INVESTIGATING FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL OF PRIVATE FIRMS IN FINANCIAL DISTRESS

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**Submitted in partial fulfilment of
the requirements for the
for the Degree of Philosophiae Doctor – Business Management
in the
Faculty of Economics and Management Sciences
at the
University of Pretoria**

June 2017

DECLARATION

I declare that the thesis,

"INVESTIGATING FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL OF PRIVATE FIRMS IN FINANCIAL DISTRESS",

is my own work, that all the sources used or quoted have been indicated and acknowledged by means of complete references, and that this thesis was not previously submitted by me for a degree at another university.

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June 2017

ABSTRACT AND KEYWORDS

Controlling shareholders of private firms may define "value of the firm" in terms of personal utility. They may thus prioritize their personal wealth over the firm. Furthermore, agency-based corporate governance may not apply to privately owned firms. This study looked at managers and owners of private firms as potentially risky decision makers.

Financial distress was positioned as a boundary to agency theory-based corporate governance for private firms. Choices of shareholders in respect of board composition and the relationship between board composition and external sources of funding were investigated. Influence on turnaround potential, of management who are also shareholders, was also considered. Data from 104 business rescue plans were used for correlation and multiple hierarchical regression analyses.

The mean return to secured creditors was 94 % and the mean return to unsecured creditors was 48 %. Unexpectedly a negative correlation between number of directors and free assets was determined. Yet, in the regression model for return to secured creditors, the significant variables were total directors and free assets. It is concluded that personal surety provided by directors may be detrimental to a private firm's free assets. For unsecured creditors, the significant variables were size; management shareholding, and return to secured creditors.

The study was conducted between 2011 and 2016 using secondary data drawn from actual business rescue cases. In conclusion, the agency cost of debt construct was refined and an estimate for the agency cost of distressed debt, was presented. Research findings offer improved insight into agency theory for private firms with a foundation for improved corporate governance models. Theorists may use this research to extend understanding of the theory of the firm and corporate governance. Furthermore bankruptcy and turnaround theory may be enhanced by the findings of this research. Practitioners may use the findings to refine credit risk and pricing models.

Key Words

Bankruptcy prediction, models and application

Business rescue and turnarounds

Financial distress and the zone of insolvency

Turnarounds and turnaround boundary

Agency cost and agency cost of debt

Agency cost of distressed debt

Management bias, financial distress and turnarounds

Board composition, independence and size

CEO duality as a component of board composition

Free assets and turnaround potential

Personal surety, financial distress and default boundary

Secured and unsecured debt

Debt and equity funding

Prospect of loss and decision making

Self-interest bias and corporate governance

Personal utility and fiduciary duty

DEDICATION

This research is dedicated to the owners, directors and managers of privately owned companies. You are the lifeblood of many economies and touch the lives of so many people.

It is the sincere hope of the author of this work that some privately owned companies will use the findings of this research to guide their decisions when faced with difficult times.

It is also a hope of the author that independent directors will be recognised for the insight and unique value that they can bring to privately owned firms.

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to the people who have walked the amazing doctoral journey with me:

- Thanks go to my research supervisor, Professor Marius Pretorius, who has never failed to provide wise guidance, and help me focus my rambling thoughts. I will always remember the first discussion we had about my ideas towards research, financial distress, directors and boards. He said quite simply: "If you need a supervisor, tell them I will do it." Professor Marius Pretorius has more than once lifted me up from feeling down and steered me in a productive direction. He has a gift for providing valuable feedback with support that helped me maintain my confidence.

- At home I had the never-ending support of my partner, Anna-Marie, who would patiently listen to me explaining my latest discovery in the literature. She never once questioned or criticised me for working on Saturdays, Sundays and while we were on holiday. Her patience and unselfish support are qualities that I marvel at. I will be forever grateful for her understanding and support.

- My two children, Melanie and Jason, have been constant sources of inspiration and motivation. It is amazing how suddenly one realizes that one's children can provide sound advice to the parent.

  - I will forever be grateful to Melanie, for the support and guidance she provided to improve my writing. Her short note – "Essay Writing 101" has helped me more than I am sure she can imagine. I am so proud that she is following her dream of helping many aspiring academics to improve their communication and writing skills.

  - Jason, my son, is mature beyond his years and discussions with him helped me stay focussed and motivated during this journey. I remember him giving me some sage advice one day when he said – "Dad, I find it helps to just start at the beginning." This bit of input has helped me on more than one occasion when I faced uncertainty.

- During my research journey, I have had the privilege of interacting with many people but there are two that stand out. They are my doctoral journey colleagues and friends, Manoj Chiba and Jabu Maphalala. Both Manoj and Jabu have become close friends over the past few years and I would like to thank them for their friendship and support. Jabu was always willing to listen to my latest thoughts and provide some input and Manoj was my dependable and always willing statistics sounding board and mentor.

- Special thanks go to my friend, Doug, who kept me grounded during this journey and reminded me that there is life beyond research and production of a thesis. I look forward to us doing more motorcycle rides and spending time in remote locations.

- No research journey is possible without means to pay the bills. This I managed to do by working in the business that my business partner Alastair Macduff and I started in 2010. Alastair is simply the best business partner that I could have as he has never questioned or criticised me for taking time out to pursue my research ambitions. He has been a constant source of support and motivation, quietly managing business necessity in the background and remaining interested in what I was doing. Similarly, his wife, Jane, was always willing to listen to where I was in my journey and never failed with a quiet word of encouragement and support.

- This thesis would not have been possible without suitable data. In the interest of confidentiality, I will not name you individually but you know who you are. So, to the numerous people who assisted me to gather the data that I needed, I extend heartfelt thanks and gratitude.

- Finally, I would like to acknowledge and thank Mrs Jeanette Menasce for the assistance and support she provided to turn my draft thesis into a final document that looks much better than when we started.

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ABBREVIATIONS, ACRONYMS AND GLOSSARY

BoD	Board of Directors
BOT	Bank of Thailand
BR	Business Rescue
BRP	Business Rescue Practitioner
CEO	Chief Executive Officer
CIPC	(South African) Companies and Intellectual Properties Commission
D&O	Directors and Officers
Dir	Director
FSB	Financial Services Board
IndDir	Independent Director
IoD	Institute of Directors
IoDSA	Institute of Directors of South Africa
JSE	Johannesburg Stock Exchange
M&A	Mergers and Acquisitions
MDA	Multi-Discriminate Analysis – a classical cross-sectional statistical method (Balcaen & Ooghe, 2006)
PAS	Performance Analysis Score – Taffler's (1982) refined Z-score specifically for application in the United Kingdom
RSA	Republic of South Africa
SET	Stock Exchange of Thailand
SME(s)	Small and Medium Enterprise(s)
TMA	Turnaround Management Association
TMT	Top Management Team
UK	United Kingdom
UNISA	University of South Africa
UP	University of Pretoria
US	United States
USA	United States of America
USD	United States Dollar(s)
ZAR	South African Rand(s)
ZOI	Zone of Insolvency
Z-score	The corporate bankruptcy prediction model, initially developed by Altman in 1968.

1   INTRODUCTION

INTRODUCTION	1.1	BACKGROUND
	1.2	PROBLEM STATEMENT

1.1 BACKGROUND

Arresting decline and preventing financial distress of a firm is dependent on the crucial first step of management recognising and admitting that the firm is distressed (Gopinath, 1991). That this does not happen more frequently in privately owned businesses has confounded turnaround practitioners and financiers for years. Arguments put forward by Schulze, Lubatkin and Dino (2003) may provide two reasons as to why this does not happen. **Firstly**, they suggest that based on agency theory, owners with a controlling interest define the value of the firm that they control in terms of personal utility which may translate to them making choices in favour of their personal wealth and not necessarily in the interests of the firm (Schulze et al., 2003). **Secondly**, they agree with the view that the equity owned by management and the board influences the board's thinking and decisions (Morck, Shleifer & Vishny, 1988; Schulze et al., 2003).

Other scholars have recognized that the structure and composition of boards has an influence on the incidence of financial distress (Ayotte, Hotchkiss & Thorburn, 2013; Elloumi & Gueyié, 2001). Additionally, the role performed by boards and directors is recognised as the principle mechanism for corporate governance (Cadbury, 2000) and a key consideration during times of financial distress is the shifting fiduciary duty of the board (Ayotte et al., 2013). Furthermore, it is increasingly argued that, because of their impact on decisions and view on risk, corporate governance mechanisms have a significant influence on the probability of financial distress of a firm (Djerbi & Anis, 2015; Manzaneque, Priego, & Merino, 2015).

It has been asserted by Jensen and Meckling (1976) that agency cost increases as the level of external funding increases, irrespective of whether the funding is debt or equity. Drawing on their definition of agency costs it may also be hypothesised that the agency costs described as monitoring (which includes control), and bonding are a direct result of corporate governance actions that are founded in board decisions which are heavily influenced by the composition of boards of directors. Thus it is possible to argue that where, high levels of external funding is present one may expect to find robust boards of directors. If this is the case then it begs the question:

***Why do the boards of directors not take corrective action sooner,
thereby avoiding or ameliorating the distressed position?***

The contemplation of financial distress routinely uses the idea of a boundary as a way of predicting default on debt obligations. The most common measure of a boundary in this respect is where the zero nett worth boundary equals the face value of debt (Davydenko, 2012). Davydenko describes this as the point at which the market value of a firm's assets falls below the face value of debt. This description matches the conventional calculation (total assets less total liabilities) (Republic of South Africa (RSA) *Companies Act 71 of 2008*) (RSA, 2008), (with effect from 1 May 2011 Ch. 4 (1) (a)) of a firm's solvency.

Of course, for any of these assessments, the valuation of assets may be open to interpretation and be dependent on circumstances pertaining to each firm. Davydenko also noted that "the majority of economically insolvent firms do not default for at least one year" and points out an alternative view to the value based boundary assumption, which argues that a firm defaults when its cash flow cannot meet the demands of its debt obligations.

In this thesis, for any particular firm, at any particular time, that firm is defined as being financially distressed when:

(i)   it appears to be reasonably unlikely that the company will be able to pay all of its debts as they fall due and payable within the immediately ensuing six months; or

(ii)   it appears to be reasonably likely that the company will become insolvent within the immediately ensuing six months. (*Companies Act 71 of 2008*, 2011 Sect 128 (f)) (RSA, 2008).

Thus this research positions financial distress as a boundary to agency theory based corporate governance for privately owned firms. The research investigated how agent-principal constructs describes choices of shareholders in respect of board composition. It then explored the relationship between board composition and external sources of funding which may not be adequately explained by agency theory. Lastly this research considered the detrimental influence that management who are also shareholders may have on turnaround potential for firms that have crossed the boundary of financial distress and the impact this has

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on return to creditors who have a claim against the firm. This is in contrast with other literature such as Lim & McCann (2013) that have argued boards and directors perform better when directors are incentivised to drive agendas that meet shareholders' expectations often through equity participation.

The research set out to show that in financially distressed firms that are privately owned, where management owns a large fraction of equity, a strong negative association exists between turnaround potential and equity participation by management and the board. Furthermore, this study aimed to demonstrate that under these circumstances the expansion of fiduciary duty to include creditors and financiers, when a firm is financially distressed, is often neglected. Decisive action is delayed until the turnaround potential of a firm is severely compromised, thereby adversely affecting the return to creditors.

This study contributes to the development of theory by building on current corporate governance research, the bulk of which to date is based on agency theory and tends to have been carried out in the context of large publicly held firms. Agency-based corporate governance does not necessarily apply to privately owned firms as, at the outset, an agency relationship often does not exist.

However, this research shows that should a privately-owned firm become distressed then, agency theory does become relevant. This is mainly because it may be argued that once the boundary of financial distress is crossed then the financiers and creditors of the firm become de facto owners and, hence, a separation of ownership and control position comes about. It follows then that the fiduciary duty of the board may be extended to the creditors as residual claimants. It follows also that in a financially distressed firm, the turnaround potential of said firm is of interest to concerned parties. This study looked at managers of privately owned firms as potentially risky decision makers and the impact they have on the turnaround potential of financially distressed firms.

The setting for the study was South Africa due to the unique combination of social, legal and economic factors present in that geography and economy.

1.2 PROBLEM STATEMENT

The problem addressed by this study is well illustrated by a set of statistics published by the South African Companies and Intellectual Properties Commission (CIPC) (Klokow, 2014) and can be stated as follows:

- There is a very high incidence of businesses entering business rescue. CIPC 2012 statistics suggest that on average 1.98 businesses commence with business rescue every single week day of the year.

- There appears to be a very low incidence of business rescue success. Of the businesses that commence with business rescue a very low proportion progress to a successful conclusion.

- Good corporate governance policies and practices appear to have little positive impact on the outcome of businesses entering business rescue. Of the businesses that enter business rescue, 95 % are privately owned. In which instances, legal compliance with the Companies Act is a requirement but any other good corporate governance practices are entirely discretionary.

These views are supported by a 2015 research report published by CIPC wherein it is recorded that since 2011 on average 450 companies have entered business rescue annually, of which the majority are private companies (Pretorius, 2015).

Jensen and Meckling (1976) in their seminal work: "Theory of the firm: Managerial behaviour, agency costs, and ownership structure", make the point that "most organizations are simply legal fictions, which serve as a nexus for a set of contracting relationships amongst individuals" (Jensen & Meckling, 1976: p. 315). They go on to refer to the "private corporation" and also use the terms "company" and "business" to describe the entity known as "the firm". Other scholars have made use of the terms: "firm" (Fahy, 2000; Filatotchev, Toms, & Wright, 2006; Fried & Chaver, 2002; Lin, Liao & Chang, 2011; Swamy, 2011; Tung, 2006); "company" (Chancharat & Chancharat, 2013; Huse, 2000; Loubser, 2010; Rajak, 2008; Varallo & Finkelstein, 1992), and "business" (Bollen, Mertens, Meuwissem, van Raak, & Schelleman, 2005; Crutzen & Van Caillie, 2007; Elenkov & Fileva, 2006; Pretorius, 2009; Pretorius & Holtzhauzen, 2008; Schoenberg, Collier, & Bowman, 2013). Therefore, in this thesis, unless specifically noted, **all these terms refer to the same type of entity**: namely, a privately owned company that operates for profit. The terms have thus been used interchangeably.

2   PURPOSE STATEMENT

PURPOSE STATEMENT

The purpose of the study was to investigate how a deeper understanding of agency and corporate governance theory presents for a privately owned firm in the zone of insolvency[1] could lead to enhanced early warning systems and more effective early remedial action to alleviate financial distress. This was done by investigating the association between the extent of equity owned by management and the turnaround potential of firms that have crossed the boundary of financial distress. The output of the study shows the relationship that shareholding held by management has with the composition of boards of directors. Further understanding was achieved by investigating the association between board of directors' composition and the fraction of funding from external sources. Lastly, the board of directors' composition was investigated for its influence on turnaround potential and return to creditors. Figure 2.1 shows the conceptual model for the research.
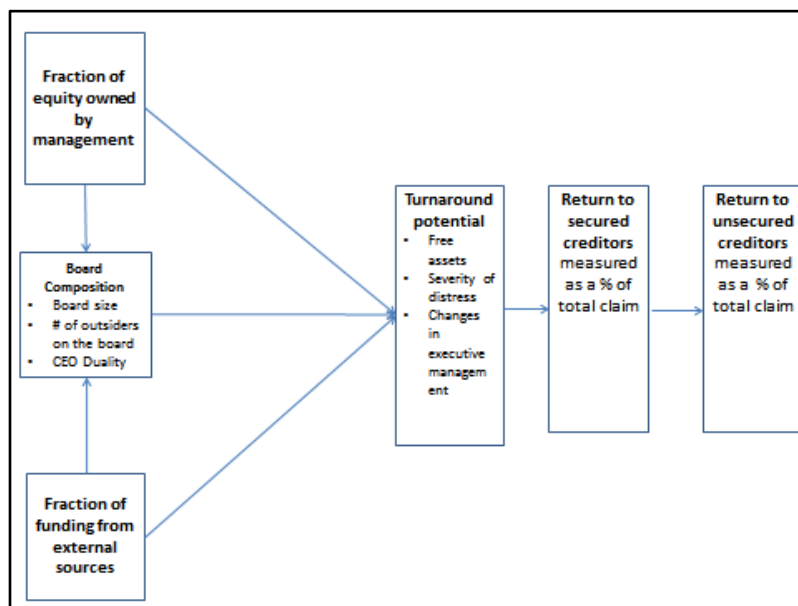
Source: Own compilation.

Figure 2.1: **Conceptual Research Model**

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[1] Barondes, Fairfax, Hamermesh, & Lawless (2007) state that the "zone of insolvency" occurs when,

> it (the company) cannot generate and/or obtain enough cash to pay for its projected obligations and fund its business requirements for working capital and capital expenditures with a reasonable cushion to cover the variability of its business needs over time (p. 235).

A more complete discussion of the zone of insolvency is covered in Section 5.1.

3   RESEARCH QUESTIONS

RESEARCH QUESTIONS	3.1	SCOPE AND LIMITATIONS

Given that most, if not all, firms experience financial decline at some time (Trahms, Ndofor, & Sirmon, 2013), the overarching research question for this work relates to privately owned firms and is threefold, namely;

1. How does board composition that is based on agency theory enhance or detract from the turnaround potential of privately owned firms that have crossed the boundary of financial distress?

2. What is the nature of the association that exists between,
   a) sources of private firms' funding,
   b) equity participation by management and
   c) board composition with the turnaround potential of private firms that have crossed the boundary of financial distress?

3. How is return to both secured and unsecured creditors ultimately impacted by these variables?

3.1 SCOPE AND LIMITATIONS

This research is limited to the study of financially distressed, privately owned, for-profit firms. That is, firms that are not listed on any public exchange where equity of the firm can be bought and sold. The reason for this limitation is that firms whose equity is publically traded are generally governed by prescribed regulations. In contrast, the governance of privately owned firms is significantly influenced by the achievement of equilibrium through balancing the often-conflicting objectives and expectations of stakeholders. This is consistent with the theory of the firm as first described by Coase (1937) and later expanded on by Jensen and Meckling (1976) in their seminal work on "*Theory of the firm: Managerial behaviour, agency costs and ownership structure*".

Within the population of privately owned firms, one will find various other classifications, including: *small and medium enterprises* (SMEs) and *family owned firms.* These have been relatively widely studied. In the case of SMEs, both corporate governance (Abor & Adjasi, 2007; Brunninge, Nordqvist, & Wiklund, 2007; Huse, 2000; Lopez-Gracia & Mestre-Barberá, 2015; Segaro, 2012) and financial distress (Camacho-Miñano, Segovia-Vargas, & Pascual-Ezama, 2015; Laitinen & Chong, 1999; Van Den Heuvel, Van Gils & Voordeckers, 2006) have

been studied. In the case of corporate governance and family owned businesses the predominance of literature relating to control has been based on public listed companies (Bammens, Voordeckers & Van Gils, 2011). As in early studies of financial distress (Balcaen & Ooghe, 2006), research into family businesses and SMEs has tended toward ex-ante financial measures (Camacho-Miñano et al., 2015).

These existing studies do not contribute specific understanding in respect of privately owned businesses. Thus, this research did not specifically study either SMEs or family owned firms and remains limited to firms that are privately owned whether they be small or large, family owned or not. Furthermore, this research also did not attempt to explore or identify causes of a downturn in fortune for companies or causes of financial distress for companies.

A quantitative methodology was adopted for the study. This is consistent with the predominance of approaches used in previous research into corporate failure and distress (Altman & Saunders, 1998; Altman, 1968; Balcaen & Ooghe, 2006; Jaikengkit, 2004; Calandro, 2007; Taffler, 1983). Secondary data were used as the basis for analysis. This secondary data consisted of financial and other statutory data extracted from business rescue plans or other business rescue documents published as part of a company's business rescue process. Additional information in respect of board composition was drawn from the official company records held by the South African Companies and Intellectual Properties Commission (CIPC).

4 LITERATURE OVERVIEW

LITERATURE OVERVIEW	4.1	INTRODUCTION

4.1 INTRODUCTION

Central to this research is literature on agency theory, corporate failure and bankruptcy prediction, turnarounds and the zone of insolvency. Further literature under the headings of corporate governance, and business rescue has been used to inform the conceptual research model.

Arguably the best known predictor of bankruptcy is the Altman Z-Score. This is central to most discussions on the theory of financial distress and bankruptcy (Altman, 1968). An alternative to a purely quantitative prediction of bankruptcy is a behavioural model proposed by Argenti (1976) which supports the view that purely financial measures as predictors of bankruptcy may be inadequate and that adding behavioural measures to an assessment may be more suitable (Brown & Moles, 2004). This view is supported by the more recent work of Ooghe and De Prijcker (2008) who see failure as a process.

It has also been argued that board composition influences company performance (Dahya, Dimitrov & McConnell, 2008) which is supported by a view on how specifically company directors influence company performance (Hillman & Dalziel, 2003). This view is enhanced by consideration of the fiduciary duties of directors in respect of shareholders and creditors (Branch, 2000). Additionally, the fiduciary duties in respect of equity and debt holders (Becker & Strömberg, 2012) are important features in financially distressed businesses. Finally, for this research, it is important to consider the notion of corporate governance and company survival (Chancharat & Chancharat, 2013) and governance in financial distress (Ayotte et al., 2013).

