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On the Design of Efficient Priority Rules for Secured Creditors: Empirical Evidence from A Change in Law

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Abstract

This article assesses the effect of a reduction in secured creditor priority on distributions and administrative costs in liquidating bankruptcy cases by reporting the first empirical study of the effect of a priority change. Priority reform had redistributive effects in liquidating bankruptcy. As expected, average payments to general unsecured creditors were significantly higher after the reform than before the reform and payments to secured creditors decreased. Reform did not increase the size of the pie to be distributed in bankruptcy. Nor did it increase the direct costs of bankruptcy.

Keywords: bankruptcy law, secured creditors, priority rules

JEL Classification: K00, K20, G33

1. Introduction

Secured debt's role in the design of efficient priority rules is a prominent issue in law and finance. Some scholars argue that full priority for secured debt creates perverse incentives that delay liquidation of unviable firms (e.g., Webb, 1991; Hudson, 1995) and reduce secured creditors' incentives to obtain high bids in bankruptcy liquidation sales (Bebchuk and Fried, 1996; Schwartz, 1981). But others argue that partial priority for secured debt would (1) harm business activity by reducing the credit supply (Harris and Mooney, 1997; Klee, 1997), (2) undermine freedom of contract (Bebchuk and Fried, 1997), (3) increase the administrative costs of bankruptcy (Baird, 1997), or (4) otherwise reduce efficiency (Hill, 2002; Schwartz, 1997).

The debate lacks empirical data about the effects of different priority rules or the effects of secured creditor incentives on insolvency proceedings (Harris and Mooney, 1997; Warren, 1997; Leeth and Scott, 1989; Barclay and Smith, Jr., 1995; Chen, Yeo and Ho, 1998; Mann, 1997a, b). Debate in the United States also ignores experience in other

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countries. Nations with quite respectable post-war economic history, including Denmark and Germany, lack a security device that allows reliable secured creditor priority in inventory and receivables (1 The Right of Priority Committee, 1999:40–41).¹ Secured credit priority reform proposals have been enacted in Finland and Sweden.² This article begins to fill the empirical vacuum and to provide an international perspective. It assesses the effect of Finland's reduction in priority for secured claims on distributions and administrative costs in liquidating bankruptcy cases.

Studying the effect of a reduction in partial priority is possible because bankruptcy priority rules governing an important Finnish personal property security device, the floating charge, changed in 1993. The floating charge is a non-possessory security interest in debtors' inventories, receivables, and other assets (Eisenberg and Sundgren, 1997).³ Before 1993, creditors holding a floating charge had priority in 100 percent of their collateral. After the change, secured creditors with a floating charge enjoy only partial priority. The new rule gives them the right to receive 60 percent⁴ of the assets covered by the floating charge.

We report three main results. First, the Finnish priority reform had redistributive effects in liquidating bankruptcy. Average payments to general unsecured creditors were significantly higher after the reform than before the reform. Mean payments to unsecured creditors increased from 0.9 percent of their claims to 4.0 percent and general creditors receiving nonzero payments increased more than tenfold. The average difference between distributions to floating charge-holders and general unsecured creditors decreased from 16.4 percent of the amounts owed before the reform to 7.0 percent of the amounts owed after the reform. Those hoping to shift funds from secured to unsecured creditors succeeded.

Second, we consider whether priority reform affected total payments to creditors in bankruptcy. Total payments might have increased after the reform because the reform weakened the floating charge. Floating charge-holders, who in Finland are almost always banks, might spend more to monitor debtors than before the reform. They therefore might restrict credit to troubled firms sooner, forcing firms to file for bankruptcy when more assets remain. And the less secured the banks' loans, the greater the incentive to realize the maximum value on the debtor's assets. But a comparison of total payments before and after the change in priority rules shows no significant difference. The total percent of debt repaid averaged 16.2 percent before reform and 13.7 percent after the change of the priority rules. Reform did not increase the size of the pie to be distributed in bankruptcy.

Third, Baird suggests that direct bankruptcy costs might increase if secured creditor priority is limited (Baird, 1997:1431–1435). Reducing secured creditor priority increases both the number of claimants on a firm's assets and the complexity of the claim structure. Following Baird's suggestion, we study whether the direct costs of bankruptcy changed after priority reform but find no significant differences in the direct costs before and after reform.

This study has important limitations. Two possible effects of priority rule changes are worth separating: (1) the effects on ex ante lending and borrowing practices by creditors and debtors, and (2) the effects on distributions in insolvency proceedings. A complete analysis of a change in bankruptcy law's ex ante impact requires studying firms that do not go bankrupt (Eisenberg, 1993; Harris and Mooney, 1997). Such an analysis is beyond the scope of the data used here (Eisenberg and Tagashira, 1994; Fisher and Martel, 1999; Sundgren, 1998; Thorburn, 2000).⁵ It nevertheless remains worthwhile to study how priority rules affect

insolvency laws' performance. One strong motivation of those proposing reduced secured creditor priority is to increase the distribution to general unsecured creditors. Priority change that fails to achieve redistribution is questionable in light of this motivation.

Another limitation is that Finland's floating charge differs from similar security devices in other countries. It yields lower bankruptcy dividends than neighboring Sweden's floating charge⁶ and is used less frequently by healthy firms in Finland than in Sweden (Sundgren, 1999; Bergström et al. (unpublished paper).⁷ It is substantially weaker than what the United Kingdom calls the floating charge (Rajak, Horrocks, and Bannister, 1995) and is weaker than similar U.S. security interests.⁸ The Finnish floating charge applies only to inventories, accounts receivable, and other assets that "turn over." It does not protect the secured lender from asset dilution because the borrower can, for example, sell off its inventory and distribute the proceeds to shareholders or related parties. To the extent the Finnish floating charge did not protect secured creditors even when it was accorded full priority, reducing its priority decreases the expected increase in monitoring by secured creditors. Finland's secured creditors may have already had to engage in more substantial monitoring than secured creditors in some other countries in order to protect their relatively weak floating charge interests. So their expected increase in monitoring attributable to the change in law might not be as great as the increase one might expect in countries with stronger floating charges. Thus, Finland's experience does not provide a test of the effect of moving from full to partial priority. Rather, our evidence relates to the effect of reducing priority.

Nevertheless, the Finnish experience provides some insight into the effects of any shift in priority, full or partial. Theories of secured credit do not necessarily treat secured creditor status as an "all-or-nothing" status. Rather, a continuum of risks exists. Even creditors "fully" secured under a legal regime highly protective of secured parties, such as that in the United States, are subject to important limitations on their ability to realize on their security. These include the automatic stay in bankruptcy (11 U.S.C., Sec. 362), the absence of post-petition interest to compensate for delays in foreclosure, the looseness of the concept of adequate protection of secured parties' interests,⁹ and the authority to subordinate a fully secured creditor to a subsequent lien (11 U.S.C., Sec. 364). No completely safe security interest exists.

Given the floating charge's less powerful status in Finland, one expects reform that weakens the floating charge to have less dramatic effects than similar reform in other countries. Discernible effects in Finland suggest that reform in other countries would have even greater effects.

Section 2 of this article briefly reviews Finland's bankruptcy law and priority rules before and after the 1993 reform. Section 3 reviews theories of priorities and secured debt and provides empirically testable predictions about the effects of reduced priority rules. Section 4 reports the effects of changing the Finnish priority rules on the distribution and size of payments to creditors and on the direct costs of bankruptcy. Section 5 briefly discusses our results' implications for priority reform.

2. Finnish insolvency law

We briefly summarize Finnish liquidating bankruptcy laws and priority rules before discussing the theory underlying the empirical analysis.

