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**Corporate insolvency procedures in England:
The uneasy case for liquidations**

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Abstract

Our paper investigates a comprehensive sample of 574 English corporate insolvency cases, including direct liquidation cases. In contrast to other insolvency procedures, liquidations perform poorly on average and fail to produce satisfactory repayments to creditors. We run multinomial Logit regressions to explain the choice between liquidation and reorganization. We obtain three main results. First, we confirm that size matters: distressed firms owning low assets have higher chances of being liquidated immediately. Second, the presence of secured creditors decreases the risk of direct liquidation. This provides a clue that in England, the most-informed creditors adapt their strategies and turn away from the less-performing procedures. Third, we find that the likelihood of administration— which appears nowadays as the main alternative to direct liquidation—significantly depends on the proportion of fixed/current assets owned by the firms.

1. Introduction

The promotion of entrepreneurship inevitably raises the question of the protection of investors' rights when financial distress occurs. The effectiveness of such protection mostly depends on the design of bankruptcy/insolvency codes[1], which in turn determines the investment decisions. Indeed, as highlighted by Succurro (2012), the investment share of GDP is higher in more efficient and sophisticated insolvency systems. The way such systems are designed also influences the choice to launch new businesses, thus promoting entrepreneurship (Estrin *et al.*, 2017): according to Eurobarometer 2012, 43% of European residents see the threat of going insolvent as their main cause of concern in case they start a new venture. International comparative approaches stress that such fear is even more accentuated for SMEs (Bond *et al.* 2003), as small businesses have more difficulties than others in financing their investments with external financing (Beck *et al.* 2008).

In such a context, the ability to attract investors—including bankers—depends on how well their property rights are protected. Interestingly, Beck *et al.* (2008) suggest that only a good protection of those rights—through well-performing institutions and laws—can alleviate the difficulties of raising external financing, with the strongest effect being observed on the smallest companies. Among such institutions, insolvency procedures play a noteworthy role, as they determine creditors' rights on assets handled by companies that become insolvent, and provide rules on how these assets should be distributed among them (White, 1989). Laitinen (2011) expands this view by suggesting that insolvency procedures also provide court-supervised tools to screen profitable *vs.* non-profitable businesses. Filtering errors are then minimized whenever the former are reorganized while the latter are liquidated (*ex-post* efficiency).[2] As noted by Titman (1984) and Berkovitch *et al.* (1997), the potential risk of liquidation after insolvency filing might even change the financing and investment decisions before a default occurs (*ex ante* efficiency). Indeed, more-lenient procedures can encourage risk-taking (Eberhart *et al.*, 2016) and/or reduce financing costs (Blazy *et al.*, 2013).

From that perspective, the policymakers should not only concern themselves with promoting new businesses and creating new jobs but should also create legal frameworks for reviving viable distressed firms while liquidating—at the lowest cost—non-profitable ones. Whatever their degree of severity, insolvency procedures should also provide practical means to identify the residual claims (*i.e.*, claims that benefit from any marginal increase in the firm's value). Aghion *et al.* (1992) suggest, for instance, transferring equity rights from the shareholders to the creditors. Overall, whenever default cannot be solved privately, insolvency procedures should offer *fast*, *cheap*, *flexible*, and *efficient* ways of solving default (Haugen and Senbet 1988). These four criteria are key elements of attractive bankruptcy systems, *i.e.* able to protect (maximization issue) and coordinate (sharing issue) the creditors' rights and thus facilitate access to external financing (Hart, 2006). This paper assesses to what extent these criteria are fulfilled in England. The justifications for focusing on the English system are threefold.

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[1] The terms insolvency/bankruptcy will be used interchangeably throughout the paper. Yet, it is noteworthy to mention that in the UK, corporate default is referred to as insolvency, not bankruptcy.

[2] From the debtor's point of view, such screening should not be biased systematically towards liquidation, provided that the NPV of the firm's project remains positive. From the creditors' point of view, the choice of one insolvency procedure against another mostly depends on how their repayment rights are protected under such procedure.

Firstly, the presence of hybrid legal features makes England an interesting country to study, especially regarding its ability to provide businesses with a sophisticated insolvency environment. Contrary to other countries[3] that have a limited set of procedures to solve financial distress, England originally proposed a menu of rescue mechanisms (administrations, CVA), and it simultaneously offers several ways of preparing liquidation, either directly (CL, CVL) or indirectly (receivership). In addition, collective insolvency procedures coexist with procedures designed to prioritize the interests of specific categories of creditors (secured creditors owning a charge, under receivership[4]). This coexistence of several insolvency procedures within the same country offers the agents some degree of freedom, as they can opt[5] for the procedures prioritizing their interests and ignore the others (Rasmussen, 1992).

Secondly, England provides businesses with a rather well-diversified and mature financial system. *Ceteris paribus*, this should facilitate access to external funds, either directly on the financial markets and/or indirectly via financial intermediaries. Wehinger (2012) shows that in the United Kingdom, bank loans have been increasing since the early 2000s and relates this general trend to the policy efforts made in the United Kingdom to promote lending to SMEs. Yet, other recent works (Hughes, 2013) stress a slowdown in bank loans since the 2008 financial crisis. Overall, Van der Schans (2012) confirms that, despite some structural issues, most of the SMEs operating in the UK have satisfactory access to external finance and use a variety of financing channels, including bank loans.[6] The same study confirms, however, the limited access of SMEs to capital and bond markets.

Thirdly, as in many other European economies (Dewaelheyns and Van Hulle, 2008), most of the businesses operating in England are SMEs. According to Ayyagari *et al.* (2007), companies with fewer than 500 employees represent 95% of the overall population of firms, and 56% have less than 50 employees. In such a context, insolvency procedures should not be designed in a way that would exclusively favor big companies, as otherwise it would miss the bulk of the population.

Our motivation is to assess to what extent such a flexible insolvency system can generate fast and substantial recoveries at a low cost. We test for size effects, and we examine whether the triggering of one procedure against another depends on the firm's size. Behind this question, we study the chances of small/middle-sized businesses ending up in (un)attractive insolvency procedures. We also examine whether the probability of filing for a specific procedure—especially one dedicated to direct liquidation—depends (or not) on the presence of secured creditors. This latter category is mostly composed of bankers who are in a position to identify the procedures that best protect their interests. If it appears that the distressed businesses have higher chances of ending up in insolvency procedures that are avoided by their bankers, one might expect *ex ante* inefficiencies to arise in their access to intermediated finance.

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[3] Germany, for instance, offers only two main procedures (or outcomes) after insolvency filing: one corresponds to direct liquidation, and the other aims at preparing a plan (*Insolvenzplan*). The latter remains scarce in practice (Angele, 2008).

[4] Receivership was abolished by Enterprise Act 2002, but open receivership cases will continue past this date until they are closed.

[5] Depending on the legislation, the decision to trigger insolvency can be made by: *i)* the debtor, *ii)* the creditors, or *iii)* both. Fundamentally, however, this remains a constrained decision: legal provisions can force the firm to enter a procedure under particular circumstances (e.g., excessive liabilities, suspended business). Moreover, the perceived attractiveness of the rules prevailing under bankruptcy, when compared to informal renegotiation, is likely to influence the debtor/creditors' volition to file for a specific procedure.

[6] According to Van der Schans (2012), English SMEs use bank overdrafts (29%), credit cards (19%), bank commercial & mortgage loans (11%), directors & family equity (11%), leasing (7%), and others (6%). Of these, 51% do not use external finance but exclusively finance their activities with trade credit and/or internal reserves (the total of these figures exceeds 100%, as a corporation can use several financing sources at the same time).

The literature on corporate bankruptcy often describes England as a country offering one of the most favorable legal environments for creditors (La Porta *et al.* 1998). *Ceteris paribus*, as suggested by Beck *et al.* (2008), such a creditor-friendly system should ease firms' access to external financing (including bank loans). Things are changing, however. Over the past few years, despite its early inclination towards creditors, the English legislation has been exhibiting a rising inclination towards the debtors. With the Enterprise Act 2002, receivership (a mechanism where secured creditors benefited the most from their exclusive rights) was abolished. Reforms were made to increase the likelihood of continuation—even if liquidation remains the most frequent outcome—and, at the same time, to provide a level playing field to all the creditors, including the unsecured ones. This legal specificity may explain why most of the studies on England (Armour *et al.* 2008; Frisby 2004; Frisby 2006) have largely focused on debtor survival (or at least attempts at survival). *As a result, unfortunately, the English liquidation procedures have hardly been analyzed.* Another reason is the lack of available information on liquidation files.

Most studies to date have emphasized the rather good performances of the UK insolvency system (World Bank 2014). In the literature, such performances mostly encompass bankruptcy costs, durations of the procedures, creditors' recovery rates, and—sometimes—firms' survival rates.[7] A very interesting work on the United Kingdom (Armour *et al.* 2008) analyzes the costs and recoveries for bankrupt firms. This comprehensive study is centered on administrations and receiverships, which constitute approximately 15% of all the corporate insolvencies filed in the United Kingdom[8]. Alongside this population, however, 85% of the UK's bankrupt firms end up in liquidation, most of them being SMEs. Thus, by excluding liquidation from the analysis, the picture remains incomplete. Are such good performances preserved when incorporating the procedures dedicated to liquidation? If the answer is no, it may raise concerns over the ability of English businesses —especially the small and middle-sized ones—to attract external investors.