Thus, the research has been informed by literature drawn from the fields of agency theory, corporate failure, bankruptcy prediction, turnarounds, corporate governance, and business rescue. The approach adopted for this literature review was Callahan's (2014) The Six W's – Components of a Literature Review.

Table 4.1: The Six W's – Components of a Literature Review

Who?	The search for relevant literature was conducted by the author of this research thesis.
When?	The research was undertaken between October 2013 and January 2016.
Where?	The data were collected predominantly from peer-reviewed academic journals with some input from recognised academic books pertaining to the subject areas. Further input was sourced from published acts of law, for example, the new Companies Act (RSA, 2008) and codes of best practice such as the King III report.
Ho**W**?	A combination of keyword search and snowball selection was used to find suitable reference material. Recommendations by the supervisor and personal network recommendations were also used. The keyword search was carried out using the University of Pretoria data bases. The key words were grouped as follows: **Bankruptcy and corporate failure:** Bankruptcy, Financial distress, Credit risk assessment, Bankruptcy prediction, Factors of distress and bankruptcy, Quantitative measures of bankruptcy prediction, Behavioural factors of bankruptcy, insolvency, decision making and distress. **Agency theory and Corporate Governance:** Corporate governance, Agency theory, Corporate governance and financial distress, Independence of boards, Role of boards in distressed businesses, Corporate governance models. **Business rescue and turnarounds:** Business rescue, Chapter 11 (United States of America), Chapter 6 (South Africa), Turnaround theory
What?	**More than 800 articles were considered and categorised as follows**: Failure articles, Bankruptcy and credit risk, Business rescue, Corporate governance and agency theory, Decision making, Zone of insolvency and turnarounds. The most impactful scholars as ranked by Hartzings – Publish or perish were: Bankruptcy prediction, Altman (Altman, 1968), Corporate governance, Jensen and Meckling (Jensen & Meckling, 1976), La Porta, Lopez-de-Silanes, Shleifer & Vishny (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 2000). Argenti (Argenti, 1976) was purposively selected as one of the early proponents of behavioural factors in corporate failure. The topic of choice risk and loss showed up with Kahneman & Tversky (1979), and Tversky & Kahneman (1981; 1986; 1992).

Why?	The choice of literature included in the final selection was initiated by considering the most impactful scholars in 1) agency theory 2) bankruptcy prediction and credit risk assessment, 3) an alternative view to quantitative bankruptcy prediction, 4) corporate governance 5) decision making and choices under distress or when faced with the prospect of loss 6) business rescue and turnarounds. The "snowball approach" was then used to inform the balance of the literature study.
Source: Own compilation, adapted from Callahan (2014).	

"If you have built castles in the air, your work need not be lost; that is where they should be. Now put the foundations under them."
─ Henry Thoreau.

Thus, the foundations for this research have been oriented around four main subject areas: 1) zone of insolvency; 2) corporate failure and financial distress; 3) turnarounds, and 4) agency theory, corporate governance, directors and boards. The literature that has informed the understanding of this is covered in the next two chapters. Firstly, **Chapter 5** covers: the Zone of Insolvency, Corporate Failure, Bankruptcy, and Turnarounds; followed by **Chapter 6** which covers: Agency Theory, Corporate Governance, Boards and Directors.

5   LITERATURE REVIEW

LITERATURE REVIEW	**5.1**	**ZONE OF INSOLVENCY (DEEPENING INSOLVENCY)**	
		5.1.1	Zone of Insolvency – Decision Making
		5.1.2	Zone of Insolvency – Deepening Insolvency
		5.1.3	Zone of Insolvency – Summary
	5.2	**CORPORATE FAILURE AND FINANCIAL DISTRESS**	
		5.2.1	Corporate Failure and Financial Distress – By the Numbers
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		5.3.3	Turnarounds and Top Management Teams
		5.3.4	Turnarounds and Information
		5.3.5	Chapter Six – A Formal Turnaround Process
		5.3.6	Turnarounds, Business Rescue and Recovery – Summary
	5.4	**ZONE OF INSOLVENCY (DEEPENING INSOLVENCY), CORPORATE FAILURE AND TURNAROUNDS – CONCLUSION**	

5.1 ZONE OF INSOLVENCY (DEEPENING INSOLVENCY)

The zone of insolvency provides context for an appreciation of the interaction between agency theory, corporate failure, financial distress, turnaround potential and corporate governance. It is another way of describing the boundary that is central to this research and is an eloquent term for the period of financial distress that may not be generally evident, but exists prior to actual filing for insolvency, bankruptcy or business rescue (for example, Chapter 6 in South Africa or Chapter 11 in the United States of America) (Barondes, Fairfax, Hamermesh, & Lawless, 2007; Rajak, 2008; Tung, 2006). Although the legal principles stem from as far back as Salomon vs Salomon & Co Ltd – a landmark United Kingdom (UK) company law case in 1897 (Rajak, 2008), the term first emerged in the Credit Lyonaisse vs Pathe Communications case in respect of which a decision was handed down by the Court of Chancery of Delaware on 30 December 1991 (Allen, 1992).

This landmark case has had significant impact on the interpretation of the fiduciary duties of directors when a company is technically or functionally insolvent but not yet engaged in a legally protected reorganisation effort such as business rescue or, is not yet legally bankrupt. During the zone of insolvency there is a technical difference, yet little distinction has been drawn between capital insolvency, cash insolvency and bankruptcy. It has been reasonably argued that the zone of insolvency is an imprecise construct and difficult to determine (Barondes et al., 2007). However, it has been further argued by Barondes et al. (2007) that it occurs when:

> it [the company] cannot generate and/or obtain enough cash to pay for its projected obligations and fund its business requirements for working capital and capital expenditures with a reasonable cushion to cover the variability of its business needs over time (p. 235).

The argument generally posits that even if a company is not legally insolvent or bankrupt, as it nears the point of bankruptcy and by continuing to operate in a zone of insolvency during which shareholders are "out of the money", creditors may be viewed as the rightful recipients of any residual value derived from

corporate actions. Thus the fiduciary duties of directors, normally reserved for the company itself and shareholders, may be expanded to include creditors (Tung, 2006).

In the South African new companies act (Companies Act 71 of 2008, 2011) (RSA, 2008) a definition for "Financial distress" is provided in Ch. 6 Sect 128 (1) (f) as "in reference to a particular company at any particular time, means that":

> (i)   it appears to be reasonably unlikely that the company will be able to pay all of its debts as they fall due and payable within the immediately ensuing six months; or

> (ii)   it appears to be reasonably likely that the company will become insolvent within the immediately ensuing six months (S 128 (1) (f)).

From this study's perspective, it is therefore valuable to use the "zone of insolvency" construct as the context for understanding antecedent board attributes and equity ownership patterns of distressed businesses. It is also logical to use the Ch. 6 Sect 128 (1) (f) (RSA, 2008) definition as the mechanism for "determining the initiation of the zone of insolvency."

5.1.1   Zone of Insolvency – Decision Making

The discretion of management of any firm in the zone of insolvency is reduced and that the range of available choices becomes constrained seems to be a reason-able view. It is argued that this is a consequence of closer scrutiny by boards, and the reduced or, in the extreme case, total withdrawal of co-operation from creditors, banks, bondholders and suppliers of goods and services (Trahms et al., 2013). For management the result is a narrowing range of options and, consequently, decisions have to be made against the backdrop of an increasing prospect of failure and loss.

5.1.2   Zone of Insolvency – Deepening Insolvency

Behavioural economic theory suggests that decision makers attempting to deal with challenges, when faced with the prospect of loss, may be drawn to high-risk options in the hope that the outcome will alleviate the distressed position. This

behaviour has been explained by research on decision making under circumstances of risk which shows that people are inclined to be risk averse in the face of sure gains but are inclined to become risk seeking in the face of sure losses (Kahneman & Tversky, 1979). Therefore, it is reasonable to postulate that as financial distress increases, and the prospect of sure losses also increases, so the level of risk-seeking behaviour of management also increases (Wiseman & Gomez-Mejia, 1998). Particularly in distressed businesses where the share-holders, management and executive directors are the same people (that is, an "agency relationship" does not exist).

It also follows that, without any balancing influences, such as capable independent directors, management may take riskier decisions and may hold out for far too long before taking decisive action. This is likely to lead to deepening insolvency at the very least or bankruptcy and liquidation.

5.1.3   Zone of Insolvency – Summary

For the purposes of this study an appreciation of the "zone of insolvency" is important because:

- For companies in the "zone of insolvency" it is argued that the fiduciary duties of directors, expand to include creditors as they may be considered the rightful residual claimants at that point.

- In privately owned companies, where shareholders and management are often the same people, an agency relationship may not exist. In this circumstance, the key driver for sound corporate governance principles may be absent. This may result in a lack of suitable independent oversight and controls when a company is in the "zone of insolvency". The circumstances that could lead to this situation are covered in more detail in Chapter 6.1 (Agency Theory, Corporate Governance, Directors and Boards).

- When faced with the prospect of loss, as is the case for a company in the "zone of insolvency", management may be inclined to be unreasonably risk-seeking at the expense of creditors and other financiers.

5.2 CORPORATE FAILURE AND FINANCIAL DISTRESS

Corporate failure has been described as a phenomenon that lacks a definition (Pretorius, 2008; 2009). However, by conducting a review of extant literature Pretorius identified four sub-domains of the phenomenon of "business failure", namely:

1) signs and prediction of decline,
2) causes and preconditions leading to decline and failure,
3) recovery (intervention actions), and
4) cognition and learning during failure
(Pretorius, 2008: p. 426).

A final observation made by Pretorius is that any "view of preconditions of failure depends on judgement by individuals" (Pretorius, 2008: p. 426). He extends this to note that such judgement will be informed by personal bias and preferences and heavily influenced by the pressures of financial distress. This observation is relevant to this study as these biases and preferences may be significant drivers influencing the composition of boards and the behaviour of directors of distressed businesses as noted in Section 5.1.2 (Wiseman & Gomez-Mejia, 1998). Further-more, this judgement by individuals may reflect the phenomena as described by Kahneman and Tversky (1979) in that the pressures of distress will bring about risk-seeking behaviour.

Other research (Altman & Hotchkiss, 2006) has identified various degrees of failure and distress. Generally, "failure" is described in terms of the extent of distress. In economic terms the least "stressful" is when an enterprise provides a rate of return which is significantly and consistently below the rates of return from other similar investments. In this instance, the cost to investors is opportunity cost and there is probably no cost to providers of credit (Altman & Hotchkiss, 2006). This situation is generally referred to as "under-performance" and, although turn-around activities may be required, it is not used to describe a situation of distress.

Insolvency, default on payment terms or loan covenants, and liquidation are more often the terms that are associated with "distress". "Insolvency" is a technical term that describes a firm that cannot meet its current obligations due to a lack of liquidity. An assessment can be achieved by applying the solvency and liquidity test as described in the new Companies Act Ch. 4 (1) (a) (RSA, 2008):

the assets of a company as fairly valued equal or exceed the liabilities of the company as fairly valued and (b) it appears the company will be able to pay its debts as they become due in the ordinary course of business for a period of – (i) 12 months (Companies Act 71 of 2008, 2011 Ch. 1 Sect. (1) (a)) (RSA, 2008).

"Bankruptcy" is normally used as a legal term following an order of winding up or liquidation granted by a court.

The concept of "deepening insolvency" (Rohrbacher, 2007; Willett, 2005) is a more recent construct. This term refers to a firm that is insolvent, as may be assessed by applying the solvency and liquidity test and, through continued trading, causes a worsening of its position to the detriment of other parties, normally the creditors (Altman & Hotchkiss, 2006). Although, in economic terms, it is recognised by Altman and Hotchkiss (2006) that there is a continuous entrance and exit of economic entities, they also recognised that firms that exit as a consequence of distress or bankruptcy leave a trail of costs. The costs of distress and bankruptcy have been identified as:

1) those real costs borne by the firm itself,
2) real costs borne by claimants (creditors and funders),
3) losses to the distressed firm that result in gains to other entities, and
4) losses incurred by parties other than the firm or its claimants
   (Branch, 2002: p. 40).

The consequences and costs of distress have motivated for corporate failure and bankruptcy prediction to be a widely researched and widely documented field, resulting in extensive literature. Research articles have been published in journals as diverse as entrepreneurship, management, psychology, and finance (Pretorius, 2008). Existing research in relation to distressed firms has, since the early 1990s (Robbins & Pearce II, 1992) and in recent years, considered more expansively the turnaround potential of firms that are financially distressed (Panicker & Manimala, 2015; Smith & Graves, 2005; Trahms et al., 2013). There is, however, a shortage of research that focuses on non-financial features of distressed firms, including agency theory-based corporate governance and financial distress. More particularly, it is noted that this researcher could find no evidence of research that considers agency-based corporate governance theory and the turnaround potential of financially distressed firms.

It is logical to argue that the notion of turnaround would be redundant without the existence of corporate failure or financial distress. It follows, therefore, that any understanding of turnaround would be better informed by an understanding of corporate failure and financial distress: 1) by the numbers, and 2) beyond the numbers. Thus, an overview of the literature in respect of these two notions follows.

5.2.1   Corporate Failure and Financial Distress – By the Numbers

Probably the most widely and well-cited specialist in this field is Edward Altman who developed the corporate bankruptcy prediction model known as the Z-score (Altman, 1968). This model is based on common financial ratios that can be obtained from any set of reliable company accounts. The model is a multi-variate model – also referred to as a "multi-discriminant analysis" – using activity, leverage, liquidity, profitability, and solvency ratios as predictor variables. By applying Altman's formula to these ratios, one is able to predict the probability of a company defaulting within one year as "high", "indeterminate" or "low". The model has some noted limitations which are related to "size of company", because the original data used by Altman were for large, listed United States domiciled corporations. This led to extensions of the model over the years. For instance, Richard Taffler refined the Z-score for specific application in the UK (Taffler, 1982) and extended his analysis of the Z-score into what is called the performance analysis score (PAS) (Taffler, 1984) which evaluates the Z-score of a company relative to other companies in the same industry.

Multi-discriminate analysis (MDA) is described as a classical cross-sectional statistical method (Balcaen & Ooghe, 2006). MDA and, specifically, Altman's Z-score may be the most widely recognised but there are other analysis techniques that fall into this category. There is univariate analysis (Beaver, 1966) based on financial ratios, risk index models (Moses & Liao, 1987; Tamari, 2013) which compose financial ratios as indices and conditional probability models (Doumpos & Zopounidis, 1999) which aim to establish the class within which a firm falls using an hierarchical discrimination procedure.

Although these models provide decision makers with valuable insight into credit risk and corporate failure probability, they have limitations consistent with a

> classical paradigm that has an arbitrary definition of failure, inherent data instability, sampling selectivity, non-standard choice of optimization criteria and lack of consideration for the time dimension of failure (Balcaen & Ooghe, 2006: p. 65).

What is furthermore noteworthy about these corporate default models is that they are heavily dependent on valid financial and statistical data. Additionally, Oogheand De Prijcker (2008) identified four types of failure processes, 1) failure process of the startup company, 2) failure process of the overambitious company, 3) failure process of the dazzled (over-optimistic) growth company, and 4) the failure process of an apathetic well-established company. In addition to these failure processes they note that the failure processes appear to interact with the company itself, the specific causes of bankruptcy, errors in company policy, management errors, and the environments of the company. Specifically, they note that management errors are often heavily influenced by the company's maturity and fiancial strength. Thus, it is reasonable to argue that understanding corporate failure and fiancial distress would benefit from looking at factors that extend beyond the numbers.

5.2.2 *Corporate Failure and Financial Distress – Beyond the Numbers*

An alternative view suggests that models based purely on accounting numbers and financial information may not capture the fundamental reasons that could result in financial distress of a company (Brown & Moles, 2004). Perhaps Taffler (1984) provides a most apt description of the limitations of reliance on purely accounting numbers:

> the Z-score approach is not a substitute for conventional judgement but provides an additional analytical tool and a screening device (Taffler, 1984: p. 223).

He continues to add that a formal combination of quantitative data (Z-score) and qualitative judgement will contribute to a more comprehensive view of a business.

Forming a meaningful opinion on the financial status of a firm involves a complex and multi-dimensional assessment (Balcaen & Ooghe, 2006). This suggests that a

wide range of bankruptcy prediction and corporate failure assessment models may be particularly suited to the management of the risk of financial distress as a complex multi-dimensional problem.

An alternative to the methods described in Section 5.2.1, which are all quantitative in nature, are those that are qualitative in nature. A chosen technique, whether quantitative or qualitative, will be located on a continuum with pure modelling existing on the one extreme and pure judgement located at the opposite extreme (Brown & Moles, 2004).

Approaches tending towards the judgement end of the continuum are essentially considered expert systems and are heavily dependent on the view of the decision maker. One example is the 6C's of credit (Brown & Moles, 2004) an extension to the earlier 4C's framework (Altman & Saunders, 1998). The 6C's are derived from the first letter of the six attributes of the borrower (debtor) that are assessed subjectively by the party assessing the credit risk of said borrower.

The 6C's are:

- **Character** – The borrower's honesty attitudes and willingness to pay back the loans.

- **Capacity** – The ability to pay back the loan.

- **Capital** – An assessment of the borrower's overall financial health.

- **Collateral** – The amount of security that may be available.

- **Conditions** – Economic and other conditions' possible effect on future performance.

- **Compliance** – The degree of compliance with laws and regulations by the borrower.

Generally a lender that makes use of this approach will build a credit-risk scoring framework with thresholds determined by previous experience. A similar approach used by a large UK bank is termed "CAMPARI & ICE" which stands for: **C**haracter, **A**bility, **M**eans, **P**urpose, **A**mount, **R**epayment, **I**nsurance (all of which relate to "**risk**") & **I**nterest rate, **C**ommission, and **E**xtras (which relate to "**return**") (Brown & Moles, 2004).

These judgement-based approaches suggest that although quantitative models serve a very good purpose they are retrospective, (ex-post) and if it is possible to assess characteristics indicative of the borrower's future actions (ex-ante) the assessment of the possibility of bankruptcy or future distress may be enhanced. As argued by Brown and Moles (2004) there is merit in using non-financial variables to understand the probability of failure in ways that may not be evident in reported financial variables.

These non-financial variables may include understanding the board composition, delays in reporting results and any audit qualification or reportable irregularity (Bollen et al., 2005). The non-financial variables may indicate the presence or absence of appropriate checks and balances being in place to moderate the personal utility maximising behaviour and possible unreasonable risk-seeking behaviour of shareholders and managers of private companies in distress.

With this in mind another very well-respected approach is a behavioural model known as Argenti's A-Score (Argenti, 1976). Argenti identified three largely behavioural areas as being indicative of companies that may be heading for distress. They are:

1. Management defects
2. Management mistakes
3. Symptoms of trouble

The model has simple decision criteria, in that companies that are in good health will have few signs of underlying behavioural problems that may lead to distress and, consequently, will score low on the A-Score. The top three variables that Argenti (1976) identified are:

- The Chief Executive is an autocrat
- The Chief Executive also holds position of Chairman and
- A passive board of Directors.

His model also includes a weak finance director, old directors, and poor management in lower levels of the management structure as other observed variables but these have a much lower weighting than the first three.

It is possible to speculate that if a company scores low (good) on the first three factors then the others will also score well. One can also see that the top three variables align with what is contained in corporate governance codes of best practice such as King III (*King III King Code of Governance Principles for South Africa*, 2009) and the Combined Code in the UK (Financial Reporting Council, 2014). Specifically, in terms of King III, Principle 2.16 states:

> the board should elect a Chairman of the Board who is an independent non-executive director. The CEO of the company should not also fulfil the role of Chairman of the Board.

The separation of power is a fundamental principle in both the UK combined code and the South African King III report and is central to an agency view of corporate governance.

This link between elements articulated by Argenti (1976) and principles specifically described in two of the most well-regarded corporate governance codes of best practice suggest that corporate governance constructs in general and specifically under conditions of financial distress are worth closer examination. The literature in this regard is contemplated in Chapter 6.

5.2.3 *Corporate Failure and Financial Distress – Summary*

For the purposes of this study an appreciation of corporate failure and financial distress is important because:

- Corporate failure and distress is multi-dimensional (Balcaen & Ooghe, 2006) and, in order to develop a comprehensive understanding, both quantitative and qualitative aspects are valuable contributors. However, the literature shows us that historically scholars have emphasised quantitative approaches that are heavily dependent on financial ratios from the firm's own financial records. Reliance on purely quantitative methods that are heavily dependent on a firm's financial information may be somewhat myopic and has been shown to have some notable limitations (Balcaen & Ooghe, 2006; Brown & Moles, 2004; Taffler, 1984).

- Notwithstanding the traditional emphasis on quantitative approaches as early as 1976, Argenti identified the top three variables within failed companies that he studied as:

  - The Chief Executive is an autocrat

  - Chief Executive also holds position of Chairman and

  - A passive board of Directors.

- Taffler (1984) provides a most apt description of the limitations of reliance on purely accounting numbers:

  the Z-score approach is not a substitute for conventional judgement but provides an additional analytical tool and a screening device (Taffler, 1984: p. 223).

