A Comparative Study of Safeguard and Turnaround Procedures in French Insolvency Law

Rachid ACHBAH

University, Lyon 2, France rachid.achbah@univ-lyon2.fr

Abstract

We examined the effects of insolvency proceedings—namely turnaround and safeguard procedures—on the survival prospects of small and medium-sized enterprises (SMEs) experiencing financial distress. Although both procedures provide legal protection and a framework for restructuring, they differ in timing, judicial oversight, and the degree of managerial discretion they allow. Using a Cox proportional hazards model, we analyzed a dataset of French SMEs to assess how these proceedings influence firm survival. Our results indicate that the initiation of insolvency proceedings generally exerts a negative impact on firm survival. However, safeguard procedures, designed for early-stage intervention and granting greater managerial autonomy, are associated with less detrimental outcomes than turnaround procedures, typically invoked at more advanced stages of distress, and involve more stringent judicial control. This study provides new empirical insights into how insolvency procedures affect SME survival, emphasizing the value of early intervention and preserving managerial discretion to alleviate financial distress.

Keywords Insolvency proceedings, SMEs, bankruptcy, turnaround, firm survival

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are crucial in driving economic growth and innovation. However, their performance is notably volatile. Compared to larger firms, SMEs face more significant risks and are more prone to failure (Carter & Van Auken, 2006). When financial distress occurs, SMEs must explore a range of options to implement successful turnarounds, defined as the process of overcoming difficulties and restoring performance to predecline levels (Tangpong et al., 2015).

Restructuring is a comprehensive process involving a range of strategic, financial, and organizational practices to restore a distressed firm's financial health (Girod & Whittington, 2017). Firms facing financial distress may choose to restructure privately, without judicial intervention, through methods such as negotiations with creditors, asset retrenchment, downsizing, or cost-cutting strategies. These out-of-court measures are often pursued in an attempt to rapidly stabilize operations and restore profitability while maintaining confidentiality and control over the firm's management (Blazy & Nirjhar, 2014; Fisher et al., 2022; Jostarndt & Sautner, 2010).

Alternatively, firms may opt for in-court restructuring by initiating formal insolvency proceedings under judicial supervision. These judicial procedures are designed to facilitate the continuation of distressed firms' activities while preserving employment and safeguarding creditor rights. In most jurisdictions, financially distressed SMEs will likely use bankruptcy laws to navigate their challenges (Adriaanse & Van Der Rest, 2017; Lee et al., 2011; Thornhill & Amit, 2003). Although retrenchment and other out-of-court measures are proactive approaches to resolving distress, some firms may require the formal structure of judicial intervention. This transition often marks a critical juncture in the turnaround process, introducing dynamics such as public scrutiny and procedural constraints that must be carefully managed (Blazy & Nirjhar, 2014; Gilson et al., 1990).

Insolvency proceedings, such as safeguard ("sauvegarde") and turnaround ("redressement") mechanisms, are intended to create an environment where financially distressed firms can stabilize and rebuild while preserving creditor rights and employment. These procedures differ significantly across jurisdictions, reflecting varying priorities between reorganization and liquidation. In enterprise-friendly legal systems, such as that in France, safeguard procedures focus on early-stage intervention, providing firms with a structured platform for recovery while allowing managers to retain operational control (Armour & Cumming, 2008; Peng et al., 2010). By contrast, turnaround procedures typically address firms at more advanced stages of distress, involving stricter judicial oversight and reduced managerial discretion (Blazy & Nirjhar, 2014).

The literature highlights opportunities and challenges associated with insolvency proceedings. On the one hand, these proceedings provide legal protection, such as a stay on creditor claims, offering distressed firms the breathing room necessary to restructure effectively. On the other hand, they come with procedural costs, reputational risks, and public disclosure requirements that may hinder recovery efforts (Balcaen et al., 2012; Sutton & Callahan, 1987). Entrepreneurs navigating these proceedings must balance the potential benefits of judicial support with the drawbacks of external oversight and stigmatization.

Despite substantial theoretical discourse on restructuring and insolvency, empirical evidence on the direct impact of insolvency proceedings on firm survival remains scarce, particularly for SMEs. Researchers such as Tangpong et al. (2015) and Rico et al. (2021) have examined various firm decline and recovery dimensions. Additionally, Achbah and Fréchet (2024) explored the interplay between retrenchment and insolvency proceedings. However, few researchers have systematically evaluated how various types of insolvency proceedings—such as safeguard and turnaround procedures—affect SMEs' survival prospects, particularly in

France, where insolvency laws prioritize reorganization over liquidation (Epaulard & Zapha, 2022).

To address this gap, we investigate the impact of insolvency proceedings on the survival of SMEs. The central question drives the research: Do insolvency proceedings enhance or hinder SME survival, and how do outcomes differ between safeguard and turnaround procedures? Theoretical perspectives offer competing hypotheses. On the one hand, insolvency proceedings may facilitate survival by providing firms with a structured framework and legal protections, enabling effective reorganization. On the other hand, they may exacerbate challenges through reputational damage, procedural inefficiencies, and restrictions on managerial autonomy (Decker, 2018).

To test these hypotheses, we utilize a dataset of French SMEs from the Auvergne-Rhône-Alpes region. The findings reveal that insolvency proceedings generally have a negative impact on firm survival. However, safeguard procedures, which prioritize early-stage intervention and allow for greater managerial autonomy, are associated with less severe outcomes than turnaround procedures, which are initiated at later distress stages and involve stricter judicial oversight.

This study makes several contributions by providing empirical insights into the nuanced effects of insolvency proceedings. First, it advances the understanding of how judicial interventions influence SME survival, addressing a significant gap in the literature on corporate restructuring. Second, it underscores the heterogeneity of insolvency proceedings, highlighting the importance of early intervention and managerial discretion in mitigating the adverse effects of financial distress. Third, the findings offer practical implications for policymakers, emphasizing the need to design insolvency frameworks that balance support for distressed firms with the efficiency of restructuring processes. Finally, this study enriches the broader discourse

on organizational resilience and strategic turnaround, offering valuable insights for researchers and practitioners alike.