Our paper contributes to this literature[9] by encompassing all the types of insolvency procedures, including the most prevalent ones, *i.e.* those targeting direct liquidation. We manually collected and hand-coded a dataset comprising 574 corporations that filed for corporate insolvency in England between 1998 and 2005. Information on compulsory liquidation (CL) and creditor voluntary liquidation (CVL) originates respectively from the Insolvency Service©[10] and a private insolvency firm[11]. This enables us to investigate which variables explain the choice[12] of complex, but value-preserving, procedures (administration, receivership) against simpler direct liquidation procedures (CL, CVL). To our knowledge, this inclusion of liquidation files has never been carried out in previous studies, especially because most of these files are rapidly destroyed.

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[7] It has commonly been suggested in the law and economics literature that court control (a lesser form of which is found in the US Ch.11 procedure) could be costly and inefficient, despite a careful study by Morrison (2007) presenting an opposite finding.

[8] Refer to the Insolvency Service© website for the latest statistics of filings under different insolvency procedures.

[9] Our approach focuses on bankrupt firms only. This allows us to identify the factors explaining the outputs of procedures that provide different legal environments to solve financial distress. Other interesting studies focus on the various ways of closing business (sale *vs.* liquidation, compulsory *vs.* voluntary exit) for both profitable and distressed firms (see Wennberg *et al.*, 2010, for Sweden, Boyer and Blazy, 2012, for France). These studies complement our approach by encompassing a broader set of situations, but without distinguishing between the types of insolvency procedures.

[10] The Insolvency Service is a government agency of the Department of Business Innovation and Skills, with headquarters in London. The Insolvency Service administers compulsory liquidations and personal bankruptcies, and it verifies misconduct and discrepancies if required.

[11] For CVL, we obtain information through Begbies Traynor©, a UK leading professional consultancy service composed of insolvency practitioners, professional advisors, consultants, accountants, etc.

[12] Such choice is made under constraints, and it lies in the hands of the debtor and/or the creditors (depending on the firm's individual situation and on the type of procedure engaged).

In a nutshell, our contribution is twofold. First, we investigate how the English direct liquidation procedures differ from the others. Precisely, we test to what extent the costs, durations, firm size[13], and creditor repayments[14] differ, on average, between procedures (CLs, CVLs, administrations, receiverships). Second, we highlight the factors that may determine the choice of one insolvency procedure against another, each providing a distinct legal environment to solve finance distress.[15] Namely, we test whether such a choice is influenced by *size effects* (e.g., total assets and due amounts) and by *structural effects* (e.g., structure of assets and of claims).

We obtain three groups of findings. Firstly, we find that CVL is no faster or cheaper than administration and receivership. This is an important finding, and it resonates with the results found by Bris *et al.* (2006) for US liquidation and reorganization comparisons. Here, the authors claim that US Chapter 7 (liquidation) is no cheaper or quicker than US Chapter 11 (reorganization). Furthermore, according to this study, Chapter 11 preserves the debtor's assets in a way that allows the creditors to recover more. This is in fact true for England as well: the mean creditor recovery rate is significantly higher under administration/receivership than under direct liquidation. This feature holds when focusing on secured and preferential creditors, who suffer the most under CL/CVL. This might give these creditors incentives to avoid direct liquidation by turning to more-attractive ways of solving default, either formally (administration, receivership) or informally (private workout). Following Beck *et al.* (2008), this might also complicate the access of corporates to external financing. Overall, our results suggest that liquidation procedures do not perform that well in England—especially when compared to the other insolvency procedures. They entail a rather long and expensive process that does not generate substantial repayments. Surprisingly, we find that the procedure that was abandoned by the Enterprise Act 2002 (*e.g.,* receivership) preserves assets better, leading to higher recovery rates for all the creditors, beyond the sole secured ones. This certainly reflects better monitoring from the creditors in possession of a floating charge, giving them the exclusive right to appoint a receiver.

Secondly, we confirm that firm size matters: the chances of avoiding direct liquidation are higher for companies owning more assets. In contrast, the smallest businesses have a higher probability of being liquidated directly. According to the previous findings however, direct liquidation does not generate substantial recoveries for the creditors. In other words, creditors having financed small companies have less chances of avoiding poor-performing liquidation procedures. Consequently, one may fear that *ex ante* inefficiencies might arise for English small businesses regarding their ability to attract external financing.

Thirdly, we find that the underlying factors behind the choice of an insolvency procedure depend on both economic and financial factors. Within the *economic factors*, the probability of direct liquidation increases with the proportion of current assets (when compared to fixed assets). Obviously, the presence of assets easily transformable into cash facilitates the perspective of piecemeal liquidation. In contrast, firms that escape CL/CVL own a significantly higher proportion of fixed assets, which is coherent with the perspective of pursuing business in the long run. Within the

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[13] We measure "size" in terms of total assets (market value) and of overall due claims.

[14] Throughout our analysis, we split the firms' creditors into five categories: preferential, employee, secured, new money, and unsecured claims.

[15] We find in the literature little empirical evidence of the determinants of the choice between liquidation and reorganization procedures. Armour *et al.* (2006) studied costs and duration under administration and receivership procedures (UK). Bris *et al.* (2006) studied costs under the US liquidation procedure, and many authors studied costs under Chapter 11 (Baird *et al.*, 2005, Betkar, 1997, Ferris and Lawless, 2004, Lubben, 2000, Weiss, 1990). Thorburn (2000) studied costs and recovery rates under the liquidation procedure in Sweden.

financial factors, we find that the proportion of debts owned by secured creditors (mainly banks) significantly increases the likelihood of receivership and administration (*vs.* liquidation). This indicates that the bankers operating in England have probably identified the poor performances of liquidation procedures—or, equivalently, the advantages of others. Indeed, in the presence of several insolvency procedures, the most-well informed agents (among which are bankers) are in a position to eliminate the procedures they consider unattractive. In such a context, one can suspect the weakest procedures to undermine firms' access to external financing and to bank loans in particular (*ex ante* inefficiency).

The remainder of this article is organized as follows. Section 2 presents an overview of the specificities of corporate insolvency procedures in England. Section 3 presents our data and provides descriptive statistics and Fisher tests to analyze how liquidations procedures perform on average when compared to others. Section 4 provides a regression analysis explaining the choice between liquidation *vs.* the other insolvency procedures, followed by concluding remarks in section 5.

2. Corporate insolvency procedures in England

Among the various European countries, England has enjoyed a prolonged history of insolvency law tradition. In 1977, the government organized the Cork Committee under the appointment of the Secretary of State for trade. This process led to the Insolvency Act of 1986 (IA1986), which introduced two new insolvency procedures prioritizing firms' rescue: company voluntary arrangement (CVA) and administration. Prior to this reform, the United Kingdom was supposed to have a high creditor-oriented insolvency system. Some analysts consider this to still be the case. However, IA1986 certainly marked the beginning of a new era of corporate rescue culture in England. The primary objective was to provide an opportunity to all the concerned parties to get involved in the rescue operation. Like many other European countries, England reformed its insolvency system in the early 2000s: the IA1986 framework was amended by the Enterprise Act 2002 (EA2002) that came into force on 15th Sept. 2003.

This study does not encompass preventive procedures (such as CVA) but exclusively focuses on the insolvency procedures that apply to distressed firms. Namely, we consider *i)* compulsory liquidations (CL), *ii)* creditor voluntary liquidations (CVL), *iii)* administration, and *iv)* receivership. CL and CVL organize direct liquidation. Administration is often viewed as a reorganization procedure (even if it may eventually lead to liquidation or sale). Receivership is a specific UK procedure mostly designed for secured creditors and was abolished by EA2002.[16] Appendix A1 presents an overview of these procedures.

Overall, England has gradually taken steps to shift towards rescue culture, which follows a general movement initiated in Europe since several decades (Brouwer, 2006, Cook and Pond, 2006). This shift is manifest in table 1, which displays the number of companies entering insolvency procedures in England between 1998 and 2008. Over the decade, the number of corporate insolvency procedures has increased. Direct liquidation through CL or CVL appears to be the most extensively used procedure (85% of all insolvency filings in the early years), whereas administration and receivership respectively account for nearly 5% and 10% of all cases before EA2002. Since

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[16] Receivership was suspected of excessively favoring secured creditors, leading too often to piecemeal liquidation.

2004-2005, the percentage of liquidations and—above all—receiverships, has declined, while it has increased to 23% for administrations (this reflects some substitution process between administration/receivership after EA2002).

