

Financial Distress and Corporate Restructuring

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1. Abstract

The main objective of the research project consists in an assessment of the recovery mechanisms for distressed companies in Belgium from both an economic and a conceptual-judicial point of view, and the formulation of proposals with respect to adjustments of the legal framework in order to reduce the loss of business value through insolvency procedures. We examine how financially distressed firms choose among four alternatives: pre-packaged bankruptcy, bankruptcy, Law on Enterprise Continuity (new law on Judicial Composition), and out-of-court restructuring. The empirical analysis ranges from descriptive studies to the use of econometric models.

Keywords: Bankruptcy, out-of-court restructuring, survival rates, bank debt recovery rates, turnarounds,

2. Phase 1: Determinants of choice of exit type for financially distressed firms

We extend the narrow concept of business failure with all possible types of exits as an outcome of financial distress. We explore the concept of distress related exits, considering multiple formal exit types (Law on Judicial Composition (hereafter L.J.C), the Law on Enterprise Continuity (hereafter L.E.C.), pre-peck bankruptcy, and bankruptcy), informal exits (liquidations and reorganization). We attempt to identify the determinants of the chosen exit by analyzing several firm characteristics, at the start and the end of the chosen exit path. (Figure 1)

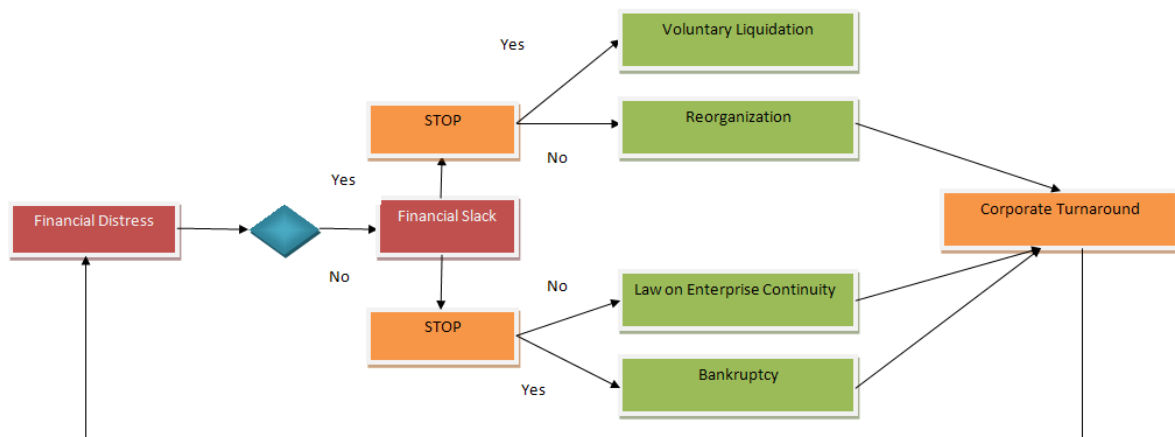


Figure 1: Research Scope

2.1. Research methodology

2.1.1. Sample

We use three different samples. The samples are selected by using models that are based on the traditional Altman Z-score. The first sample consists of financially distressed firms selected by using the Altman Z score for a period of 1996-present. The MDA method is frequently used and it is seen as generally accepted standard method. The Altman's Z-score model is a linear combination of the following ratios: retained earnings/total assets, earnings before interest and taxes/total assets, market capitalization/total debt, sales/total assets, and working capital/total assets. (S.Balcaen & Ooghe, 2006) The second sample consists of firms that are been selected by using a modified Altman Z model from the National Bank of Belgium. The third sample consists of firms that are selected by using Graydon's model. This model is basically based on the Altman-Z score, but it is taking other factors into accounts such as customer's payments, etc.

We exclude non-profit organizations, public organizations, and companies with a social aim, sole proprietorships, financial institutions, insurance companies, holdings, and portfolio companies. Those firms have specific exit paths.

The three samples contain a large number of unlisted large and medium-sized owned enterprises. Only firms are selected with a minimum of total assets value of €1 million.