  He continues to add that a formal combination of quantitative data (Z-score) and qualitative judgement will contribute to a more comprehensive view of a business.

- Turnaround would be redundant without the existence of corporate failure or financial distress. It also follows therefore that any understanding of turnaround would be better informed by an understanding of corporate failure and financial distress and the measure of severity of distress used in turnaround potential [discussed in Chapter 5.3] is based on a multi-discriminant analysis Z-score of Taffler (Smith & Graves, 2005).

From existing literature it is also clear that a firm may well be insolvent but continue to trade (Davydenko, 2012). Any such firm would exist within the Zone of Insolvency where shareholders are out of the money. It may therefore be argued that any decisions made by management during this time would either improve or worsen a creditor's position. However, if management, and shareholders are the same people then the prospect of loss that shareholders face may result in risk-seeking behaviour (Kahneman & Tversky, 1979; Wiseman & Gomez-Mejia, 1998). This would be particularly so in the absence of good, robust corporate governance and an active independent board providing oversight on management actions.

5.3 TURNAROUNDS, BUSINESS RESCUE AND RECOVERY

Argenti (1976) stated:

> One thing seems quite certain; companies generally do not fail suddenly as they are widely believed to do, not only by the man in the street, but by bankers and accountants and managers. Even quite small companies may take years to fail and large ones may take a decade. Some workers in America believe they can predict failure 5 years ahead but that is a figure that most experts would halve (Argenti, 1976: p. 13).

Argenti (1976) also observes that even the best companies make mistakes but the ones that recover do not suffer from the defects he identified and they were able to manage themselves through a recovery (Argenti, 1976: p. 14). This is supported by the view that at some time in their lifespan, most if not all, firms experience decline (Trahms et al., 2013). Further support of Argenti's contention, is recent work that shows only organisations that are internally weak are adversely affected by external change. They argue that internal weakness is always the primary cause of decline:

> it may be legitimately inferred that the primary reason why organisations become sick is the inefficiency in their internal management (Panicker & Manimala, 2015: p. 37).

5.3.1 Turnaround Models

A two-stage model of turnaround was developed by Robbins and Pearce II (1992) which identified retrenchments and strategic actions as key features of successful turnarounds (Robbins & Pearce II, 1992). More recent work by Smith and Graves (2005) found that severity of the distressed state of the firm, the firm's size, and the availability of free or unencumbered assets are significantly associated with successful turnarounds. They also noted that changes to the senior management team composition is an important part of successful turnarounds (Smith & Graves, 2005). Later research by Trahms et al. (2013) has recognised the response factors of management cognition, strategic leadership and stakeholder management in an enhanced model.
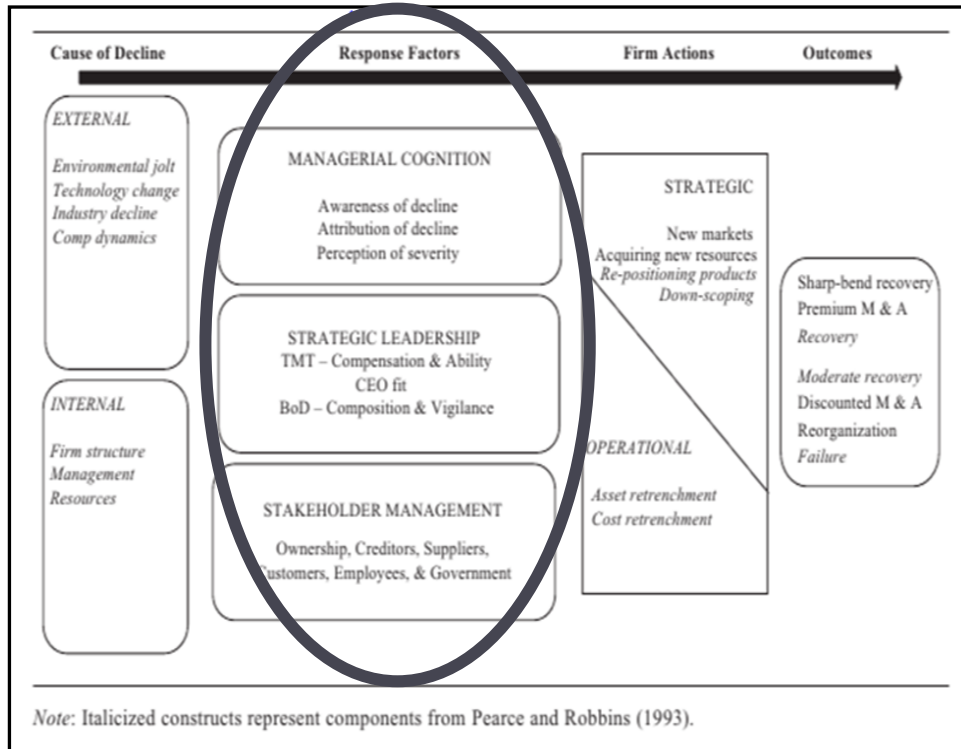
Source: Organizational Decline and Turnaround: A Review and Agenda for Future Research (Trahms et al., 2013: p. 1228).

Figure 5.1:   Model of Organisational Decline and Turnaround

A significant view of Smith & Graves (2005) was that equity-based compensation for management results in a very close alignment of objectives between management and shareholding and, during times of organisational growth, may be very motivating. However, during times of distress, management may see the value of their equity participation erode significantly which could result in an "all or nothing" approach to risk by management.

This view supports a contention that in privately owned firms where top management team (TMT) positions are occupied by significant shareholders and when the firm is financially distressed, then risk-seeking behaviour may become commonplace. This contention would also be consistent with the view that when faced with the prospect of loss, people are apt to become risk,seeking (Kahneman & Tversky, 1979). From a corporate governance perspective, Wiseman and Gomez-Meija (1998) make the distinction that loss aversion and risk aversion are quite different. It is loss aversion that results in risk-seeking behaviour (Wiseman & Gomez-Mejia, 1998).

Wiseman and Gomez-Meija (1998) further recognise that decision makers may be attracted to very risky choices, in an attempt to avoid a loss altogether, rather than being attracted to less risky choices which may result in a minimised loss. In many privately owned financially distressed businesses it is conceivable that, for the owners, the loss of the business represents a significant portion, if not all, of their personal wealth. The loss as a proportion of personal wealth may be termed a *framing affect* and is seen as a major influence on an individual's orientation to risk (Kahneman & Tversky, 1979).

It is, therefore, possible to hypothesize that the management of financially distressed, privately owned firms with the TMT occupied by shareholders, may be inclined to make risk-seeking choices, resulting in the delay of strategic or operational turnaround actions. This would result in financiers and creditors carrying an unfair proportion of the risk and being unfairly prejudiced.

5.3.2 Turnaround, Management Cognition and Stakeholders

Panicker and Manimala (2015) assert that to improve the chances of turnaround success, management needs to recognise problems early on and then take immediate action. This argument is consistent with Gopinath's (1991) view that any turnaround hinges on management recognising and admitting that the firm is distressed. Other scholars have offered management bias (Abatecola, Farina & Gordini, 2011; Rockwell, 2016), and fixed mental models of existing management (Combe & Carrington, 2015) as obstacles to management cognition of distress, resulting in inertia and organisational failure. Furthermore in small and medium enterprises (SMEs) which are generally owner-managed, inertia and resistance to strategic change has been recognised as the outcome of founding shareholders' commitment to a firm's original strategy (Brunninge et al., 2007).

Similarly recent research into stakeholder theory and stakeholder management suggests that management of companies that have failed, tends to the narrative of "scapegoating" with negative performance attributed to external causes. Simultaneously they mask shortcomings of the company but are very ready to claim any small success that might come about (Smudde & Courtright, 2011). These findings also suggest that a lack of cognition is common amongst failed firms and are consistent with the views articulated by Panicker and Manimala (2015) and Gopinath (1991).

It also seems logical to argue that the response factors of "management cognition, strategic leadership and stakeholder management" (Trahms et al., 2013: p. 1288) can have a significant influence on severity of the distressed state of the firm, and the availability of free (unencumbered) assets which are two of the factors significantly associated with successful turnarounds (Smith & Graves, 2005). It further follows that where management is faced with the prospect of loss, and thus may be risk seeking, then cognition of the distressed state, effective strategic leadership and effective stakeholder management may be significantly delayed. This delay could result in a deeper state of distress and fewer unencumbered assets for use in a turnaround plan.

5.3.3 Turnarounds and Top Management Teams

A long-standing generalised view is that for any turnaround to be successful "replacement of top management" (Hofer, 1980: p. 8) is necessary or, at the very least, those that may impede a turnaround should be removed (Burbank, 2005). This is premised on the view that the TMT in place while the financial distress developed, have such fixed views on the way the business should be run that they may be incapable of turning it around (Hofer, 1980) and that a successful turnaround requires retaining only capable management (Burbank, 2005). Leaders are often seen as a contributing source of decline with a concomitant loss of credibility, resulting in a further deterioration of a firm's internal climate with an increase in dysfunctional consequences (Arogyaswamy, Yasai-ardekant, & Barker III, 1995). Executives either directly caused the problems at the heart of crisis or failed to recognise the problems early enough. Therefore it may be argued that in financially distressed businesses that are privately owned it is possible that the lack of cognition by management and the self-interest of shareholders in management positions is likely to limit the removal and replacement of top management, thereby reducing the possibility of a successful turnaround.

Existing evidence suggests that organisational inertia hinders TMT replacement and it has been argued that boards of directors with greater independence are likely to be more decisive when considering replacement of top management (Trahms et al., 2013). In this respect, a limitation relating to Altman (1968) listed in Section 5.2.1 is noteworthy, in that the prevalence of research into bankruptcy and corporate failure prediction is based on data drawn from large, listed entities. In this case, the action of removing and replacing top management is somewhat easier because separation between ownership and control will exist in some form.

For privately owned businesses this may not be the case due to shareholders themselves filling key management roles. It is, therefore, possible to speculate that where a high fraction of equity is owned by management, low turnover of top management will occur even though the balance of evidence suggests that it is a key feature of successful turnarounds. Aside from the ability of existing top management it is also likely that information presented by them will selectively

support their own self-interest. This contention is supported by research that argues that the proportion of independent directors on boards is positively associated with the comprehensiveness of financial disclosures (Chen & Jaggi, 2000).

5.3.4 Turnarounds and Information

That asymmetry of information relating to any individual firm exists is an established view (Chancharat & Chancharat, 2013; Clarke, 2007; Eisenhardt, 1989; Taljaard, 2013; Tung, 2006) and "managers' financial reporting and disclosure choices are associated with contracting, political cost, and capital market considerations" (Healy & Palepu, 2001: p. 431). It is, therefore, possible to argue that the full extent of distress may become evident only when a formal (legal) business rescue or liquidation process is initiated. The form that a legal process may take, differs from one economy to another, with Chapter 11 (the USA alternative to liquidation) arguably being the most widely acknowledged.

The inclusion of "Chapter 6 – Business Rescue and Compromise with Creditors" in South Africa's new Companies' Act instituted on 01 May 2011 (*Companies Act 71 of 2008*, 2011) (RSA, 2008) has resulted in South African turnaround activity receiving renewed attention. This offers scholars of distressed businesses a unique opportunity to explore many facets of financial distress in an environment not yet heavily shaped by provisions of the Act. A short overview of the Act and formal business rescue in South Africa is detailed below.

5.3.5 Chapter Six – A Formal Turnaround Process

The Companies Act 71 of 2008 (RSA, 2008) commenced and was signed into law by the President of South Africa on 01 May 2011. This act was amended by the Companies Amendment Act 3 of 2011 on 26 April 2011. Often referred to as the "New Companies Act", it repealed the Companies Act, 1973 (Act 61 of 1973) (RSA, 1973) and made amendments to the Close Corporations Act, 1984 (Act 69 of 1984) (RSA, 1984). Inter alia, as described in the preface to the New Companies Act (RSA, 2008), it provides for the definition of "the relationships

between companies and their respective shareholders or members and directors" and further provides for "efficient rescue of distressed companies".

The remedy offered by Chapter 6 (RSA, 2008) has been compared to Judicial Management in England and the "Insolvenzordnung" or Insolvency Code of Germany by Loubser (2010). She notes in her dissertation that the South African Department of Trade and Industry's original intention was to look at the USA Chapter 11 procedure, but it is clear that the culture and attitudes that influence South Africa's corporate insolvency law are far closer to those prevailing in England than in America. This author's experience has been that "Chapter 11" as a term is quite widely recognised in the business community of South Africa. It is also interesting to note that "Chapter 11" in the USA forms part of American Insolvency Law whereas "Chapter 6" forms part of South African Company Law.

Loubser (2010) also compares Chapter 6 with English legislation and notes that irrespective of how well considered the legal framework is, the adoption of new legislation requires consideration of local norms, standards and culture in order to be implemented successfully. She goes on to say that what South Africa can learn from a comparison with England is that corporate rescue is not static and it needs to be streamlined, adapted and modernised to keep up with changing circumstances.

Chapter 6 (RSA, 2008) provides for a formal turnaround process with legal protection. By selecting companies that have entered formal business rescue, utilising the privileges afforded in Chapter 6, this study explored financial distress as a boundary to agency theory-based corporate governance in the context of financially distressed firms that are privately owned. In the New Companies Act Chapter 6 Sect 128 (iii) (RSA, 2008) business rescue success is defined as rehabilitation of the distressed company on a solvent basis or a better return to creditors or shareholders than would result if the company was liquidated immediately.

It is worth noting that even though the Act includes a better return to shareholders as part of the definition, in fact creditors rank higher than shareholders in terms of

any distribution. It is therefore fair to say that a better return for shareholders is likely to see a settlement of creditors' claims in full.

It follows that the ultimate measure of any turnaround or business rescue is the return that creditors have received in respect of their claims against the company. It, therefore, also follows that the extent to which any factor influences the turnaround potential of a company in distress will also have an influence on the return to creditors.

It is also reasonable to argue that the management of a firm that enters formal turnaround (such as Chapter 6) – business rescue has reached a point of cognition. In other words, it may be argued that they not only *know* that there is a problem (financial distress) but they are at the point where they will *admit* there is a problem.

5.3.6   *Turnarounds, Business Rescue and Recovery – Summary*

For any party that may be impacted by the distressed position of a firm, the notion of turnaround is of interest. Thus, turnaround theory has a legitimate role to play in any discussion on corporate failure and financial distress and, for the purposes of this study, an appreciation of turnarounds, business rescue and recovery is important because:

- Corporate failure is shown to occur generally over time (Argenti, 1976) and anything that can be done to effect turnaround sooner will be of benefit to any party (normally creditors) that may be adversely impacted by the firm's distressed position.

- The study of turnaround theory resulted in the development of an early two-stage turnaround model presented by Robbins and Pearce II (1992) which was further enhanced by more recent research by Smith and Graves (2005) and Trahms et al. (2013).

- This extant research into turnarounds identified unencumbered assets (free assets) and severity of distress as two financial features that are significantly associated with successful turnarounds and are variables indicative of turnaround potential.

- Furthermore, extant research identified the turnover of top management as being positively associated with successful turnarounds and thus may also be viewed as a turnaround variable.

- Existing research allows the argument that the application of robust corporate governance practices and principles, and strong board composition (board independence) may influence the turnaround potential of a distressed firm positively and, conversely, the lack of robust corporate governance practices and principles and weak board composition (lack of board independence) may negatively influence the turnaround potential of a distressed firm.

- This argument may also be extended in so far as to suggest that, for privately owned firms, management is pulled in opposing directions because often shareholders, directors and management are the same people. Thus, they may have to choose between what is best for the firm and what is best for them personally. The implications of this may best be described by behavioural economic theory which shows that when faced with the prospect of loss (personally) they may be drawn to high-risk choices. In which case, because the firm is in the zone of insolvency, the risk is carried by the firm's creditors and it follows that it may result in the turnaround potential of a firm being weakened.

- From a creditor's perspective, this is an undesirable state of affairs that may be compounded by a lack of robust corporate governance practices and processes. It could thus be argued that, should good corporate governance in the form of a robust independent board be present, greater oversight of management's decisions would exist and the position of all stakeholders may be more reasonably considered.

5.4 ZONE OF INSOLVENCY (DEEPENING INSOLVENCY), CORPORATE FAILURE AND TURNAROUNDS – CONCLUSION

Existing literature shows us that corporate failure and financial distress is a complex and multi-faceted phenomenon which can be understood better by adopting a multi-dimensional approach to analysis. It can also be argued that an understanding of financial distress provides a foundation for the understanding of turnarounds. Furthermore, financial distress and turnarounds occur over time and

may be seen to exist within an imprecise frame referred to as "the zone of insolvency".

Within the zone of insolvency it has been argued that the fiduciary duties of directors and company boards expand to include creditors, who it may be argued are the rightful claimants to any residual value of the firm that is within the zone of insolvency. For privately owned firms this may present a problem because, in many instances, shareholders fulfil the role of management and are effectively the top management team of a privately owned firm.

Thus, for many privately owned firms, at the outset, a separation of ownership and authority may not exist. Put another way, an agency relationship may not exist and, therefore, there may be little or no motivation for shareholders to institute robust corporate governance structures, practices and procedures.

This presents a unique situation in as much as the drivers supporting robust governance may well exist after the onset of financial distress but, by then, it may be too late. Furthermore, the personal utility maximization and loss aversion motives of private firm shareholders may compound this situation by weakening a firm's turnaround potential. To develop a deeper base of understanding for private firms in this regard the relevant literature in respect of agency theory, corporate governance and boards is presented in the next chapter.

6   LITERATURE REVIEW

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6.1 AGENCY THEORY, CORPORATE GOVERNANCE, DIRECTORS AND BOARDS

Corporate governance theory, based on the capital needs of government and religious institutions can be traced back to feudal economies. In the 17th century, the financial needs of industry and commerce further drove developments (Vagneur, 2004). The outcome of early corporate governance mechanisms, in the form of bankers' orders as an internal governance instrument, emerged. External governance mechanisms, imposed by governments and as co-operative solutions developed by institutions themselves, followed (Vagneur, 2004).

Even in these early economies evidence of agency theory can be seen, with the concept of a board of directors written into the charters of English joint stock companies by the year 1600. To this day the concept of separation of ownership and control, quite simply put as an agency perspective, is central to corporate governance theory (Shleifer & Vishny, 1997).

The theory of the firm is fundamental to many notable studies of agency theory and corporate governance (Arcot & Bruno, 2011; Eisenhardt, 1989; Fama, 1980; Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Some of these scholars (Eisenhardt, 1989; Jensen & Meckling, 1976) have noted that economists have been prone to viewing the firm as a "black box".

Coase (1937) has been credited with making the first serious attempt at understanding what was contained within this "black box" and defined the firm as "the system of relationships which comes into existence when the direction of resources is dependent on the entrepreneur" (Coase, 1937: p. 393). This early definition has been expanded to:

> the firm is not an individual. It is a legal fiction which serves as a focus for a complex process in which the conflicting objectives of individuals (some of whom may "represent" other organizations) are brought into equilibrium within a framework of contractual relations (Jensen & Meckling, 1976: p. 9).

This definition is explored further with particular consideration for firms that have crossed the boundary of financial distress and entered the zone of insolvency.

6.1.1   Agency Theory across the Boundary of Financial Distress

For this study, the terms "conflicting objectives of individuals" and "equilibrium" are particularly significant as it may be argued that the contracts that bring about equilibrium are created while the firm is financially healthy. It therefore follows that as a firm approaches the zone of insolvency and equilibrium is disturbed 1) some of the contractual terms such as payment of debt may not be possible and 2) the conflicting objectives of individuals may lead to a lack of willingness on the part of some actors to meet other contractual obligations. With reference to Section 5.2 (Corporate Failure and Distress) of this document it is noted again that the majority of bankruptcy and corporate failure research has focused on understanding the ability of firms to meet their financial obligations, which is point 1) above. By comparison, the author of this document has found relatively little research that focuses on point 2) which may be paraphrased as the choices or intentions of firms to meet their financial obligations.

This section on corporate governance and agency theory speaks more to the choices and decisions made by economic actors. The choices may be seen as reflections of them balancing the firm's contractual obligations against their own, perhaps conflicting, objectives. Section 5.1.3 that summarizes the zone of insolvency touches on this but it may also be seen as the essence of agency theory.

The inherent tension present in the relationships where separation of ownership and management exists was noted as early as 1776 when Adam Smith said:

> managers rather of other people's money than of their own, it cannot well be expected,
> that they should watch over it with the same anxious vigilance with which the partners
> in a private copartnery frequently watch over their own (Smith, 1776: p. 606).

In the case of firms, as Adam Smith notes, owners may be concerned that managers will not exercise as much care on behalf of the owners as the owners would for themselves.

What Smith does not specify, but is equally true, is that the managers may also expropriate value for themselves that should in the normal course of events

accrue to the owners. It is thus reasonable to expect owners to limit the value of what is lost through lack of care or self-interest on the part of managers.