Table 1: Evolution of corporate insolvency procedures (England)

Year	CL	CVL	Receivership	Administration	Total
1998	5216 *(34.2%)*	7987 *(52.4%)*	1713 *(11.2%)*	338 *(2.2%)*	15254
1999	5209 *(31.9%)*	9071 *(55.5%)*	1618 *(9.9%)*	440 *(2.7%)*	16338
2000	4925 *(30.1%)*	9392 *(57.4%)*	1595 *(9.8%)*	438 *(2.7%)*	16350
2001	4675 *(26.6%)*	10297 *(58.6%)*	1914 *(10.9%)*	698 *(4.0%)*	17584
2002	6231 *(33.7%)*	10075 *(54.5%)*	1541 *(8.3%)*	643 *(3.5%)*	18490
2003	5234 *(32.4%)*	8950 *(55.4%)*	1261 *(7.8%)*	700 *(4.3%)*	16145
2004	4584 *(31.3%)*	7608 *(51.9%)*	864 *(5.9%)*	1601 *(10.9%)*	14657
2005	5233 *(33.2%)*	7660 *(48.7%)*	590 *(3.7%)*	2257 *(14.3%)*	15740
2006	5418 *(31.3%)*	7719 *(44.7%)*	588 *(3.4%)*	3560 *(20.6%)*	17285
2007	5165 *(33.6%)*	7342 *(47.8%)*	337 *(2.2%)*	2509 *(16.3%)*	15353
2008	5494 *(25.9%)*	10041 *(47.3%)*	867 *(4.1%)*	4820 *(22.7%)*	21222

Source: Insolvency Service©
Note: Applications made for different insolvency procedures over a period of 8 years and their percentages (in brackets) out of the total number of insolvency filings.

CVL accounts for about 50% of all corporate insolvency procedures. CVL takes place when the shareholders, usually at the directors' request, decide to put the company into liquidation realizing that the company is unable to pay its debts as they become due or that the company's assets are less than the amount of its liabilities. CL is the second most used insolvency procedure, accounting for about 30% of all insolvency procedures. CL is mostly dedicated to bankrupt companies. This is the case when a firm cannot pay its debts as they become due and no other alternative procedure can be enforced. In such case, the company can be wound up under court supervision.

Receiverships show an increase until 2001 and then start to decline gradually. Indeed, receivership is no longer prevalent and was abandoned by EA2002. It was viewed as a biased procedure, imparting too many rights to secured creditors and often leading to immature liquidations (Benveniste 1986; Aghion *et al.* 1992). It was also suspected as disregarding the interests of unsecured creditors (Armour *et al.* 2008; Insolvency Service 2001). The European Insolvency Regulation that came into effect on 31st May 2002 provides for collective proceedings in all EU member states. Receivership failed to meet these international criteria, as it was not a collective procedure (Insolvency Service 2001). Thus, it was considered appropriate to abandon it.

Administrations, on the other hand, show a gradual increase since the time of their inception. Administrations seek to achieve one of the following objectives: *i)* rescue the company as a going concern, *ii)* achieve a better result for all creditors than would be likely if the company were wound up, and *iii)* allocate property to make a distribution to one or more secured or preferential creditors. Let us stress the implicit hierarchy behind these objectives. If the first cannot be achieved, only then can the second objective be pursued, and so on. Administration was further streamlined with EA2002. Changes were introduced to make insolvency procedures more time and cost efficient and

to provide greater accountability to unsecured creditors. The primary objective of the new streamlined procedure was to enable more companies to survive insolvency and provide a level playing field to all creditors. In this regard, Crown's preferential status was abolished[17] and a ring fence fund[18] was established to allow more assets to be available to unsecured creditors. This enhanced their ranking. Even after all such alterations, however, Armour *et al.* (2008) show that the net recoveries remain unchanged. The gross realizations seem to have increased, but they have been compensated by the increasing bankruptcy costs. Frisby (2006) finds no significant differences in post- or prior-EA2002 cases in terms of recoveries.

Overall, England's legislation interestingly provides a menu of procedures to choose from. One likely effect is that the various stakeholders (debtors and creditors) can take advantage of such a "menu" (Rasmussen, 1992), selecting the procedure that fits their best interest.

3. Data and statistics: liquidations *vs*. other insolvency procedures

We study 574 English corporations that filed for insolvency from 1998 to 2005, including firms that were liquidated through CL and CVL procedures. All the files opened during that period are closed in 2017: the observed recoveries are thus definitive. The empirical study reported in this paper finds its source in an original template[19] gathering several variables, including: *i)* general characteristics of the firm (legal form, etc.), *ii)* amounts recovered by the creditors, *iii)* information on the firm's asset & debt structure, and *iv)* other variables related to default (causes of default, etc.). We exclusively include complete cases, for which a final settling of the claims is provided for by the trustee. Data stem from commercial courts, Companies House[©], and insolvency practitioners.[20] These latter sources provide us information on balance sheets and income statements (restricted to some firms only). With the statement of affairs, we can compute the market value of the assets at the time of default. With insolvency practitioners' reports, we can access the receipts of payments made to creditors. These reports also provide statutory information about the company and crucial information on the events leading to default, the final outcome (piecemeal liquidation, sale, etc.), details on creditors' recoveries (for each category of claimant), and information on the actual bankruptcy costs (direct bankruptcy costs and duration[21] of the procedure).

We adopt stratified sampling method (Särndal *et al.*, 2003). Every stratum corresponds to one insolvency procedure (CL, CVL, receivership, and administration). Indeed, consistent estimates necessitate a minimum number of observations on all procedures, which justifies stratification as some procedures are much less frequent than others (see section 2). Within every stratum, the insolvency cases were selected through a random draw from Companies House[©] website. Appendix A2 shows the distribution of our sample by procedures, years[22], and regions.

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[17] EA2002, §251 (1) states that the Crown preference shall cease to exist.
[18] The EA2002, §252 introduces a new section 176A into the IA1986, which introduces the ring fence fund.
[19] See appendix A3 for more details on the structure of our template.
[20] In England, insolvency practitioners are liquidators, administrators, receivers, etc. They are private companies (except for the CL liquidators, who are appointed by the State).
[21] Here, the duration of the procedure (in months) corresponds to the entire process (*i.e.* the time interval from the beginning of the procedure till the end, when the firm is sold or liquidated). Thus, in case of piecemeal liquidation, duration includes the time it takes to liquidate the assets.
[22] The year of insolvency corresponds to the triggering date. Recent years have more incidences in the time distribution of our sample. The reason for this is that it is not easy to trace firms that defaulted years ago, because information related to them is barely available.

Sections 3.1 to 3.4 present the average profile of our sample (*univariate approach*). In each section, and for every variable, we run Fisher tests (ANOVA), accounting for the differences in the mean observed among the four procedures, including those aiming at direct liquidation (CL and CVL).

Section 3.1 provides an identikit of the English bankrupt firms, comprising descriptive statistics on the causes of default and on the coverage rates, as assessed when the firm files for insolvency.

Section 3.2 leads to a *set of statements* to be tested later through *multivariate approach* (see section 4: regression analysis). These statements analyze how the bankrupt firms being liquidated directly differ from the others, especially regarding their assets and outstanding debts (balance sheet structure). We focus on the size effects that may keep firms from entering direct liquidation. Here, the firm's size is captured by the total assets (market values, computed at the triggering date) and by the overall due claims (checked values).[23]

The performances of an insolvency system are commonly captured though the observed recovery rates, but those have hardly been measured on CLs and CVLs so far. Section 3.3 thus provides information on the creditors' recovery rates, computed on the whole set of creditors and on every class of claims (e.g., secured, preferential, employees, new money, unsecured).

The performances of an insolvency system go beyond the sole question of recoveries. *Ceteris paribus*, effective insolvency systems should also provide prompt and cheap ways to solve financial distress. Section 3.4 thus analyzes the direct costs and durations of the English insolvency procedures.

3.1. Identikit of the English bankrupt firms

In this section, we look at the individual components that collectively construct an average profile of bankrupt firms in England. These components are listed as (a) through (d) (table 2 and associated Fisher tests). They will be introduced later as control variables in our regression analysis (section 4).

a) Limited Liability- Most of the firms in the given sample enjoy limited liability (LTD). This is not surprising, as LTD has become one of the most preferred legal forms worldwide (Armour *et al.*, 2009). Indeed, the predominance of LTD benefits shareholders whose liability is limited to the capital invested. LTD consequently encourages the managers/directors to undertake risky investments, which is the basis of any business activity. Let us mention that the UK legislation provides specific procedures dedicated to the failure of sole proprietorships with unlimited liability (bankruptcy/individual insolvency), which goes beyond the scope of this paper.

b) Age- The mean age of the sample firms varies between 8 and 15 years (depending on the procedure used). These are not young firms or startups, which corroborates the statistics obtained for other European countries such as France, where the average age of bankrupt firms is between 9 and 17 years (Boyer and Blazy, 2014). In our sample, the oldest distressed firms are under a receivership process, and the youngest are under CLs. Indeed, receivership is a procedure designed mainly for the benefit of banks: an old firm age reflects long relationships with the firm's main banks; it also signifies that banks may have attempted to rescue the firm from difficulties in failing years, for which insolvency was the last option.

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[23] We may also measure size by considering the total number of employees. Unfortunately, this information is often missing in insolvency files, especially those attached to liquidation procedures. In addition, such information on employees becomes volatile prior to default. Considering the total assets and/or the total due claims appears as an interesting alternative to measuring the firm size.

