Small Business Bankruptcy

Michelle J. White
UCSD and NBER

Article for *Annual Review of Financial Economics*, volume 8

Abstract

Bankruptcy is the legal process by which financially distressed firms and individuals resolve their debts. It is an important part of the legal environment for small business owners, because small businesses are very risky and often fail and because bankruptcy law affects how business owners are treated in the event of failure. Both personal and corporate bankruptcy law are relevant for most small businesses, since even when businesses are incorporated, lenders often require that business owners personally guarantee loans to the business. The article discuss theoretical models and empirical tests of how bankruptcy law affects small business, including the effects of bankruptcy law on incentives to start and remain in business, how bankruptcy law affects small business credit, and whether bankruptcy law leads to efficient decisions concerning whether failing businesses reorganize versus liquidate. Research using small business data from both the U.S. and other countries is covered.

Bankruptcy is the legal process by which financially distressed firms and individuals resolve their debts. It is an important part of the legal environment for small business owners, because starting and owning a business is very risky, financially distressed businesses and their owners often file for bankruptcy, and bankruptcy law affects how business owners fare when their firms fail. In the U.S., there are separate bankruptcy procedures for individuals versus for corporations. While both procedures are relevant for small businesses, the personal bankruptcy procedure is the most important because the finances of small business owners and their business are closely intertwined. Owners often use their credit cards or second mortgages on their homes to finance their businesses and, if the business is not incorporated, owners are personally liable for all of their business' debts. When non-corporate businesses fail, owners therefore file for personal bankruptcy in order to have both business and personal debts discharged. Even when small businesses are incorporated, personal bankruptcy law is important. This is because small corporations have few assets and, since lenders know this, they often require that the owners personally guarantee loans to their corporations. As a result, when small corporations fail, there are often both corporate bankruptcy filings by the business and personal bankruptcy filings by the owners. Thus both personal and corporate bankruptcy procedures are important for small businesses.

Bankruptcy law is particularly important for small businesses in the U.S. because the fraction of U.S. workers who are self-employed is high, because small businesses provide most of the new jobs created, because small businesses invariably seek credit, and because they frequently fail.[1] Around 1 in 9 U.S. workers is self-employed (Hipple, 2010), two-thirds of new jobs are created by small businesses (Agarwal et al, 2005), and about half of all newly-established small businesses fail within the first five years (Shane, 2012). Among personal bankruptcy filers, around 17% have some business debt (Lawless and Warren, 2005).

In this article, I first describe the legal environment for small business and then discuss theoretical models of how bankruptcy law affects small business. Finally, I discuss empirical research that empirically tests predictions from the theoretical models. While the discussion

[1] Evans and Jovanovic (1989) show that most individuals who are self-employed face binding liquidity constraints. Holtz-Eakin et al (1994b) show empirically that small businesses whose owners receive inheritances are less likely to fail, suggesting that owners are credit-constrained and receiving an inheritance loosens the constraint.

mostly focuses on small businesses in the U.S., I also discuss research that uses small business data from other countries.

I. Debtor-creditor law and bankruptcy law for small business

When small businesses are in financial distress and default on their loans, creditors have a variety of remedies, depending on the type of loan. If business owners have used their personal credit cards to finance their businesses, credit card lenders first use calls and letters to demand payment and then may file lawsuits. When they win, they attempt to garnish business owners' wages and/or collect from business owners' bank accounts. If the loans are business loans, lenders will refuse to renew the loans and demand full payment immediately. If business loans are secured by inventory or equipment or accounts receivable—as small business loans frequently are—creditors may repossess the collateral. If the loan is a vehicle loan or a second mortgage on a building, creditors can repossess the car or start foreclosure proceedings on the building.[2]

When creditors exercise these remedies, owners of both non-corporate and corporate firms often respond by filing for bankruptcy. Bankruptcy law provides a collective procedure for resolving all of the debts of bankruptcy filers, regardless of whether they are individuals or corporations. When businesses are incorporated, owners/managers have a choice between filing to liquidate versus reorganize in bankruptcy. If they file to reorganize, then managers remain in control and businesses continue operating, at least temporarily.

As soon as an individual or a corporation files for bankruptcy, the bankruptcy judge issues an "automatic stay" that terminates all efforts by creditors to collect through the legal system, stops creditors from grabbing debtors' assets, ends garnishment of debtors' wages if it is in effect and ends debtors' obligation to make payments on unsecured debt. By preventing creditors from using non-bankruptcy procedures to collect, the automatic stay forces all debts to be resolved through the bankruptcy procedure and maximizes the value of assets available to pay creditors. The automatic stay in bankruptcy also provides bankruptcy filers with temporary debt relief, regardless of whether they are individuals or corporations.

[2] See Mann (2006) for discussion of credit card loans and methods of collection used in the U.S. and other countries.

Turn first to personal bankruptcy law. It specifies how much of filers' assets and future earnings must be used to repay debt and how the repayment is divided among creditors. It also specifies punishments for bankruptcy. Filers first create a list of all of their debts, regardless of whether they are due in the future or the present and whether they are contingent (such as claims of plaintiffs who are suing the firm) or not. Not all debts are dischargeable in personal bankruptcy, but most business debts and unsecured debts such as credit card debts, medical debts, installment loans, and unpaid bills for utilities and rent are dischargeable.[3] Secured debts are also dischargeable if debtors give up the collateral.[4] Filers have an incentive to include all of their debts on the lists, since omitted debts are not discharged.

Filers must also indicate their ability to repay by listing their assets and their earnings. Individuals filing for bankruptcy are not required to use all of their assets and earnings to repay: amounts they are allowed to keep in bankruptcy are called "exemptions." Exemptions vary widely across countries. In the U.S., most bankruptcy filers' future earnings are completely exempt from the obligation to repay—this is called the "fresh start." The fresh start is particularly important to small business owners, since they often plan to start new businesses when their old businesses fail and it would be very difficult to do so if they were obliged to use the earnings from their new businesses to repay old debts. For assets, states in the U.S. set their own exemption levels and these vary widely. In most states, the largest asset exemption is for equity in owner-occupied homes, which ranges from zero to unlimited in several states. There are also exemptions in most states for equity in cars and various types of personal property.[5] In contrast, most countries other than the U.S. require bankruptcy filers to repay from future earnings as well as assets. Bankruptcy law also specifies the number of years that filers are obliged to repay from future earnings—this generally ranges from one year to ten, but in some countries, debt is only discharged when the debtor dies (Efrat, 2002). After filers have completed their obligation to repay, their remaining debt is discharged.

---

[3] Debts that are non-dischargeable in personal bankruptcy include tax liabilities, debts incurred by fraud, obligations to pay alimony and child support, and student loans.

[4] If the value of the collateral is less than the secured debt, then the remainder becomes an unsecured debt. However these are usually discharged in personal bankruptcy.

[5] The U.S. Constitution, Article I, Section 8, Clause 4, reserves the power to establish bankruptcy laws to the Federal government, so that bankruptcy law is uniform all over the country. The Bankruptcy Code includes uniform Federal exemptions for assets. However, the Code also gives the states the right to opt out of the Federal asset exemptions and adopt their own.

Bankruptcy law also specifies a "priority rule" for dividing amounts that filers repay in bankruptcy among creditors. In most countries, the priority rule is the "absolute priority rule" (A.P.R.), which specifies that expenses of bankruptcy are paid first, certain "priority" claims are paid next, and unsecured creditors are paid next.[6] All higher-ranking claim must be paid in full before lower-ranking claims receive anything. Secured creditors are outside the priority ordering and are allowed to take their collateral in bankruptcy.