The lost value and the costs of limiting the loss of value are collectively known as "agency cost", which is defined by Jensen and Meckling (1976) as the sum of:

1. The *monitoring expenditures* by the principal
2. The *bonding expenditures* by the agent
3. The *residual loss.*

This definition of "agency cost", as articulated by Jensen and Meckling (1976), has been used for this study and, therefore, in the interest of clarity, attention will be focused on the individual items of the definition. It should also be noted that discussions of agency theory use the term "principal" to denote the owners of a firm whereas the term "agent" is used to indicate management. For the purposes of this study, the same convention has been used unless specified otherwise.

Monitoring expenditures are logically the costs incurred by the owners to monitor the choices and behaviour of managers but are not limited to monitoring activities. In respect of this definition the term is intended to include activities aimed at control. These costs could include the costs of maintaining a board of directors, conducting independent audits and any other review mechanism. An example of a "control activity" is a policy that limits management's authorisation powers such that, should management wish to make an investment or incur capital expenditure they may be required to obtain board approval. A very topical control mechanism is that of the Remuneration Committee which, subject to a defined mandate, acts as the ultimate authority on all remuneration matters.

In respect of *bonding expenditures,* Jensen and Meckling (1976) observe that:

> it will pay the agent to expend resources [*bonding expenditures*] to guarantee that he will not take certain actions which would harm the principal or to ensure that the principal will be compensated if he does take such actions (Jensen & Meckling, 1976: p. 5).

In practice, specific circumstances will determine the nature of bonding costs but a useful example is that of Directors' and Officers' (D&O) insurance. The Institute of Directors of South Africa (IoDSA) has the following description of D&O insurance:

> D&O insurance protects the personal assets of a company's directors and officers, as well as that of the company itself. The cover also provides reimbursement to the company when indemnifying its directors and officers. D&O insurance pays for legal defence costs, settlements and awards when defending directors and officers from a valid claim (IoDSA, 2014).

The last item in the definition: *residual loss* includes all other leakage that occurs from the firm as a result of the agency relationship, but otherwise could accrue as value to the firm's owner. This leakage can be pecuniary or non-pecuniary in nature and may even take the form of opportunity costs. The precise form that pecuniary and non-pecuniary losses may take will be situation dependent and require some degree of judgement but will, in all cases, involve weighing up whether the value that accrues to management is reasonable or should it accrue to the shareholders. It is possible to think of any number of examples, some of which will seem quite trivial but, at a principle level, they serve to illustrate the point.

Examples of *pecuniary costs* could include the payment of unreasonable bonuses to management, or the reimbursement of costs incurred by management to be a member of a "fancy" country club or other social activity that is ostensibly good for business. These are all direct costs to the business with direct benefit to individual members of management. Non-pecuniary costs may be even more ambiguous in nature as they will invariably arise as a result of a business decision but will have some status or personal utility value to management. Again examples may be limited only by the extent of an individual's imagination but could include a policy that certain levels of management travel first class, or the policy that spouses may accompany management on business travel at company expense. Another example of a non-pecuniary cost is the personal use of company assets which will vary from company to company. In recent years, scandals reported in the press have included accusations of abuse of the company jet and unreasonable use of the company apartment in London and probably an extreme case may be the purchase of art owned by the company but hung on the walls of the CEO's personal dwelling.

Many examples can be advanced in respect of opportunity costs but a common definition of "*opportunity cost*" is, "that which is given up in order to get something else" (Polley, 2015: p. 13). An example of an opportunity cost to shareholders

would be the case of management choosing not to embark on a particular project because of the personal risk to their career or the personal inconvenience that they may have to bear. The project may be in a remote part of the world and involve extensive travel which may be undesirable. In such a case, if the return on such a project was value-enhancing to shareholders but if management argued it was not a good idea, then it is conceivable that there may be opportunity costs to shareholders. Of course, once again, this would be a matter of judgement and would vary from case to case but it does serve to illustrate the concept.

Jensen and Meckling (1976) go on to describe how the sources of capital of a firm influence the scale of agency costs. They describe the situation where all the capital of the firm is provided by the owner/manager and argue that the agency costs will be zero as no agency relationship exists. They then demonstrate that the greater the amount of external capital – whether it be debt or equity – provided to a firm, the greater the total agency cost.
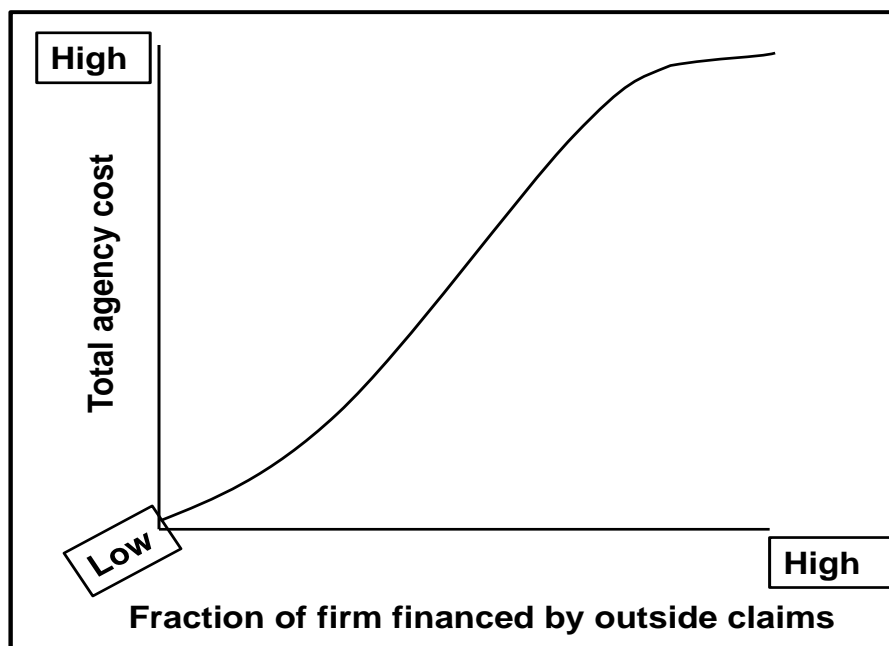
Source: Adapted from Jensen and Meckling (1976, p. 59)

Figure 6.1: **Total Agency Cost Increases as the Amount of External Financing Increases**

The view that agency cost increases as the amount of external financing increases, irrespective of whether it is debt or equity, is logical and seems

reasonable. In a perfect world, it could be argued that the residual costs should be zero if optimal monitoring (including control) and bonding activities were in place. Thus one would also expect to see that the bonding costs and monitoring costs as a percentage of total agency costs increase.

The activities that give rise to the monitoring and bonding costs may be seen as governance mechanisms. The creation of governance mechanisms is one of the outcomes of researching agency theory and attempting to solve the agency problem (Eisenhardt, 1989). It is beyond the scope of this study to argue the merits of various governance mechanisms. Importantly though Ang, Cole and Lin (2000) found that agency costs are: 1) higher when a firm is managed by an outsider (non-shareholder), 2) become lower as the amount of shareholding owned by management increases 3) increase as the number of shareholders that are not managers grows and 4) tend to be lower when there is greater monitoring in place by banks (Ang et al., 2000).

The first three findings of Ang et al. (2000) can be aligned to the view that the value of a firm managed by a controlling owner(s) is equal to the owner(s) view of the personal utility that the firm provides (Schulze et al., 2003). It follows that the greater proportion of shareholding owned by management the less governance activity is desired because the conditions for an agency relationship are reduced and there is a great incentive by shareholders to maximize personal utility. From Ang et al.'s finding in point 4) one may speculate that when a firm's funding is predominantly external debt then the providers (normally banks) will put in place their own monitoring mechanisms. This protection is normally achieved through explicit contracts that include covenants that require specific action from management when significant change takes place. It may also however be argued that under particular circumstances, for instance should the firm enter the Zone of Insolvency then the debt funders may become the principal in a form of agency relationship.

When considering small businesses there is a view that lenders expect owners to provide personal guarantees for any loan or credit that the firm (company) may receive (White, 2016). These guarantees take different legal forms but could extend from a personal surety that binds the shareholder jointly and severally for

the debts of the company to the registration of a mortgage or notarial bond over the shareholders' personal assets. Thus, when debt incurred by a firm is secured by means of personal guarantee of the shareholder, the view that shareholders will be highly motivated to support decisions maximizing their own personal utility is likely. This may not be a problem when the privately owned firm is financially healthy. However, should a firm enter the zone of insolvency and become financially distressed then the interests of the shareholder and the firm itself may diverge.

This situation is unlikely to be limited to only small firms but is likely to exist for any privately owned firm where providers of credit consider the debt risky. The possibility that individual interests and the interests of the privately owned firm being inextricably bound through personal guarantees of the shareholders suggests additional challenges to the idea that agency theory is a robust framework that helps one understand privately owned firms.

A conventional agency theory assumption is that separation of ownership and control exists. However, where a high proportion of equity is owned by management this is unlikely to be the case. This situation, when coupled with a strong incentive for personal utility maximisation on the part of owners, could result in the objectives of owners and the objectives of funders being potentially incompatible. While a firm is healthy and obligations are being met any tension arising from such potentially incompatible objectives will only be theoretical.

Conversely as the boundary of financial distress is crossed, and the firm enters the zone of insolvency, it is highly likely that the incompatible objectives will result in real tension between funders and management. It has also been argued that once the firm crosses the boundary of financial distress the claim on residual value of the firm transfers from shareholders to creditors because shareholders have by that stage effectively lost their investment (Tung, 2006). In this case one can argue that an explicit agency relationship between creditors as the principal and management as the agent is created. In cases where management holds a high fraction of equity the tension that arises as a result of incompatible objectives is likely to be exacerbated. It has also been argued by Tung (2006) that "post-

insolvency investments by the firm are a gamble with creditor's money" (p. 612)[2]. Thus one can argue that management with a high fraction of equity ownership will be faced with making choices to achieve the incompatible objectives of 1) personal utility maximization and 2) meeting the obligations required by creditors.

Behavioural theorists (Kahneman & Tversky, 1979; and Tversky & Kahneman, 1981) supported by corporate governance scholars (Wiseman & Gomez-Mejia, 1998) argue that how the choices are framed will influence the management (shareholders) actions and may influence the amount of risk they will undertake. Kahneman and Tversky (1979) argue that when faced with the prospect of loss, which for owner-managers is the loss of personal utility, people are inclined to become risk seeking. Thus when a firm crosses the financial distress boundary the managers may become risk seeking while the providers of funding in the role of principal carry a disproportionate amount of the risk.

The argument of this thesis is that once the boundary of financial distress is crossed then an agency relationship exists between management and creditors. Creditors become the principal because they have priority claim in any residual value of the firm and management are the agents because they have authority to act on behalf of the principal. It follows that it may be a perfect situation for introducing the corporate governance mechanisms of monitoring (including control) and bonding activities derived from the Jensen and Meckling (1976) definition of agency cost. The challenge that practitioners and theorist face in such circumstances is that, because of personal risk and liabilities, once the boundary of financial distress has been crossed it may not be possible to implement such mechanisms. A review of the key literature in this regard is discussed in Section 6.1.2.

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[2] Tung (2006) refers to "post-insolvency" which is an imprecise definition and, as discussed in Section 5.1, the term "zone of insolvency" is more illustrative of reality. Therefore, for the purposes of this research it is argued that the chosen definition of "financial distress" in Section 5.2 aligns with Tung's "post-insolvency" term.

6.1.2 Corporate Governance across the Boundary of Financial Distress

6.1.2.1 **Corporate Governance provides checks and balances for agency tension – or does it?**

Before we turn our attention to the literature on corporate governance as one of the mechanisms referred to by Eisenhardt (1989) it is important to note that according to Jensen and Meckling (1976) the total agency costs to which we have been referring is carried in full by the owner. With this in mind we now turn our attention to an extreme situation where all of the equity is held by an entrepreneur (the owner) yet all of the financing is external debt financing and the owner is managing the business.

Noting that the owner and the providers of finance are likely to have potentially incompatible objectives, one would expect equilibrium to be achieved by a combination of governance mechanisms and contractual relationships (Coase, 1937; Jensen & Meckling, 1976). While the firm that the owner is managing is financially healthy this is likely to be the case but if the firm enters financial distress the situation may be described differently:

- As the owner carries all of the agency costs he may be inclined to keep activities resulting in the monitoring and bonding costs at a minimum. Any residual costs are likely to accrue to him as the "agent" but the other costs will go to outside parties.

- The providers of debt financing rely on their contractual position (La Porta et al., 2000) and good reputation of the firm (Back, 2005) to ensure repayment of the debt.

- As previously discussed in Sections 6.1.1 and 6.1.2 corporate governance is generally aimed at minimizing the residual loss as a result of the agency relationship between owners and managers and as the owner and manager is one and the same an agency relationship does not exist.

Given that in this situation no agency relationship exists between owner and manager there are potential conflicts of interest and conflicting objectives between the owner and the providers of debt capital. Without the presence of a governance mechanism this could result in choices made by the owner in his position of

management that are undesirable to the providers of the debt. The expectations of the various parties to a firm may be seen as claims that the parties have on the value of the firm and when the firm is faced by financial distress the persuasive description of Jensen and Meckling (1976) is most illustrative:

> Firms incur obligations daily to suppliers, to employees, to different classes of investors, etc. So long as the firm is prospering, the adjudication of claims is seldom a problem. When the firm has difficulty meeting some of its obligations, however, the issue of the priority of those claims can pose serious problems. This is most obvious in the extreme case where the firm is forced into bankruptcy (Jensen & Meckling, 1976: p. 49).

To further explore the tension and conflicting objectives that may exist between owners (shareholders) and debt capital providers, we should remind ourselves that contracts in the form of ownership determines the allocation of rights (Shleifer & Vishny, 1997). For shareholders this is normally expressed as voting rights and depending on the concentration of shareholding, may result in relatively little influence accruing to providers of funding with management being allowed significant discretion. Practically, the predominance of corporate governance activities are oriented towards reducing the "ex post misallocation of returns to management… while inducing investors to provide more funds ex ante" (Shleifer & Vishny, 1997: p. 743). It has also been recognised that large shareholders and large creditors may exert disproportionate influence to serve their own needs at the expense of smaller shareholders or creditors. An additional tension that emerges is between shareholders and creditors in that, shareholders who share in the residual returns of a firm may encourage riskier projects that do not suit the creditors and are not within the creditor's appetite. This appears to be a slightly different form of agency when one considers the debt or equity choice of financing that a firm faces.

The providers of debt funding are seen to have a level of control which is largely dependent on two features; 1) reputation (Back, 2005) and 2) legal protection (La Porta et al., 2000). The former includes the reputation of the firm in terms of debt repayment and also the reputation of management responsible for managing the firm. Legal protection, based on the laws of the country within which the firm is domicile has significant influence on choices made by all actors when a firm suffers a financially distressed position. Other considerations for the providers of

debt funding include recognition that actions by executives have a very large impact on the value of the firm (Shleifer & Vishny, 1997) and it is worth noting that almost all corporate failures can be traced back to management decisions and action (Argenti, 1976).

It is recognised that generally management has better information pertaining to the firm than both shareholders and creditors (Myers & Majluf, 1984; Shleifer & Vishny, 1997) which becomes an exceptionally important factor if a firm is experiencing financial distress. It is likely that management may utilize information to protect their reputation and future earnings. It is also likely that management may resist replacement even in the face of failed internal control and management systems thereby becoming a very costly example of the agency problem (Jensen & Ruback, 1983). It is challenges of this nature that corporate governance mechanisms, policies and procedures are intended to overcome.

The term "corporate governance" covers the mechanisms that are implemented to assist with managing conflicting objectives of agency relationships. Although generally the principal is the owner and the agent is management we have described a situation where wide variations to this idealized agency relationship may exist. In order to understand how the presence of good corporate governance could be beneficial we turn our attention to the wider body of corporate governance literature with the understanding that agency theory is a cornerstone of the literature development.

6.1.2.2 *Corporate Governance mechanisms – A response to corporate failure – but is it only for large public companies?*

Corporate governance as a term is reputed to have been first used by Robert Tricker in his 1978 book dealing with independent directors, non-executive directors and audit committees (Tricker, 1978). Later rounds of reform following corporate scandals resulted in the Treadway report (Treadway, 1987) and the Cadbury report (Cadbury, 1992) which both contributed to shaping British and Eurocentric corporate governance practices. Although these reports have also contributed to American thinking it may be argued that contemporary American practices are more heavily influenced by the post-Enron, Sarbanes Oxley Act (Romano, 2005) albeit with a view that the policies were poorly conceived with a

disconnect between the implementation and outcomes (Romano, 2005: p. 1594). In South Africa, apart from legal and regulatory requirements the King reports are the most prominent with the most current being King III (*King III King Code of Governance Principles for South Africa*, 2009).

Previous researchers (Klapper & Love, 2002; La Porta et al., 2000; Prowse, 1998; Shleifer & Vishny, 1997) have noted that a key to corporate governance is the legal approach taken by respective legal systems. This applies to all outside investors, whether they are shareholders or creditors (La Porta et al., 2000). In La Porta et al. (2000: p. 4) corporate governance is described, as "a set of mechanisms [to a large extent] through which outside investors protect themselves against expropriation by the insiders."

In different jurisdictions, different rules apply. The starting point for South Africa is the (New) Companies Act 71 of 2008. For companies listed on the Johannesburg stock exchange (JSE) the companies act is further supported by a listing requirement of the JSE (JSE, 2013) that requires all listed companies to adopt the apply or explain approach to the KING III (IoD, 2009) voluntary code of best practice.

In 1992 the Committee on the Financial Aspects of Corporate Governance defined "corporate governance" as the "system by which companies are directed and controlled" (Cadbury, 1992). Within this system the board needs to balance the often conflicting expectations of various stakeholders and as such has been described by Sir Adrian Cadbury as the "bridge between the providers of capital and executives who put the capital to work" (Cadbury, 2000: p. 8). He goes on to add that corporate governance "therefor focuses on the board" (Cadbury, 2000: p. 8). Since the work of Sir Adrian Cadbury and his committee, a large body of reference material on corporate governance and boards has been accumulated. Included in this body of knowledge is extensive research output, codes of best practice and best practice notes. In addition there is also extensive legislation and regulation.

Notably, although corporate governance principles apply to all company forms, the attention of researchers and regulators has been concentrated on publicly traded

companies (Cadbury, 2000). This has resulted in a shortage of research literature dealing with privately owned non-publicly traded companies. As this study is concerned with firms in the "zone of insolvency", attention is concentrated on literature focusing on firms suffering financial distress of which there is much less available.

6.1.3 Boards and Directors across the Boundary of Financial Distress

A study (Dahya et al., 2008) that analysed the relationship between corporate value and board composition in 22 countries found that performance was positively correlated with the fraction of independent directors on the board and that this relationship is stronger in countries with weaker legal shareholder protection. This is consistent with the argument that in countries with weak law, some corporate governance mechanisms adapt to act as substitutes for legal rules (La Porta et al., 2000). It has also been shown by other researchers that various corporate governance characteristics of firms, financial distress and the survival chances of firms in distress can be correlated (Azeez, 2015; Brédart, 2014; Platt and Platt, 2012; Abatecola et al., 2011; Fich & Slezak, 2008; Jaikengkit, 2004). Specifically the number of independent directors is positively correlated with financial health and solvent companies tend to have larger boards (Platt & Platt, 2012).

The discussion on agency theory in Section 6.1.1 identifies monitoring activities as one of the drivers of agency costs. It can thus be argued that this is a prime responsibility of the board and as a distressed firm's governance characteristics affects its possibility of bankruptcy (Fich & Slezak, 2008) monitoring activities are key in avoiding financial distress. It has also been argued that smaller boards with a higher proportion of outside directors along with larger ownership stakes by inside directors are more successful in avoiding bankruptcy once distress is identified (Fich & Slezak, 2008). This is consistent with the view that greater board independence and diversity amongst directors supports the prevention of distress (Azeez, 2015; Brédart, 2014; Platt and Platt, 2012; Abatecola et al., 2011; Fich & Slezak, 2008; and Jaikengkit, 2004) and that a larger, more functionally diverse group can increase creativity (Brunninge et al., 2007: p. 298). This could balance the dominant influence of management with concentrated equity holdings. It is

also noted that most previous studies in this field are based on firms centred in the US economy (Jaikengkit, 2004).