We only focus on established firms. Numerous of previous studies on business failures, exit paths, and corporate turnarounds have neglected the more matured firms.

The three samples are been used to compose an additional dataset that consists of private and public information on companies that filed a petition for J.C. (between January 1996 and March 2009), L.E.C. (between April 2009-present), bankruptcy (between January 1996-present), and pre-packaged bankruptcy (between January 1996-present). The private data will be gathered from the digital copies of the records that are kept with the Commercial Courts of 17 Bankruptcy courts in Belgium. Public data will be obtained from the Graydon-database, and Belfirst DVD's. The database and the DVD's are provided by respectively Graydon Belgium and Bureau van Dijck over a time period 1996-present.

2.1.2. Method of Analysis

A nested logit model allows us to investigate the relative advantages and disadvantages of the existing exit types from an empirical viewpoint. This method offers a substantial advantage over standard multinomial logistic regression because the one-stage design of the last mentioned method may not reflect reality. (Jones, 1987).

2.1.3. Robustness checks

Similar with previous studies such as Leyman & Schoors (2009), we systematically compare our results with similar foreign studies. However, sampling differences demand cautious in comparison and interpretation of the results. We will reestimate all the developed models.

3. Phase 2: Economic analysis of the efficiency of the chosen reorganization exit

We need to verify to which extend creditors bears the burden when management opts for strategic exits such as bankruptcy.

By using treatment and Hackman models in this phase, we analyze the proceedings and outcome of a formal reorganization and out-of-court exits. The model used in the first phase is

introduced as first stage to control for endogenous self-selection. An assessment of the efficiency of the different exits requires an answer on the following research questions:

3.1. What is the economic loss in terms of money value in the chosen reorganization exit?

We define economic loss as the reported asset value changes between the moment of procedure initiation and closure of the reorganization. We will have all the judicial records of L.J.C, L.E.C., bankruptcy and pre-packaged bankruptcy files and annual accounts that will provide accurate and sufficient information measure of asset valuation.¹ In addition we want to analyze the causes of value destruction for all parties involved: e.g. creditors, government and debtors.

3.2. Does the time spent under the chosen reorganization exit differ?

We analyze the relation between either the time spent in a chosen procedure and the asset utility. The longer a company stays in a reorganization procedure, the more time is wasted before assets can be transferred to a third party who can put them to a better use. We expect that the number of days spend in an exit type will depend on the behaviour of the debtors and secured banks. On the one hand secured banks will try to minimize the number of days or try to liquidate immediately, on the other hand, debtors prefers a business continuation.

(Couwenberg, 2001)

We use a proportional hazard model for competing risks. We are interested in failure in the earlier exit phases or failure at the end phases of the chosen exit, whichever occurs first. We define:

T = time to exit in the exit or at the end of the exit

And U = censoring (assuming independent)

And the type of failure is denoted by j

$$j = \begin{cases} M \text{ is death occurs in the exit} \\ D \text{ is death occurs at the end of exit} \end{cases}$$

Event is defined as a firm's failure to reorganize successfully in the chosen exit path. The dependent variable is the time (days) spend in each exit path.

3.3. What are the indirect and direct costs of the chosen procedure?

We want to analyze the different direct and indirect costs of a chosen procedure.

¹ An alternative approach in case of corporate bankruptcy, the asset valuation can be determined by summing up the debt repayments to creditors at case closure.

Similar as Branch (2002), costs related to the type of exit are categorized into four areas: (1) real cost related directly to claimants, (2) real costs related directly to distressed firm, (3) real cost related to distressed firms that are offset by gains to other entities, (4) real costs that are borne by parties others than the distressed firms or its claimants.

OLS and Tobit regression methodology will be used. Three different types of independent variables are been used: variables that determine the cost and recovery rates of a reorganization exit; variables that are firm specific; and variables that are specific to each exit. The dependent variable is the direct cost of the chosen exit for the direct cost analysis. The dependent variable for the indirect costs is the indirect costs.