The paper is organized into four sections. The first section develops hypotheses concerning the impact of turnaround and safeguard insolvency procedures. The second section offers an overview of the dataset and descriptive statistics. The third section details the empirical findings, and the fourth concerns these results and contributions.

2. THEORETICAL BACKGROUND AND HYPOTHESES

2.1. IMPACT OF BANKRUPTCY PROCEDURES ON FIRM SURVIVAL

Most legal systems provide insolvency proceedings that allow distressed firms to seek protection and support under court supervision (Adriaanse & Van Der Rest, 2017). The details of these procedures, of course, vary based on legal traditions (Damaraju et al., 2021). However, they share some common traits, especially in European countries where significant efforts have been devoted to ensuring the convergence of insolvency law. When a distressed firm appears before the Court, the initial stage involves assessing its recovery chances. If restructuring is impossible, the Court orders the firm's immediate liquidation. However, the firm is placed under court supervision when restructuring appears viable. Then, a period characterized by four key features is initiated: (a) the insolvency proceedings do not necessarily imply the end of the business insofar as most systems now incorporate the objective of firm rescue (Bernardo et al., 2016), (b) the distressed firm retains control over its decisions and strategy although the court and creditor representatives oversee the process, (c) the procedure provides protection for the firm's assets, and (d) the decision is made public. The first two features highlight the strategic dimension of bankruptcy, demonstrating that it extends beyond mere compliance considerations. The third feature represents a temporary resource advantage for the firm, and the fourth raises concerns about potential adverse reputational effects. Together, these key features form the basis for diverging perspectives on the influence of insolvency proceedings.

The first perspective in the literature is that insolvency proceedings are intended to promote firm restructuring success as a formal mechanism for addressing financial distress. These proceedings are designed primarily to ensure firm survival and incorporate various mechanisms to facilitate a successful turnaround. Among these mechanisms, the most significant is the protection against creditors, granted through an "automatic stay." This stay is considered a cornerstone of insolvency law, allowing firms to suspend legal actions from creditors and continue operations without the immediate pressure of debt repayment (Lee et al., 2007). In this context, the firm is granted a temporary reprieve, during which it can attempt to reorganize without the threat of creditor lawsuits or asset liquidation. These provisions are particular to firms that seek reorganization under the protection of insolvency law, offering them a unique opportunity to restructure their operations and financial obligations.

Therefore, insolvency proceedings provide firms with an exclusive advantage that competitors may find difficult to replicate. From a strategic perspective, this protection enables firms to remain operational while reorganizing their debts, which can fuel competitive activity and in some cases generate a competitive advantage. Some scholars have raised concerns about the potential for abuse of these provisions, particularly in the context of Chapter 11 bankruptcy proceedings in the United States. Critics argue that such legal frameworks may unduly grant firms an advantage over competitors by providing them with resources and time that other firms cannot access (Sheppard, 1992). Furthermore, entrepreneurs who retain control over most aspects of the firm during insolvency proceedings (Levie & Autio, 2011) may be encouraged to opportunistically use these legal protections to improve their firm's financial position by postponing debt repayment, thus increasing their chances of long-term survival.

This view is consistent with empirical evidence suggesting that entrepreneurs are not favored merely by the complexity of insolvency law but rather by the stability and predictability of the legal and judicial systems that underlie it (García-Posada & Mora-Sanguinetti, 2015;

Levie & Autio, 2011). Therefore, from this perspective, insolvency law is viewed as a mechanism that significantly enhances a firm's prospects for survival, allowing it the necessary time and legal safeguards to engage in a meaningful restructuring process.

However, a second and somewhat contradictory expectation relates to insolvency proceedings' reputational and economic costs. Although insolvency proceedings can offer substantial legal protections, they also have considerable drawbacks, particularly regarding the firm's reputation and the stigma attached to bankruptcy. The public nature of insolvency filings means the firm becomes exposed to negative publicity, which can harm its reputation with stakeholders, including customers, suppliers, and investors. This reputational damage can significantly undermine the firm's ability to maintain vital relationships and may lead to the withdrawal of key stakeholders (Sutton & Callahan, 1987). In addition, it places the firm at greater risk of liquidation because the loss of valuable business relationships, poor-quality participation from stakeholders, and less favorable trading conditions all directly diminish the firm's resources, performance, and survival prospects.

Moreover, insolvency proceedings entail direct and indirect costs that distressed firms may find challenging to bear. For instance, the firm must cover the costs of the creditors' representative, and its major decisions may be subject to court oversight, which can introduce delays and disrupt the restructuring process (Lee et al., 2011). These additional transaction costs can significantly hamper the firm's reorganization ability. As a result, insolvency proceedings can impose a heavy burden on firms, particularly when they are already struggling financially. This view aligns with research that suggests that in-court restructuring strategies, which involve legal protections and formal proceedings, may be less attractive to firms due to the costs and complications involved (Blazy & Nirjhar, 2014; Mruk et al., 2019).

The existing literature presents conflicting views regarding the impact of insolvency proceedings on firm survival. On the one hand, insolvency proceedings are seen as a means of

protecting the firm and facilitating restructuring, enhancing survival prospects. On the other hand, the reputational damage and economic costs associated with these proceedings may undermine the firm's ability to recover. These competing perspectives lead us to propose two alternative hypotheses:

H1a. All else being equal, initiating an insolvency proceeding positively affects firm survival.

H1b. All else being equal, initiating an insolvency proceeding negatively affects firm survival.

2.2. COMPARING SAFEGUARD AND TURNAROUND PROCEDURES: THEIR EFFECTS ON FIRM SURVIVAL

The French bankruptcy framework provides a comprehensive set of tools to address financial distress, primarily through two mechanisms: the safeguard procedure ("sauvegarde") and the turnaround procedure ("redressement"). Both procedures are intended to preserve viable businesses and balance the interests of creditors, employees, and other stakeholders (Adriaanse & Van Der Rest, 2017; Zemis & Demil, 2020). However, their fundamental differences in timing, nature, and operational dynamics have significant implications for their respective impacts on firm survival.

