1990), Murphy and Zimmerman (1993), Gilson (1989), Gilson and Vetsuypens (1993), Hotchkiss (1995).

is much less evidence, however, on the wealth consequences for the CEO of specific actions taken during severe financial distress.

We begin to fill this empirical gap by providing new information on a wide range of creditor pre-filing actions, debtor asset dispositions, and financing- and accounting choices of firms filing for bankruptcy in Sweden. Moreover, we measure the effect of the firm's pre-filing actions on the CEO's personal *wealth*—not just compensation. Systematic evidence on CEO wealth effects of bankruptcy is limited to Eckbo and Thorburn (2003) and extended here. We are also able to document CEO compensation effects of bankruptcy after the CEO leaves the bankrupt firm, also missing elsewhere in the literature (Gilson and Vetsuypens, 1993; Hotchkiss, 1995). In Sweden, information in individual tax returns are publicly available and can be used to generate a time series of total executive income from all taxable sources. This allows estimation of CEO wealth both before and after bankruptcy filing, and whether or not the CEO remains with the firm.

Our empirical analysis has two parts. The first part describes the relative frequency of a wide range of creditor actions and debtor asset dispositions observed over the year leading up to bankruptcy filing. Creditor actions include loosening or tightening credit, debt forgiveness, terminating existing credits and petitioning for bankruptcy. Debtor asset dispositions include changes in asset compositions, capital structure changes, management ownership changes, and actions which triggers the bankruptcy trustee to suspect fraudulent conveyance. These actions, reactions and dispositions provide insights at a detailed level into the effectiveness of the corporate governance system in minimizing bondholder losses from asset substitution and risk shifting incentives possibly heightened by the mandatory auction bankruptcy system itself.

In the second part, we extend the compensation analysis performed in Eckbo and Thorburn (2003) by relating the pre-filing actions to CEO wealth changes. As a result, we provide some first evidence on how costly the various actions are to the CEO. For example, we are able to test whether reports by the bankruptcy trustee of accounting irregularities or suspicions of fraudulent conveyance prior to filing are associated with an abnormal personal CEO wealth loss. We compare CEO wealth changes in firms that file for bankruptcy to a control sample of non-bankrupt firms matched on industry and size. We then ask whether this difference in difference series is a function of CEO performance prior to bankruptcy filing, and of various bankruptcy outcomes.

The Swedish bankruptcy setting provides a powerful laboratory for detecting CEO wealth ef-

fects: Bankruptcy filing automatically terminates all labor contracts (including that of the CEO) and triggers an open auction.[2] Thus, *all* managers are fired. However, some CEOs are rehired by the buyer in the auction at (presumably) market wages which we are able to track. Essentially, the data provides a snapshot of the workings of the managerial labor market around bankruptcy, in which a substantial number of the old CEOs are rehired to run the restructured firm.

Cross-sectional differences in the characteristics of the filing firms and their industries, and in the auction outcomes, allow us to examine how this managerial labor market evaluates and rewards CEO performance prior to filing. In order to submit a bid, a buyer in the auction must assess the quality of the firm's assets, and the value of continuing the firm as a going concern—with or without the old CEO. The buyer also observes observes the operating performance of the CEO over the pre-filing period, as well as public information concerning pre-filing actions undertaken by the CEO. For example, the CEO may have sold off assets to raise cash, or identified a buyer prior to filing (a "prepackaged" bankruptcy filing), which may have implications for CEO quality.

CEOs undertaking costly asset substitutions that fail to keep the firm out of bankruptcy end up in our sample of filing firms. By comparing auction outcomes such as going-concern sale versus piecemeal liquidation, debt recovery rates, post-bankruptcy performance and bankruptcy refiling rates, we shed light on the effectiveness of contractual and governance provisions to deter such actions. To the extent that pre-filing accounting irregularities and suspicions of economic crime are associated with costly for bondholders, we also expect to see greater negative CEO wealth effects of bankruptcy filing.

Overall, the evidence shows that CEOs of bankrupt firms suffer significant drops in both income and wealth, and typically lose control of the firm. The CEO's personal bankruptcy costs (wealth decline) are greater for CEOs owning a substantial fraction of the bankrupt firm's equity, and greater when the firm issues equity or receives related company contributions prior to filing. Actively promoting a restructuring of the firm's assets lowers the CEOs' wealth loss. It is also interesting to find that CEO wealth losses are lower in cases where the bank resolutely steps in by refusing to forgive principal or interest and pressures the firm to file for bankruptcy without delay. Charges of fraudulent behavior are associated with lower debt recovery rates and a lower probability that

[2]This is in contrast to filings under Chapter 11 of the U.S. bankruptcy code, where managers retain substantial control rights in bankruptcy.

the CEO is rehired by the buyer in the bankruptcy auction. Our evidence is consistent with the proposition that the bankruptcy auction system, which is also a labor market for the CEO, forces an ex post settling up of the consequences of the CEO's pre-filing decisions.

The paper is organized as follows. Section 2 reviews related empirical evidence. Section 3 describes the data selection and sample characteristics. Section 4 examines the nature and frequency of various pre-filing actions by the bank and the firm. CEO wealth effects of pre-filing actions are examined in Section 5, while the impact on debt recovery rates and firm survival are analyzed in Section 6. Section 7 concludes the paper.

2 Related evidence

2.1 Compensation changes

Bankruptcy imposes costs on managers by lowering compensation and by eliminating corporate control benefits (turnover). While empirical evidence on this personal cost of bankruptcy is sparse, the is evidence that CEO salaries decline and turnover increases during periods of financial distress. Moreover, the distressed firms adopt new management compensation schemes that increase sensitivity of pay either to a successful resolution of the restructuring or to post-bankruptcy equity performance.[3]

Gilson and Vetsuypens (1993) examine managerial compensation changes in a sample of 77 large publicly traded U.S. firms in severe financial distress. They report evidence both on existing CEOs and of the new CEOs when replaced. It appears that managers who retain their position through distressed debt restructurings do *not* take a substantial cut in salary and bonus. Specifically, CEOs who keep their job after a successful restructuring of the firm's debt (28 cases) experience a median reduction in their cash compensation of only 2% (average increase of 4%). However, replacement CEOs who were previous employees of the firm earn a median of 35% less than their predecessor, a substantial cut in salary and bonus. This is in contrast to replacement CEOs hired from the outside.

[3]The presence of personal bankruptcy costs affect optimal executive compensation schemes and managerial investment decisions ex-ante—including asset substitutions and possibly inefficient delay of bankruptcy filing. Personal managerial costs of bankruptcy also drives capital structure models. For example, in Ross (1977) managers increase leverage (and risk of default) in order to signal favorable information about the future cash flow of the firm—a credible signal given managerial cost of bankruptcy. Appealing to risk-sharing, Berk, Stanton, and Zechner (2006) show that personal bankruptcy costs in combination with an optimal compensation contract (similar to that in Harris and Holmstrom (1982)) may lead to an interior optimal debt level for the firm.

The median outside replacement CEO earns 35% more than the manager that they replace.

Firms in financial distress often tie compensation to the resolution of debt restructuring. Gilson and Vetsuypens (1993) describe cases where the CEO is granted a substantial salary increase as a reward for successfully bringing the firm through its financial restructuring or where part of the CEO's compensation is deferred until the financial restructuring is completed. They also observe cases where the CEO incentives are tied to the value of creditor claims. For example, the CEO's compensation may be given in the form of securities with similar characteristics to those held by creditors. Or, the CEO's bonus may be based on the amount of cash receives by creditors under the reorganization plan or as a result of asset sales.

In a sample of 63 Chapter 11 cases, Gilson, Hotchkiss, and Ruback (2000) document that half of the managers receive stock and options in the reorganized firm. They point to a potential adverse incentive problem when executive option exercise prices are being determined by the CEOs own post-reorganization cash flow projections. Akin to insider trading, by understating those projections, the CEO may receive a windfall after the reorganization has been successfully completed.

Firms often grant generous retention packages to induce key employees to remain with the company during the course of the bankruptcy reorganization. Such KERPs (key employee retention plans), which tend to generated political controversy when accompanied by layoffs and wage concessions, are restricted under the 2005 amendments to the U.S. Bankruptcy Code. Recent court rulings however circumvent these restrictions by allowing the debtors to use bonus compensation plans to provide adequate financial incentives to management during the reorganization.

A similar political controversy has arisen by the repricing of executive stock options in distressed firms.[4] Chidambaran and Prabhala (2003) find that a majority of 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. Following the 2002 Sarbanes-Oxley Act, however, and option expensing for accounting purposes, repricing has been largely replaced by a practice known as rescission. In a rescission, shares received by the employee from exercise

[4]Since the need for repricing necessarily arises following poor stock price performance, it comes across to some as a reward for mismanagement. This issue is fundamentally one of corporate governance. If the poor performance could have been avoided by better management, the optimal action for the board may be to fire the CEO—-not reprice her options. On the other hand, if poor performance follows "bad luck" (an unfavorable draw of exogenous risk factors), then repricing may be optimal as it restores managerial incentives. Industry conditions undoubtedly play an important role for corporate default: Maksimovic and Phillips (1998) show that the proportion of plants in bankruptcy is three times higher in declining industries than in high-growth industries.

of the options are returned to the company in exchange for a refund of the strike price. Similar to repricing, however, this practice has been criticized as symptomatic of poor governance, yet may be necessary to restore incentive structures.

