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WORKING PAPER

From distress to exit: determinants of the time to exit ^{*}

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Abstract

This paper analyses the duration of the time to exit of distressed firms, differentiating between involuntary exits (mainly bankruptcies) and voluntary liquidations. It examines how long firms survive after initial signs of economic distress. The study is conducted on an extensive dataset of 5,233 Belgian distress-related exits of non-starting firms, the majority being privately held. The results highlight that slack resources have an opposite effect on the timing of involuntary exits and voluntary liquidations. On the one hand, high levels of available and potential slack increase the time to involuntary exit, as they allow distressed firms to postpone an impending involuntary exit. On the other hand, high available slack resources shorten the time to voluntary liquidation as they make voluntary liquidation easier. Further, a high level of stakeholder dependence increases the time to exit after distress, whether the firm exits through a voluntary or through an involuntary procedure. This is explained by the fact that stakeholder dependence increases the complexity of the exit decision and the exit procedure.

1 Introduction

After having experienced a situation of economic distress, some companies exit quickly, while others survive over a longer period. An intriguing question is hence why some firms exit quickly after the first signs of distress, while other firms survive longer. Given that the time from distress to exit may have important implications for a distressed firm's stakeholders, including shareholders, lenders, employees, customers, suppliers, related firms, government, and the economy as a whole, this research question is important. For example, the duration of the exit path preceding a bankruptcy may impact the possibilities of the stakeholders to reduce their losses. In case of an early bankruptcy, stakeholders may be too late to recuperate the amounts due by the firm. Alternatively, an early voluntary liquidation that occurs shortly after the first signs of distress may allow the shareholders to cash-in and collect their accounts, hence, preventing losses. The length of the time period between first signs of economic distress and exit is hence important, but it has not received much attention in the literature, however. We argue that the time to exit is explained by different factors compared to those explaining firm exit or exit type.

Up to now, studies on business failure strongly focus on the determinants of exit versus survival: they try to predict or explain bankruptcy, ignoring the dynamic nature of the business failure process. Although research on failure paths – another main stream of business failure research – goes along with the need for a dynamic approach of business failure, existing failure path studies do not explicitly analyze the determinants of the duration of the exit process. Some duration studies explain the time that distressed firms spend in Chapter 11 reorganization procedures (eg. Bandopadhyaya 1994; Li

1999; Orbe et al. 2001; Denis and Rodgers 2007). To the best of our knowledge, there are no studies explicitly investigating the length of the exit path after distress. Moreover, most prior empirical studies on business exits tend to neglect alternative forms of exit. However, a distressed firm has various exit options. Instead of being forced into an involuntary exit procedure in the form of a bankruptcy or a juridical winding-up, a distressed firm may choose to exit in a more efficient and orderly way through a voluntary liquidation (Harhoff et al. 1998; Prantl 2003). Alternatively, it may opt for a merger or an acquisition by another firm (Bulow and Shoven 1978; Shrieves and Stevens 1979; Pastena and Ruland 1986; Peel and Wilson 1989; Astebro and Winter 2001). Schary (1991) pioneered research on different exit types, stressing that bankruptcies and liquidations reduce an economy's productive capacity, while the productive capacity remains largely unaffected by mergers or acquisitions. More recently, Buehler et al. (2006), Cefis and Marsili (2007) and Jones and Hensher (2007) have emphasized the need for distinguishing between different types of exit. Nevertheless, most business failure studies still ignore the fact that a distressed firm has various exit options.

With this study, we attempt to fill these gaps in the literature. We investigate the determinants of the time period between the first signs of economic distress and firm exit. We hereby differentiate between involuntary exits (mainly bankruptcies) and voluntary liquidations, since there are strong indications that these two types of exits have distinct underlying dynamics and processes (Harhoff et al. 1998, Prantl 2003; Balcaen et al. 2008)¹. Voluntary liquidations result from 'entrepreneurial self-selection', while involuntary exits are driven by an 'external selection' exit mechanism (Prantl 2003) and forced on the firm by outsiders. A voluntary liquidation can only occur if all stakeholders are duly compensated; only shareholders may suffer losses. Unlike a voluntary liquidation, stakeholders are not fully compensated in involuntary exits (Leyman and Schoors 2008).

We argue that a firm's slack resources that are available at the first signs of economic distress and the degree of stakeholder dependence determine how long it takes before the firm exits either through an involuntary exit or through a voluntary liquidation. Guided by organization theory, we propose that more slack resources increase the time period preceding an involuntary exit, as firms usually attempt to avoid or delay involuntary exit. Higher levels of slack resources at the time of distress allow a firm to survive longer. On the contrary, as slack resources may facilitate a voluntary liquidation procedure, a high level of slack will accelerate voluntary liquidation after distress and, hence, will decrease the time period preceding a voluntary liquidation. Further, as suggested by stakeholder theory, the degree of stakeholder dependence may influence the exit path length, especially for voluntary liquidations. Various stakeholders, such as employees, creditors, banks, suppliers and related firms influence a firm's freedom of action. As stakeholders often have incentives for the firm to continue operations,

¹ We exclude firms that exit through a merger or acquisition due to the low incidence of M&A's of distressed firms (Balcaen et al. 2008).

high stakeholder dependence will make it more difficult to exit and will increase the time to exit for both voluntary and involuntary exits.

The research questions are empirically analyzed on a Belgian sample of 5,233 distress-related firm exits, including bankruptcies and voluntary liquidations. The sample mainly includes small and medium-size privately held firms. All firms are more mature, i.e. we exclude starting firms whose exit dynamics may be very different from those of mature firms. We show that both the available and potential slack resources and the degree of stakeholder dependence explain the duration of the exit path. As expected, a high level of available or potential slack increases the duration of the exit path preceding involuntary exits, but it shortens the time to voluntary liquidation. Furthermore, a high level of stakeholder dependence increases the time to exit after distress, whether the firm exits via a voluntary or an involuntary procedure. Overall, firms have a higher probability of going bankrupt quickly when they are smaller or when they have lower levels of slack resources at the first signs of economic distress. Early voluntary liquidations, on the other hand, are characterized by high available slack resources and low stakeholder dependence at the first signs of economic distress.

By providing clear empirical evidence on determinants of the time period between a firm's first signs of economic distress and its exit, distinguishing between involuntary exits and voluntary liquidations, this paper contributes to the literature on the process of business failure and firm exit. Until now, the determinants of the time to exit have not been explicitly studied. Moreover, the differentiation between two types of exit as an outcome of distress — involuntary exit and voluntary liquidation — fills a gap in the literature on firm exits, which mainly focuses on bankruptcies, and hence allows new insights into distress-related exits. For example, this study shows that the time preceding involuntary exits and voluntary liquidations is explained by different factors. Additional contributions of this paper to the literature are fourfold. First, the richness of our dataset allows analysis of the effects of available and potential slack resources and stakeholder dependence, as proposed by the organization theory of the firm and stakeholder theory, on the duration of the time to exit. Second, the analysis of a large and unbiased sample of distress-related exits in Belgium makes it possible to draw conclusions that can be more readily generalized. Third, the focus on exits of more mature firms and smaller, privately owned firms allows conclusions to be generated for categories of firm exits that have until now remained largely unexplored. Finally, by considering historical firm information from a broad pre-exit window up to 10 years prior to exit, this study adds significantly to the existing business failure studies, which are often limited to the analysis of firm information close to exit.

The remainder of the paper is structured as follows. Section 2 gives an overview of the literature on distress-related exit and the timing of firm exit after distress. Section 3 formulates hypotheses about the effect of slack resources and stakeholder dependence on the length of the exit path. Section 4 elaborates on the sample of distress-related exits and method of analysis. Section 5 reports the results,

while section 6 summarizes the most important conclusions and provides suggestions for further research.

2 Distress-related exit and time to exit

Most academic studies on business failure and failure paths focus on involuntary exits in the form of bankruptcies. In the present study, we extend this narrow concept of business exit. We take a broader view and we consider two types of distress-related exit: involuntary exit and voluntary liquidation. A first exit type is the involuntary exit, which may involve a bankruptcy procedure (comparable to Chapter 11 in the U.S.), or a winding-up enforced by court, also known as compulsory liquidation. Worldwide, bankruptcy procedures are usually part of insolvency regulation for financially distressed firms. This allows an appropriate person (i.e., the manager/owner or a creditor) to file for bankruptcy. In the case of a judicial winding-up, the court makes an order for the firm to be liquidated on the petition of an appropriate person. The second exit type considered in this study is the voluntary liquidation. With this procedure, which is not forced by either the creditors or the court, the firm's shareholders sell assets in order to pay off any outstanding liabilities. All creditors are paid in full, the firm is dissolved and the remaining liquidation proceeds—if any—return to the shareholders. Involuntary exit is the most unfavorable exit type for many stakeholders of the firm. It involves destruction of economic value. Not all creditors are fully compensated and most incur considerable losses (Leyman and Schoors 2008). Bankruptcies may therefore harm the reputation of the managers and directors. For this reason, firms usually attempt to avoid involuntary exit. Conversely, with a voluntary liquidation, all external stakeholders are compensated and only shareholders may suffer losses. A voluntary liquidation is hence only feasible if the market value of the assets exceeds all liabilities. This makes that voluntary liquidation is the result of 'entrepreneurial self-selection', while involuntary exit involves a juridical procedure that is often initiated or stimulated by external parties (financial institutions, companies, individuals and/or government) and therefore is an 'external selection' exit mechanism (Prantl 2003).

In this study on distress-related exits, we analyze the length of the period between the first sign of distress and the firm exit. Until now, surprisingly little is known on the determinants of the time to exit. Existing studies about business failure mainly explore the determinants of exit versus survival (Laitinen 1991; Van Wymeersch and Wolfs 1996), while empirical studies on distress-related exits are mainly focused on a comparison of exit types (Pastena and Ruland 1986; Peel and Wilson 1989; Kanatas and Qi 2004; Balcaen et al. 2008).