Table 2: Descriptive statistics of bankrupt firms (main characteristics)

Frequencies & means	CL	CVL	Receiver-ship	Adminis-tration
Nb. of observations	100	75	199	200
Limited liability (LTD)	100.0%	100.0% (3)	97.4% (1)	97.9% (2)
Age (years)***	8.3	12.3	15.2	13.3
Trade	12.0%	13.9%	13.1%	15.6%
Manufacturing	48.0%	51.3%	58.6%	49.2%
Services*	39.0%	31.9%	23.7%	31.2%
Coverage rate (total assets/debts)***	15.4%	20.8% (3)	35.7% (1)	31.8% (2)
Reason for default: strategy***	15%	11% (50)	26%	30%
Reason for default: production***	11%	11% (50)	25%	30%
Reason for default: finance**	10%	6% (50)	16%	19%
Reason for default: management**	18%	8% (50)	8%	9%
Reason for default: accident***	57%	9% (50)	23%	32%
Reason for default: outlets***	45%	27% (50)	83%	64%
Reason for default: macro***	19%	21% (50)	45%	42%

Note: the number of stars refers to the significance of the ANOVA test (respectively 10%, 5%, 1% levels that is * $p<0.10$; ** $p<0.05$; *** $p<0.01$). The numbers in brackets represent that the information was missing for those number of files.

c) Sectors- Most of the firms in the given sample, irrespective of the procedures, belong to the manufacturing industry. The service industry turns out to be the second most dominant sector. The firm's choice of industry is critical: it has been found that there is a strong correlation between industry structure and a firm's performance (Ravenscraft, 1983), which manifests in the firm's survival likelihood (Drucker, 1970).

d) Coverage rate- The coverage rate compares the initial market value of the firm's assets to the total due claims. These values are measured at the beginning of the procedure. One can interpret this ratio as a proxy of the quality of the assets when the firm becomes insolvent. A high coverage rate indicates that the overall assets are worth enough to reimburse a substantial part of the total outstanding claims. The companies entering receivership and administration display satisfactory mean coverage rates (36% and 32%, respectively). Whatever the scenario, a high coverage ratio implies that the firm can still return to operations and can be revived as such.

e) Causes of default- The causes of default are described in the practitioners' reports and/or are identified by official receivers. This information is hand-coded using a list of 52 codes, later classified into 7 major categories: *Strategy*, *Production*, *Finance*, *Management*, *Accident*, *Outlets*, and *Macro* (see appendix A4). We build 7 dummy variables that take a value of 1 whenever we identify one cause in a given category and 0 elsewise.[24] Table 2 presents the in-sample distribution of these causes across the four insolvency procedures. For all the

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[24] This information was not reported for some files, which we treat as missing data.

categories of causes, the ANOVA tests exhibit significant differences in proportions between the procedures. It is, however, interesting to note that irrespective of the procedure, *Outlets* remains the most dominant reason for default, particularly showing very high percentages for receiverships (83%) and administrations (64%). Reviving such firms proves to be an unprofitable activity, as the primary source for generation of income (*e.g.,* customer base) has come to an end. Second, the most dominant reason for default for administrations, receiverships and CVL is the external environment (*Macro*). As pointed out by Everett and Watson (1998), this shows that external environment (local ecosystem, macroeconomic background) plays a significant role in the survival of firms. While in the case of CLs, the second most dominant reason for default is *Accident*. This illustrates that –whatever their nature (manager's death, dispute, swindle, strike, disaster)– accidents cause here irreversible damage to the firm, with no likelihood of rescue.[25]

3.2. Balance sheet structure: which differences across the procedures?

3.2.1. Structure of assets

Table 3[26] provides the firms' structure of assets, coverage rates, and overall value of assets. For every variable, we provide the average and median values. This information stems from the statement of affairs prepared by the directors[27] and handed out to the insolvency practitioners at the time of insolvency filing. In this statement, they document the market value of the firm's assets, estimated at the early stage of the procedure.

Table 3: Firms' structure of assets

Means & medians	CL	CVL	Receivership	Administration
Nb. of observations:	*79*	*66*	*183*	*189*
Statistics:	*Mean ▪ Median*			
Total assets: estimated market value (K€)***	35.8 ▪ 3.9	108.8 ▪ 22.0	925.3 ▪ 349.9	524.2 ▪ 180.7
%Intangible assets***	0.0% ▪ 0.0%	0.0% ▪ 0.0%	5.1% ▪ 0.0%	5.8% ▪ 0.0%
%Tangible assets***	13.5% ▪ 0.0%	24.7% ▪ 7.3%	42.1% ▪ 29.6%	39.9% ▪ 25.0%
%Financial assets	0.0% ▪ 0.0%	0.9% ▪ 0.0%	0.5% ▪ 0.0%	0.1% ▪ 0.0%
%Inventory**	4.4% ▪ 0.0%	4.4% ▪ 0.0%	8.5% ▪ 0.0%	11.1% ▪ 0.5%
%Receivables	44.3% ▪ 36.1%	39.0% ▪ 31.8%	39.1% ▪ 37.4%	36.0% ▪ 25.8%
%Cash***	37.7% ▪ 12.7%	27.0% ▪ 3.9%	3.1% ▪ 0.0%	4.6% ▪ 0.0%
%Other assets	0.1% ▪ 0.0%	4.0% ▪ 0.0%	1.7% ▪ 0.0%	2.4% ▪ 0.0%

Note: average profile of bankrupts firms (England). Figures are expressed in kilo-euros or in percent. The number of stars refers to the significance of the ANOVA test (respectively 10%, 5%, 1% levels that is * $p<0.10$; ** $p<0.05$; *** $p<0.01$).

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[25] Blazy and Combier (1997) suggested that one factor may not be sufficient to generate default but that a combination of causes might be involved. Although we do not include these combinations in our study, we do acknowledge that subsequent dominant causes for default significantly differ from one procedure to the other, as shown by Fisher tests.

[26] Due to missing values, the sample used for descriptive statistics (sections 3.2 to 3.5) slightly differs from the one used for econometrics (section 4). The difference comes mostly from CVLs: 24 CVL files (out of 66) contain information on the causes of default, and thus could be used in section 4. To decrease the heterogeneity between both sections, we provide here (mean) statistics on the subsample of CVL files that were actually used in section 4: total assets (140 K€), %intangibles (0%), %tangibles (33%), %financial assets (0%), %inventory (6%), %receivables (48%), %cash (13%); total due claims (524 K€), %due preferential (8%), %due employees (1%), %due secured (17%), %due new money (4%), %due unsecured (64%), %due bankruptcy costs (6%), total recovery rate (14%), secured rec. rate (19%), preferential rec. rate (19%), employees rec. rate (32%), new money rec. rate (100%), unsecured rec. rate (7%), duration of the procedure (59 months), bankruptcy costs, in % of total assets (39%), bankruptcy costs, paid value (29 K€).

[27] The directors are obliged by law to provide such documents to the court-appointed official.

We derive noteworthy results from table 3. First, the total assets owned by the liquidated companies are worth less on average than those of the firms filling for reorganization or receivership (the Fisher stat. confirms that the corresponding means significantly differ across procedures (1% level)). Namely, the firms opting for CLs display the smallest average values (35,800 €), whereas firms entering receivership are largest in asset size (925,300 €), and administration cases report an average of 524,200 € in asset size. This finding is confirmed when looking at the medians (less sensitive to outliers), and supports the idea that *size matters* in the sense that continuation perspectives (*i.e.*, the chances to avoid direct liquidation) strongly depend on the existing assets (Warren and Westbrook 1999). This leads to our *first statement*: *ceteris paribus, the risk of direct liquidation decreases with firm size (captured here by the market value of the firm's total assets).*

Focusing now on the structure of assets, we find that the liquidated firms (CL/CVL) mostly own current assets (between 74% and 87% of the total, on average), with a notably high proportion of cash (27%–38%).[28] Because current assets can easily be converted into cash, liquidation appears to be the most obvious outcome. However, as discussed in the subsequent sections, the liquidation proceeds of such assets do not generally produce substantial recoveries. One explanation might lie in the high level of bankruptcy costs under CVL (see section 3.5) and/or in the inefficiencies arising during the liquidation phase. Conversely, firms entering administration/receivership display a higher proportion of fixed assets, mostly composed of tangibles (approximately 40%, on average). The proportion of receivables is close to that observed among liquidations (between 36% and 39%). Overall, both tangibles (investments) and receivables (customers) are essential elements to pursue business (which is a prior objective of administration). Of course, this does not mean that continuation will be decided eventually or that reorganization plans will be successful. However, this does show that firms entering a specific insolvency procedure have, on average, economic features that fit quite logically into such a procedure. This leads to our *second statement*: *ceteris paribus, the risk of direct liquidation increases with the proportion of current assets compared to fixed assets.*

3.2.2. Structure of claims

The structure of claims encompasses the various categories of creditors. We identify five major classes: preferential, employee, secured, new money, and unsecured creditors. Secured creditors are predominantly the banks or financing companies that lend money to companies on fixed and floating charges.[29] Preferential claims[30] usually comprise amounts due to Inland Revenue, customs and excise, social security contributions, and contributions to pension and occupational schemes.[31] Remuneration of employees is also preferential, but in our study, we create a separate class for the unpaid wages: contrary to other types of creditors, employees have individual motivations that might influence their strategies. New money creditors are those whose dues arise after default (for example, the salaries of employees appointed after default). Unsecured creditors comprise trade creditors and suppliers of goods and raw materials. The details about the amounts due to these creditors stem from insolvency practitioner's reports, abstract

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[28] For both procedures, the median proportion of cash is however lower than the average: e.g., 4% (CVL) and 13% (CL).
[29] The owners of such charges are given the exclusive right to trigger receivership by appointing a receiver.
[30] Note that after EA2002, the State lost its preferential status and now falls under the unsecured category for administrations.
[31] See Schedule 6 of IA1986.

of receipts and payments, and statement of affairs. Strong differences arise between firms, depending on the procedure they file for. Once again, we find that size matters, as the firms entering administration and receivership have huge amounts at stake (see table 4: averages and medians), while this is not the case for the firms entering liquidation procedures. Clearly, the higher the stakes, the higher the chances of turning to the most-sophisticated ways of solving default, thus avoiding direct liquidation.

