

The Costs and Benefits of Secured Creditor Control in Bankruptcy: Evidence from the UK

John Armour
Audrey Hsu
Adrian Walters

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John Armour
Lovells Professor of Law and
Finance
Oxford University
Oriel College
Oxford OX1 4EW
UK

Audrey Hsu
Assistant Professor
Department of Accounting
National Taiwan University
No 1, Sec 4, Roosevelt Rd
Taipei 106
Taiwan

Adrian Walters
Geldards LLP Professor of
Corporate and Insolvency Law
Nottingham Trent University
Burton Street
Nottingham NG1 4BU
UK

Tel +44 1865 286544
Fax +44 1865
john.armour@law.ox.ac.uk

Tel +886 2 3366 1131
Fax +886 2 2363 2082
audrey.hsu@management.ntu.edu.tw

Tel +44 115 848 2771
Fax +44 115 848 6489
adrian.walters@ntu.ac.uk

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Abstract

Recent theoretical literature has debated the desirability of permitting debtors to contract with lenders over control rights in bankruptcy. Proponents point to the monitoring benefits brought from concentrating control rights in the hands of a single lender. Detractors point to the costs imposed on other creditors by a senior claimant's inadequate incentives to maximise net recoveries. The UK provides the setting for a natural experiment regarding these theories. Until recently, UK bankruptcy law permitted firms to give complete *ex post* control to secured creditors, through a procedure known as Receivership. Receivership was replaced in 2003 by a new procedure, Administration, which was intended to introduce greater accountability to unsecured creditors to the governance of bankrupt firms, through a combination of voting rights and fiduciary duties. We present empirical findings from a hand-coded sample of 340 bankruptcies from both before and after the change in the law, supplemented with qualitative interview data. We find robust evidence that whilst gross realisations have increased following the change in the law, these have tended to be eaten up by concomitantly increased bankruptcy costs. The net result has been that creditor recoveries have remained unchanged. This implies that dispersed and concentrated creditor governance in bankruptcy may be functionally equivalent.

JEL Codes: G33, K22, G21

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1. Introduction

The role played by secured creditors in bankruptcy proceedings has recently become prominent in policy discussions. In the US, secured creditors have been exerting a growing influence over firms in bankruptcy (Baird and Rasmussen, 2002; Skeel, 2004; Ayotte and Morrison, 2008), sparking debate over the desirability of this development. At the same time, those formulating reform proposals for developing countries have begun to investigate the extent to which giving power to secured lenders, rather than courts, may be an effective way of overcoming limitations in judicial institutions (Safavian and Sharma, 2007; Djankov *et al*, 2008).

As a theoretical matter, it has been argued that secured creditor control can provide a solution to collective action problems in bankruptcy (Picker, 1992; Armour and Frisby, 2001; Gennaioli and Rossi, 2008) and that consequently, it is desirable to permit firms to contract with their creditors over the allocation of control rights in bankruptcy (Rasmussen, 1992; Schwartz, 1998). Others, however, are strongly critical of such proposals, pointing to the possibilities for rent-seeking by those in control of such a process (LoPucki, 1999; Westbrook, 2004).

Policy-makers in the UK have grappled with these issues in a recent bankruptcy reform, the results of which may have implications for these more general debates. Until recently, UK firms could opt to place control in bankruptcy proceedings in the hands of secured creditors. A creditor holding a ‘floating charge’ (a security interest similar to the UCC’s floating lien) had the right to appoint an administrative receiver, who had plenary powers to manage the debtor firm and yet owed fiduciary duties only to the secured creditor. This receivership system was perceived to lead to excessive liquidations and inflated bankruptcy costs, because senior claimants lack incentives to maximise recoveries and minimise costs in cases where the firm’s assets are worth more than the face value of the senior debt (Aghion *et al*, 2002). In response to these concerns, the UK’s Enterprise Act 2002 shifted power from secured to unsecured creditors in bankruptcy.

We present the results of the first systematic empirical comparison of the UK’s old and new bankruptcy regimes. We analyse a hand-coded sample of 340

bankruptcy cases, comprising 109 administrative receiverships commencing in 2001-2003, 195 administrations commencing in 2003 and 2004, after the change in the law,¹ and a smaller sample of 36 administrative receiverships commencing in 2003 and 2004, after the change in the law. We find evidence that, as compared with administrative receivership, the new administration procedure tends to generate both higher gross asset realisations and higher direct costs, the results as to costs being the most robust. Moreover, there is no significant difference in the number of bankrupt firms that are kept open under the new regime. On this basis, it is quite plausible that any gains to creditors from increased realisations are eaten up in higher direct costs, implying a net reduction in welfare. We interpret these findings as casting doubt on strong theoretical claims for the superiority of one form of investor governance in bankruptcy proceedings over another.

The rest of this paper is structured as follows. Section 2 reviews prior literature, explains the structure of UK corporate bankruptcy law (including the recent change) and formulates hypotheses. Section 3 describes our data. Results are presented in section 4, along with robustness checks, and section 5 concludes with a discussion of the implications.

2. Literature review and formulation of hypotheses

2.1 Theory

When a firm becomes unable to pay its debts, its creditors become entitled to take control of its assets. A basic justification for bankruptcy procedures is that collective action problems between the creditors would lead to inefficient loss of complementarities between the firms' assets if exercised on a purely individual basis (Jackson, 1986). Secured creditors have rights to payment from the sale of particular assets, as opposed to a claim against the debtor's general assets. If secured creditors' enforcement rights were not stayed in bankruptcy, then enforcement by multiple secured creditors would lead to inefficient liquidation (Webb, 1990). However, if a

¹ The new law came into force on 15 September 2003.

single security interest is granted over the entirety of the company's assets, then theory predicts that there should be no collective action problems *ex post* (Picker, 1992). Thus whilst permitting multiple secured creditors to have control rights as regards individual complementary assets involves a coordination problem, permitting only a single creditor to do so against all the assets does not.²

Moreover, giving such control rights to a secured lender *ex post* can complement the monitoring functions a concentrated lender can provide during the life of the loan. All-encompassing secured credit facilitates control by the secured lender, especially when combined with revolving overdraft facilities and extensive loan covenants (Scott, 1986; Franks and Sussman, 2005; Baird and Rasmussen, 2006; Armour, 2006). Thus a concentrated secured lender is in a position to assist in keeping the debtor's management under control (Triantis and Daniels, 1995; Baird and Rasmussen, 2002).

If a collective bankruptcy procedure is not mandatory, then the extent to which firms succeed in resolving creditor coordination problems will depend on the way its debt finance is structured. Some have argued that freedom of contract in this domain is likely to yield outcomes better tailored to the particular features of debtors than a 'one-size-fits-all' mandatory procedure (Rasmussen, 1992; Schwartz, 1998; Gennaioli and Rossi, 2008). Others allege that such a contracting process would itself suffer from coordination failures, justifying a mandatory regime (LoPucki, 1999; Westbrook, 2004).

The issue has received little empirical attention, largely owing to the difficulties of comparability. A recent exception is Djankov *et al* (2008), who categorize insolvency procedures around the world into 'reorganization', involving a stay of all secured creditors, and 'foreclosure', connoting enforcement by a single secured creditor where all-encompassing security is permitted. Using survey evidence from practitioners concerning a hypothetical case study, they conclude that there may

² There is hence an important ambiguity in measures of 'creditor rights' such as that constructed by La Porta *et al* (1998) which condition on whether or not secured creditors are stayed in bankruptcy without considering whether all-encompassing security interests are permitted.

be little to choose between these two types of procedure in terms of *ex post* efficiency. However, these results may be sensitive to the nature of the hypothetical employed.

2.2 UK Bankruptcy Law

Until recently, UK bankruptcy law did not impose a stay on the enforcement of secured claims. Instead it permitted a secured creditor holding an all-encompassing security interest—known in the UK as a ‘floating charge’—to enforce against the entirety of the debtor firm’s assets. The structure of firms’ lending agreements, and the security interests granted, are a matter for private contracts with their creditors. The market practice in the UK was for firms to enter into a relational lending agreement with a single bank, which would be granted a package of security interests such that enforcement would give it effective control over the entirety of the debtor’s assets (Armour and Frisby, 2001; Franks and Sussmann, 2005).³ In effect, the bank conducted a private liquidation, known as an ‘administrative receivership’ (or ‘receivership’ for short). This contrasted starkly with US federal bankruptcy law, under which all secured creditors are stayed from enforcing during insolvency proceedings,⁴ although in recent years debtor-in-possession financing agreements have been used by secured creditors to reassert control in Chapter 11 proceedings (Baird and Rasmussen, 2002; Skeel, 2004; Ayotte and Morrison, 2008).

Giving *ex post* control to a single secured creditor had the potential to give rise to conflicts of interest between the receiver auctioning the assets on the bank’s behalf and the junior creditors (Benveniste, 1986; Aghion, Hart and Moore, 1992; Finch, 1999; Mokal, 2004). Where the value of the firm’s assets was greater than the amount of secured debt owed, then the secured creditor would not be the residual claimant and

³ The use of security in ‘relational’ lending arrangements was first posited by Scott (1986), who focused on its role in controlling financial agency costs during the life of the loan, as opposed to reducing enforcement costs *ex post*.

⁴ 11 USC § 362. In Chapter 7, control of the bankrupt firm is transferred to a creditor-appointed Trustee, whereas in Chapter 11 the debtor’s management usually remain in control of the firm during the proceedings.

hence the receiver would not have strong incentives to maximise value. Some suggested that this would tend to induce inefficient liquidation, on the assumptions that a fire sale would be quicker than a going concern sale, and that oversecured banks would prefer their money as quickly as possible (Benveniste, 1986; Aghion *et al*, 1992). It was also suggested that oversecured banks would have little incentive to monitor receivers, leading to inflated professional fees for the conduct of the receivership (Mokal, 2004). Of course, in cases where the value of the firm's assets was less than the amount owed to the secured creditor (that is, the creditor was *undersecured*), the bank would be the residual claimant and the receiver would have appropriate incentives to maximise value (Armour and Frisby, 2001; Ayotte and Morrison, 2008).