2.1. *Liquidating bankruptcy rules*

Finnish liquidating bankruptcy is similar to Chapter 7 of the U.S. Bankruptcy Code. Its function is to gather the debtor's assets, sell them, and distribute the proceeds to creditors. Upon commencement of the case, one or more trustees take over the administration of the bankrupt entity. The creditors nominate the trustee, who is appointed by the court.¹⁰ Creditors supervise and guide the trustee's actions (Havansi, 1991).¹¹ A mandatory meeting of creditors occurs when the case is about to be closed. Major issues at the meeting are distribution of proceeds to the creditors and confirmation of the fee to be paid to the trustee.¹²

Operation of Finnish law may differ from U.S. law in at least one important respect. Sales of firms as going concerns are probably more common in Finland than in the U.S. Ravid and Sundgren studied a sample of 72 small and mid-sized Finnish firms and found that 29 percent of the firms were sold intact to a successor of the business (Ravid and Sundgren, 1998). Sales of firms as going concerns are probably less common in U.S. Chapter 7 (Baird, 1992).¹³

2.2. *Priority rules*

Finnish bankruptcy priority rules changed in 1993.¹⁴ The old priority rules dated back to 1868 and only minor changes had been enacted before 1993. The most important 1993 change reduced the floating charge's priority. The floating charge-holder enjoyed full priority over general unsecured creditors before the reform and received payment ahead of general creditors to the full extent of the value of the collateral subject to the charge. In addition, prior to the change, many classes of unsecured claims, including wages, salaries, and taxes, had priority over general unsecured creditors.¹⁵ The numerous priority classes, and the small amounts available to general unsecured creditors after satisfying priority claims and the floating charge, generated pressure for reform.

A goal of priority reform was to promote more equal treatment of creditors.¹⁶ This was accomplished in two ways: by reducing the number of priority classes and by requiring that a percent of the assets subject to the floating charge be available to general unsecured creditors. The revised rules specify three relevant classes of creditors: (i) unpaid alimony, (ii) creditors with a floating charge, and (iii) general creditors. A transition rule gave wages and salaries the same priority as unpaid alimony during 1993 and 1994, the post-reform period covered here. This preserved their pre-reform priority during the transition period. The revised rules impair the floating charge by limiting its priority over general unsecured creditors to 60 percent of the value of the collateral subject to the floating charge. If these assets do not suffice to pay the floating charge-holder's debt, it shares the remaining assets pro-rata with unsecured claims.

To illustrate the effect of the change, assume that a debtor has 300 in assets after administrative costs and that creditors with a fixed charge (Eisenberg and Sundgren, 1997)¹⁷ on assets have been paid. All the 300 in assets are covered by a floating charge. The firm owes 50 in unpaid payroll taxes, 50 in unpaid income and value added taxes,¹⁸ 50 in wages, 200 to a bank, which holds a floating charge, and 450 to trade creditors, a total of 800 in liabilities. Before priority reform, wages had the highest priority, resulting in their full payment. The

floating charge and payroll taxes ranked next and would be paid in full out of the remaining 250 in assets. The claims for income and value added taxes and trade credit would receive no payments.

After the reform, taxes are no longer entitled to priority and the floating charge enjoys priority in only 60 percent of its collateral. Wages, entitled to priority during the transition, would receive 50. So the bank would receive 150 (60 percent of 250) on account of its floating charge. The remaining 100 in assets would be distributed pro rata among the bank, trade creditors, and taxes. Their claims total 600 (50 not paid to the bank under the floating charge, 100 in taxes, and 450 to trade creditors). Each of these claimants would receive $100/600$ (16.7 percent) times the amount of their claims. So trade creditors would receive 16.7 percent after reform compared to nothing before reform. The bank would receive 79.2 percent after the reform compared to 100 percent before the reform. Tax claims would receive 16.7 percent after the reform compared to 50 percent before the reform.

The fact that the treatment of tax claims in bankruptcy changed at the same time as the treatment of floating charge creditors complicates separating the effects of the tax change from the floating charge change. But tax claims are relatively unimportant in the typical Finnish bankruptcy. The median ratio of tax claims to claims to total debt was less than three percent before and after the priority change, and the mean ratio changed from about seven percent before the change to about six percent after. So it is unlikely that the simultaneous change in the treatment of tax claims substantially confounds our ability to detect changes attributable to the change in treatment of the floating charge.

The post-reform improvement in the trade creditors' position thus has two sources: the imposition of partial priority on the floating charge, and the elimination of priority for unsecured claims other than wages. Banks, the issuers of the floating charge, opposed the change, believing that it would decrease distributions to them in bankruptcy.¹⁹

3. The relation between secured debt priority and bankruptcy system performance

A brief sketch of theories of secured debt facilitates understanding the relation between secured debt's priority and bankruptcy system performance. In perfect capital markets with no agency or informational asymmetry problems, priorities should not affect companies' cost of capital. The reduced interest rate charged by a secured creditor will be offset by an increase in unsecured creditors' interest rates (Schwartz, 1981:7–9). Since secured credit is costly to issue, a loss would accrue to firms issuing it (Schwartz, 1984; Shupack, 1989).²⁰

But several theories suggest that, in the real world, secured debt and priorities may affect the cost of capital. These theories include the differing risk aversion of lenders (White, 1984; Triantis, 1992), monitoring-based arguments (Jackson and Kronman, 1979; Stulz and Johnson, 1985; Adler, 1993), controlling asset substitutions (Smith and Warner, 1979),²¹ promoting efficient lending to, and investment in, debtors (Kanda and Levmore, 1994), and obtaining leverage over the debtor (Scott, 1986).²² In addition, theorists suggest that priority can affect bankruptcy costs (Baird, 1997) and the likelihood of reorganization (e.g., Bergström, Eisenberg and Sundgren, 2002).

Monitoring theories have special relevance for the relation between priority and bankruptcy system performance. Suppose a firm borrows money at an interest rate that accurately reflects the firm's risk. If the firm subsequently switches to higher risk projects, value will be transferred from the creditor to the firm (Jensen and Meckling, 1976). Naturally, creditors take this threat into account before lending. Creditors can, for example, include covenants in the loan agreement requiring the firm to furnish periodic financial statements, or giving creditors the right to call or renegotiate the loan under specified conditions. Policing covenants requires monitoring, which is costly.

A security interest reduces the creditor's need to monitor since it is more likely that the loan will be repaid in the event of the debtor's insolvency and a secured creditor needs to monitor only its collateral instead of a firm's entire operation (Jackson and Kronman, 1979:1154). But unsecured creditors' monitoring costs might increase after the grant of security. Thus, if creditors' benefits from obtaining collateral are impaired through reduced priority in bankruptcy, they may increase their monitoring efforts.²³ Total monitoring costs can be minimized if creditors with a competitive advantage in monitoring lend on an unsecured basis.

3.1. The relation between secured debt priority and delayed bankruptcy filings

Monitoring theory has implications for partial priority's effect on bankruptcy cases. Weaker priority for secured creditors could reduce the problem of delayed bankruptcy filings attributable to an under supply of monitoring.

An under supply of monitoring likely exists in several plausible scenarios. First, one criticism of secured debt is that well-secured creditors, with low incentives to monitor, allow economically distressed firms to unduly delay filing for bankruptcy (e.g., Bebchuk and Fried, 1997:1317). Owners have nothing to lose by continuing operations and the secured creditor will not press for bankruptcy as long as its loan is secured by the firm's liquidation value. The secured creditor may continue to finance the firm because it is uninformed about the true state of the firm (a well-secured creditor has little incentive to monitor).²⁴ Second, more generally, monitoring has aspects of a public good, since a creditor who monitors may prevent loss in value, but will have to share the resulting gains with other creditors. The incentive to free ride could generate equilibria in which no one monitors or mixed strategy equilibria in which one lender monitors if another does not, but the probability of such monitoring is less than ideal.

Monitoring considerations do not unambiguously forecast too little monitoring. A debtor's unsecured creditors, in theory, have the incentive to try to halt a debtor's decline (Schwartz, 1981). In Finland, however, secured creditors are mostly banks and it is likely that they have more information about the viability of firms than unsecured creditors. Much unsecured credit in Finland is dispersed among many trade creditors, who lack a strong incentive to collect detailed information about a firm's viability (Bulow and Shoven, 1978).

Regardless of the source of an under supply of monitoring, less well-secured creditors, in theory, should monitor more. If a change in priority increases secured creditor monitoring, that increase could lead to earlier bankruptcy filings and increased bankruptcy distributions.