Table 4: Firms' structure of claims, by categories of creditors

Means & medians	CL	CVL	Receivership	Administration
Nb. of observations:	100	72	198	199
Statistics:	Mean ▪ Median			
Total due claims (K€)***	282.6 ▪ 119.1	657.8 ▪ 256.6	3390.3 ▪ 1561.3	1788.1 ▪ 981.8
%due claims: preferential***	3.5% ▪ 0.0%	10.2% ▪ 1.5%	5.6% ▪ 1.8%	0.7% ▪ 0.0%
%due claims: employees	2.0% ▪ 0.0%	1.1% ▪ 0.0%	1.2% ▪ 0.0%	1.4% ▪ 0.0%
%due claims: secured***	5.0% ▪ 0.0%	10.5% ▪ 0.0%	45.2% ▪ 41.3%	31.3% ▪ 29.7%
%due claims: new money***	0.0% ▪ 0.0%	4.2% ▪ 2.7%	7.5% ▪ 3.3%	6.0% ▪ 2.7%
%due claims: unsecured***	89.4% ▪ 100.0%	68.7% ▪ 71.4%	35.3% ▪ 37.3%	53.0% ▪ 55.3%
%due claims: bankruptcy costs***	0.1% ▪ 0.0%	5.3% ▪ 2.6%	5.2% ▪ 4.1%	7.7% ▪ 5.2%

Note: weight of different categories of creditors (England). Preferential claims include State (Crown) before 2002 and do not include employees. Figures are expressed in kilo-euros or in percent. The weights are computed out of total due claims (including the estimated bankruptcy costs). The number of stars refers to the significance of the ANOVA test (respectively 10%, 5%, 1% levels that is * $p<0.10$; ** $p<0.05$; *** $p<0.01$).

Secured creditors (*e.g.,* banks) own the highest proportion of claims under receivership (45% on average). This finding (corroborated by the medians) might illustrate that the creditors in possession of a charge exercise their exclusive rights, and prefer to put the company into receivership rather than reorganization (31%) and, even more, liquidation (CLs and CVLs are associated with the lowest percentages of secured claims, at 5% and 11%, respectively). Theoretically, as stated by Blazy and Chopard (2012), secured creditors usually show a bias towards liquidation. However, in England, the procedures allowing for direct liquidation are obviously challenged by receivership, a procedure specifically designed for secured claimholders, providing them a more convenient framework to exert their repayment rights. *Ceteris paribus*, the presence of secured claims should consequently increase the incentives to liquidate through receivership rather than through direct CL or CVL.

The second most dominant category of claimants turns out to be unsecured creditors for nearly all the procedures: the highest mean percentages are observed under CL (89%), CVL (69%), and administration (53%). This hierarchy remains with the medians. As shown in next section, unsecured creditors suffer from huge monetary losses within the English insolvency system. To avoid such losses, and to compensate their low ranking in the priority order, they should be naturally inclined towards obtaining information about the debtor (Fama 1990, Miwa and Ramseyer 2008). However, unsecured creditors often fail to monitor their debtors efficiently and may continue to supply credit even if the company is no longer meeting its financial commitments. This highlights the severity of information asymmetries, which is further aggravated between small (and numerous) parties. From that view, an appropriate legal framework should be deployed with the objective of reducing information asymmetries, either *ex ante* (*e.g.,* credit law) or *ex post* (*e.g.,* insolvency/bankruptcy law).

English insolvency procedures do not similarly protect the rival categories of creditors. Depending on the type of procedure engaged, the creditors *i)* rank differently in the priority order of repayment, *ii)* monitor (more or less) the managers, *iii)* have disparate rights to being informed, and *iv)* may (or not) enforce liquidation/reorganization, *etc*. Therefore, the incentives to trigger one specific procedure vary with the type of claimholder. Overall, this brings us to our ***third statement: the choice of an insolvency procedure is not independent of the structure of claims but is contingent on the seniority of the creditors.***

3.3. Recovery rates: the uneasy case for liquidations

From a financial perspective, efficient insolvency procedures should prioritize residual creditors' interests (*i.e.*, those who benefit from a marginal increase in the debtor's value). Because the identification of such creditors is a challenge for empirical works, most of them (Davydenko and Franks 2008, Grunert and Weber 2009) consider the creditors' total recovery rate as a relevant proxy to assess the *ex post* efficiency (or attractiveness) of a particular procedure. Following this approach, we extract information on recoveries from the abstracts of receipts and payments and from the insolvency practitioners' reports. For every insolvency file, we calculate the creditors' recovery rate (overall and per category of claims). Table 5 displays noticeable differences in the mean recovery rate between *i)* the categories of creditors, and *ii)* the insolvency procedures.

Table 5: Structure of creditors' recovery rate

Means & medians	CL	CVL	Receivership	Administration
Nb. of observations:	*100*	*72*	*198*	*199*
Statistics:	*Mean ▪ Median*			
Total recovery rate***	8.6% ▪ 0.3%	12.5% ▪ 6.0%	29.4% ▪ 20.7%	20.1% ▪ 15.0%
Recovery rate: secured***	16.2% ▪ 0.0%	27.8% ▪ 0.0%	44.8% ▪ 37.6%	39.3% ▪ 24.6%
Recovery rate: preferential*	17.2% ▪ 0.0%	19.3% ▪ 0.0%	33.1% ▪ 5.9%	42.2% ▪ 14.9%
Recovery rate: employees	40.1% ▪ 11.9%	22.4% ▪ 0.0%	36.8% ▪ 0.0%	52.3% ▪ 9.2%
Recovery rate: new money	n.s. ▪ n.s.	100.0% ▪ 100.0%	100.0% ▪ 100.0%	99.6% ▪ 100.0%
Recovery rate: unsecured**	7.7% ▪ 0.0%	4.8% ▪ 0.0%	1.6% ▪ 0.0%	3.5% ▪ 0.0%

Note: recovery rates are the repayments made to a creditor class divided by the corresponding due claims. "n.s." means value not significant. The number of stars refers to the significance of the ANOVA test (respectively 10%, 5%, 1% levels that is * $p<0.10$; ** $p<0.05$; *** $p<0.01$).

Firstly, the mean/median total recovery rate displays huge differences between the procedures. The highest average value is found for receiverships, at 29% (administrations rank second, with 20%). Interestingly, this procedure was abolished by EA2002, which opens the debate over whether the contractualist approach is a feasible way to resolve default in England or not. At this stage of the analysis, the good performances of receivership are remarkable, as one could have expected the prioritization of one sole category of creditors (*e.g.,* secured creditors) to generate negative externalities for the others. Our findings reject this expectation. On the contrary, receiverships—by providing strong incentives to monitor the debtors and by reducing conflicts of interests between rival claimants—seem to benefit the whole set of creditors. Even more, whenever a receivership leads to liquidation, such a way of solving default challenges the other procedures dedicated to direct liquidation. Our results are in line with this latter idea: CLs and CVLs display extremely low recovery rates (between 9% and 13% on average, while the median values do not

exceed 6%). Such statistics confirm that liquidation usually drives lesser recoveries than reorganization (Sundgren, 1998), but the figures found on CLs and CVLs are even lower than those observed on other European countries: e.g., 37% on average in Netherlands (Couwenberg and de Jong, 2008), 20% in France (Blazy *et al.*, 2013). This is cause for concern, as liquidations are the most-dominant procedures in England.

Secondly, table 5 shows that the <u>recovery rates per category of creditor</u> strongly differ from one procedure to another, except for new money claims, which are fully repaid in most cases.[32] Confirming the previous works on England (Frisby 2006, Armour *et al.* 2008), we find that secured creditors benefit mainly from receivership (mean 45%; median 38%) and administration (mean 39%; median 25%). Our data on liquidations temper these findings, as secured creditors are poorly served under CL and CVL (mean equals 16% and 28% resp.; while median is null). We observe the same trend for preferential creditors. The situation is more homogenous for the employees who receive substantial repayments under direct liquidation (from 22% to 40%, on average). Finally, whatever the considered procedure, the recoveries for unsecured creditors remain futile. They hardly receive anything on average (less than 8%). In relative terms, however, they receive more after direct liquidation, especially under the CL regime.

3.4. Insolvency procedures: fast and cheap?

Table 6 provides the mean/median direct bankruptcy costs (lawyers, accountants, auditors, and other professional fees linked to insolvency) and duration of the procedures. Duration is often considered as an important criterion for calculating indirect bankruptcy costs (arising out of foregone investment opportunities, lost sales, loss of competitiveness, all the costs arising out of suboptimal use of resources, asymmetric information, conflicts of interest, and loss of management time).