The safeguard procedure, introduced in 2006, operates as a preventive measure to address financial difficulties before a firm becomes insolvent. It allows a debtor to voluntarily request court intervention to implement a restructuring plan under judicial protection, provided the firm has not yet defaulted on its payments (Stef, 2018). This early intervention offers a critical window to stabilize operations, access new financing, and restructure liabilities without the immediate default pressures. In contrast, the turnaround procedure is a reactive mechanism triggered only after the firm officially defaults on its obligations (ceased payments). Once the firm is insolvent, the debtor must initiate the procedure within 45 days. If the debtor does not,

the Court or the creditors can trigger the procedure. These procedures' timing and context fundamentally shape their effectiveness as tools for ensuring firm survival.

From a strategic perspective, the safeguard procedure provides several advantages that enhance its potential to support firm survival. The early intervention allows firms to avoid the severe disruptions and erosion of stakeholder trust that typically accompany more advanced stages of distress. By voluntarily signaling their financial challenges, firms entering safeguard proceedings benefit from a legal framework that protects their assets through the "automatic stay" provision, halts creditor claims, and prioritizes new credit over existing obligations (Lee et al., 2007). These measures ensure firms have access to liquidity, enabling them to reorganize effectively and stabilize their operations.

Another distinguishing feature of the safeguard procedure is the preservation of managerial autonomy (Blazy & Nirjhar, 2014; Lee et al., 2007). Unlike the turnaround procedure, in which court-appointed administrators often assume control over strategic decisions, the safeguard procedure allows the existing management team to retain operational control. This continuity is crucial for maintaining stakeholder confidence because creditors, suppliers, and employees are more likely to support firms perceived as proactively addressing financial challenges (Arora, 2018; Jindal, 2020; Xia et al., 2015). Moreover, the safeguard procedure reduces the stigma typically associated with insolvency by framing the process as a strategic adjustment rather than a signal of failure, thereby minimizing reputational damage and preserving market relationships (Borenstein & Rose, 1995; Ciliberto & Schenone, 2012). This perception enhances the firm's ability to maintain vital relationships with suppliers, creditors, and employees, all crucial in the recovery process.

In contrast, the turnaround procedure operates under significantly less favorable conditions. Unlike safeguard proceedings, turnaround procedures involve more intrusive judicial oversight, frequently replacing managers with court-appointed administrators. Although this oversight ensures accountability, it often stifles managerial discretion, limiting the firm's ability to respond flexibly to emerging challenges. Additionally, the requirement for detailed economic and social balance sheets and other administrative burdens increases transaction costs and delays decision-making. These factors, combined with the reputational damage of being perceived as a failing business, further erode stakeholder trust and diminish the firm's chances of survival (e.g., Decker, 2018). Stakeholders may withdraw their support, creating additional obstacles to recovery.

Furthermore, judges and administrators may approach these cases differently, reflecting a potential pro-liquidation bias in turnaround proceedings due to the advanced stage of distress such firms face (Epaulard & Zapha, 2022). In contrast, safeguard cases are more often viewed as opportunities for recovery and continuity, encouraging efforts aimed at long-term viability. Iverson et al. (2019) demonstrated that the presiding judges' experience level influences the outcomes of bankruptcy proceedings in the United States. In addition, the turnaround procedure is frequently perceived as a last resort, reflecting a firm's failure to manage its financial difficulties. This perception can erode stakeholder trust, leading to the withdrawal of support from critical partners such as creditors and suppliers. These procedural and perceptual differences underscore the strategic importance of early intervention and proactive engagement with stakeholders in achieving successful restructuring outcomes.

Given these contrasting characteristics and their implications for firm survival, we suppose that the effect of safeguard procedures on firm survival is more positive—or at least less negative—than the effect of turnaround procedures.

H2. The effect of the safeguard procedure is more positive—or less negative—than the effect of the turnaround procedure on firm survival.

3. METHODOLOGY

3.1 DATA SOURCES AND SAMPLE

This study draws upon a dataset comprising accounting, financial, and insolvencyrelated information on 27,749 French firms from the Rhône-Alpes region, covering the financial years 2009 to 2015. The dataset integrates data from two primary sources: the Bureau Van Dijk DIANE NEO database, which provides detailed financial and accounting information, and the Bodacc database (Official Bulletin of Civil and Commercial Announcements), which records insolvency proceedings and related judicial decisions (Achbah & Fréchet, 2024).

We selected firms from the Rhône-Alpes region for which complete accounting data from 2005 to 2015 were available from the DIANE database. The study specifically targets SMEs, following the European Commission's (2003) definition, which classifies SMEs as businesses with no more than 250 employees. We merged the DIANE and Bodacc databases to obtain historical insolvency information. However, we restricted the study period to 2009–2015 due to the unavailability of Bodacc data before 2009. We chose the Rhône-Alpes region for its economic importance and sectoral diversity. As the second-largest economic region in France, it includes a broad range of industries and business activities. It also records one of France's highest volumes of insolvency proceedings, second only to the Île-de-France region.

To construct the sample, we focused on firms facing financial difficulties. We identified these firms based on the Altman Z-score for 2009 (Altman et al., 2017), a widely recognized tool for predicting corporate bankruptcy. The Z-score categorizes firms into three groups: (a) not bankrupt (Z-score > 2.99), (b) in the grey area (1.81 < Z-score < 2.99), and (c) likely to go bankrupt (Z-score < 1.81). For this study, we retained only firms with a Z-score below 1.81 because they were deemed at high risk of insolvency, according to Altman et al. (2017). This selection criterion was applied to focus the analysis on firms facing significant financial distress. The final sample consists of 27,749 firms, which were analyzed for the impact of insolvency procedures on firm dynamics.

A rigorous multistep selection process was employed to ensure completeness, consistency, and relevance. Firms were first screened to include only those with complete financial and accounting information. Cases with missing identification codes or incomplete financial records were excluded. Next, insolvency data from the Bodacc database were integrated to capture each firm's complete history of insolvency events. This step involved filtering firms within the Rhône-Alpes region.

To allow for consistent temporal analysis, firms were required to have at least 3 years of operational history before the reference year of 2013. This criterion ensured the availability of adequate preinsolvency data for each firm and enabled standardized comparison across cases. Firms that did not meet this requirement or ceased operations before 2009 were excluded from the final dataset. After this process, the final sample included 27,749 distinct firms, providing a robust foundation for analyzing the impact of insolvency procedures on firm dynamics.