Another potential limitation of the receivership system was that it resulted only in auctions of assets, rather than reorganisations of corporate entities (Insolvency Service, 2001; Mokal, 2004). Whilst going-concern sales via an auction may in many cases be quicker and cheaper than reorganizations (Baird, 1986), if the economy is in a general downturn, then potential purchasers of distressed businesses (likely competitors) are themselves likely to be liquidity constrained, depressing prices that can be achieved in an auction (Shleifer and Vishny, 1992).⁵

The UK's Enterprise Act 2002 introduced a package of reforms to bankruptcy law that were intended to correct the perceived problems with receivership (Insolvency Service, 2001). The entitlement of floating charge holders to appoint an administrative receiver was (with some limited exceptions) abolished. This change was prospective, applying only to floating charges created after the commencement of the legislation on 15 September 2003.

Instead, floating charge holders were given the right to initiate a different type of insolvency procedure, administration. This procedure, which had first been introduced in 1985, differed from receivership in that there was a stay extending to

⁵ However, the extent to which it was really necessary to provide a mechanism for reorganisation as well as asset sales (whether on a going concern or piecemeal basis) was questionable, as many reorganisations are effected informally outside bankruptcy proceedings (Franks and Sussman, 2005).

secured as well as unsecured claims, and that the appointee, the ‘administrator’, was accountable to all the creditors. When originally introduced, administration had been intended to serve as a substitute for receivership in cases where there was no floating charge (Cork Committee, 1982). In keeping with this ‘gap filling’ status, floating charge holders had been given a veto over the appointment of an administrator. Moreover, a court order was required to commence administration. As a consequence, administration had been used only infrequently (Insolvency Service, 2001). The Enterprise Act 2002 in effect forced holders of floating charges to use administration instead of receivership. At the same time, the requirement of a court order for appointment was abolished, meaning that the floating charge holder can now appoint an administrator as quickly as they formerly could appoint a receiver.

Two mechanisms of accountability seek to ensure that the administrator considers the interests of the creditors as a whole, rather than just the secured creditor. First, the administrator must put proposals to a creditors’ meeting for a vote within eight to ten weeks of appointment.⁶ The vote is taken by the unsecured creditors, unless the administrator thinks that they will receive no recoveries, in which case secured creditors vote.⁷ This structure can be understood as seeking to ensure that voting power resides in the hands of the residual claimant. Of course, the correct identification of the residual claimant depends upon the administrator’s evaluation of the firm’s value at the commencement of formal proceedings.

The second mechanism of accountability is the administrator’s legal duties. He owes duties to act in the interests of the company’s creditors as a whole, to perform his functions as quickly and efficiently as possible, and is statutorily obliged to pursue

⁶ The proposals must be circulated within eight weeks, and the meeting must be held within ten weeks: UK Insolvency Act 1986, Sch B1, paras 49, 51.

⁷ The default position is that no meeting need be held where the administrator considers that the unsecured creditors will not share in any recoveries; in this case the administrator is required simply to act in the interests of secured creditors, and a meeting is only called if requested by a creditor or creditors owed at least 10% of the company’s total debts (UK Insolvency Act 1986 Sch B1, para 52; UK Insolvency Rules 1986, rr. 2.38, 2.40-42).

a hierarchy of objectives.⁸ The first two of these are, respectively, (i) the rescue of the company as a going concern; and (ii) the achievement of a better result for the company's (unsecured) creditors than in liquidation. As between these, he must seek to do that which will yield the highest return for the (unsecured) creditors. In effect, he is legally obliged to seek to maximise the returns for the unsecured creditors—either through a corporate reorganisation (objective (i)), where possible—or failing that, through any other technique (e.g. sale of the business as a going concern, or work through of existing contracts) that will yield more for the creditors than an immediate fire sale (objective (ii)). Where the administrator thinks that neither (i) nor (ii) is reasonably practicable, then he may seek instead to realise assets for the benefit of a secured creditor, provided that in so doing he does not unnecessarily harm the interests of unsecured creditors. In essence, this statutory hierarchy is, like the voting mechanisms, intended to ensure that the administrator has appropriate incentives to maximise returns *ex post* (Armour and Mokal, 2005).

Doubts have been raised as to whether these new legal mechanisms of accountability will result in a significant improvement for unsecured creditors (Frisby, 2004; Armour and Mokal, 2005). First, it should be noted that secured creditors still retain considerable control over the administration procedure. The floating charge holder is in most cases responsible for the selection and appointment of the administrator. Banks operate 'panels' for the selection of accountants to act as their insolvency practitioners, which impose reputational constraints on the latter's actions: those appointees who take steps contrary to the banks' interests in the course of an appointment may expect not to be appointed again. Moreover, and perhaps more importantly, the new regime makes no provision for 'statutory super-priority' to be granted to those advancing funds to the bankrupt firm. Thus the company's existing bankers retain control of funding during administration proceedings. This makes it difficult for an administrator, even if so minded, to achieve an outcome contrary to that desired by the secured creditor.

⁸ UK Insolvency Act 1986, Sch B1, paras 3-4.

2.3 Formulation of Hypotheses

The change in UK law effected by the Enterprise Act 2002 may be summarised as follows: the secured creditor's control of bankruptcy proceedings is reduced, in favour of increased control granted to unsecured claimants. This transfer is effected through two new mechanisms of accountability: (i) legal duties to all the creditors; (ii) the requirement for approval by a creditors' meeting. We might expect these changes to have an impact on realisations and on costs of proceedings, and we now formulate hypotheses about the likely determinants of realisations and bankruptcy costs. To assist us in structuring our intuitions about the changes in practice, we conducted thirteen open-ended interviews with professionals involved in UK bankruptcy proceedings. Summary details of interview subjects are tabulated in Table 1, and relevant findings are identified at appropriate points in the text.

2.3.1 Realisations

The imposition of new governance mechanisms rendering the office-holder accountable to all the creditors might therefore be expected to result in increased recoveries, because the administrator would thereby have better incentives to maximise realisations. Whilst a number of our interview subjects stated that the change in the law would have little effect on the way in which bankruptcies were run, some insolvency practitioners did indicate that it would cause them to be more careful in thinking about how best to realise the assets.

Hypothesis 1: Realisations may be expected to be larger in administrations than in administrative receiverships.

We would expect any such difference to be more pronounced in cases where the value of the bankrupt firm's assets is more than the amount of secured debt. This is because,

if the assets are worth less than the secured debt, then in a receivership, the secured creditor will have appropriate incentives to maximise value.⁹

Hypothesis 1A: The increase in realisations in administrations as compared to administrative receiverships may be most pronounced in cases where secured lenders are oversecured.

2.3.2 Costs

Types of bankruptcy cost

The literature typically divides the costs of bankruptcy into ‘direct’ and ‘indirect’ components. Direct costs are the costs involved in running a procedure: that is, the fees paid to professionals such as lawyers, accountants, valuers, business consultants and marketing experts who are employed in realising the assets of the bankrupt firm and agreeing an appropriate distribution of the proceeds. These are relatively easy to observe, as most bankruptcy systems require that a record of such payments be kept in individual cases.

Indirect costs encompass everything else. *Ex post*, they would include the costs of decisional error by the trustee realising the assets—that is, the costs of failing to allocate the distressed firm’s assets to their highest-valued use. They would also include the costs resulting from unnecessary delay in the completion of the proceedings, as this will impact negatively on the value of the firm’s goodwill. One possible proxy for *ex post* indirect costs therefore consists of the duration of the insolvency proceedings (Bris *et al*, 2006).

Indirect costs are also thought to have *ex ante* components, which, because they affect all firms, as opposed to simply those which enter bankruptcy proceedings, are potentially much greater than the *ex post* components (White, 1996). These include the incentive effects of bankruptcy on management’s investment strategy

⁹ Only the holder of a floating charge could appoint an administrative receiver (UK Insolvency Act 1986 s 29(2)). The floating charge has a lower priority ranking than other forms of secured debt in UK corporate insolvencies (see Ferran, 2008). Thus in situations where the face value of total secured debt is more than the value of the firm’s assets, the floating charge holder will be undersecured.

(Schwartz, 1994) and on the credibility of the creditor's threat to enforce (Hart, 1995). Whilst it is possible to think of ways to measure *ex post* indirect costs, it is very difficult to think how this might be done for *ex ante* costs.

Direct costs

Direct bankruptcy costs have been studied empirically in various jurisdictions. These are typically reported as a ratio of total firm value, in order to control for firm size. Possible denominators for comparison include the value of the prebankruptcy assets (either at book, or estimated market value, if available) and the market value of postbankruptcy assets, as realised by sales (which can be presented either as a gross figure or net of the associated costs of sale). The results of prior studies using samples of private firms, between them encompassing a variety of bankruptcy regimes, are summarised in Table 2.¹⁰

[Table 2 about here]

Results reported in Franks and Sussman (2000) and Citron *et al* (2004) suggest that the mean costs of insolvency practitioner remuneration in a typical UK receivership were in the region of 25% of the value of the postbankruptcy assets, net of the costs of realisation. Franks and Sussman (2000) also report mean costs for a sample of 7 pre-Enterprise Act administrations, which were slightly higher, at 26.3%. However, the sample size is so small that little significance can be attached to this finding.

Other studies report costs as a fraction of gross postbankruptcy asset values. This tends to reduce the percentage reported. Thus Citron *et al* (2004) report a mean (median) cost of 15.2% (14.6%) of gross postbankruptcy assets for a sample of 65

¹⁰ Lubben (2008) reports findings from a large random sample of 945 chapter 11 reorganizations, mainly private firms. The mean level of professional fees (excluding one outlier case) is 4.0% of prebankruptcy assets (measured by market value) plus debts at the start of the proceedings. The results are not given simply as a proportion of prebankruptcy assets, and hence the findings are not directly comparable with other prior studies.