Bankruptcy law also provides punishments for filing. In the past, default and bankruptcy were criminal offenses and punishments were very harsh, including the death penalty, maiming, selling filers into slavery, forcing them into exile, and holding them in debtors' prisons. In the modern world, default and bankruptcy are no longer criminal offenses, but punishments still exist. In the U.S., default causes debtors' credit scores to fall, making it more difficult for them to borrow, rent housing, and get jobs. If they file for bankruptcy, their names are made public and the filings remain on their credit records for 10 years. They also are barred from some government jobs. In the U.K., filers cannot manage firms or hold certain public offices for several years after filing. Higher costs of filing, lower exemptions for assets and future earnings, and longer required repayment periods also increase the punishment for bankruptcy. [7]

The U.S. has two separate personal bankruptcy procedures—Chapter 7 and Chapter 13. Under Chapter 7, filers must repay debt from their non-exempt assets, but all of their future earnings are exempt. Under Chapter 13, filers must propose a plan to repay debt from future earnings over 3 to 5 years, but all of their assets are exempt. Before 2005, filers were allowed to choose between the two procedures. Because it was relatively easy for filers to convert their assets from non-exempt to exempt categories before filing, most preferred to file under Chapter 7 and were not obliged to repay anything. In 96% of personal bankruptcy filings under Chapter 7, debtors have no non-exempt assets and they repay nothing (Flynn et al, 2003). Those who filed under Chapter 13 generally proposed to repay only token amounts and this satisfied their repayment obligation, because they could otherwise file under Chapter 7 and repay nothing.

This situation was very favorable to small business owners, since if their businesses failed, they could file for bankruptcy under Chapter 7, have their business debts and some personal

[6] Expenses that are non-dischargeable in bankruptcy (unpaid taxes, alimony and child support and student loans) are treated as priority claims.

[7] For comparisons of bankruptcy repayment requirements and punishments across countries, see Efrat (2002), White (2007), Sandage (2005), Mann (2002), and Knobloch (2012).

debts discharged, and benefit from the fresh start. If they lived in states with high asset exemptions for home equity, they could also keep their homes in bankruptcy as long as their mortgage payments were current.[8] Business owners who had non-exempt financial assets could often protect these assets by using them to pay down their mortgages and increase their home equity before filing for bankruptcy.[9]

The 2005 bankruptcy reform in the U.S. changed the law in ways that made bankruptcy less favorable to filers in general and to business owners in particular. First, the cost of filing for bankruptcy increased, because lawyers' fees and filing fees rose, because filers must submit their tax returns for the previous few years (which they may not have previously filed) and because filers must take credit counselling and financial management courses. Second, a new means test was instituted that forces some filers with household incomes above the median level in their states to file under Chapter 13. The means test specifies a procedure that determines both whether filers are obliged to file under Chapter 13 and, if so, their exemption for future earnings. Chapter 13 filers must use all of their earnings above this exemption for 5 years to repay. The new means test makes filing for bankruptcy much less attractive for all debtors with above-median incomes.

However the 2005 reform exempted owners of small businesses from the obligation to take the bankruptcy means test as long as their debts are "primarily" business debts; if so, they are allowed to file under Chapter 7 regardless of their income levels. But the reform nonetheless made bankruptcy less favorable to business owners, both because of the higher costs and because filers' debts might not be primarily business debts (perhaps because their businesses are incorporated and owners only guaranteed a few of the corporations' debts). For small business owners who expect to fail once or twice before they start a business that succeeds, the 2005 bankruptcy reform both discouraged them from going into business at all and encouraged them to organize their businesses as corporations.

Turning to corporate bankruptcy law, small businesses owners can alternately protect themselves from the risk of business failure by incorporating. When small businesses incorporate, the debts of the corporation are not personal liabilities of the corporation's owners,

---

[8] Another reason for business owners to prefer Chapter 7 is that Chapter 13 has a limit on the total amount of unsecured debt that can be discharged and small business owners' debt may exceed the limit. The limits were raised under the 2005 bankruptcy reform, but they still exist.

[9] See White (1998) for discussions of strategies that filers could use to minimize their debt repayment in bankruptcy.

so that incorporating protects owners from their business' downside risk other than loss of the value of their shares. However lenders to small corporations frequently require owners to provide personal guarantees or a second mortgage on the owner's house to back up loans to the corporation. In this situation, owners are personally liable for some of the corporation's debts, which eliminates the distinction between the corporation's finances and the owner's for purposes of the guaranteed loan. In addition, owners of corporations often lend personal funds to their corporations, which corporations may not repay if they become financially distressed. In these situations, failure of the corporation often leads both to a corporate bankruptcy filing and to a personal bankruptcy filing by the owner.

The U.S. and many other countries have separate bankruptcy procedures for liquidation versus reorganization of corporations in financial distress. In the U.S., Chapter 7 is for bankruptcy liquidation and Chapter 11 for bankruptcy reorganization. Bankruptcy liquidation procedures for corporations are similar across countries. The operations of corporations are usually shut down (or have already shut down before bankruptcy), a bankruptcy court official sells the corporation's assets piecemeal, and the proceeds are divided among creditors according to the absolute priority rule (the A.P.R.). There are no exemptions for corporations that liquidate. The corporate form of the A.P.R. requires that all creditors' claims be paid in full before shareholders of the corporation receive anything. Expenses of bankruptcy are paid first, then "priority" expenses such as unpaid tax and wage obligations, and then unsecured creditors. Creditors in each category must be paid in full before creditors in lower ranking categories receive anything. Within the category of unsecured claims, all claims may be treated equally or certain unsecured claims may be paid before others.[10] Secured creditors are allowed to take their collateral. If anything remains after all claims are paid in full, it goes to shareholders. At the end of the bankruptcy procedure, the corporation is dissolved.

Corporate reorganization procedures differ much more across countries than corporate liquidation procedures. In the U.S., managers of financially distressed corporations are allowed to make the initial choice between filing to liquidate versus reorganize in bankruptcy and, if they file under Chapter 11, the corporation continues to operate and they generally remain in control.

[10] The order of payment of unsecured claims depends on provisions of the loan contracts agreed on by lenders and the corporation. For example, a loan contract might specify that the particular lender will take priority in bankruptcy over all subsequent unsecured loans.

During the reorganization procedure, the automatic stay remains in effect and provides the corporation with temporary debt relief. To reorganize successfully, the corporation must adopt a reorganization plan and managers have the exclusive right for a limited period to propose the plan. The reorganization plan specifies how unsecured creditors and shareholders of the corporation are compensated. Unsecured creditors normally receive cash payments over a period of several years as well as equity in the reorganized corporation, while shareholders receive some equity in the reorganized corporation. For a reorganization plan to be adopted, it must receive a majority of votes of each class of unsecured creditors and of shareholders as a class. Reorganization plans thus modify the A.P.R. by giving unsecured creditors less than they are owed, while giving some payment to the corporation's shareholders so that they will vote in favor of the plan. The minimum amount that unsecured creditors must receive in reorganization plan is the value of their claims if the business liquidated in Chapter 7. This means that any extra value generated by the corporation reorganizing rather than liquidating is divided between creditors and shareholders according to a bargaining process. Secured creditors cannot reclaim their collateral in Chapter 11, but the corporation must continue to pay them according to their original contracts. If managers' proposed reorganization plan is not adopted or if no plan is proposed, then creditors are allowed to propose their own reorganization plans and, if no plan is adopted, the corporation must liquidate. Sometimes corporations continue to operate for several years in Chapter 11 before finally liquidating.

Reorganization procedures in other countries are sometimes quite different (see below for further discussion). In general, countries other than the U.S. do not give managers of bankrupt corporations the right to remain in control or to make the initial reorganization versus liquidation decision. Instead a trustee is appointed at the time of filing who replaces or oversees managers and decides whether to reorganize or liquidate. In the U.K., businesses have a single "floating charge" creditor—usually a bank—that has a security interest in the business' inventory, accounts receivable and sometimes other assets. If the business becomes financially distressed, the floating charge creditor has the right to appoint an administrator who decides whether to liquidate or reorganize it. The administrator makes the decision exclusively in the interest of the floating charge creditor, rather than creditors in general. In France, the trustee is a bankruptcy court official who is charged with saving the corporation's jobs. In Sweden, there is no corporate bankruptcy reorganization procedure at all; instead, all corporations in bankruptcy are sold at auction, although some are sold as going concerns.