Several studies also document substantial management turnover of large U.S. firms restructuring in Chapter 11. Although many managers remain at the helm of the distressed firm until a reorganization plan is proposed, it is unlikely that they retain their position when the firm emerges from bankruptcy. Gilson (1989) finds that 71% of top-executives in office two years prior to bankruptcy filing are replaced four years later. Moreover, none of the executives who lose their position is employed by another publicly traded firm over a three-year period following their departure.

LoPucki and Whitford (1993) find that 91% of large firms filing for Chapter 11 have replaced their CEO by six months after emergence. Similarly, Betker (1995) documents a 91% turnover and Hotchkiss (1995) a 70% turnover of the CEOs who was in office two years prior to filing by the time the firm exits bankruptcy. In a recent sample, Ayotte and Morrison (2007) find that 70% of the CEOs are replaced within two years of a bankruptcy filing. These turnover rates are substantially higher that turnover rates for non-distressed firms (Weisbach, 1988; Warner, Watts, and Wruck, 1988).

Eckbo and Thorburn (2003) present evidence on CEO income loss and turnover in the Swedish auction bankruptcy sample used here. The median income loss for CEOs of bankrupt firms relative to non-bankrupt firms is substantial: 47%. When the bankrupt firm is purchased as a going concern, 51% of the old CEOs are rehired by the buyer. In this paper, we dig deeper into the CEO wealth effects and rehiring probability as a function of the various pre-filing creditor and debtor actions.

2.2 Distressed asset sales

A large number of studies have documented the frequency of assets sales, and the nature of assets sold, particularly among distressed U.S. firms. Table 1 summarizes the main findings of this literature.

When do firms sell assets? Firms tend to sell more assets during economic expansion and in fast growing industries (Asquith, Gertner, and Scharfstein, 1992; Maksimovic and Phillips, 2001; Kruse, 2002) with high volume of corporate asset transactions (Schlingemann, Stulz, and Walkling, 2002). Maksimovic and Phillips (1998) show that while bankrupt firms sell plants at a higher rate

than non-bankrupt firms, the difference is largely accounted for by industry conditions—not be the bankruptcy status per se. The evidence in Pulvino (1999) similarly indicates that bankruptcy protection does not affect the rate of asset sales within the airline industry. Also, Kruse (2002) reports that the probability of asset sales is independent of industry distress.

Maksimovic and Phillips (2001) use plant-level data from Longitudinal Research Database (LRD) for 35,200 reallocated plants during the period 1974-1992, of which 17,500 represent asset sales. They find that assets are more likely to be sold (i) during economic expansions, (ii) in fast-growing industries, (iii) when the assets are less productive than industry benchmarks (using a translog production function), (iv) when the selling division is less productive, and (v) when the selling firm has more productive divisions in other industries. That is, sellers divest their worst plants in their worst divisions. Assets are more likely to be sold by relatively small divisions than by main divisions of conglomerates. Overall, most transactions in the market for assets seem to result in productivity gains.

The firm's need for liquidity affects the decision to sell assets. Asset sales are typically preceded by a period of poor performance (Officer (2005) and Lang, Poulsen, and Stulz (1995)) and are more likely the higher the firm's debt level (Ofek (1993) and Kruse (2002)).[5] The sales proceeds are more likely to be paid out to creditors the greater the proportion short-term bank debt and the poorer the industry operating performance, possibly at the expense of shareholders (Brown, James, and Mooradian (1994)).[6]

Schlingemann, Stulz, and Walkling (2002) sample 325 firms that decrease the number of reported industry segments for the first time during the period 1979-1994 and with more than $100 million in assets. Of these firms, 168 divest a segment, while the remaining 157 focusing firms have no divestiture (the "discontinuing firms"). The annual intensity or corporate asset transactions within an industry (at the 2-digit SIC code level) is used as a proxy for the industry's asset market liquidity. This measure is computed as the sum of the market value of all corporate transactions (LBOs, tender offers, spinoffs, exchange offers, minority stake purchases, acquisitions of remaining

[5]Brown (2000) reports that, in a downturn, equity RETs holding less leveraged properties are net buyers and perform better than mortgage REITs financing highly leveraged properties.

[6]Brown, James, and Mooradian (1994) show that shareholder announcement CARs are lower and bondholder CARs higher when the proceeds are used to repay debt rather than retained by the firm. Sicherman and Pettway (1992) find that shareholder CARs are lower for divesting firms with a prior credit downgrade than for sellers with no downgrade, while buyer CARs are not discernibly different.

interest, privatizations and equity carveouts) recorded by SDC divided by the total book value of all industry assets. The liquidity index of a firm is the asset-weighted average of the liquidity index of its segments. While divesting firms and discontinuing firms display similar financial conditions and accounting performance, the liquidity index is significantly higher for divesting firms. Given that a firm divests a segment, a segment with a higher liquidity index has a higher probability of being divested after controlling for the segment's performance and other segment characteristics. Moreover, firms tend to divest segments that are non-core, relatively small, less efficient and less profitable, and have poorer growth opportunities.

As to what assets to sell, firms typically divest assets that are less productive than industry benchmarks (Maksimovic and Phillips (2001)), small and non-core (John and Ofek (1995) and Schlingemann, Stulz, and Walkling (2002)). The turnover of illiquid assets drops when the industry is distressed. Moreover, sellers of illiquid assets are more financially constrained than buyers and than sellers of liquid assets (Kim (1998)), suggesting that firms avoid selling highly specific assets until necessary. The asset characteristics also affect firms' choice of capital structure: debt levels and maturity increase in the illiquidity of assets (Alderson and Betker (1995), Benmelech (2005), and Benmelech, Garmaise, and Moskowitz (2005)).[7]

There is also some evidence of fire-sales. Using a hedonic price function for aircrafts, Pulvino (1998) shows that financially distressed airlines get lower prices and are more likely to sell assets to financial institutions during economic downturns. Moreover, prices received in bankruptcy are lower than prices obtained by non-distressed airlines, but not different between Chapter 11 and Chapter 7 sales (Pulvino (1999)). Studying three aerospace plant closures, Ramey and Shapiro (2001) report that the discount from an estimated replacement cost is greater for more specialized equipment and when the buyer is an industry outsider.

Officer (2005) shows that subsidiaries sell at a 25% discount compared to prices paid for comparable public targets. While this discount is greater when aggregate liquidity is scarce (loan rate spreads are high), it is unrelated to industry performance and the buyer's industry affiliation. The evidence in Maksimovic and Phillips (1998) suggests that asset sales in Chapter 11 result in an efficient reallocation of assets. Bankrupt firms in high-growth industries sell their more productive

[7]Benmelech, Garmaise, and Moskowitz (2005) also show that properties with fewer zoning restrictions sell at higher prices.

plants and productivity improves under the new owners. For firms in declining industries, the productivity of plants in bankruptcy is not different from their industry counterparts, nor does it decline while in bankruptcy or improve after the plant is sold.

Turning to European studies, Franks and Sussman (2005) sample the population of 542 distressed firms among the clients of three U.K. banks, 1997-1998. They find that for one bank, 44% of the client firms survive as going concern while, for another of the three banks, the survival rate is 64%. Ravid and Sundgren (1998) study 72 private firms filing for bankruptcy in Finland, 1982-1992, which had an auction system not unlike the Swedish one at that time. They report that a total of 29% of firms survive as a going concern.

The survivorship rate is substantially greater for the Swedish bankruptcy auctions, as reported by Thorburn (2000). Of 263 private firms filing for bankruptcy, 1988-1991, three-quarters survive as going concerns. Strömberg (2000), also studying Swedish bankruptcy auctions, finds that the old owner is more likely to repurchase the firm's assets (as a going concern) when industry leverage is high and the firm has few non-specific assets. Eckbo and Thorburn (2007) show that the Swedish bankruptcy auctions do not produce fire-sale discounts when firms are purchased as going concern or sold back to previous owner. However, there is some evidence of fire-sale discounts when firm is liquidated piecemeal.

3 Sample selection and description

3.1 The Swedish bankruptcy system

When a firm files for bankruptcy in Sweden, the control rights are transferred to a court-appointed trustee with a fiduciary duty to creditors. To protect going-concern value, the incumbent CEO is retained to run the operations or, if there are suspicions of irregularities, replaced by an outside professional. All debt service and collateral are stayed, and trade creditors are paid in cash—and guaranteed superpriority—for the continued supply of goods and services to the bankrupt firm. Selected creditors participate in a creditors' committee, which is consulted in material matters. The bankruptcy trustee conducts an inventory of the firm's assets and liabilities, and obtains a valuation opinion by an industry specialist, before organizing a public sale of the assets.

The bankrupt firm's assets are sold is an open ascending auction. Bidders can place bids for

individual assets or for the entire firm as a going concern. The auction typically attracts multiple bidders and generates competition among bidders (Eckbo and Thorburn, 2007).[8] The outcome of the auction is decided by the bid that produces the highest proceeds. Only cash bids are permitted. However, buyers often structure the acquisition as a leveraged buyout, bidding through a corporate shell financed primarily with bank debt. The cash proceeds from the auction are distributed to creditors strictly according to the priority of their claims. Trustees are supervised by a government body, "Tillsynsmyndigheten i Konkurs" (TSM), which reviews the performance of the auction and approves of the trustee's compensation.

3.2 Data sources

This paper examines the Swedish bankruptcy cases originally compiled by Strömberg and Thorburn (1996). The database of UpplysningsCentralen (UC) identifies 1,159 firms with at least 20 employees that file for bankruptcy in 1988-1991. The sample is restricted to 578 bankruptcy cases in the four largest provinces in Sweden.[9] All cases related to tax fraud charges (59 cases), not closed by June 30, 1995 (145 cases), or with a missing or incomplete bankruptcy file at TSM (111 cases) are eliminated, leaving a total of 263 firms.

