LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTERS

FINANCE

MASTERS THESIS

DISSERTATION

SITUATIONAL DETERMINANTS OF THE SURVIVABILITY OF PORTUGUESE SMES

GONÇALO BRUNO CASSOLA DE ALMEIDA GONÇALVES

NOVEMBER - 2015

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Abstract

This study aims to analyse the impact of social determinants in the failure of Portuguese manufacturing Small and Medium Enterprises that were created between 2009 and 2011 and followed until 2013. A Cox regression was used on panel data to determine the impact of social determinants in failure. The effects of variables such as size and performance on the Failure dependent variable were also studied. The empirical results showed that both Slack and Attainment Discrepancy (when the firm's performance is above aspirations), have a negative and significant relationship with the likelihood of failure of a new venture.

Keywords: Survivability, New Ventures, Portuguese Manufacturing SMEs, Social Determinants, Aspirations, Slack.

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Abbreviations

CAE – Código de Actividade Económica

IES – Informação Empresarial Simplificada

R&D – Research and Development

ROA – Return on Assets

SME – Small and Medium Enterprises

1 - Introduction

One of the basic goals of firms is to survive, and for this an organisation needs to have the will to improve and to innovate (Backaitis & Rosen, 1990).

Several factors can affect the propensity for a firm to fail. The study of situational determinants, such as Aspirations and Slack on new ventures has not received the importance that they deserve by scholars over the last few years. Chen and Miller (2007) studied the effect of situational determinants in research and development (R&D), providing evidence of its effects on the search behaviours of firms. These search behaviours, and also those situational determinants that affect it, can also have an effect on the survivability of firms.

This dissertation examines the situational determinants and factors that affect the propensity of a new venture to fail.

The situational determinants include Slack and Failure for attaining aspirations (Cyert & March, 1963). Cyert and March show organisations as being goal-directed systems which respond to performance feedback by using simple decision rules to change their activities (Chen & Miller, 2007). Inspired by Chen and Miller (2007) and also March and Shapira (1992), this dissertation considers the effects of the change of the focus of the attention of managers when firms face bankruptcy, or for different levels of slack resources.

Several control variables were also added to enable a better understanding of the results and to ensure for better accuracy.

The dissertation uses a sample of Portuguese SME manufacturing new ventures.

"SMEs are the life-blood of modern economies" (Antony et al, 2005, p.861). Portuguese SMEs have a great impact on the Portuguese economy. In 2010, Portuguese SMEs represented 60.9% of the total volume of Portuguese business (INE, 2010). Manufacturing firms transform raw materials into consumer goods or into machinery. The manufacturing sector represented 23% of the Portuguese economy in 2011 (Grupo Marktest, 2011). New ventures represented 12.3% of the total number of companies existing in Portugal in 2011, and they also have a big impact on the Portuguese economy (INE, 2011). In 2008, the word Entrepreneurship started to become popular. The intention of people to innovate and create something different and practical was a way of facing the crisis and of fighting unemployment. Moreover, the entrepreneur is seen as a pillar of change, being the one that induces social and economic transformations.

The empirical evidence of this dissertation finds situational determinants to be statistically significant, and that they have an impact on the Failure dependent variable. Furthermore, the results are not consistent with the interpretation that a change of focus of attention is relevant for the survivability of firms, depending on their proximity to bankruptcy and slack.

The structure of the dissertation is divided into five chapters, starting with the introduction. The literature review is contained in the second chapter, where it presents the definition of survivability and situational determinants, as well as the proposed study Hypotheses. The third chapter is comprised of the description of both the data and the methodology and definition of the variables. The results achieved are analysed in the fourth chapter, and the fifth and last chapter contains the conclusion, criticisms and limitations of this dissertation, as well as suggestions for further investigation.

2 - Literature Review

2.1 – Survivability

Firms' survival has been studied traditionally through the economics-based research of industry business cycles and by analysing industries in decline (Suarez & Utterback, 1995).

There are numerous reasons for why a business fails. Business failure can occur when the decline of revenues or the increase of expenses are of such a magnitude that they make a firm insolvent, which is then unable to attract new debt or other kinds of funding. Thus, as such, the firm cannot continue to exist under its current ownership or management (Shepherd, 2003), although its survival can depend on unmeasurable activities that are taken to accomplish long-term results (Backaitis & Rosen, 1990). In the long-term, survival is a prerequisite for the success of a firm, representing market share and profitability (Suarez & Utterback, 1995).

Several determinants explain firms' survival. Aspirations and Slack have been shown to be very relevant for firms' survivability. Another important factor is the experience that initial managers bring with them from other firms in the same industry, as the survival and success of new organisations are shaped by the pre-entry experiences of their founders (Dahl & Reichstein, 2007). Furthermore, firms' strategies, market conditions and macroeconomic conditions have all proved to be important determinants for survival (Geroski et al, 2010).

2.2 – Situational Determinants

Chen and Miller (2007) claim that situational determinants include two factors: Slack and failure to achieve Aspirations.

2.2.1 – Slack

According to Stan et al (2014, p.475), "organisational slack represents a cushion of excess resources which organisations may use in a discretionary manner". Similarly, Nohria & Gulati (1996, p.1246) define slack as being "the pool of resources in an organisation that in excess is the minimum necessary to produce a given level of organisational output".