The work of Jaikengit (2004) on Thai financial institutions showed two interesting factors of corporate governance as ex-ante early warning prediction of financial distress. These two factors are 1) board independence and, 2) ownership structure described as ex-ante indicators of financial distress as shown in Figure 6.2.
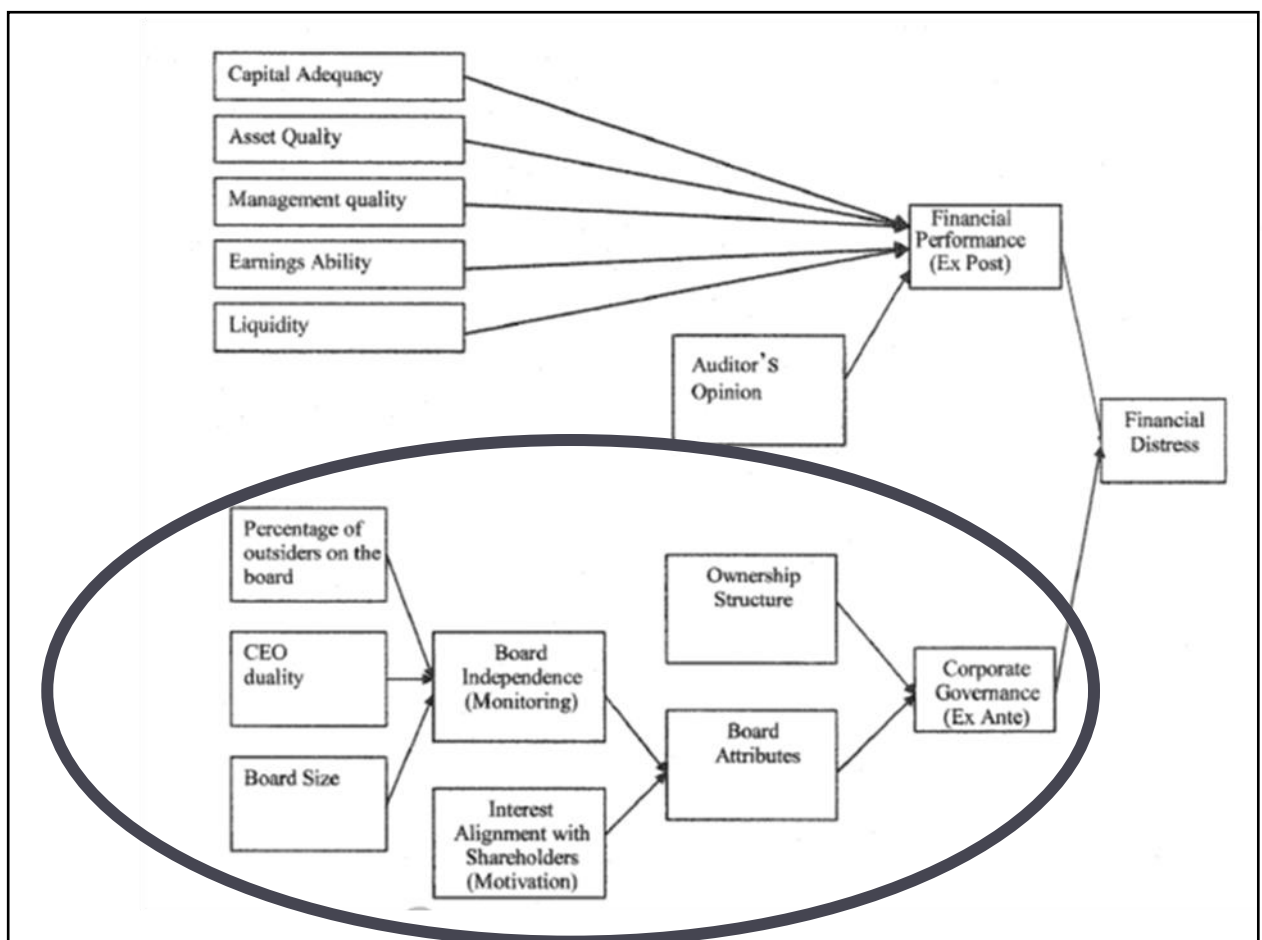
Figure 6.2:   Early Warning Indicators and Financial Distress

Jaikengit's (2004) findings – supported by the work of Azeez (2015), Brédart (2014) and Platt and Platt (2012) – lend support to the view that conventional

corporate failure and bankruptcy models based largely on financial ratios can be significantly enhanced by consideration of the corporate governance factors including board attributes, pertaining to an individual company. Albeit that they may have used slightly different terminology, and have slightly different findings, all of these researchers identified the vairables, board size (number of directors), board independence (number of independent directors) and CEO duality as being important enough to include in their research studies.

Similarly, this research is concerned with the board attributes and ownership structures that impact on corporate governance for private firms in financial distress. In addition, a view that is significant to this research is that all firms experience decline at some time and these attributes have a significant bearing on the turnaround potential of a firm in financial distress. Thus this research can provide additional insight to the findings of Jaikengit (2004) in that his study dealt with Thai financial institutions based on "data obtained from the Stock Exchange of Thailand (SET) and the Bank of Thailand (BOT)" (Jaikengkit, 2004: p. 95) and this study has researched privately owned companies drawn from a variety of industries thereby adding to the research of Jaikengkit (2004), Azeez (2015), Brédart (2014), and Platt and Platt (2012).

> *"Understanding corporate failure, financial distress and turnarounds has been compared to – A Blind Man in a Dark Room Looking for a Black Cat That Is Not There."*
> *–Anonymous*

Shining a light into the darkened room in order to find the black cat is like investigating the complex multidimensional nature of financial distress and can be aided by firstly considering existing research that has been carried out followed by combining said research into a conceptual research model. Further understanding can be achieved by articulating a number of hypotheses that attempt to further explain relationship and dynamics of the model. The next chapter of this thesis is devoted to 1) summarizing the literature that has been discussed in Chapters 4 to 6, 2) presentation of a conceptual research model and 3) articulation of a number of hypotheses pertaining to the model.

7   LITERATURE SUMMARY, CONCEPTUAL RESEARCH MODEL AND HYPOTHESES

LITERATURE SUMMARY, CONCEPTUAL RESEARCH MODEL AND HYPOTHESES	7.1	THE ZONE OF INSOLVENCY	
	7.2	CORPORATE FAILURE AND BANKRUPTCY PREDICTION	
	7.3	AGENCY THEORY, CORPORATE GOVERNANCE, DIRECTORS AND BOARDS	
	7.4	TURNAROUNDS, BUSINESS RESCUE AND RECOVERY	
	7.5	CONCEPTUAL RESEARCH MODEL AND HYPOTHESES	
		7.5.1	Conceptual Research Model
		7.5.2	Hypotheses
	7.6	CONCEPTUAL RESEARCH MODEL AND HYPOTHESIS TESTING	

To close this literature study a summary is presented of the key aspects of each of the focus areas above, namely;

- The Zone of insolvency

- Corporate failure and bankruptcy prediction

- Corporate governance, agency theory, boards and directors

- Turnarounds business rescue and recovery.

This is then followed by the conceptual research model and the research hypotheses.

7.1 THE ZONE OF INSOLVENCY

For the purposes of this study the importance of the zone of insolvency may be summarized as follows:

- For companies in the zone of insolvency it is argued that the fiduciary duties of directors, expands to include creditors as they may be considered the rightful residual claimants at that point.

- In privately owned companies, where shareholders and management are the same people, an agency relationship may not exist. In such circumstances, the key driver for sound corporate governance principles may be absent, resulting in lack of independent oversight and controls.

- When faced with the prospect of loss, management may be inclined to be unreasonably risk seeking at the expense of creditors and other financiers.

7.2 CORPORATE FAILURE AND BANKRUPTCY PREDICTION

Although failure has been described as a phenomenon that lacks definition (Pretorius, 2008, 2009) for the purposes of this study we have used the definition of "financial distress" as described in the new Companies Act (*Companies Act 71*

of 2008, 2011) (RSA, 2008) where "financial distress" is defined in Ch. 6 Sect 128 (f).

"Financially distressed" – in reference to a particular company at any particular time, means that:

> (iii)   it appears to be reasonably unlikely that the company will be able to pay all of its debts as they fall due and payable within the immediately ensuing six months; or

> (iv)   it appears to be reasonably likely that the company will become insolvent within the immediately ensuing six months. (*Companies Act 71 of 2008*, 2011 Sect 128 (f)).

Using this definition enables one to classify a firm as distressed or non-distressed but does not help much in terms of understanding some of the antecedent characteristics prior to distress.

Reaching an opinion in this regard involves a complex and multidimensional assessment (Balcaen & Ooghe, 2006) which suggests that a wide range of bankruptcy prediction and corporate failure assessment models may be particularly (or not) suited to the management of the risk of financial distress as a complex multi-dimensional problem. The range of assessment techniques may be quantitative or qualitative and located on a continuum with pure modelling existing on the one extreme and pure judgement located at the opposite extreme (Brown & Moles, 2004).

Research on failure and bankruptcy prediction has resulted in a predominance of classic cross sectional statistical approaches (Balcaen & Ooghe, 2006) and although these quantitative models serve a very good purpose they have a range of limitations (Balcaen & Ooghe, 2006). Most notably they are retrospective, (ex-post) and if it is conceivable to assess characteristics indicative of the borrower's future actions (ex-ante) the assessment of the possibility of bankruptcy or future distress may be enhanced. Furthermore other studies have argued the merit of non-financial variables including understanding the board composition, delays in reporting results and any audit qualification or reportable irregularity (Bollen et al., 2005) as a way of understanding the probability of failure in ways that may not be evident in reported financial variables.

Non-financial variables are evident in the behavioural model of Argenti (1976) which identifies the top three predictors of financial distress as:

1. The Chief executive is an autocrat

2. Chief Executive also holds position of Chairman and

3. A passive board of Directors.

His model also includes a weak finance director, old directors, and poor management in lower levels of the management structure as other observed variables but these have a much lower weighting than the first three.

In summary there are three observations on the review of corporate failure and bankruptcy literature that are most significant.

1. Although the quantitative models of failure and bankruptcy are valuable they also have limitations. One of which is the almost exclusive reliance on financial statistics which are historical and leads to the ex-post properties of these models.

2. The predictors identified by Argenti (1976) may be seen as ex-ante properties and although it is risky to infer causality some intuitive correlation seems to be evident.

3. The predictors identified by Argenti (1976) bear a remarkable similarity to some of the principles contained in the South African KING III corporate governance report (IoD, 2009) and the UK corporate governance Combined Code (Council & Britain, 2003).

Although Argenti's (1976) work and publication of the South African and UK codes is separated by close to 30 years it does suggest that the ex-post limitations of the most popular approach to understanding corporate failure and bankruptcy may be eased by further research into the links between corporate governance, particularly boards and directors and corporate failure, bankruptcy and turnarounds.

7.3 AGENCY THEORY, CORPORATE GOVERNANCE, DIRECTORS AND BOARDS

"Corporate governance is about the exercise of power over corporate entities" is a clear statement made by Robert Tricker (1978: p. 1) who is accredited with being the first to use the term "corporate governance". Yet scholars still struggle to find a universally accepted definition (Vagneur, 2004) and the definitions that do exist are inconsistent (Vagneur, 2004: p. 357). In contrast to the lack of a universal definition it is widely accepted that agency theory is a fundamental foundation (Becker & Strömberg, 2012; Clarke, 2007; Drobetz, Schillhofer, & Zimmermann, 2003; Eisenhardt, 1989; Jaikengkit, 2004; Jensen & Meckling, 1976) for the development of corporate governance constructs with the Board of Directors as the mechanism that balances the demands of various interests (Cadbury, 2000).

As a definition, this study combines the views of these prior scholars as follows: *Corporate Governance is the combination of structure, processes and people who are appointed by the shareholders that through the board of directors result in direct oversight (moderation) of decisions, choices or actions that impact any stakeholders of a company.*

Considering this definition, we can summarise as follows:

- The separation of ownership and control results in corporate governance constructs and agency cost, which are intended to ensure that the conflicting objectives of various economic actors involved with any firm do not compromise the interests and objectives of the owners (Jensen & Meckling, 1976; Shleifer & Vishny, 1997).

- The separation of ownership and control results in agency costs comprising:

   1) monitoring costs incurred by the principal,
   2) bonding costs by the agent and
   3) residual losses (Jensen & Meckling, 1976).

- Monitoring costs incurred by the principal, and bonding costs by the agent may be described as costs of corporate governance.

- Residual losses, are losses to the enterprise owners as a result of management's actions, and may be pecuniary or non-pecuniary in nature and may even be in the form of opportunity cost.

- The monitoring costs and bonding costs are incurred in full by the owner (Jensen & Meckling, 1976).

- Although most firms in the world including some of the largest are privately owned (La Porta, Lopez-de-Silanes & Shleifer, 1999) corporate governance research has tended to focus on large publicly traded companies (Cadbury, 2000) due to their high visibility.

- In small privately owned firms the owner or part owner often hold senior management positions (Abor & Adjasi, 2007) and in other privately owned firms:

    > controlling shareholders often have control rights in excess of their cash flow rights, banks do not often exercise much control over firms as general shareholders, and other large shareholders are usually not there to monitor the controlling shareholders (La Porta et al., 1999: p. 505).

- In privately owned firms, shareholders are often expected to provide personal guarantees for any credit extended or funding provided (White, 2016). These guarantees reinforce the notion that shareholders of private companies see the company as an extension of their personal wealth and their decisions may well be motivated to pursue their own interests and drive personal utility maximization rather than serve the interest of the firm. This is no more vividly evident than when a firm is in the zone of insolvency and the personal guarantees provided by shareholders are not visible to other creditors.

- The concentration of equity held by an individual (shareholder) will determine the level of influence that they can wield by exercising their voting rights.

- The full extent of agency costs is carried by the equity owners (shareholders). Thus, where ownership is highly concentrated and executive management positions are held by shareholders with significant holdings, monitoring costs as a result of corporate governance may be kept low. This is likely to be evident in a smaller board with limited diversity and limited independence. In extreme cases, one could expect the board to consist only of shareholders

with no independent members. In this circumstance, it may be argued that no separation of ownership and control (agency relationship) exists and thus limited corporate governance activity is in keeping with agency and corporate governance theory.

- It has been argued that agency cost increases as the degree of external funding of a firm increases (Jensen & Meckling, 1976). For circumstances described in the previous point one may query the validity of this view as follows. If the majority of funding has been sourced in the form of short- or long-term debt from external sources such as banks or trade credit providers, then for Jensen & Meckling's (1976) point to hold true, we could expect to see a greater incidence of monitoring and control costs in the form of board independence, diversity and size. Yet, as the cost is carried by the shareholders that simultaneously occupy management positions, they may not be motivated to incur these increased costs.

- Financial distress and the survival chances of firms in distress can be correlated with board characteristics (Abatecola et al., 2011; Fich & Slezak, 2008; Jaikengkit, 2004). Specifically, it has been shown that the number of independent directors is positively correlated with financial health and solvent companies tend to have larger boards (Platt & Platt, 2012).

7.4 TURNAROUNDS, BUSINESS RESCUE AND RECOVERY

Companies rarely fail suddenly. Failure generally occurs over a period of time and it has been argued it could take up to five years. It has also been argued that most companies experience some form of distress but not all companies fail. Previous studies have identified significant factors that are evident in companies that experience distress and successfully turnaround (Smith & Graves, 2005; and Trahms et al., 2013). It has also been noted that "both adherence to corporate governance standards and better disclosure of non-compliances lead to less information asymmetry and facilitates monitoring of potential self-interested behaviour" (Arcot & Bruno, 2011: p. 21). Considering this and the other literature described previously we have for the purposes of this research summarized as follows:

- Severity of distressed state, size of business and amount of unencumbered assets were identified as significant turnaround factors by Smith and Graves (2005).

- Trahms et al. (2013) argued that the response factors described as management cognition, strategic leadership and stakeholder management influence the turnaround outcomes of financially distressed businesses.

- Behavioural economics literature suggests that when individuals are faced with the prospect of loss they may become risk seeking as opposed to the more generally accepted view of the rational man being risk averse (Kahneman & Tversky, 1979).

- In financially distressed businesses that are privately owned and where management owns a concentration of equity it is possible to speculate that risk seeking behaviour may result in: 1) a delay in management cognition of the problem, ineffective strategic leadership, ineffective stakeholder management leading to 2) increased severity of distress and less unencumbered assets.

- According to Smith and Graves (2005) executive turnover is a key factor of successful turnaround. In privately owned firms in financial distress where a high fraction of equity is owned by management, decisive action in this regard may be unlikely.

- It is also possible to argue that for privately owned businesses that are financially distressed better corporate governance standards and better disclosure may lead to less information asymmetry and may result in a lower potential for conflicts of interest as a result self-interested behaviour (Arcot & Bruno, 2011).

- The ultimate measure of any turnaround or business rescue is the return to creditors.

7.5 CONCEPTUAL RESEARCH MODEL AND HYPOTHESES

Predicting a firm's future performance purely by considering characteristics of financial nature is shown to have limitations. The limited flexibility of accepted quantitative approaches supports consideration of other expert approaches (Dimitras, Zanakis, & Zopounidis, 1996). It has also been noted that concentrated ownership and corporate governance activities, have been identified as main

factors contributing to Thailand's financial sector crisis in 1997 (Jaikengkit, 2004). Therefore, a deeper understanding of how agency and corporate governance theory present for a firm in the zone of insolvency could lead to enhanced early warning systems and more effective early remedial action.

In this regard it may be hypothesized that for privately owned firms in the zone of insolvency a number of characteristics exist, namely;

- High concentration of equity holders in management positions may result in delayed cognition of financial distress and delayed action to alleviate the distressed position. It may, therefore, be argued that for a firm that has crossed the boundary of financial distress this will lead to a reduced turnaround potential of the firm.

- High concentration of equity holders in management positions correlates negatively with board independence.

- High concentration of equity holders in management positions correlates negatively with board size.

- High concentration of equity holders in management positions is likely to result in an increase in CEO duality.

- Contrary to what corporate governance theory suggests, in privately owned firms in the zone of insolvency, agency cost represented by board size, board independence correlates negatively with the ratio of external funding. Furthermore, the incidence of CEO duality is likely to increase.

- The likelihood of a smaller board, limited board independence and increased likelihood of CEO duality will limit the moderating influence that the board is intended to have on risky decisions of management.

These characteristics can be represented in the following conceptual model and hypotheses.

7.5.1   Conceptual Research Model

To support the research described in this thesis the conceptual research model shown in Figure 7.1 has been used. The model depicts:

1. A relationship between the fraction of equity owned by management and the turnaround potential of the firm (**Hypothesis 1**).

2. A relationship between the fraction of equity owned by management and board composition (**Hypothesis 2**).

3. A relationship between board composition and turnaround potential (**Hypothesis 3**).

4. A relationship between fraction of funding from external sources and board composition (**Hypothesis 4**).

5. A final relationship between all of the other independent variables of the model and the impact each of them has on the return to creditors, both secured and unsecured (**Hypothesis 5$_A$** and **Hypothesis 5$_B$**).

The detailed hypotheses for each of the relationships depicted in the model are described in Section 7.5.2.
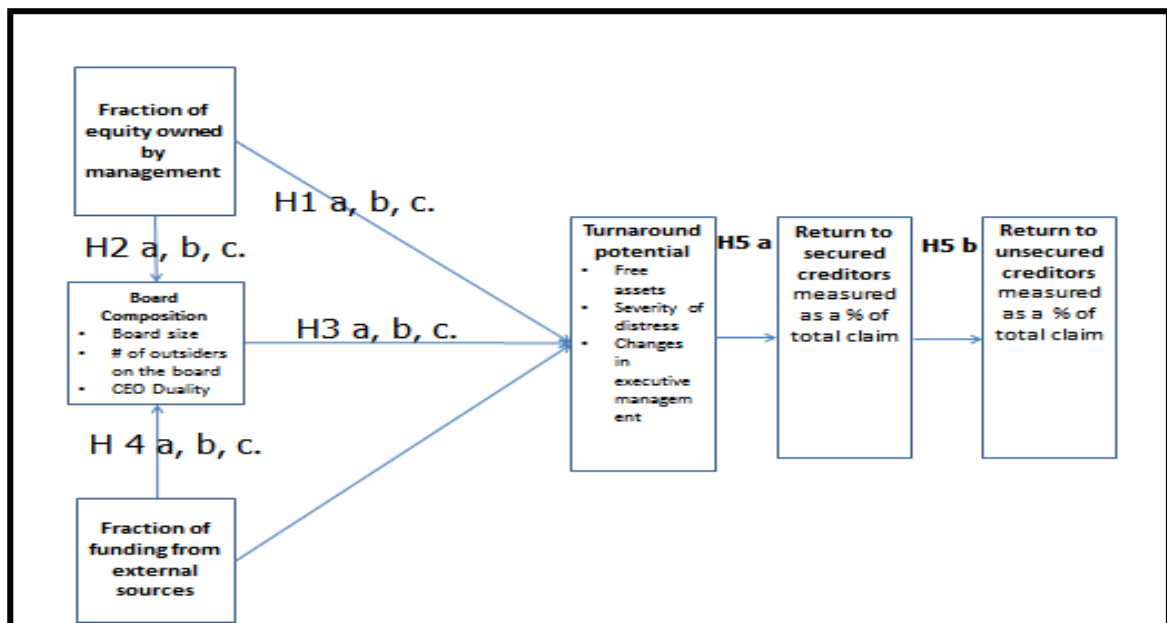
Source: Own compilation.

Figure 7.1:   Conceptual Research Model

7.5.2   Hypotheses

Arresting decline and preventing entry of a firm into the zone of insolvency is dependent on the crucial first step of management recognising and admitting that the firm is distressed (Gopinath, 1991). That this does not happen more frequently has confounded turnaround practitioners and financiers for years.

Through testing the detailed hypotheses that follow, this research intended to show that, for privately owned firms in financial distress, an agency theory approach to corporate governance does not support the likelihood of boards and directors being proactive to early warning signs of distress. Furthermore, as a result of management owning a high fraction of equity, the expansion of fiduciary duty to include creditors and financiers, when in the zone of insolvency, is neglected and decisive action is delayed until the turnaround potential of a firm is severely compromised.