MBO firms that subsequently went into receivership. This is similar to the figures reported by Thorburn (2000) for the Swedish bankruptcy process, in which firms are mandatorily auctioned within a year (mean 19.1%, median 13.2%).¹¹

A number of studies report that the duration of insolvency proceedings (Thorburn, 2000; Franks and Sussman, 2005; Bris *et al*, 2006; Lubben, 2008) and the size of the debtor firm (Lawless and Ferris, 2000; LoPucki and Doherty, 2004; Bris *et al*, 2006; Lubben, 2008) are significant determinants of direct costs. The longer the proceedings take to complete, the greater the professional fees likely to be involved, and the greater the value of the assets at stake, the more effort is likely to be required to assess and market them.

Hypotheses regarding direct costs

Administration involves a greater likelihood of court appearances. Moreover, the administrator will be required to engage in several types of ‘accountability’ related actions that would not be necessitated under receivership: preparing and circulating reports to creditors; calling and conducting creditors’ meetings; preparing reasons for their actions, etc. All of these may be expected to lead to increased costs as compared with receivership (Frisby, 2004; Armour and Mokal, 2005).

At the same time, if it was the case that lack of control by (over)secured creditors tended to lead to needlessly inflated costs in receivership, then it might be expected that administration, with enhanced mechanisms of accountability to unsecured creditors, would reduce these costs (Mokal, 2004). A contrary view might be that unsecured creditors are typically likely to be dispersed and so suffer from free-rider problems in exercising control over insolvency practitioners. This might lead

¹¹ These costs seem somewhat higher than those reported by Lawless and Ferris (2000) and Bris *et al* (2006) for Chapter 11 proceedings in the US. However, it is likely that this is because the salary of managers of firms in Chapter 11 is reported as an operating expense as opposed to a ‘bankruptcy’ cost, meaning that procedures in which the firm is managed by an outside appointee may be expected to generate higher reported direct costs. This conjecture is supported by results from Lawless and Ferris (1997) and Bris *et al* (2006) suggesting that US Chapter 7 proceedings have significantly higher direct costs than Chapter 11.

them to have difficulty in operationalizing their new mechanisms of accountability (creditors' meetings and lawsuits against insolvency practitioners). In contrast to the problems with concentrated creditor control, which occur only when the lender is oversecured, the problems of dispersed creditor governance would manifest themselves in all cases. When combined with increased process costs, therefore, the outcome—ironically—might be expected to be *increased* costs as a result of the shift to the new regime.

Interviewees to whom we spoke confirmed these intuitions. They reported that there were real process costs involved in conducting a creditors' meeting and preparing a 'paper trail' to guard against legal liability. Moreover, interviewees from banks suggested that they typically negotiated a 'bulk' rate with insolvency practitioners regarding fee arrangements. In contrast, when fees are put to creditors' meetings for approval, the unsecured creditors are offered a higher rate, which is accepted because the unsecured creditors are disinterested in the process. The foregoing points lead us to formulate the following hypothesis:

Hypothesis 2: Direct costs are likely to be larger in administration than in administrative receivership.

2.3.3 Other Outcomes

The difference between administration and administrative receivership may also be expected to have several other effects on outcomes.

Duration of proceedings (indirect costs)

Administration proceedings are limited to one year, although this may be extended with the permission of the court or of a majority of the creditors.¹² Receivership proceedings, although commonly thought to be 'quick', are not subject to any legal time limit. Citron *et al* (2004) found that, in a sample of 65 receiverships, only 3.1% were completed within one year and 37% took more than 3 years. We might therefore

¹² UK Insolvency Act 1986 Sch B1, para 76.

predict that administration proceedings are likely to take less time than receiverships. To the extent that duration of proceedings is a proxy for indirect costs, this also implies reduced indirect costs (Bris et al, 2006).

Asset deployment

An oversecured senior lender may be expected to have a bias in favour of liquidation fire sales, as against continuation of the business, on the basis that the former may be quicker and less risky. Consistently with this, Ayotte and Morrison (2008) report that in a sample of Chapter 11 proceedings in the US, asset fire sales are more likely in cases where the secured lenders are oversecured. Consequently, if the perverse incentive problem has been resolved by the new mechanisms of governance in administration, then we would expect to see more going concern sales, and more trading activity, in administration.

Creditor recoveries

Hypothesis 1 predicts that gross recoveries are likely to be larger in administration than in administrative receivership. Hypothesis 2 predicts that costs will, however, also increase too. It is difficult to predict *a priori* how these two predicted changes might interact to affect net recoveries for creditors, which are the value of recoveries minus costs.

3. Data and Summary Statistics

We study data on asset realisations and costs incurred in UK bankruptcy proceedings before and after the changes introduced by the Enterprise Act 2002, which came into force on 15 September 2003. We use a hand-constructed dataset of 340 cases of formal insolvency to compare receiverships under the old law with administrations

under the new law. This is larger than most datasets of bankruptcy costs that have been studied in the US.¹³

A random sample of 500 cases, comprising 250 receiverships commencing between 1 January 2001 and 14 September 2003 and 250 administrations commencing between 15 September 2003 and 31 December 2004,¹⁴ were first identified using the index of insolvency appointments published in the *London Gazette*. Data relating to each case were then entered manually from reports filed at the UK public register of companies, Companies House, by insolvency practitioners.¹⁵ From the Statement of Affairs form, which must be filed shortly after the practitioner's appointment, we extracted the book value of assets, the directors' estimate of the market value of the company's assets, and the amount of creditors' claims, all as of the beginning of proceedings. Insolvency practitioners are also required to file progress reports as the proceedings continue and final statements of receipts and payments on completion of a case. From these, we collect information on the duration of the bankruptcy procedure, the realisation value of the firm's assets (that is, their postbankruptcy market value), the total remuneration paid to the insolvency practitioner and other bankruptcy-related direct costs, and distributions made to creditors. We exclude cases for which the bankruptcy procedure was not completed by 1 February 2006, and cases for which the relevant abstracts of receipts and payments were not available in electronic form via the *Companies House Direct* service.¹⁶ This yielded a sample of 109 pre-Enterprise Act receiverships and 195 administrations, as shown in Table 3.

¹³ See above, text to nn 10-11. The exception is Lubben (2008), who studies over 1000 cases (random sample of 945 plus non-random sample of 81 cases).

¹⁴ The corporate bankruptcy provisions of the Enterprise Act 2002 came into force on 15 September 2003.

¹⁵ For details of the forms that must be completed by Insolvency Practitioners running a case, see Companies House (2005), chs 3&4.

¹⁶ See www.direct.companieshouse.gov.uk

To explore the pattern of realisations and insolvency costs across different firm characteristics, further information about the firm's SIC industry code and accounting data was obtained from the FAME database.¹⁷ Panel C reports the distribution of the sample firms by industry at the 1-digit SIC code level. It appears that approximately 45% of the sample in the two respective proceedings is comprised of firms in the construction industry and in wholesale or retail trading. However, the overall industry composition of the two proceeding subsamples is similar.

For the purposes of robustness checks (detailed in section 4.4), we also gathered an additional random sample of post-Enterprise Act receiverships—that is, receiverships commencing after 15 September 2003 and before 31 December 2004, using powers 'grandfathered' under floating charges created before the Enterprise Act came into force.¹⁸ After excluding cases where data were not available for variables of interests, this yielded a modest sample of 36 post-Enterprise Act receiverships.

[Table 3 about here]

[Table 4 about here]

Table 4 presents descriptive statistics on various characteristics of sample firms. Panel A reports pre-bankruptcy characteristics of our sample firms. This clearly paints a picture of a dataset comprising primarily small firms, with the most recent annual accounts showing a turnover of less than £4m and book value of assets of less than £3.5m. These are also relatively young firms, with a mean age of less than 20 years, and a median nearer 10. As may be expected, there is a stark decline between book values shown in the last annual accounts and estimated market values on entry into insolvency proceedings. Whilst the firms in our sample are heavily overindebted

¹⁷ The FAME (Financial Analysis Made Easy) database provides detailed company accounting and financial information on UK and Irish public and private firms.

¹⁸ See *supra*, section 2.2.

on entry, the mean firm undergoing either insolvency procedure is oversecured, in the sense that the estimated market value of its assets is significantly more than the face value of the debt owed to secured creditors. There is one statistically significant difference in means, which concerns the proportion of total debt that is secured. This is higher for pre-Enterprise Act receivership (mean 0.424, median 0.402) than for administration (mean 0.261, median 0.228), and higher still in the post-Act receivership sample (mean 0.569, median 0.618).

Panel B reports summary statistics on characteristics of our sample cases of bankruptcy proceedings.

3.1 Duration

The average duration of proceedings for pre-Act receivership (mean 627 days, median 602 days) was nearly twice as long as for administration (mean 357 days, median 358 days) and even for post-Act receivership (mean 393 days, median 413 days). This is consistent with expectations: administration proceedings are subject to a statutory time limit of one year (extendable with the consent of the court or of creditors), whereas receivership has no fixed time limit.¹⁹

3.2 Realisations

Insolvency practitioners in receivership and administration cases are required to submit to the Registrar of Companies, at six-monthly intervals, a ‘Receiver’s Abstract of Receipts and Payments’ or an ‘Administrator’s Progress Report’, respectively. When assets are sold during the reporting period, the gross realisations must be entered as receipts and related costs entered as payments. We classify the receipt items as the asset realisations and the associated costs as direct insolvency costs on the grounds that costs of these types (namely, legal fees, investigation fees, advertisement fees, and appraisal fees) are normally unavoidable and are related to the efforts being made by the insolvency practitioners to realise value for the creditors.

¹⁹ See *supra*, section 2.2.

However, in cases where the insolvency practitioner continued to operate the business as a going concern, it would be inappropriate to treat operating costs as part of the costs of the insolvency procedure. To help distinguish sums received and paid in the course of trading from asset realisations and associated costs, administrators typically provide a separate trading receipts and payments account in cases where the business continued to operate.²⁰ Hence, to ensure robustness, two measures of realisations were employed in our study:

R1: total asset realisations

R2: total asset realisations + net trading receipts

Simply comparing realisations, of course, would not give a meaningful comparison between procedures unless those figures can be standardised by a measure of firm size. Consistently with prior literature (LoPucki and Doherty, 2004; Bris *et al.*, 2006), we use the estimated value of the firm's assets at entry into bankruptcy as an indicator of size. The value is extracted from the Statement of Affairs prepared by directors shortly after an insolvency practitioner is appointed. The directors are required to provide an abbreviated balance sheet containing their best estimate of the current value of the firm's assets and liabilities as at the commencement of bankruptcy proceedings. We winsorize these data at the 1% and 99% level. Panel B of Table 4 reports summary statistics for these two measures.