Slack can be part of different roles in organisations. It can provide a cushion of excess resources that can prevent disruptions, permits firms to adapt to major shifts in the environment, eases creative conduct, and provides means for the resolution of conflict (Stan et al, 2014). Chopra and Sodhi (2012), and Hendricks & Singhal (2005) also reinforced this point that by having slack resources, a firm is protected against different forms of disruptions. Furthermore, scholars state that slack is an important catalyst for innovation (Nohria & Gulati, 1996). It is therefore expected that the relationship between slack and survivability will be positive.

Hypothesis 1: Survivability increases with the increase of firms' slack resources.

2.2.2 – Aspirations

Schneider (1992, p.1053) mentioned aspiration level as being "the smallest outcome that would be deemed satisfactory by the decision maker". In a limited way, decision makers usually use aspirations to establish the bounds between failure and success in "continuous measures of performance" (Iyer & Miller 2008, p.810). Iyer and Miller (2008, p.810) also referred that "aspiration formation can draw on either historical or social performance criteria".

With regards to the study of Aspirations in new ventures, few to no studies examine the effect of Aspirations on the growth of new ventures (Delmar & Wennberg, 2007).

Firms are driven by objectives, and these objectives can take different forms. For example, according to Cyert and March (1963, p.28) "... most organisation objectives take the form of an aspiration level, rather than an imperative to 'maximise' or 'minimise' ".

Other empirical studies, such as those of Lant (1992), Lant & Mezias (1992) and Lant & Montgomery (1987), supported the existence of disagreement with regards to the statement that "aspiration levels in organisations are functions of previous aspirations and feedback about actual performance" (Iyer & Miller, 2008, p.810).

Another important aspect is the difference between Performance and Aspirations. Lant (1992) called this "attainment discrepancy". Iyer and Miller (2008) highlighted the fact that if attainment discrepancy is negative, this means that performance is below aspiration level, leading to a problemistic search being taken by the firm. Cyert and March (1963) defined problemistic search as being a search which is stimulated by a problem and leads to finding a solution for that problem. According to Chen and Miller (2007), firms that operate below aspirations, seek ways to enhance their prospects for achieving their target performance. In consonance, Iyer and Miller (2008) stated that underperforming firms are motivated to engage in problemistic search. This is also explained by the fact that satisfaction is not the only predictor of high production (Mahnke, 1998). The motivation to produce can originate from a present or anticipated state of discontent (March & Simon, 1958). Bearing these arguments under consideration, it is expected that a firm operating below aspirations will not maintain routines, and will work to increase its performance, increasing its future prospects for survival.

If a firm demonstrates performance below the aspiration level, this leads to a

problemistic search being taken by the firm. We can understand that if a firms' performance is above the aspiration level, it should then decrease the problemistic search taken by the firm. Furthermore, this leads to the firm being less willing to make changes (Greve, 2003), as it will tend to rely on past operating procedures, unless it fails to achieve aspirations (Cyert & March, 1963). Besides this supposition, Levinthal and March (1981) stated that achieving a performance level above aspirations leads to the accumulation of slack. This accumulation of slack would have a positive effect on the firm, supporting it against different forms of disruptions (Hendricks & Singhal, 2005). Thus, logically, the chance of survivability should increase.

> *Hypothesis 2: Survivability increases when firms' performance is above aspirations.*

Problemistic search can be a two-headed argument. With an increase or a decrease in problemistc search, the final result can be the same, or in other words, it can positively influence the survivability of firms.

Ocasio (1997) stated that the focus of the attention of firms' employees can be influenced by organisations' situations. Furthermore, Chen and Miller (2007) referred to the fact that the allocation of attention affects an organisation's decision-making.

March and Shapira (1987, 1992) mentioned that firms can change their focus of attention and not be just focussed on a single reference point that only considers aspirations, such as assumed by Cyert and March's behavioural theory of the firm. When a firm is performing below its aspirations, its attention will turn to survival and to increasing aspirations. This focus of attention will be in accordance with how far the firm is from bankruptcy. If the firm is threatened by bankruptcy, its focus of attention

will be on the survival of the firm. On the other hand, if a firm is a long way from bankruptcy, then it will turn its attention to aspiration levels, which it will try to increase (March & Shapira 1987, 1992). As stated by Greve (2003), managers will focus on that reference point which is closer to actual performance, as the consequences of getting to the closest point appear to be greater.

Chen and Miller (2007) found that those variables that affect risk differ for sets of firms that are grouped according to the March and Shapira (1992) categories. Staw et al (1981) suggest that firms that focus their attention on survival are less likely to engage in risk taking behaviours. The behaviour of threatened companies is more conservative and these often apply cost reduction strategies (Schendel et al, 1976; Starbuck, 1992) and limit new strategic initiatives (D'Aveni, 1989).

Conversely, firms that are not threatened by bankruptcy tend to focus their attention on accelerating their growth (Slatter, 1984: 96).

Following this logic, we propose:

> *Hypothesis 3a: Proximity to bankruptcy is more relevant for the survivability of underperforming firms that are directly threatened by bankruptcy, than for underperforming firms that are not threatened by bankruptcy.*

> *Hypothesis 3b: The difference between Performance and Aspirations is more relevant for the survivability of underperforming firms that are not threatened by bankruptcy, than for underperforming firms that are directly threatened by bankruptcy.*

Di Lorenzo et al (2011) stated that when performance is above aspirations, it will not only provide managers with access to lower-cost resources, like slack, but it will also

give them confidence to pursue promising ideas that were considered as being too risky before.