To illustrate, assume a bank is considering whether to continue extending credit or to force a firm into bankruptcy. Creditors would receive 100 if the firm immediately files for bankruptcy. There is a 50 percent chance that the value will increase to 120 if operations continue, and a 50 percent chance it will decline to 60. Thus, the expected value of the firm is 90 if operations continue.²⁵ Assume the firm owes 60 to the secured bank and 50 to unsecured creditors, and that the bank has full priority over the unsecured creditors. The secured creditor has no incentive to push for bankruptcy because its claim is fully covered by the collateral's value. The debtor has an incentive to delay the filing, to the detriment of the unsecured creditors.²⁶

Limiting the secured creditor's priority alleviates this problem. Assume, for example, that all claims on the firm have equal priority. The secured creditor has no incentive to allow the debtor to continue to operate because bankruptcy is an economically superior alternative for the now equally ranked creditors.²⁷ Liquidating the firm will not be delayed.

3.2. *Secured debt and premature sales of assets*

The sale of a bankrupt firm's assets should be conducted by the residual claimants to the assets because they have the incentive to obtain the best price. In practice, however, secured creditors have great influence over the sale. If they are well-secured, they have an incentive to sell assets prematurely rather than to closely monitor the debtor. Again, weaker priority for secured claims will reduce the problem.

To illustrate, assume the expected sales price for a firm's assets is uniformly distributed across 1,000 increments between 5,000 and 15,000. The probability of each sales price from 5,000 through 15,000, is 1/11. The firm has 7,200 in secured debt outstanding, with full priority over general creditors, and unsecured claims of 8,000. Assume that a bidder bids 7,000 for the assets, slightly less than the secured creditor's debt. If the secured creditor waits for an additional bid, its loss may increase. It is rational to sell, since the expected payoff to the secured creditor is only 6,873 ($5,000 \times 1/11 + 6,000 \times 1/11 + 7,000 \times 1/11 + 7,200 \times 8/11$)²⁸ if it waits for an additional bid.

If the secured creditor enjoys only partial priority, its incentive to search for a high valuation bidder increases. Assume that the Finnish rule entitling the secured creditor to receive 60 percent of the assets is in effect, and that the unsecured portion of the secured creditor's claim will share pro-rata with other unsecured claims. If a bidder offers 7,000, the secured creditor would receive 4,200 ($0.6 \times 7,000$) as a secured creditor, and 764 ($((7,000 - 4,200) \times (7,200 - 4,200)) / ((7,200 - 4,200) + 8,000)$) as an unsecured claimant, a total of 4,964. If the bank waits for an additional bid, its expected payoff is 6,075.²⁹ Thus, the risk of the bank supporting a premature sale at a low price decreases.³⁰

Thus, two factors suggest that total payments to creditors will increase after the floating charge's priority is reduced. Conditional on a liquidating bankruptcy having been filed, we expect the post-reform regime to be more efficient than the pre-reform regime. First, conflicts between high priority and low priority creditors may delay filings for economically unviable firms. This problem decreases if the floating charge's priority is limited. Important assumptions underlying this prediction are that the bank monitoring is important to avoid delayed filings and that banks will monitor firms more closely if their floating charge priority

is limited. Second, floating charge-holders influence assets sales. Fewer resources will be devoted to finding a buyer who highly values the debtor's assets if the floating charge-holder is more secure. This adverse incentive decreases if the floating charge's priority decreases. This combination of earlier filings and enhanced asset sales suggests that creditors as a group should receive a greater percentage of their debts after the floating charge's priority is reduced.

3.3. *The direct costs of bankruptcy*

Reform that limits secured debt's priority increases both the numbers of creditors with viable claims on a firm's assets and the complexity of the claim structure. Thus, as Baird notes, priority reform might increase the administrative costs of liquidating bankruptcy and reorganization proceedings (Baird, 1997:1431–1435). The burden on courts might also increase if the number of creditors receiving payments from the bankrupt's estate increases. Finnish lawmakers understood that priority reform might increase the burden on courts.³¹ It is plausible that bankruptcy administrative costs increased after priority reform.

3.4. *Ex ante effects on lending practices*

The prior sections describe theoretical considerations favoring priority reform. But critics of partial priority theorize that it would reduce the amount of credit available to some firms. The literature suggests that firms may have problems obtaining credit if information problems are substantial and there are limited opportunities to issue secured debt. Information problems are likely to be particularly severe for small and young firms.³²

Thus, predictions about the likely observed effects of priority reform should consider the influence of changes on ex ante lending practices. If priority reform substantially changes how banks make decisions with respect to loans, observed effects may be attributable to shifts in lending practices rather than to direct effects of priority reform. For example, if we observe that creditors recover a larger percentage of their claims after priority reform, it may be because banks become more conservative in their lending practices, because monitoring increased, or both.

We cannot eliminate such explanations' possible influence on our results. But two factors suggest that observed effects are primarily attributable to priority reform's effect on the bankruptcy process rather than to massive changes in lending practices. First, our data consist of bankrupt firms that filed shortly before and shortly after priority reform. Most of the firms probably obtained their loans well before their bankruptcy filings. Thus, most firms that filed both before and after priority reform probably had bank loans that were issued before the change in priority rules. This suggests that observed effects are likely to be due to behavior shortly before and during bankruptcy rather than to years-earlier lending decisions.

Second, we have analyzed the amount of bank loans per unit of debtor asset issued to each firm.³³ We find no evidence that loans per asset decreased after priority reform. If anything, these bankrupt firms had slightly higher bank loans per unit of asset after reform than before reform. This is further evidence that massive changes in ex ante lending practices had not yet occurred.

4. The effects of priority reform on bankruptcy distributions

Section 3's discussion generates empirical predictions about the effects of reducing the floating charge's priority on bankruptcy distributions. Some of these can be tested using Finland's priority reform. The theoretical effects on monitoring do not depend on creditors being fully secured. Creditor behavior should be affected at the margin by a reduction in less-than-full priority. Therefore, even though Finland's floating charge did not confer full priority over all claims before reform, Finnish reform does provide an opportunity to test the effect of reducing secured creditor priority.

Specific predictions are increased total payout effects and increased administrative costs. One should add to these predictions the most likely short-term effect of a shift to partial priority: redistribution in bankruptcy from secured creditors to unsecured creditors. The proportion of debt repaid to floating charge-holders in bankruptcy should decrease and the proportion of debt repaid to general creditors should increase. Promoting greater equality was, after all, the purpose of reducing the floating charge's priority.

This section first describes the data used in the study. It then analyzes the redistribution, total payout, and administrative cost effects of shifting to partial priority.

4.1. Data description

The data consist of 761 firms that filed for liquidating bankruptcy.³⁴ Approximately half of the sample consists of filings in 1990 to 1992, before the change of the priority rules, and half covers the post-change years 1993 and 1994. The sample is limited to cases closed either in 1994 or 1996.³⁵ The data were collected from information filed with taxation authorities³⁶ and cover seven of the ten regional departments that handle bankruptcies. We exclude cases that courts dismissed on the ground that their assets were not expected to suffice for payment of the trustees' fees ("zero-asset cases").³⁷ Such cases should be distinguished from cases in which bankruptcy proceedings were allowed to commence but which ultimately yielded insufficient assets to pay amounts other than the trustee and other administrative expenses of the case ("zero-payments cases"). Zero-payments cases resulted in no payments to the debtors' creditors but are included in the empirical analysis below.

Table 1 summarizes the liabilities, assets, and solvency of cases filed before and after the change in priority rules. Median liabilities of firms that filed a bankruptcy petition before and after priority reform are 2.74 million Finnish marks ("FIM") (one dollar = 7.06 FIM)³⁸ and 1.86 FIM million, respectively. Panel A also suggests that firms were smaller and less solvent after priority reform. But this is largely an artifact of the sample's makeup. Since the sample is limited to cases terminated in 1994 or 1996, post-reform cases that lasted more than 48 months cannot be in the post-reform sample. And pre-reform cases that terminated quickly cannot be in the sample. In fact, 95 percent of post-reform cases terminated in less than 40 months. Panel B reports descriptive statistics for cases that lasted less than 40 months. With this adjustment, the pre- and post-reform samples are similar. In the analysis that follows, we report results using the full sample, and control for firm size, but none of the results would differ materially if we limited the sample to cases that lasted less than 40 months.