The ratio of the value of actual realisations in bankruptcy to the estimated prebankruptcy value of the firm's assets yields one measure of the 'effectiveness' of the insolvency practitioner in realising assets. To be sure, the directors' estimates are not audited, and may well be subject to an optimism bias. Provided that this does not differ systematically as between administration and administrative receivership—and we have no reason for thinking that it should—then this ratio can nevertheless provide a meaningful way of comparing the effectiveness of the two procedures. Two sets of summary statistics for this measure of effectiveness, based respectively on total

²⁰ In most of the receivership cases, the receiver did not provide a separate trading receipt and payment accounts. In these cases, information on gross trading receipts and net trading receipts was identified from the receiver's general 'abstract of receipts and payments' report.

realizations (R1) and total realizations plus net trading receipts (R2), are also reported in Panel B of Table 4. For both measures, the median for our pre-Enterprise Act receivership sample is significantly smaller than for our administration sample. There is no statistically significant difference in the means.

3.3 Costs

We employ two measures of the direct costs of insolvency proceedings: (i) the remuneration paid to insolvency practitioners, and (ii) total direct costs (comprising, in addition to insolvency practitioner remuneration, all the costs associated with the realisation of the assets, e.g. legal fees, estate agent fees, document fees, etc). In order to interpret the results meaningfully across the two different proceedings, we scale the costs by the estimated market value, from the Statement of Affairs, of the firm's total assets on entry into bankruptcy. We winsorize these data at the 1% and 99% level. Panel B of Table 4 reports summary statistics for both remuneration and total direct costs. For both measures, both the mean and the median for our pre-Enterprise Act receivership sample are significantly smaller than for our administration sample.

3.4. Other Outcomes

Panel B of Table 4 also presents summary statistics on three further measures of outcomes. The recovery rate is calculated as the distribution paid to a class of creditors over the face of their claims. The recovery rate is thus subclassified into total recovery rate, secured creditor recovery rate, preferential creditor recovery rate and unsecured recovery rate. There are no significant differences between mean recovery rates for the pre-Act receivership and administration samples, although recoveries in the post-Act receivership sample are significantly higher than for administration.

Finally, we also present descriptive statistics for two binary indicators of outcomes: the proportion of cases in which the firm continues to trade during the bankruptcy proceedings, and the proportion of cases in which a going concern sale of some or all of the firm's business—as opposed to a piecemeal sale—is achieved. In each case, the receivership and administration samples are very similar.

Table 5 explores univariate correlations between our variables of interest. *Type* is a dummy variable taking the value of one for administration proceedings and zero for receivership. It is modestly positively correlated with measures of realisations and of costs, providing initial support for hypotheses 1 and 2. There is little correlation between our main variables. Few of the independent variables are correlated, implying that multicollinearity is not a concern.

4 Multivariate Empirical Tests

This section presents empirical tests as follows. Sections 4.1 and 4.2 respectively report results regarding realisations and costs. We then (Section 4.3) report various robustness checks, and discuss limitations and possible future research (Section 4.4).

4.1 Realisations

In Table 6, we report findings on the determinants of realisations in our sample cases, comparing receiverships before the Enterprise Act 2002 with administrations after the change in the law. To ensure robustness of the results, we report specifications using two different measures of the dependent variable. In Panel A, we use total asset realisations (that is, the gross proceeds of sale of the firm's assets), and in Panel B we use total asset realisations plus net trading receipts during the bankruptcy procedure. In each case we scale the dependent variable by firm size (measured by the estimated market value on entry to bankruptcy) and subject it to a logarithmic transformation.

[Table 6 about here]

Table 6 Panels A and B each report specifications designed to test hypotheses 1 and 1A. *Type* is a dummy variable taking the value of one for administration cases and zero for pre-Act receiverships. Model 1 is our basic specification, in which we include as controls a range of variables which may be expected influence realisations, including whether the office-holder continues to trade the business or closes it down (*Trade*), whether a going concern sale or a break up sale occurs (*Outcome*), the

number of days taken to complete the proceedings (*Duration*), the firm's leverage, measured against the market value of its prebankruptcy assets (*Debt_ratio*), and firm size, also measured in terms of the market value of prebankruptcy assets (*Size*). We also include industry and year fixed effects.

The results for Model 1 are supportive of hypothesis 1. For both measures of the dependent variable, the coefficient for *Type* is positive and statistically significant (at the 5% level for realisations including net trading receipts—Panel B—and at the 10% level for realisations excluding trading receipts—Panel A). This indicates that realisations are higher in administration cases than in receiverships. As the dependent variables are expressed as natural logarithms, the coefficients measure the elasticity of the (scaled) realisation amount with respect to explanatory variables. That is, when the explanatory variable is also a natural logarithm, the coefficient indicates the percentage change in the amount of realisations amount that is associated either with a 1% change in the explanatory variable or with the value of a dummy variable, holding all other variables constant. Thus the coefficients for *Type* in Model 1 indicate that mean asset realisations and asset realisations net of trading receipts are, respectively, 3.3% and 4.1% higher in administration than receivership, when scaled for firm size. Models 2 and 3 provide tests of hypothesis 1A specifically, namely that the increase in realisations in administrations is likely to be particularly associated with cases where secured lenders are oversecured. Model 2 is identical to Model 1, but with the addition of an additional dummy variable, *Oversecured*, which takes the value of one if the market value of the debtor's assets on entry to bankruptcy is greater than the face value of secured debt, and zero otherwise. The coefficient for *Oversecured* is not statistically significant, and the coefficient for *Type* remains positive and statistically significant (increasing from the 10% to the 5% level in Panel A).

Model 3 is identical to Model 2, but with the addition of an interaction term, *Oversecured*Type* which captures the joint effect of *both* being in administration rather than receivership and having oversecured lenders. The coefficient for the interaction term is positive and statistically significant at the 5% level and the coefficient for *Type* is no longer statistically significant. This implies that the increase

in realisations in administration captured by the positive coefficient for *Type* in Models 1 and 2 is actually driven by cases where the secured lenders are oversecured. The coefficient for *Oversecured* is negative and statistically significant in Model 3. This indicates that, over the sample as a whole, oversecured secured lenders are associated with lower realisations. However, the size of the negative coefficient is smaller than the positive coefficient on the interaction term *Oversecured*Type*, implying that for firms in administration, the negative effect of being oversecured is more than cancelled out by the difference in procedure. These results are strongly supportive of hypothesis 1A. As regards economic significance, these coefficients imply that where secured lenders are oversecured, use of administration rather than receivership is associated with a 4% increase in total realisations, and a 4.8% increase in realisations net of trading receipts, both scaled for firm size. These results are robust to the exclusion of each of the independent variables, although we do not report these specifications.²¹

A number of the coefficients for control variables are also statistically significant. The positive coefficient for *Trade* in all specifications implies that, as expected, cases where the office-holder continues to trade the business are associated with higher realisations. The positive and statistically significant coefficient for *Debt_ratio* indicates that higher leverage is associated with greater realisations, although the relatively small size of these coefficients indicates that its economic significance is small. The coefficients for *Size* are negative and highly statistically significant (at the 1% level) in all specifications, indicating that there is a scale effect in realisations, with smaller debtors yielding disproportionately larger realisations. The coefficients for *Duration*, which are positive, are statistically significant in Panel A (total asset realisations) but not Panel B (asset realisations plus net trading receipts). This is probably because the dependent variable in Panel B takes into account the trading payments associated with continued trading, which will be rising in the time spent in insolvency proceedings.

²¹ Further specifications are available on request.

4.2 Direct Costs

Table 7 reports results on the determinants of direct costs, once again comparing receiverships before the Enterprise Act 2002 with administrations after the change in the law. We once more report specifications based on two different measures of costs, being natural logs, scaled by firm size, of (i) the fees paid to the insolvency practitioner running the case (*Remuneration*), and (ii) remuneration plus any other direct costs incurred in the proceedings—for example, surveyors’ fees, legal fees, marketing costs etc (*Total direct cost*).

[Table 7 about here]

We used the same explanatory variables as in our analysis of realisations, namely a dummy for use of administration as opposed to receivership (*Type*), dummies for continued trading (*Trade*) and going concern sale (*Outcome*), log of time spent in proceedings (*Duration*), ratio of debt to market value of assets at the commencement of bankruptcy (*Debt ratio*), firm size as measured by market value of assets (*Size*), and dummies for oversecured secured lenders (*Oversecured*) and an interaction term for use of administration when secured lenders are oversecured (*Oversecured*Type*). We also include dummies to control for industry and year fixed effects. Consistently with hypothesis 2a, and with the descriptive statistics, all specifications show that the bankruptcy procedure used makes an economically, and strongly statistically significant difference to the ratio of costs to total value of the realisations. We also ran a number of other specifications (not reported), to which the results were robust.

Our results indicate that direct costs in administration are higher than in pre-Act receivership cases by a factor of between 4.7% and 5.9%. Cases in which the insolvency practitioner decides to carry on the trading can result in higher remuneration costs and total direct costs, and all of the costs are positively correlated with the length of proceedings. The negative and statistically significant coefficients for *Size* imply that, consistently with prior research (LoPucki and Doherty, 2006)

there is a scale effect in costs in our sample. This presumably results from a fixed cost element associated with any appointment, leading to a declining costs rate (as a proportion of assets) for firms with larger assets. We find little evidence of any industry effect, or that the choice between going concern sale and piecemeal sale has costs implications. We find no evidence that having oversecured lenders makes any difference to direct costs.