7.5.2.1   Hypothesis 1

Hypothesis 1$_A$ –	In the zone of insolvency, a negative correlation exists between the fraction of equity owned by management and the amount of free (unencumbered) assets available when the firm enters business rescue. In other words, when a firm is in the zone of insolvency the higher the fraction of equity owned by management the lower the amount of free (unencumbered) assets.	
	H 1$_{A0}$ –	In the zone of insolvency no correlation exists between the fraction of equity owned by management and the amount of free (unencumbered) assets.
Hypothesis 1$_B$ –	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between the fraction of equity owned by management and the severity of financial distress. In other words, when a firm is in the zone of insolvency the higher the fraction of equity owned by management the greater severity of financial distress before decisive action (application for business rescue) is taken.	
	H 1$_{B0}$ –	In the zone of insolvency no correlation exists

		between the fraction of equity owned by management and the severity of financial distress at the point in time when decisive action is taken by management.
Hypothesis 1$_C$ –	At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between the fraction of equity owned by management and prior executive management turnover. In other words, when a firm is in the zone of insolvency the higher the fraction of equity owned by management the lower the amount of executive management turnover.	
	H 1$_{C0}$ –	In the zone of insolvency no correlation exists between the fraction of equity owned by management and the amount of executive management turnover at the point in time when decisive action is taken by management.

7.5.2.2 Hypothesis 2

Hypothesis 2$_A$ –	At the point in time when decisive action is taken by management in the zone of insolvency the higher the fraction of equity owned by management the smaller the board.	
	H 2$_{A0}$ –	In the zone of insolvency no correlation exists between the fraction of equity owned by management and the size of the board.
Hypothesis 2$_B$ –	At the point in time when decisive action is taken by management in the zone of insolvency the higher the fraction of equity owned by management the lower the number of outside directors.	
	H 2$_{B0}$ –	In the zone of insolvency no correlation exists between the fraction of equity owned by management and the number of outside directors at the point in time when decisive action is taken by management.

Hypothesis 2_C –	The higher the fraction of equity owned by management, the lower the incidence of separate people fulfilling the CEO and Chairman roles.	
	H 2$_{C0}$ –	In the zone of insolvency no correlation exists between the fraction of equity owned by management and the incidence of separate people fulfilling the CEO and Chairman roles at the point in time when decisive action is taken by management.

7.5.2.3 Hypothesis 3

This set of hypotheses deals with the relationship between the individual variables collectively referred to as board composition and the individual variables collectively referred to as turnaround potential. Each relationship is identified separately and is dealt with as a separate hypothesis.

Hypothesis 3$_{A1}$ –	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between total number of directors on the board and free assets. In other words, when a firm is in the zone of insolvency the higher total number of directors the higher the amount of free assets.	
	H 3$_{A10}$ –	In the zone of insolvency no correlation exists between total number of directors on the board and free assets.
Hypothesis 3$_{A2}$ –	At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between total number of directors on the board and severity of distress. In other words, when a firm is in the zone of insolvency, the higher total number of directors, the better the severity of distress score (Taffler Z-score).	
	H 3$_{A20}$ –	In the zone of insolvency no correlation exists between total number of directors on the board and the severity of distress.
Hypothesis 3$_{A3}$ –	At the point in time when decisive action is taken by management	

		in the zone of insolvency a positive correlation exists between total number of directors on the board and change in top management team (Change in TMT). In other words, when a firm is in the zone of insolvency, the higher total number of directors, the greater the amount of change in the top management team.
	H 3$_{A30}$ −	In the zone of insolvency no correlation exists between total number of directors on the board and the change in the top management team.
Hypothesis 3$_{B1}$ −	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between number of independent directors on the board and free assets In other words, when a firm is in the zone of insolvency, the higher number of independent directors, the greater the amount of free assets.	
	H 3$_{B10}$ −	In the zone of insolvency no correlation exists between total number of independent directors on the board and the free assets.
Hypothesis 3$_{B2}$ −	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between number of independent directors on the board and severity of distress (Taffler Z-score). In other words, when a firm is in the zone of insolvency, the higher number of independent directors, the better the severity of distress score (Taffler Z-score).	
	H 3$_{B20}$ −	In the zone of insolvency no correlation exists between total number of independent directors on the board and the severity of distress score.
Hypothesis 3$_{B3}$ −	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between number of independent directors on the board and severity of distress (Taffler Z-score). In other words, when a firm is in the zone of insolvency, the higher number of independent directors, the greater the possibility of a change taking place in the top management team.	
	H 3$_{B30}$ −	In the zone of insolvency no correlation exists between total number of independent directors on

		the board and the change in the top management team.
Hypothesis 3$_{C1}$ –	At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between CEO duality and free assets. In other words, when a firm is in the zone of insolvency, the greater the occurrence of CEO duality, the lower the value of free assets.	
	H 3$_{C10}$ –	In the zone of insolvency no correlation exists between CEO duality and free assets.
Hypothesis 3$_{C2}$ –	At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between CEO duality and severity of distress (Taffler Z-score). In other words, when a firm is in the zone of insolvency, the greater the occurrence of CEO duality, the worse the severity of distress.	
	H 3$_{C20}$ –	In the zone of insolvency no correlation exists between CEO duality and severity of distress.
Hypothesis 3$_{C3}$ –	At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between CEO duality and turnover of the top management team (TMT change). In other words, when a firm is in the zone of insolvency, the greater the occurrence of CEO duality, the lower the turnover of the top management team.	
	H 3$_{C30}$ –	In the zone of insolvency no correlation exists between CEO duality and turnover of the top management team.

7.5.2.4   Hypothesis 4

This set of hypotheses deals with the relationship between the variable fraction of external funding and the individual variables collectively referred to as board composition. Each relationship is identified separately and is dealt with as a separate hypothesis.

Hypothesis 4A –	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between the fraction of external funding and number of directors on the board. In other words, when a firm, is in the zone of insolvency the higher the fraction of external funding, the higher the number of directors on the board.	
	H 4A0 –	In the zone of insolvency no correlation exists between the fraction of external funding and the number of directors on the board.
Hypothesis 4B–	At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between the fraction of external funding and number of independent directors on the board. In other words, when a firm is in the zone of insolvency the higher the fraction of external funding the higher the number of independent directors on the board.	
	H 4B0 –	In the zone of insolvency no correlation exists between the fraction of external funding and the number of independent directors on the board.
Hypothesis 4C –	At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between the fraction of external funding and CEO duality. In other words, when a firm is in the zone of insolvency the higher the fraction of external funding the lower the incidence of CEO duality.	
	H 4C0 –	In the zone of insolvency no correlation exists between the fraction of external funding and the incidence of CEO duality.

7.5.2.5   Hypothesis 5

It has been argued in this thesis and elsewhere, that for a firm in financial distress, creditors become the effective principals because the shareholders have effectively lost their investment and are out of the money. As a consequence,

these creditors are the parties that have the final claim on the residual value of the firm should liquidation and bankruptcy ensue.

The value that these creditors receive in respect of their individual claims is referred to as the return to creditors and is generally expressed as a percentage or fraction of a Rand or Dollar or other local currency. Thus, measuring the return to creditors is a beneficial way of determining the ultimate impact of the distressed position. It is also conventionally used in practice as a way of motivating between alternative courses of action for firms that have entered a formal turnaround process such as Chapter 6 in South Africa.

There are two principal classes of creditors 1) secured creditors, and 2) unsecured creditors with secured creditors ranking above unsecured creditors in respect of any distribution. Thus, it follows that these two classes are reported separately and it also follows that all other variables discussed in this thesis may have a material impact on the return to both classes of creditors.

The following hypotheses deal with the relationships between all of the independent variables, fraction of equity owned by management, fraction of external funding, board composition and turnaround potential and the dependent variables of return to secured creditors and return to unsecured creditors.

Hypothesis 5$_A$ –	There is a relationship between the independent variables fraction of equity owned by management, fraction of funding from external sources and the return to secured creditors (dependent variable) who have a claim against financially distressed businesses. This relationship is further enhanced by the variables described collectively as board composition and turnaround potential.	
	H 5$_{A0}$ –	There is no relationship between the independent variables, fraction of equity owned by management, fraction of funding from external sources and the return to secured creditors (dependent variable) who have a claim against financially distressed businesses. This

		relationship is not further enhanced by the variables described collectively as board composition and turnaround potential.
Hypothesis 5$_B$ –	There is a relationship between the independent variables fraction of equity owned by management, fraction of funding from external sources and the return to unsecured creditors (dependent variable) who have a claim against financially distressed businesses. This relationship is further enhanced by the variables described collectively as board composition and turnaround potential and the return to secured creditors.	
	H 5$_{B0}$ –	There is no relationship between the independent variables, fraction of equity owned by management, fraction of funding from external sources and the return to unsecured creditors (dependent variable) who have a claim against financially distressed businesses. This relationship is not further enhanced by the variables described collectively as board composition and turnaround potential and the return to secured creditors.

7.6 CONCEPTUAL RESEARCH MODEL AND HYPOTHESIS TESTING

The five hypotheses detailed above in Chapter 7.5.2 are shown in the conceptual research model in Chapter 7.5.1. Each of the hypotheses has been explored and tested by carrying out a correlation and regression analysis. The data for the analysis is secondary data that was extracted from the formal business rescue plans and other business rescue or statutory documents of private firms that had entered formal business rescue.

The research approach followed was quantitative which is in keeping with an objective position and is consistent with the majority of previous research in the field of financial distress and corporate failure. The full research design and methodology that was followed is detailed in Chapter 8.

8 RESEARCH DESIGN AND METHODOLOGY

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8.1 INTRODUCTION

In keeping with, and in order to elaborate on previous research in this field (Altman, 1968; Clarke & Buchanan, 2010; Jaikengkit, 2004; Kiel & Nicholson, 2003; Parker, Peters, & Turetsky, 2002; Smith & Graves, 2005; Taffler, 1984; Trahms et al., 2013), a quantitative research approach that is consistent with an objective position has been utilised. A quantitative approach allowed for the measurement of strength of relationship between the variables described collectively as turnaround potential and the variables; 1) the fraction of equity owned by management and 2) the variables described collectively as board composition (Jaikengkit, 2004) at the time of decisive action (namely, when business rescue is initiated). Secondly a quantitative approach allowed for the measurement of strength of relationship between the variables described collectively as board composition and 1) fraction of equity owned by management, and 2) fraction of external funding provided to the business (Jensen & Meckling, 1976). It was also possible to test for the strength of relationship (Robbins & Pearce II, 1992; Smith & Graves, 2005) between the variables described collectively as board composition and turnaround potential. Finally, a quantitative approach allowed for the development of a regression formula to aid in the assessment of a likely return to creditors as a percentage of their individual claims. These quantitative results should contribute to a deeper understanding of agency theory and corporate governance within privately owned firms across the boundary of financial distress. Furthermore, the findings should in the future make a contribution to the enhancement of credit risk measurement models.

To paraphrase what has already been stated, this study investigated the relationships between equity ownership, fraction of external funding with antecedent board composition and the turnaround potential of privately owned firms that have crossed the boundary of financial distress. In this context it may be argued that financial distress is an objective construct and that it is clearly defined in terms of the companies act (*Companies Act 71 of 2008*, 2011). By applying this definition and by commencing with business rescue the distress is made visible. It can thus be argued that the construct exists external and separate to the social

actors involved. This is consistent with what is described by Saunders, Lewis, & Thornhill (2012) as an objective ontological position and is in keeping with prior research (Abatecola et al., 2011; Altman, 1968; Jaikengkit, 2004; Parker et al., 2002; Taffler, 1983).

8.2 CONCEPTUAL RESEARCH MODEL
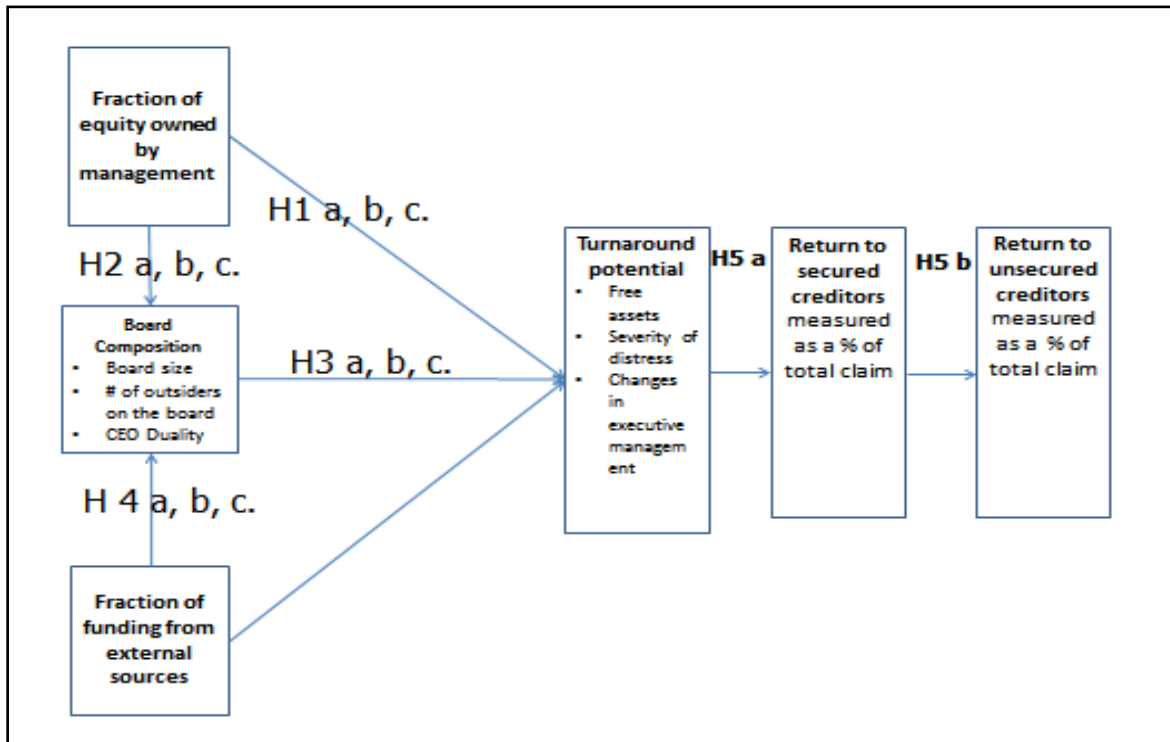
Source: Own compilation.

Figure 8.1:   **Conceptual Research Model**

8.2.1   Hypotheses

Arresting decline and preventing corporate failure or bankruptcy is dependent on the crucial first step of management recognising and admitting that the firm is distressed (Gopinath, 1991; Trahms et al., 2013). That this does not happen more frequently has confounded turnaround practitioners and financiers for years.

Through testing the hypotheses (Chapter 7), this research intended to show that, for privately owned firms in financial distress, an agency theory approach to corporate governance does not support the likelihood of boards and directors

being proactive to early warning signs of distress. Furthermore, as a result of management owning a high fraction of equity, the expansion of fiduciary duty to include creditors and financiers, when in the zone of insolvency, is neglected and decisive action is delayed until the turnaround potential of a firm is severely compromised. The final Hypothesis (**H 5**) intended to show that the combination of these factors results in an overall detrimental position for creditors and that the return to creditors as the ultimate measure of distress is adversely affected.

8.3 RESEARCH SETTING – SOUTH AFRICA

At the turn of this century (circa 2003) South Africa, Algeria and Egypt contributed approximately 60 % of Africa's GDP (Rossouw, 2005) with South Africa generating close to 40 % of the Sub-Saharan income (Vaughn & Ryan, 2006). More recently, although Nigeria is shown as the number one economy in Africa, South Africa is still shown as number two ("Nigeria: Africa's new Number One", 2014). In addition to the economic influence of South Africa, the country boasts a regulatory and institutional framework that supports the enforcement of good corporate governance (Rossouw, 2005). Central to the South African regulatory and institutional framework is the King Report on Corporate Governance for South Africa (Institute of Directors of South Africa [IoDSA], 1994, 2002, 2009) which has been instrumental in the shaping of codes of corporate governance practice for other African countries (Rossouw, 2005):

> The tone and example set in the first and second King reports found strong and often explicit support in the other national codes produced in Africa (Rossouw, 2005: p. 98).

and the codes deliberately emphasise enterprise as opposed to regulatory level corporate governance (Rossouw, 2005). Additionally South Africa instituted a new companies act on 1 May 2011 (*Companies Act 71 of 2008*, 2011) (RSA, 2008) which includes provision for the rehabilitation of financially distressed companies via a business rescue mechanism in "Chapter 6 Business Rescue and Compromise with Creditors".

The Companies Act 71 of 2008 commenced and was signed into law by the President of South Africa on 1 May 2011 (RSA,2008). Often referred to as the "new Companies Act", it repealed the Companies Act of 1973 (Act 61 of 1973) and

made amendments to the Close Corporations Act of 1984 (Act 69 of 1984). It was amended by the Companies Amendment Act 3 of 2011 – 26 April 2011 (RSA, 2008). *Inter alia* as described in the preface to the new Companies Act, the Act provides for the definition of the "relationships between companies and their respective shareholders or members and directors" and further provides for "efficient rescue of distressed companies".

The introduction of the new Companies Act (RSA, 2008) revealed two distinguishing features that are relevant to this research. The first feature is the codification of the standards of conduct of directors in Section 76. It was noted by Wixley and Everingham (2010), that the act, for the first time, sought to give some common law principles statutory force. The second distinguishing feature that is relevant to this research is the provision for the rescue of distressed companies prior to liquidation through the remedy of Business Rescue as described in the new Companies Act Chapter 6 – Business Rescue and Compromise with Creditors.

The codification of common law duties of Directors is set out specifically in Section 76(3) which stipulates that directors must exercise their powers:

- In good faith and for proper purpose

- In the best interests of the company

- With the degree of care skill and diligence that may reasonably be expected of a person carrying out the same functions in relation to the company as those carried out by that director and having the general knowledge skill and experience of that director.

Wixley and Evringham (2010) argue that the third point introduces a stringent duty of competence on directors to ensure that they are suitably experienced and qualified. This requirement is eased somewhat by Section 76(4) which provides for a business judgement rule allowing for fulfilment of the points above providing that the director has taken reasonable steps to be informed about the matter at hand, has no personal material interest in the outcome and has a rational basis for believing the decision was in the best interests of the company.

For companies approaching or in the zone of insolvency Chapter 6 of the Companies Act and the formal assessment of distress by a company's board of directors was intended by the legislators to provide for early action. Thereby maximising the likelihood of a return to creditors, employees and the company itself (Levenstein 2016: p. 305).

In 2009 the King III (IoDSA, 2009) report was published as the third edition of a voluntary code of best practice. The introduction to the report states that the third report became necessary due to the new companies act and changes in international governance trends. A central theme of King III is that of "apply or explain" which is interpreted as applying the principles of King III where it is sensible to do so. If they are not applied, then an explanation for the decision is required. Although King III is a voluntary code it has been adopted as a listing requirement of the Johannesburg Stock Exchange (JSE, 2013) Section 3.84 of the JSE Limited Listing Requirements document.

Chapter 2 of King III deals with the role of Boards and Directors and, under Principle 2.14, describes how the board and directors should act in the best interest of the company. King III goes on in Principle 2.15 to describe how boards and directors should behave when a company is financially distressed. It states specifically that the board must monitor on a continual basis whether the company is able to pay all of its debts when they become due and payable. The board must also monitor whether the company meets the definition of being financially distressed which is defined in Section 128 (f) of the new Companies Act.

Section 7 of the new Companies Act defines the purposes of the act and states in Section 7(i) that it intends to "balance the rights and obligations of shareholders and directors within companies." In Section 7(k) the Act goes on to "provide for the rescue and recovery of financially distressed companies in a manner that balances the rights and interests of all relevant stakeholders."

The purpose as described in Section 7(k) has been addressed by the court in *Shoprite Checkers (Pty) Ltd vs Berry Plum Retailers cc and Others*, wherein Judge Tuchten specifically noted that, "the interests of creditors, whose own money is at risk, are predominant" (Levenstein, 2016: p: 522). This is consistent

with the view that in the zone of insolvency, creditors in fact adopt the position of a principal. It may also be argued that it leans toward the view as expressed in Tung (2006) and Barondes et al.'s (2007) work that the fiduciary duty of directors expands to include creditors when a company is in the zone of insolvency.

The rather unique combination of these factors makes South Africa a very fertile domain for researching agency theory, corporate governance and financially distressed businesses. Therefore, the population, from which a sample was selected for this research was, privately owned financially distressed businesses domiciled in South Africa.

8.4   RESEARCH DESIGN / STRATEGY OF ENQUIRY

A quantitative methodology was utilised for this study. Secondary data were used as the basis for analysis. This secondary data consisted of financial and other statutory data extracted from business rescue plans or other business rescue documents published as part of a company's business rescue process. A summary of the data collected and investigated is recorded in Table 8.2 (Independent Variables) and Table 8.3 (Dependent Variables). Additional inform-ation in respect of board composition was drawn from the official company records of directors held by the CIPC.