3.2 VARIABLES AND MEASUREMENTS

3.2.1 DEPENDENT VARIABLE

The dependent variable in this study is firms' survival duration, measured in years and ranging from 1 to 6 years. Firms can experience one of two outcomes during the observation period (2009–2015): survival or liquidation. Firms that continue to operate beyond 2015 are treated as left-censored observations. The variable capturing this survival time is denoted as *Lifetime*, and a binary variable (death_censure) indicates the outcome, coded as 1 for liquidated firms and 0 for those that survived during the study period.

Liquidation events were identified using two complementary strategies. We relied on court judgments recorded in the Bodacc database for firms undergoing in-court insolvency procedures. However, court data were unavailable for firms that did not enter formal insolvency proceedings. In such cases, we employed annual turnover from the DIANE database to infer liquidation. Specifically, a firm was considered liquidated if it failed to declare turnover for 5 consecutive years, indicating cessation of operational activities without initiating insolvency proceedings. This approach included turnover data from 2005 to 2015 to reliably capture the firm's operational status.

3.2.2 INDEPENDENT VARIABLES

The independent variables in this study include the turnaround and safeguard procedures. The turnaround procedure identifies firms that underwent a turnaround process under insolvency proceedings in 2013. This variable is binary, with 1 assigned to firms subjected to a turnaround process and 0 otherwise. Representing 7.03% of the sample, 1,952 firms were involved in a turnaround procedure in 2013. Similarly, the safeguard procedure captures firms subjected to a safeguard process undergoing insolvency proceedings in the same year. It is also a binary variable, coded as 1 for firms that underwent a safeguard process and 0 otherwise. Accounting for 2.74% of the sample, 761 firms were involved in a safeguard process.

3.2.3 CONTROL VARIABLES

We incorporated a comprehensive set of control variables to ensure a robust analysis of the factors influencing firm survival during financial distress. These variables, grounded in established insolvency and turnaround research, captured distinct aspects of a firm's financial and operational health. The selected controls included turnover, profitability, financial debt, trade receivables, cash, supplier liabilities, liquidity, age, industry classification, employee retrenchment, and asset retrenchment. All variables were measured for 2012, the period preceding potential insolvency proceedings.

We applied logarithmic transformations to key continuous variables to address potential skewness and heteroskedasticity in financial data. Specifically, turnover, financial debt, trade receivables, cash, supplier liabilities, and liquidity were transformed using their natural logarithms to ensure a more normal distribution and improve our estimations' robustness. Profitability was excluded from the logarithmic transformation due to the possibility of negative values.

Turnover, measured as the logarithm of turnover in thousands of euros, served as a proxy for firm size. Larger firms typically possess greater financial and operational resources, which can enhance their resilience in times of financial distress and improve their chances of a successful turnaround (White, 1989). Age was calculated as the difference between 2009 and the firm's founding year. Younger firms are generally more prone to failure due to their limited experience, weaker market position, and fewer accumulated resources (Thornhill & Amit, 2003).

Financial performance indicators were included to account for a firm's ability to generate returns and maintain stability. Profitability, proxied by the ratio of net profit over total assets, is a critical determinant of firm performance. Due to potential negative values, we did not apply a log transformation to this ratio. Research shows that higher profitability is associated with a greater likelihood of recovery (Shumway, 2001). *Liquidity*, defined as the natural logarithm of the ratio of current assets to current liabilities (in thousands of euros), reflects a firm's ability to meet short-term financial obligations and manage cash flow fluctuations (Zeni & Ameer, 2010). Firms with higher liquidity are generally better positioned to navigate financial distress. *Cash availability*, measured as the natural logarithm of cash holdings (in thousands of euros), further captures immediate financial flexibility, which is particularly crucial during crises.

Additional financial structure variables provide insight into a firm's liabilities and obligations. *Trade receivables*, measured as the natural logarithm of the ratio of trade receivables to turnover, reflect a firm's ability to manage customer credit. Higher values may indicate inefficiencies in credit management or rising credit risk, both of which are often present in financially distressed firms (Molina & Preve, 2009). *Supplier liabilities*, measured as the

natural logarithm of supplier liabilities (in thousands of euros), and *financial debt*, measured as the natural logarithm of the ratio of total debt to total assets, are key financial commitments. Distressed firms may experience increasing reliance on supplier credit and higher financial debt due to constraints on reducing these liabilities (Kochhar & Hitt, 1998).

Industry classification was incorporated to account for sector-specific factors that influence turnaround strategies and insolvency outcomes. Dummy variables were included for various industry categories, including real estate activities, public administration and health, retail, construction, hotels and restaurants, manufacturing and distribution, transport and logistics, communication, administrative and scientific services, and other services. This classification ensured that sectoral differences were accounted for in the analysis, for firms operating in different industries face distinct financial constraints and strategic options (Morrow et al., 2004).

Finally, two retrenchment variables were included to examine firm responses to financial distress. Employee retrenchment was defined as a binary variable coded as 1 for firms that reduced their workforce by 20% or more. This threshold was adapted from prior research on SMEs (Guthrie & Datta, 2008). Asset retrenchment, also a binary variable, captured firms that reduced their total assets by at least 20%, reflecting divestment strategies to mitigate financial decline. Both retrenchment measures provided insight into firms' strategic adjustments in response to financial challenges, particularly in the period preceding insolvency proceedings (Durand & Vergne, 2015).

By incorporating these control variables, this study ensures a comprehensive analysis of the determinants of firm survival and the effectiveness of insolvency procedures. These variables, rooted in theoretical and empirical research, helped isolate the specific effects of the study's main explanatory factors. A summary of all variables is provided in Table 1.