4.3 Robustness Checks

Our empirical strategy has been to compare two samples of firms in bankruptcy taken from before and after a change in the law. A possible confounding factor is introduced by the fact that holders of floating charges created before the date of commencement of the Enterprise Act (15th September 2003) retain the right to appoint receivers after the new law came into force.²² Thus in a subset of cases after the change in the law, lenders are able to choose whether to use administration or receivership, which may introduce an element of selection bias into the administration sample. If secured lenders seek to maximise their expected net returns, then they will choose the procedure most likely to maximise recoveries and minimise costs. This selection effect would, if present, tend to bias results for administration towards higher recoveries and lower costs than pre-act receivership. In other words, it would be a bias in favour of hypothesis 1 but against hypothesis 2. Moreover, as the decision is controlled by the secured lender, we would expect such a selection bias to be most pronounced in cases where the lender is undersecured. The intuition is that where a secured lender is oversecured, they will be less concerned about the selection of a value-maximising procedure. If such a selection effect is present in the post-Act samples, it may be expected to manifest itself in the following ways: (i) post-Act receiverships may be expected to have higher realisations and/or lower costs than pre-Act receiverships, and (ii) there may be expected to be no, or less, difference in realisations and costs between post-Act receiverships and administrations.

²² See *supra*, section 2.2.

In order to investigate this issue, we collected data on an additional 50 receivership cases, commenced after the introduction of the Enterprise Act. After discarding cases for which data on all variables of interest were not available, this yielded a sample of 36 post-Enterprise Act receivership cases. We then ran similar tests to those reported in sections 5.1 and 5.2 investigating the determinants of realisations and costs but instead comparing first pre- with post-Act receiverships and then post-Act administrations with post-Act receiverships.

[Table 8 about here]

Table 8 reports findings on the determinants of realisations and costs in receiverships both before and after the Enterprise Act 2002. The same independent variables are included as in Tables 6 and 7, save that in place of the dummy for type of bankruptcy procedure, we now include a dummy for procedures commencing post-the introduction of the new law (*Post*). Whilst the coefficients for most of the same explanatory variables are statistically significant as in tables 6 and 7, *Post* is not statistically significant in any specification. We thus find no evidence that realisation values are greater, or costs smaller, in post-Act receiverships. This is contrary to what we would expect were lenders using their influence to select receivership after the Act in cases where this would maximise their recoveries. Moreover, the coefficient for the dummy *Oversecured* is negative in respect of total realisations and realisations plus net trading receipts, but the coefficient of the interaction term on oversecured and post-Act is not significant. This implies that receivers generate fewer realisations when they are appointed by an oversecured lender, and that this effect is not measurably different between the pre-Act and post-Act samples.

Table 9 reports the results of regressions investigating the determinants of realisations and costs in receiverships and administrations commenced after the Enterprise Act 2002. Because the choice of procedure may be endogenous to the expected realisations and costs, and to the level of secured debt, we use a two-stage treatment effects regression. The first (treatment) stage is a probit regression where

the dependent variable is the choice of bankruptcy procedure, a dummy taking the value one for administration and zero for receivership (Panel A). We include firm size, age, debt ratio and the proportion of secured debt as explanatory variables. Of these, only the coefficients for firm age and proportion of secured debt are statistically significant, indicating that older firms are more likely to go into administration, and firms with higher proportions of secured debt are more likely to go into receivership.

[Table 9 about here]

The second stage regression (Panel B) includes the full range of explanatory variables discussed above. The coefficients for type of bankruptcy procedure (*Type*) are significant where the dependent variable is costs, but not where it is realisations. Thus, controlling for potential selection effects in the post-Enterprise Act sample, we do not find any evidence that administration is associated with higher recoveries than receivership. We do, however, find robust evidence that it is associated with higher costs.

The results of these tests incorporating the post-Act receivership sample show that our finding of increased costs associated with administration as compared to receivership, which supports hypothesis 2, is highly robust. This is true both for a comparison between pre-Act receivership and post-Act administration (Table 7) as well as between post-Act administrations and receiverships (Table 9) in a treatment effects specification. Moreover, the costs of receiverships have not increased significantly since the Enterprise Act (Table 8) further evidencing that the increase is associated with use of administration, rather than with any other developments that may have influenced insolvency procedures more generally.

The findings as regards realisations are less clear-cut. Our comparison of pre-Act receivership with post-Act administration (Table 6) suggested that administration was associated with higher realisations, especially where the secured lender is oversecured, supporting hypotheses 1 and 1A. However, one interpretation of the absence of a significant difference in realisations between post Act receiverships and

administrations in Table 9 is that secured lenders are selecting the procedure so as to maximise realisations. This consequently raises a suggestion of selection bias in the post-Act administration sample, which would bias the sample in favour of hypothesis 1 and 1A in the tests conducted in Table 6. Yet if this were the case, we would expect the bias—and consequent uplift in recoveries for post-Act administration as against pre-Act receivership—to be strongest in cases where the secured creditor is undersecured, as here they will have the strongest incentive to select a procedure which will maximise their recoveries. However Table 6 reports that the increase in realisations is driven entirely by cases in which the lender is *oversecured*. In such cases the lender should be indifferent in selection as between administration and receivership. The size of our post-Act receivership sample is small, and it may simply be that any realisations effect is so small that we do not have statistical power to capture it in our treatment effects specification.

Moreover, we find no evidence that realisations have increased in post-Act receiverships as compared to receiverships commenced prior to the Enterprise Act (Table 8). We would expect to see such an increase if, after the Act, lender selection was biasing procedure choice towards those expected to yield higher realisations. This tends to contradict the inference of selection bias, and indirectly supports hypothesis 1. Moreover, Table 8 provides further support for hypothesis 1A in reporting a negative association between oversecured lenders and realisations in receiverships both before and after the change in the law. This implies that oversecured lenders were associated with lower returns in receiverships before the change in the law, and that this effect is still present in post-Act receiverships.

4.4 Limitations and Future Research

There is necessarily a considerable amount of uncertainty involved in the application of a new bankruptcy procedure. Empirical results from the early years of the Chapter 11 procedure in the US found that the (then) new law had given debtors a great deal of power, and creditors correspondingly less (LoPucki 1983). However, the law's effect has tended to become diluted with time as participants respond by 'contracting

around' the law (Baird and Rasmussen, 2002; Skeel, 2004). A similar process may well occur in the UK. It is therefore too soon to say whether the changes documented in our results will persist, or whether they may simply be disequilibrium effects resulting from transition. Further research conducted after the Enterprise Act regime has had time to 'bed down' would shed light on this issue.

However, a study of the immediate impact of a change in the law is nevertheless valuable because it offers a more direct comparison of the old and new regimes than a study with an intervening gap of several years. The wider the time difference between the two samples, the greater the possibility a temporal bias may be introduced, if unobserved time-variant effects impact upon the costs and recoveries in bankruptcy proceedings.

5. Conclusions and Implications

Recent changes in UK bankruptcy law have made it possible to examine empirically the costs and benefits of different degrees of secured creditor control in bankruptcy. The move in 2003 from receivership to administration may be seen in stylised terms as effecting a shift in control rights from secured to unsecured creditors in bankruptcy proceedings. To investigate the impact of this change, we present findings from a hand-coded dataset of 340 bankruptcy cases, which comprises the largest sample of bankruptcy realisations and costs yet reported.²³

We find that cases conducted under the new administration procedure are much quicker than receiverships, taking on average a little over half the time. This is entirely consistent with predictions, given the statutory time limit for administration proceedings.

Our strongest finding is that the direct costs associated with bankruptcy are greater in administration than in receivership, controlling for a range of other explanatory variables. This result is robust to the possibility of bias in the selection of

²³ Lubben (2008) reports findings on bankruptcy costs for a much larger sample, but does not investigate realisations.

bankruptcy procedure in the post-Enterprise Act environment introduced by the retention of a power to appoint a receiver by lenders with floating charges granted before 15 September 2003, to control for which we used a treatment effects specification to compare the costs associated with post-Act receiverships and administrations. These findings are consistent with hypothesis 2, which asserts that the greater use of legal mechanisms of accountability in administration—through the administrators’ fiduciary duties to all creditors, and the need to take a creditor vote in many cases—will introduce concomitant costs not present in receivership.

At the same time, we find evidence consistent with hypothesis 1, namely that administration cases are associated with higher gross recoveries than were receiverships. Moreover this difference is entirely driven by cases where the secured lender is oversecured. This is consistent with the intuition that greater accountability to unsecured creditors encourages administrators to act more effectively to generate recoveries in cases where, as fiduciaries for the senior claimant, they would have lacked sufficient incentives under receivership. However, this finding is less robust than our findings regarding costs, and we cannot exclude the possibility that it is an artefact of secured lenders’ ability to select between administration and receivership where they have a floating charge pre-dating the change in the law.

Thus whilst gross realisations in administration are higher, so too are costs, and it appears that the net effect on creditors therefore is equivocal. Moreover, administrations do not result in any significantly greater incidence of continued trading or going-concern sales than did receiverships, indicating that the new procedure is not preserving any more employment.

Our findings may be summarised as follows: the shift from secured to unsecured creditor control has increased the power of the insolvency practitioner—the agent—as against the creditors—the principals. The very high costs awards under administration imply that in many cases, the professional running the case is effectively the residual claimant. In turn, this provides an alternative, and less benign, explanation for the increase in gross recoveries under the new regime: it is because, with weak monitoring from unsecured creditors, insolvency practitioners have

themselves become the residual claimant in UK bankruptcies: they have a strong incentive to maximise the recoveries that will go to pay fee income.

Insofar as it is appropriate to give a welfare interpretation of our results, it appears to be negative. There is no appreciable difference in decisions concerning the allocation of the firm's assets (that is, continuation or closure) following the change in the law. The increase in gross realisations appears to be a distributional matter, with administrators appointed in the presence of oversecured lenders working harder to extract more of the surplus from asset buyers than do their colleagues appointed as receivers. However, the increase in direct costs implies a greater deadweight loss. As a result, administration appears to achieve lower *ex post* efficiency than receivership.