We manually collect case-specific information and identify the CEO from the bankruptcy file at TSM. The sample is finally limited to 250 firms for which UC provides the CEO's personal tax return for the years 1988-1991 and 1993-1994.[10] For comparison purposes, we also collect the tax returns for 2,100 CEOs of firms with a least 20 employees. UC further supplies financial statements for the period 1987-1995 for the sample firms as well as for the population of 12,000 non-bankrupt firms with at least 20 employees. This information is used to obtain pre-filing financial characteristics of the sample firms and to construct industry medians and distress measures.

3.3 Sample characteristics

The sample is described Table 2. Three-quarters (194) of the firms are sold as going concerns, with the remaining 56 firms sold piecemeal. Panel A shows characteristics from the last publicly filed

[8] Eckbo and Thorburn (2007) find on average 5.7 interested bidders and 3.3 actual bids in going-concern sales.

[9] These four provinces are Stockholms län, Göteborg- och Bohus län, Malmöhus län, and Upplands län.

[10] Due to limitations in UC's database, the 1990 and 1991 tax returns could be obtained only for a subsample of 130 CEOs, and the 1992 tax returns could not be retrieved at all.

financial statement, dated on average 16 months (median 15 months) prior to filing. All values are in 2007 dollars, adjusted with the consumer price index (from Statistics Sweden). The average firm is relatively small, with total assets of $4 million, total sales of $8 million and 45 employees. Notice however that this is somewhat larger than the typical firm reorganized in U.S. bankruptcy: in a random sample of 5,000 Chapter 11 filings from 1998-2004, Chang and Schoar (2006) report average sales of $2 million and 22 employees.

The operating margin is poor, with an average ratio of EBITDA/sales of -0.2% (median 1.8%). Moreover, the firms are highly leveraged, with an average debt-to-assets ratio of 92%. This high debt ratio and poor operating performance is reflected in a low interest coverage ratio (defined as the sum of EBITDA and interest income divided by the interest expense), with a median of 104%. In other words, the typical firm barely generates sufficient cash to service its debt prior to filing. As shown in the table, there is no significant difference in the pre-filing financial characteristics of firms sold as going concerns and liquidated piecemeal in bankruptcy.

Panel B of Table 2 shows firm characteristics at filing, based on information in the bankruptcy file. On average, 39% of the debt is secured, with 38% for going concern sales and 42% for piecemeal liquidations. The secured debt is predominantly held by banks and uses as collateral both real estate and other fixed assets, as well as "floating" assets such as inventory and accounts receivables. The proceeds in the auction are substantially lower than the pre-filing book values, with an average of $1.3 million. This difference is partly due to assets sales and other restructuring efforts undertaken prior to filing. Although of a similar book size, the firms sold as going concerns generate higher proceeds than firms liquidated piecemeal (mean $1.4 million vs. $1.0 million). Furthermore, three-quarters of the CEOs own at least 10% of the filing firm's equity. Since the equity is erased in bankruptcy, this ownership has substantial wealth implications for the CEO, something that we'll return to below. The average CEO in the sample is 45 years old.

The distribution of the sample over time and across major industry groups is reported in Panel C of Table 2. Sixty percent (151) of the sample firms file in 1991, twentysix percent (66 firms) file in 1990, and the remaining 33 firms file in 1989 and 1988. Almost one-third (77) of the firms are in the manufacturing industry, 45 firms are in trade, and the remaining cases are relatively evenly distributed across construction, transportation, services, and other industries.

4 Bank monitoring actions and debtor asset dispositions

4.1 Pre-filing actions by the firm

The trustee is required to describe and analyze the series of events leading up to bankruptcy filing. Based on the trustee reports, we classify the actions undertaken by the firm over the year prior to filing into four broad categories: changes in the firm's asset composition; governance changes; changes in the financial claims; and fraudulent activities. Table 3 lists the frequency with which different actions are undertaken across various subsamples (piecemeal liquidations, going concerns, prepacks, and salebacks). The last two columns show the median change in CEO income over year -2 to +3 and the average creditor recovery rate for the firms undertaking the specific action.

As shown in Panel A, 43% of the sample firms carry out various asset dispositions prior to filing. The largest group of asset dispositions involves major asset sales aimed at improving the firm's cash balance. A majority of these sales, or 18% of all cases, are to a third-party buyer. Moreover, a non-trivial fraction (11%) of the firms sell assets to a related company or to the owner directly. Such sales raise questions of expropriation through inadequate transfer prices. Indeed, the bankruptcy trustee subsequently pursues charges of fraudulent conveyance—although not necessarily related to the asset sale—for one-third of these firms. Surprisingly, the fraction owner-managers, defined as CEOs owning at least 10% of the filing firm's equity, is similar across companies whether involved in related-party transactions or not.

One-quarter (24%) of the distressed firms initiate rationalization efforts, including a reduction of the labor force. A handful of companies raise cash through sale-lease back transactions or acquire so-called "shell corporations", buying profits at a discount to offset its own net operating losses. Creditors seem to fare worse when companies engage in related-party asset transfers, sale lease-back transactions, and acquisitions of shell corporations. CEOs, however, experience a greater income loss for the latter transactions, but not for the related-party transactions. Also, assets dispositions are generally more common for firms subsequently filing an auction prepack.

Panel B lists changes in the governance of the distressed firms. 11% of the sample firms replace the CEO or a majority of its board members. Moreover, there are ownership changes for 21% of the firms. Overall, 27% of the bankrupt firms experience changes in their governance structure prior to filing. Interestingly, such governance changes are less frequent among the firms filing auction

prepacks.

Another category of actions entail the firm's financial claims, reported in Panel C of Table 3. Overall, 38% of the firms make various attempts to adjust the capital structure. 8% of the sample firms try to reduce their debt burden by asking creditors to renegotiate, but without success. 6% of the firms suspend their debt payments while trying to work things out, while a few companies (3%) simply overdraw their bank credit line. Interestingly, one-quarter of the distressed firms get additional working capital through (tax free) contributions from related companies. Consistent with the managerial conservatism proposed by Eckbo and Thorburn (2003), these capital contributions may reflect attempts to rescue the company and preserve private benefits of control. We further observe firms writing down the restricted equity (2%) and issuing new shares (2%). Creditors get a somewhat higher recovery rate for firms that unsuccessfully attempt to renegotiate the debt, while the CEOs of these firms appear to take a greater income hit.

The last category of actions contain practices that are outside the law. The bankruptcy trustee is required to report any suspicions he might have about fraudulent accounting, fraudulent conveyance or other white-collar crime. Note that this is a mere flag for further investigation and does neither imply that the irregularities are brought in front of a judge, nor that there is a conviction. As shown in Panel D, the trustee raises a suspicion of illegal practices or violations for as many as 40% of the bankrupt firms. There are allegations of fraudulent accounting practices for 23% of the sample firms. Such practices often involve a lack of proper book keeping as the firm is nearing bankruptcy. In other words, when times get really rough, the management of these small firms concentrate their efforts on firm survival, and ignore the orderly recording of receipts. The incidence of accounting irregularities is relatively high for firms subsequently liquidated piecemeal in the bankruptcy auction.

Moreover, there are charges of fraudulent conveyance for 20% of the sample firms. Fraudulent conveyance refers to pre-filing payments that circumvent the priority of claims and leave the firm insolvent. In Sweden, the lookback period is generally 90 days, with a two-year window for transfers to corporate insiders. In a majority of these cases (86%), the transfer is made to a controlling shareholder. The remaining cases involve preferential payments to suppliers and banks. The trustee succeeds in recovering some or all of the funds for two-thirds of the firms with allegations of fraudulent transfers.

Finally, the trustee indicates in his report a suspicion of other white-collar crimes for one-fifth of the bankrupt firms. These firms often have allegations of inadequate accounting practices as well, with a Pearson correlation coefficient between the two charges of 0.52. Creditors have lower average recovery rates for firms with accounting fraud and do better for the firms with allegations of fraudulent transfers, probably because some funds are eventually recovered. CEOs, however, do not appear to suffer much personal losses from the involvement in the various fraudulent practices.

4.2 Pre-filing actions by the bank

The firms in the sample typically have one major bank-relationship for their long-term and short-term financing needs. Changes in the firm's capital structure essentially requires the consent of this bank, whose claim is secured in the assets of the firm. Table 4 reports the frequency of various activities involving the bank, as described by the trustee. Overall, one-third (36%) of the firms are subject to some actions or reactions by their banks. For 10% of the firms, the bank helps relax the financial strain on the firm. The bank approves of additional loans (5%) or forgives interest or principal (6%). Such "loosening" of the credits is less frequent in prepacks.

It is much more common, however, that the bank "tightens" the firm's liquidity situation. The bank declines additional credits (5%), refuses to forgive interest or principal (15%), and even terminates existing credit lines (8%). Moreover, in 5% of the cases, the bank itself files the bankruptcy petition or threatens to terminate the firm's line of credit unless it promptly files for bankruptcy. In total, the bank takes actions aimed at tightening the liquidity situation for 28% of the sample firms. Interestingly, CEOs seem to fare better when the bank refuses additional loans and terminates the firm's line of credits, perhaps because it forces the firm to address the situation without further delay. We'll return to this in the empirical analysis below.