Table 1

Variable	Mean	Std.Dev.	Min	Max	Unit/comment
Lifetime	5.345	1.199	1	6	years
Death_censure	0.096	0.294	0	1	binary
Turnaround	0.070	0.255	0	1	binary
Safeguard	0.027	0.163	0	1	binary
Turnover	2495.253	7963.674	0	886000	K€
Financial debts / Assets	95.528	157.199	0	1000	%
Trade receivables / Turnover	42.127	90.714	0	1000	%
Cash	197.703	777.853	0	57779	K€
Supplier liabilities	330.985	1272.132	0	143000	K€
Liquidity	2.553	4.587	0	9.7	ratio
Employee retrenchment	0.115	0.319	0	1	binary
Asset retrenchment	0.139	0.346	0	1	binary
Economic profitability	4.867	11.041	-49.94	97.34	%
Firm Age	21.762	12.992	8	99	years
Lifetime	5.345	1.199	1	6	years

Descriptive Statistics of All Variables

3.3 MODEL SPECIFICATION

Survival analysis is a statistical method used to study the occurrence of events over time, such as firm liquidation or survival, while accounting for censored data (e.g., firms that remain operational by the end of the study period). To analyze this phenomenon, we employed the Cox proportional hazards model, a widely used approach for examining the relationship between the time to an event and a set of explanatory variables in the presence of censored data.

The Cox model assumes proportional hazards, meaning the effect of explanatory variables on the hazard rate is constant over time. However, this assumption is often violated in practice, leading to potential biases in the estimated relative risk when covariates display nonproportional hazards (Dunkler et al., 2018). To address this issue, we applied inverse probability weighting to Cox regression (Nagle, 2019). This method adjusts for selection bias, enhancing the causal interpretation of the effect of turnaround procedures on firm survival.

The modeling process consisted of two main steps. First, we addressed potential confounding effects. Firms undergoing insolvency proceedings may differ systematically from those that do not and thus lead to a shorter survival duration for firms in insolvency procedures. To account for this, we used inverse probability weighting to adjust for selection bias. Specifically, we estimated the likelihood of a firm undergoing a turnaround procedure in 2013, generating predicted probabilities for each observation in the sample. We then applied the inverse of these probabilities as weights in the Cox model to obtain a more accurate estimate of the causal effect of the turnaround procedure on firm survival.

Second, we addressed the possible violation of the proportional hazards assumption. Although the explanatory variables were measured over a short period (2011–2013), they may have had effects at different times. To account for this, we divided the study period into 1- or 2-year intervals and examined the influence of the variables in each period. Our analysis revealed no time-varying coefficients contradicting the Cox regression results with constant coefficients. Therefore, we conclude that the estimations obtained from the Cox model with constant effects over time can be interpreted in line with our theoretical hypotheses.

Tables 2 and 3 provide a comparative analysis of the financial characteristics of firms subject to insolvency proceedings (treatment group) and those not subject to such proceedings (control group), focusing on two types of procedures: safeguard and turnaround. The analysis reveals that firms in the treatment group exhibit distinct financial characteristics indicative of more significant financial distress. Notably, firms undergoing insolvency proceedings have a shorter average lifetime than those in the control group. For example, turnaround firms have an average lifetime of 4.749 years, compared to 5.579 years for nonturnaround firms. Similarly, safeguard firms have a lifetime of 5.487 years, compared to 5.567 years for their counterparts. This vulnerability is further emphasized by the higher probability of failure observed in the treatment group, in which the likelihood of failure (death censure) reached 70.1% for

turnaround firms and 39.6% for safeguard firms, compared to 8.5% and 9.5%, respectively, in the control group.

Financial performance underscored the disparity between the two groups, with the treatment group experiencing significant declines in turnover in the year preceding insolvency. Liquidity constraints were also pronounced, for turnaround and safeguard firms exhibited lower liquidity levels than their control counterparts. To address cash flow challenges, firms in the treatment group adopted strategies such as reducing trade receivables, a trend consistently observed across safeguard and turnaround procedures. These financial adjustments highlight the deeper level of distress firms engaged in insolvency proceedings experience.

Retrenchment is a common self-directed restructuring strategy firms adopt in anticipation of financial distress, particularly in the period immediately preceding formal insolvency procedures (Tsai et al., 2014). Empirical evidence from our sample indicates that the incidence of asset retrenchment is markedly higher among firms undergoing such procedures. Among firms initiating a turnaround, 37.6% engaged in asset retrenchment, compared to 13.5% in the control group. Similarly, 16.7% of firms entering safeguard proceedings implemented asset retrenchment measures, slightly above the 13.9% observed in their nonsafeguard counterparts. These findings are consistent with prior literature emphasizing retrenchment as a proactive response to mounting financial pressures.

Additionally, firm age appeared to be negatively associated with the likelihood of initiating insolvency proceedings. Turnaround firms exhibited a lower average age (16.88 years) than firms not undergoing such procedures (21.85 years). A similar, albeit less pronounced, pattern was observed among safeguard firms (19.81 years) relative to their control group (21.77 years).

Table 2

Financial Charact	teristics of Firi	ns in the Ye	ar Preceding	Turnaround Procedure

	Tur	naround=1	l	Turn		
Variable	Mean	Min	Max	Mean	Min	Max
Lifetime	4.749	1	6	5.579	1	6
Death_censure	0.701	0	1	0.085	0	1
Turnover	1133.335	0	25165	2511.566	0	886000
Financial debts/Assets	120.899	0	554.9	196.107	0	1000
Trade_receivebales/Turnover	3.478	0	293	42.423	0	1000
Cash	26.768	0	1651	199.421	0	57779
Supplier_liabilities	212.125	0	3608	332.195	0	143000
Liquidity	0.847	0.01	6.17	2.57	0	9.7
Employee retrenchment	0.199	0	1	0.114	0	1
Asset retrenchment	0.376	0	1	0.135	0	1
Economic_profitability	-2.844	-47.64	77.61	5.039	-49.94	97.34
Firm age	16.879	8	94	21.845	8	99

Table 3

Financial Characteristics of Firms in the Year Preceding Safeguard Procedure

	Safeguard =1			Safeg	Safeguard =0			
Variable	Mean	Min	Max	Mean	Min	Max		
Lifetime	5.487	1	6	5.567	1	6		
Death_censure	0.396	0	1	0.095	0	1		
Turnover	2398.264	0	51861	3495.512	0	886000		
Financial debts/Assets	149.667	0	427	195.52	0	1000		
Trade_receivebales/Turnover	13.366	0	221.6	42.106	0	1000		
Cash	114.241	0	4538	197.876	0	57779		
Supplier_liabilities	376.69	1	7462	330.898	0	143000		
Liquidity	1.386	.06	12.37	2.555	0	9.7		
Employee retrenchment	0.063	0	1	0.115	0	1		
Asset retrenchment	0.167	0	1	0.139	0	1		
Economic_profitability	1.731	-40.85	65.81	4.906	-49.94	97.34		
Firm age	19.813	8	60	21.767	8	99		

We used the variance inflation factors (VIFs) to examine the potential impact of multicollinearity. The results and the observed correlations presented in Table 4 indicate that VIFs and correlations are within their acceptable thresholds, posing no significant concerns for our multivariate analysis's validity.