If a firm is performing above its aspirations, it can turn its attention to two factors, Slack or Aspirations. In a case where a firm has low slack resources, it will turn its attention to aspirations, but should a firm outperform aspirations, this will probably lead to the accumulation of slack (Levinthal & March, 1981). On the other hand, if a firm has abundant slack resources, managers will make decisions based on the amount of slack, as slack acts as a support against different forms of disruption (Chopra & Sodhi, 2012); Hendricks & Singhal, 2005). A firms' stock of resources allows firms to sustain many periods of reduced financial performance with lower threats of failure (Levinthal, 1991). A large stock of resources has the safeguarding effect of lowering the level of performance at which a firm's survival is in danger (Greve, 2003).

We can propose the following hypothesis:

> *Hypothesis 4a: The difference between Performance and Aspirations is more relevant for the survivability of outperforming firms with less slack, than it is for outperforming firms with abundant slack.*

> *Hypothesis 4b: Slack resources are more relevant for survivability for outperforming firms with abundant slack, than for outperforming firms with less slack.*

2.2.3 - Size

In addition to Slack and the failure to attain Aspirations, another determinant which can affect firms' survivability is the size of the firm. Most recent literature agrees that the size of new firms affects its survivability (Mata et al., 1995; López-Garcia & Puente,

2006; Nunes & Sarmento, 2010). The probability of the survivability of a firm increases with initial size. According to Nunes and Sarmento (2010), the reasons behind the aforementioned fact are associated with the efficient scale that is needed to operate efficiently in a market, with the inferior management skills of small entrepreneurs and also with the capacity that firms have to access financial markets. In line with the previous research, our last hypothesis is:

Hypothesis 5: Firm size increases survivability

3 – Data description and Methodology

3.1 – Sample

The data were provided by Informa D&B database, and were gathered from accounts and annual reports. Portuguese firms are obliged to file information about their annual financial and operating performance using the IES Form (Informação Empresarial Simplificada). The criterion for choosing these firms was strict. The only firms considered were Portuguese SMEs in the manufacturing sector with a number of employees ranging from between 10 and 250 at the starting point of the firm, which commenced activity between 2009 and 2011, and the ventures were tracked up until 2013. The sample of firms for this dissertation was comprised of 979 Portuguese SME manufacturing new ventures. Firms with less than 3 years of activity, or firms in the process of acquisition were dropped. The final sample was comprised of 763 firms from 22 different CAEs (industry/services sectors), resulting in a total of 2,951 year-observations.

As observed in Table I, the most prominent CAEs for this study are; CAE 14, with 27.92%, representing the clothing industry; CAE 15, with 17.96%, representing the

leather industry, and; CAE 10, with 12.58% representing the food industry (INE, 2007). The least prominent CAEs are: CAE 11, with 0.52%, representing the beverage industry, and; CAEs 18, 26 and 27 with a total of 0.66%, representing respectively the printing, computer equipment, and electric equipment industries (INE, 2007).

Table I – CAE Frequency Table

CAE	Frequency	Percentage
10	96	12,58%
11	4	0,52%
13	37	4,85%
14	213	27,92%
15	137	17,96%
16	29	3,80%
17	9	1,18%
18	5	0,66%
20	7	0,92%
21	5	0,66%
22	19	2,49%
23	17	2,23%
24	6	0,79%
25	67	8,78%
26	5	0,66%
27	5	0,66%
28	12	1,57%
29	6	0,79%
30	5	0,66%
31	44	5,77%
32	7	0,92%
33	28	3,67%
Total	763	100%

3.2 – Definition of Variables

The objective of this dissertation is to test the impact of the selected determinants on Portuguese manufacturing SMEs. Failure was considered as the dependent variable. The following independent variables were considered: Return on Assets (ROA), Aspirations, Distance from Bankruptcy, and Slack. For the control variables the following were considered: Industry Sales Growth, Debt to Equity, Tangibility, and Size.

The summary of the variable definitions and their abbreviations can be found in Table II.

3.2.1 – Dependent Variables

Failure

The dependent variable is venture failure, which reflects whether the firm failed, or not. This is a dummy variable which assumes the value of 1, if one of the following situations was reported by Informa D&B: dissolution, extinction, insolvency, or legal closure. It assumes the value of 0, if the venture remained active.

3.2.2 – Independent Variables

Return on Assets (ROA)

This variable is the measure of performance. Performance is a variable which affects the way managers make decisions. In the model presented in this dissertation, the variable ROA has a lag of 1 year, in comparison to the dependent variable.

The ROA was calculated using the ratio of Net Income to Total Assets (Parrino et al., 2009).

Aspirations

Authors such as Cyert and March (1963) state that aspirations are a linear combination of firms' past performance and the experiences of other reference firms. As it is not clear how firms measure their own performance and that of other firms, this method for measuring aspirations can be ambiguous. Bearing this in mind, in this dissertation, aspirations were measured using the Chen and Miller (2007) model, running two different models with different aspiration proxies. One of the proxies was for firms' past performance, and the other was for industry median past performance. *Firm aspiration*

was measured by firms' performance, the ROA lagged by 1 year. *Industry aspiration* was measured as the median of industries' past performance, the ROA lagged by 1 year.

Distance from Bankruptcy

This variable was measured using Altman's (1983) Z-score, which is (1.2 x working capital, divided by total assets) + (1.4 x retained earnings, divided by total assets) + (3.3 x income before interest expense and taxes, divided by total assets) + (0.6 x market value of equity, divided by total liability) + (1.0 x sales divided by total assets). The lower the Z-score is, the higher is the likelihood of bankruptcy (Altman, 1968).

Slack

This variable was calculated as proposed by Bourgeois (1981) and Singh (1986). The proxies used were the working capital to sales ratio, and the current ratio (current assets divided by current liabilities). These two proxies were standardised and were totalled, in order to obtain the composite slack index, as proposed by Chen and Miller (2007).