5 CEO wealth effects of pre-filing actions

Managers may undertake pre-filing actions for various reasons, such as attempting to preserve the firm's going concern value or minimizing the personal costs from a looming bankruptcy filing. The actions could also represent a failed effort to avoid bankruptcy, possibly leaving the firm worse off. In this section, we examine how the various actions effect the CEO's personal costs of bankruptcy.

5.1 Changes in CEO wealth and income

Bankruptcy imposes costs on managers by erasing the value of equityholdings in the filing firm, lowering the competitive compensation, and eliminating corporate control benefits. From personal tax returns, we are able to collect unique data on CEO wealth, also for CEOs that leave the firm. During the sample period, individuals are required to report and pay tax on their total wealth. Most private assets, like the equity ownership in a privately held firm, are stated at zero value. Shareholdings in publicly traded firms are reported at a fraction of their December closing price, and real estate at its assessed value net of any loan obligations. The total wealth is taxable, and thus observable, only for the amount exceeding a certain break point (approximately $100 thousand). In year -2, 17% of the CEOs report a taxable wealth above the threshold. The average reported wealth is $360 thousand (in 2007 dollars), with a median of $197 thousand and a maximum of $4.3 million. The proportion CEOs reporting a taxable wealth above the breakpoint increases to 19% in year -1, to then drop almost in half to 10% in the year of bankruptcy filing. The fraction CEOs above the wealth-breakpoint further drops to 8% in year +1 and then stabilizes around 10-12% in years +2 through +4. Overall, two-thirds (24 out of 36) CEOs with a taxable wealth above the breakpoint in year -2 have a taxable wealth below the breakpoint three years after bankruptcy filing.

Another measure of wealth that is not reflected in the CEO's tax return is his equity ownership in the bankrupt firm. In the absence of market values, we use the book value of equity in the last publicly filed financial statement prior to bankruptcy as a proxy for the value of this equity position. As discussed above, a majority of CEOs own stock in the filing firm. The value of the CEO's fraction of the bankrupt firm's equity averages $68 thousand, with a median of $11 thousand and a maximum of $1.2 million. In the subsequent analysis, we use the loss of this equity value as an additional proxy for the wealth loss of the CEO.

A decline in the competitive level of compensation represents a second source of personal bankruptcy costs for the CEO. We use the tax returns to collect income data and document changes in CEO income. The average CEO taxable income in year -2 relative to bankruptcy is $69 thousand, with a median of $45 thousand and a maximum of $1.3 million. As shown in Panel A in Table 5, the managers experience a substantial income drop in connection with bankruptcy filing.

Over year -2 through +3, the median change in income from employment is -29% with a median drop in taxable income of -30%.

In Panel B, the CEO income change is adjusted with the contemporaneous median income change of 2,194 CEOs of non-bankrupt control firms. Adjusted for the control group, which experiences an income increase, the median CEO change in taxable income from year -2 to year +3 is a significant -48%. The adjusted income drop is similar across firms auctioned as going concerns and liquidated piecemeal. However, as shown in the table, CEOs of firms that are sold to new owners experience a substantially larger income drop than CEOs in firms sold back to the old owners: -66% versus -37% in salebacks. While not shown in the table, this result holds when restricting the comparison to firms sold as going concerns. Table 5 further singles out CEOs of firms filing a prepack, i.e. firms negotiating a going-concern sale prior to filing. There is, however, no significant difference in the income change of CEOs for firms undertaking prepacks and firms sold in regular non-prepack auctions.

The third source of personal costs is related to the loss of private benefits of control. Only 38% of the filing CEOs are rehired by the buyer in the auction to continue run the company. The remaining 62% of the CEOs lose their job either because the firm is liquidated piecemeal or the buyer hires another manager. Overall, as also documented by Eckbo and Thorburn (2003), CEOs incur substantial personal costs when their firms file for auction bankruptcy.

5.2 Cross-sectional analysis of the decline in CEO wealth

Table 7 shows coefficient estimates for the change in CEO wealth from year -2 to +3. We use as independent variable $y = -1$ if the CEO's wealth in year -2 is above the tax reporting threshold and falls below the threshold in year +3, $y = 0$ if the taxable wealth is above or below the threshold in both years, and $y = 1$ if the the CEO's wealth increases to an amount above the threshold in year +3. The regressions use 180 CEOs of bankrupt firms. All explanatory variables are defined in Table 6.

The regressions control for firm characteristics such as the total pre-filing sales in $ million ($Sales$) and operating profitability ($Profitability$), defined as EBITDA/sales. Moreover, since the equity claims are wiped out in bankruptcy, we include a dummy variable indicating that the CEO owns at least 10% of the filing firm ($Owner\ manager$) as well as the book value of the CEO's

equity stake in $ million (*CEO equity*). Since these two variables are highly correlated, they are not entered at the same time. The sample period spans three years of economic expansion (1988-1990) and one year with a beginning recession (1991). To capture capture effects of the varying industry conditions, we include two variables: *Distress*, defined as the fraction of firms in the 4-digit industry with an interest coverage ration below 1 or filing for bankruptcy the next calendar year, and *Business cycle*, measuring the quarterly change in the economy-wide business cycle. We also include the CEO's taxable income in year -2 (*Income*). The regressions further include dummy variables indicating the various broad categories of pre-filing CEO actions discussed above: *Asset dispositions*, *Governance*, *Financial claims*, and *Fraud*, as well as the variables *Bank tightens* and *Bank loosens*.

The regressions are highly significant with an adjusted R^2 ranging from 11% to 21%. As expected CEOs with a substantial equity ownership in the filing firm tend to experience a greater wealth decline. This result holds for the owner-manager dummy as well as for the value of the CEO's equity stake. In addition, the higher the CEO's pre-filing compensation level, the greater the average wealth drop. The variable *Sales* produces a significantly negative coefficient, indicating that CEOs of larger firms and with better compensation packages stand more to lose when their firm files for bankruptcy. The significance of *Sales* disappears when we enter *CEO equity*, probably because these two variables both are closely related to firm size. The CEO wealth further declines in the level of industry distress (*Distress*). It is possible that distressed industries offer fewer employment opportunities for CEOs post-bankruptcy, reducing their personal wealth.

Turning to the pre-filing actions, there is a marginally negative wealth effect of *Financial claims*. To further examine this effect, we instead enter indicators for actions describing changes to the firm's financial claims in more detail: the firm freezes all creditor payments (*Suspension of payments*), related companies contribute cash to the distressed firm (*Group contributions*), and the firm raises cash through an equity issue (*Equity issue*). We also enter dummies indicating allegations of accounting irregularities (*Accounting fraud*) and other economic crime (*White-collar crime*). Interestingly, CEOs of firms announcing a moratorium on debt payments or issuing new equity suffer a greater wealth decline post-bankruptcy. Moreover, there is some evidence that CEOs accused of accounting fraud experience experience a smaller drop in their personal wealth. However, this effect disappears when replace *Owner-manager* with *CEO equity*. Overall, CEOs tend to experience a

greater drop in personal wealth the more equity they own in the filing firm, the higher the pre-filing compensation level, and the more distressed are its industry rivals.

5.3 Determinants of the drop in CEO income

To further examine what factors help mitigate the personal bankruptcy costs of the CEO, we examine the determinants of the change in CEO income. Table 8 shows the coefficient estimates from OLS estimations of the change in CEO taxable income from year -2 to +3. The regressions generally contain the same variables as in Table 7 above, and use a sample of 195 CEOs. In addition, we include the credit recovery rate in bankruptcy (*Recovery*) and dummy variables indicating whether the firm is sold back to its pre-filing owner (*Saleback*) and whether the CEO is rehired by the buyer of the going-concern (*Rehired*). Moreover, we enter indicators for various bank actions further restricting the firm's liquidity: the bank refuses additional loans ($No\ loans$), declines to forgive principal or interest ($No\ forgiveness$), or terminates the existing line of credit ($Bank\ terminates$), or the bank files or pressures the firm to file the bankruptcy petition ($Bank\ files$).

As shown in the table, the income regressions have much lower explanatory power than the wealth regressions above. Interestingly, the CEO income decline is smaller when the bank tighten's the distressed firm's supply of credit. In particular, the coefficients for $No\ forgiveness$ and $Bank\ files$ are positive and highly significant. It is possible that the bank by pushing the firm to act without further delay actually helps the CEO maintain more of his market value. All of the remaining variables are insignificant. In particular, the CEO income change is independent of whether he is rehired by the buyer of the firm, suggesting that the new compensation contract reflects any changes in the CEO's competitive salary.

To reduce noise, Table 9 shows the coefficient estimates from regressions for the CEO income change between year 0 and +2. The sample is 94 CEOs of firms filing in 1989 and 1991. Notice first that the variable *Distress* enters with a negative and significant coefficient. That is, CEOs experience a greater income drop when the its industry rivals are financially distressed. This is consistent with the results above that CEO wealth also decline in industry distress. Moreover, CEOs actively changing the asset composition of the distressed firm fare better post-bankruptcy. The income decline is also lower the higher the firm's pre-filing operating margin, possible because CEO skills are related to operating profitability.

5.4 CEO turnover

The third component of personal bankruptcy costs involve the loss of private benefits of control. CEOs may preserve those benefits if rehired by the buyer in the auction. Table 10 shows the coefficient estimates in logit regressions of the probability that the CEO of the filing firm is rehired. The sample is CEOs of 188 filing firms. The explanatory variables as essentially the same as used before. In addition, the regressions control for CEO tenure ($Tenure$), indicating that the CEOs tenure with the firm exceeds two years, and age (Age). CEOs with a long tenure with the firm may have more firm-specific skills and therefore be more valuable to the new owner of the firm. Moreover, it is possible that CEOs nearing retirement age are less likely to be rehired.