Table 1. Sample characteristics of bankrupt Finnish firms before and after secured creditor priority reform.

	Before change of priority rules			After change of priority rules			Significance of difference
	Mean	Median	<i>N</i>	Mean	Median	<i>N</i>	
<i>A. Full sample</i>							
Liabilities (million FIM)	6.96	2.74	326	3.21	1.86	304	<.001
Assets (million FIM)	4.35	1.00	327	1.21	0.58	305	<.001
Solvency	-4.37%	-1.49%	322	-10.40%	-2.05%	302	<.001
Months to termination	36.5	37.3	393	23.2	22.7	346	<.001
<i>B. Cases lasting less than 40 months</i>							
Liabilities (million FIM)	3.80	1.92	178	3.21	1.86	281	.362
Assets (million FIM)	1.94	.50	180	1.19	.56	282	.120
Solvency	-5.66%	-1.78%	177	-10.95%	-2.12%	280	.064
Months to termination	23.4	22.7	220	22.4	22.6	333	.213

Note. Solvency is defined as shareholders' equity divided by total assets. Significance levels are based on *t*-tests on logs of liabilities and assets, and on the square root of solvency with the sign restored. Monetary amounts are in Finnish marks (FIM).

Source: Finnish bankruptcy cases filed from 1990–1994 and terminated in 1994 or 1996.

4.2. Redistributive effects of priority reform

The principal impetus for revising the Finnish priority rules in 1993 was to promote more equal treatment of creditors. Table 2 reports mean and median payments before and after the change to creditors with a floating charge, to general unsecured creditors, and to tax claims.

General unsecured creditors received low payments before and after the priority reform. Panel A shows that, prior to the reform, general creditors were paid on average 0.9 percent of their claims, and did not receive any payments in 96.8 percent (358/370) of the cases. They received a significantly better payoff after the change. The mean value after the reform is 4.0 percent and general creditors did not receive any payoff in 52.7 percent (167/317) of the bankruptcy cases. The difference in means is small but there was a large increase, from about three percent to 47 percent, in the percent of cases in which general creditors received some payment. Focusing on just post-reform positive payoff cases, the mean and median payments in relation to total claims are 8.4 percent and 4.0 percent, respectively. In one-fourth of the cases, the payments were lower than 1.4 percent. Only in one-fourth of the cases did the payments exceed 11.0 percent.

Table 2 also compares payments to holders of floating charges before and after the adoption of the partial priority rule.³⁹ Floating charge-holders received less after priority reform. Before reform, they were paid on average 17.2 percent of their claims and the median payment was zero percent.⁴⁰ Under the partial priority rule, they received on average 9.8 percent of their claims. The difference is statistically significant (*p*-value < 0.001). Focusing only on cases with positive payments to floating charge-holders, the average payoff was 35.4 percent before the reform and 25.3 percent after the reform (*p*-value =

Table 2. Percent of claims paid to creditors and floating charge-holders before and after the change of Finnish priority rules.

	Before change of priority rules			After change of priority rules			Significance of difference
	Mean (%)	Median (%)	N	Mean (%)	Median (%)	N	
<i>A. Payments to creditors</i>							
Floating charge (fc)	17.2	0.0	352	9.8	0.0	261	<0.001
Floating charge (payments > 0)	35.4	21.2	171	25.3	16.2	101	0.013
Tax claims	10.2	0.0	167	4.0	0.0	317	<0.001
Tax claims (payments > 0)	21.6	13.9	79	8.4	4.0	150	<0.001
General creditors (gc)	0.9	0.0	370	4.0	0.0	317	<0.001
General creditors (payments > 0)	28.3	14.6	12	8.4	4.0	150	<0.001
Difference between fc and gc	16.4	0.0	350	7.0	0.0	252	<0.001
Difference (payments > 0)	33.9	20.4	169	19.1	11.4	92	<0.001
Dependent variable = difference between payments to general creditors and holders of floating charge							
	Full sample			Sample limited to cases lasting less 40 months			
<i>B. Regression results (tobit)</i>							
New priority rule dummy	-12.705 (.002)			-15.162 (.000)			
Liabilities (log)	3.674 (.080)			1.890 (.216)			
Solvency (adjusted)	7.644 (.048)			7.260 (.075)			
Constant	-47.172 (.139)			-17.788 (.457)			
Pseudo <i>r</i> -squared	.016			.016			
Number of cases	501			365			

Note. Rows with payments >0 limit the sample to cases with positive payouts to creditors. Significance levels in panel A are based on *t*-tests. Solvency (adjusted) in panel B is the square root of solvency with the sign restored. Significance levels in panel B are in parentheses, are based on robust standard errors, and account for clustering of the sample by administrative province.

Source: Finnish bankruptcy cases filed from 1990–1994 and terminated in 1994 or 1996.

0.013). Parenthetically, the level of percentage repayments to floating charge-holders both before and after reform seem low. This is in part attributable to the high percentage of assets devoted to administrative costs, which rank ahead of the floating charge.⁴¹

Priority reform reduced tax claimants' priority to the level of general unsecured creditors.⁴² Comparing tax claim recoveries before and after reform requires accounting for the different pre-reform priority of different tax claims. Before reform, payroll taxes had higher priority than value added taxes and income taxes. Data not reported in Table 2

show that pre-reform payroll tax claims received on average 17.2 percent, and value added and income taxes received on average 5.0 percent. After reform, tax claims had the same priority as general creditors and were paid on average 4.0 percent of their claims. To provide a simple comparison of tax claim payments before and after reform, we compute pre-reform tax payments using a weighted average of tax claims with higher and lower priority.⁴³ This weighted average, used in Table 2's tax claims summary, shows that total payments to tax claims were 10.2 percent before reform compared to 4.0 percent after reform.

Panel A's last two rows show the differences between payment percentages to two key creditor groups before and after priority reform. For each case, we compute the difference between what floating charge-holders and general creditors received. The distribution of these differences before and after reform isolates the reform's effect on the relative positions of the two groups. The difference in mean payments shrank from 16.4 percent to 7.0 percent. In cases with positive payments to both creditor groups, the mean difference dropped from 33.9 percent to 19.1 percent. Both differences are highly statistically significant.

Table 1 shows differences in firm size and solvency before and after priority reform. Table 2, panel B uses tobit regression⁴⁴ to assess whether the differences in distributions before and after reform are attributable to firm size (as measured by debts)⁴⁵ or solvency. The new priority rule dummy variable is reasonably large and highly significant in both regressions. The rule reduced the difference in payments to floating charge-holders and general creditors by about 13 to 15 percent. Priority reform had non-trivial distributional effects. But the absolute level of payments to general creditors remained small.

4.3. Total payments effects of priority reform

Section 3 reviewed theories suggesting that the percent of debt repaid to creditors as a group should increase after the priority reform. Limiting the priority of floating charge-holders (banks) increases their incentive to monitor firms. Thus, the danger of economically unviable firms operating for too long should decrease. In addition, insufficient resources might be expended to find bidders who highly value the firms if banks and other institutional creditors are well secured. Since Table 2 shows that creditors with a floating charge received a lower payoff after priority reform, the incentives to monitor existing loans may have increased.

Table 3 compares total payments to creditors before and after the priority reform. Panel A compares the mean and median payments. Panel B reports regression results (tobit). Owners have a greater incentive to delay filing for bankruptcy if they have limited liability for the firm's debts. Therefore, Table 3 reports separate results for all firms (including partnerships and businesses run by individuals) and for corporations.

Panel A shows small differences between the percentages of liabilities repaid before and after the priority reform. Before the reform, the mean and median percents were 16.2 percent and 8.0 percent, respectively. After the reform, the corresponding figures were 13.7 percent and 7.1 percent. Using a *t*-test, the difference in means is not significantly different from zero (p -value = 0.178). A test of the difference in medians is also not significant (p = 0.472). The results limited to corporations also show no significant differences in percents repaid before and after reform.⁴⁶

Table 3. Percent of total debt repaid before and after the change of priority rules.