Size

This variable corresponds to the logarithm of the total assets of the firm (Maury & Pajuste, 2005).

3.2.3 – Control Variables

Industry Sales Growth

This variable was included, as industry projections can influence firms' investment decisions (Chen and Miller, 2007). In order to compute this variable, the percentage change in industry sales from (t-1) to (t) was calculated.

Debt to Equity

Debt to Equity is the ratio of total liabilities to total equity (Parrino et al., 2009).

Tangibility

The variable Tangibility corresponds to the ratio of net property, plant and equipment, to total assets (Balcaen, et al., 2011). This variable provides signs of stability for firms.

Table II – Variables Description

Variable	Symbol	Description
Failure	F	Dependent dummy variable
ROA	P	Ratio of Net Income to Total Assets
Performance above Industry Aspirations	$(1\text{-}I)_{,ind}$	Outperforming industries with aspirations, measured as the median of the firms' past performance, lagged by 1 year
Performance below Industry Aspirations	$I_{,ind}$	Underperforming industries with aspirations, measured as the median of the firms' past performance, lagged by 1 year
Performance above Firm Aspirations	$(1\text{-}I)_{,firm}$	Outperforming firms with aspirations, measured as the firms' performance, lagged by 1 year
Performance below Firm Aspirations	$I_{,firm}$	Underperforming firms with aspirations measured as the firms' performance, lagged by 1 year
Industry Aspirations	$A_{,ind}$	Measured as the median of the industries' past performance, lagged 1 year
Firm Aspirations	$A_{,firm}$	Measured as the firms' performance, lagged 1 year
Distance from Bankruptcy	Z	(1.2 x working capital, divided by total assets) + (1.4 x retained earnings, divided by total assets) + (3.3 x income before interest expense and taxes, divided by total assets) + (0.6 x market value of equity, divided by total liability) + (1.0 x sales, divided by total assets)
Slack	K	Working capital / Sales and Current Assets / Current Liabilities, standardised and totalled
Debt to Equity	D	Ratio of total liabilities to total equity
Tangibility	T	Ratio of net property, plant, and equipment to total assets
Industry Sales Growth	C_{ind}	Percentage change in industry sales from (t-1) to (t)
Size	S	Logarithm of the total assets of the firm

3.3 – Methodology

To test the effect of the determinants on the survivability of the firms, a duration model (Cox model) was used, divided into two columns: one for Firm Aspirations and the other for Industry Aspirations. This way it is thus possible to estimate the effect of aspirations on the dependent variable for both firms and industries. This estimation

model, being a survival model, relates the time that passes before an event occurs, to one or more covariates that may be associated with that quantity (Roebuck, 2012). In this particular case, it relates the time that the firm spent active, to the determinants that were maybe associated with that amount of time. The dependent variable Failure assumes the value 1, if the firm fails, and 0, if the firm remains active, and thus a negative coefficient indicates a lower likelihood of failure and a positive coefficient indicates a higher likelihood of failure. The analysis of this model was performed using Stata 13 software.

3.3.1 – Model

In order to approach the aforementioned hypothesis, two indicator variables had to be incorporated. One was for underperforming firms, I_1, which equals to 1, if a firm is performing below aspirations, and another for outperforming firms $(1 - I_1)$ which takes the value 1, if a firm is performing above aspirations. The following model was estimated:

$$h(t) = h_i(t)\exp[\beta_1 S_t + \beta_2 D_t + \beta_3 T_t + \beta_4 C_{ind,t} + \beta_5(1 - I_1)(P_{t-1} - A_{t-1}) + \beta_6 I_1(P_{t-1} - A_{t-1}) + \beta_7 Z_{t-1} + \beta_8 K_{t-1}] \quad (1)$$

The dependent variable $h(t)$ represents the hazard of failure in period t. This model includes $h_i(t)$, which is a time dependent hazard rate for industry i. S_t designates the firm i's size in period t. D_t represents the debt-to-equity ratio of firm i in period t. The variable T_t corresponds to the tangibility. $C_{ind,t}$ designates the percentage growth in industry sales, lagged by 1 year, which controls industry projections that can influence firms' investment decisions. P_{t-1} measures firm i's performance measured by the ROA lagged by 1 period. A_{t-1} corresponds to the aspiration level of firm i in period $t - 1$. Z_{t-1} designates the distance from bankruptcy, whilst K_{t-1} represents the organisational slack

lagged by 1 period. The decision to use independent variables lagged by 1 period, has the objective to reflect the temporal ordering in causal arguments (Chen and Miller, 2007). It is also important to refer that the models were generated with robust standard errors, thus avoiding the problem of heteroscedasticity.

Next, several different models had to be estimated to assess the different approaches and behaviours of Hypothesis 3 and Hypothesis 4. The estimation of the following models took in to account whether the firm was: [1] performing above aspirations, with abundant slack resources; [2] performing above aspirations with low slack resources; [3] performing below aspirations and threatened by bankruptcy, and; [4] performing below aspirations and not threatened by bankruptcy. The model for underperforming firms was:

$$h(t) = h_i(t)\exp[\beta_1 S_t + \beta_2 D_t + \beta_3 T_t + \beta_4 C_{ind,t} + \beta_5(P_{t-1} - A_{t-1}) + \beta_6 Z_{t-1} + \beta_7 K_{t-1}], \quad \text{if } P_{t-1} < A_{t-1} \tag{2}$$

For overperforming firms, the model estimated was:

$$h(t) = h_i(t)\exp[\beta_1 S_t + \beta_2 D_t + \beta_3 T_t + \beta_4 C_{ind,t} + \beta_5(P_{t-1} - A_{t-1}) + \beta_6 Z_{t-1} + \beta_7 K_{t-1}], \quad \text{if } P_{t-1} > A_{t-1} \tag{3}$$

The method used permits all variables to be tested through the four subsamples. This allows for the testing of the relevance of slack and bankruptcy on the different types of firms addressed in Hypothesis 3 and 4, verifying the shifts in the focus of attention.