II. Effects of bankruptcy law on small business

In discussing the effects of bankruptcy law on small business, I characterize personal bankruptcy law as "harsh" if it is pro-creditor, meaning that exemptions are lower, filers are required to repay more from their assets or future earnings, the required repayment period is longer, bankruptcy costs are higher and/or punishments for filing are higher. Corporate bankruptcy law can similarly be characterized as "harsh" if managers are replaced as soon as the bankruptcy filing occurs, if there is no bankruptcy reorganization procedure and if the A.P.R. must be followed strictly, so that full payment of all unsecured debt is required before shareholders receive anything. "Lenient" bankruptcy law is pro-debtor and has the opposite characteristics. Of course, bankruptcy law can be harsh on some dimensions and lenient on others.

Whether corporate and personal bankruptcy law should be harsh versus lenient is a key economic issue, but the efficient level of harshness is likely to differ for individuals versus small businesses versus large corporations. Consider first the tradeoffs determining the optimal level of harshness of personal bankruptcy law. The most important tradeoff is between debtors' gain from having additional consumption insurance when bankruptcy law is more lenient versus their loss from reduced credit supply (Gropp et al, 1997, Adler et al, 1999, Wang and White, 2000, and Fan and White, 2003). Small business owners benefit from borrowing because it allows them to start and expand their businesses and individuals benefit from borrowing because it allows them to smooth consumption over the life cycle. But borrowing increases debtors' downside risk, because future earnings are uncertain and may turn out to be low when debtors are obliged to repay. If this occurs, debtors' consumption may drop substantially, possibly causing their businesses to close, their families to lose their homes and/or their medical problems to go untreated. These considerations apply particularly strongly to small business owners, since they borrow more and their business incomes are more uncertain than earnings from working at a job. More lenient bankruptcy laws reduce the downside risk of borrowing for both debtors in general and small business owners in particular by allowing them to file for bankruptcy when their ability to repay is low and by discharging more debt when they file. The more debt is discharged in bankruptcy, the higher is debtors' consumption in the worst outcomes. Thus a more lenient bankruptcy law makes risk-averse individuals more willing to borrow in general and to start or operate small businesses.

But lenient relative to harsh bankruptcy laws reduce the supply of credit, because debtors file for bankruptcy more often and because they repay less when they file. Creditors respond by turning down more applications for loans, reducing loan size when they lend, raising interest rates, or some combination. Thus a lenient relative to a harsh bankruptcy law provides debtors with additional consumption insurance by increasing their consumption in bad states when they file for bankruptcy and by reducing their consumption in good states when they avoid bankruptcy.

The efficient level of harshness of personal bankruptcy law thus depends on the tradeoff between debtors' gain from having more consumption insurance versus their loss from reduced credit supply. Whether the optimal bankruptcy law is harsh or lenient or in-between depends on factors such as how risk averse debtors are—higher levels of risk aversion make the optimal bankruptcy law more lenient, how high is debtors' loan demand—higher loan demand makes the optimal bankruptcy law harsher, and how elastic is the supply of credit with respect to the leniency of bankruptcy law—higher elasticity of credit supply makes the optimal bankruptcy law harsher. [11]

The optimal harshness of bankruptcy law is also likely to differ for small business owners versus non-business owners. Small business owners face more downside risk than non-business owners, which suggests that they gain more from a lenient bankruptcy law. But small business owners are generally less risk averse than non-business owners, which reduces their gain from a lenient bankruptcy law. Small business owners also demand more credit than non-business owners, which increases their gain from a harsh bankruptcy law that increases credit supply. The exact way in which bankruptcy law is harsh versus lenient also matters, because small business owners particularly gain from the "fresh start" in bankruptcy, which makes it easier for them to start new businesses following a previous business failure.

---

[11] Other issues that affect the optimal harshness of personal bankruptcy law are whether bankruptcy law encourages debtors to behave opportunistically and file for bankruptcy even when they are not financially distressed, whether lenders are likely to sue debtors to collect following default, and how strongly bankruptcy law affects debtors' labor supply before or after bankruptcy. See White (1998), Wang and White (2000), Ausubel and Dawsey (2004) and Han and Li (2007) for discussion.

Now turn to the tradeoffs that affect the optimal harshness of corporate bankruptcy law. Because owners of corporations are not liable for their corporations' debts beyond loss of the value of their shares, incorporating the business insures owners' consumption against the downside risk of business failure. [12] Thus the efficient level of harshness of corporate bankruptcy law is not driven by the consideration of providing consumption insurance to owners of corporations. Instead, the most important economic objective in corporate bankruptcy law is to efficiently assign corporations in bankruptcy to liquidation versus reorganization—referred to as the "filtering function" of bankruptcy. While all corporations in bankruptcy are financially distressed, they may be either economically efficient or inefficient. Corporations in bankruptcy are economically inefficient if the value of their assets is higher in some alternate use—these corporations should be shut down and their assets liquidated. In contrast, corporations in bankruptcy are economically efficient despite their financial distress if the value of their assets is highest in their current use—these corporations should reorganize. Type I errors occur when economically inefficient corporations continue to operate by reorganizing in bankruptcy or by delaying their bankruptcy filings; the cost of type I error is the loss from delaying the movement of capital and labor from lower-value to higher-value uses. Type II errors occur when economically efficient corporations liquidate in bankruptcy; the cost of type II errors is loss of the corporation's going concern value. The optimal corporate bankruptcy law should minimize the combined cost of type I and type II errors in bankruptcy.[13]

The number of errors of each type that occur in corporate bankruptcy is related to the harshness of bankruptcy law. A harsh bankruptcy law strictly follows the A.P.R. and results in more liquidations, because many bankrupt corporations cannot pay all of the costs of reorganizing plus all of the claims of unsecured creditors and still have enough assets left over to reorganize. A lenient bankruptcy law, in contrast, allows the A.P.R. to be modified, so that shareholders receive some payment even when unsecured creditors are not paid in full. In this

[12] Corporate shareholders' consumption is also insured by the fact that they can diversify their shareholdings. However, managers of corporations are less insured than shareholders, since they may lose their jobs as well as their shares if the corporation fails.

[13] The classic example of an efficient but financially distressed corporation is a bankrupt railroad, since its main assets are tracks and embankments which are almost worthless in any other use. This means that railroads in financial distress often should reorganize. An example of an inefficient and financially distressed corporation is a bankrupt airline, because its main assets--airport gates and used airplanes—can more efficiently be used by another airline or a different type of business. See White (1989) for discussion.

situation, corporations keep more of their assets in bankruptcy and are more likely to successfully reorganize.

But a problem is that it is difficult to determine whether particular corporations in financial distress are economically efficient versus inefficient. This is because making the determination requires knowledge of whether a corporation's assets would be worth more in some other use, possibly in a different industry, and this information is not available in the corporation's accounts. Neither creditors nor managers of particular corporations are likely to know it. The information problem is particularly severe for small and privately-held corporations, since they are not required to provide audited financial reports.

In the U.S., corporate bankruptcy law is lenient, because managers of corporations can choose to file under Chapter 11, where they keep their jobs at least temporarily. In Chapter 11, the A.P.R. can be modified. As a result, the type I error rate is predicted to be high, because at least some economically inefficient corporations file under Chapter 11 along with those that are economically efficient. The cost of type I errors is also predicted to be high, because bankrupt corporations often continue to operate in Chapter 11 for several years. Thus the lenient corporate bankruptcy law in the U.S. is hypothesized to result in more type I errors.

In other countries, corporate bankruptcy law is harsher and fewer type I errors are predicted to occur. This is because the decision to liquidate versus reorganize in bankruptcy is made by a bankruptcy court official who replaces managers or by a trustee who oversees managers, rather than by managers themselves. The outside appointees are likely to be experienced in making reorganization versus liquidation decision and to make fewer type I errors. But because outsiders are more likely to choose liquidation, the type II error rate is predicted to be higher. This outcome is thought to be particularly likely in the U.K., where the outside official (called an administrator) represents the interests of the floating charge creditor and may choose liquidation because it maximizes the floating charge creditor's return even though other creditors are harmed (Webb, 1991). Thus a lenient bankruptcy law is predicted to result in too many reorganizations and more type I errors, while a harsh bankruptcy law is predicted to cause too many liquidations and more type II errors.