Duration studies, on the other hand, mainly focus on the time that firms spend in a Chapter 11 reorganization procedure (eg. Bandopadhyaya 1994; Li 1999; Orbe et al. 2001; Denis and Rodgers 2007). To the best of our knowledge, there are no studies explicitly investigating the length of the time

period from first sign of economic distress to firm exit. However, the time to exit is an important characteristic of the exit process that warrants separate analysis. The exit path length may be explained by specific factors, distinct from the factors explaining firm exit or exit type. It is therefore relevant to gain insight in the driving forces of the exit timing or the length of the exit path.

3 Determinants of the time to exit after distress

First, we will explore how available and potential slack resources at the first sign of economic distress affect the time to exit. Guided by organization theory, we argue that slack resources will lead to a longer time until involuntary exit. As firms usually attempt to avoid or delay involuntary exit, slack resources will increase the time to involuntary exit. On the contrary, we argue that a high level of slack will accelerate voluntary liquidation, because it facilitates liquidation. Second, we use stakeholder theory to further explain the time to exit, especially for voluntary liquidations. We argue that firms with more stakeholders have a lower freedom of action. This, in turn, will make liquidation and involuntary exit more difficult and will increase the time to voluntary liquidation and involuntary exit.

3.1 Slack resources and time to exit

Organization theory sees a firm as an entity that seeks survival as its ultimate goal. In order to survive, a firm should be able to adapt to its environment and protect its core (Hannan and Freeman 1984). Therefore, firms accumulate slack resources, because organizational slack acts as a buffer to protect its core from environmental pressures and random fluctuations in the environment (Cyert and March 1963; Thompson 1967; Pfeffer and Salancik 1978; Bromily 1991; Cheng and Kesner 1997). In uncertain environments, the presence of slack resources mitigates risks and may allow the firm to survive (Sharfman et al. 1988; Tan and Peng 2003). Generally, organizations are able to survive at least until their buffers of accumulated resources are depleted (Gimeno et al. 1991). It is hence relevant to study the impact of slack resources on the time to exit.

Bourgeois (1981, p. 30) defines “organizational slack” as “that cushion of actual or potential resources which allow an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy as well as to initiate changes in strategy with respect to the external environment”. Besides absorbing changes in the environment (Thompson 1967), organizational slack serves also as a resource to tackle problems (Sharfman et al. 1988). Although the role of slack resources is especially prominent in economically adverse times (Cheng and Kesner 1997; Latham and Braun 2008), holding slack resources may also benefit healthy firms (Galbraith 1973). Within certain limits, organizational slack may be a source of sustainable competitive advantage over other firms. When other firms experience restrictions on the development of slack or

when the firm can use slack as a complementary asset (e.g., along with superior insight or innovative ability), slack resources may lead to a higher performance (Pfeffer and Salancik 1978; Hambrick and D'Aveni 1988; Singh 1986; Barney 1991; Bromiley 1991; Miller and Leiblein 1996; Reuer and Leiblein 2000).

In a situation of environmental uncertainty and distress, the need for high-discretion slack resources increases (Sharfmann et al. 1988; Latham & Braun 2008). These are currently uncommitted resources that are relatively liquid and easily redeployable in a wide variety of situations (Singh 1986; Sharfman et al. 1988; Hambrick and D'Aveni 1988; Voss et al. 2008). Firms may have different forms of high-discretion slack resources, such as cash holdings, marketable securities, credit lines and raw materials. Bourgeois and Singh (1983), Bromiley (1991) and Cheng and Kesner (1997) further distinguish between “available slack” and “potential slack”. While available slack is immediately available, potential slack has not yet entered the firm, but is accessible within a short time frame. Potential slack resources are hence resources that can be generated from the environment in the future, for example currently unused credit lines.

In a situation where a firm experiences distress and where involuntary exit poses a threat, slack resources may be especially valuable. As involuntary exit is the most unfavorable exit type for a distressed firm and many of its stakeholders, firms usually try to avoid or postpone this type of exit and try to continue operations as long as possible. Then, the primordial short-run goal of the firm is not to maximize efficiency, but to survive (Bourgeois 1981; Sharfman et al. 1988). We expect that the available and potential slack resources will increase the time period during which a distressed firm is able to avoid or delay involuntary exit and, hence, will increase the duration of the exit path preceding involuntary exit. In other words, distressed firms with large levels of available and potential slack are expected to survive longer after economic distress. Firms with high levels of available slack are able to delay involuntary exit, because available slack resources allow absorbing changes, resisting to environmental pressures and tackling problems that may threaten survival. Similarly, high levels of potential slack resources increase the capabilities to postpone an involuntary exit. Conversely, distressed firms with a low level of available slack are expected to have a shorter exit path preceding involuntary exit, because they may be unable to absorb even small shocks, which in turn may accelerate deterioration of the distressed situation, causing even lower levels of slack resources². As a result, for firms with low available slack, an involuntary exit may become inevitable in an early stage after the first sign of economic distress. Moreover, the finding that a high level of slack decreases the probability of involuntary exit compared to voluntary exit (Balcaen et al. 2008) feeds our expectation that slack resources will affect the duration of the exit path leading to involuntary exit. This leads to:

² This argument assumes rational behaviour.

Hypothesis 1: Available slack resources have a positive effect on the length of the time period from economic distress to involuntary exit

Hypothesis 2: Potential slack resources have a positive effect on the length of the time period from economic distress to involuntary exit.

An opposite effect is expected for voluntary liquidations, as a high level of slack resources facilitates a voluntary liquidation. Firms with high levels of available or potential slack resources have a high probability to successfully complete the liquidation procedure. High levels of slack resources may hence motivate shareholders to cash-in early to prevent further loss of resources. On the contrary, distressed firms with a low level of available slack are expected to be restrained from starting a liquidation procedure, because of the low success probability. These firms are hence more likely to postpone the decision to voluntarily liquidate and await the evolution of the firm. In other words, economically distressed firms with high levels of available and potential slack are expected to have a shorter exit path preceding voluntary liquidation. As a result, we propose the following hypotheses:

Hypothesis 3: Available slack resources have a negative effect on the length of the time period from economic distress to voluntary liquidation.

Hypothesis 4: Potential slack resources have a negative effect on the length of the time period from economic distress to voluntary liquidation.

The level of high-discretion available slack is reflected by cash holdings, while the level of potential slack resources is determined by the future accessibility of additional slack. An indicator of potential slack is current leverage.

Cash holdings

Cash holdings are available slack resources because they involve currently uncommitted resources that can easily be deployed for various purposes (Sharfman et al. 1988). Firms may maintain large cash holdings, far in excess of their transactions needs, as a buffer to meet unexpected contingencies so as to ensure survival (Baum et al. 2004, 2006). For this reason, high levels of cash holdings may be viewed as “options purchased by the firm’s managers that may be exercised in adverse times in order to ensure firm survival” (Baum et al. 2004, p. 4). In case of distress, cash hence provides a firm with a pool of financial resources that allow to absorb financial problems and to offset potential difficulties in its access to credit or other external financing and/or to initiate strategic changes so as to adapt to the pressures from the external environment. Therefore, large cash holdings may allow a distressed firm to continue operations and postpone involuntary exit.

Current leverage

Firms with a higher borrowing capacity have a higher probability to raise additional cash in the future through new debt issues. An important indicator of the future borrowing capacity of a firm is its current leverage. Contrary to firms with more equity and more unused debt capacity, a firm with a high leverage may experience difficulties in accessing additional financial resources. As a result, a high current leverage is an indicator of a low level of potential slack (Singh 1986), which leads to a higher vulnerability to external pressures. Therefore, current leverage is a negative indicator of potential slack.

3.2 Stakeholder dependence and time to exit

Stakeholder theory argues that a firm can be seen as “a vehicle for coordinating stakeholder interests” (Evan and Freeman 1993, p. 102-103). A modern corporation is the centre of a network of interdependent interests of various stakeholders. Besides shareholders and lenders, employees, suppliers, customers, governmental bodies, regulatory authorities, trade unions, trade associations, related and associated firms including joint venture partners have an interest in the company. Organizational morality implies that managers acknowledge stakeholder interests and pay attention to these interests (Hill and Jones 1992; Donaldson and Preston 1995; Berman et al. 1999; Post et al. 2002). In most countries, the interests of some types of stakeholders – for example, the shareholders, customers and employees – are explicitly protected by law (Post et al. 2002).

The term “stakeholder” was introduced by Freeman (1984), who considers each party with interests in the firm as a stakeholder. All individuals or companies that contribute to the wealth-creating capacity and performance of a firm by providing resources – and therefore anticipate benefits (possibly in the form of monetary returns) and/or bear risks – can be considered as stakeholders (Post et al. 2002). Besides funds, capital, labor (including knowledge and capabilities) and revenue, the resources that stakeholders supply may include social acceptance or a “license to operate”³ (Blair 1995; Post et al. 2002). Through the resources that are provided by the stakeholders, corporations are able to create new wealth in many different forms: returns for investors, compensation for the employees, income for the suppliers, benefits in excess of costs for customers, interest payments for creditors, taxes for the government, and so forth (Post et al. 2002).

In this context, we propose that the level of stakeholder dependence will influence the period between economic distress and voluntary liquidation. In case of distress, the firm is voluntarily liquidated if this appears to be the best option. When management believes that liquidation will prevent future losses or that liquidation will allow redeploying the assets in a more profitable way, management may choose to voluntarily liquidate the firm. However, as management is expected to

³ The legitimacy or “license to operate” depends on the firm’s ability to meet the expectations of diverse stakeholders.

advance the interests of all stakeholders, the freedom of choice for voluntary liquidation is more complex for corporations operating within an extensive network of stakeholders (Post et al. 2002). If a firm has a lot of stakeholders to account for, the decision on a liquidation of the firm will involve a lot of consideration and, possibly, negotiation with diverse stakeholders, which will in turn increase the time to exit. For example, internal non-owner stakeholders, such as employees, may exercise their voice and attempt to obstruct the liquidation by efforts to influence the decision-making processes (Gimeno et al. 1997). If these efforts turn out effective, the voluntary liquidation may eventually be postponed, despite a preference of the owners for liquidation (Meyer and Zucker 1989). Further, external stakeholders, such as debt holders, customers, suppliers and governmental institutions may persuade a distressed firm to continue operations by applying direct co-optation or by exercising institutional pressures (Gimeno et al. 1997). On the contrary, low stakeholder dependence may facilitate the decision to voluntarily liquidate the firm. For example, in case of distress, a small firm with few employees, no group relations and few obligations towards suppliers, may decide rather quickly to voluntarily liquidate, because it is highly independent and has only few stakeholders to take account of.