Table 6: Direct bankruptcy costs and duration of the insolvency procedures

Means & medians	CL	CVL	Receivership	Administration
Nb. of observations:	100	72	198	199
Statistics:	Mean ▪ Median			
Duration of the procedure (months)***	26.4 ▪ 26.5	35.5 ▪ 29.0	38.9 ▪ 34.0	19.4 ▪ 15.0
Direct bankruptcy costs (% of assets)***	1.7% ▪ 0.0%	35.3% ▪ 32.3%	61.0% ▪ 20.6%	176.8% ▪ 31.1%
Direct bankruptcy costs (thousands €)***	1.3 ▪ 0.0	18.8 ▪ 4.7	96.6 ▪ 57.9	58.6 ▪ 37.6

Note: direct bankruptcy costs and duration of the insolvency procedures. Costs are the amounts actually paid to the insolvency practitioners, in percent of the (realized) market value of assets, and in kilo-euros. Durations are shown in months. The number of stars refers to the significance of the ANOVA test (respectively 10%, 5%, 1% levels that is * $p<0.10$; ** $p<0.05$; *** $p<0.01$).

Thorburn (2000) and Bris *et al.* (2006) find the duration of the procedure to be proportional to the bankruptcy costs. Because these costs consume much of the bankruptcy estate and reduce creditor recovery in the process, they should be kept to a minimum. We can compute the duration of each insolvency procedure in England through the reports of insolvency practitioners filed at the Companies House© Direct UK. We find that receiverships, on average, take twice as long (39 months) as the time taken for administrations (19 months). This is not surprising, as the bulk of our

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[32] Except for CLs that do not generate new money. That new money claims mostly repaid in full is a noteworthy feature of English procedures that effectively protect the post-default creditors and, thus, provide a suitable framework to prepare a sensible legal solution to financial distress.

sample firms (68%) went bankrupt after 2003: EA2002 restricted administrations to a one-year statutory limit that can be extended either by permission of the court or by the majority of creditors.[33] Conversely, receiverships are often thought to result in quick outcomes, as they often originate from out-of-court settings. However, we do not find them to be speedy procedures. Citron and Wright (2008) find evidence that, on a sample of 65 receiverships, 37% of them take more than 3 years and only 3% are completed within one year. Armour *et al.* (2008) find that receiverships consume twice as many days compared to administration. Overall, the results of these studies are coherent with ours, yet they exclude liquidations. Direct liquidations are often considered to be fast processes, as nothing much needs to be done to save the business. Surprisingly, on average, we find long durations for both liquidation procedures (between 26–36 months). This finding is confirmed when turning to the medians (between 27–29 months). This leads us to believe that a lot of time is consumed in the legalities of the procedure. Additionally, one may suspect that the small size of liquidated firms generates low fees for the practitioners, hence reducing their incentives to get involved in the procedure. Whatever the reasons behind this, CLs and CVLs fail in providing fast ways to solve default.

Turning now to the direct bankruptcy costs (in percent of total assets), administration and receivership are –in decreasing order– the most expensive procedures on average,[34] followed by CVL (35%) and –far below– by CL (2%). This latter procedure, no doubt, remains the cheapest process, as it is mostly carried out by official receivers who are court-appointed officials, and they have fixed fees. CL still appears as a cost-saving process when considering the medians, whereas the other procedures now rank differently: administration and CVL display similar median costs (above 30% of total assets), which exceeds by 10 points the medians observed on receivership. Overall, contrary to CL, CVL does not appear much cheaper than the other insolvency procedures that do not aim at direct liquidation. At this level of the analysis, let us stress that costly procedures do not always undermine the creditors' recoveries. As suggested by Lubben (2012), Wruck (1990), and Webb (1987), bankruptcy costs are not pure sunk costs. On the contrary, they can be viewed as the price to pay to: *i)* coordinate the creditors, *ii)* disclose public information, *iii)* audit the firm, and *iv)* restructure the assets.

Until now, we have derived statements from univariate analysis, *i.e.*, by reasoning *ceteris paribus*. Section 4 now adopts *a multivariate approach* by identifying the factors that actually influence the choice of receivership or administration against CL/CVL.

4. Determinants of choice of receivership / administration *vs.* direct liquidation

This section analyses the determinants of choice of receivership and administration procedures against direct liquidation (CL and CVL). We have proposed in the previous section several statements linking the likelihood of reorganization/liquidation with three main factors: *i)* size effects, *ii)* structure of assets, and *iii)* structure of claims. We consider here three groups of explanatory variables, each being related to one of these factors: *i)* total assets (market value at triggering, in log), *ii)* ratio between current and fixed assets (named *current ratio* hereafter), and *iii)* proportion of each category of claims out of the total due claims (e.g., preferential, employees, secured, and new

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[33] Insolvency Act 1986, SchB1,§76.
[34] Armour et al. (2008) also find that administrations are costlier than receiverships.

money claims (ref.: unsecured claims)). We also add control variables accounting for: *i)* firms' characteristics (age, LTD, sector), *ii)* coverage rate, and *iii)* causes of default. Finally, we control for the GDP annual growth rate (economic conditions). We run a multinomial LOGIT regression (three outcomes: receivership, administration, and liquidation (CL & CVL combined)). Our dependent variable is the probability that a firm falls into receivership (columns 2-3), administration (columns 4-5), or liquidation (the latter outcome being our *reference procedure*). In total, 520 observations are used in our regressions. Table 7 displays the estimates, the Chi-2 tests, and the VIF factors for every variable (all the VIFs are acceptable, with values less than 1.7). The Belsley condition index equals 23.5, which rejects the hypothesis of global multicollinearity (Belsley *et al.*, 1980). The prediction rate equals 76%, and the Brier (1950) score displays a satisfactory low level (0.33).

Table 7: Multivariate analysis of the choice between insolvency procedures

Explanatory variables:	VIF factor	Output = Receivership (ref. liquidation)		Output = Administration (ref. liquidation)	
		Estimate	Prob. > Chi-2	Estimate	Prob. > Chi-2
Intercept	0.00	-2.137	0.170	3.113**	0.030
Total assets (market value, in log)	1.66	0.818***	<.0001	0.746***	<.0001
Current assets / Fixed assets (market val.)	1.06	-0.002	0.216	-0.008**	0.015
% of total due claims: PREFERENTIAL	1.05	-0.320	0.882	-25.712***	<.0001
% of total due claims: EMPLOYEES	1.12	0.538	0.920	-0.792	0.876
% of total due claims: SECURED	1.21	8.683***	<.0001	5.547***	<.0001
% of total due claims: NEW MONEY	1.12	27.430***	<.0001	25.491***	<.001
Coverage rate	1.44	-1.172*	0.077	-0.058	0.902
Sector: TRADE (ref.: services)	1.28	-0.132	0.836	-0.478	0.430
Sector: MANUFACTURING (ref.: services)	1.35	0.144	0.768	-0.401	0.389
AGE (log of months)	1.06	-0.157	0.469	-0.224	0.293
% of change in U.K. GDP	1.03	-130.20***	0.002	-223.70***	<.0001
Cause of default: STRATEGY	1.07	0.122	0.625	0.308	0.215
Cause of default: PRODUCTION	1.10	-0.348	0.182	-0.020	0.939
Cause of default: FINANCE	1.11	0.092	0.760	0.372	0.185
Cause of default: MANAGEMENT	1.10	-0.627*	0.051	-0.764**	0.015
Cause of default: ACCIDENT	1.38	-0.535**	0.035	-0.381	0.118
Cause of default: OUTLETS	1.36	0.014	0.958	-0.239	0.334
Cause of default: MACRO & ENVIRONMENT	1.14	-0.028	0.901	-0.036	0.871

	Endogenous variable: *Prob.* bankruptcy's output (520 bankrupt firms)
The model is: *Multinonial independant LOGIT regression*	**Test** **Chi-2** **Pr > Chi-2** Likelihood Ratio 538.35*** <.0001 Score 396.09*** <.0001 Wald 185.87*** <.0001 Rescaled R²: 0.729 Prediction rate (%): 75.58% Brier score: 0.332 Small-Hsiao tests of IIA assumption (H0: odds are independent of other alternative) - *Ommitted output = receiv.* ► Chi-2 = 36.69 ▪ Pr > Chi-2 = 0.009 → reject H0 - *Ommitted output = admin.* ► Chi-2 = 25.94 ▪ Pr > Chi-2 = 0.132 → accept H0 - *Ommitted output = liquid.* ► Chi-2 = 42.51 ▪ Pr > Chi-2 = 0.002 → reject H0 Belsley condition index: 23.49

Note: The number of stars (from * to ***) refers to the significance of the Chi² test (respectively 10%, 5%, 1% levels).

Multinomial LOGIT models rely on the Independence of Irrelevant Alternative (IIA) assumption (*i.e.* the odds between two alternatives do not depend on the presence/absence of a third alternative). Table 7 provides three Small-Hsiao tests of IIA assumption (Small and Hsiao, 1985). Two of them reject IIA assumption, which may justify considering multinomial PROBIT models, that do not require IIA assumption to hold. As a robustness check, appendix A5 thus provides the estimates of a multinomial PROBIT regression. Our findings[35] under LOGIT (see table 7) are unchanged under PROBIT (sign and significance).