Our results also have more general implications for the debate about bankruptcy contracting and the desirability of secured creditor control. The change in UK bankruptcy governance, in essence, involves a crossing of the central fault line of corporate governance: a shift in control from a concentrated investor to many dispersed investors. With concentrated investor control, the main governance problem is how to prevent them from extracting rents from other investors. With control rights in the hands of dispersed investors, the problem is rather how to prevent those managing the firm from extracting rents. No clear consensus has emerged as to which of these is preferable. Our results imply that concentrated creditor governance in bankruptcy, in the form of strong control rights allocated to a single concentrated lender, does on average at least as good a job at preserving jobs and generating recoveries for creditors as does a relatively sophisticated legal procedure designed to allocate control to the residual claimant.

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Table 1: Summary details of interview subjects

<i>Interview Number</i>	<i>Date</i>	<i>Profession</i>	<i>Location</i>	<i>Expertise</i>	<i>Digital Record</i>
1.	06-07-05	Insolvency Practitioner (mid-market firm)	Birmingham		N
2.	12-07-05	Insolvency Practitioner (mid-market firm)	Nottingham		N
3.	20-07-05	Insolvency Practitioner ('big four' firm)	Birmingham		N
4.	21-07-05	Insolvency Practitioner ('big four' firm)	Birmingham		N
5.	24-08-05	Insolvency Practitioner (mid-market firm)	Birmingham		N
6.	08-11-05	Regulator (IPA)	London		N
7.	08-11-05	Insolvency Practitioner (mid-market firm)	London		N
8.	22-12-05	Regulator (IPA)	London		N
9.	22-12-05	Insolvency practitioner (mid-market firm)	London		N
10.	18-04-06	Accountant/pensions expert ('big four' firm)	London		Y
11.	03-05-06	Credit insurer	London		Y
12.	19-06-06	Banker (clearing bank)	London		Y
13.	30-06-06	Banker (clearing bank)	Bristol		N

Table 2: Prior literature on the direct costs of bankruptcy in private firms

Authors (year)	Jurisdiction, procedure, firm type	N	Mean costs, % of starting values (median)		Mean costs, % of final market values (median)	
			Book value	Market value (est)	Gross mkt value	Net mkt value
Lawless and Ferris (1997)	US: private firms, Ch 7	98	-	6.1 (1.1)	-	13.5 (2.1)
Lawless and Ferris (2000)	US: private firms, Ch 11	118	-	17.6 (3.5)	-	7.6 (4.7)
Bris et al (2006)	US: private firms, Ch 7 private firms, Ch 11	57	-	8.1 (2.5)	-	-
		38	-	-	37.9 (9.6)	-
		222	-	16.9 (1.9)	-	-
		157	-	-	9.4 (3.5)	-
Thorburn (2000)	Sweden, public and private firms, auction	263	6.4 (4.5)	-	19.1 (13.2)	-
Franks and Sussman (2000)	UK, private firms, r'ship Administration	41 7	- -	- -	- -	25.2 26.3
Citron <i>et al</i> (2004)	UK, MBO firms, receivership	65	-	-	15.2 (14.6)	24.5 (21.3)

Table 3 Sample

The table reports sample collection (Panel A), the year in which our sample cases entered each insolvency proceedings (Panel B) and industry distributions (Panel C). Industry classifications are based on 1-digit SIC code.

Panel A. Data collection		Firm-year observations		
		Pre-act Receivership	Administration	Post-act receivership
As the corporate bankruptcy provisions of the Enterprise Act 2002 came into force on 15 September 2003, a random sample of random samples of 250 receiverships (Pre-act) commencing between 1 January 2001 and 14 September 2003 and 250 administrations commencing between 15 September 2003 and 31 December 2004, respectively, were first identified using the index of insolvency appointments published in the <i>London Gazette</i> . For robustness tests, we also randomly select 50 post-act receiverships commencing between 15 September 2003 and 31 December 2004 from <i>London Gazette</i> .		250	250	50
Less: We exclude cases in which the insolvency procedure had not been completed by February 2006 and cases for which Receiver's Abstract of Receipts, and Payments or Administrator's Progress Report are unavailable in electronic form on the Companies House website (www.direct.companieshouse.gov.uk). We also exclude firm-year observations for which the industry information and firm-year characteristics from FAME are missing.		(141)	(55)	(14)
		109	195	36
Panel B. Sample distribution by year and procedure types		Firm-year observations		
year	Whole sample	Pre-act receivership	Administration	Post-act receivership
2001	16	16		
2002	54	54		
2003	88	39	42	7
2004	182		153	29
	340	109	195	36
Panel C. Sample distribution by industry		Firm-year observations		
Industrial Group	Whole sample	Pre-act receivership	Administration	Post-act receivership
Agriculture, forestry and fishing (1)	1	0	1	0
Mining (2)	19	8	10	1
Construction (3)	79	28	42	9
Manufacturing (4)	38	12	23	3
Transportation, communication, electric, gas and sanitary services (5)	31	6	24	1
Wholesale / retail trade (6)	82	28	48	6
Service (7)	90	27	47	16
Total	340	109	195	36

Table 4 Summary statistics

This table reports pre-bankruptcy firm characteristics (Panel A) and firm characteristics during bankruptcy proceedings (Panel B). Data for pre-act receiverships commences between 1 January 2001 and 14 September 2003, and data for post-act receivership/administrations commences between 15 September 2003 and 31 December 2004. *Oversecured portion* is the face value of secured creditors' claims divided by the estimated value of total assets at the entry to insolvency. Both remuneration fees and direct costs are obtained from 'receiver's abstract of receipts and payments' (under receivership) and 'administrator's progress report' (under administration). Direct costs comprises remuneration costs, legal fees, estate agent fees, document fees, etc. Recovery is the net difference between asset realizations plus net trading sales, and total direct costs divided by total claims. Proportion of trade is the number of cases that choose to continue trading during insolvency proceedings among whole cases in that legal proceeding. Proportion of outcome is the number of cases that is a going concern sale relative to whole cases in that legal proceeding.

Variables	Mean	STD	25%	50%	75%	T test for mean (median) relative to administration	T test for mean (median) relative to post-act receivership
<i>Panel A: Pre-bankruptcy firm characteristics</i>							
<i>Age</i>							
<i>Pre-Act receivership</i>	16.698	15.426	6.219	9.958	22.150	-0.28(-0.38)	1.50(2.07 ^{**})
<i>Post-act Receivership</i>	12.564	12.941	3.694	8.169	16.194	-1.95 [*] (-2.43 ^{**})	
<i>Administration</i>	17.242	16.808	6.292	11.603	21.664		
<i>Turnover</i>							
<i>Pre-Act receivership</i>	3,841.757	6,898.348	0.000	1,738.000	4,489	0.60(2.58 ^{**})	1.27(1.45)
<i>Post-act Receivership</i>	2,249.861	5,345.048	0.000	173.500	3,184	-0.87(0.15)	
<i>Administration</i>	3,224.682	9,433.749	0.000	0.000	1,932		
<i>Book value of assets (BV)</i>							
<i>Pre-Act receivership</i>	1,530,000	1,880,000	351,000	907,000	1,690,000	-0.68(3.28 ^{***})	1.61(1.65 [*])
<i>Post-act Receivership</i>	1,070,000	1,250,000	208,000	552,000	1,640,000	-1.16(0.33)	
<i>Administration</i>	3,320,000	26,900,000	179,000	461,000	1,320,000		
<i>Estimated market value of assets at entry to bankruptcy</i>							
<i>Pre-Act receivership</i>	805,000	1,220,000	200,000	439,000	911,000	0.89(4.21 ^{***})	0.88(2.02 ^{**})
<i>Post-act Receivership</i>	632,000	998,000	135,000	289,000	421,000	-0.12(1.07)	
<i>Administration</i>	656,000	1,510,000	69,633	190,000	572,000		
<i>Debt ratio based on estimated market value</i>							
<i>Pre-Act receivership</i>	8.576	24.219	1.715	2.799	6.311	-0.90(-0.48)	-0.93(-0.09)
<i>Post-act Receivership</i>	40.719	215.225	1.944	2.930	6.226	0.76(-1.56 [*])	
<i>Administration</i>	14.330	64.995	1.849	3.420	6.424		
<i>Secured debt to total debts</i>							
<i>Pre-Act receivership</i>	0.424	0.237	0.237	0.402	0.571	5.68 ^{***} (5.87 ^{***})	-2.75 ^{**} (-2.55 ^{**})
<i>Post-act Receivership</i>	0.569	0.297	0.341	0.618	0.862	6.07 ^{***} (5.63 ^{***})	
<i>Administration</i>	0.261	0.243	0.043	0.228	0.406		
<i>Assets (est market value) to secured debt</i>							
<i>Pre-Act receivership</i>	2.689	5.151	0.636	0.938	2.488	-0.54(4.94 ^{***})	-1.06(-1.23)
<i>Post-act Receivership</i>	36.087	196.527	0.842	1.162	3.500	1.02(4.26 ^{***})	
<i>Administration</i>	3.951	24.112	0.175	0.600	1.363		