The regressions are significant with a pseudo-R^2 ranging from 14% to 20%. The probability that the CEO will be rehired increases with the business cycle. Thus, both income and wealth changes as well as the retention of control benefits all depend on industry-wide conditions. The better industry rivals do, the lower will the CEO's personal bankruptcy costs be. Moreover, the rehiring probability is higher in auction prepacks. It is possible that buyers negotiating the sale directly with the CEO outside of bankruptcy have a more favorable view of the CEOs qualifications that buyers acquiring the firm in a regular bankruptcy auction. Finally, the only action that significantly affects the rehiring probability is $Fraud$. Not surprisingly, CEOs subject to allegations of irregularities are less likely to be rehired by the buyer in the action.

6 Creditor recovery rates and firm survival

We know from the above results that some of the pre-filing actions can help mitigate the CEO's personal bankruptcy costs. In this section, we examine how these actions affect creditor recovery rates and the prospects that the firm will survive as a going concern.

6.1 Creditor recovery rates

Table 11 shows the coefficient estimates from OLS regressions of the total creditor recovery rate (the first two columns) and the bank recovery rate (the last two columns). In addition to explanatory variables used above, the regressions control for the proportion of debt that is secured ($Collateral$) and the median operating margin in the bankrupt firms 4-digit SIC industry ($Ind.\ profitability$).

The regressions have an R^2 of 16%-18%. Both total and bank recovery rates are lower for firms with allegations of fraud. The bank actions have, however, no discernible affect on the bank's recovery rate. The recovery is generally lower when industry rivals are financially distressed ($Distress$), possibly because the demand for the bankrupt firm's assets is lower. Moreover, total recovery rates increase with the operating profitability of the industry rivals ($Ind.\ profitability$), further confirming the importance of industry demand for creditor recovery.

Firms with a high proportion of secured debt are likely to also have a high proportion of tangible assets that can be used as collateral. While total recovery rates increase with the variable $Collateral$, the bank recovery rate is decreasing in $Collateral$. The former indicates that the value of tangible assets is more robust than that of intangible assets, while the latter suggests that the bank's recovery rate is lower the greater the fraction of the total debt it holds. Interestingly, recovery rates are higher when the CEO is rehired by the buyer in the auction and lower in salebacks. As expected, and also shown by Eckbo and Thorburn (2007), recovery rates are significantly lower for firms liquidated piecemeal.

6.2 Firm survival

While not substantially affecting the proceeds in the auction, the pre-filing actions may affect the state of the firm's operations and therefore the likelihood that it survives the auction as a going concern. Table 12 shows the coefficient estimates in a logit regression for the probability that the firm is auctioned as a going concern ($y = 1$) versus liquidated piecemeal ($y = 0$). In addition to the variables used above, the regressions contain a proxy for the fraction of specific assets $Specific$, defined as the ratio of machinery and equipment to the book value of total assets prior to filing. The probability that the firm survives as a going concern is higher when the bank tightens the liquidity for the distressed firm. That is, a pro-active bank preventing the distressed firm from getting additional funding to finance the operations, even forcing the firm to file for bankruptcy, help increase the probability that the firm survives. While such bank actions also help mitigate the decline in CEO income, it has no discernible affect on the bank's own recovery rate. The other pre-filing actions all produce insignificant coefficients.

As expected, the probability of a going concern sale increases in $Specific$ and decreases in $Collateral$. In other words, the more specific assets and the more intangible assets, the greater is

the value loss from a piecemeal liquidation, increasing the likelihood that the firm is sold as a going concern. Moreover, the probability that the firm survives as a going concern is higher in business cycle upturns and is, surprisingly, also higher when the industry rivals are financially distressed.

7 Conclusions

While much is known about the broad strokes of bankruptcy (legal requirements, filing frequencies, firm survival rates, nominal debt recoveries, etc.),[11] detailed information on the actions and reactions of creditors and debtor to stave offer bankruptcy is sparse. We first describes the relative frequency of a wide range of creditor actions and debtor asset dispositions observed over the year leading up to bankruptcy filing, and we then examine the consequence of these actions for CEO wealth. Our CEO wealth data incorporate not just the salary while in office, but also non-salary personal wealth as revealed by tax returns. Moreover, we track CEO wealth changes also after she leaves office.

The creditor actions that we observe include loosening or tightening credit, debt forgiveness, terminating existing credits and petitioning for bankruptcy. Debtor asset dispositions include changes in asset compositions, capital structure changes, management ownership changes, and actions which triggers the bankruptcy trustee to suspect fraudulent conveyance. These actions, reactions and dispositions provide insights at a detailed level into the effectiveness of the corporate governance system in minimizing bondholder losses from asset substitution and risk shifting incentives possibly heightened by the mandatory auction bankruptcy system itself.

Overall, the evidence shows that CEOs of bankrupt firms suffer significant drops in both income and wealth, and typically lose control of the firm. The CEO's personal bankruptcy costs (wealth decline) are greater for CEOs owning a substantial fraction of the bankrupt firm's equity, and greater when the firm issues equity or receives related company contributions prior to filing.

Actively promoting a restructuring of the firm's assets lowers the CEOs' wealth loss. It is also interesting to find that CEO wealth losses are lower in cases where the bank resolutely steps in by refusing to forgive principal or interest and pressures the firm to file for bankruptcy without delay. Charges of fraudulent behavior are associated with lower debt recovery rates and a lower probability

[11] See Hotchkiss, John, Mooradian, and Thorburn (2008) for a review of international evidence on bankruptcy and financial distress.

that the CEO is rehired by the buyer in the bankruptcy auction. Our evidence is consistent with the proposition that the bankruptcy auction system, which provides a snapshot of the CEO's labor market as she is fired prior to the auction, forces an ex post settling up of the consequences of the CEO's pre-filing decisions.

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Table 1
Evidence on distressed asset sales

Study	Sample selection	Empirical findings
Panel A. Asset sales prior to bankruptcy		
Timing and asset characteristics		
Asquith, Gertner, and Scharfstein (1992)	102 firms that issued junk bonds, 1976-1989, and then became financially distressed.	Asset sales are less likely in poorly performing industries (high industry leverage and low book-to-market ratio). Firms that sell a lot of assets are less likely to file for bankruptcy.
Ofek (1993)	358 firms with one year of poor stock performance, 1983-1987.	The probability of asset sales increases in the firm's pre-distress leverage. 15% of firms sell assets during the distress year.
Kim (1998)	151 asset sales and 190 asset purchases of 41 oil drilling firms, 1978-1990.	Asset turnover drops for illiquid assets when the industry is distressed. Sellers of illiquid assets are more financially constrained than buyers and than sellers of liquid assets.
Maksimovic and Phillips (2001)	35,200 reallocated plants, 17,500 of which are asset sales, 1974-1992.	Assets are more likely to be sold during economic expansions, in fast-growing industries, and when the assets are less productive than industry benchmarks.
Kruse (2002)	350 firms with a drop in operating performance, 1985-1992.	The probability of asset sales increases with firm leverage and industry growth rate, but is independent of industry distress.
Schlingemann, Stulz, and Walkling (2002)	325 firms reducing the number of industry segments, 168 of which sell a segment, 1979-1994.	Divesting firms are in industries with high volume of corporate asset transactions (high liquidity index). Firms tend to sell small, non-core segments that have high liquidity index.
Announcement returns, transaction prices and buyer identity		
Sicherman and Pettway (1992)	278 divestiture transactions, in which 77 sellers had a prior credit downgrade, 1981-1987.	Announcement returns are higher for divesting firms with no prior credit downgrade than for downgraded sellers, while buyer returns are not discernibly different.
Brown, James, and Mooradian (1994)	62 asset sales undertaken as part of a debt restructuring, or to avoid default or bankruptcy, 1979-1988.	Sales proceeds are more likely to be paid out to creditors the greater proportion short-term bank debt and the poorer the industry operating performance. Bondholder CARs are higher and shareholder CARs lower when the proceeds are used to repay debt than when retained by the firm.
Andrade and Kaplan (1998)	31 highly leveraged transactions in 1980-1989 that later became distressed.	The total costs of financial distress (the decline in market value of total capital during the distress period) are not related to industry performance (stock returns).
Pulvino (1998)	704 used commercial aircraft sales, 1978-1991.	Financially distressed airlines (high leverage; low current ratios) get lower prices and are more likely to sell assets to financial institutions during economic downturns.