Other efficiency considerations also affect the optimal harshness of corporate bankruptcy law. One is the objective of preventing races among creditors to be first to collect from financially distressed corporations. Creditors engage in races to be first when they predict that the corporation will be unable to repay all of its creditors in full. These races often result in the winning creditor shutting the business down by liquidating assets that are essential to its operations. The result is that too many liquidations occur, including many type II errors. The automatic stay that is a part of most countries' corporate bankruptcy laws has the effect of reducing creditors' incentive to race to be first, because they anticipate that winning the race will cause the business to file for bankruptcy and the automatic stay to go into effect.[14]

Another efficiency consideration is that when corporations are in financial distress, managers have an incentive to choose inefficiently risky investment projects in hopes that a big payoff will save the business—called "gambling for resurrection" because the inefficient investment might be a trip to the Las Vegas poker tables. Managers' incentive to gamble with the corporation's cash is strongest if bankruptcy law is harsh and the A.P.R. is strictly enforced, because in this case corporations are forced to liquidate in bankruptcy and managers lose their jobs. In contrast, if bankruptcy law is lenient and the A.P.R. can be modified, Bebchuk (2002) shows that corporate managers have less incentive to gamble with the corporation's assets, since they can file for bankruptcy under Chapter 11 and remain in control. Also, modifying the A.P.R. reduces the riskiness of shareholders' return, since they get more when the corporation files under Chapter 11. Thus a more lenient bankruptcy law reduces managers' and shareholders' incentive to choose inefficiently risky investment projects when their corporations are in financial distress, because bankruptcy is more attractive.

Few small corporations file to reorganize under Chapter 11 when they file for bankruptcy, because the cost of reorganizing is too high. This means that small corporations in financial distress—unlike large corporations—face a choice between delaying their bankruptcy filings as long as possible versus liquidating in bankruptcy under Chapter 7. The harshness of corporate bankruptcy law affects the timing of these decisions, since a harsh bankruptcy law gives owners of corporations an incentive to delay filing for bankruptcy as long as possible. The timing of corporations' bankruptcy decisions can be shown to be related to rules that determine the order of payment of unsecured creditors' claims in bankruptcy.[15] Bulow and Shoven (1978) and

[14] See LoPucki (1983), who presents evidence that small businesses commonly file for bankruptcy just ahead of creditors who have obtained court orders to liquidate business assets.
[15] The A.P.R. requires that all creditors be repaid in full before shareholders receive anything, but does not specify the order in which particular unsecured creditors are paid. Different priority rules might specify that all unsecured creditors be paid equally or might permit creditors to take priority in chronological order of their loans (the "me-first" rule) or might permit late creditors to leapfrog earlier creditors in priority. In general, priority rules in

White (1980) and (1989) show that, under certain priority rules, managers of corporations in financial distress can delay bankruptcy by obtaining new loans in which the claims of new lenders take priority over the claims of earlier lenders in bankruptcy. This shift of priority in favor of late lenders allows financially distressed businesses to avoid bankruptcy and continue operating outside of bankruptcy until they have used up their assets. The result is an increase in the type I error rate, since economically inefficient corporations continue operating for too long. This form of type I error is particularly relevant for small corporations, since it is more difficult for creditors to monitor their financial condition.

The optimal harshness of bankruptcy law may also differ for small versus large corporations because of the central role of owner-managers of small corporations, who are often essential to their businesses' success. Ayotte (2007) argues that when small corporations are in financial distress, reorganizing them in bankruptcy is only worthwhile if owner-managers remain in charge. But if the A.P.R. is applied strictly in reorganization, then owner-managers are likely to leave, since their stakes in the reorganized businesses will be too small to make it worthwhile for them to remain. Ayotte therefore argues that optimal corporate bankruptcy law should be more lenient for small corporations and that small corporations should be allowed to modify the A.P.R. in Chapter 11 by more than large corporations. The opposite viewpoint is taken by Baird and Morrison (2005), who argue that most small corporations in bankruptcy are economically inefficient and should not be allowed to reorganize under Chapter 11. Their argument is that there is little justification for tying owner-managers to their old corporations by reorganizing them, since owner-managers would otherwise start new businesses that are likely to be more economically efficient. [16]

This discussion suggests a number of testable hypotheses relevant to small business and bankruptcy. First, when personal bankruptcy law is more lenient, demand for loans rises and supply of loans falls. This combination implies that interest rates are predicted to be higher and credit rationing is predicted to be tighter when bankruptcy law is more lenient, but the predicted effect of a more lenient bankruptcy law on loan size is ambiguous. Second, when bankruptcy

---

bankruptcy are determined by the non-bankruptcy law of the jurisdiction where the bankruptcy filing occurs and by contracts between lenders and the corporation.

[16] Other objectives that affect the optimal harshness of corporate bankruptcy law are reducing the number of strategic defaults by managers of corporations and giving managers stronger incentives to use effort in running their corporations. For discussion and models, see Gertner and Scharfstein (1991), Berkovitch and Israel, 1991, Povel (1999), Bolton and Scharfstein (1996) and Berglof and von Thadden (1994). See White (2011) for a survey.

laws are more lenient, individuals who are risk-averse are more willing to go into business, because they benefit from the reduction in downside risk. Because of these offsetting effects, the number of small businesses could be either higher or lower in areas where bankruptcy law is lenient relative to harsh. Third, when personal bankruptcy law is more lenient, business owners are more likely to shut down their financially distressed business rather than keeping them afloat, because owners are better off in bankruptcy. Fourth, when personal bankruptcy law is harsh, individuals are more likely to organize their businesses as corporations rather than proprietorships or partnerships, because personal bankruptcy law provides them with less protection from downside risk.

Turning to testable hypotheses for corporate bankruptcy law, more type II errors are predicted to occur when bankruptcy law is harsh and more type I errors are predicted when bankruptcy law is lenient. Another hypothesis is that if the costs of reorganization in bankruptcy are high, few small corporations are predicted to reorganize. Also if the cost of reorganizing is high, then small corporations are predicted to avoid filing for bankruptcy as long as possible and to file under Chapter 7 only when they run out of assets to back up new loans. Type II errors are then predicted to be high, because small corporations continue to operate outside of bankruptcy for too long. In this situation, a testable hypothesis is that small corporations will have much higher ratios of debts to assets than large corporations when they file for bankruptcy.

III. Empirical studies of bankruptcy and small business

This section reviews research that tests the empirical predictions discussed above. Much of the empirical work discussed here uses U.S. data. The U.S. provides a very favorable setting for testing how personal bankruptcy law affects small business, because bankruptcy law is uniform all over the country except that states are allowed to choose their own asset exemption levels and these vary widely. Researchers therefore use states with low asset exemptions to represent harsh bankruptcy laws and those with high or unlimited asset exemptions to represent lenient bankruptcy laws. As discussed above, most states' largest asset exemption is for equity in owner-occupied homes, which ranges from zero to unlimited.[17] Because some states have changed their home equity exemptions, some studies also use panel data to examine the effects

[17] See Berkowitz and White (2003) for a list of asset exemptions by state in the early 1990's.

of bankruptcy law. In contrast, U.S. corporate bankruptcy law does not vary in harshness across states.

Turn now to data on small businesses. There is no established definition of small business, which in different datasets may range from single-individual firms whose self-employment is disguised unemployment to businesses with up to 500 employees or sales of up to 75 million € per year. Because there are few datasets covering small businesses and because very large businesses are rare in the economy, I treat any representative sample of businesses as a sample of small business for purposes of this survey. This means that in some samples, the largest businesses in the sample may be large even though the median business is small.