Panel B: firm characteristics during bankruptcy proceedings

Variables	Mean	STD	25%	50%	75%	T (Z) test for mean (median) relative to administration	T (Z) test for mean (median) relative to post-act receivership
<i>Duration (days)</i>							
Pre-Act receivership	626.577	246.965	458.000	602.000	761.000	13.79*** (10.55***)	5.67** (5.88***)
Post-act Receivership	393.487	115.062	310.000	413.000	500.000	2.24** (1.56*)	
Administration	356.815	88.235	339.000	358.000	365.000		
<i>Total realizations (R1), scaled by estimated market value of assets at entry</i>							
Pre-Act receivership	1.025	1.280	0.388	0.746	1.092	-0.45 (-1.98**)	-0.54(-1.77**)
Post-act Receivership	1.157	1.328	0.604	1.006	1.226	0.29(0.86)	
Administration	1.093	1.240	0.560	0.877	1.117		
<i>Total realizations plus net trading surplus (R2), scaled by estimated market value of assets at entry</i>							
Pre-Act receivership	1.028	1.379	0.388	0.705	1.092	-0.68(-2.71**)	-0.49(-1.87*)
Post-act Receivership	1.151	1.325	0.604	1.006	1.222	0.06(0.43)	
Administration	1.137	1.255	0.590	0.925	1.161		
<i>Remuneration, scaled by estimated market value of assets at entry</i>							
Pre-Act receivership	0.197	0.252	0.055	0.114	0.198	-3.39** (-4.05**)	0.88(-0.19)
Post-act Receivership	0.167	0.147	0.054	0.127	0.268	-4.07* (-2.47**)	
Administration	0.346	0.513	0.091	0.194	0.364		
<i>Total direct costs, scaled by estimated market value of assets at entry</i>							
Pre-Act receivership	0.314	0.356	0.102	0.178	0.362	-3.93** (-4.59**)	0.750(-0.44)
Post-act Receivership	0.276	0.227	0.105	0.228	0.385	-4.39** (-2.63**)	
Administration	0.564	0.748	0.179	0.347	0.589		
<i>Recovery</i>							
Pre-Act receivership	0.205	0.223	0.032	0.117	0.326	-0.11(-0.60)	-2.57(-2.85**)
Post-act Receivership	0.318	0.243	0.147	0.241	0.448	2.69** (3.26***)	
Administration	0.202	0.237	0.032	0.112	0.282		
<i>Proportion of trade</i>							
	Mean						
Pre-Act receivership	0.349 (38/109)						
Post-act Receivership	0.194 (7/36)						
Administration	0.277 (54/195)						
<i>Proportion of going concern sales</i>							
Pre-Act receivership	0.477 (52/109)						
Post-act Receivership	0.667 (24/36)						
Administration	0.415 (81/195)						

Table 5 Correlations Table

This table reports Pearson correlations, with *p*-values are reported in parentheses. *REA1* is log of the asset realizations, scaled by size and *REA2* is log of asset realizations plus net trading surplus, scaled by size; *Remuneration* is log of remuneration costs, scaled by size and *Total direct costs* is total direct costs scaled by size. Both remuneration fees and direct costs are obtained from ‘receiver’s abstract of receipts and payments’ (under receivership) and ‘administrator’s progress report’ (under administration). Direct costs comprises remuneration costs, legal fees, estate agent fees, document fees, etc; *Recovery* is the net difference between asset realizations plus net trading sales, and total direct costs divided by total claims. *Type* takes the value of one in an administration case and zero for pre-act receivership; *Trade* equals to one if the firm continues trading during insolvency proceeding and zero if not; *Going concern* equals one if the outcome is a going concern sale and zero if not; *Duration* is the log of duration for proceedings; *Debt_ratio* is the ratio of total claims to the estimated value of total assets.

<i>Variable</i>	<i>REA1</i>	<i>REA2</i>	<i>Remu</i>	<i>Direct_cost</i>	<i>Recovery</i>	<i>Type</i>	<i>Trade</i>	<i>Outcome</i>	<i>Du</i>	<i>Debt_ratio</i>
<i>REA1</i>	1.000									
<i>REA2</i>	0.981 (0.000)	1.000								
<i>Remu</i>	0.739 (0.000)	0.740 (0.000)	1.000							
<i>Total direct costs</i>	0.779 (0.000)	0.777 (0.000)	0.935 (0.000)	1.000						
<i>Recovery</i>	0.321 (0.000)	0.348 (0.000)	-0.044 (0.425)	-0.052 (0.340)	1.000					
<i>Type</i>	0.128 (0.025)	0.147 (0.010)	0.197 (0.001)	0.242 (0.000)	-0.007 (0.910)	1.000				
<i>Trade</i>	0.066 (0.225)	0.095 (0.078)	0.111 (0.041)	0.065 (0.233)	0.257 (0.000)	-0.069 (0.232)	1.000			
<i>Going concern</i>	0.043 (0.429)	0.016 (0.764)	-0.095 (0.082)	-0.095 (0.081)	0.101 (0.064)	-0.051 (0.369)	0.012 (0.821)	1.000		
<i>Duration</i>	0.029 (0.597)	0.000 (0.999)	0.000 (0.996)	-0.043 (0.434)	0.011 (0.843)	-0.605 (0.000)	0.180 (0.001)	0.040 (0.454)	1.000	
<i>Debt_ratio</i>	0.183 (0.001)	0.181 (0.001)	0.521 (0.000)	0.556 (0.000)	-0.006 (0.910)	0.051 (0.370)	-0.070 (0.198)	-0.103 (0.055)	-0.057 (0.288)	1.000

Table 6: Determinants of realisations for pre-act receivership and administration

This table compares the determinants of asset realisations for pre-insolvency act receivership and post-act administration, and presents coefficients from regressions with the actual realisations as the dependent variables. Data are from receiverships commencing between 1 January 2001 and 14 September 2003 and administrations commencing between 15 September 2003 and 31 December 2004. Realisations are obtained from ‘receiver’s abstract of receipts and payments’ (under receivership) and ‘administrator’s progress report’ (under administration). We use two measures for realisations. *REA1* is log of the asset realizations, scaled by size and *REA2* is log of asset realizations plus net trading surplus, scaled by size. *Type* takes the value of one in an administration case and zero for pre-act receivership; *Trade* equals to one if the firm continues trading during insolvency proceeding and zero if not; *Outcome* equals to one if the outcome is a going concern sale and zero if not; *Duration* is log of the length of the proceeding; *Debt_ratio* is the ratio of total claims to the estimated value of total assets; *Size* is log of the estimated value of asset at the beginning of the insolvency; *Oversecured* equals to one if the estimated value of total assets at the entry to insolvency is larger than the face value of secured creditors’ claims and zero if not. Industry classifications are based on 1-digit SIC code. T-statistics are reported in parentheses below coefficient estimates. ***, **, * indicates two-sided statistical significance at the 0.01, 0.05, and 0.10 level respectively.

	Predicted sign	Panel A: <i>REA1</i>			Panel B: <i>REA2</i>		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<i>Intercept</i>		0.943 ^{***} (10.29)	0.941 ^{***} (10.28)	0.923 ^{***} (10.10)	0.998 ^{***} (10.90)	0.996 ^{***} (10.90)	0.972 ^{***} (10.70)
<i>Type</i>	+	0.033 [*] (1.91)	0.035 ^{**} (2.03)	0.015 (0.76)	0.039 ^{**} (2.27)	0.042 ^{**} (2.43)	0.018 (0.90)
<i>Trade</i>	+	0.033 ^{**} (3.28)	0.033 ^{**} (3.32)	0.032 ^{**} (3.17)	0.041 ^{***} (4.11)	0.042 ^{***} (4.17)	0.040 ^{***} (4.03)
<i>Outcome</i>		0.016 (1.88)	0.016 (1.86)	0.016 [*] (1.89)	0.010 (1.15)	0.010 (1.13)	0.010 (1.19)
<i>Duration</i>	+	0.030 ^{**} (2.22)	0.029 ^{**} (2.19)	0.033 ^{**} (2.48)	0.020 (1.49)	0.019 (1.46)	0.025 (1.84)
<i>Debt_ratio</i>		0.001 ^{***} (11.12)	0.001 ^{***} (11.03)	0.001 ^{***} (11.26)	0.001 ^{***} (11.11)	0.001 ^{***} (11.01)	0.001 ^{***} (11.33)
<i>Size</i>		-0.015 ^{***} (-4.72)	-0.015 ^{***} (-4.38)	-0.014 ^{***} (-4.30)	-0.015 ^{***} (-4.69)	-0.014 ^{***} (-4.29)	-0.014 ^{***} (-4.22)
<i>Oversecured</i>			-0.011 (-1.23)	-0.035 ^{**} (-2.45)		-0.015 (-1.62)	-0.044 ^{***} (-3.06)
<i>Oversecured*Type</i>	+			0.040 ^{**} (2.15)			0.048 ^{**} (2.62)
Industry dummies		Yes	Yes	Yes	Yes	Yes	Yes
Year dummies		Yes	Yes	Yes	Yes	Yes	Yes
Observations		306	306	306	305	305	305
Adjusted R ²		0.402	0.403	0.410	0.403	0.407	0.419

Table 7: Determinants of direct cost for pre-act receivership and administration

This table compares the determinants of insolvency costs for pre-insolvency act receivership and post-act administration, and presents coefficients from regressions with insolvency costs as the dependent variables. Data are from receiverships commencing between 1 January 2001 and 14 September 2003 and administrations commencing between 15 September 2003 and 31 December 2004. We use two measures for insolvency costs: *Remuneration*, and *Total direct costs*. *Remuneration* is log of remuneration costs, scaled by size and *Total direct costs* is total direct costs scaled by size. Both remuneration fees and direct costs are obtained from ‘receiver’s abstract of receipts and payments’ (under receivership) and ‘administrator’s progress report’ (under administration). Total direct costs comprise remuneration costs, legal fees, estate agent fees, document fees, etc. *Type* takes the value of one in an administration case and zero for pre-act receivership; *Trade* equals to one if the firm continues trading during insolvency proceeding and zero if not; *Outcome* equals to one if the outcome is a going concern sale and zero if not; *Duration* is log of the length of the proceeding; *Debt_ratio* is the ratio of total claims to the estimated value of total assets; *Size* is log of the estimated value of asset at the beginning of the insolvency; *Oversecured* equals to one if the estimated value of total assets at the entry to insolvency is larger than the face value of secured creditors’ claims and zero if not. Industry classifications are based on 1-digit SIC code. T-statistics are reported in parentheses below coefficient estimates. ***, **, * indicates two-sided statistical significance at the 0.01, 0.05, and 0.10 level respectively.