8.5   RESEARCH TYPE

The literature review in Chapters 5 and 6 and summary in Chapter 7 presents theoretical aspects that may not be reflected in the real world. An example of this is that in an expanded theory of the firm (Jensen & Meckling, 1976) it is suggested that, as the fraction of funding by external funding providers grows, then so does the total agency cost grow. Yet, in privately owned firms where management owns a large proportion of equity, the fact that all agency cost is carried by the owners of equity could result in monitoring and controlling activities being kept to a minimum in order to reduce the agency cost borne by equity owners.

These aspects and other observations in the literature summary are reflected in the conceptual research model in Section 7.5.1 and hypotheses in Section 7.5.2.

These themes and phenomena were explored in the real world using quantitative techniques.

According to Saunders et al. (2012) deductive reasoning starts with theory and moves to testing the theory developed. Alternatively one can "confirm, disconfirm or build upon existing theories" (Dyer & Wilkins, 1991). It follows that this research has adopted a deductive approach in that a conceptual research model and hypotheses have been developed based on the literature review. The model and hypotheses have been explored using quantitative techniques.

This research explored board composition, a key corporate governance feature, based on agency theory for privately owned firms faced with the onset of financial distress as a boundary condition. In other words, the relevance and application of agency theory based corporate governance within the boundary that distinguishes financial health from the zone of insolvency is different to the relevance and application of the same theory beyond this boundary. Exploration was extended to investigate the extent to which return to creditors is impacted.

The research was archival research with the principal source of data being administrative records and documents. The data are by definition secondary data as they consist of data originally collected for a different purpose, namely the administration of the respective organisations. This data may be described as the product of the day-to-day activities of each respective organisation and thus may be viewed as being representative of the reality studied (Hakim, 2000).

To support generalisability of the findings of this research it is noted that this research is a cross-sectional study and is consistent with previous research conducted by some of the most impactful scholars in the fields of distress, bankruptcy and turnarounds (Altman, 1968; Balcaen & Ooghe, 2006; Parker et al., 2002; Taffler, 1982). It is the study of themes at the same point in time for each respective organisation. The point in time is the date of business rescue initiation.

8.6 RESEARCH PARADIGM

The ontological position of a researcher has been described as locating on a continuum with the one end point being objectivism and the other subjectivism (Saunders et al., 2012). Distressed businesses, bankruptcy prediction and business rescue are inherently measured quantitatively (Balcaen & Ooghe, 2006) and in general have been researched from a position of objectivism. Extant research could also largely be described as comprising reductionist, logical, empirical and deterministic with a cause-and-effect orientation that is grounded in existing theories.

This study concerns itself with identifying certain antecedent attributes of the firm and testing for relationship with other attributes present at business rescue initiation. This approach tends to reflect the view that "social entities exist in reality external to and independent of social actors" (Saunders et al., 2012: p. 131).

However, it should also be noted that the conceptual research model has been informed by constructs that may tend towards subjectivism (for example, prospect theory, framing effects and decision making under circumstances of risk) (Kahneman & Tversky, 1979; and Tversky & Kahneman, 1986). From an objective position, it is recognised that ideally research is value free, the researcher is independent and an objective stance is adopted. In this respect, the researcher notes that as a result of his role as a licensed Business Rescue Practitioner, he may hold some subjective views in respect of the conceptual research model. Thus, one can conclude that this proposed research adopts a predominantly objective ontological position that may be influenced by subjective views in respect of the conceptual research model.

From an epistemological perspective, the quantitative approach that has been followed, supports a positivist research philosophy in that the conceptual research model includes a number of hypotheses that have been tested. This is consistent with many existing approaches (Balcaen & Ooghe, 2006; Camacho-Miñano et al., 2015; Djerbi & Anis, 2015; Jaikengkit, 2004; Parker et al., 2002; Smith & Graves, 2005) and allows for building on existing theory. Confirmation or rejection of these hypotheses will lead to further development of theory (Saunders et al., 2012). It is common belief amongst researchers of corporate failure that the single biggest factor resulting in failure is the actions and decisions of management.

Therefore, some of the complexity inherent in financially distressed businesses may not be immediately obvious and a rigid positivist approach may limit the generalisability of findings. Thus, to derive the maximum value from this research and to enhance the richness of the findings, an approach of interpretivism has been pursued where appropriate.

As stated previously, this research is predominantly objective and the researcher recognises that his role as a Business Rescue practitioner may introduce some subjective influence. Additionally, the researcher recognises that his personal values in respect to, transparency, congruency and the fair treatment of creditors may play a role in interpreting results. Thus, a pragmatist axiological position is prevalent.

This research may be considered predominantly objective with the intention of bringing about fundamental change through a new perspective on how organisational affairs of privately owned firms may be arranged. In keeping with Burrel and Morgan (1979) this research may thus be viewed as subscribing to an overall radical structuralist paradigm.
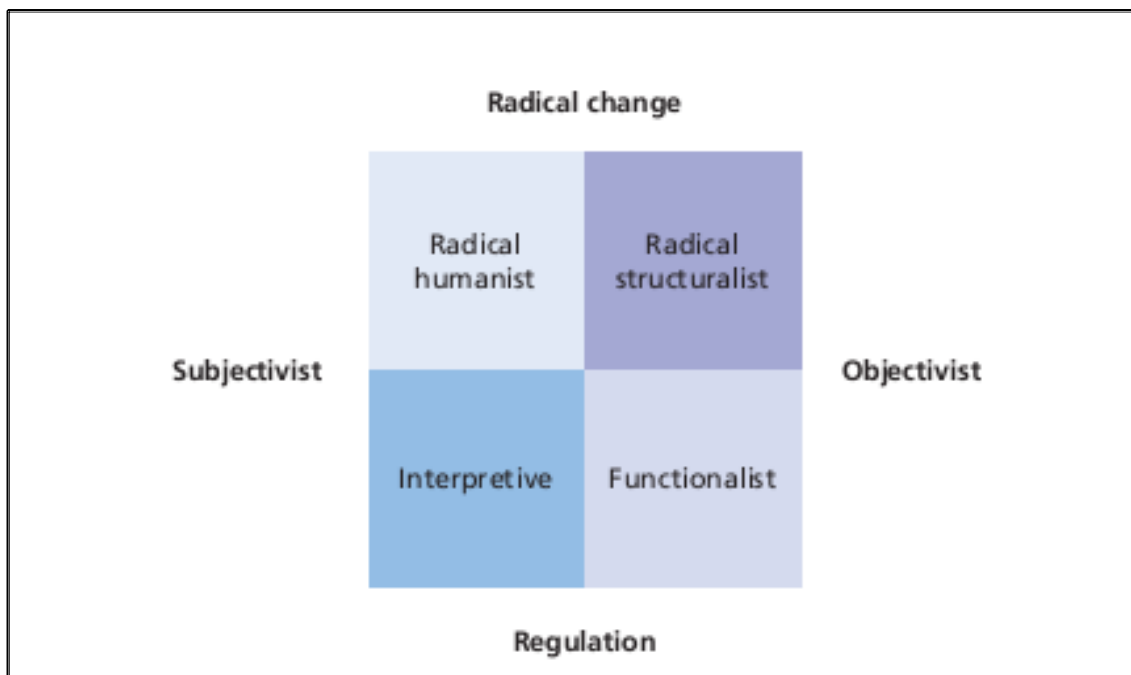
Source: Four paradigms of Social theory (Saunders et al., 2012, p. 141) adapted from Burrell and Morgan (Burrell & Morgan, 1979).

Figure 8.2:   Four Paradigms of Social Theory

8.7 POPULATION AND SAMPLING

The conceptual research model described in Section 7.5.1 hinges on identifying the boundary condition described as the point when a firm enters the zone of insolvency. This research uses the definition of financial distress as contained in Ch 6 of the new Companies Act, and recognises that filing for business rescue signals two features; 1) formal recognition of distress and 2) the point at which decisive turnaround action is taken. Thus, the sampling frame for this research consists of the entire population defined as all private companies and close corporations that made valid filings for business rescue and where such filing was not declared a nullity between the period of 01 May 2011 and 30 June 2016[3].

8.7.1 Sample

Data were gathered for a total of 127 cases. The data were sourced from official business rescue documents, company records, business rescue plans, minutes of creditors meetings and legal affidavits. Each of the cases was reviewed for suitability for inclusion in the final sample set that was analysed.

The first step in extracting the data was to interrogate the contents of each case to ensure that the data in respect of each of the variables in the research model could be extracted. Each case was also interrogated to ensure that only privately owned companies were included in the final sample. No attempt was made to classify the cases by industry as there is no generally accepted standard classification method for private companies in South Africa. For example, a company that is described as a property company could be a property owner, a property developer, a construction company or a combination of all three. Even though it was not possible to accurately and consistently classify each case, an industry descriptor was recorded for each case. Consequently, at least 28 different types of businesses were identified, including but not limited to, retail, wholesale, manufacturing, services, automotive, transport, mining, restaurant, warehousing and transport.

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[3] Close corporations are an outdated legal business form in South Africa and they are regulated in exactly the same way as private companies. So, for the purposes of this research they will be treated in the same way as private companies (*Companies Act 71 of 2008*, 2011) (RSA, 2008) .

This resulted in:

- 6 Cases being discarded for having public company shareholders,

- 17 Cases being discarded for having unreliable or incomprehensible financial data.

- 21 Cases had incomplete board information in the business rescue records. In these cases, the data were drawn from public records of CIPC which is the regulator of all companies in South Africa.

Table 8.1: Make-up of Sample Studied

	Description	Quantity (N)
1	Total cases reviewed	127
2	Cases with incomplete or incomprehensible financial data	17
3	Cases with public company shareholders	6
4	**Nett number of cases (n) included in analysis**	**104**

8.8 UNITS OF ANALYSIS

The unit of analysis was the privately owned financially distressed firm.

8.9 DATA COLLECTION METHODS

The data required for this research are all of a secondary nature and have been extracted from the standard reports of the selected cases (Altman, 1968; Jaikengkit, 2004; Jensen & Meckling, 1976; Parker et al., 2002; Smith & Graves, 2005; Taffler, 1983). For companies in business rescue the relevant financial reports are available in at least two places, 1) as part of the background presented at the first meeting of creditors and distributed to affected parties in advance of the meeting or as part of the minutes of the meeting and, 2) as part of the financial

information contained in any published business rescue plan (Pretorius & Rosslyn-Smith, 2014) as required in Chapter 6 s 150 (1) (a) of the new Companies Act.

There is no comprehensive database of business rescue information to which a researcher can turn. So, to draw a sample using strict random sampling techniques would not have been successful. However, it was possible to achieve a representative sample by approaching various entities namely;

1. Commercial entities who are exposed to, and engage regularly with distressed businesses and are included as an affected party as defined in Chapter 6 of the new Companies Act.

    a. Providers of credit insurance such as:

        i. **Credit Guarantee** http://www.creditguarantee.co.za/

        ii. **Marsh** http://africa.marsh.com/CountrySites/SouthAfrica/Home.aspx

        iii. **Lombards** http://www.lombardins.com/products/short-term-insurance/trade-credit.

    b. Providers of finance. In this case, the large banks operating in South Africa.

2. **University of Pretoria** academics (for example, Prof. Marius Pretorius) who have conducted previous business rescue research.

3. **CIPC** as the regulatory authority.

4. The **Turnaround Management Association** members and business rescue practitioners.

These entities were approached and were requested to share randomly selected copies of Business Rescue Plans on a confidential basis.

8.10 DATA ANALYSIS METHODS

In the conceptual research model illustrated in Figure 8.3, the independent variables are shaded in green and the dependent variables shaded in red.
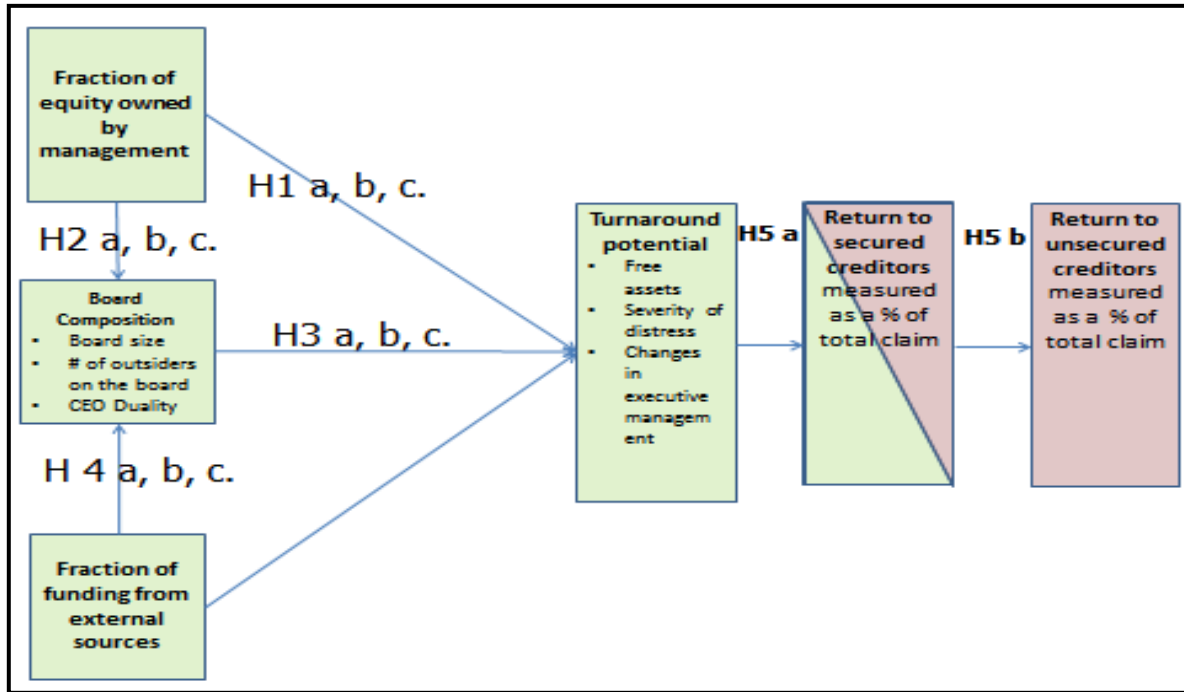
Source: Own compilation.

Figure 8.3:   Conceptual Research Model with Independent Variables Shaded in Green and the Dependent Variables Shaded in Red

Conventional statistical techniques have been used to test for relationship between the independent and the dependent variables as shown in Figure 8.3. The degree of influence that each of the variables has on return to creditors has been investigated by making use of a hierarchical multiple regression analysis where return to creditors is the dependent variable and fraction of equity owned by management, fraction of funding from external sources, board composition and turnaround potential are the independent variables. Each of the variables is described in Section 8.10.1 and Section 8.10.2.

8.10.1 Independent Variables

Table 8.2: Independent Variables

Variable	Definition	Data Attribute
Fraction of funding from external sources	Percentage of total funding provided by non-shareholders and includes bank loans, bank overdrafts (whether short or long term) and trade credit.	Continuous
Fraction of equity owned by management	Percentage of voting rights controlled by management either directly or indirectly via other legal entities such as holding companies or family trusts.	Continuous
Board composition: Number of outsiders (Jaikengkit, 2004)	Number of independent directors on the board.	Continuous
Board composition: CEO Duality (Jaikengkit, 2004)	Separation of the CEO and Chairman of the board role.	Categorical – This has been coded as **1** for cases where the CEO and Chairman are the same person and **2** where the roles are filled by two separate people
Board composition: Board size (Jaikengkit, 2004)	Number of directors on the board	Ordinal
Free assets: (Smith & Graves, 2005)	(Total tangible assets[4] – secured loans) divided by total tangible assets (Smith & Graves, 2005).	Continuous

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[4] "Tangible assets" refer to the fixed and current assets of an organisation which have a "fixed long-run capacity" (Wernerfelt, 1989). This includes cash, bank deposits, plant, machinery, equipment, land, buildings, other capital goods, stock, and debtors (Fahy, 2000).

Severity of distress (Smith & Graves, 2005; Taffler, 1983)	Taffler Z-score z = 3.20 + 2.18 x (Profit before tax/Average current liabilities) + 2.50 (Current assets/Total liabilities) -10.68 x (Current liabilities/Total assets) + 0.0289 x (No credit interval) (Smith & Graves, 2005; Taffler, 1983).	Continuous
Changes in executive management (Burbank, 2005; Hofer, 1980; Trahms et al., 2013)	Percentage of top management team that changed in the 12 months prior to filing for business rescue.	Continuous

8.10.2 Dependent Variables

Table 8.3: Dependent Variables

Variable	Definition	Data Attribute
Return to creditors	It is convention to measure return to creditors as a proportion of the total claim. For instance, a 20 % return would often be referred to as "20 cents in the rand". For the purpose of this research we have standardised on percentage as a decimal (for example, 20 cents in the rand would be 0.2). By adopting this standard, we have controlled for company size and have been able to compare large and small companies on a similar basis. Two categories of creditors have been identified (1) Secured creditors and (2) Unsecured creditors. The return for each has been recorded separately for every case in the sample. Thus, there are two separate variables used in all analyses involving return to creditors. Size has been compared on the basis of Log-Total Assets for each firm (Parker et al., 2002) These data were retrieved from the official documents of the companies entering formal business rescue.	Continuous

8.10.3 Principal Statistical Technique

Table 8.4 shows the technique that was used for each of the hypotheses. In addition to the analysis shown, conventional descriptive statistics have been explored.

Hypotheses 1 to 4 were considered: firstly, from a univariate perspective and then from a multivariate perspective. The univariate analysis was carried out by means of correlations and the multivariate analysis by adding an interaction variable for each hypothesis to two multiple regression analyses; 1) where return to secured creditors was the dependent variable and, 2) where return to unsecured creditors was the dependent variable.

Table 8.4: Principal Technique for Each Hypothesis

Hypothesis	Variables	Variable Attributes	Principal Analysis Technique
H 1$_A$	Fraction of equity owned by management	Continuous	Regression and test of relationship. Pearson's product-moment correlation was run to assess the relationship. In addition a multivariate analysis was carried out by adding an interaction variable (Equity owned by management X Free assets) and using an expanded regression model.
	Free assets	Continuous	
H 1$_B$	Fraction of equity owned by management	Continuous	Regression and test of relationship. Pearson's product-moment correlation was run to assess the relationship. In addition a multivariate analysis was carried out by the adding an interaction variable (Equity owned by management X Severity of distress) and using an expanded regression model.
	Severity of distress	Continuous	

Hypothesis	Variables	Variable Attributes	Principal Analysis Technique
H 1c	Fraction of equity owned by management	Continuous	Regression and test of relationship. Pearson's product-moment correlation was run to assess the relationship. In addition a multivariate analysis was carried out by adding an interaction variable (Equity owned by management X Change in TMT) and using an expanded regression model.
	Changes in executive management	Continuous	
H 2$_{A,B,C}$	Fraction of equity owned by management	Continuous	Regression and test of relationship. Pearson's product-moment correlation was run to assess the relationship. A Point-Biserial correlation was run between the variable CEO duality and other continuous variables. The Point-Biserial Correlation Co-efficient is a correlation measure of the strength of relationship between a continuous-level variable (ratio or interval data) and a binary variable. Binary variables are variables of nominal scale with only two values. The measure of CEO duality meets this definition. In addition a multivariate analysis was carried out by the adding an interaction variable (Equity owned by management X the three individual variables of board composition) and using an expanded regression model.
	Board Composition	Continuous, Ordinal and Categorical	

Hypothesis	Variables	Variable Attributes	Principal Analysis Technique
H 3$_{A,B,C}$	Board Composition	Continuous, Ordinal and Categorical	Regression and test of relationship: Pearson's product-moment correlation was run to assess the relationship. A Point-Biserial Correlation was run between the variable CEO duality and other continuous variables. The Point-Biserial Correlation Coefficient is a correlation measure of the strength of relationship between a continuous-level variable (ratio or interval data) and a binary variable. Binary variables are variables of nominal scale with only two values. The measure of CEO duality meets this definition. In addition a multivariate analysis was carried out by adding an interaction variable (each of the three individual board composition variables X each of the three individual variables of turnaround potential) and using an expanded regression model.
H 4$_{A,B,C}$	Fraction of funding from external sources	Continuous	Regression and test of relationship: Pearson's product-moment correlation was run to assess the relationship. A Point-Biserial Correlation was run between the variable CEO duality and other continuous variables. The Point-Biserial Correlation Coefficient is a correlation measure of the strength of relationship between a continuous-level variable (ratio or interval data) and a binary variable. Binary variables are variables of nominal scale with only two values. The measure of CEO duality meets this definition. In addition a multivariate analysis was carried out by adding an interaction variable (Fraction of external funding X

Hypothesis	Variables	Variable Attributes	Principal Analysis Technique
			the three individual variables of board composition) and using an expanded regression model.
	Board Composition	Continuous, Ordinal and Categorical	
H 5$_{A,B}$	Return to secured creditors and return to unsecured creditors	Continuous	Multiple hierachial regression analysis was carried out. Variables such as size are not the focus of this research but have been recorded in the data set. Size effects have been controlled for in the analysis.
	Turnaround potential	Continuous	

8.11 ASSESSING AND DEMONSTRATING THE QUALITY AND RIGOUR OF THE RESEARCH DESIGN

An idealized view may be that robust research is focused on pursuing the truth while limiting errors. Furthermore understanding the rigour of any particular research project can be achieved by considering the concepts of reliability and validity (Roberts, Priest & Traynor, 2006; Zikmund, Carr, Griffin, & Fuller-Jacobsen, 2010). To this end it may also be argued that the users of the output of research should not be misled by the findings (Roberts et al., 2006).