3.4. What determines the bank debt recovery rates in the chosen exit?

We focus on a specific type of debt, e.g. bank debt. Ex-ante financing decisions of secured creditors critically depend on the recovery rates in bankruptcy. Recovery rates for unsecured creditors are largely found to be lower in formal reorganization than in other exits. (Leyman, 2008) We however expect that secured creditors with significant bargaining power may extract rents from unsecured creditors under the L.J.C. and L.E.C. This lowers the promised repayment rates to the unsecured creditor. This analysis will identify the determinants of bank debt recovery rates.

We expand the four factors of Khieu & Mullineaux (2009) that could affect bank loan recoveries by adding two additional factors (e.g. factor 5 and 6): (1) loan characteristics; (2) exit process characteristics; (3) borrower characteristics, (4) macroeconomic conditions, (5) bank characteristics, and (6) industry characteristics. We use tobit methodology to determine the bank debt recovery rates in the chosen exit.

$$Y^* = \beta_0 + \beta_1 * \text{Loan characteristics} + \beta_2 * \text{exit process characteristics} + \beta_3 * \text{borrower characteristics} + \beta_4 * \text{macroeconomic characteristics} + \beta_5 * \text{bank characteristics} + \beta_6 * \text{industry characteristics} + \varepsilon .$$

$$Y = Y^* \text{ if } Y^* > 0$$

$$Y = 0 \text{ if } Y^* \leq 0^2$$

² The dependent variable bank recovery rate is subject to a lower bound: e.g. 0. Then Y will be as given by the model if Y*>0, and it will be 0 if Y*=0 or if Y*<0. (Dougherty, 2006)

3.5. What determines the survival rates in the chosen reorganization system?

3.5.1. What are the determinants of asset sales?

We analyze the asset sales in the chosen reorganization system and the effect on the survival rates. The aim is to know how different systems perform with respect to the survival of the debtor-firm, either by way of restructuring of liabilities or a going concern asset sale.

(Couwenberg, 2001)

The circumstances under which a firm conducts a sale of assets can have an effect on the type of asset divested. Asset sales will be examined from the perspective of both the buyer and seller. This will allow us to clearly distinguish between each of them. We want to know the factors that drive asset sales in the different exits. Additionally we want to know how the market facilitates the reallocation of assets to more efficient uses. (Vojislav Maksimovic, 2001)

3.5.2. What are the Liquidation costs of sold Asset?

We examine the potential relationship between liquidation costs of assets and the composition of capital structure for firms that opt for formal or an informal reorganization (Alderson, 1995) According to Vishny (1992), asset liquidity plays an important role in determining the price a divesting firm will receive for its assets. Similar as Alderson (1995), we define liquidation cost of the firm (or asset) as the ratio of going-concern value (or asset) minus liquidation value to going-concern value (or asset) and we use OLS and Probit regressions.

$Liquidation\ costs = \beta_0 + \beta_1 * private\ debt + \beta_2 * convertible\ debt + \beta_3 * secured\ debt + \varepsilon$
(OLS)

$z = \beta_0 + \beta_1 * no\ secured\ debt + \beta_2 * debt\ secured\ by\ first\ right\ on\ all\ assets + \beta_3 * debt\ secured\ on\ specific\ assets$ (Probit)

4. Phase 3: Turnaround of a firms (financial distress to a sound firm)

The aim of this phase is to identify the survival patterns and determinants of a successful corporate turnaround of financially distressed firms.

4.1. What are the determinants of a successful corporate turnaround?

We are interested in the impact upon survival of the initial financial structure of the firms and the chosen exit path. The Cox Proportional Hazard Model will be used to identify the determinants of firms' survival. The hazard rate is defined as the risk of failure in each year subsequent to the entrance in an exit path, on the condition that the firm have survived until

the previous year. The hazard function $h(t)$ describes the escape from operations is:
(Santarelli, 1998)

$$h(t) = \lim_{\Delta t \rightarrow +\infty} \left(\frac{P(t \leq T \leq t + \Delta t / T \geq t)}{\Delta t} \right) = \frac{f(t)}{S(t)}$$

T = *firm's life duration*

$f(t)$ = *probability density function*

$S(t)$ = *survival function*

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