Effects of bankruptcy law on credit markets

The first prediction is that lenient relative to harsh bankruptcy laws are associated with higher credit demand and lower credit supply. This hypothesis was first tested by Gropp et al (1997) for consumer credit in general, using data from the *Survey of Consumer Finance*. Their measure of the leniency of bankruptcy law is the combined value of exemptions for all types of assets and their measure of credit includes all types of household credit. Gropp et al first estimate a model of whether households are turned down for credit—which they viewed as a pure measure of credit supply—if they live in states with lenient versus harsh bankruptcy laws. They found that the probability of being turned down was 32% higher for households in states with lenient bankruptcy laws. They also found that interest rates on car loans were higher in states with lenient relative to harsh bankruptcy laws. Both of these results support the hypotheses discussed above. Finally, they also examined how total debt varies depending on whether bankruptcy law is lenient or harsh, where the theoretical prediction is ambiguous. They found that for low-asset households, the total amount of debt fell by more than 50% if bankruptcy law was lenient rather than harsh; while for high-asset households, the amount of debt doubled if bankruptcy law was lenient. Thus in states with lenient relative to harsh bankruptcy laws, low-asset households' access to credit rose, while high-asset households' access to credit increased. Although these results are for consumer credit, they are relevant for small businesses to the extent that business owners use personal credit as a source of business finance. They suggest that lenient bankruptcy laws particularly harm low-asset individuals' ability to raise capital to start and operate businesses.[18]

Berkowitz and White (2004) examined the same questions for small business credit markets. They used data from the *National Survey of Small Business Finance,* which covers non-financial, non-farm businesses with up to 500 employees. They distinguish between businesses organized as corporations versus partnerships/proprietorships. This is because lenders are willing to lend to some small corporations qua corporations, but require owners of other small corporations to personally guarantee the loans and, in the latter case, personal bankruptcy law matters. As a result, the harshness of personal bankruptcy is predicted to have a larger effect on credit conditions for non-corporate than corporate small businesses.

The results show that when small businesses are located in states with lenient rather than harsh bankruptcy laws, both types of businesses are more likely to be turned down for credit. Comparing states with the most lenient versus the harshest personal bankruptcy laws (unlimited asset exemptions versus the lowest asset exemptions), both types of businesses are about one-third more likely to be turned down when bankruptcy law is lenient. Berkowitz and White also found that when bankruptcy law is lenient rather than harsh, interest rates rose and loan sizes fell for both types of businesses, but the marginal effects were larger for non-corporate than corporate businesses. The increase in interest rates when bankruptcy law was lenient rather than harsh was 2.2 percentage points for small non-corporate businesses, compared to 0.75 percentage points for small corporations. These results support the hypothesis that a lenient bankruptcy law is associated with a larger reduction in credit supply to non-corporate than corporate small businesses. Finally, Berkowitz and White also found that the probability of being turned down for credit approximately triples when business owners have previously filed for bankruptcy and doubles when business owners have previous financial delinquencies, implying that past financial failures severely handicap entrepreneurs when they attempt to borrow.

A more recent study by Agarwal et al (2005) re-examines whether interest rates and loan size are affected by the harshness of personal bankruptcy law, but does not find a significant relationship. Unlike Berkowitz and White, their study had data on individual businesses' credit scores. They hypothesize that the effect of a harsh bankruptcy law may be incorporated in businesses' credit scores, so that otherwise identical small businesses have lower credit scores if

[18] See Agarwal et al (2005) for a review of other studies.

they are located in states with more lenient bankruptcy laws. As result, their credit score variable and the exemption variable are negatively correlated and the credit score variable could be picking up the effect of the harshness of bankruptcy law. Further research on this topic would be useful.

b. Effects of personal bankruptcy law on individuals' decisions to be self-employed

The harshness of personal bankruptcy law also affects individuals' incentives to start and operate businesses, because business owners face less downside risk when bankruptcy law is lenient rather than harsh. Thus risk-averse individuals are predicted to be more likely to start and operate businesses when bankruptcy law is more lenient. However a more lenient bankruptcy law has the offsetting effect of discouraging individuals from going into business because lenders reduce the supply of credit.

Small business owners in the U.S. who file for bankruptcy almost always file under Chapter 7, where their obligation to repay is limited to giving up assets that are above the asset exemption level. Because the home equity exemption is nearly always the largest of states' exemptions for different types of assets, bankruptcy law is generally more lenient for business owners who own rather than rent their homes. If business owners who own homes file for bankruptcy in states with lenient bankruptcy laws, then they can keep their homes; while if they file for bankruptcy in states with harsh bankruptcy laws, then they are likely to lose their homes. Thus going into business is more attractive to homeowners if they live in states with lenient bankruptcy laws. The same consideration applies—although less strongly—to renters, because they probably anticipate that they will buy homes in the future if their businesses are successful.

Fan and White (2003) tested the hypotheses that individuals are more likely to go into business and stay in business when bankruptcy law is lenient rather than harsh. This hypothesis says that that the positive effect of a lenient bankruptcy law in providing extra consumption insurance to business owners more than offsets its negative effect on credit supply. They used panel data from the Survey of Income and Program Participation (SIPP), which asks households each year over several years whether anyone in the household is self-employed. Households are treated as self-employed if anyone in the household is self-employed in a given year and they are treated as starting businesses if no one in the household is self-employed in one year and someone is self-employed in the next year.

Fan and White's model explains whether households own non-corporate or corporate businesses as a function of the harshness of bankruptcy law interacted with a homeowning dummy. They find that the probability of owning a non-corporate business increases substantially when bankruptcy law is lenient rather than harsh. For homeowners, the increase in probability is 35% and—surprisingly—it is even larger for renters at 57%. The probability of owning a corporation when bankruptcy law is lenient rather than harsh also increases by 14% for homeowners, but does not change significantly for renters. These results imply that when bankruptcy law is lenient rather than harsh, the positive effect of additional consumption insurance that makes risk-averse individuals more willing to operate businesses than offsets the negative effect of reduced credit supply. Fan and White also found that households are more likely to start businesses when bankruptcy law is lenient rather than harsh.

Agarwal et al (2005) extend Fan and White's research by examining whether the harshness of bankruptcy law affects small business owners' probability of exiting self-employment by filing for bankruptcy. They used a panel dataset of small business lines of credit, where they know if the business owner filed for bankruptcy. They restrict their sample to businesses whose owners are homeowners, so that the home equity exemption directly affects the harshness of bankruptcy law. They find that when bankruptcy law is lenient rather than harsh, the probability of business owners exiting self-employment rises steeply. Thus lenient relative to harsh bankruptcy laws increase individuals' probability of starting businesses, remaining in business, and shutting down their businesses.

Paik (2013) examined the same questions, but using evidence from the 2005 bankruptcy reform in the U.S., which made bankruptcy law harsher for small business owners and therefore reduced the attractiveness of owning a non-corporate small business. However the reform had less effect on the attractiveness of owning a small corporation, since corporate bankruptcy law did not change substantively. Paik therefore hypothesized that individuals who start small businesses after the 2005 bankruptcy reform are more likely to incorporate their businesses.

Paik used similar but more recent household panel data as Fan and White (2003) and his measure of starting a small business is the same. Like Fan and White, he estimated separate regressions explaining whether individuals start non-corporate versus corporate small businesses and found that the reform reduced individuals' probability of starting a non-corporate business by 5 percent, while having no effect on individuals' probability of starting a corporation.

Conditional on starting a business, owners are 20 percent more likely to organize their businesses as corporations after the reform versus before. Paik's results suggest that when personal bankruptcy law becomes harsher, individuals starting small businesses are more likely to choose the corporate form, because corporate bankruptcy law now provides better protection against downside risk than personal bankruptcy law.

Armour and Cummings (2008) also examine the question of whether the harshness of bankruptcy law affects incentives to be self-employed. They use country-level panel data on the proportion of workers who are self-employed in 15 countries in Europe and North America over the period 1990 to 2005. In a cross-country setting, a problem is that many features of personal bankruptcy law vary, making it difficult to develop a single measure of whether the law is harsh versus lenient. The authors develop several measures, but the one they focus on is the number of years that debtors in bankruptcy must repay from future earnings before receiving a discharge from remaining debt. The required period of repayment across countries in their sample ranges from immediate to no discharge at all until the individual dies. Because they use country fixed effects, their results are based on changes over time in their measures of the harshness of bankruptcy law.