	Before change of priority rules			After change of priority rules			Significance of difference
	Mean (%)	Median (%)	<i>N</i>	Mean (%)	Median (%)	<i>N</i>	
<i>A. Univariate evidence</i>							
All firms	16.2	8.0	288	13.7	7.1	264	0.178
Limited liability companies	17.9	8.0	172	15.1	8.6	142	0.319
Dependent variable = payments in bankruptcy/liabilities							
	All firms	Limited liability firms	All firms	Limited liability firms			
<i>B. Regression results (tobit)</i>							
New priority rule dummy	-.262 (.868)	1.405 (.637)	.750 (.671)	2.327 (.470)			
Liabilities (log)	2.497 (.005)	3.471 (.010)	2.124 (.021)	2.586 (.072)			
(Real estate + Shares)/assets	24.235 (.000)	28.894 (.000)	17.089 (.000)	23.676 (.003)			
Solvency (adjusted)	-	-	5.492 (.000)	4.722 (.000)			
Constant	-30.258 (.022)	-46.578 (.015)	-19.086 (.174)	-29.348 (.156)			
Pseudo <i>r</i> -squared	.021	.028	.036	.037			
number of cases	542	308	542	308			

Note. Solvency (adjusted) is the logarithm of the absolute value of solvency, with the sign restored. Significance levels in panel A are based on *t*-tests. Significance levels in panel B are in parentheses, are based on robust standard errors, and account for clustering of the sample by administrative province.

Source: Finnish bankruptcy cases filed from 1990–1994 and terminated in 1994 or 1996.

In panel B's regressions, the dependent variable is the percent-of-debt paid, as measured by total bankruptcy payments to creditors, divided by total liabilities. We control for firm size by using the firm's liabilities (natural logarithm). We expect a positive relation between size and percent repaid because, with larger loans, with large sums of money at stake, major creditors will spend more on monitoring efforts and will not allow a company to become as insolvent before taking steps leading to bankruptcy.⁴⁷

Real estate and corporate shares may be more likely to remain in the bankrupt's estate until the bankruptcy filing than are assets such as inventories, machinery, and equipment. Real estate and corporate shares are easy to pledge and are not directly affected by adverse business operations. Therefore, such assets are more likely to be subject to creditor control and to increase the amount of assets available to pay creditors. In addition, Shleifer and Vishny suggest that markets are particular illiquid when assets are highly specialized (Shleifer and Vishny, 1992). Real estate and corporate shares generally are less firm-specific than other assets. This is another reason why real estate and corporate shares should increase the

amount of assets likely to be available to pay creditors. We control for these assets through the ratio of real estate plus shares in other companies divided by total assets. This ratio should correlate positively with the ratio of bankruptcy payments to liabilities.

The coefficients on the “new priority rule” dummy variable are small. In panel B’s first two models, its coefficients are -0.262 (all firms in the sample) and 1.405 (just corporations). The coefficients are not significantly different from zero. To test the robustness of the insignificance of the change in priority rules, panel B’s third and fourth models include a measure of firm solvency. This variable helps control for the possibility that firms with different solvencies filed before and after the reform. The coefficients on the “new priority rule” dummy variable are again insignificant and the coefficients remain small.⁴⁸ Models limited to cases in which there is a positive payment to creditors, thereby excluding the many zero-payment cases, achieve greater explanatory power (r -squared reaches $.272$) but also show no significant effect.

Changes in the Finnish economy might have been expected to enhance the percentage repaid to creditors after reform. Shleifer and Vishny (1992) suggest that asset prices are low during times of industry- or economy-wide recession. The Finnish economy was unquestionably stronger after priority reform than before it. Table 4 summarizes Finnish industrial production and gross domestic product during the relevant period. Both indices reflect a healthier economy shortly after 1993 than shortly before 1993.

Therefore, total payments to creditors might have been expected to increase after the reform, not only because the reform weakened the floating charge but also because the economy recovered and asset prices were higher. However, neither the reform nor the recovery of the economy was able to increase total payments to creditors.

But other factors suggest limitations on the likelihood that reform would reveal an increase in total recoveries. First, the rather small size of firms in the sample may help explain the absence of a total payments increase. The firms may be sufficiently small that a small increase in expected return may not necessarily justify creditors’ spending more resources on monitoring. To test, as best we can, whether firm size helps explain Table 3’s results, we separately analyzed both firms with assets above the sample median and firms with assets in excess of \$1 million FIM. Neither subsample showed an increase in payments to creditors after priority reform. But the small size of the firms in the sample suggest caution before generalizing to a group of large firms.

Table 4. Trends in the Finnish economy.

Year	Industrial production (durable consumer goods) (1990 = 100)	GDP Volume (1990 = 100)
1990	100	100
1991	86.4	92.9
1992	89.1	89.6
1993	97.9	88.6
1994	122.3	92.5
1995	146.4	96.4

Source: Nordic Statistical Yearbook (1997) pp. 148, 174.

Second, the post-priority rule change sample period covers only two years, 1993 and 1994. This is a short enough period that much of the debt taken into bankruptcy may predate the rule change. If lenders did not anticipate the rule change, then firms' secured debt contracts may have contained relatively fewer restrictive covenants (or looser restrictions) because lenders believed their superior priority in bankruptcy provided them with enough protection. Thus, lenders may have been unable to monitor the sample firms more intensively, or force them into bankruptcy sooner, after the priority rules changed. One can reduce, but not eliminate, the short post-change period's impact by limiting the post-change sample to those firms filing for bankruptcy in 1994. This allows for any changes in lending patterns to have their most undiluted effect on the post-change sample. We have run all of Table 3's regression models with the post-change sample limited to 1994 firms. The "new priority rule" never approaches statistical significance and is negative in three of the four models.

Table 3's regressions include other interesting results. First, a positive and significant or near-significant relation exists in all regressions between total liabilities and percent repaid to creditors. Larger firms pay their creditors greater percentages of what they owe. Larger firms may be subject to closer financial scrutiny than smaller firms. Second, a strong, positive relation exists between the ratio of real estate plus shares⁴⁹ and the payoff rate to creditors. Creditors may tend to hold title to, or possession of, these assets until debts are paid.

4.4. *Did priority reform affect bankruptcy direct costs?*

Following Baird, we suggested that priority reform could increase the direct costs of bankruptcy. Limiting priority rights should increase the number of creditors sharing a bankrupt entity's assets, and thus increase the administrative cost of determining and distributing amounts owed to creditors (Baird, 1997:1433).

Table 5 reports two measures of direct bankruptcy costs before and after priority reform. The first measure is total direct costs divided by available assets. Total direct costs consist of fees paid to trustees, lawyers, and accountants, and other expenses, which may include costs for advertising, meetings of creditors, and auctions. Available assets are defined as the sum of payments to creditors plus direct bankruptcy costs. The second measure is fees paid to trustees divided by available assets.

Panel A compares means and medians and panel B presents regression results. Mean total direct costs in relation to available assets are similar before and after priority reform: 41.4 percent before reform, and 44.9 percent after reform. Medians are 30.3 percent and 36.3 percent before and after reform, respectively. Average fees in relation to available assets were 33.9 percent before the change of the rules and 38.3 percent after, indicating that the costs might have increased (p -value = 0.053). But the increase is attributable to the difference in samples before and after the reform. Recall that Table 1 shows that the pre-reform sample of firms to be larger because it includes cases that last longer than post-reform cases. When one limits the sample to cases lasting less than 40 months, differences in costs diminish and are insignificant.⁵⁰

Table 5. Direct bankruptcy costs before and after priority rule change.