4 – Analysis and Discussion of Empirical Results

4.1 – Descriptive Statistics and Correlations

Table III presents the descriptive statistics for the dependent and independent variables. The dependent variable Failure has a mean of 0.048. This shows that the majority of the firms present in the sample remained active through the period considered.

The Performance above Industry Aspirations$_{t-1}$ and Performance below Industry Aspirations$_{t-1}$ variables both present different means. The Performance above Industry Aspirations$_{t-1}$ has a mean of 0.003, while Performance below Industry Aspirations$_{t-1}$ has a mean of 0.005. This shows that there are more underperforming industries in the sample than outperforming industries. The same can be said for performance relative to aspirations when measured for firms. Performance above Firm Aspirations$_{t-1}$ has a mean of -0.160, while Performance below Firm Aspirations$_{t-1}$ has a mean of 0.013. This means that the sample has more underperforming firms than outperforming firms when aspirations are measured for firms.

Distance from Bankruptcy presents a mean of 3.816. This value represents a "safe zone", since it is above 2.99, following the Altman Z-score (Altman, 1968). We can state that the mean is in a "safe zone", but a very high standard deviation can be observed, implying that some of the firms in the sample can be in a very dangerous position.

The Slack shows a negative mean of -0.044, which means that the firms in this sample do not seem to possess the excess resources needed to provide the necessary cushion to protect them.

The Debt to Equity ratio has a mean of 5.814. This mean indicates that the firms selected for the sample rely more on debt than equity to pursue their activity. This variable has a large standard deviation, which can be explained by the different use of

debt from industry to industry. It is known that some industries use debt more than others, such as the construction industry for example.

The Tangibility ratio shows a mean of 0.285. This is due to the fact that SMEs that commenced their activity a short time ago, do not possess large quantities of net property and equipment in proportion to total assets.

Industry Sales Growth has a mean of 1.072. This variable is expressed as a percentage, which means that the mean for Industry Sales Growth is about 107.2%. This is a large value, which can be explained by the growth in sales during firms' first years of existence, as it starts with zero sales.

Table III – Descriptive Statistics of variables for Portuguese SME Firms

Variables	N	Mean	Median	Std, Dev	Min	Max
1, Failure	2,951	0.048	0.000	0.214	0.000	1.000
1, Performance above Industry Aspirations	2,684	0.003	0.000	0.022	-0.262	0.200
2, Performance below Industry Aspirations	2,684	0.005	0.000	0.020	-0.262	0.200
3, Performance above Firm Aspirations	2,949	-0.160	0.000	2.333	-103.357	0.837
4, Performance below Firm Aspirations	2,949	0.013	0.000	0.181	-6.712	0.767
5, Performance (t-1)	2,172	-0.137	0.010	1.569	-47.546	0.837
6, Aspiration (t-1), industry	2,684	0.008	0.010	0.029	-0.262	0.200
7, Aspiration (t-1), firm	2,172	-0.137	0.010	1.569	-47.546	0.837
8, Distance from Bankruptcy (t-1)	2,159	3.816	1.870	63.010	-379.059	2,727.885
9, Slack index (t-1)	2,020	-0.044	-0.066	1.054	-29.584	32.173
10, Debt to Equity (t)	2,951	5.814	2.998	78.580	-2,019.877	1,695.513
11, Tangibility (t)	2,949	0.285	0.225	0.245	0.000	1.000
12, Industry Sales Growth (t)	2,171	1.072	0.368	5.859	-0.350	116.581

Notes: Failure: Dependent dummy variable; Performance above Industry Aspirations: Outperforming firms with aspirations measured as the median of the industry's past performance, lagged by 1 year; Performance below Industry Aspirations: Underperforming firms with aspirations measured as the median of the industry's past performance, lagged by 1 year; Performance above Firm Aspirations: Outperforming firms with aspirations measured as the firms' performance, lagged by 1 year; Performance below Firm Aspirations: Underperforming firms with aspirations measured as the firms' performance, lagged by 1 year;
$Performance_{t-1}$: ROA = Net Income / Total Assets; $Aspiration_{t-1,ind}$: median of the industries' past performance, lagged by 1 year; $Aspiration_{t-1,firm}$: mean of the firms' performance, lagged by 1 year; $Distance\ from\ Bankruptcy_{t-1}$ = (1.2 x Working Capital / Total Assets) + (1.4 x Retained Earnings / Total Assets) + (3.3 x Income before Interest, Expense and Taxes / Total Assets) + (0.6 x Market Value of Equity / Total Liability) + (1.0 x Sales / Total Assets); $Slack\ index_{t-1}$: Working capital / Sales and Current Assets / Current Liabilities, standardised and totalled; Debt to Equity = Total liabilities / Total equity; Tangibility = Net property, plant, and equipment / Total assets; Industry Sales Growth = Percentage change in industry sales from (t-1) to (t);