Their main result is that a longer period until debt discharge is associated with a lower rate of self-employment. If the time to discharge fell from the longest period in their sample to zero (the fresh start), they predict that the self-employment rate would rise by around 4 percent. They also find that lower punishments for bankruptcy and higher asset exemption levels are associated with higher self-employment rates, although multi-collinearity among these measures makes it difficult to conclude which are the most important. Overall, their results support the result that the harshness of personal bankruptcy law is an important determinant of self-employment rates.

Like the paper by Paik (2013), Fossen (2014) examines the effect of a change in the harshness of personal bankruptcy law in Germany on whether individuals become self-employed. The German bankruptcy reform, which was adopted in 1999, shortened the required repayment period in personal bankruptcy from no discharge until death to a fixed period of seven years. This change made bankruptcy law more lenient in Germany and is predicted to increase self-employment rates.[19] However, like Gropp et al (1997), Fossen hypothesizes that the harshness

[19] The required period was later reduced to six years and then to three years. During the repayment period, individuals in bankruptcy must use all of their earnings above 1000€ per month to repay debt.

of bankruptcy has different effects on low-asset versus high-asset individuals. Regardless of the harshness of bankruptcy law, high-asset individuals are more likely to become self-employed, both because they have greater access to credit and because their wealth reduces the downside risk they face when they go into business. Because the reform increased the amount of consumption insurance provided by bankruptcy law, it is predicted to make self-employment relatively more attractive to low-asset individuals. Fossen estimated a model explaining whether individuals become self-employed as a function of a dummy representing the post-bankruptcy reform period interacted with a dummy for high- versus low-asset individuals. The main result, as predicted, is that the reform reduced the differential between the probability of self-employment for high-asset versus low-asset individuals. Thus a more lenient bankruptcy law removed some of the advantage that high-asset individuals previously had in access to self-employment.

C. Tests of efficiency of corporate bankruptcy law for small businesses

Turn now to research that considers whether corporate bankruptcy law is economically efficient for small businesses.[20] Research on this topic is limited both by the limited availability of data on small corporations in general and by the fact that it is difficult to characterize whether particular small corporations in bankruptcy are economically efficient versus inefficient.

To start, consider how often small businesses actually reorganize in bankruptcy, since too few reorganizations would suggest that too many small businesses liquidate in bankruptcy and that type II error rates are high. In the U.S., there were 27,000 corporate and non-corporate business bankruptcy filings in 2014, of which around 5,000 were corporations filing under Chapter 11.[21] This suggests that only about 20% of small businesses in bankruptcy attempt to reorganize under Chapter 11.

Bris et al (2006) investigate a sample consisting of 286 corporate bankruptcy filings that occurred in two bankruptcy court districts in New York and Arizona during the period 1995-2001. Although their sample includes all corporations that filed for bankruptcy in the relevant districts during the time period, nearly all are small, reflecting the fact that large corporations are

[20] Studies describing large, publicly-traded U.S. corporations that file for bankruptcy under Chapter 11 are not surveyed here. See, for example, Hotchkiss (1995), Franks and Torous (1994), and Weiss (1990). Additional descriptive studies of small businesses in bankruptcy include White (1984) and LoPucki (1985).
[21] Data are from the Administrative Office of the U.S. Courts.

rare in the economy. 78% of the corporations in their sample filed for bankruptcy under Chapter 11, suggesting that corporations in bankruptcy are very likely to at least attempt to reorganize. However the probability of corporations filing under Chapter 11 is much higher if they are large rather than small: the median asset value of corporations in their sample that filed under Chapter 7 is only $110,000, compared to $1.2 million for those that filed under Chapter 11. Their results suggest that the costs of reorganizing in bankruptcy are high and that they have a fixed component which prevents small corporations from using the procedure.

Bris et al's (2006) sample also provides evidence on the financial condition of small corporations at the time of filing. This can be used to indirectly test the hypothesis that small corporations are in worse financial condition than large corporations when they file, because small corporations delay bankruptcy as long as possible and file under Chapter 7 when they have used up their assets, while large corporations file under Chapter 11 when they are in better financial shape. Bris et al find that the median ratio of total debts to assets for corporations that file under Chapter 7 is 1.68, which is not much higher than their figure of 1.25 for corporations that file under Chapter 11. But these figures probably understate the extent of financial distress for the corporations that filed under Chapter 7, since unsecured and unsecured creditors' mean repayment rates were only 1% and 32%, respectively. In contrast, the mean payoff rates for unsecured and secured creditors from corporations that filed under Chapter 11 were 52% and 90%, respectively. Thus their results are consistent with the hypothesis that type I errors may occur in two different ways for small corporations in financial distress: they may continue to operate outside of bankruptcy for too long and they may reorganize in Chapter 11 when they are economically inefficient.

Fisher and Martel (2004) is the only study of small corporations in bankruptcy that explicitly attempts to estimate the frequency of filtering failure; they use data from Canadian corporations that filed to reorganize in bankruptcy during the 1970's and 1980's. The Canadian bankruptcy reorganization procedure is similar to Chapter 11 in the U.S., although certain features such as mandatory appointment of a trustee who oversees managers make it harsher than Chapter 11. As a proxy for whether individual corporations in bankruptcy are economically efficient, Fisher and Martel use whether they successfully carry out their reorganization plans during the first two years after adoption, during which corporations remain under bankruptcy court supervision. There are various problems with this measure. One is that it is only observed for businesses that adopt reorganization plans. This means that their only measure of type II error (economically efficient corporations that liquidate in bankruptcy) is that it is less than or equal to the total number of corporations that do not adopt reorganization plans. Another problem is that corporations may successfully carry out their reorganization plans even though they are economically inefficient, since almost any business can survive if its debt is reduced by a sufficiently large fraction.

Using this approach, they find that 68 of 303 corporations in their sample failed to adopt reorganization plans, so that the probability of type II errors is less than or equal to 68/303 = 22%. The remaining 235 businesses adopted reorganization plans, but 55 of them failed to carry out their plans and were liquidated. Thus the probability of type I errors is estimated to be 55/303 = 18%. The study therefore finds that the incidence of filtering failure in bankruptcy due to both type I and type II errors is between 18 and 40%. Because businesses that filed for bankruptcy liquidation are not part of their sample, the type II error rate may be underestimated because some corporations that liquidated could in fact have been economically efficient.

The closest comparison to the Fisher and Martel (2004) study that uses U.S. data is by Warren and Westbrook (2009). They examine a sample consisting of all 429 corporations that filed for Chapter 11 bankruptcy in several bankruptcy court districts in 2002.[22] Warren and Westbrook are interested in whether Chapter 11 saves corporations that are worth saving, although they do not use economic efficiency as their criterion for whether corporations are worth saving. Instead they classify corporations as worth saving if managers propose a reorganization plan and not worth saving otherwise. They then investigate the extent to which corporations that are worth saving are actually saved in Chapter 11. By this measure, 52% of corporations in their sample are not worth saving because their managers never propose reorganization plans. Because these corporations shift to liquidating in Chapter 7, they are correctly filtered in bankruptcy. However some of them continue to operate for up to two years while in Chapter 11, so that type I error occurs because these corporations continue operating for too long. Thus the type I error rate due to delay in liquidating these corporations could be anywhere between 0 and 52%. Of the remaining 48% of corporations in their sample for which managers propose reorganization plans, 72% are accepted by creditors and confirmed by the bankruptcy judge, while the remaining 28% are rejected by creditors. Again using their measure of which corporations are worth saving, the

[22] 15% of the corporations in their sample have less than $100,000 in assets, while 6% have more than $100 million.

type II error rate is therefore (.48)(.28) = 13%. Together, these figures suggest that the probability of filtering failure in Chapter 11 bankruptcy is between 13% and 65%, which is a wider range than Fisher and Martel's. Warren and Westbrook's method of estimating filtering failure in bankruptcy clearly has the drawback that whether managers propose reorganization plans may not be closely related to whether their corporations are economically efficient. Further research on this topic that develops better measures of whether individual corporations in bankruptcy are economically efficient versus inefficient is needed.