Table 4

Correlations Among the Research Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	VIF
(1) Lifetime	1.000												-
(2) Turnaround	-0.040***	1.000											1.002
(3) Safeguard	-0.004**	-0.006	1.000										1
(4) Turnover	0.078***	-0.017***	0.000	1.000									1.04
(5) Financial debts/Assets	0.012**	-0.009	0.000	0.180***	1.000								1.043
(6) Trade receivables/Turnover	0.012*	-0.002	-0.002	0.071***	0.096***	1.000							1.017
(7) Cash	0.055***	-0.018***	-0.004	0.507***	0.104***	0.090***	1.000						1.36
(8) Liquidity	0.046***	-0.027***	-0.005	-0.031***	0.024***	0.014**	0.045***	1.000					1.016
(9) Suppliers liabilities	0.052***	-0.008	0.008	0.891***	0.183***	0.101***	0.500***	-0.041***	1.000				1.03
(10) Economic profitability	0.025***	0.001	0.000	0.003	0.000	0.000	0.001	0.000	0.000	1.000			1
(11) Employees retrenchment	-0.023***	0.002	-0.010*	-0.010*	0.003	0.002	-0.012*	-0.018***	-0.007	0.002	1.000		1.005
(12) Assets retrenchment	-0.038***	0.000	0.004	0.003	0.009	-0.002	0.012**	0.017***	0.024***	-0.001	0.050***	1.000	1.006
(13) Firm age	0.403***	-0.036***	-0.007	0.150***	0.027***	0.018***	0.113***	0.082***	0.117***	0.009	-0.043***	-0.046***	1.036

Note. *** *p* < .01, ** *p* < .05, * *p* < .10

4. RESULTS

Table 5

Cox Regression Results

	Model 1	Model 2	Model 3	Model 4
Turnaround procedure		1.175***		1.181***
		(.204)		(0.204)
Safeguard procedure			0.961**	0.988**
			(0.419)	(0.419)
Turnover	-0.502***	-0.506***	-0.501***	-0.505***
	(0.059)	(0.058)	(0.059)	(0.058)
Financial debts/Assets	0.04***	0.041***	0.041***	0.041***
	(0.016)	(0.016)	(0.016)	(0.016)
Trade_receivebales/Turnover	-1.399***	-1.39***	-1.411***	-1.402***
	(0.487)	(.486)	(.494)	(0.493)
Cash	-0.069***	-0.062***	-0.068***	-0.061***
	(0.023)	(0.024)	(0.023)	(0.024)
Supplier_liabilities	0.635***	0.629***	0.633***	0.626***
	(0.046)	(0.046)	(0.046)	(0.046)
Liquidity	-0.271**	-0.279**	-0.268**	-0.276**
	(0.121)	(0.121)	(0.121)	(0.121)
Employee retrenchment	-0.15*	-0.137	-0.15*	0137
	(0.09)	(0.09)	(0.09)	(0.09)
Asset retrenchment	-1.33***	-1.335***	-1.332***	-1.338***
	(0.096)	(0.096)	(0.096)	(0.096)
Economic_profitability	-0.108***	-0.113***	-0.109***	-0.114***
	(0.034)	(0.034)	(0.034)	(0.034)
Firm Age	-0.061***	-0.061***	-0.061***	-0.061***
	(0.004)	(0.004)	(0.004)	(0.004)
Industry dummies	Yes	Yes	Yes	Yes
Pseudo R2	0.113	0.114	0.113	0.114

Note. Standard errors are in parentheses.

*** p < .01, ** p < .05, * p < .10

Table 5 illustrates the models used in this study to analyze the effects of both insolvency proceedings—turnaround and safeguard—on firm survival. Model 1 includes only control variables whereas Model 2 focuses on the effect of the turnaround procedure, and Model 3 concerns the effect of the safeguard procedure. Finally, Model 4 combines all variables collectively. Across all models, the coefficients of the control variables are consistent with theoretical expectations and statistically significant (see Table 5). Significantly, in all models, both insolvency proceedings—turnaround ($\beta = 1.175$, p < .01, Model 2) and safeguard ($\beta = 0.961$, p < .05, Model 3)—demonstrated a significant negative impact on firm survival. These

results reject H1a and validate H1b because both insolvency proceedings negatively affect firm survival.

The combined model (Model 4) results further highlight significant differences in the effects of the two insolvency proceedings. The coefficient β for both procedures is positive, indicating an increased failure hazard. Specifically, the coefficient for the turnaround procedure ($\beta = 1.181$, p < .01) is higher than that for the safeguard procedure ($\beta = 0.988$, p < .05), suggesting that turnaround is associated with a greater risk of failure. This is confirmed by the hazard ratios: firms undergoing a turnaround exhibit a failure risk approximately 3.25 times higher than that of the reference group whereas firms undergoing a safeguard procedure have a failure risk 2.69 times higher. These results validate H2, showing that the safeguard procedure would be less detrimental to firm survival than the turnaround procedure, for the results show a significantly less severe impact for safeguard firms.

A statistical test of the difference between the two coefficients reveals that this difference is highly significant ($\chi 2 = 23.72$, p = .00). This finding indicates that the two procedures have distinct impacts on firm survival, with the turnaround procedure exerting a significantly more negative effect. These results imply that although both proceedings are designed to address financial distress, their effectiveness in preserving firm survival varies considerably. The more significant hazard associated with turnaround may reflect the greater severity of distress or structural challenges faced by firms entering this procedure than those opting for a safeguard.