Table IV – Correlations of variables for Portuguese SMEs

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1, F	1												
2, $(1\text{-}I)_{t\text{-}1,ind}$	-0.008	1											
3, $I_{t\text{-}1,ind}$	0.021	-0.031	1										
4, $(1\text{-}I)_{t\text{-}1,firm}$	-0.088***	0.014	0.073***	1									
5, $I_{t\text{-}1,firm}$	-0.047**	0.099***	-0.019	0.005	1								
6, $P_{t\text{-}1}$	-0.017	0.064***	0.022	0.023	0.272***	1							
7, $A_{t\text{-}1,firm}$	-0.017	0.064***	0.022	0.023	0.272***	1***	1						
8, $A_{t\text{-}1,ind}$	-0.079***	0.116***	-0.269***	0.083***	0.250***	0.055**	0.055**	1					
9, $Z_{t\text{-}1}$	-0.009	-0.003	0.064***	-0.001	0.038*	0.139***	0.139***	-0.020	1				
10, $K_{t\text{-}1}$	-0.011	0	0.007	0.002	0.003	0.007	0.007	-0.012	0.156***	1			
11, D_t	-0.004	-0.062***	0.024	0.007	0.006	0.015	0.015	0.021	-0.001	-0.01	1		
12, T_t	-0.100***	-0.132***	-0.093***	0.033*	-0.005	-0.002	-0.002	-0.096***	0.049**	0	0.012	1	
13, $C_{ind,t}$	0.009	-0.056***	-0.062***	0.003	-0.007	-0.005	-0.005	0	-0.007	0	-0.004	-0.024	1

Notes: F: Dependent variable Failure; $(1\text{-}I)_{t\text{-}1,ind}$: Outperforming firms with aspirations measured as the median of industries' past performance, lagged by 1 year; $I_{t\text{-}1,ind}$: Underperforming firms with aspirations measured as the median of industries' past performance, lagged by 1 year; $(1\text{-}I)_{t\text{-}1,firm}$: Outperforming firms with aspirations measured as the firms' performance, lagged by 1 year; $I_{t\text{-}1,firm}$: Underperforming firms with aspirations measured as the firms' performance, lagged by 1 year; $P_{t\text{-}1}$: ROA = Net Income / Total Assets; $A_{t\text{-}1,firm}$: mean of the firms' performance, lagged by 1 year; $A_{t\text{-}1,ind}$: median of the firms' past performance, lagged by1 year; $Z_{t\text{-}1}$ = (1.2 x Working Capital / Total Assets) + (1.4 x Retained Earnings / Total Assets) + (3.3 x Income Before Interest Expense and Taxes / Total Assets) + (0.6 x Market Value of Equity / Total Liability) + (1.0 x Sales / Total Assets); $K_{t\text{-}1}$: Working capital / Sales and Current Assets / Current Liabilities, standardised and summed; D_t = Total liabilities / Total equity; T_t = Net property, plant, and equipment / Total assets; $C_{ind,t}$ = Percentage change in industry sales from (t-1) to (t).
*, **, and *** represent statistical significance at the levels of 10%, 5% and 1% respectively.

Regarding the variables stressed for this study, some correlations can be highlighted.

As observed in Table IV, the dependent variable Failure presents a linear significant association with Performance Above Firm Aspirations with 1% significance. It also reveals a linear significant association with Performance Below Firm Aspirations with 5% significance and 1% significant association with Industry Aspirations and Tangibility. It is also important to highlight that the dependent variable Failure has a negative relation with almost every variable, although only four variables are significantly associated with the dependent variable.

4.2 – Results

Table V presents the results of the Cox regression.

Table V – Results of the Cox's Proportional Hazards Model

	Firm Aspirations	**Industry Aspirations**
Performance above Aspirations	-0.015***	-7.901**
Performance below Aspirations	-0.046	1.243
Slack composite index$_{t-1}$	-0.104**	-0.113**
Distance from Bankruptcy$_{t-1}$	-0.016	-0.013
Size$_t$	-0.299***	-0.350***
Debt to Equity$_t$	0.001	0.001
Tangibility$_t$	-2.083***	-2.163***
Industry Sales Growth$_t$	0.031***	0.031***
Wald χ^2 (8)	300.960	80.010
Prob > χ^2	0.000	0.000
Observations	2.020	2.020

Notes: Performance above Aspirations: Outperforming firms with aspirations measured as the firms' performance, and measured as the median of industries' past performance, lagged by 1 year; Performance below Aspirations: Underperforming firms with aspirations measured as the firms' performance, and measured as the median of industries' past performance, lagged by 1 year; Slack composite index$_{t-1}$: Working capital / Sales and Current Assets / Current Liabilities, standardised and summed; Distance from Bankruptcy$_{t-1}$: (1.2 x Working Capital / Total Assets) + (1.4 x Retained Earnings / Total Assets) + (3.3 x Income Before Interest Expense and Taxes / Total Assets) + (0.6 x Market Value of Equity / Total Liability) + (1.0 x Sales / Total Assets); Size$_t$: log (Total Sales); Debt to Equity$_t$ = Total liabilities / Total equity; Tangibility$_t$ = Net property, plant, and equipment / Total assets; Industry Sales Growth$_t$ = Percentage change in industry sales from (t-1) to (t).

As Failure was used as the dependent variable, the conclusions for the results regarding the Cox's proportional Hazards Model will have an inverse interpretation. With the variable Failure equalling to 1 when a firm fails, if a statistically significant variable presents a negative value, then it will reduce the chances of failure for a given firm.