There are also a number of studies of small corporate bankruptcy in other countries that ask whether bankruptcy law is too harsh, although they do not explicitly estimate type I and type II error rates. Franks and Sussman (2006) examine whether too many small corporations in the U.K. liquidate, either because floating charge creditors are unable to prevent other creditors from racing to be first to collect or because floating charge creditors themselves liquidate too many businesses in order to maximize their own returns. They do not classify individual corporations as economically efficient versus inefficient, but they assume that as more liquidations occur, more of them are type I errors. Their sample is of 542 small and medium-size corporations that have bank loans and are in financial distress. For most of their sample, the bank is the floating charge creditor. They argue that floating charge creditors prevent other creditors from racing to be first to collect, because creditors know that even if they win the race, they will not be able to collect because the floating charge creditor will take control by appointing an administrator. They also argue that banks do not take advantage of their right as floating charge creditors to quickly liquidate corporations in default, possibly because banks often are also the residual creditor who benefits from the increase in value when businesses reorganize. They find that between 44% and 64% of corporations are sold as going concerns by the floating charge creditor and they conclude that the supposedly-harsh bankruptcy law in the U.K. does not in fact result in a systematic tendency for too many small corporations to liquidate.

Another study, by Davydenko and Franks (2008), extends Franks and Sussman (2006) by examining cross-country evidence. They compare bankruptcy law in France, Germany and the U.K. As discussed, bankruptcy law in the U.K. is harsh because floating charge creditors decide in their own interests whether corporations the business will be liquidated versus reorganized and because the A.P.R. is applied strictly in liquidation. In contrast in France, bankruptcy law is lenient because a bankruptcy court official decides whether the corporation will be reorganized versus liquidated and the official is required to place the highest importance on preserving the corporation's jobs rather than repaying its creditors. Germany's bankruptcy law is categorized as in-between. They examine whether more reorganizations occur when corporations are located in countries with more lenient bankruptcy laws.

Like Franks and Sussman (2006), their sample is of bank loans to small and medium-sized corporations that are in default. Their main result is that fewer corporations are liquidated piecemeal in the U.K. than in Germany or France—the figures are 43% in the U.K., 57% in Germany, and 62% in France. This result goes against their prediction, since U.K. bankruptcy law is harsher than French bankruptcy law. It suggests that characterizing the harshness of bankruptcy law across countries may be difficult, since many features of the law and how it is administered affect whether it is harsh versus lenient.[23]

Thorburn (2000) examines the effect of the harshness of bankruptcy law on the outcome of small corporate bankruptcies in Sweden.[24] Swedish bankruptcy law is particularly harsh, since it has no corporate reorganization procedure. Instead, all corporations in bankruptcy are put up for auction and either their assets are sold piecemeal or they are sold as going concerns. Auctions occur within two or three months after the bankruptcy filing—which makes bankruptcy costs low—and the proceeds are distributed strictly according to the A.P.R. This type of bankruptcy law is predicted to result in a high type II error rate in bankruptcy, because corporations that are financially distressed but economically efficient businesses are liquidated when they should reorganize. However, Thorburn finds that 75% of the bankrupt corporations in her sample survive, either because they are auctioned as going concerns in bankruptcy or because creditors voluntarily agree on a reorganization plan that reduces debt. The remaining 25% of corporations in her sample shut down and their assets are auctioned piecemeal. We can compare these figures to the results of Bris et al (2006) and Warren and Westbrook (2009), who found that 51% and 35% of bankrupt corporations in their samples, respectively, adopted reorganization plans. Thus although Swedish bankruptcy law is harsher, the results suggest that the proportion of

[23] Davydenko and Franks (2008) also examine whether creditors require corporations to put up more collateral in countries where bankruptcy law is more lenient, since the extra collateral offsets the higher risk that creditors face. They find support for this prediction, since a higher proportion of business loans is secured by collateral in France than in the U.K. or Germany.

[24] Thorburn's sample consists of 263 corporations with 20 or more employees that have filed for bankruptcy. See Stromberg (2000) for a similar study of corporations in bankruptcy in Finland.

corporations that survive bankruptcy as going concerns is in fact higher in Sweden than in the U.S. The fact that most bankrupt corporations in Sweden were liquidated as going concerns has the additional advantage that new owners make most of the liquidation versus reorganization decisions and they have strong incentives to decide efficiently since they reap the gain from maximizing value. Thorburn's results thus suggest that even a very harsh bankruptcy law can result in efficient filtering of small corporations in bankruptcy.

Conclusion

Both personal and corporate bankruptcy law are relevant for small businesses—both encourage entrepreneurship by providing potential entrepreneurs with protection against the downside risk of owning a business. Personal bankruptcy law does this by discharging both business debt and some personal debt when businesses fail and business owners file for personal bankruptcy. Corporate bankruptcy law does this by protecting owners of small corporations from liability for corporate debt when their corporations fail, as long as owners have not personally guaranteed the corporation's debts. When business owners have personally guaranteed corporate debts, both types of bankruptcy law are relevant since owners may file for personal bankruptcy in addition to the corporation filing for corporate bankruptcy. Corporate bankruptcy law also encourages entrepreneurship by providing a route for corporations in financial distress to reorganize rather than liquidate in bankruptcy.

The survey presents evidence showing that individuals are more likely to start and own small businesses when they live in states where personal bankruptcy law is lenient rather than harsh, even though lenders reduce the supply of credit in these states. However recent changes to personal bankruptcy law in the U.S. have made it more attractive for small businesses to organize as corporations rather than partnerships or proprietorships. On the corporate bankruptcy law side, research suggests that corporate bankruptcy laws do not do a good job of filtering in bankruptcy, meaning that economically inefficient and financially distressed corporations should shut down in bankruptcy, while financially distressed but economically efficient corporations should be saved in bankruptcy. However, studies suggest that the combined type I and type II error rates in bankruptcy are as high as 40% in Canada and 66% in the U.S.

References

Adler B.E., B. Polak and A. Schwartz (2000), "Regulating Consumer Bankruptcy: A Theoretical Inquiry." *J. of Legal Studies* 29:585-613.

Agarwal, S., S. Chomsisengphet, C. Liu, and L. Mielnicki (2005), "Impact of State Exemption Laws on Small Business Bankruptcy Decision," *S. Econ. J.* 71(3): 620-635.

Armour, J., and D. Cumming (2008), "Bankruptcy and Entrepreneurship," *Am. Law and Economics Rev.*, 10: 303 – 350.

Ausubel L.M., and A.E. Dawsey (2004), "Informal Bankruptcy." Working paper, Department of Economics, University of Maryland.

Ayotte, K. (2007), "Bankruptcy and Entrepreneurship: The Value of a Fresh Start," *J. of Law, Econ., and Org.*, 23(1): 161-185.

Baird, D.G., and E.R. Morrison (2005), "Serial Entrepreneurs and Small Business Bankruptcies," *Columbia Law Review* 105(8): pp. 2310-2368.

Bebchuk, L.A. (2002), "The Ex Ante Costs of Violating Absolute Priority in Bankruptcy," *J. of Finance*. 57: 445-60.

Berglof, E. and E.-L. von Thadden (1994), "Short-term versus Long-term Interests: Capital Structure with Multiple Investors," *Quarterly J. of Econ.* 109:1055-84.

Berkovitch E and R Israel (1999), "Optimal Bankruptcy Law Across Different Economic Systems." *Rev. of Financial Stud.* 12:347-377.

Berkowitz J, and M.J. White (2004), "Bankruptcy and Small Firms' Access to Credit," *RAND J. of Econ*. 35:69-84.

Bolton, P. and D. Scharfstein (1996), "Optimal Debt Structure and the Number of Creditors," *The J. of Political Economy*. 104:1-25.