	Predicted sign	Panel A: <i>Remuneration</i>			Panel B: <i>Total direct costs</i>		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<i>Intercept</i>		0.983*** (11.81)	0.984*** (11.80)	0.980*** (11.68)	1.060*** (13.44)	1.060*** (13.41)	1.049*** (13.22)
<i>Type</i>	+	0.053*** (3.29)	0.051*** (3.21)	0.047** (2.57)	0.058*** (3.87)	0.059*** (3.89)	0.047** (2.76)
<i>Trade</i>	+	0.056*** (6.11)	0.056*** (6.08)	0.055*** (6.02)	0.047*** (5.41)	0.047*** (5.41)	0.046*** (5.31)
<i>Outcome</i>		0.008 (1.02)	0.008 (1.03)	0.008 (1.04)	0.010 (1.29)	0.010 (1.28)	0.010 (1.30)
<i>Duration</i>	+	0.041*** (3.42)	0.042*** (3.43)	0.042*** (3.46)	0.032** (2.79)	0.032** (2.77)	0.034** (2.94)
<i>Debt_ratio</i>		0.001*** (8.72)	0.001** (8.73)	0.001*** (8.72)	0.001*** (9.86)	0.001*** (9.80)	0.001*** (9.90)
<i>Size</i>		-0.035*** (-11.80)	-0.036*** (-11.64)	-0.036*** (-11.57)	-0.033*** (-11.82)	-0.033*** (-11.47)	-0.033*** (-11.39)
<i>Oversecured</i>			0.005 (0.62)	0.000 (0.02)		-0.003 (-0.39)	-0.016 (-1.28)
<i>Oversecured*Type</i>				0.008 (0.47)			0.021 (1.33)
Industry dummies		Yes	Yes	Yes	Yes	Yes	Yes
Year dummies		Yes	Yes	Yes	Yes	Yes	Yes
Observations		302	302	302	304	304	304
Adjusted R ²		0.534	0.533	0.532	0.553	0.551	0.552

Table 8: Determinants of asset realisation and cost for pre-act receivership and post-act receivership

This table compares the determinants of asset realisations and insolvency costs for pre-insolvency act receivership and post-act administration, and presents coefficients from regressions with realization costs and insolvency costs as the dependent variables. Data are from pre-act receiverships commencing between 1 January 2001 and 14 September 2003 and post-act receivership commencing between 15 September 2003 and 31 December 2004. We use two measures for realisations. *REA1* is log of the asset realizations, scaled by size and *REA2* is log of asset realizations plus net trading surplus, scaled by size; we use three measures for insolvency costs: *Remuneration*, *Total direct costs* and *Duration*. *Remuneration* is log of remuneration costs, scaled by size and *Total direct costs* is total direct costs scaled by size. Total direct costs comprise remuneration costs, legal fees, estate agent fees, document fees, etc. *Post* takes the value of one for post-act receivership and zero for pre-act receivership; *Trade* equals to one if the firm continues trading during insolvency proceeding; and zero if not; *Outcome* equals to one if the outcome is a going concern sale and zero if not; *Duration* is log of the length of the proceeding; *Debt_ratio* is the ratio of total claims to the estimated value of total assets; *Size* is the log of the estimated value of asset at the beginning of the insolvency; *Oversecured* equals to one if the estimated value of total assets at the entry to insolvency is larger than the face value of secured creditors' claims and zero if not. Industry classifications are based on 1-digit SIC code. T-statistics are reported in parentheses below coefficient estimates. ***, **, * indicates two-sided statistical significance at the 0.01, 0.05, and 0.10 level respectively.

	Panel A: Realization				Panel B: Cost			
	<i>REA1</i>		<i>REA2</i>		<i>Remuneration</i>		<i>Total direct costs</i>	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
<i>Intercept</i>	0.990*** (6.63)	0.913*** (6.05)	1.039*** (6.96)	0.940*** (6.30)	1.115*** (9.04)	1.147*** (9.00)	1.103*** (9.34)	1.080*** (8.84)
<i>Post</i>	0.032 (0.87)	0.031 (0.76)	0.032 (0.87)	0.030 (0.73)	0.008 (0.25)	-0.012 (-0.35)	0.012 (0.40)	-0.001 (-0.02)
<i>Trade</i>	0.059*** (3.41)	0.057** (3.32)	0.060*** (3.45)	0.058*** (3.41)	0.076*** (5.13)	0.075*** (5.06)	0.067*** (4.74)	0.065*** (4.62)
<i>Outcome</i>	0.030* (1.97)	0.028 (1.84)	0.026 (1.68)	0.024 (1.58)	0.009 (0.65)	0.012 (0.86)	0.012 (0.92)	0.013 (0.98)
<i>Duration</i>	0.026 (1.27)	0.033 (1.59)	0.017 (0.82)	0.026 (1.27)	0.028 (1.64)	0.024 (1.41)	0.031 (1.89)	0.032* (1.94)
<i>Debt_ratio</i>	-0.000** (-2.85)	-0.000** (-2.92)	-0.000** (-2.88)	-0.000** (-2.99)	0.000 (0.34)	0.000 (0.45)	0.000 (0.61)	0.000 (0.68)
<i>Size</i>	-0.017** (-2.79)	-0.013** (-2.03)	-0.016** (-2.65)	-0.011 (-1.77)	-0.038*** (-7.24)	-0.039*** (-7.04)	-0.036*** (-7.13)	-0.034*** (-6.48)
<i>Oversecured</i>		-0.039** (-2.25)		-0.050** (-2.88)		0.004 (0.29)		-0.017 (-1.19)
<i>Oversecured*Post</i>		0.017 (0.51)		0.024 (0.73)		0.031 (1.07)		0.027 (0.97)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	149	149	148	148	143	143	145	145
Adjusted R ²	0.147	0.169	0.126	0.169	0.341	0.341	0.292	0.290

Table 9: Determinants of asset realisation and cost for administration and post-act receivership (Treatment effects)

This table compares the determinants of asset realisations and insolvency costs for pre-insolvency act receivership and post-act administration, and presents coefficients from the treatment effect regression with type as a procedure dummy. The first step for treatment is the Probit regression reported in Panel A and the results for the treatment effect regression is in Panel B. Data for both post-act receivership and administration commences between 15 September 2003 and 31 December 2004. *Size* is the log of the estimated value of asset at the beginning of the insolvency; *Age* is the number of years that the firm has been incorporated before entering into bankruptcy; *Debt_ratio* is the ratio of total claims to the estimated value of total assets; *Prop_secured* is proportion of secured debt over total claims; We use two measures for realisations. *REA1* is log of the asset realizations, scaled by size and *REA2* is log of asset realizations plus net trading surplus, scaled by size; we use three measures for insolvency costs: *Remuneration*, *Total direct costs* and *Duration*. *Remuneration* is log of remuneration costs, scaled by size and *Total direct costs* is total direct costs scaled by size. Total direct costs comprise remuneration costs, legal fees, estate agent fees, document fees, etc. *Type* takes the value of one in an administration case and zero for post-act receivership; *Trade* equals to one if the firm continues trading during insolvency proceeding; and zero if not; *Outcome* equals to one if the outcome is a going concern sale and zero if not; *Duration* is log of the length of the proceeding; *Oversecured* equals to one if the estimated value of total assets at the entry to insolvency is larger than the face value of secured creditors' claims and zero if not. *Lambda* is the inverse-mills ratio. Industry classifications are based on 1-digit SIC code. T-statistics are reported in parentheses below coefficient estimates. ***, **, * indicates two-sided statistical significance at the 0.01, 0.05, and 0.10 level respectively.

Panel A: Probit regression for firststep		Panel B: treatment effect regressions								
<i>Type</i>		Realization				Cost				
Model 1		<i>REA1</i>		<i>REA2</i>		<i>Remuneration</i>		<i>Total direct costs</i>		
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
<i>Intercept</i>	2.537* (2.46)	<i>Intercept</i>	0.989*** (7.12)	0.992*** (7.11)	1.029*** (7.36)	1.031*** (7.34)	0.923*** (10.68)	0.923*** (10.51)	1.035*** (12.31)	1.032*** (12.07)
<i>Size</i>	-0.165 (-1.86)	<i>Type</i>	0.016 (0.43)	0.023 (0.55)	0.014 (0.37)	0.021 (0.51)	0.104*** (3.95)	0.103*** (3.56)	0.074** (3.02)	0.071** (2.58)
<i>Age</i>	0.378** (2.63)	<i>Trade</i>	0.020 (1.46)	0.020 (1.47)	0.031* (2.24)	0.031* (2.25)	0.047*** (5.42)	0.047*** (5.41)	0.034*** (3.94)	0.034*** (3.93)
<i>Debt_ratio</i>	-0.002 (-1.42)	<i>Outcome</i>	0.030* (2.46)	0.030* (2.47)	0.025* (2.07)	0.026* (2.08)	0.006 (0.79)	0.006 (0.79)	0.001 (0.10)	0.001 (0.09)
<i>Prop_secured</i>	-1.859*** (-4.50)	<i>Duration</i>	0.048* (2.37)	0.047* (2.26)	0.042* (2.07)	0.041* (1.97)	0.039** (3.14)	0.039** (3.08)	0.029* (2.30)	0.030* (2.33)
		<i>Debt_ratio</i>	0.000* (2.11)	0.000* (2.13)	0.000* (2.00)	0.000* (2.02)	0.001*** (9.75)	0.001*** (9.73)	0.001*** (11.26)	0.001*** (11.21)
		<i>Size</i>	-0.026*** (-6.09)	-0.026*** (-5.73)	-0.026*** (-6.10)	-0.026*** (-5.73)	-0.032*** (-10.29)	-0.032*** (-10.03)	-0.030*** (-10.49)	-0.030*** (-10.15)
		<i>Oversecured</i>		0.011 (0.36)		0.007 (0.21)		0.001 (0.05)		-0.005 (-0.23)

		<i>Oversecured*Post</i>	-0.017		-0.012		-0.000		0.007	
			(-0.52)		(-0.37)		(-0.00)		(0.34)	
		<i>Lambda</i>	-0.002	-0.000	-0.000	-0.000	-0.051***	-0.051**	-0.029*	-0.030
			(-0.08)	(-0.02)	(-0.00)	(-0.01)	(-3.40)	(-2.96)	(-2.03)	(-1.78)
Industry dummies	Yes	Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	233	Observations	232	232	232	232	230	230	230	230
Adjusted R ²	0.245	Wald Chi	75.10***	75.176***	72.56***	72.21***	425.1***	370.1***	468.1***	418.3***