Figure 1 presents Kaplan-Meier survival estimates comparing the survival probabilities of firms undergoing two distinct insolvency proceedings: safeguard and turnaround. The survival time¹ is plotted on the *x*-axis, ranging from initiating insolvency

¹ The period between 0 and 5 represents the observation of turnover prior to the possible initiation of insolvency proceedings in 2013. The period from 5 to 11 corresponds to the observation period, during which insolvency proceedings could be initiated (from 2009 to 2015).

procedures (time = 5) to ending the observation period (time = 11). The y-axis represents the probability of survival.

The results highlight notable differences in survival outcomes between the two procedures. Firms entering the safeguard procedure exhibit a consistently higher survival probability than those undergoing the turnaround procedure. This distinction becomes more pronounced over time, with the survival curve for safeguard firms remaining above that of turnaround firms throughout the observation period. Additionally, the confidence intervals, depicted as shaded regions around the survival curves, suggest that these differences are statistically meaningful, particularly in the later stages of the timeline.

Overall, the graphical representation underscores the less detrimental impact of the safeguard procedure on firm survival than the turnaround procedure. These findings are consistent with the Cox regression results, demonstrating that although both procedures negatively impact survival, the safeguard procedure exerts a less severe effect (H2 is further validated).





Table 6

	Model 5	Model 6	Model 7
	Cox	Weibull	Exponential
Turnaround procedure	1.181***	0.922***	1.052***
-	(0.204)	(0.204)	(0.204)
Safeguard procedure	0.988**	0.726*	0.668*
	(0.419)	(0.418)	(0.418)
Turnover	-0.505***	-0.606***	-0.44***
	(0.058)	(0.054)	(0.06)
Financial debts/Assets	0.041***	0.063***	0.065***
	(0.016)	(0.015)	(0.016)
Trade_receivebales/Turnover	-1.402***	-1.614***	-1.395***
	(0.493)	(0.533)	(0.493)
Cash	-0.061***	-0.02	-0.045*
	(0.024)	(0.021)	(0.024)
Supplier liabilities	0.626***	0.72***	0.581***
· · _	(0.046)	(0.043)	(0.047)
Liquidity	-0.276**	-0.335***	-0.205*
1	(0.121)	(0.11)	(0.123)
Employee retrenchment	0137	0.087	-0.063
	(0.09)	(0.086)	(0.089)
Assets retrenchment	-1.338***	-1.631***	-1.342***
	(0.096)	(0.096)	(0.096)
Economic profitability	-0.114***	-0.148***	-0.101***
	(0.034)	(0.032)	(0.034)
Firm Age	-0.061***	-0.065***	-0.048***
-	(0.004)	(0.004)	(.004)
Industry dummies	Yes	Yes	Yes
_cons		-29.76***	-7.492***
		(1.176)	(1.048)
/ln_p		2.39***	· · · ·
-		(0.022)	

Results of Robustness Analysis From Various Estimation Methods

Note. Standard errors are in parentheses.

*** *p* < .01, ** *p* < .05, * *p* < .10

To assess our findings' robustness, we estimated three survival models—Cox proportional hazards, Weibull, and exponential—using the same covariates. This analysis confirms that the observed effects of the safeguard and turnaround procedures on firm survival are consistent across different model specifications. Whereas the Cox model is semiparametric and does not assume a specific baseline hazard function, the Weibull and exponential models are parametric, with the former accommodating flexible hazard rate shapes and the latter

assuming a constant hazard rate over time. Comparing these models provides insights into whether our results depend on the underlying assumptions about the hazard function.

The estimation results for the three models are presented in Table 6. Across all models, both procedures significantly positively affect the hazard rate, indicating that firms undergoing these procedures are at a higher risk of failure than firms not subject to these procedures. The magnitude of the effect for the turnaround procedure is consistently higher than that for the safeguard procedure across all three models (see Table 6). These results indicate that the turnaround procedure is consistently associated with a greater risk of failure than the safeguard procedure, irrespective of the model specification.

This additional analysis confirmed that the effects of safeguard and turnaround procedures on firm survival remain consistent across all three models. Although the exact magnitudes of the coefficients vary slightly, the overall patterns hold, indicating that firms undergoing these procedures face higher risks of failure, with turnaround posing a more significant hazard than a safeguard. These findings' consistency across the Cox, Weibull, and exponential models strengthens our conclusions' validity. It demonstrates that the results do not depend on the model choice or underlying assumptions.

5. DISCUSSION AND CONCLUSIONS

We investigated the impact of insolvency proceedings—namely turnaround and safeguard procedures—on firm survival. The central research question revolved around the potential effects of these procedures on the likelihood of firm failure, considering two competing hypotheses. On the one hand, insolvency proceedings may support firm survival by providing a formalized process, legal safeguards, and an opportunity for effective restructuring. Conversely, these proceedings could exacerbate difficulties, potentially leading to reputational damage, inefficiencies in the process, and constraints on managerial discretion. This study's results support the latter hypothesis, demonstrating a negative effect of insolvency proceedings

on firm survival. Additionally, a significant difference was observed between the two procedures, with the safeguard procedure exerting a less detrimental impact on firm survival than the turnaround procedure.

The overall findings from the study reveal a significant negative impact of both insolvency proceedings—turnaround and safeguard—on firm survival. This result aligns with prior literature (Blazy & Nirjhar, 2014; Davydenko & Franks, 2008) that highlights the challenges associated with legal restructuring. Contrary to the expectation that insolvency proceedings might offer firms a chance to survive by providing temporary protection and resources, this study shows that they often exacerbate the firms' decline. This result is consistent with the finding by Lee et al. (2007) that insolvency proceedings, although they offer legal protection, often fail to provide a lasting solution for SMEs. In fact, the high direct and indirect costs associated with these proceedings—such as administrative and legal costs, reputational damage, and loss of market value (Weiss, 1990)—tend to outweigh their potential benefits, particularly for smaller firms facing resource constraints.

As Dewaelheyns et al. (2010) highlighted, the costs associated with insolvency proceedings are often higher than those involved in out-of-court restructuring. These include direct costs, such as legal and advisory fees, and indirect costs, such as uncertainty about the firm's future, loss of customer trust, and the erosion of business relationships (Liou & Smith, 2006). The findings suggest that these costs—coupled with the high risk of firm liquidation—undermine insolvency proceedings' protective functions, especially for SMEs.