The marginal effects associated with table 7 are shown in appendix A6. They give the scale of change in the probability of filing for a specific procedure after a unit-change in one of the explanatory variables, holding all other variables constant at their mean values. Because multinomial LOGIT regressions are non-linear models, the marginal effects change with the values taken by the explanatory variables: usually, averages and proportions are considered as reference values.

We discuss the estimated parameters found in Table7 in sections 4.1 (receivership *vs.* liquidation) and 4.2 (administration *vs.* liquidation).

4.1. Receivership *vs.* liquidation

Column 2 (table 7) displays the coefficients of the factors impacting on the chances of falling into receivership rather than liquidation. Our estimates confirm the predominance of size effects (statement 1): the probability of entering receivership significantly increases with the amount of total assets (1% level). Because only creditors holding a charge can trigger receivership, this finding confirms that those creditors (mainly bankers) are logically inclined to appoint a receiver—and pay for the associated costs—whenever the assets are sufficient to generate substantial recoveries. Such arbitration may be harmful for the SMEs, having no choice than to be liquidated directly. Regarding the structure of assets, we do not find any significant influence of the current ratio on the likelihood of receivership (statement 2). Indeed, receivership—contrary to administration—does not intend to facilitate continuation but rather provides a sophisticated way (more sophisticated than CL or CVL) to liquidate the firm piecemeal or to prepare a sale. From that perspective, despite being quite important, the comparison between current and fixed assets remains a second-order issue.

We now turn to the structure of claims. Following statement 3, we expect the presence of different categories of creditors to exert an influence on the choice between receivership and liquidation. The proportion of debts due to secured creditors logically increases the chances of receivership and is significant at the 1% level. This is an expected result: receivership is mainly designed at the benefit of secured lenders. Under receivership, they do not need to consult the directors or any other claimholders. The weight of new money creditors also increases the chances of receivership. Indeed, under receivership, new money is often raised by the existing secured creditors in order to reach an outcome maximizing their chances of recovery. However, we do not observe any significant influence from preferential creditors or employees. Overall, we confirm that the choice of receivership is not independent of the structure of claims, and it mostly depends on the weight of secured/preferential claimants.

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[35] One dummy variable only (*cf.* "production") significantly decreases the probability of receivership under multinomial PROBIT, while it is not significant under multinomial LOGIT.

4.2. Administration *vs.* liquidation

We now focus on column 4 (table 7), which is related to the probability of filing for administration, as against liquidation. Administration is considered the formal reorganization procedure in England. Obviously, this specificity may exert some influence on the way debtors and creditors choose between administration and liquidation.

We first analyze how this choice is related to the size and structure of assets (statements 1 and 2). We find a significant (1% level) and positive influence of size on the probability of administration. The explanation remains similar to the one mentioned above for receivership, but we now find that size effects do not influence the sole secured creditors' strategies, as administration is opened to the whole set of stakeholders. Turning to the structure of assets, and contrary to receivership, we now find a significant (5% level) and negative impact of the current ratio on the likelihood of administration. This is in line with statement 2: tangibles increase the chances of pursuing business in the long run, which is a guarantee of success from the administrator's point of view. Yet, the marginal effects attached to the current ratio remain tiny (whatever the considered procedure: see appendix A6).

We finally consider the structure of claims. The amounts due to preferential creditors drastically reduce the chances of administration (significant at the 1% level). Once again, the prior objective of administration is to save business. If a company is unable to pay its preferential claims (public claims, etc.), spending time on preparing reorganization will prove detrimental to the economy, and the feasible solution for such companies is to liquidate them rapidly. Next, we note that the amounts due to secured creditors increase the probability of administration. This might seem counter to expectations, as secured creditors are often biased toward liquidation (Blazy and Chopard 2012). Thus, what motivates these creditors to file for reorganization? This can be explained by two arguments. First, a secured lender in England has limited powers to initiate certain insolvency procedures. CVL can only be initiated by the directors, and in the case of CL, there is hardly any secured creditor (see section 3.3). Receivership is now an abandoned procedure, while voluntary company arrangement can only be initiated by the directors. Thus, a secured lender is only left with administration as an option. This option is even more attractive for secured creditors when they expect low recoveries under direct liquidation (see section 3.3). Second, with EA2002, access to administration is facilitated by allowing out-of-court appointment of the administrator, either by the court, or by the holders of floating charges, or by the company and its directors.[36] This eases the initiation process.[37] Finally, we observe that the proportion of new money claims also significantly enhances the chances of reorganization: here again, the availability of post-petition financing plays a critical role for the implementation (and acceptance) of a reorganization plan.

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[36] Interestingly, the holders of floating charges can appoint the administrator out-of-court without having to demonstrate that the company is unable to pay its debts. On the other hand, directors of the company need to demonstrate that the company is unable to pay its debts to materialize out-of-court appointment (§27(2) Schedule B1 Insolvency Act).
[37] Previously, administrators could only be appointed on the order of the court.

5. Conclusion

Our paper investigates a comprehensive sample of English corporate insolvencies. Obtaining information from 574 insolvency files, we provide empirical evidence on duration, bankruptcy costs, and recovery rates. We find that liquidation procedures (CLs and CVLs) perform poorly on average and fail to produce satisfactory repayments to creditors. In contrast, procedures that do not aim at direct liquidation (administration and receivership) are better at preserving the debtor's assets, leading to higher recovery rates. This finding holds even for abandoned receivership, a procedure mostly designed to serve the sole interests of secured creditors. We suggest that such poor performances of the most predominant procedures in England are probably anticipated by the investors and thus might complicate the firm's access to external financing.

We conduct a multivariate analysis of the determinants of the choice between direct liquidation and attempt(s) to reorganize business. Our estimates show that the underlying factors behind such choice depend on both size (total assets) and on the structure of assets/claims. Precisely, the risk of direct liquidation decreases with the amount of firms' assets. Consequently, companies owning low assets at the time of default are more likely to end up in liquidation when they face financial distress. Our findings also suggest that secured creditors—including bankers—are aware of the poor performances of liquidation procedures: their presence, within the whole set of creditors, decreases the risk of direct liquidation. This provides a clue that in England, the most informed creditors adapt their strategies and turn away from the less-performing procedures. Finally, we find that the likelihood of administration—which nowadays appears as the main alternative to direct liquidation—depends on the proportion of fixed/current assets owned by the firms. This finding is coherent with the administrators' main mission, *i.e.*, preparing the continuation of business in the long run. Such continuation critically depends on the presence of fixed assets.

From a policy perspective, countries that readily align themselves with the attractive insolvency systems of common law economies, such as the United Kingdom, should be advised with caution. Indeed, not all legal systems offering a menu of insolvency procedures perform similarly. Policymakers need to investigate further the pros & cons of their own insolvency procedures and question how their characteristics fit their national specificities. We thus advocate further empirical works in this direction, especially at the country level.

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Appendixes

A1. UK corporate insolvency procedures (overview)

Overview of the main insolvency procedures prevailing in the UK (EA2002)

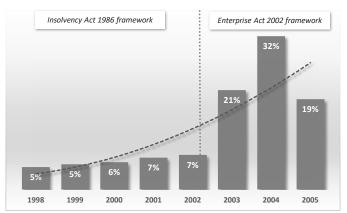| |
|---|
| ■ *Involuntary Liquidation* : *Compulsory Liquidation (or winding up)* |
| Liquidation is the legal process where the firm's assets are sold in whole or piecemeal. The proceeds so realized are distributed among the creditors in the order of priority. Compulsory liquidation (CL) is mostly dedicated to insolvent companies. This is the case when a company is unable to pay its debts as they become due and no other alternative insolvency procedure can be enforced. Then in such case the company can be wound up under the supervision of the court. |
| ■ *Voluntary Liquidation* : **Creditor Voluntary Liquidation** |
| Creditor Voluntary Liquidation (CVL) is also known as creditor voluntary winding up which takes place when the shareholders, usually at the directors' request, decide to put the company into liquidation realizing the fact that the company is unable to pay its debts as they become due or company's assets are less than the amount of its liabilities. Note: despite its misleading name, creditor voluntary liquidation can never be initiated by the creditors. It is only the directors who can initiate this process in consent with the creditors. In practive however, the directors might enter CVL under the pressure from their creditors. |
| ■ *Administration* |
| The provisions of administration are provided in part II of the Insolvency Act of 1986. In 1977 a commission was appointed with a view to provide a new era of rescue culture to the existing insolvency regime framework. The commission's work is documented in a report titled: "Cork Report". Thus, on the recommendations of Cork committee, administration came into existence. It is a court administered procedure that was constituted with the main intention of serving the interests of the whole set of creditors. The objective of this procedure was to make bankruptcy code more debtor-friendly and to provide an opportunity to the businesses to survive default. Administration is often considered to be the reorganization procedure of United Kingdom. The main feature of the administration procedure is the effect of statutory moratorium, which provides the debtor with breathing space and allows an automatic stay on the firm's assets (the creditors cannot enforce their collaterals during this period). The administrator is required to work within a particular time frame not exceeding more than a one year and provide efficient and quick solutions. EA2002 streamlined the old administration procedure and brought some major changes in its provisions. The primary aim of the new streamlined procedure was to enable more and more companies to survive and provide level playing field to all creditors, especially the unsecured creditors who were devoid of it in previous proceedings. With regards to this, Crown's preferential status was abolished, and ring fence fund was established to allow more assets to be available to the unsecured creditors. This enhanced their positioning from the previous law. |
| ■ *Receivership* : *A procedure unique to English Insolvency* |
| Receivership was quite often addressed as a "private liquidation" procedure (Armour et al. 2008) or "contractualist" system (Franks and Sussman 2005). Indeed, receivership allows a secured creditor holding a fixed charge (*i.e.* attached to a specific type of asset) or a floating charge (*i.e.* encompassing the whole assets) to appoint a receiver who then takes control and monetizes the firm's assets for the sole benefit of the charge holder (Armour and Frisby 2001). The receiver owes fiduciary duties only towards the charge holder. These bestowed rights give the creditors holding a charge undue advantage over the other creditors, and also provide them with strong bargaining power. Receivership has been often suspected to result in premature liquidation that could have been avoided under other insolvency procedures, such as administration (Benveniste 1986; Aghion et al. 1992). Receivership was abolished by the EA2002. |