Besides the decision to liquidate, the degree of stakeholder dependence will also influence the length of the liquidation process. High stakeholder dependence is likely to increase the number of steps in the liquidation process and the duration of these steps, which will in turn result in a long exit path. In firms with many stakeholders, the liquidation process is more complex because it requires the settlement of multiple agreements with various stakeholders, negotiations with various contracting parties concerning the termination of contracts, the settlement of possible disputes and lawsuits and the settlement of a considerable amount of accounts payable and debt obligations. For example, due to a more complex liquidation process, the duration of the liquidation process will be longer in firms with a large workforce, many related firms and strong supplier relationships. Conversely, low stakeholder dependence will simplify and, hence, shorten the liquidation process. In independent, small firms with only few employees and few obligations towards suppliers, a liquidation process can be rapidly completed, as only few stakeholders are involved. In this kind of firms, the liquidation process is simpler and shorter. For these reasons, inspired by stakeholder theory, we propose following hypothesis:

Hypothesis 5: Stakeholder dependence has a positive effect on the length of the time period from economic distress to voluntary liquidation.

A similar effect of stakeholder dependence may be at work when a distressed firm is facing an involuntary exit. We propose that, in case of distress, the degree of stakeholder dependence may play an important role in the timing of the involuntary exit. The decision to file for an involuntary exit procedure – a bankruptcy or a winding-up by court – is likely to be more complex when a lot of

stakeholders are involved. In a firm with a broad network of stakeholders, the filing for an involuntary exit procedure will involve a lot of consideration, as it may cause losses for many stakeholders, and it will involve negotiations with diverse stakeholders. For example, employees are informed about the situation and the firm will initiate negotiations with the bank about the outstanding debts. As a result, the presence of stakeholders will increase the time to exit. Conversely, low stakeholder dependence may facilitate the decision to file for an involuntary exit procedure. For example, for a small firm with few employees and no group relations it may be much easier to decide on a bankruptcy in case of distress and this independence from stakeholders may accelerate the decision to file for a bankruptcy. Besides the effect on the decision to exit, the degree of stakeholder dependence will also influence the time between the decision to file for an involuntary exit and the eventual declaration of exit by court (i.e. bankruptcy declaration). High stakeholder dependence is likely to increase time between the filing and the declaration, which will, in turn, prolong the exit path. For example, in firms with a large workforce and many related firms, the official declaration of bankruptcy by court is likely to require more time than in stand-alone firms with few employees. As a result, guided by stakeholder theory, hypothesis 6 suggests:

Hypothesis 6: Stakeholder dependence has a positive effect on the length of the time period from economic distress to involuntary exit

We use different indicators of stakeholder dependence, reflecting the degree of dependence from different stakeholder categories. The level of stakeholder dependence is observed through firm size, business group membership, employee representation and trade debts.

Firm size

The level of stakeholder dependence is reflected by firm size. Small firms generally have fewer stakeholders. They have fewer employees, a smaller network of suppliers, fewer shareholders (often, the manager is the sole owner of the firm), a smaller customer base, a more limited number of banks with whom they have contracted loans, and so forth. It is obvious that these firms have more freedom of action. Radical strategic changes concerning the firm can be taken rather easily with few stakeholders to negotiate with. In this context, small firms may be more capable to quickly decide on a voluntary liquidation or an involuntary exit. On the other hand, larger firms generally have a larger network of stakeholders. In these firms, fundamental strategic decisions are more likely to involve extensive and time-consuming negotiations with various internal and external stakeholders.

Business group membership

All firms that are part of a larger group structure around the firm, such as and associated corporations, firms that are part of a conglomerate or a consortium and parent corporations, have another category of stakeholders to take account of: the related firms. This category of stakeholders may be important, especially for firms that operate within a broad network of related firms, involving participations and intra-group financial flows with respect to financing activities and operating activities. Firms with group relations clearly have a lower level of freedom in their actions, as compared to totally independent firms without group relations. For example, being a supplier or customer of the products of other firms from the group, is likely to increase the complexity to opt for a voluntary liquidation or a bankruptcy and, hence, may delay the exit decision. Moreover, the presence of a network of related firms is likely to increase the complexity and the duration of the liquidation or bankruptcy process itself, because of the involved negotiations with all related firms. Conversely, the level of stakeholder dependence is lower in independent firms.

Employee representation

Employees are an important stakeholder category. Especially in larger firms where employee representation is often compulsory⁴, it will be less obvious to opt for voluntary liquidation. Employee representatives may have considerable power in the decision making process within the firm. They are able to give advice, to pass criticism or to raise objections before important decisions are taken. They may further have an impact on the decisions on a voluntary liquidation planned by management. For example, they may try to postpone the liquidation, negotiate about a possible turnaround of the firm or about layoff payments and premiums for employees with a long length of service. Employee representatives will always steer upon decisions that are most favorable for the employees and try to avoid choices that may put them at a disadvantage. It is clear that this may, in turn, be a factor opposing a prompt settlement of a voluntary liquidation. In a similar way, employee representation may delay an impending involuntary exit.

⁴ In most EU countries, employee representation, which allows for employee participation, is compulsory. This may involve board-level representation of employees or employee representation in the form of works councils. Although board-level representation is a widespread form of employee participation across Europe (a majority of the EU states have board members representing employees), in Belgium, the UK, Bulgaria, Cyprus, Estonia, Italy, Latvia, Lithuania, Romania there is no general legislation or widely applicable collective agreements providing for board-level representation. However, in Belgium, employee representation in the form of a works council is compulsory for larger firms. For example, each Belgian firm with at least a hundred employees needs to establish a “work council”, which mainly has an advisory task. The employee representatives need to be timely informed about important events or decisions that may have a considerable impact on the firm and its work force. For example, decisions about an acquisition by another firm or a merger, about collective lay-offs, about the termination or downscaling of certain activities, about large additional loans need to be timely communicated.

Trade debt

Suppliers are another category of stakeholders. With a view to optimize efficiency and profitability, firms generally aim to develop strong and stable buyer/seller relationships with one or multiple suppliers. Advantages of strong supplier relationships result from the firm's commitment to the supplier, the possibilities of advanced planning, simplified contract negotiations and the way in which both parties consider each other as partners. Generally, strong supplier relationships with a high frequency of transactions encourage the use of trade credit with a view to fill temporary gaps in the cash flow ⁵ (Stiglitz and Weiss 1981). This is particularly true for small firms, which are more likely to suffer from information problems in capital markets and which have a restricted access to external financing (Beger and Udell 1995). At the same time, strong relationships with suppliers cause a lower freedom of action concerning radical strategic changes, such as firm exit. Especially when a large amount of trade debts is involved, it is less obvious for a distressed firm to decide on a voluntary liquidation or a bankruptcy. Moreover, large amounts of trade debts are likely to increase the complexity and the duration of the liquidation or bankruptcy process itself. Conversely, small amounts of trade debts, reflecting a lower level of dependence from suppliers, may facilitate and accelerate voluntary liquidation or bankruptcy.

4 Research method

4.1 Sample composition

The analyses are based on a large Belgian sample of 5,233 distress-related exits of mature firms. This sample of distress-related exits is drawn from a comprehensive dataset of all involuntary exits and voluntary liquidations in the period 1998–2000 and is provided by the National Bank of Belgium (NBB). For each Belgian firm and on a yearly basis, the NBB registers the annual accounts⁶ and all juridical information. From this dataset of 19,052 exits, firms less than five years old at the time of exit are excluded, because confronted with distress, new firms act differently compared to more established, mature firms. New firms have a specific exit path, in which personal characteristics of the owner/manager play a major role and in which there is no gradual evolution toward exit (Pompe and Bilderbeek 2005). Sole proprietorships, not-for-profit firms, public organizations, companies with a

⁵ This is partly due to the information advantage and monitoring advantage of suppliers over banks (Schwartz and Whitcomb 1979).

⁶ In Belgium, all firms, even small companies, deposit their annual accounts with the NBB in a standardized format, including balance sheets, profit-and-loss accounts and additional disclosures.

social aim, and firms with a special main business activity⁷ are also excluded. These firms have a specific nature and are likely to have specific exit paths with distinct determinants.

We further restrict our sample to firms that showed economic distress before exiting. The first sign of distress is viewed as the starting point of the exit path. In the literature, there is no consensus yet on the most appropriate distress criterion. Potential indicators of economic distress include several years of negative net operating income, bottom-line and accumulated losses, negative working capital, retained earnings deficits, share sales to private investors, capital restructuring or reorganization, negative shareholder's funds, suspension of dividend payments, and major restructurings or layoffs (McKeown et al. 1991; McLeay and Omar 2000; Platt and Platt 2002; Rosner 2003). In our study, economic distress is defined as a firm year with negative recurring profit after taxes. We hence define economic distress as a situation where operating revenues are insufficient to cover (1) operating expenses, such as the expenses for goods and services needed for production (commodities, accessories, raw materials and services), personnel costs, write-offs and depreciations of fixed and current assets (land, plant and equipment, licenses, inventories, orders in progress and accounts receivable); (2) the financial costs of debt; and (3) taxes. Table A.1 in the Appendix provides details on the calculation of recurring profit after taxes. In contrast to net profit after taxes, recurring profit after taxes does not include exceptional revenues and expenses, or financial revenues⁸. It has an operational content because it reflects the excess (or deficit) of revenues over expenses derived from normal business activities. As the exceptional revenues and expenses are not included in the calculation of recurring profit, this indicator of distress is also less influenced by earnings management practices. Our measure is closely related to the concept of 'economic value added' (Van Caillie and Arnould 2001; Van Caillie and Dighaye 2002) and 'revenue productivity' (Becchetti and Sierra 2002). It can hence be seen as an indicator of firm efficiency and firm success.