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Study	Sample selection	Empirical findings
Brown (2000)	92 REITs, 1989-1991.	Mortgage REITs financing highly leveraged owner-managed properties do worse in a downturn than equity REITs with public market access holding less leveraged properties: book values fall more, stock returns are poorer, and most non-performing loans are foreclosed with equity REITs as net buyers.
Ramey and Shapiro (2001)	129 lots sold by three aerospace plants closed in the 1990s.	The fraction industry inside buyers is higher in negotiated sales than auctions. The discount from an estimated replacement cost is greater for more specialized equipment and when the buyer is an industry outsider. Most larger items have multiple bidders.
Benmelech, Garmaise, and Moskowitz (2005)	14,159 commercial real estate transactions, 1992-1999	Properties with less zoning restrictions (higher liquidation value) sell at higher prices.
Officer (2007)	600 subsidiary sales by public corporations, 1985-2003.	Subsidiaries are sold at a discount to comparable public targets. The discount is greater when the parent company has experienced a period of poor stock performance and when aggregate liquidity is scarce (high loan rate spreads).
Panel B. Asset sales in bankruptcy		
Chapter 11 bankruptcy		
Maksimovic and Phillips (1998)	1,195 plants of 302 firms filing for bankruptcy and over 50,000 plants of non-bankrupt firms, 1978-1989	In declining industries, which have the highest proportion plants in Chapter 11, the productivity of plants in bankruptcy is not different from their industry counterparts, nor does it decline while in bankruptcy or improve after the plant is sold. Bankrupt firms in high-growth industries sell more assets: they sell their more productive plants and productivity improves under the new owners. While bankrupt firms sell plants at a higher rate than non-bankrupt firms, this is accounted for by industry conditions and not bankruptcy status itself.
Pulvino (1999)	688 commercial aircraft transactions, 130 of which took place in bankruptcy, 1978-1991.	Prices obtained in bankruptcy are lower than prices obtained by non-distressed airlines, but not different between Chapter 11 and Chapter 7 sales. Bankruptcy court protection does not affect the rate of asset sales.
Hotchkiss and Mooradian (1998)	55 Chapter 11 firms acquired by a public company, 1979-1992.	Targets and bidders have matching industry codes in 66% of cases. Bankrupt targets are purchased at a discount compared to non-bankrupt targets. Yet, announcement returns are positive for both targets and bidders. The operating performance improves for firms merged with bankrupt targets, but not in matching nonbankrupt transactions.

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Study	Sample selection	Empirical findings
UK bankruptcy		
Franks and Sussman (2005)	Population of 542 distressed firms among the clients of three U.K. banks, 1997-1998	For one bank, 44% of the firms survive as going concern. For another, the rate is 64%.
Auction bankruptcy in Scandinavia		
Ravid and Sundgren (1998)	72 small firms filing for bankruptcy in Finland, 1982-1992.	29% of firms survive as a going concern.
Thorburn (2000)	263 small Swedish firms filing for bankruptcy, 1988-1991.	Firms are sold on average 2 months from filing. 75% survive as going concerns. Using market values, recovery rates in continuation sales are similar to recoveries in Chapter 11 reorganizations.
Strömberg (2000)	205 small Swedish firms filing for bankruptcy, 1988-1991.	The old owner tends to repurchase the firm's assets when industry leverage is high and the firm has few non-specific assets.
Eckbo and Thorburn (2007)	263 firms filing for Swedish auction bankruptcy, 1988-1991	Shows that the auctions fail to produce fire-sale discounts when firms are purchased as going concern or sold back to previous owner. Some evidence of fire-sale discounts when firm is liquidated piecemeal.

Table 2
Sample characteristics

Characteristics of 250 Swedish firms filing for auction bankruptcy 1988-1991. The financial data is from the last public statement prior to bankruptcy filing, dated on average 16 months (median 15 months) before filing. All values are denominated in 2007 prices, adjusted by the consumer price index. Interest coverage ratio is the sum of EBITDA and interest income divided by interest expense. Auction proceeds is the total value realized in bankruptcy, and is from the bankruptcy file.

		all filings	going concerns	piecemeal liquidations
Number of cases		250	194	56
Pre-filing characteristics				
Total assets ($mill.)	mean	3.84	3.86	3.75
	median	1.95	1.96	1.82
Total sales ($mill.)	mean	7.70	7.56	8.20
	median	4.18	4.22	3.60
Number of employees	mean	45	44	35
	median	28	29	28
Operating margin (EBITDA/sales, in%)	mean	-0.20	0.28	-1.84
	median	1.78	1.74	2.35
Debt to total assets (in%)	mean	92.3	92.0	93.4
	median	93.3	92.7	95.2
Interest coverage ratio	mean	-0.69	-0.70	-0.66
	median	1.04	1.00	1.25
Characteristics at bankruptcy filing				
Fraction of debt that is secured (in%)	mean	38.7	37.6	42.2
	median	37.7	36.0	41.2
Auction proceeds ($mill.)	mean	1.29	1.38	0.98
	median	0.74	0.80	0.46
Percent CEOs owning $\geq$ 10% of equity		73.7	72.8	76.6
CEO age	mean	45	45	45
	median	46	46	45
Distribution of cases over time and industries				
Bankruptcy filing in year:	1988	9	7	2
	1989	24	17	7
	1990	66	47	19
	1991	151	123	28
Filing firm in industry:	manufacturing	77	61	16
	construction	36	29	7
	transportation	26	15	11
	trade	45	37	8
	services	38	31	7
	other	28	21	7

Table 3
Actions taken by the firm prior to bankruptcy filing

The table shows the fraction of firms that undertake various actions over a two-year period prior to filing. The change in CEO taxable income from year -2 through +3 ($I_{-2,3}$) and creditor recovery rate is conditional on a firm undertaking the action. Sample of 250 private firms filing for auction bankruptcy in Sweden, 1988-1991. PL indicates piecemeal liquidation and GC indicates a going concern sale.

	Percent firms with action					Conditional on action	
	All	PL	GC	pre-pack	sale-back	median $I_{-2,3}$ (%)	mean % recovery
A: Changes in the asset composition							
All changes in asset composition	43.2	38.9	44.8	68.6	46.2	-27.5	33.0
Asset sales	17.6	9.3	20.1	33.3	18.5	-26.3	34.0
Asset transfers to related companies	11.2	11.1	11.3	25.5	16.8	-20.9	27.0
Rationalizations and dismissals	24.0	25.9	23.7	23.5	22.7	-26.4	34.5
Sale lease-back transactions	2.0	1.9	2.1	3.9	1.7	-100.0	22.7
Acquisitions of shell corporations	1.6	1.9	1.5	3.9	2.5	-89.0	26.9
B: Governance changes							
All governance changes	27.2	29.6	26.3	11.8	25.2	-31.7	37.5
Management and board changes	10.8	13.0	10.3	3.9	10.9	-19.2	36.4
Ownership changes	21.2	24.1	20.1	7.8	18.5	-33.2	36.5
C: Changes in the financial claims							
All changes in financial claims	37.6	37.0	38.1	39.2	34.5	-42.2	33.8
Debt renegotiation attempt	8.0	3.7	9.3	11.8	9.2	-61.8	42.4
Suspension of payments	6.4	3.7	7.2	7.8	7.6	-41.1	35.1
Overdraft of credit line	2.8	1.9	3.1	0.0	2.5	-49.1	33.9
Related company contributions	24.0	27.8	23.2	21.6	20.2	-29.5	32.0
Writedown of restricted equity	1.6	1.9	1.5	2.0	0.8	-26.4	31.5
Issuance of new shares	2.4	3.7	2.1	3.9	0.8	-48.6	29.5
D: Allegations of fraud and white-collar crime							
All allegations of irregularities	39.6	42.6	38.7	35.3	34.5	-34.0	30.1
Fraudulent accounting	23.2	29.6	21.1	23.5	18.5	-34.7	25.0
Other white-collar crime	20.0	18.5	20.1	15.7	21.0	-34.7	28.1
Fraudulent conveyance	20.4	18.5	20.6	21.6	18.5	-34.0	35.6

Table 4
Actions taken by the bank prior to bankruptcy filing

The table shows the fraction of firms whose banks take various actions over a two-year period prior to filing. The change in CEO taxable income from year -2 through +3 $I_{-2,3}$ and the creditor recovery rate is conditional on these actions being undertaken. Sample of 250 private firms filing for auction bankruptcy in Sweden, 1988-1991. PL indicates piecemeal liquidation and GC indicates a going concern sale.

	Percent firms with action					Conditional on action	
	all	PL	GC	pre-pack	sale-back	median $I_{-2,3}$ (%)	mean recovery
The bank takes some action	36.0	25.9	39.2	39.2	36.0	-33.9	36.6
A: Bank loosens							
Bank relaxes the firm's liquidity constraint	10.4	11.1	10.3	7.8	9.2	-41.3	34.7
Issues new debt, extends credits	5.2	7.4	4.6	3.9	4.2	-44.5	31.3
Forgives interest and principal	6.0	3.7	6.7	3.9	5.9	-41.3	35.9
B: Bank tightens							
Bank tightens the firm's liquidity constraint	28.0	18.5	30.9	35.3	30.3	-24.5	36.3
Declines new credits	5.2	6.2	1.9	3.9	5.9	14.5	38.5
Refuses forgiveness of interest and principal	14.8	9.3	16.5	21.6	17.6	-37.9	34.9
Terminates existing credits	7.6	3.7	8.8	9.8	7.6	4.8	40.6
Bank files the bankruptcy petition	4.8	5.6	4.6	5.9	5.0	-44.5	36.1

Table 5
Median CEO income changes before and after auction bankruptcy filings in Sweden

The table shows the percentage change in CEO income over year -3 through +3 relative to bankruptcy filing (year 0). The income data is from annual tax returns, and is adjusted with the consumer price index to 2007 dollars. Income from employment includes self-employed income. Sample of CEOs of 250 private firms filing for auction bankruptcy in Sweden, 1988-1991. Control sample of CEOs of 2,194 non-bankrupt contemporary private firms. Panel B shows the adjusted income change, defined as the difference in the percent income change between the sample CEO and the median percent income change of the control CEOs in the same year. ** and * denotes that the adjusted income change is different from zero at the 1% and 5% level, respectively, using a Wilcoxon signed ranks test. The p-value of the difference between subsamples (in parenthesis) is computed using a Mann-Whitney test. n is the number of cases.