	Before change of priority rules			After change of priority rules			Significance of difference
	Mean (%)	Median (%)	<i>N</i>	Mean (%)	Median (%)	<i>N</i>	
<i>A. Univariate evidence</i>							
Direct costs/available assets	41.4	30.3	348	44.9	36.3	306	0.184
Fees/available assets	33.9	24.7	348	38.3	30.8	306	0.053
	Dependent variable = direct costs/available assets			Dependent variable = fees/available assets			
<i>B. Regression results</i>							
New priority rule dummy	-0.023 (.324)	-0.034 (.169)		-0.014 (.422)			-0.024 (.195)
Liabilities (log)	-0.120 (.000)	-0.116 (.000)		-0.102 (.000)			-0.098 (.000)
Real estate + Shares/assets	-0.314 (.000)	-0.219 (.000)		-0.261 (.000)			-0.177 (.000)
Solvency (adjusted)	- (.000)	-0.068 (.000)		- (.000)			-0.061 (.000)
Constant	2.290 (.000)	2.154 (.000)		1.929 (.000)			-1.808 (.000)
Adjusted <i>r</i> -squared	.362	.442		.336			.419
Number of cases	533	533		533			533

Note. Solvency (adjusted) is the logarithm of the absolute value of solvency, with the sign restored. Significance levels in panel A are based on *t*-tests. Panel B reports ordinary-least-squares regressions. Significance levels (based on robust standard errors) are in parentheses and account for clustering of the sample by administrative province. *Source:* Finnish bankruptcy cases filed from 1990–1994 and terminated in 1994 or 1996.

Even the differences in the full sample disappear when one controls for firm size and other factors. Panel B's regressions control for size and for the ratio of real estate plus shares divided by total assets. We include total liabilities (log) as a measure of size because several prior studies show that there is a scale effect in direct bankruptcy costs. Direct costs as percents of assets are a decreasing function of firm size (e.g., Warner, 1977; Ang, Chua and McConnell, 1982; Sundgren, 1998:193; Lopucki and Doherty, 2004). In two additional regressions, we add solvency as an explanatory variable. The regression results do not support the increased cost prediction. The coefficient of the new rule dummy variable is negative and not significantly different from zero in any of the regressions. The coefficient on liabilities is negative, showing that direct costs, as a percent of assets, are lower for larger firms. This suggests that substantial fixed costs component accompany small-firm bankruptcies, which corresponds with prior studies' findings.⁵¹ Furthermore, the regressions show that direct costs are significantly lower for firms whose assets consist more of real estate and shares in other companies.⁵²

4.5. *The asset and asset/debt ratio distributions before and after reform*

Section 1 noted that this study does not account for the priority rule change's ex ante effects on lending and borrowing practices. For example, after the reform, greater monitoring by secured creditors might have prompted firms to file for bankruptcy earlier. This, in turn, may have increased, after reform, the proportion of firms with sufficient assets to survive Finnish law's screening out of firms with insufficient assets to pay the trustee's fees. Since pre-reform firms that do not file for bankruptcy are unobserved in our data, we cannot firmly isolate whether some of our results represent a shift attributable to lender behavior or some other factor.

But comparing the asset profile of firms before and after reform can be illuminating. Consider the effect of earlier filing on the distributions of assets of firms using bankruptcy. One possibility is that the whole distribution of firms' assets remains roughly the same after reform as before. Under this view, the post-reform growth of firms in the left tail of the bankrupt firm distribution, those firms that now barely pass the filter of having enough assets to pay the administrative expenses, might be accompanied by a shift to the right throughout the distribution. If more highly-monitored post-reform firms enter bankruptcy sooner and with more assets, the middle of the asset distribution also shifts towards the former right tail. And, at the right tail of the distribution, some post-reform firms do not even appear in bankruptcy because they no longer go bankrupt due to more stringent monitoring. Closer monitoring of relatively high-asset firms leads to their not even having to file for bankruptcy. The distributions of assets look the same before and after reform but the makeup of the firms has changed. Reform's effect is in allowing payments by firms who, prior to reform, would have paid nothing and in keeping some firms from ever reaching bankruptcy.

This hypothesized shift in the entire distribution might help explain insignificant reform effects in Table 3. The firms making up the sample are in some sense financially stronger than before reform but the change cannot be detected because the firms that were financially strongest before reform do not appear in the post-reform sample. But a shift in the entire distribution of firms does not necessarily lead to a decrease in the difference between payments to secured creditors and to general creditors reported in Table 2. One would have to hypothesize more than a general shift in the distribution for such an effect to be detectable in the observed direction.

Another possibility is that the entire asset distribution does not shift to the right but that reform crowds more firms into the left tail of the distribution. This seems slightly more plausible because the administrative-expense filter is a yes-no decision—not a continuous one. One might expect greater density in the distribution in the left tail than before bankruptcy. The ripple effect throughout the rest of the distribution is more speculative.

Figure 1 explores this topic by showing the distributions of assets and asset/debt ratios before and after reform. To promote comparability of the groups of firms, the figure, like Table 1, panel B, limits the sample to cases lasting less than forty months.

The figure shows no post-reform increase in the density of firms at the low end of the assets and asset/debt ratio distributions. Any greater post-reform representation of firms is in the middle of the distributions, not at the low end. This pattern of change is not easily fully explained as a consequence of increased monitoring causing earlier filings with greater

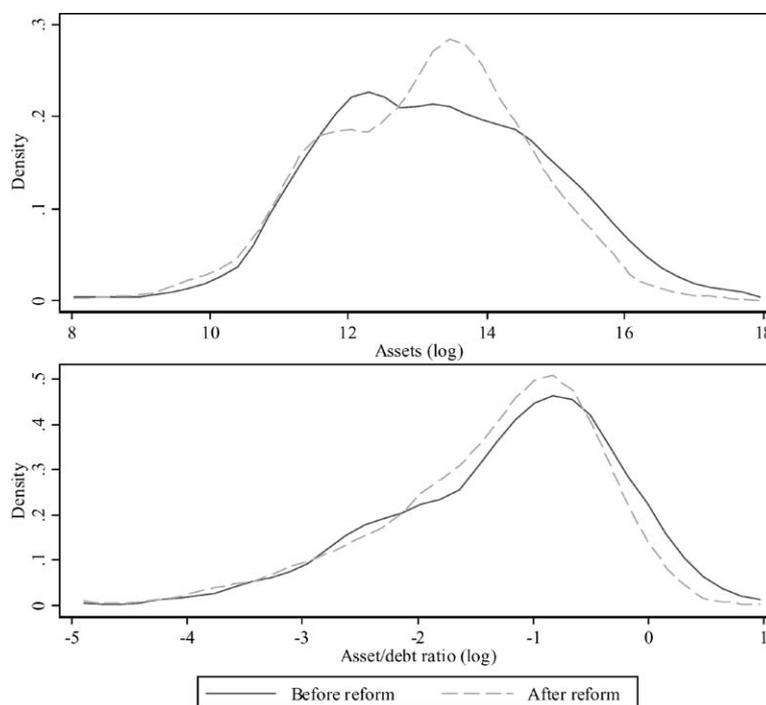


Figure 1. Asset and ratio distributions before and after reform.

assets. If that were the case, it is difficult to explain why the centers of Figure 1's distributions show greater density after reform, the left tails show little or no change, and the right tails show decreased density after reform.

We do not claim that the distributions conclusively establish that, for example, Table 2's effects are attributable to reform. But the most direct test we can theorize, within the limits of our data, does not strongly support the hypothesis that all of our effects are due to ex ante changes in lending behavior.

5. Implications for priority proposals

In summary, as best we can tell, the Finnish priority reform had redistributive effects. Payments moved away from floating charge-holders to general creditors. But reform had no significant effects on total payments to creditors.

There are several possible explanations of this result. First, theory can be wrong: banks may not monitor firms more closely if secured creditor priority is limited or banks may not have increased incentives that lead to obtaining higher prices in sales of bankrupt firms. Thus, the problem of economically unviable firms being kept out of bankruptcy too long would not diminish after reducing the floating charge's priority. Second, the change in the floating charge's priority may have been too small to generate empirically measurable

effects. The incentive to increase monitoring depends on lenders knowing that collateral is less valuable in bankruptcy. The expected effects of the changes in the Finnish priority rules were ambiguous: on the one hand, the floating-charge enjoyed priority in only 60 percent of the assets after the reform. But, prior to the reform, the floating charge shared the assets available for distribution with some claims for unpaid taxes and pensions. Thus, it was difficult to know with certainty *ex ante* whether the floating charge would receive lower percent distributions after priority reform.⁵³ A more radical reform of floating charge priority might be needed to affect creditors' monitoring and the total payments to creditors. Third, the sample consists of cases filed shortly before and after the priority reform. Creditors may need more time to adjust their monitoring policies.