This definition of distress allows for the study of a broad spectrum of distress-related exits, including 'impulsive firm' exits as an outcome of an excessive fast-growth strategy (Argenti 1976). It should be noted that the "rapid, unexpected exits", a heterogeneous category of exits which have little to do with a situation of economic distress, are excluded from the sample. Examples are cases of "sudden bankruptcy" reflecting a strategic decision, where it is likely that the firms have idiosyncratic reasons for the bankruptcy filing, which are not related to financial distress and are likely to be driven

⁷ More specifically, firms active in financial intermediation and insurance, portfolio companies and management activities of holdings, extra-territorial organizations, real estate firms and enterprises whose activities are totally located in a foreign country are excluded from the sample.

⁸ In contrast to a negative recurring profit after taxes, a net loss does not necessarily point to real distress. It could simply be the result of low financial revenues (for example, low revenues from participations in other firms), or high extraordinary expenses (for example, exceptional write-offs or losses from the disposal of assets or business segments). It should be noted that firms often attempt to report negative extraordinary results to decrease net profit in an attempt to avoid taxes.

by strategic issues or even management fraud (Hill et al. 1996) and cases of “accidental bankruptcy”, resulting from an unexpected event, such as a natural disaster (Davis and Huang 2004).

The large dataset of 5,233 distress-related exits used in this study is unique and offers considerable contributions to the existing literature on firm exit and business failure. First, the dataset allows analyzing different exit paths: involuntary exits as well as voluntary liquidations. In addition, it does not suffer from sample selection biases. Second, it contains a large number of small and medium-sized privately owned enterprises (SMEs). These have been largely neglected in previous empirical work on business failure, where the vast majority of research has dealt with large listed firms because of data availability issues. However, SMEs have been one of the major driving forces of worldwide economic growth, employment and prosperity during the last decades. At the same time, during the past decade many European (privately owned) SMEs are threatened by increased competition and the number of SMEs exiting because of distress is substantial. As it appears essential to gain insights into the exit-path dynamics of SMEs, the strong presence of privately owned SMEs in our dataset is interesting. A third contribution of the dataset is its focus on established and more mature firms. During the past decade, an increasing number of failures of mature, non-starting firms have been observed in most European countries due to the fierce competitive situation. Nevertheless, numerous firm exit studies have focused on new firm exits and largely ignored the exit path of more mature firms. This study will only analyze firms that have survived the first five years following their foundation.

Table 1 shows the type of exit of our sample firms. The sample contains 2,533 firms with involuntary exits (48.40%) and 2,700 firms that were voluntarily liquidated (51.60%). The involuntary exits mainly involve cases of bankruptcy (N=2,518) but also a few cases of judicial winding-up and compulsory liquidation (N=15). In addition, we also consider firms operating under a juridical reorganization procedure known as a ‘moratorium on payments’⁹, where (1) firms have stopped depositing annual accounts after filing for a reorganization procedure or (2) their restructuring plan has not been successfully completed and the moratorium on payments has been recalled. The 2,700 cases of voluntary liquidation include cases filed at the Court of Commerce as an ‘early dissolution/liquidation’ or ‘closure of liquidation’. Of the firms in our sample, 48.25% are active in the

⁹ Similar to reorganization procedures in other countries—‘Chapter 11’ in the U.S., ‘administrative receivership’ in the U.K., ‘collective procedure’ in France (Kaiser 1996; Couwenberg 2001)—the Belgian procedure of moratorium on payments permits a firm with (impending) payment problems to take legal shelter from its creditors for a certain period during which it can implement a reorganization plan. It is important to note that although the basic intention of the Belgian reorganization procedure is to help firms recover from a situation of distress, it is strongly oriented toward bankruptcy. It is rarely used, but is usually unsuccessful and followed by bankruptcy (Research Reports of Graydon NV). As outsiders and employees generally interpret a filing as a signal of a forthcoming bankruptcy, only firms with serious problems with payments and continuing operations will file for a moratorium on payments. We note the similarly low popularity and success rate of reorganization procedures in many other European countries (Couwenberg 2001).

trade industry, including wholesale, retail, and hotel, restaurant and catering activities, 32.20% in manufacturing, agriculture or construction, and 19.55% in the service industry, including personal, business and transport services. Except for one case, all firms in our sample are privately owned.

Table 1 Composition of the sample: exit type and legal exit procedure

Exit type	Legal procedure	Number of firms	Percentage
Involuntary exit		2,533	48.40%
	Bankruptcy	2,518	48.11%
	Compulsory liquidation	4	0.08%
	Moratorium on payments	11	0.21%
Voluntary liquidation		2,700	51.60%
	Early dissolution/liquidation	465	8.89%
	Closure of liquidation	2,235	42.71%
TOTAL		5,233	100.00%

For the 5,233 firms in our sample, the closure date of the first annual account with a negative recurring profit after taxes is defined as the starting point of the exit path (time $t=1$). The potential determinants of time to exit are observed at $t=1$. The official date of the legal exit (i.e. the date when the exit is officially declared by the Court of Commerce) is considered as the end of the exit path. The duration of the exit path of each firm is then calculated as the time between the first sign of distress and the legal exit. It should be stressed that the maximum duration of the exit paths in our sample is 10.9 years, because of the limitation of the pre-exit window up to fiscal year 1990 – due to data availability issues. The mean (median) exit-path length of the 5,233 firms in our sample is 6.17 (6.51) years. Table 2 gives descriptive statistics on the exit path duration, distinguishing between involuntary exits and voluntary liquidations and for separate subsamples of early exits, that occur within a five-year period after the first sign of distress, and late exits, that occur passed this five-year limit. On average, the voluntary liquidations have longer exit paths than involuntary exits (Mann–Whitney $p = 0.000$). However, there is a distinction between early exits and late exits. The separate analysis of early exits indicates that early voluntary liquidations have on average shorter exit paths than early involuntary exits. In other words, early exits happen more frequently in the form of a voluntary liquidation and less frequently in the form of an involuntary exit. Conversely, in the subsample of late exits, voluntary liquidations are preceded by somewhat longer exit paths. Mann–Whitney tests confirm these findings. The survival curves in figure 1 reflect the distribution of the exit-path length since the first sign of distress for the involuntary exits and voluntary liquidations. These survival curves are based on the survival rates for each exit alternative or the percentage of firms that exit after time t conditional on having survived up to time t , starting with 100% (all firms enter the dataset) and ending with 0% (all firms have exited and left the dataset after $t = 11$).

Table 2 Descriptive statistics of time to exit of (early and late) involuntary exits, voluntary liquidations and full sample

		All exits (N=5,233)			Early exits (N=1,593)			Late exits (N=3,640)		
	Full sample	Involuntary exit	Voluntary liquidation	Mann-Whitney p-value	Early involuntary exit	Early voluntary liquidation	Mann-Whitney p-value	Late involuntary exit	Late voluntary liquidation	Mann-Whitney p-value
Mean	6.174	6.107	6.238	0.000	3.476	3.054	0.000	7.308	7.577	0.000
Median	6.507	6.326	6.762		3.715	3.249		7.329	7.726	
Standard deviation	2.344	2.174	2.4922		1.086	1.497		1.321	1.352	
Minimum	0.000	0.482	0.000		0.482	0.000		5.003	5.003	
Maximum	10.896	10.707	10.896		4.995	5.000		10.707	10.896	
N	5,233	2,533	2,700		794	799		1,739	1,901	

Early exits occur within a five-year period after the first sign of distress, while late exits occur passed this five-year limit.

P-value of Mann–Whitney U-test below 0.05 indicates a significant difference between the subsamples of involuntary and voluntary exits.

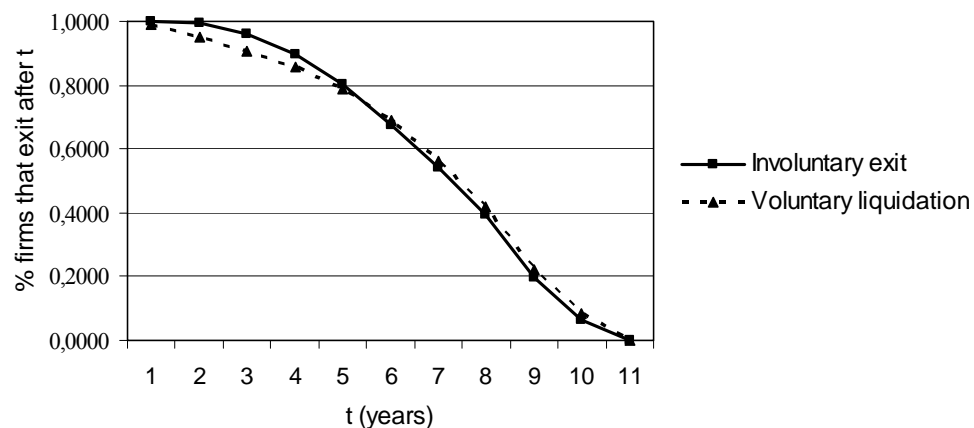


Fig 1 Survival curves for the involuntary exits (N=2,533) and voluntary liquidations (N=2,700). This figure shows the percentage of firms that exit after time t conditional on having survived up to time t

4.2 Method of analysis

Multivariate tobit regression is used to identify the determinants of the time to exit. As the dependent variable LENGTH, measuring the exit path length, is continuous but truncated below 0 and above 11, tobit is a better suited model. For truncated dependent variables tobit will produce coefficients and standard errors that are less biased than those obtained from OLS regression. Moreover, compared to OLS, tobit may explain a higher proportion of the variance in the dependent variable. (Tobin 1958; Amemiya 1973; Long 1997; Greene 2003). Survival models are not appropriate in our setting as all the firms in the dataset eventually exit: no firms survive. We estimate tobit models for the subsamples of involuntary exits and voluntary liquidations separately, as the fundamental differences between involuntary exit and voluntary liquidation (Balcaen et al. 2008) require a separate analysis of these two types of exit.