As seen in Table V, Slack shows a negative relation with the dependent variable with a significant level (5%) for both Firm and Industry Aspirations, proving to be significant for explaining the dependent variable. The higher the Slack, the lower will be the danger of failure for a firm, as it provides a cushion of excess resources which can prevent disruptions. This result is consistent with Hypothesis 1, where survivability increases with the increase of firms' slack resources.

By looking at Table V, it is possible to observe that the Attainment Discrepancy for outperforming firms and industries proves to be a significant variable. The Performance above Aspirations variable for outperforming firms shows a negative statistically significant (1%) relationship with the dependent variable Failure. Performance above Aspirations for outperforming industries also presents a negative statistically significant (5%) relation with the dependent variable. The results are consistent with Hypothesis 2, which shows that survivability increases with the distance of firms' performance above aspirations.

The Attainment Discrepancy for underperforming firms and industries is not statistically significant.

The variable Size is statistically significant (1%), having a negative relationship with the dependent variable for both Firm Aspirations and Industry Aspirations. The larger the size of the firm, the lower will be the chance of failure of that firm. This result is consistent with Hypothesis 5, which states that firm size increases the chances of survivability.

The variable Debt-to-Equity does not have a significant effect on the survivability of a firm, as the variable is not statistically significant, showing no relevance for the study.

It is also possible to observe in Table V that tangibility is relevant for the survivability of a firm. This variable shows a negative significant (1%) relation with the dependent variable Failure. The higher the Tangibility, the lower will be the chance of failure. It can thus be concluded that the more net property and equipment a firm possesses, the lower is the likelihood of failure.

The control variable Industry Sales Growth shows a positive and statistically significant (1%) relationship with the dependent variable for both Firm and Industry Aspirations, which means that the higher is Industry Sales Growth, then the higher will be the chance of failure. A venture has a life cycle composed of different stages. Sales growth in a new venture occurs in its growth stage. When a new venture shows fast growth during this stage, it can become a challenge to the entrepreneur. This stage can be the most dangerous one, and it is during this stage when most failures occur, caused by pressure on resources, or overtrading (Nieman & Pretorius, 2004).

Table VI presents the results for the models (2) and (3). These equations allow the study of the impact that changes in the focus of attention have on the survivability of firms. Outperforming firms were divided according to their abundance of Slack resources, ranging from abundant Slack resources, to little Slack resources. Underperforming firms were divided according to the level of threat by bankruptcy, ranging from not threatened by bankruptcy, to threatened by bankruptcy. The Attainment Discrepancy was different for each scenario but was included as a single variable. Outperforming attainment discrepancy was considered for Outperformers, whilst for Underperformers, underperforming attainment discrepancy was considered.

Table VI – Cox's Proportional Hazards Model: results for four subsamples

	Outperformers with abundant slack resources (Higher 50% slack)		Outperformers with less slack resources (Lower 50% slack)		Underperformers threatened by bankruptcy (Lower 50% Z)		Underperformers not threatened by bankruptcy (Higher 50% Z)	
	Firm Aspiration	Industry Aspiration	Firm Aspiration	Industry Aspiration	Firm Aspiration	Industry Aspiration	Firm Aspiration	Industry Aspiration
(Performance$_{t-1}$ - Aspiration$_{t-1}$)	-0.906*	-13.047***	-0.008	-4.940	0.038	-8.368**	-2.725	-1.139
	(-1.683)	(-3.111)	(-1.018)	(-1.284)	(0.138)	(-2.321)	(-1.493)	(-0.166)
Slack composite index$_{t-1}$	-4.484	-0.205	-0.068	3.279***	-1.038**	-0.086*	4.881	-25.127***
	(-0.678)	(-0.075)	(-1.363)	(2.694)	(-1.980)	(-1.824)	(1.572)	(-3.415)
Distance from Bankruptcy$_{t-1}$	-0.174	-0.188**	-0.060	0.020	0.096	0.096*	-0.091	0.016
	(-0.948)	(-2.187)	(-0.551)	(0.297)	(1.559)	(1.701)	(-0.958)	(0.124)
Size$_t$	-0.241	-0.563***	-0.250*	-0.513**	-0.794***	-0.437***	-0.494*	-0.062
	(-1.191)	(-2.821)	(-1.653)	(-2.420)	(-3.354)	(-3.491)	(-1.794)	(-0.330)
Debt to Equity$_t$	-0.005	0.003	0.002*	-0.011***	-0.005***	0.002*	-0.004	-0.002*
	(-1.162)	(0.863)	(1.823)	(-7.172)	(-3.273)	(1.889)	(-1.319)	(-1.729)
Tangibility$_t$	-4.111*	-1.771	-2.452***	-5.109**	-3.516**	-1.920***	-1.735	-5.517***
	(-1.653)	(-0.776)	(-2.987)	(-2.547)	(-2.544)	(-2.871)	(-0.712)	(-2.658)
Industry Sales Growth$_t$	0.024**	0.029***	0.033***	0.477***	0.037***	0.028***	0.460***	0.019*
	(2.063)	(3.033)	(2.835)	(7.885)	(3.263)	(2.752)	(6.791)	(1.844)
Observations	494	592	468	581	504	380	551	467

Notes: (Performance$_{t-1}$ - Aspiration$_{t-1}$): Attainment Discrepancy (Performance above Aspirations for outperformers and Performance below Aspirations for Underperformers); Slack composite index$_{t-1}$: Working capital / Sales and Current Assets / Current Liabilities, standardised and totalled; Distance from Bankruptcy$_{t-1}$: (1.2 x Working Capital / Total Assets) + (1.4 x Retained Earnings / Total Assets) + (3.3 x Income Before Interest Expense and Taxes / Total Assets) + (0.6 x Market Value of Equity / Total Liability) + (1.0 x Sales / Total Assets); Size$_t$: log(Total Sales); Debt to Equity$_t$ = Total liabilities / Total equity; Tangibility$_t$ = Net property, plant, and equipment / Total assets; Industry Sales Growth$_t$ = Percentage change in industry sales from (t-1) to (t).
*, **, and *** represent statistical significance at the levels of 10%, 5% and 1% respectively.