		Time period relative to filing (year from, year to):					
		-3,-2	-2,-1	-1,0	0,2	2,3	-2,3
A: % income change for CEOs of firms filing for bankruptcy							
Income from employment	median	1.5	1.3	-7.9	-16.2	3.8	-28.8
Taxable income	median	-2.6	1.7	-14.6	-30.9	15.6	-29.8
	n	144	149	138	95	140	201
B: Adjusted % change in CEO taxable income							
All filing firms	median	-5.9	-12.3	-14.7*	-52.3**	6.6*	-48.3**
	n	144	149	138	95	140	201
Going-concern sales	median	-9.6	-12.0	-13.8	-52.3**	6.0*	-46.6**
	n	117	121	115	81	82	138
Piecemeal liquidations	median	1.5	-24.1	-43.8	-39.0	-1.0	-58.7**
	n	25	28	23	14	26	43
	p-value	(0.061)	(0.251)	(0.335)	(0.941)	(0.573)	(0.140)
Salebacks	median	-13.4*	-12.2	-15.6	-40.9*	6.3	-37.1**
	n	81	80	72	53	77	104
Non-salebacks	median	9.3	-12.0*	-13.1	-63.9*	6.3	-66.0**
	n	57	67	63	41	58	91
	p-value	(0.017)	(0.238)	(0.651)	(0.280)	(0.926)	(0.023)
Prepacks	median	-13.6	-11.5	0.8	-59.5**	6.8	-57.1
	n	32	31	33	24	29	41
Non-prepacks[a]	median	-4.5	-13.3	-17.1*	-50.4	6.3	-47.7**
	n	112	118	105	71	111	160
	p-value	(0.518)	(0.756)	(0.334)	(0.304)	(0.709)	(0.870)

Table 6
Variable definitions

Definitions of variables. Industry rivals are all Swedish firms with the same 4-digit SIC code as the sample firm and at least 20 employees in the year of bankruptcy filing. The prefiling actions take place within two year prior to filing.

Variable	Definition
A: Firm and CEO characteristics:	
Sales	Total sales in $ million prior to filing.
Size	Natural logarithm of the book value of total assets prior to filing.
Profitability	Operating margin (EBITDA/sales) prior to filing.
Collateral	Proportion of the firm's debt that is secured.
Specific	Ratio of machinery and equipment to total assets, prior to filing
Tenure	The CEO's tenure with the firm exceeds two years at bankruptcy filing.
Age	CEO age at bankruptcy filing.
Owner-manager	The CEO owns at least 10% of the firm's equity at filing.
CEO equity	Value of the CEO's equity (book value) in the filing firm in $ million.
B: Industry controls	
Distress	Fraction of industry rivals with an interest coverage ratio (EBITDA plus interest income divided by interest expense) less than one, or that files for bankruptcy the following year.
Ind. profitability	Median operating margin (EBITDA/sales) of the industry rivals.
Business cycle	Change in the business cycle over the last quarter prior to filing.
Industry fixed effects	Industry controls for manufacturing, construction, transportation, trade and services.
C: Auction characteristics	
Recovery	The total recovery rate in bankruptcy of the firm's debtholders.
Prepack	A going-concern sale of the firm's operations is negotiated prior to filing.
Saleback	A owner of the filing firm buys the assets in the bankruptcy auction.
Rehired	The buyer in the auction rehires the incumbent CEO to run the surviving going concern.
Piecemeal	The firm is liquidated piecemeal in the bankruptcy auction.
D: Prefiling actions by the CEO and the firm's bank	
Asset dispositions	Asset sales, rationalizations and dismissals, and sale-leaseback transactions.
Governance	Management, board and ownership changes.
Board/management	Changes in the firm's board of directors or top management.
Ownership	Changes in the ownership of the firm.
Financial claims	Credit line overdraft, suspension of payments, workout attempt, equity infusion, and writedown of restricted equity.
Fraud	Charges of fraudulent accounting, fraudulent conveyance, or other white-collar crime.
Accounting fraud	Allegations of fraudulent accounting practices.
White-collar crime	The trustee expresses suspicions of white-collar crime.
Bank tightens	The bank terminates the firm's credit line, declines new credits, refuses to forgive interest or principal, or files a bankruptcy petition.
No loans	The bank declines new credits or an extension of existing credits.
No forgiveness	The bank declines to forgive interest or principal.
Bank terminates	The bank terminates the firm's credits.
Bank files	The bank files the bankruptcy petition.
Bank loosens	The bank extends credits, provides new loans and forgives interest or principal.

Table 7
Determinants of the CEO wealth change from year -2 to +3

Coefficient estimates in OLS regressions of the change in CEO wealth from year -2 to +3 for 180 private Swedish firms filing for bankruptcy, 1988-1991. CEO wealth is a dummy that takes the value of one if the CEO's taxable wealth exceeds a threshold value and zero otherwise. The explanatory variables are defined in Table 6.

Constant	0.344	0.349	0.328	0.162	0.113
	(0.003)	(0.002)	(0.003)	(0.067)	(0.431)
Sales	-0.006	-0.007	-0.006	0.002	0.002
	(0.020)	(0.009)	(0.046)	(0.530)	(0.404)
Profitability	-0.104	-0.112	-0.088	-0.182	-0.115
	(0.597)	(0.566)	(0.646)	(0.325)	(0.544)
Owner-manager	-0.190	-0.205	-0.176		
	(0.006)	(0.003)	(0.009)		
CEO equity				-0.782	-0.764
				(0.000)	(0.000)
Distress	-0.466	-0.471	-0.537	-0.472	-0.411
	(0.035)	(0.031)	(0.014)	(0.027)	(0.087)
Business cycle	0.001	0.002	0.003	0.002	0.001
	(0.926)	(0.856)	(0.752)	(0.835)	(0.918)
Income	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Prefiling actions:					
Asset dispositions	-0.027	-0.021	-0.009	0.005	0.010
	(0.639)	(0.709)	(0.874)	(0.929)	(0.853)
Governance	0.038	0.039	0.031	0.030	0.026
	(0.562)	(0.548)	(0.624)	(0.636)	(0.686)
Financial claims	-0.107	-0.098			
	(0.089)	(0.117)			
Suspension of payments			-0.225	-0.250	-0.274
			(0.073)	(0.037)	(0.022)
Group contributions			-0.058	-0.019	-0.013
			(0.387)	(0.765)	(0.843)
Equity issue			-0.373	-0.456	-0.366
			(0.033)	(0.007)	(0.032)
Fraud	0.011				
	(0.840)				
Accounting fraud		0.153	0.125	0.035	0.020
		(0.053)	(0.071)	(0.619)	(0.778)
White-collar crime		-0.067			
		(0.385)			
Bank tightens	0.019	0.017	0.018	0.037	0.023
	(0.759)	(0.787)	(0.766)	(0.537)	(0.706)
Bank loosens	0.048	0.038	0.073	0.073	0.089
	(0.600)	(0.679)	(0.438)	(0.429)	(0.335)
Industry fixed effects	no	no	no	no	yes
Sample size	180	180	180	164	164
Adjusted R^2	0.11	0.12	0.14	0.20	0.21
F-value	2.83	2.94	3.14	3.87	3.24
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)

Table 8
Determinants of the CEO income change from year -2 to +3

Coefficient estimates in OLS regressions of the percentage change in taxable income from year -2 to +3 for CEOs of 195 private Swedish firms filing for bankruptcy in 1988-1991, where 0 is the year of bankruptcy filing. The explanatory variables are defined in Table 6.

Constant	-5.484	-6.983	-5.077	-4.388	-6.038
	(0.567)	(0.483)	(0.572)	(0.727)	(0.485)
Size	0.230	0.365	0.212	0.313	0.236
	(0.701)	(0.510)	(0.703)	(0.678)	(0.658)
Profitability	-0.670	-1.093	-0.493	-1.495	-1.213
	(0.865)	(0.779)	(0.894)	(0.761)	(0.744)
Owner-manager				-2.051	
				(0.300)	
Distress	3.506	3.868	3.768	4.078	4.475
	(0.507)	(0.409)	(0.450)	(0.477)	(0.321)
Recovery	-0.094	0.336	-0.152	0.500	0.998
	(0.974)	(0.906)	(0.953)	(0.890)	(0.714)
Saleback			0.626		
			(0.566)		
Rehired	0.679	0.928		0.975	0.612
	(0.575)	(0.433)		(0.525)	(0.592)
Prefiling actions:					
Assets dispositions	-0.940	-0.889	-0.941	-1.327	-0.292
	(0.432)	(0.455)	(0.396)	(0.390)	(0.800)
Governance	-1.187	-0.807	-1.406	-1.716	-0.675
	(0.389)	(0.552)	(0.251)	(0.353)	(0.605)
Financial claims	-0.652	-0.469	-0.644	-0.674	-0.854
	(0.613)	(0.712)	(0.587)	(0.690)	(0.489)
Fraud	0.451	0.123	0.359	0.044	0.122
	(0.715)	(0.920)	(0.752)	(0.977)	(0.919)
Bank tightens	2.630	2.723	2.320	3.264	
	(0.049)	(0.040)	(0.057)	(0.053)	
No loans					3.189
					(0.178)
No forgiveness					5.019
					(0.003)
Bank terminates					-1.172
					(0.585)
Bank files					8.012
					(0.001)
Bank loosens	-1.466	-1.132	-1.273	-1.302	-0.152
	(0.451)	(0.554)	(0.485)	(0.588)	(0.935)
Industry fixed effects	yes	no	yes	no	no
Sample size	180	180	195	140	180
Adjusted R^2	-0.02	-0.02	-0.02	-0.03	0.07
F-value	0.77	0.67	0.80	0.67	1.98
	(0.716)	(0.764)	(0.688)	(0.780)	(0.022)

Table 9
Determinants of the CEO income change from year 0 to +2

Coefficient estimates in OLS regressions of the percentage change in taxable income from year 0 to +2 for CEOs of 94 private Swedish firms filing for bankruptcy in 1988-1991, where 0 is the year of bankruptcy filing. The explanatory variables are defined in Table 6.