4.3 Variables

All explanatory and control variables are measured at the first sign of economic distress. The level of cash holdings (CASH) is measured by the amount of cash and cash equivalents divided by total assets. Current leverage (LEVERAGE) is measured by the ratio of the book value of long-term and short-term debt on total assets. Firm size (SIZE) is measured by the natural log of the book value of total assets (in €1,000), which is a common size proxy. We use the natural logarithm of total assets, because it is reasonable to assume that the marginal effect of size is stronger for small firms. Business group membership is reflected by a dummy variable D_GROUP, which takes the value of 1 (zero) in case of presence (absence) of financial interactions with related firms and firms with holding interests. Financial interactions include (1) investments in participations and in claims (i.e. financial fixed assets), (2) claims, (3) monetary deposits and (4) debts. It is important to note that the group relations observed are not restricted to parent-subsidiary relations, but also involve financial interactions with other subsidiaries from the same group and with companies in which the firm holds participations. The presence of employee representation is reflected by a dummy variable D_REPRESENTATION, which takes the value of 1 if the firm has at least 100 employees or staff members and, hence, is obliged to establish employee representation. In Belgium, employee representation in the form of a works council is compulsory for firms with at least a hundred employees. The variable trade debts (TRADEDEBT) is measured by the ratio of the amount of trade debts, including long term and short term trade debts towards suppliers, on total assets.

Besides these indicators of slack resources and stakeholder dependence, a number of control variables are included: firm age, presence and level of secured debt, productivity, profitability, investments, tangibles, receivables, level of stocks and industry type. All control variables are measured at $t=1$. Firm age (AGE) is a variable that appears in many studies as an important predictor

of business failure. Firm age is expected to affect exit timing, because more mature firms generally (1) are more efficient and more competent (Levinthal 1991) as a result of learning effects, decreasing production costs, accumulation of skills and knowledge, more developed production technologies, and reputation building, (2) have more stable social relations (Stinchcombe 1965) and (3) have more experience concerning the most appropriate size and composition of organizational slack (Sharfman et al. 1988)¹⁴. Firm age is measured as the number of years of operational activity.

The secured debt level (SECURED) is included as a control variable because different studies have suggested that the presence of secured debt may have an impact on firm exit. Because of their guaranteed position in the liquidation process, secured creditors may push for an involuntary exit or voluntary liquidation – even shortly after the first sign of distress – so as to collect their accounts as soon as possible (Campbell 1996; Schwarts 1997; Franks and Sussman 2005; Leyman et al. 2008). The secured debt level is measured by the percentage of total debts that are guaranteed by business securities on the firm's assets. Secured debts involve guaranteed financial debts, trade debts, received advance payments on orders, debts related to taxes, remunerations, social security premiums and other guaranteed debts. Together with the secured debt level, we include a variable reflecting the absence of secured debts (D_NOSECURED). This allows to separately assess the impact of having secured debts and of the importance of secured debt. Also, in view of the high frequency (more than 75%) of zero-observations for the secured debt level, this reduces possible biases in the estimation of the models. The dummy variable D_NOSECURED takes the value of 1 in cases where no debts are guaranteed by business securities on the firm's assets (i.e. there are no secured creditors).

Furthermore, productivity and profitability are included as control variables. Productivity or overall firm efficiency is a frequently mentioned determinant of business exit and profitability is an important predictor of failure and exit (Fazzari et al. 1988; Siegfried and Evans 1994; Klepper 1996; Dimitras et al. 1996; Caves 1998; Cooley and Quadrini 2001; Daubie and Meskens 2002; Delli Gatti et al. 2003). Productivity (PRODUCTIVITY) is measured by the ratio of gross value added to total assets. Profitability (PROFITABILITY) is measured by EBIT on total assets¹⁵.

The investments in tangibles and intangibles (INVESTMENTS) are included as a control variable, because literature on business failure and on corporate restructuring suggests that investment behavior may impact firm exit. First, as the failure literature suggests that investments are likely to increase competitive strength and survival chances, we may expect that investments allow postponing an impending exit. Moreover, several studies on corporate restructuring and turnaround have indicated that investments in the form of an acquisition of additional plants or equipment, or an acquisition of another company that fits into the core business may allow a distressed firm to recover (Schendel et al.

¹⁴ Note that all firms in our population have survived the critical starting phase of 5 years.

¹⁵ Productivity and profitability can also be measured by using operational assets instead of total assets as the denominator. Sensitivity analyses for these alternative measures reveal no changes in the conclusions.

1976; Hofer 1980). In response to distress and declining performance, firms may adopt a growth strategy, as an alternative to organizational retrenchment¹⁶ (D'Aveni 1989; Chowdhury and Lang 1996; Rasheed 2005). As a result, we may expect that the investment behavior of a firm confronted with distress will affect the exit timing. Investments are measured by the total amount of investments in tangibles and intangibles – including R&D, patents, licenses, franchises and goodwill, land and plant, equipment and machines, furniture and rolling stock – on total assets.

Another control factor is the level of tangible assets (TANGIBLES). The level of tangible assets determines the possibility of asset divestment – divestments of lines of businesses or business units in the context of a refocusing on core business or sales of land, plant and equipment in the context of an attempt to increase productivity (Gibbs 1993; Sudarsanam and Lai 2001) – which may be necessary in order to postpone an impending exit. Consequently, the asset composition may affect the timing of exit after distress. On the other hand, as tangible assets have a higher liquidation value compared to intangibles, we may expect that a high degree of asset tangibility may increase the motivation initiate a voluntary liquidation procedure. The degree of tangibles is measured by the book value of tangible assets on total assets.

Another control variable is trade receivables (RECEIVABLES). On the one hand, trade receivables may positively impact exit timing, because the reduction of receivables (i.e. collection of payments) is a frequently applied restructuring activity in an attempt to postpone exit. On the other hand, business failure studies have shown that a high amount of receivables may be detrimental for a firm in distress, especially when they concern questionable debtors. Therefore, large volume of trade receivables may accelerate involuntary exit. Trade receivables are measured as the ratio of the amount of long and short term trade receivables on total assets.

Similarly, the inventory level (INVENTORY) may impact exit timing. Literature on corporate restructuring has shown that inventory downsizing is a restructuring activity for firms in distress (Sudarsanam and Lai 2001). As firms with a large inventory – especially when inventory mainly consists of raw materials and finished goods that can be sold easily – have more possibilities to optimize working capital by reducing inventories, they may be expected to be better able to postpone exit. For this reason, inventory may be expected to have a positive effect on the exit path duration. However, at the same time, a (too) high inventory, especially when it concerns work in progress and finished goods for which there is no demand, may accelerate an impending bankruptcy. Inventory is measured by inventory (including raw materials, finished goods and work in progress) on total assets.

Finally, as the industry may also influence the exit timing, an industry variable is included as an additional control variable. We distinguish three main industry types: manufacturing (i.e., manufacturing, agriculture and construction), trade (i.e., wholesale, retail and hotel, restaurant and

¹⁶ Severely declining organizations and distressed firms facing internal resource constraints rather apply asset reductions (D'Aveni 1989; Robbins and Pearce 1992; Rasheed 2005).

catering activities) and services (i.e., personal, business and transport services). We include two binary variables: D_TRADE takes a value of one if the exiting firm is active in trade and D_MANUFACTURING takes a value of one if the exiting firm is active in manufacturing.

Tables A.2 and A.3 in appendix show that the correlation between the independent and the control variables is low. The highest correlation is found between tangibles and investments (0.562). Hence, multicollinearity problems in the multivariate analyses are limited.

4.4 Sample description

Table 3 provides summary statistics of the key variables measured at the first sign of distress ($t = 1$) for the entire sample of distress-related exits ($N=5,233$), and for the subsamples of involuntary exits ($N=2,533$) and voluntary liquidations ($N=2,700$). The results indicate that most firm characteristics differ significantly. On average, compared to voluntary liquidations, firms with involuntary exits have lower cash holdings, a higher leverage, a smaller size and more trade debts. Average leverage is as high as 96.0%, with trade debts accounting for 31.7% of total assets. Further, they are younger, have more secured debts and are less profitable than firms that voluntarily liquidate. They have a higher investment activity, more tangible assets, larger trade receivables and higher inventory levels. Finally, they are more likely to be a stand-alone firm, to have a main activity in manufacturing and to have secured debts. Cases of voluntary liquidation, on the contrary, typically have larger cash holdings (12.7% compared to 7.3% for involuntary exits), a lower leverage (66.7% compared to 96.0% for involuntary exits), a larger firm size, lower trade debts, a higher maturity, less secured debts, a higher profitability, a lower investment activity, less tangibles, fewer receivables and a smaller inventory. Also, they are more likely to be part of a business group, showing financial interactions with related firms and firms with holding interests, to have no secured debts and to be active in the trade or service industry. Note that the firms are small: average total assets equal €1.5 million and median total assets equal only €228.830. The huge difference between average and median size is due to some very large firms in the sample.