A2. Sample repartition

Procedures breakdown

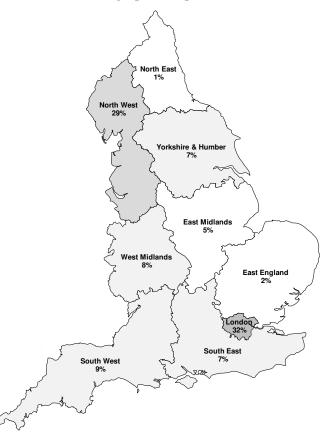| Insolvency procedure	Number of files
Administration	200
Receivership	199
Creditor Voluntary liquidation (CVL)	75
Compulsory liquidation (CL)	100

Note: Number of files taken per corporate insolvency procedure (England).

Time repartition

Geographical repartition

A3. Templates (structure)

1. Company's identification	3b. Financial information and bankruptcy costs
Matriculation number	Declared market values of assets (triggering time).
Sector (French NAF national codification)	Verified claims by levels of priority (end of the procedure)
Geographical localization	Number of creditors.
Number of employees	Bankruptcy costs individual estimation
Legal form	**3c. Engaged measures / legal measures**
Creation date	Engaged measures during the bankruptcy procédure (up to 10), each of then to the Court approval.
Manager(s): age, functions, nb. of administrators…	Identification of the legal practitioners
2. Process of default	**3d. Procedure outcome**
Origin of default (up to 10 cumulative causes, based on a specific codification (51 codes). The identification of causes stems from an audit engaged by the administrator.	Realized value of assets (if liquidation)
3. The bankruptcy procedure (from triggering to the final issue)	Characteristics of the buyout plan(s) (if any), in case of a sale as a going co pros and cons of the offer, as analyzed by the legal administrator)
3a Type of procedure	Characteristics of the reorganization plan (length of the plan, repayment sch
Type of the legal procedure (simplified or not)	**3e. Legal sanctions against managers (if any)**
Date of triggering and of ending	Suspect period
Identity of the bankruptcy's initiator	Pecuniary sanctions
Legal issue: liquidation, sale, reorganization	Extra pecuniary sanctions
<u>Remark</u>: all files are closed files (with definitive recovery rates).	Type of fault

A4. Causes of default (codification)

	Origin of the default (codifications)
Outlets	[1] Brutal disappearance of customers; [2] Customer(s) in default; [3] Product(s) too expensive (selling price is too high); [4] Bad evaluation of the market; [5] Product(s) too cheap (selling price is too low); [6] Unsuitable products; [7] Obsolete products; [8] Loss of market shares (regular fall of the firm's demand).
Strategy	[1] Youth of the company (inexperience); [2] Voluntary dissolution of the activity;[3] Failure of important projects (partnerships, investments, reorganizations);[4] **Voluntary acceptance of little profitable markets** (dumping...).
Production	[1] **Production capacity was too strong, overinvestment**; [2] Depreciation of the assets; [3] Operating costs were too high (other than wages: external expenses, raw materials...); [4] Wages expenses were too high; [5] Brutal disapearance of suppliers; [6] Unsuitable process of production (obsolete); [7] **Underinvestment**.
Finance	[1] Longer delays on accounts receivable; [2] Contagion / reported losses from subsidiaries; [3] Shorter delays on accounts payable; [4] **Excessive speculation of the company**; [5] end of the financial support from the head office / holding; [6] Lack of equity (compared to leverage/liabilities); [7] Loan refusal to the company; [8] end/reduction of the subventions to the company; [9] Contractual interest rates are too high.
Management	[1] **Weak accounts reporting / informational system is deficient**; [2] **Problems of competence**; [3] Disagreements among the directors / managers; [4] **Excessive takings from the managers**; [5] **Insufficient provisions**; [6] **Lack of knowledge on the real level of costs of returns (causing too weak selling)**; [7] **Bad evaluation of inventory**; [8] Problems of transmission of the company / difficulties in restructuring.
Accident	[1] **Swindle / embezzlements affecting the company**; [2] Another insolvency procedure (for other companies) is extended to the firm (same patrimonies); [3] Disputes with public partners (fiscal inquiry); [4] Disputes with private partners; [5] Death / disease / disappearance of the manager; [6] Disaster; [7] Social problems within the company.
External environment	[1] Unfavorable fluctuation of the exchange rates; [2] Increase of the competition; [3] Decreasing demand to the sector; [4] "Force majeure" (war, natural catastrophe, industrial crisis, politics, bad price evolution); [5] Public policy less favorable to the sector; [6] Period of credit crunch; [7] The general level of interest rates is too high; [8] Macroeconomic increase of operating costs (raw materials, GMW…).

A5. Choice between insolvency procedures: Multinomial PROBIT

Explanatory variables:	Endogenous variable: *Prob.* bankruptcy's output (520 bankrupt firms)			
	Output = Receivership (ref. liquidation)		Output = Administration (ref. liquidation)	
	Estimate	Prob. > |z|	Estimate	Prob. > |z|
Intercept	-1.117	0.289	2.663***	0.008
Total assets (market value, in log)	0.555***	0.000	0.508***	0.000
Current assets / Fixed assets (market val.)	-0.001	0.381	-0.006**	0.030
% of total due claims: PREFERENTIAL	0.279	0.858	-17.308***	0.000
% of total due claims: EMPLOYEES	0.855	0.806	-0.123	0.970
% of total due claims: SECURED	6.140***	0.000	3.679***	0.000
% of total due claims: NEW MONEY	19.864***	0.000	18.342***	0.000
Coverage rate	-1.038**	0.030	-0.153	0.653
Sector: TRADE (ref.: services)	-0.038	0.932	-0.328	0.443
Sector: MANUFACTURING (ref.: services)	0.301	0.370	-0.158	0.623
AGE (log of months)	-0.070	0.632	-0.120	0.418
% of change in U.K. GDP	-83.38***	0.004	-164.14***	0.000
Cause of default: STRATEGY	0.031	0.927	0.272	0.431
Cause of default: PRODUCTION	-0.666*	0.067	-0.079	0.823
Cause of default: FINANCE	0.005	0.991	0.503	0.200
Cause of default: MANAGEMENT	-0.814*	0.076	-1.063**	0.017
Cause of default: ACCIDENT	-0.721**	0.044	-0.466	0.174
Cause of default: OUTLETS	0.058	0.878	-0.378	0.283
Cause of default: MACRO & ENVIRONMENT	0.026	0.935	0.035	0.913
The model is: *Multinomial PROBIT regression*	*Log-Likelihood*	-295.78		
	Test	**Chi 2**	**Pr > Chi 2**	
	Wald	232.30***	<.0001	

Note: The number of stars (from * to ***) refers to the significance of the z-test (respectively 10%, 5%, 1% levels).

A6. Marginal effects (multinomial LOGIT)

Explanatory variables:	Endogenous variable: bankruptcy's output (520 bankrupt firms)		
	Marginal effect of the variables on the prob. of liquidation	Marginal effect of the variables on the prob. of receivership	Marginal effect of the variables on the prob. of administration
Total assets (market value, in log)	-0.075	0.028	0.047
Current assets / Fixed assets (market val.)	0.000	0.000	0.000
% of total due claims: PREFERENTIAL	0.944	-0.348	-0.596
% of total due claims: EMPLOYEES	0.064	-0.024	-0.040
% of total due claims: SECURED	-0.315	0.116	0.199
% of total due claims: NEW MONEY	-0.508	0.187	0.321
Coverage rate	0.093	-0.034	-0.059
Sector: TRADE (ref.: services)	0.037	-0.014	-0.023
Sector: MANUFACTURING (ref.: services)	0.045	-0.017	-0.029
AGE (log of months)	0.027	-0.010	-0.017
% of change in U.K. GDP	35.091	-12.940	-22.151
Cause of default: STRATEGY	-0.073	0.027	0.046
Cause of default: PRODUCTION	-0.080	0.030	0.051
Cause of default: FINANCE	-0.107	0.039	0.067
Cause of default: MANAGEMENT	0.181	-0.067	-0.114
Cause of default: ACCIDENT	0.042	-0.015	-0.026
Cause of default: OUTLETS	0.046	-0.017	-0.029
Cause of default: MACRO & ENVIRONMENT	-0.025	0.009	0.016

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