Constant	-6.372	-0.934	-7.668	-3.720
	(0.447)	(0.909)	(0.330)	(0.744)
Size	0.674	0.243	0.747	0.723
	(0.175)	(0.620)	(0.108)	(0.263)
Profitability	4.768	1.618	4.712	7.383
	(0.101)	(0.564)	(0.081)	(0.038)
Owner-manager				-0.410
				(0.813)
Distress	-10.14	-7.724	-10.09	-16.49
	(0.035)	(0.067)	(0.028)	(0.014)
Business cycle	0.193	0.173	-0.152	0.180
	(0.318)	(0.492)	(0.334)	(0.498)
Saleback			0.943	
			(0.329)	
Rehired	1.005	0.765		1.797
	(0.334)	(0.448)		(0.207)
Prefiling actions:				
Assets dispositions	2.268	1.596	2.018	2.870
	(0.040)	(0.145)	(0.047)	(0.048)
Governance	0.523	-0.211	0.226	0.912
	(0.640)	(0.849)	(0.821)	(0.556)
Financial claims	-0.359	-0.971	-0.572	-0.752
	(0.737)	(0.371)	(0.552)	(0.625)
Fraud	-0.103	-0.383	-0.059	-0.079
	(0.921)	(0.721)	(0.950)	(0.952)
Bank tightens	-0.744	-0.546	-0.661	
	(0.504)	(0.635)	(0.624)	(0.645)
Bank loosens	1.515	0.584	1.425	1.901
	(0.437)	(0.769)	(0.418)	(0.440)
Industry fixed effects	yes	no	yes	yes
Sample size	86	86	94	66
Adjusted R^2	0.05	-0.03	0.05	0.09
F-value	1.29	0.77	1.27	1.38
	(0.229)	(0.669)	(0.236)	(0.188)

Table 10
Probability that the CEO is rehired

Coefficient estimates in logit regressions for the probability that the CEO of the bankrupt firm is rehired by the buyer. Sample of 188 private Swedish firms filing for bankruptcy in 1988-1991. The explanatory variables are defined in Table 6.

	all filings		going-concern sales	
Constant	-4.090	-1.195	-2.191	-0.781
	(0.217)	(0.473)	(0.569)	(0.826)
Size	0.074	0.069	0.005	-0.022
	(0.716)	(0.713)	(0.982)	(0.921)
Profitability	1.186	1.024	2.816	2.366
	(0.430)	(0.494)	(0.176)	(0.241)
Collateral	-0.896	-0.841	-0.839	-0.831
	(0.256)	(0.254)	(0.349)	(0.321)
Tenure	-0.045	-0.056	0.209	0.315
	(0.918)	(0.895)	(0.694)	(0.540)
Age	-0.002	0.001	0.004	0.018
	(0.945)	(0.960)	(0.896)	(0.528)
Owner-manager	1.271	1.209	1.402	1.467
	(0.011)	(0.014)	(0.014)	(0.009)
Distress	2.839	1.387	1.714	0.544
	(0.043)	(0.247)	(0.314)	(0.709)
Business cycle	0.190	0.189	0.191	0.184
	(0.007)	(0.005)	(0.022)	(0.021)
Prepack	1.165	0.813	0.482	0.128
	(0.022)	(0.072)	(0.371)	(0.790)
Prefiling actions:				
Assets dispositions	-0.539	-0.531	-0.434	-0.428
	(0.167)	(0.155)	(0.327)	(0.318)
Governance	-0.141	-0.177	-0.077	-0.181
	(0.750)	(0.680)	(0.881)	(0.715)
Financial claims	-0.210	-0.255	-0.384	-0.375
	(0.603)	(0.503)	(0.380)	(0.364)
Fraud	-0.396	-0.736	-0.775	-0.804
	(0.054)	(0.031)	(0.061)	(0.041)
Bank tightens	0.165	0.202	0.024	-0.096
	(0.676)	(0.591)	(0.958)	(0.822)
Bank loosens	0.104	0.077	0.277	0.159
	(0.860)	(0.889)	(0.686)	(0.807)
Industry fixed effects	yes	no	yes	no
Sample size: ceo rehired	74	74	74	74
ceo not rehired:	114	114	69	69
Cox & Snell R^2	0.20	0.14	0.20	0.16
χ^2	41.4	28.4	32.7	24.6
	(0.003)	(0.019)	(0.036)	(0.056)

Table 11
Cross-sectional determinants of recovery rates

Coefficient estimates in OLS regressions for total creditor and bank recovery rates. Sample of 220 private Swedish firms filing for bankruptcy in 1988-1991. The explanatory variables are defined in Table 6.

	total recovery		bank recovery	
Constant	0.589	0.544	1.100	1.021
	(0.010)	(0.011)	(0.003)	(0.003)
Size	-0.012	-0.012	0.002	-0.003
	(0.423)	(0.353)	(0.946)	(0.897)
Profitability	-0.025	-0.023	-0.024	-0.047
	(0.797)	(0.807)	(0.875)	(0.752)
Collateral	0.278	0.285	-0.313	-0.270
	(0.000)	(0.000)	(0.004)	(0.010)
Distress	-0.236	-0.183	-0.398	-0.251
	(0.054)	(0.089)	(0.048)	(0.151)
Ind. profitability	1.314	0.977	0.259	0.384
	(0.063)	(0.098)	(0.816)	(0.684)
Prepack	-0.054	-0.040	-0.021	-0.004
	(0.170)	(0.288)	(0.742)	(0.945)
Saleback	-0.080	-0.086	-0.106	-0.129
	(0.051)	(0.030)	(0.118)	(0.051)
Rehired	0.070	0.065	0.137	0.144
	(0.071)	(0.087)	(0.031)	(0.020)
Piecemeal	-0.159	-0.162	-0.284	-0.294
	(0.000)	(0.000)	(0.000)	(0.000)
Prefiling actions:				
Assets dispositions	0.004	0.002	0.026	0.017
	(0.900)	(0.949)	(0.580)	(0.712)
Governance	0.032	0.036	0.053	0.065
	(0.325)	(0.263)	(0.302)	(0.202)
Financial claims	-0.008	-0.004	-0.007	0.000
	(0.785)	(0.880)	(0.878)	(0.997)
Fraud	-0.081	-0.080	-0.108	-0.112
	(0.005)	(0.004)	(0.018)	(0.012)
Bank tightens	-0.002	-0.003	-0.004	-0.005
	(0.961)	(0.915)	(0.930)	(0.927)
Bank loosens	0.000	0.005	0.082	0.088
	(0.999)	(0.914)	(0.233)	(0.191)
Industry fixed effects	yes	no	yes	no
Sample size	220	220	203	203
Adjusted R^2	0.16	0.17	0.17	0.18
F-value	3.11	4.07	3.10	3.97
	(0.000)	(0.000)	(0.000)	(0.000)

Table 12
Probability of a going-concern sale

Coefficient estimates in logit regressions for the probability that the firm is auctioned as a going concern versus liquidated piecemeal. Sample of 248 private Swedish firms filing for bankruptcy in 1988-1991. The explanatory variables are defined in Table 6.

Constant	-2.339	-1.753	-2.427	-1.751
	(0.430)	(0.517)	(0.498)	(0.599)
Size	0.117	0.169	0.118	0.178
	(0.536)	(0.328)	(0.589)	(0.380)
Profitability	0.580	0.650	0.275	0.322
	(0.603)	(0.542)	(0.829)	(0.781)
Collateral	-1.642	-1.378	-1.445	-1.102
	(0.027)	(0.051)	(0.067)	(0.141)
Specific	2.497	1.345	2.777	1.456
	(0.056)	(0.265)	(0.047)	(0.252)
Owner-manager			-0.365	-0.224
			(0.460)	(0.634)
Distress	2.962	1.747	2.945	1.440
	(0.052)	(0.200)	(0.072)	(0.320)
Ind. profitability	6.786	1.440	8.897	3.422
	(0.439)	(0.849)	(0.360)	(0.677)
Business cycle	0.106	0.105	0.084	0.084
	(0.098)	(0.090)	(0.228)	(0.210)
Prefiling actions:				
Assets dispositions	0.095	0.138	-0.089	-0.059
	(0.788)	(0.684)	(0.820)	(0.875)
Governance	-0.015	-0.026	-0.422	-0.282
	(0.969)	(0.943)	(0.332)	(0.492)
Financial claims	-0.085	-0.143	0.112	0.040
	(0.815)	(0.682)	(0.787)	(0.920)
Fraud	-0.113	-0.174	-0.190	-0.184
	(0.744)	(0.595)	(0.611)	(0.605)
Bank tightens	0.904	0.762	0.922	0.793
	(0.037)	(0.062)	(0.050)	(0.075)
Bank loosens	0.100	0.001	-0.044	-0.108
	(0.854)	(0.998)	(0.942)	(0.850)
Industry fixed effects	yes	no	yes	no
Sample size: going concern sale	194	194	162	162
piecemeal liquidation	54	54	45	45
Cox & Snell R^2	0.11	0.05	0.10	0.05
χ^2	28.1	14.0	23.0	11.3
	(0.060)	(0.372)	(0.236)	(0.661)