Table 3 Mean and median of the explanatory and control variables, observed at t=1

Panel A							
	Total sample				Subsamples		
	N	Mean (median) full sample	Standard deviation	N zero values	Mean (median) involuntary exit	Mean (median) voluntary liquidation	p-value Mann-Whitney
Explanatory variables							
CASH	5,232	0.101 (0.041)	0.154	277	0.073 (0.027)	0.127 (0.062)	0.000
LEVERAGE	5,232	0.807 (0.774)	2.924	12	0.960 (0.853)	0.667 (0.653)	0.000
SIZE (in €1,000)	5,233	1504.736 (228.830)	12721.175	0	977.722 (252.095)	1999.515 (207.536)	0.000
TRADEDEBT	5,232	0.262 (0.198)	0.287	179	0.317 (0.265)	0.210 (0.126)	0.000
Control variables							
AGE (years)	5,176	10.075 (6.663)	10.350	0	8.748 (5.230)	11.347 (8.059)	0.000
SECURED	5,232	0.093 (0.000)	0.205	3,916	0.112 (0.000)	0.075 (0.000)	0.000
PRODUCTIVITY	5,232	0.565 (0.369)	3.175	154	0.575 (0.379)	0.556 (0.363)	0.136
PROFITABILITY	5,232	-0.326 (-0.003)	18.300	8	−0.601 (−0.008)	−0.069 (0.001)	0.000
INVESTMENTS	5,232	0.178 (0.054)	0.293	895	0.210 (0.082)	0.148 (0.032)	0.000
TANGIBLES	5,232	0.261 (0.186)	0.240	280	0.292 (0.227)	0.232 (0.149)	0.000
RECEIVABLES	5,232	0.229 (0.170)	0.224	721	0.241 (0.200)	0.217 (0.150)	0.000
INVENTORY	5,232	0.190 (0.090)	0.229	1437	0.199 (0.118)	0.182 (0.063)	0.000
Panel B							
	Total sample			Subsamples		p-value	
	N	N (%) non-zero full sample		N (%) non-zero involuntary exit	N (%) non-zero voluntary liquidation	χ ² -test	
Explanatory variables							
D_REPRESENTATION	5,233	68 (1.30%)		32 (1.26%)	36 (1.33%)	0.823	
D_GROUP	5,233	455 (8.69%)		161 (6.36%)	294 (10.89%)	0.000	
Control variables							
D_NOSECURED	5,233	3,916 (74.83%)		1738 (68.61%)	2178 (80.67%)	0.000	
D_TRADE	5,233	2,525 (48.25%)		1249 (49.31%)	1276 (47.26%)	0.138	
D_MANUFACTURING	5,233	1,685 (32.2%)		864 (34.11%)	821 (30.41%)	0.004	

In panel A, summary statistics of continuous variables are reported, while panel B reports summary statistics of binary variables. Descriptives for the full sample of distress-related exits (N=5,233), and for the subsamples of involuntary exits (N=2,533) and of voluntary liquidations (N=2,700) are included. The Mann-Whitney U-tests (continuous variables) and the Chi-square tests (binary variables) test for differences between the subsamples of involuntary exits and voluntary liquidations.

5 Results

Involuntary and voluntary exits are modeled separately, given the differing dynamics of their exit paths (Balcaen et al. 2008). For both exit types, the first model includes only the control variables. The variables proxying for slack resources are added in the second model. The third model is the full model, including control variables, slack resource variables and stakeholder dependence variables. Adding stakeholder dependence variables before slack resource variables does not alter the conclusions. Models 1 are compared to the constant only model, models 2 are compared to models 1 and the complete models (model 3) are compared to models 2. The chi-square tests for models 2 and models 3 indicate that the variables on slack resources and on stakeholder dependence significantly add to explaining both the time to involuntary exit and the time to voluntary exit (significant at 1% level). Both groups of explanatory variables hence significantly explain the duration of the exit path of distressed firms.

5.1 Involuntary exits

The results of the multivariate tobit model explaining the exit duration of involuntary exits are reported in table 4 (N = 2,531). Model 1, which only contains the control variables, shows that firm age and investments have a significant effect on the time to involuntary exit. Older firms and firms with high investments have longer exit paths before they exit involuntarily. Additionally, firms with a large inventory have a longer time to exit. The coefficient of this variable is significant in the full models.

Model 2 shows that firms with large cash holdings, reflecting a higher level of available slack resources, have significantly longer exit paths, supporting Hypothesis 1. The coefficient of the variable indicating potential slack is significant and in the hypothesized direction, supporting Hypothesis 2. A high leverage, reflecting lower potential slack, decreases the time to involuntary exit.

The complete model (model 3) confirms the impact of slack resources and additionally provides support for hypothesis 6. A large firm – reflecting higher stakeholder dependence – has a significantly longer time to exit. The other indicators of stakeholder dependence – business group membership, employee representation, and amount of trade debts – do not significantly explain the time to involuntary exit however.

Overall, we find that early involuntary exits are driven by a low level of available and potential slack resources. A small firm size, reflecting low stakeholder dependence, also contributes to an early bankruptcy.

Table 4 Results of the tobit models for the involuntary exits (N=2,531)

	Model 1: control variables			Model 2: control variables + slack resources			Model 3: control variables + slack resources + stakeholder dependence		
	b	SE	p-value	b	SE	p-value	b	SE	p-value
C	5.7681**	0.2304	0.0000	5.7978**	0.2499	0.0000	5.4149**	0.3251	0.0000
Available slack									
CASH				0.8702*	0.3894	0.0254	0.9663*	0.3970	0.0149
Potential slack									
LEVERAGE				-0.2966**	0.0579	0.0000	-0.2752**	0.0654	0.0000
Stakeholder dependence									
SIZE							0.1292**	0.0384	0.0008
D_GROUP							-0.4680	0.2665	0.0791
D_REPRESENTATION							0.1501	0.4122	0.7158
TRADEDEBT							0.1797	0.1876	0.3381
Control variables									
AGE	0.0175**	0.0047	0.0002	0.0162**	0.0047	0.0005	0.0095	0.0051	0.0606
SECURED	0.2920	0.3269	0.3717	0.2830	0.3250	0.3839	0.3163	0.3268	0.3331
D_NOSECURED	-0.1045	0.1491	0.4833	-0.1351	0.1483	0.3624	-0.0662	0.1499	0.6589
PRODUCTIVITY	0.0101	0.0102	0.3218	0.0111	0.0101	0.2709	0.0123	0.0101	0.2237
PROFITABILITY	0.0033	0.0017	0.0520	-0.0420**	0.0090	0.0000	-0.0390**	0.0102	0.0001
INVESTMENTS	0.5050**	0.1559	0.0012	0.5583**	0.1555	0.0003	0.5505**	0.1557	0.0004
TANGIBLES	-0.1372	0.2398	0.5674	0.1097	0.2575	0.6699	0.1517	0.2606	0.5604
RECEIVABLES	-0.2092	0.2442	0.3917	0.0834	0.2587	0.7472	-0.0748	0.2730	0.7841
INVENTORY	0.3928	0.2428	0.1057	0.6113*	0.2573	0.0175	0.5324*	0.2636	0.0434
D_TRADE	0.2236	0.1318	0.0897	0.2371	0.1310	0.0703	0.2307	0.1310	0.0782
D_MANUFACTURING	0.0506	0.1319	0.7013	0.0297	0.1311	0.8208	-0.0163	0.1318	0.9014
Log likelihood	-5,532.489			-5,516.526			-5,509.301		
χ^2 test (p-value)	<0.005			<0.005			<0.010		
Squared multiple corr	0.0193			0.0331			0.0382		

The dependent variable LENGTH, measuring the duration of the exit path (in number of years) is treated as a truncated variable (truncated below 0 and above 11) by using the TOBIT estimation model. Model 1 only contains the control variables, model 2 contains the control variables and the variables on slack resources and model 3 includes the control variables, the variables on slack resources and the variables on stakeholder dependence. For each model, table 4 reports the coefficients (b), the standard errors (SE)

and the significance levels (p-value). Goodness-of-fit measures include the log-likelihood of the model, the squared multiple correlation (based on correlation between estimated or fitted values and observed values), and the p-value of the χ^2 test (based on the log-likelihood of the model, the log-likelihood of a restricted model, and the number of additional variables in the model). With the χ^2 test, a p-value below 0.05 indicates that the model is significant compared to the restricted model. Model 1 is compared to the constant only model, model 2 is compared to model 1 and model 3 is compared to model 2.

Significance levels: ** Significant at 1%; * Significant at 5%

5.2 Voluntary liquidations

Table 5 reports the results of the multivariate models for voluntary liquidations (N = 2,644). Model 1 indicates that productivity, profitability, investments, tangibles, receivables and inventory significantly explain the duration of the exit path preceding voluntary liquidation. A stronger economic performance – higher productivity and profitability – high investments, high asset tangibility, large trade receivables, and a large inventory significantly increase the survival time and postpone voluntary liquidation. These relationships remain significant when adding the slack resource and stakeholder dependence variables.

In model 2, the variables reflecting the available and potential slack resources are added. Supporting hypothesis 3, firms with large cash holdings exit significantly sooner after the first sign of distress: the available slack has a negative influence on the exit path duration and, hence, shortens the exit path. A high leverage, indicating lower potential slack, significantly increases the time to exit in model 2, which is consistent with hypothesis 4. However, leverage is no longer significant in the complete model (model 3). Current leverage, as an indicator of low future borrowing capabilities and low potential slack, hence does not significantly impact the time to voluntary liquidation. Therefore, hypothesis 4 is not supported.

Finally, the variables reflecting stakeholder dependence are included in the complete model (model 3). Supporting hypothesis 5, firms with higher stakeholder dependence, measured by firm size, group membership, and volume of trade debts, take significantly longer to voluntarily liquidate. The presence of employee representation does not affect the duration of the exit paths, however.

Overall, early voluntary liquidations are determined by high available slack resources and by low stakeholder dependence, as reflected by a small firm size, a stand-alone status, and low volume of trade debts. High levels of potential slack resources do not impact the time to exit, however. This might reflect the fact that firms wishing to voluntarily liquidate do not attempt to raise additional debt, as additional debt makes a voluntary liquidation more difficult.