Bris, A., I. Welch, and N. Zhu (2006), "The Costs of Bankruptcy: Chapter 7 Liquidation versus Chapter 11 Reorganization," *J. of Finance* 61: 1253-1303.

Bulow, J.I., and J.B. Shoven (1978), "The Bankruptcy Decision," *The Bell Journal of Economics* 9(2): pp. 437-456.

Davydenko, S.A. and J.R. Franks (2008), "Do Bankruptcy Codes Matter? A Study of Defaults in France, Germany, and the U.K.," *Journal of Finance*, 63:565-608.

Dawsey, A., R.M. Hynes, and L.M. Ausubel (2013), “Non-Judical Debt Collection and the Consumer's Choice among Repayment, Bankruptcy and Informal Bankruptcy,” *American Bankruptcy Law Journal* **87**: 1-26.

Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer (2007), “Private credit in 129 Countries,” *Journal of Financial Economics*, 84(2): 299-329.

Efrat, R. (2002), “Global Trends in Personal Bankruptcy,” *Am. Bankruptcy Law Journal*, 75:81-110.

Evans, D.S. and L.S. Leighton (1989), “Some Empirical Aspects of Entrepreneurship,” *Am. Ec. Rev.* **79:3**, pp. 519-534.

Fan, W., and M.J. White (2003), “Personal Bankruptcy and the Level of Entrepreneurial Activity,” *J. of Law & Econ*. 46:543-568.

Fay, S., E. Hurst and M.J. White (2002), “The Household Bankruptcy Decision,” *American Economic Rev*. 92:706-718.

Fisher, T., and J. Martel (2004), “Empirical Estimates of Filtering Failures in Court-Supervised Reorganization,” *Journal of Empirical Legal Studies*, 1:1, pp. 143-164.

Flynn, E., G. Bermant and S. Hazard (2003) “Chapter 7 Asset Cases,” *Amer. Bnkry. Inst. J.* vol. 21. December/January issue.

Fossen, F.M. (2014), “Personal Bankruptcy Law, Wealth and Entrepreneurship—Evidence from the Introduction of a ‘Fresh Start’ Policy,” *Am. Law & Econ. Rev.* 16:1, pp. 269-312,

Franks, J.R., and O. Sussman (2004), “Financial Innovations and Corporate Bankruptcy,“ *J. of Financial Intermediation.*

Franks, Julian R., and O. Sussman (2005), “Financial distress and bank restructuring of small to medium size U.K. companies,” *The Review of Finance* 9: 65-96.

Franks, J., and W. Torous (1989). “An empirical investigation of U.S. firms in reorganization.”*Journal of Finance* 44:747-770.

Gertner, R., and D. Scharfstein (1991), “A Theory of Workouts and the Effects of Reorganization Law.” *J. of Fin.* 44:1189-1222.

Gropp, R.J., K. Scholz and M.J. White (1997), “Personal Bankruptcy and Credit Supply and Demand,” *Quarterly J. of Econ*. 112:217-252.

Han S, and W. Li (2007). “Fresh Start or Head Start? The Effect of Filing for Personal Bankruptcy on Work Effort.” *J. of Fin. Services Research* 31:123-152.

Hipple, Steven F., "Self-Employment in the United States," *Monthly Labor Review*, Sept 2010, pp. 17-32. www.bls.gov/opub/mlr/2010/09/artfull.pdf

Holtz-Eakin, D., D. Joulfaian, and H.S. Rosen (1994), "Sticking it Out: Entrepreneurial Survival and Liquidity Constraints, *J. of Political Economy* 102(1): 53-75.

Hotchkiss, Edith S. (1995), "Postbankruptcy Performance and Management Turnover," *J. of Finance*, L:1, pp. 3-21.

Knobloch, M. (2012), "Consumer Insolvency in Germany," slides presented at "Tackling Household Overindebtedness," European Conference, Athens, Greece. Available at a1.ecdn.eu/ecdn/2014/images/dmdocuments/Michael-Knoblock_Consumer-Insolvency-in-Germany.pdf.

Lawless, R.M., and E. Warren (2005), "The Myth of the Disappearing Business Bankruptcy," *California Law Rev*., 93(3): 743-795.

Lawless, R.M., Stephen P. Ferris, Narayanan Jayaraman, and Anil K. Makhija (1994), A Glimpse at Professional Fees and Other Direct Costs in Small Firms' Bankruptcies, *University of Illinois Law Review* 4, 847-888.

LoPucki, M.L. (1983) "The debtor in full control – system failures under chapter 11 of the bankruptcy code," *American Bankruptcy Law Journal* **57**, 99–126 and 247–273.

Mann, B.H. (2002), *Republic of Debtors: Bankruptcy in the Age of American Independence*. Cambridge: Harvard University Press.

Mann, R.H. (2006), *Charging Ahead: The Growth and Regulation of Payment Card Markets Around the World.* New York: Cambridge Univ. Press.

Paik, Y. (2013), "The Bankruptcy Reform Act of 2005 and Entrepreneurial Activity," *J. of Econ. & Management Strategy*, 22:2, pp. 259-280.

Posner, E.A. (1995), "Contract Law in the Welfare State: A Defense of the Unconscionability Doctrine, Usury Laws, and Related Limitations on the Freedom to Contract," *J. of Legal Studies*. 24:283-319.

Povel P (1999), "Optimal 'Soft' or 'Tough' Bankruptcy Procedures." *J. of Law, Econ., and Org.* 15:659-684.

Ravid, A.S., and S. Sundgren (1998), "The comparative efficiency of small-firm bankruptcies: A study of the U.S. and Finnish bankruptcy codes," *Financial Management* 27, 28-40.

Sandage, Scott (2005), *Born Losers: A History of Failure in America*. Cambridge MA: Harvard University Press.

Shane, Scott (2012), "Start Up Failure Rates: The Definitive Numbers." smallbiztrends.com/2012/12/start-up-failure-rates-the-definitive-numbers.html.

Sullivan, T.A., E. Warren, and J.L. Westbrook (1989), *As We Forgive Our Debtors: Bankruptcy and Consumer Credit in America.*

Stromberg, P. (2000), "Conflicts of interest and Market Illiquidity in Bankruptcy Auctions: Theory and Tests," *Journal of Finance* 55(6): 2641-2692.

Thorburn, Karin S. (2000), "Bankruptcy Auctions: Costs, Debt Recovery, and Firm Survival," *Journal of Financial Economics* 58, 337-368.

U.S. Department of Labor (2009), Wage and Hour Division, "Fact Sheet #30: The Federal Wage Garnishment Law, Consumer Credit Protection Act's Title 3 (CCPA)" (www.dol.gov/whd/regs/compliance/whdfs30.pdf

Wang H.J. and M.J. White (2000), "An Optimal Personal Bankruptcy System and Proposed Reforms." *J. of Legal Stud.* 39:255-286.

Warren, E., and J.L. Westbrook (2009), "The Success of Chapter 11: A Challenge to the Critics," *Michigan Law Review*, 107:603-642.

Webb, D. (1991) "An economic evaluation of insolvency procedures in the United Kingdom: Does the 1986 insolvency act satisfy the creditors' bargain?" *Oxford Economic Papers* **43**, 139–157.

Weiss, L. (1990). "Bankruptcy resolution: direct costs and violation of priority of claims," *Journal of Financial Economics* 27, pp. 285-314.

White, M.J. (1980) "Public Policy Toward Bankruptcy: Me-First and Other Priority Rules," *Bell Journal of Economics* 11(2): 550-564.

White, M.J. (1998), "Why Don't More Households File for Bankruptcy?" *Journal of Law, Economics, and Organization,* 14:205-231.

White, M.J. (1989), "The Corporate Bankruptcy Decision," *J. of Econ. Perspectives*, 3:129-151.

White, M.J., (1984), "Bankruptcy Liquidation and Reorganization," in D. Logue, ed.: *Handbook of Modern Finance* (Warren, Gorham & Lamont, Boston, MA), 1-49.

White, M.J. (2011), "Corporate and Personal Bankruptcy Law," *Annual Review of Law and Social Science*, vol. 7.