What implications do the results have for the design of priority rules? First, a necessary, but not necessarily sufficient, condition for priority reform is satisfied. *Ex post* redistribution is achieved. If it were not, it would be difficult to support reform, which usually has redistribution as a primary goal.

Second, conditional on bankruptcy, efficiency gains or losses attributable to reform appear to be minimal. The total amount to be distributed does not increase but neither do the administrative costs of bankruptcy. If reduced secured creditor priority leads to increased monitoring, which increases pressure on firms to file for bankruptcy while in better financial condition, these effects are not discernable in our fairly sizeable data set. Whether the *ex ante* effects on lending practices increase efficiency is beyond our data.

One efficiency loss of partial priority seems indisputable. Absent market imperfections, firms themselves have incentives to minimize their cost of capital. Thus, only firms whose benefits exceed the costs will offer full priority. Firms for which full priority is suboptimal will grant partial priority, or borrow on an unsecured basis and include negative pledge covenants in their loan contracts. In fact, use of negative pledge covenants, said to be widespread (Bebchuk and Fried, 1997) indicates that firms frequently find that the costs of secured debt exceed the benefits. A partial priority rule would eliminate the option to grant full priority when it reduces the debtor's cost of capital.

But, as pointed out by Bebchuk and Fried and others, some market imperfections exist. Under full priority, value might be transferred away from "non-adjusting" creditors, since they cannot adjust the terms of their loans to reflect the effect of all other arrangements that the debtor enters into with other creditors. Economic efficiency supports limiting the opportunities to expropriate wealth from creditors that are *de facto* non-adjusting. A simpler way to protect non-adjusting creditors is to give *de facto* non-adjusting creditors whatever priority is deemed appropriate.⁵⁴ Neither the literature nor the law is unfamiliar with such rules.⁵⁵ There probably is no need to sacrifice efficiency gains of full priority when non-adjusting creditors are not involved.

6. Conclusion

Finnish secured creditor priority rules underwent a major transformation in 1993. Partial priority replaced full priority and the priorities of several claims were abolished. This article tests effects of the shift to partial priority. Empirical analysis does not support the predictions

that total payments to creditors and the direct costs of bankruptcy are significantly affected by priority rules. Prior to reform, total payments to creditors were on average 16.2 percent of debts. After reform, the corresponding figure is 13.7 percent. Direct bankruptcy costs as a percentage of available assets (defined as the sum of payments to creditors and the direct costs) were 41.4 percent before reform and 44.9 percent after reform. Neither difference is statistically significant. The data do reveal significant ex post redistributive effects. The difference in repayments between secured and unsecured creditors substantially decreased, though the percent of debt repaid to unsecured creditors remained small.

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Notes

1. These countries' laws are described in a recent Swedish Government study by The Right of Priority Committee.
2. In 1999, The Right of Priority Committee in Sweden presented a proposal for a new priority law. The Committee proposed, inter alia, that the floating charge's priority be limited to a right of priority in 50 percent of the collateral subject to the floating charge. *Id.* at 39–44.
3. The floating charge covers all assets except those subject to a fixed charge. A fixed charge is a secured claim on specific property. It is much like a real estate mortgage and limited to fixed assets. It enjoys full priority (Eisenberg and Sundgren, 1997), but does not compete with the floating charge for priority in inventory and receivables. The fixed charge enjoyed priority both before and after reform of the priority rules studied here.
4. The transactions studied here were subject to the 60 percent priority rule. This transitional percentage was reduced to 50 percent after the period covered by this study.
5. Nevertheless, insights about insolvency laws emerge from studying insolvency proceedings. For example, studies in three countries suggest that reorganizations produce higher payments to creditors than liquidations. One implication of these studies and a comparison of Finnish and U.S. reorganizations is that U.S. creditors also often receive more in reorganization than they would in liquidation (Eisenberg and Sundgren, 1997:1567; (see also Thorburn, 2002; study of Swedish liquidating bankruptcy).
6. In Sweden, claims by creditors, usually banks, whose claims are secured by floating charges constitute more than half in amount of unsecured claims (1 Right of Priority Committee, 1999:31). On average, floating charges in Sweden provide a dividend of approximately 45 percent of the amount of the claim, *id.*, which is much higher than in Finland (See Table 2 *infra*).
7. Compare Sundgren, 1999 (floating charge issued by 42.9 percent of non-bankrupt Finnish firms), with Bergström et al., 2005 (Table 4) (floating charge issued by 67.1 percent of non-bankrupt Swedish firms).
8. For example, the Finnish floating charge ranks after bankruptcy administrative expenses, which consume about 40 percent of the estate (Table 5 *infra*). Security interests in the United States enjoy substantially more protection. See, for example, *In re Carpet Center Leasing Co., Inc.*, 991 F.2d 682, (11th Cir. 1993), amended on denial of rehearing, 4 F.3d 940 (11th Cir. 1993), cert. denied, 510 U.S. 1118 (1994).
9. 11 U.S.C. Sec. 361 (allowing the “indubitable equivalent” of a secured creditor’s interest to serve as adequate protection).
10. See Konkursstadga 9.11.1968 [hereinafter *Fin.Bankr.Law*] Sec. 51.
11. In cases involving insignificant amounts, creditors may authorize the trustee to decide whether to sell the debtor’s assets.

12. See Fin.Bankr.Law Sec. 101.
13. See Baird, 1992:14 (“As a practical matter, however, we never see “going-concern” liquidations. The managers of a corporation prefer the control and the presumption of continued operations that exists in Chapter 11”). The Ravid and Sundgren (1998) study was based on data preceding the Finnish Reorganization law’s 1993 effective date. More recent data might show slightly different results since reorganizations might have replaced some going concern sales.
14. The old priority rules were in F om Förmänsrätt 9.11.1968/32 [hereinafter Priority Ordinance], and the new priority rules are in L om den ordning i vilken borgenärerna skall få betalning 30.12.1992/1578 [hereinafter Priority Law]. Most of the changes came into effect at the beginning of 1993.
15. See Draft Bill RP 181/1992, at 4. The principal priority classes were: (i) secured claims with a lien on property, (ii) wages and salaries, (iii) payroll taxes, pension payments, and the floating charge, (iv) rents, and (v) value-added taxes, income taxes, and some other taxes.
16. Id. at 4, 19 (proposal for revised priority rules).
17. See note 3 supra for discussion of fixed charges.
18. Unpaid payroll taxes had a higher priority than other taxes, including value added taxes and income taxes.
19. Groups representing employers, creditors, and manufacturers claimed that the reform’s payment percentage to floating charge holders was too low, that it would make it more difficult for small and mid-sized firms to obtain credit, and that it would increase interest rates. Draft Bill, supra note 15, at 12.
20. Schwartz (1984) but see Shupack (1989) (questioning the assumptions that (1) secured transactions are necessarily more costly than unsecured transactions, and (2) that a debtor can always obtain a loan from risk-neutral creditors by offering either collateral or a sufficient risk premium).
21. Schwartz (1984:1055) viewing asset substitution concern as the concern underlying Levmore’s monitoring and freeriding explanation.
22. Signaling theory (based on the view that borrowers have more information about their financial situation than lenders and that strong companies “signal” their strength by granting security interests in collateral) has also been offered as an explanation of secured credit’s existence. For a review of critiques of this theory and its inconsistency with available data, see Theodore Eisenberg, A Review of the Law and Economics Literature on Creditor Priority in Bankruptcy, in 2 The Right of Priority Committee, supra note 1 (Appendix 7).
23. This is pointed out in the directives for the draft committee revising the Swedish bankruptcy priority rules. 2 The Right of Priority Committee, supra note 1, at 2 (Appendix 1).
24. The bank may also continue to finance the firm if it receives a share of the gains to shareholders from continued operations. For models in this spirit, see Bulow and Shoven (1978), White (1980) and Hudson (1995).
25. We assume risk neutrality and that the risk-free interest rate is zero.
26. Note that the shareholders are not indifferent between liquidation and continued operations in the example, since if operations are continued, there is a 50 percent chance that firm value will equal 120, leaving 10 for the shareholders. This inter-creditor conflict is but one illustration of creditors’ possibly different interests in bankruptcy. See, for example, Kordana and Posner (1999).
27. Since shareholders lose their entire stake in bankruptcy, they have the incentive to give up everything but an infinitesimal share of the company in renegotiations. Although the debtor may promise an interest rate high enough to ensure that the entire equity value goes to the secured creditor, a bankruptcy filing is a better alternative: the secured creditor receives $(60/110) \times 100 = 54.5$ in bankruptcy, and the value of a claim promising the entire equity value to the secured creditor in a reorganization is $51.4((0.5 \times (120 - 50)) + (0.5 \times (60/110) \times 60))$.
28. The secured creditor does not benefit from bids in excess of 7,200.
29. If the bid on the assets were 5,000, payments to the secured party as a holder of a floating charge would be 60 percent of 5,000 which is 3,000. Payments to the secured party as an unsecured creditor would be $2,000/(8,000 + 4,200) \times 4,200 = 689$, for a total payment to the secured party of 3,689. The numerator in the unsecured creditor calculation is the assets remaining after floating charge holder is paid. The denominator is the sum of the floating charge holder’s unsecured claim (7,200 – 3,000) plus the other unsecured creditors’ claims. If instead the bid were 6,000, the payment amounts to 4,354, and so on for each bid. The probability of each bid from 5,000 through 15,000 is 1/11. The expected payoff to the creditor is calculated as the sum of payments for each bid from 5,000 through 15,000, multiplied by 1/11, as follows:

$$(1/11) \times (3,689 + 4,354 + 4,964 + 5,538 + 6,601 + 6,522 + 6,907 + 7,200 + 7,200 + 7,200 + 7,200) = 6,075.$$

30. In practice, trustees conduct sales of bankrupt firms' assets. Secured creditors likely influence the trustee's decision because Finnish creditors nominate trustees. Trustees may be especially eager to accommodate banks' and other institutional creditors' claims because such creditors are repeatedly involved in bankruptcies. A weaker floating charge might give trustees, acting in the interest of banks, the incentive to expend more resources to find buyers who highly value the debtor's assets.
31. See Draft Bill, *supra* note 15, at 23.
32. The seminal work on credit rationing is Stiglitz and Weiss (1981).
33. The data contain the total amount of bank loans for each firm. We divide this by the firm's assets to estimate the bank loans per unit of assets. In models of this ratio (log) as a function of a dummy variable for priority reform and firm size (log of debts), we find that bank loans per unit asset were higher after reform than before. This effect is insignificant in a model that includes a variable (length of time to conclude the case) accounting for the differing lengths of cases before and after reform in our sample (see Section 4.1 *infra*).
34. Data on some variables are missing. Thus, the actual number of firms included in any particular analysis may be lower than 761 firms. We report the number of cases analyzed in each of the tables reported below.
35. A case was assumed to be closed when the final meeting of creditors was held and the proceeds from the sale of assets had been distributed to the creditors.
36. Court documents do not include essential information such as data on payments to creditors and administrative expenses.
37. These cases made up 43.6 percent of all bankruptcy cases during 1990 to 1994. This figure was calculated as the sum of all interrupted cases during the period in relation to the total number of filings, less withdrawn cases (see Yearbook of Justice Statistics, Statistics Finland, Justice 1998:4, at 348).
38. This was the exchange rate on November 23, 2000.
39. Figures before and after the reform include payments received as a holder of a floating charge as well as payments received as an unsecured creditor.
40. One qualification with respect to this figure is necessary. In some cases when the payments to holders of a floating charge would have been zero, it was impossible to find out whether any creditor actually had lent with a floating charge as security or not. Thus, the figure may include cases when no creditor had a floating charge but payments would have been zero if any creditor would have had a floating charge.
41. See Table 5 *infra* (showing administrative costs account for about 40 percent of bankrupt firms' assets). The payments banks and other secured creditors typically receive as floating charge-holders are low in comparison to what they are paid from other secured loans. According to bank officials' estimates, banks typically receive about 60 to 70 percent of their claims in bankruptcy. The figure is based on an interview with Juuso Jokela at Bankföreningen i Finland (the Finnish Bankers' Organization), May 11, 1998, who had consulted one of the major Finnish banks.
42. Prior to reform, old tax liabilities—those dating back more than two years—were not given priority. Some pre-reform taxes therefore may have been paid as general unsecured claims.
43. The weighted average is the sum of the payment percentage to payroll taxes multiplied by the fraction of total tax claims that were payroll taxes, plus the payment percentage to value added and income taxes multiplied with the fraction of the corresponding types of tax claims in relation to total tax claims. The amounts of tax claims were taken from the schedule of assets and liabilities prepared by the trustee in an initial phase of the bankruptcy proceedings. Final taxes may differ somewhat from the amounts in the schedule.
44. Ordinary least squares regression should not be used because the dependent variable is truncated in that it cannot have values less than zero and because it often equals zero (see Maddala (1989) for an overview of the tobit model).
45. Assets could also be used to control for size. The correlation between assets and liabilities exceeds 0.9.
46. Failure to detect a significant difference should not necessarily be taken as firm evidence that no such difference exists. Non-detection could be attributable to sample size. A power calculation indicates about a 60% chance of detecting a 25% increase in average repayment percentage (from about 16% to about 20%) at a significance level of 0.10. There was an 80% chance of detecting an increased repayment percentage to 22% at a significance level of 0.05. The power calculations use the standard deviation of the pre-reform

- repayment percentage. Note that the sample is large enough to yield statistically significant results for other variables.
47. Compare Jackson and Kronman (1979:1158) "it is reasonable to think that the nature and extent of a creditor's monitoring is directly related to the size of his loan".
 48. We also explore models with transformations of the dependent variable to the square root of percentage payments. This improves the models' explanatory power but the coefficients for "new priority rule" are again insignificant. Models in which the sample is limited to cases that lasted less than 40 months also yield insignificant coefficients on the priority rule dummy variable.
 49. Amounts were taken from the trustee's schedule of assets. Real estate includes buildings as well as land. Shares include short-term holdings, holdings in subsidiaries and other long term investments, and shares in real estate companies. Finnish firms often own shares in real estate companies that give them the right to use buildings without owning or leasing them. These shares are probably the most prominent shares in the ratio.
 50. For cases lasting less than 40 months, the direct cost measure has a mean of 44.2 percent before the reform and 44.4 percent after the reform. The median is 38.1 percent before the reform and 36.3 percent after the reform. For the fees-based measure, the mean is 35.6 percent before the reform and 37.9 percent after; the median is 29.8 percent before and 30.4 percent after. All differences are statistically insignificant.
 51. Ang, Chua and McConnell (1982), Warner (1977). Weiss (1990) reports no scaling effect but his sample consists solely of large firms.
 52. As another measure of costs, we explored the difference between the value of a firm's assets in the trustees's schedule of assets and the payments to creditors, measured as a percent of the firm's assets. We found no significant difference before and after the priority change.
 53. Despite objections that the floating charge's position would be compromised, lawmakers hoped to keep the payments to the floating charge at the pre-reform level. See Draft Bill, *supra* note 15, at 18.
 54. One could also impose liability for these claims on shareholders, board-members, or the managing directors (Hansmann and Kraakman, 1991; Leebron, 1991, both suggesting but ultimately rejecting the idea of unlimited liability).
 55. For example, Swedish law stipulates that if a person intentionally, or as a consequence of gross negligence, fails to pay payroll taxes, the person (probably the managing director and/or the board of directors) may be required to pay the amount personally (Uppbördslag, Sec. 77a).

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