Table 5 Results of the tobit models for voluntary liquidations (N=2,644)

	Model 1: control variables			Model 2: control variables + slack resources			Model 3: control variables + slack resources + stakeholder dependence		
	b	SE	p-value	b	SE	p-value	b	SE	p-value
C	5.1515**	0.2435	0.0000	5.2846**	0.2592	0.0000	4.1245**	0.3359	0.0000
Available slack									
CASH				-1.2157**	0.2975	0.0000	-1.0172**	0.3003	0.0007
Potential slack									
LEVERAGE				0.2812**	0.0726	0.0001	-0.0106	0.0828	0.8984
Stakeholder dependence									
SIZE							0.0875*	0.0346	0.0114
D_GROUP							1.2577**	0.2183	0.0000
D_REPRESENTATION							0.3845	0.4230	0.3633
TRADEDEBT							0.5846**	0.1860	0.0017
Control variables									
AGE	-0.0059	0.0045	0.1861	-0.0025	0.0045	0.5757	0.0024	0.0046	0.6128
SECURED	0.3530	0.4011	0.3788	0.3014	0.3989	0.4500	0.4361	0.3955	0.2702
D_NOSECURED	-0.3531	0.1935	0.0681	-0.3014	0.1926	0.1176	-0.1136	0.1915	0.5531
PRODUCTIVITY	0.1326**	0.0377	0.0004	0.1477**	0.0375	0.0001	0.1602	0.0376	0.0000
PROFITABILITY	0.1169*	0.0510	0.0219	0.2671**	0.0634	0.0000	0.1062	0.0657	0.1060
INVESTMENTS	0.8130**	0.2051	0.0001	0.7576**	0.2040	0.0002	0.5858**	0.2025	0.0038
TANGIBLES	1.7671**	0.2497	0.0000	1.3800**	0.2600	0.0000	1.2151**	0.2650	0.0000
RECEIVABLES	1.6742**	0.2244	0.0000	1.2730**	0.2361	0.0000	0.5474*	0.2514	0.0294
INVENTORY	2.3514**	0.2285	0.0000	1.9060**	0.2431	0.0000	1.4913**	0.2479	0.0000
D_TRADE	0.2280	0.1279	0.0746	0.2516*	0.1273	0.0481	0.2483*	0.1266	0.0498
D_MANUFACTURING	-0.1951	0.1327	0.1416	-0.1442	0.1322	0.2756	-0.0213	0.1320	0.8715
Log likelihood	-6,013.067			-5,996.477			-5,959.057		
χ^2 test (p-value)	<0.005			<0.005			<0.005		
Squared multiple corr	0.0947			0.1064			0.1300		

The dependent variable LENGTH, measuring the duration of the exit path (in number of years) is treated as a truncated variable (truncated below 0 and above 11) by using the TOBIT estimation model. Model 1 only contains the control variables, model 2 contains the control variables and the variables on slack resources and model 3 includes the control variables, the variables on slack resources and the variables on stakeholder dependence. For each model, table 5 reports the coefficients (b), the standard errors (SE)

and the significance levels (p-value). Goodness-of-fit measures include the log-likelihood of the model, the squared multiple correlation (based on correlation between estimated or fitted values and observed values), and the p-value of the χ^2 test (based on the log-likelihood of the model, the log-likelihood of a restricted model, and the number of additional variables in the model). With the χ^2 test, a p-value below 0.05 indicates that the model is significant compared to the restricted model. Model 1 is compared to the constant only model, model 2 is compared to model 1 and model 3 is compared to model 2.

Significance levels: ** Significant at 1%; * Significant at 5%

5.3 Robustness checks

Several robustness tests are conducted so as to test the general validity of the results. First, we correct the tobit models for specification errors (Huber 1967) and for heteroscedasticity (White 1980), using the Huber-White standard errors¹⁷ instead of the traditional standard errors. The results (reported in Table A.4 in the Appendix) remain qualitatively unchanged. Second, as the influence of outliers can be important, the tobit models are re-estimated in a reduced sample. All independent variables are trimmed at the 1st and the 99th percentile and all observations above and below three standard deviations from the mean are deleted. The outlier-corrected models are consistent with the original models. Third, additional model regressions are conducted for alternative measures of employee representation (number of employees), productivity (gross value added per employee) and profitability (net return on total assets). The conclusions are consistent with the ones reported previously. Fourth, re-estimation of the models using OLS instead of tobit does not alter the conclusions. Finally, a sensitivity analysis is conducted on a sample of ‘complete failure’ exits, of which the exit path is initiated by a sign of serious distress. A sign of serious distress is defined as three consecutive firm years with a negative recurring profit after taxes. The samples of complete failure exits as an outcome of serious distress include 1,314 involuntary exits and 1,458 voluntary liquidations. Again, the results of the additional tobit models are in line with the original models.

6 Conclusions

This study provides new insights on the determinants of the exit path duration preceding distress-related involuntary exits and voluntary liquidations. It examines how long a firm survives after an initial sign of distress and identifies determinants of the ‘time-to-exit’. We focus on the level of available and potential slack resources and stakeholder dependence at the time of the first signs of distress as determinants of the time to exit. Based on a unique sample of 5,233 distress-related firm exits in Belgium, we show that available and potential slack resources and stakeholder dependence explain the duration of the exit path.

Particularly, we find that slack resources have an opposite effect on the timing of involuntary exits and voluntary liquidations. On the one hand, a high level of available and potential slack resources (reflected by large cash holdings, and a low current leverage) increases the duration of the exit paths preceding involuntary exits. Slack resources hence allow distressed firms to postpone an impending involuntary exit. This finding reinforces the importance of available and potential slack resources in

¹⁷ The Huber-White standard errors are robust and heteroscedasticity-consistent standard errors. These errors are adjusted for correlations of error terms across observations and allow estimating the variance of the parameter estimates when the underlying model is incorrect (Huber 1967; White 1980; Greene 2003).

extending the exit path with a view to delay involuntary exit. On the contrary, we find that high available slack resources decrease the time to voluntary liquidation. This may be explained by the fact that the owners may have a stronger motivation to cash-in and prevent the further loss of resources and that the likelihood of success for the liquidation procedure is greater with high levels of available slack. Both effects may accelerate the decision to voluntarily liquidate the distressed firm. High potential slack resources, however, do not affect the time to voluntary liquidation. This may be explained by the fact that a voluntary liquidation is a planned strategy, in which potential slack and future borrowing capacity are of minor concern to the distressed firm. In view of a planned voluntary exit, a distressed firm is unlikely to resort to additional lending.

Further, this study provides evidence that a high level of stakeholder dependence generally extends the time to exit after distress. This is consistent with stakeholder theory, suggesting that a firm's stakeholders determine the firm's fate and its decisions concerning (the timing of) firm exit. First, high stakeholder dependence – reflected by a large firm size, business group membership and large amounts of trade debts towards suppliers – is found to increase the length of the exit paths preceding voluntary liquidations. This may be explained by the fact that in firms with an extensive network of stakeholders and with multiple potentially diverging stakeholder interests to account for, the decision to voluntarily liquidate the firm is more complex. Also, the liquidation procedure itself will be more complicated and time-consuming, which will in turn increase the exit path duration. Second, we find that high stakeholder dependence, reflected by a large firm size, extends the exit path preceding involuntary exit. The decision to file for a bankruptcy or other involuntary exit procedure is likely to be more complex and involve negotiations with more diverse stakeholders in large firms. Moreover, the declaration of exit by court may require more time, which may lengthen the exit path.

Besides slack resources and stakeholder dependence, other factors are found to determine the time-to-exit. First, older firms take longer before they involuntarily exit. This may be explained by the fact that more mature firms generally are more efficient and more competent, have more stable social relations and have more skills. Second, firms with higher levels of productivity and profitability take longer to voluntarily liquidate. This can be explained by the fact that, in case of distress, better performing firms are more likely to await the evolution of the firm before deciding on a liquidation. Third, high levels of investments increase the time to both involuntary exit and voluntary liquidation. A possible explanation for this effect may be that investments, which are made in the context of a growth strategy aimed at corporate recovery, may allow a distressed firm to survive a fierce decline and postpone an impending exit. Fourth, high asset tangibility is found to increase the time to voluntary liquidation. Possibly, distressed firms with many tangible assets resort to a strategy of asset divestment so as to postpone exit, which explains their longer exit path. Further, trade receivables have a positive effect on the time to voluntary liquidation. This may be explained by the fact that firms with large receivables attempt to collect all payments before initiating a procedure of voluntary liquidation. Finally, the amount of inventory positively affects exit timing of both involuntary and

voluntary exits. Possibly, firms with a large inventory resort to inventory downsizing in an attempt to survive, especially when inventory includes a lot of raw materials and finished goods that can be sold easily. By reducing inventories and, hereby optimizing working capital, they try to postpone exit.

We recognize that the models estimated in this study are not fully complete. Possibly, we have ignored other explanatory factors of the length of the exit path, such as human factors (for example, the experience or age of the manager/owner and the education of the directors), strategic factors and organizational factors (such as board members, outside directors, number of divisions, plant location). However, this does not limit the value of this study in understanding the impact of available and potential slack and stakeholder dependence on the time to exit. Finally, by not considering human, strategic and organizational factors, the analyses are only based on objective, accurate and publicly available information.

A potential route for expanding the insights of this study is to consider distressed firms that continue to operate and the probability of firm survival. However, we claim there are benefits to be gained from this in-depth study of distress-related exits. The most important benefit is that a detailed analysis of distress-related exits, including the careful analysis of the timing of bankruptcy and voluntary liquidation, allows for learning from firms that have experienced an early exit. This contributes in turn to the eventual success of firms that learn from the experiences of others and may even allow the development of better models of value creation (McGrath 1999).

The main findings of this study, concerning (1) the existence of a specific exit path profile for involuntary exits and voluntary liquidations and (2) the importance of slack resources and stakeholder dependence for the timing of involuntary exits and voluntary liquidations, may help to guide future empirical research on distress-related exit paths. For example, one could conduct a more dynamic analysis of exit paths and investigate sequences of events related to the available and potential resources and the level of stakeholder dependence with a view to identify a number of common exit paths leading to involuntary exit and voluntary liquidation.

Another interesting finding of this study that may call for further investigation, is that secured debts do not impact the duration of the exit path preceding involuntary exit. This contrasts with the behavior of secured creditors in court-supervised reorganization procedures (e.g. Chapter 7), where secured creditors are found to push for early bankruptcy (Leyman et al. 2008). Our analysis also shows that secured creditors have a different behavior in the pre-bankruptcy process and in the pre-liquidation process. This calls for more attention to the pre-liquidation and pre-bankruptcy process.