With regards to underperforming firms threatened, the results presented on Table VI show that there is a negative statistically significant relationship between Slack, Size, Debt to Equity and Tangibility with the survivability of underperforming firms threatened by bankruptcy, and a positive statistically significant relationship with Industry Sales Growth. Concerning the survivability of underperforming industries threatened by bankruptcy, there is a negative statistically significant relationship with Attainment Discrepancy, in addition to the significant variables in relation to the survivability of underperforming firms threatened by bankruptcy, except the Debt to Equity variable.

The survivability of underperforming firms that are not threatened by bankruptcy has a negative statistically significant relationship with Size, and a positive significant relationship with Industry Sales Growth.

With regards to underperforming industries not threatened by bankruptcy, the results show a negative statistically significant relationship between Slack, Debt to Equity and Tangibility with the survivability of underperforming industries not threatened by bankruptcy, and a positive statistically significant relationship with Industry Sales Growth.

The results achieved partially support Hypothesis 3a for Industry Aspirations, as the variable Distance from Bankruptcy has a statistically significant (10%) relation with the dependent variable for underperforming industries threatened by bankruptcy, whilst Distance from Bankruptcy is not statistically significant for underperforming industries that are not threatened by bankruptcy.

Neither is Hypothesis 3b is not supported by the results, as the Attainment Discrepancy variable is not statistically significant for the scenario of underperforming firms that are not threatened by bankruptcy.

The results displayed on Table VI show that the impact on the survivability of outperforming firms with abundant Slack resources depends on Attainment Discrepancy, Tangibility and Industry Sales Growth, since all the aforementioned variables are statistically significant. The survivability of outperforming industries with abundant Slack resources has a negative statistically significant relationship with Attainment Discrepancy, Distance from Bankruptcy and Size, but a statistically significant relation with Industry Sales Growth.

On the other hand, the survivability of outperforming firms with less Slack resources has a negative statistically significant relationship with Size and Tangibility, and a positive significant relation with Debt to Equity and Industry Sales Growth.

These results do not support Hypothesis 4a. Attainment Discrepancy has no effect on the survivability of outperforming firms with less slack, as the referred variable is not statistically significant.

Hypothesis 4b is also not supported by these results. Slack is not statistically significant for outperforming firms with abundant slack.

5 - Conclusions

5.1 – Final Considerations

The impact that situational determinants have on the failure of Portuguese SME new ventures between 2009 and 2013 was analysed in this dissertation.

With regards to the impact of Attainment Discrepancy on the dependent variable Failure, the expected results were achieved when a firm is performing above Aspirations. This variable was shown to have a negative statistically significant

relationship with the dependent variable Failure. This provides evidence that the higher a firm performs above aspirations, then the less likely it is to go bankrupt.

The expected results were achieved regarding the impact of Slack and Size on the failure of a firm. Both independent variables have a negative statistically significant relationship with the dependent variable failure. The results achieved have helped prove that the cushion provided by Slack can help sustain a firm against failure. With regards to Size, the results of this study prove that the bigger the firm, the less likely it is to fail.

Concerning the study of the impact that changes in the focus of attention have on the survivability of firms, the results achieved for proximity to bankruptcy were those expected, proving that this is more relevant for the survivability of underperforming firms that are directly threatened by bankruptcy, rather than for underperforming firms that are not threatened by bankruptcy. A firm that is threatened by bankruptcy will turn its focus of attention towards its survival.

The results for Attainment Discrepancy were not the expected, proving that it is more relevant for the survivability of underperforming firms that are not threatened by bankruptcy, than for underperforming firms that are directly threatened by bankruptcy, since the variable Attainment Discrepancy was not statistically significant for underperforming firms that are not threatened by bankruptcy.

With regards to the abundance of Slack resources in outperforming firms, the results for both hypotheses were unexpected, and the Hypotheses were not verified. Attainment Discrepancy was not statistically significant for the survivability of outperforming firms with less slack. Slack was not statistically significant for the survivability of outperforming firms with abundant slack.

These results show that changes in the focus of attention regarding social determinants do not have a heavy impact on the survivability of firms. The only confirmed result was

that underperforming firms threatened by bankruptcy are more concerned about their survival.

5.2 –Limitations and Further Research

This study has some limitation concerning the sample. The sample limitations are related to dimension and composition. The dimension of this study is considered small when compared with other studies, having only 763 new ventures. The dissertation only comprises Portuguese SME manufacturing new ventures and it would be interesting to analyse the results of more countries, with more firms that have these characteristics.

Another important issue is the fact that the initial years of the study (2009-2011) were badly affected by the world economic crisis, and thus the results may reflect this bad moment for both the Portuguese and the World economy.

Regarding future research, it would be interesting to study a larger sample from different countries.

Another interesting suggestion would be to perform the study for more periods, carrying out an analysis before, and after, the crisis, in order to compare its effects on the survivability of manufacturing new ventures.

It would also be interesting to study with more detail how Aspirations affect the management and allocation of Slack.

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