A central contribution of this study is the comparison of the two insolvency procedures—turnaround and safeguard. Although both procedures are associated with an increased likelihood of firm failure, the safeguard procedure demonstrates a comparatively less negative impact. This distinction can be attributed to several factors that differentiate the context and execution of these two proceedings.

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Firstly, firms opting for a safeguard procedure are often in a relatively less severe financial position than those entering a turnaround process. The safeguard procedure is typically initiated preemptively, allowing firms to address their challenges earlier in financial distress. This early intervention gives firms more room to maneuver, better access to resources, and a greater ability to implement strategic adjustments before their situation becomes critical. In contrast, turnaround procedures are often initiated when firms are in deeper financial trouble, with fewer options for recovery and more significant structural challenges to overcome.

Secondly, the safeguard procedure entails less reputational damage and carries a lower stigma than the turnaround process (Decker, 2018). The safeguard is perceived as a preventive and strategic measure to stabilize the firm's operations rather than a last resort to avert collapse. This perception fosters greater confidence among stakeholders—such as customers, suppliers, and creditors—helping firms maintain their market position and operational relationships during restructuring (Arora, 2018; Jindal, 2020; Xia et al., 2015). By contrast, the turnaround process is more likely to signal imminent failure, leading to a more significant erosion of stakeholder trust and a heightened risk of adverse market reactions.

Thirdly, the two procedures' operational dynamics also play a role. The safeguard procedure often emphasizes collaborative solutions with creditors and stakeholders, promoting continuity and alignment of interests. It contrasts with the more drastic measures often associated with turnaround procedures, such as asset sales, layoffs, and aggressive cost cutting strategies, which can disrupt operations and erode organizational cohesion (Achbah & Fréchet, 2024). The relative stability the safeguard procedure provides may help firms navigate their challenges with fewer disruptions, increasing their chances of eventual recovery.

Finally, the legal and procedural frameworks underpinning these proceedings are designed to address different levels of distress. The safeguard procedure's focus on preventive action aligns better with the needs of firms that still have a viable core business but require temporary relief to restructure effectively (Iverson et al., 2019). In contrast, the turnaround process is tailored for firms facing more severe challenges, in which the likelihood of success is inherently lower due to the depth of their financial and operational difficulties. The turnaround procedure is often perceived as a last resort, signaling a firm's failure to manage its financial struggles. This perception may contribute to a pro-liquidation bias among judges in turnaround proceedings, influencing how these cases are approached and resolved² (Epaulard & Zapha, 2022).

This study makes several significant contributions to the corporate distress, insolvency law, and firm survival literature. First, it adds to the relatively sparse literature on the comparative effects of insolvency proceedings, particularly in the context of SMEs. Research has addressed the impact of insolvency procedures on firm survival, but the distinction between turnaround and safeguard procedures remains underexplored. By analyzing these two procedures separately, we provide new insights into their differential effects on firm outcomes, particularly in French bankruptcy law (Davydenko & Franks, 2008). These findings also resonate with the broader literature on bankruptcy proceedings, which suggests that direct and indirect costs associated with insolvency procedures can undermine their efficacy in supporting firm survival (Liou & Smith, 2006; Weiss, 1990).

The study also contributes to the broader understanding of the costs and challenges associated with insolvency proceedings. By highlighting the significant negative impact of turnaround and safeguard procedures, this study calls attention to the need for more effective and cost-efficient restructuring mechanisms. As Sutton and Callahan (1987) and Ucbasaran et al. (2013) noted, the public stigmatization associated with insolvency can exacerbate the

² Blazy and Esquerré (2021) highlighted that the professional experience, academic background, and gender of lay judges in the Paris commercial court influence bankruptcy decisions and firm survival rates. Similarly, Chang and Schoar (2013) found that judges with a continuation bias tend to reduce firm survival likelihood.

negative consequences for firms, making it critical to develop procedures that minimize reputational damage while providing necessary legal protection.

This study's results offer important insights for policymakers, legislators, and corporate managers. For policymakers and legislators, the results highlight the need for a refined insolvency framework that differentiates between the effects of various procedures on firm survival. Specifically, there is a pressing need to develop more efficient insolvency mechanisms that reduce procedural disruptions, minimize stigma, and promote early intervention. This aligns with Davydenko and Franks (2008), who emphasized the importance of tailoring insolvency laws to mitigate adverse outcomes while fostering recovery opportunities. Moreover, Thorburn (2000) identified inefficiencies in insolvency proceedings as a significant indirect cost, noting that such inefficiencies impose higher resolution costs on creditors and undermine reorganization efforts' effectiveness.

For corporate managers, the study emphasizes the critical importance of timely decision-making when facing financial challenges. The choice between safeguard and turnaround procedures has profound implications for firm survival. Delaying restructuring decisions before the courts may lead to fewer options in terms of procedures, often necessitating a turnaround procedure associated with lower chances of successful recovery than a safeguard procedure. Managers are therefore advised to act swiftly, for time is a decisive factor in navigating these processes effectively.

Limitations and Future Research

This study is not without limitations. It focuses on French insolvency law, and although the findings are robust within this context, they may not be directly applicable to other legal systems. Researchers could replicate this study in other countries with different bankruptcy frameworks to examine whether these findings hold across different settings.

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Additionally, researchers could explore other aspects of insolvency proceedings, such as the role of managerial decision-making or the long-term effects on firm performance beyond survival, such as profitability or market share.

Conclusion

In conclusion, this study highlights the importance of distinguishing between different types of insolvency proceedings when evaluating their effects on firm survival. The findings reveal that although turnaround and safeguard procedures entail risks, safeguard procedures are less detrimental to firm survival, partly due to their focus on firms with less severe financial distress. These results emphasize policymakers' need to design insolvency frameworks that promote early intervention and preventive measures, minimizing disruptions and stigma. For corporate managers, the study underscores the importance of swift decision-making when financial challenges arise. Timely action can enhance the likelihood of accessing less severe procedures, such as safeguard, and improve the chances of successful restructuring. These insights contribute to the academic discourse and practical strategies, fostering a deeper understanding of insolvency dynamics and their implications for distressed firms.

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