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Appendix

Table A.1 Calculation of the recurring profit/loss after taxes

	Abbreviated scheme annual accounts		Complete scheme annual accounts	
	Annual account section number	Description	Annual account section number	Description
OPERATING REVENUES				
• Value of production (excl. subsidies)	70 ^a	Turnover	(70/74 – 740)	Turnover less subsidies
OPERATING EXPENSES				
• Intermediary consumption	60/61	Commodities, accessories, raw materials and various goods and services	60	Commodities, raw materials and accessories Various goods and services
• Costs of personnel	<62>	Remunerations, social contributions and pensions	61 <62>	Remunerations, social contributions, pensions Pension provisions
• Write-offs and depreciations of fixed assets	630	Write-offs and depreciations on fixed assets: land, plant and equipment, establishment costs and intangible assets	+ <635> 630	Write-offs and depreciations on fixed assets: land, plant and equipment, establishment costs and intangible assets
NON-OPERATING EXPENSES				
• Financial costs of debts (excluding interest subsidies)	– <65> + <656>	Financial costs, excluding financial provisions	650 653	Financial cost of debts Discount on receivables
• Depreciations on current non-financial assets	+ <631/4>	Depreciations on inventories, orders in progress and accounts receivable	+ <631/4>	Depreciations on inventories, orders in progress and accounts receivable
• Provisions for operational risks and costs	+ <635/7>	Provisions	+ <635/7> – <635>	Provisions, excluding provisions for pensions
TAXES				
• Taxes on profits	– <67/77>	Taxes on the result	9134 + 640	Taxes on the result of the fiscal year Taxes on operations (i.e. real estate taxes, taxes on cars and trucks, ...)
RECURRING PROFIT AFTER TAXES	[70/61 – 61/70] – [<62> + 630 – <65> + <656> + <631/4> + <635/7> – <67/77>]		[(70/74 – 740) – (60 + 61)] – [<62> + <635> + 630 + 650 + 653 + <631/4> + <635/7> – <635> + 9134 + 640]	

^a Most firms with an abbreviated annual account do not report sales, as this is not compulsory, and instead report their gross margin as | 70/61 | or | 61/70 |.

Table A.2 Spearman correlations between the continuous explanatory and control variables for the subsample of involuntary exits

	CASH	LEVER- AGE	SIZE	TRADE DEBT	AGE	SECURED	PRODUC- TIVITY	PROFITA- BILITY	INVEST- MENTS	TANGI- BLES	RECEIV- ABLES	INVEN- TORY
CASH	1.000	-0.158**	-0.212**	0.050*	0.001	-0.151**	0.150**	-0.081**	-0.053**	-0.126**	-0.100**	-0.050*
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
LEVERAGE	-0.158**	1.000	0.024	0.307**	-0.248**	0.051*	-0.102**	-0.224**	0.145**	0.140**	-0.026	-0.017
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
SIZE	-0.212**	0.024	1.000	0.173**	0.324**	0.248**	-0.284**	0.373**	-0.033	-0.088**	0.283**	0.217**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
TRADE DEBT	0.050*	0.307**	0.173**	1.000	0.022	-0.066**	-0.047*	0.000	-0.074**	-0.295**	0.371**	0.200**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
AGE	0.001	-0.248**	0.324**	0.022	1.000	0.073**	0.074**	0.197**	-0.392**	-0.184**	0.182**	0.196**
	2531	2531	2531	2531	2532	2531	2531	2531	2531	2531	2531	2531
SECURED	-0.151**	0.051*	0.248**	-0.066**	0.073**	1.000	-0.088**	0.149**	0.058**	0.175**	-0.045*	0.084**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
PRODUCTIVITY	0.150**	-0.102**	-0.284**	-0.047*	0.074**	-0.088**	1.000	0.012	0.014	0.133**	0.087**	-0.134**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
PROFITABILITY	-0.081**	-0.224**	0.373**	0.000	0.197**	0.149**	0.012	1.000	-0.116**	-0.097**	0.097**	0.157**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
INVESTMENTS	-0.053**	0.145**	-0.033	-0.074**	-0.392**	0.058**	0.014	-0.116**	1.000	0.540**	-0.141**	-0.192**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
TANGIBLES	-0.126**	0.140**	-0.088**	-0.295**	-0.184**	0.175**	0.133**	-0.097**	0.540**	1.000	-0.324**	-0.272**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
RECEIVABLES	-0.100**	-0.026	0.283**	0.371**	0.182**	-0.045*	0.087**	0.097**	-0.141**	-0.324**	1.000	-0.131**
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532
INVENTORY	-0.050*	-0.017	0.217**	0.200**	0.196**	0.084**	-0.134**	0.157**	-0.192**	-0.272**	-0.131**	1.000
	2532	2532	2532	2532	2531	2532	2532	2532	2532	2532	2532	2532

Correlations are based on the observations of involuntary exits (t=1), that are used in the regression analysis (N=2,533).

Significance levels: ** Significant at 1%; * Significant at 5%

Table A.3 Spearman correlations between the continuous explanatory and control variables for the subsample of voluntary liquidations

	CASH	LEVER- AGE	SIZE	TRADE DEBT	AGE	SECURED	PRODUC- TIVITY	PROFITA- BILITY	INVEST- MENTS	TANGIBLES	RECEIV- ABLES	INVEN- TORY
CASH	1.000	-0.266**	-0.208**	-0.040*	0.103**	-0.161**	0.122**	-0.051**	-0.100**	-0.157**	-0.049*	-0.123**
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
LEVERAGE	-0.266**	1.000	0.069**	0.485**	-0.390**	0.175**	-0.024	-0.151**	0.272**	0.206**	0.096**	0.168**
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
SIZE	-0.208**	0.069**	1.000	0.142**	0.137**	0.107**	-0.369**	0.269**	0.046*	-0.101**	0.183**	0.086**
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
TRADEDEBT	-0.040*	0.485**	0.142**	1.000	-0.093**	0.069**	0.025	-0.121**	0.141**	-0.030	0.384**	0.269**
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
AGE	0.103**	-0.390**	0.137**	-0.093**	1.000	0.000	0.012	0.108**	-0.325**	-0.149**	0.094**	0.132**
	2644	2644	2644	2644	2644	2644	2644	2644	2644	2644	2644	2644
SECURED	-0.161**	0.175**	0.107**	0.069**	0.000	1.000	0.026	0.085**	0.149**	0.246**	0.002	0.070**
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
PROFITABILITY	-0.051**	-0.151**	0.269**	0.025	0.108**	0.085**	0.045*	1.000	0.120**	0.234**	0.072**	0.011
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
PRODUCTIVITY	0.122**	-0.024	-0.369**	-0.121**	0.012	0.026	1.000	0.045*	-0.066**	-0.082**	-0.025	-0.021
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
INVESTMENTS	-0.100**	0.272**	0.046*	0.141**	-0.325**	0.149**	0.120**	-0.066**	1.000	0.562**	0.011	-0.006
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
TANGIBLES	-0.157**	0.206**	-0.101**	-0.030	-0.149**	0.246**	0.234**	-0.082**	0.562**	1.000	-0.171**	-0.033
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
RECEIVABLES	-0.049*	0.096**	0.183**	0.384**	0.094**	0.002	0.072**	-0.025	0.011	-0.171**	1.000	-0.091**
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700
INVENTORY	-0.123**	0.168**	0.086**	0.269**	0.132**	0.070**	0.011	-0.021	-0.006	-0.033	-0.091**	1.000
	2700	2700	2700	2700	2644	2700	2700	2700	2700	2700	2700	2700

Correlations are based on the observations of voluntary liquidations (t=1), that are used in the regression analysis (N=2,700).

Significance levels: ** Significant at 1%; * Significant at 5%

Table A.4 Results of the tobit models for the involuntary exits (N= 2,531) and the voluntary liquidations (2,644), using Huber/White robust standard errors

	Involuntary exits			Voluntary liquidations		
	b	H/W SE	p-value	b	H/W SE	p-value
C	5.4149**	0.3268	0.0000	4.1245**	0.3432	0.0000
Available slack						
CASH	0.9663*	0.3797	0.0109	-1.0172**	0.3470	0.0034
Potential slack						
LEVERAGE	-0.2753**	0.1004	0.0061	-0.0106	0.0683	0.8768
Stakeholder dependence						
SIZE	0.1292**	0.0391	0.0010	0.0875*	0.0360	0.0152
D_GROUP	-0.4680	0.2746	0.0883	1.2577**	0.2299	0.0000
D_REPRESENTATION	0.1501	0.4657	0.7473	0.3845	0.3927	0.3275
TRADEDEBT	0.1797	0.2398	0.4538	0.5846**	0.1887	0.0020
Control variables						
AGE	0.0095	0.0052	0.0695	0.0024	0.0046	0.6108
SECURED	0.3163	0.3362	0.3467	0.4361	0.3924	0.2664
D_NOSECURED	-0.0662	0.1541	0.6676	-0.1136	0.1793	0.5266
PRODUCTIVITY	0.0123**	0.0041	0.0026	0.1602**	0.0508	0.0016
PROFITABILITY	-0.0390*	0.0155	0.0117	0.1062	0.0791	0.1790
INVESTMENT	0.5505**	0.1490	0.0002	0.5858**	0.1708	0.0006
TANGIBLES	0.1517	0.2640	0.5655	1.2151**	0.2762	0.0000
RECEIVABLES	-0.0748	0.2896	0.7962	0.5474	0.2817	0.0519
INVENTORY	0.5324*	0.2749	0.0428	1.4913**	0.2538	0.0000
D_TRADE	0.2307	0.1323	0.0813	0.2483	0.1325	0.0609
D_MANUFACTURING	-0.0163	0.1349	0.9036	-0.0213	0.1373	0.8765
Log likelihood	-5,509.301			-5,959.057		
χ^2 test (p-value)	< 0.005			< 0.005		
Squared multiple corr	0.0382			0.1300		

The dependent variable LENGTH, measuring the duration of the exit path (in number of years) is treated as a truncated variable (truncated below 0 and above 11) by using the TOBIT estimation model. For each model, table A.4 reports the coefficients (b), the robust Huber/White standard errors (H/W SE) and the significance levels (p-value). Goodness-of-fit measures include the log-likelihood of the model, the squared multiple correlation (based on correlation between estimated or fitted values and observed values), and the p-value of the χ^2 test (based on the log-likelihood of the model, the log-likelihood of a restricted model only including the control variables, and the number of explanatory variables). With the χ^2 test, a p-value below 0.05 indicates that the model is significant.