Saunders et al. (2012) argue that positivist researchers emphasise "reliability, construct validity, internal validity and external validity" while interpretivists prefer "credibility, transferability, dependability and confirmability" (Saunders et al., 2012: p. 192) as the basis for determining the quality and rigour of a research design. This research is founded on a paradigm of radical structuralist with a predominantly objective-positivist orientation supported by a quantitative

approach, thus the concepts of reliability and validity have been used to ensure quality and rigour of the research design.

"Reliability" has been described as a measure of "consistency" (Roberts et al., 2006) it is also generally applied when considering methods and techniques (Denscombe, 2010). In other words, for quantitative research the chosen method should give consistent results when applied by different researchers and when applied at different times. For this research project the statistical techniques are well recognized and proven (Balcaen & Ooghe, 2006) and the definitions of each of the variables defined in Section 8.10.1 and Section 8.10.2. are based on previous literature. Thus, by applying the statistical techniques described to the definitions of the variables observed, output reliability was achieved. The statistical analysis was carried out using the IBM SPSS Ver. 23 statistical analysis software package.

The data required were extracted from each Business Rescue case and captured by the researcher into a data capture sheet (Appendix B). The data were then transferred to a data capture template constructed in Excel (Appendix C). The sample data were captured separately for each case (Appendix B).

Although reliability is a vital characteristic of good quality research, it is not enough on its own and it needs to be partnered with "validity" to ensure that sufficiently high levels of research quality are reached (Saunders et al., 2012). While Roberts et al. (2006) identifies two types of validity, namely *internal validity* and *external validity*. Saunders et al. (2012) identifies a third form, namely *construct validity*. For the purposes of this research the three characteristics identified by Saunders et al. (2012) have been considered.

According to Saunders et al. (2012), "construct validity" is the extent to which the research variables actually measure what is intended to be measured in the research. For this research the variables are detailed in the conceptual research model described in Section 7.5.1. The construct validity of the conceptual research model is premised on the fact that it has been derived from a comprehensive study of peer-reviewed literature. To further ensure that construct validity was achieved, the conceptual research model was used to guide a pilot study on the

data extracted from the first 20 cases gathered. All of the quantitative analysis for each hypothesis as detailed in Table 8.4 was carried out and no alarming findings emerged.

According to Saunders et al. (2012) "internal validity" exists when an intervention can be statistically shown to result in a particular outcome. This is also described as the presence of a "causal relationship" (Saunders et al., 2012: p. 193). Which can be argued as being consistent with the view of internal validity of experimental research put forward by Zikmund et al. who note that "a lab experiment enhances internal validity because it maximizes control of outside force" (Zikmund et al., 2010: p. 275).

In contrast, Roberts et al. (2006) argue that "[i]nternal validity addresses the reasons for the outcomes of the study" (p. 42). In this research, tests of relationship (correlation) have been used for **Hypothesis 1** to **Hypothesis 4**. A regression analysis was carried out for **Hypothesis 5$_A$** and **Hypothesis 5$_B$**. Strictly speaking, one cannot infer causality between two variables when testing for relationship; however, correlation can explain the reasons for the outcome of the study as suggested by Roberts et al. (2006). Regression analysis is an accepted statistical technique for the inference of causality and it has been used in numerous previous studies (Altman, 1968; Parker et al., 2002; Smith & Graves, 2005; Taffler, 1983). Thus, it can be argued that the statistical methods that have been used are consistent with internal validity.

Saunders et al. (2012) determined that external validity exists when a study's findings can be generalised to other groups or settings. Similarly Roberts et al. (2006) refer to external validity as the ability to apply the research findings to other groups or people. For this study, the quality of secondary data obtained was identified as a possible "threat" to external validity.

This threat stems from the view that, when dealing with secondary data, a researcher has no real control over the quality of the data and an assessment of data quality is based on the credibility of the data providers (Saunders et al., 2012). Therefore, to maintain the reliability and validity of this study the data providers have been very carefully assessed for credibility. The secondary data for

this research has been sourced from the reputable people and organisations that are presented in Table 8.5.

8.12 **RESEARCH ETHICS**

The key underlying principle of research ethics is to do no harm. This research has subscribed to the Code of Ethics for Research of the University of Pretoria ("University of Pretoria code of ethics for research," 2014) and so a deontological position was adopted for this research (Saunders et al., 2012).

Denscombe (2010) motivates that for any research an acceptable code of ethics should be adopted and any planned deviations from the code should be acknowledged and justified. This research did not have any deviations from the Code of Ethics for Research as published by the University of Pretoria.

Confidentiality and anonymity were identified as the two most important ethical elements of this study. To satisfy any sensitivity in this regard no individual names or organisational names have been attached to the output of the analysis or to any publication that refers to the research. Furthermore, the confidentiality of sensitive information will continue to be maintained by the researcher.

Table 8.5: Credibility of Data Sources

Source of Secondary Data	Comments	Credibility
Registered financial institutions	The data are in the form of official records used by the respective institutions for the assessment of credit worthiness and the provision of credit insurance. The financial institutions are regulated by the new companies act and, in the case of banks, the Reserve Bank https://www.resbank.co.za/Pages/default.aspx In the case of non-banking financial institutions regulatory oversight is conducted by the Financial Services Board (FSB) https://www.fsb.co.za/aboutUs/Pages/default.aspx These institutions also need to comply with the Financial Intelligence Centre Act 38 of 2001 (Financial Intelligence Centre Act 38 of 2001, 2002) and the Financial Advisory and Intermediary Services Act (Financial Advisory and Intermediary Services Act 37 of 2002, 2002)	**Very high**
University of Pretoria academics	Previous scientific academic research articles, gathered for research under the guidance of Professor Marius Pretorius, were reviewed.	**Very high**
Companies and Intellectual properties commission (CIPC)	Official regulatory body.	**Very high**
Members of the Turnaround Management Association (TMA)	The TMA is arguably the largest professional organisation of Turnaround practitioners in the world. Members are bound by a code of ethics which includes a tenet of truth. The code of ethics is available for review online at the address http://www.tma-sa.com/membership/code-of-ethics.html Therefore, data provided by any member of the TMA were considered credible.	**High**
South African Business Rescue Practitioners	Business rescue practitioners are granted licences by the CIPC and, as such, any document they publish in terms of a business rescue becomes an official element of the business rescue proceedings. It can be argued, therefore, that any such document is a reflection of the reality experienced and the content of the document is likely to reflect the reality of the firm under consideration. Therefore, any official data received from business rescue practitioners are considered credible.	**High**

The researcher's objectivity, integrity and honesty are vitally important in this regard. The researcher needs to be continually aware of this. The researcher is bound by ethical standards, which includes non-disclosure of any information obtained, as well as the agreement not to use any information obtained for purposes other than academic.

To ensure that the deontological position adopted by this research is maintained the checklist set out in Table 8.6 was compiled and used during the research process

8.13 RESEARCH DESIGN CLOSING

Good research design is concerned with the logic and rationale of all the components of a research project. Thus, when viewed in its entirety, the research design acts as a "roadmap", or according to Denscombe (2010), it is a blueprint that shows all the components of how the research has been conducted and the journey that was undertaken in order to satisfy the overall research goals and questions.

The design for this research is shown in Figure 8.4 which summarises the three key components of research paradigm, strategy of inquiry and research methods as described previously.

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Table 8.6: Ethical Elements Checklist

Ethical element	Comment	Status
Does the research abide by the laws and respect the cultural norms of the society within which the research is conducted?	Ongoing	Complies
Has an appropriate code of research ethics been adopted?	Code of ethics for Research, University of Pretoria	Complies
Has approval been obtained from the relevant Research Ethics Committee (or Institutional Review Board)?	Formal application	Received
Will the data be collected via legal and legitimate means?	Ongoing	Complies
Will the research be conducted with professional integrity (honest, objective, and unbiased)?	Ongoing – Researcher bound by ethical and professional standards	Complies
Will participants be supplied with sufficient information about the research?	Organisational permission letter.	Complies
Financial Incentives	No financial incentives are available to any participants in the research	Complies
Informed consent	Suppliers of data were requested to sign an informed consent form	Informed consent letter was sent to all participants.

Ethical element	Comment	Status
Data storage	The fact that data have been stored and will be archived for ten years has been communicated to participants.	The data are stored by the researcher both electronically and physically in the form of a data collection sheet per case.
Confidentiality and anonymity	Under the ongoing control of the researcher.	Complies
False reporting	Every effort has been made to ensure that the data used are accurate and representative of reality. This links to the credibility of the sources of secondary data as discussed above.	Complies – Cases where the data were incomplete or incomprehensible have been retained in the sample records but excluded from the data set used for analysis.
Source: Ground rules for Social Research (Denscombe, 2010) – Adapted.		
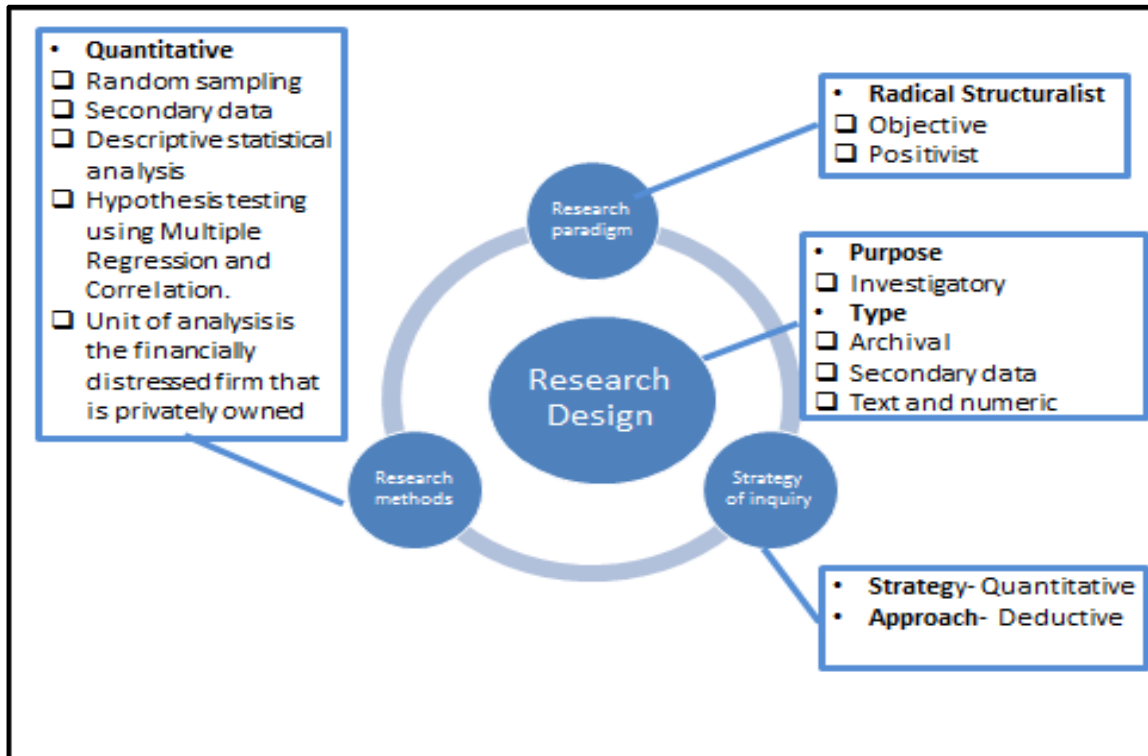
Source: Proposal: A managerial framework for the management of performance of
virtual knowledge workers (Luyt, 2011) – Adapted.

Figure 8.4: **Summarised Holistic View of the Proposed Research
Design**

The design of a research journey should always be mindful of how the research
delivers the desired outcomes as well as how it serves the original purpose and
aims of the project (Denscombe, 2010). To this end, the holistic view of this
research design (Figure 8.4) provides a foundation for understanding the research
journey which was undertaken. The journey may be seen as a number of logical
steps that are sequential. The logical steps (journey) are summarised in Table 8.7.

Table 8.7: Summary of Research Design and the Process of Inquiry Journey

	Steps	Description	Comment
1	Purpose and Aims	What is the research trying to achieve?	An investigation of how equity ownership patterns and board composition are associated with the turnaround attributes of privately owned businesses in financial distress and the eventual return to creditors.
2a	Design Strategy	What is the most suitable approach?	Quantitative research – testing for relationship and predictability.
2b	Design Philosophy	What are the underlying assumptions?	Objective positivism and radical structuralism
3	Methods	Who was included in the research?	Sample that is large enough (Field, 2009) to satisfy the requirement of normality was drawn from the population of privately owned companies that entered business rescue in South Africa between 01 May 2011 and 30 June 2016.
		How were the data collected?	Through extraction from archival secondary data (Published Business Rescue plans) of privately owned businesses in business rescue.
4	Analysis	How were the data interpreted?	Through descriptive statistical analysis and performance of • tests of relationship- correlation and • tests of relationship and prediction – regression
5	Evaluation	What confidence does one have in the findings?	Data are official data sourced from credible third parties. Sample size is sufficiently large to approximate normality.
6	Ethics	How are people's rights protected?	Findings are in summarised form. Individual cases have been anonymised. Professional standards and UP ethical process have been observed.
7	Outcomes	What does the research end result look like?	It is intended that the outcome will assist in the development of agency and corporate governance theory for privately owned businesses. It is also intended to provide theorists and practitioners with greater insight when analysing and assessing credit risk theory and the practical application thereof.
Source: Ground Rules for Social Research (Denscombe, 2010) – Adapted.			

8.14 TIMEFRAMES

The programme for this research was broken into three phases as shown in Figure 8.5.
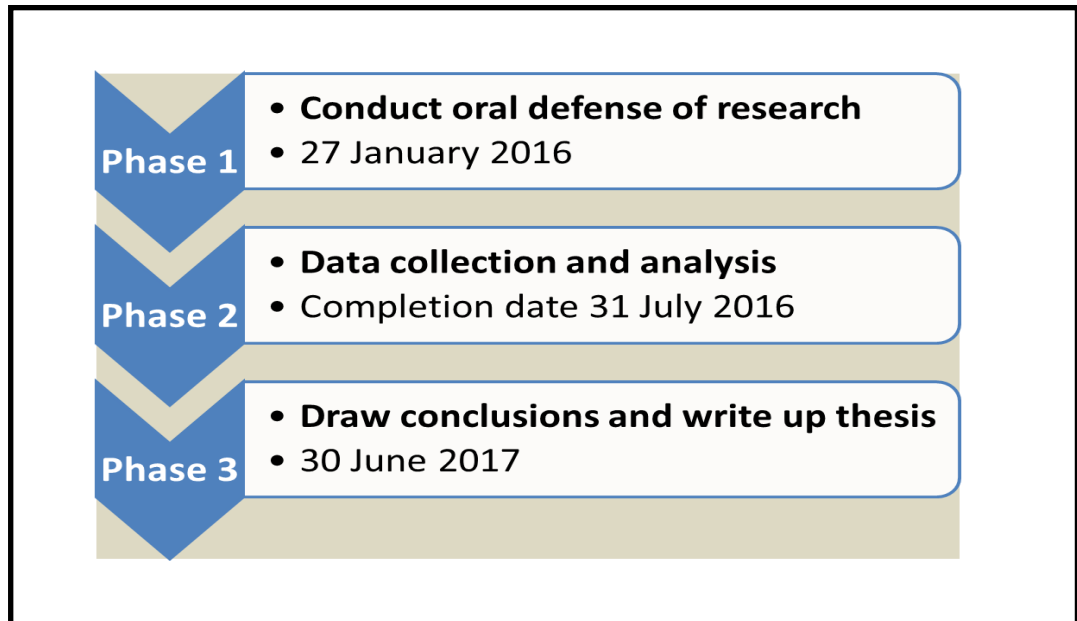
Source: Own compilation.

Figure 8.5: **Overall Research Programme**

9   FINDINGS

FINDINGS	**9.1**	**INTRODUCTION**
	9.2	**EMPIRICAL FINDINGS – SAMPLE AND CONTEXT**
	9.2.1	Aggregate Liquidity
	9.2.2	Aggregate Solvency
	9.3	**EMPIRICAL FINDINGS – RESEARCH VARIABLES**
	9.3.1	Size – Control Variable
	9.3.2	Variable – Fraction of Equity Owned by Management
	9.3.3	Variable – Fraction of Funding from External Sources
	9.3.4	Board Composition
	9.3.5	Turnaround Potential
	9.3.6	Return to Creditors
	9.4	**EMPIRICAL FINDINGS**
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9.1 INTRODUCTION

The systematic exploration of literature relating to ownership, funding, board composition and turnaround potential of private firms allowed the conceptual research framework shown in Figure 9.1 to be developed. This framework and the accompanying hypotheses provide the foundation for the findings that are presented in this chapter.
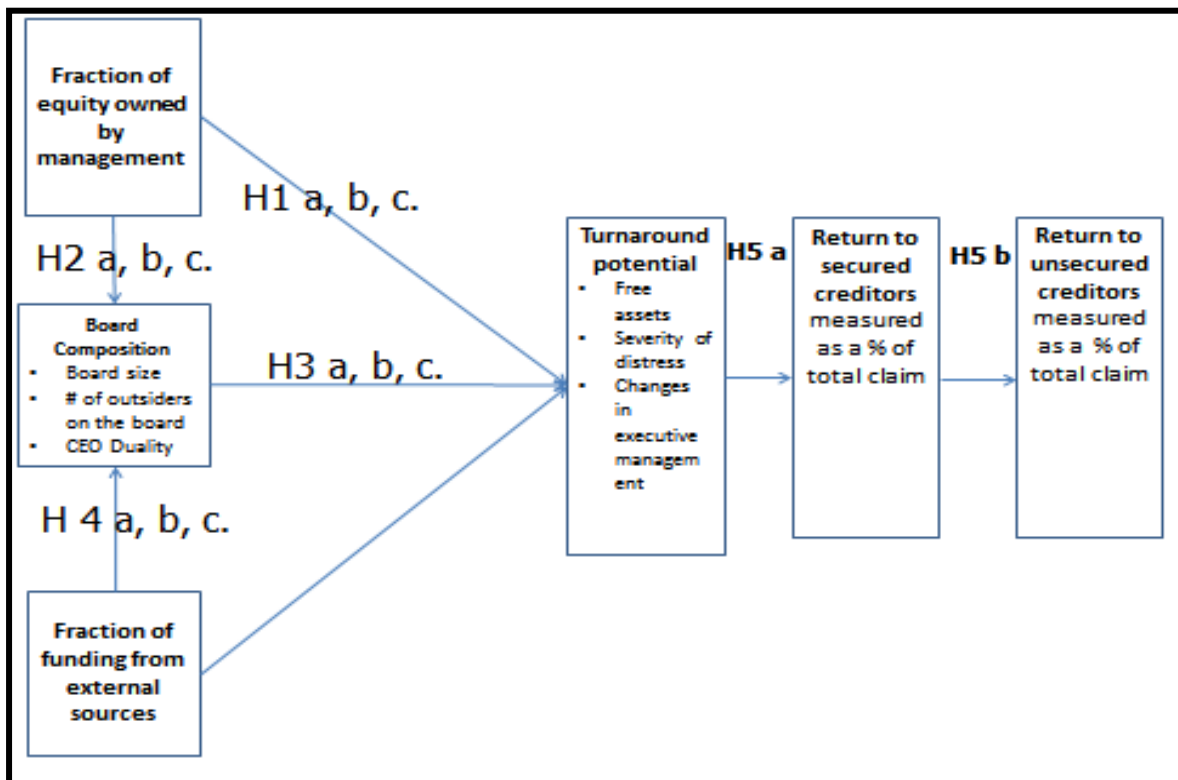
Source: Own compilation.

Figure 9.1:   Conceptual Research Model

The following sections report the empirical findings. Firstly, the descriptive demographics relating to the sample analysed and the descriptive statistics for each variable in the research framework are presented. This is followed by the inferential analysis of the data.

The inferential analysis entails firstly the tests of relationship as indicated for **Hypothesis 1** to **Hypothesis 4** through the use of correlation. The last section

covers the empirical findings of a hierarchical multiple regression analysis in respect of tests of relationship for **Hypothesis 5$_A$** and **Hypothesis 5$_B$**.

9.2   EMPIRICAL FINDINGS – SAMPLE AND CONTEXT

In the case of any financially distressed firm, the liquidity and solvency position of the firm is of interest to all affected parties. In fact, as described elsewhere, these two factors are central to determining whether any individual firm meets the definition of "distress". This study has used the definition in the South African Companies Act (*Companies Act 71 of 2008*, 2011) to test for Financial "distress". The definition in Ch. 6 Sect 128 (1) (f) "in reference to a particular company at any particular time, means that:

    i.   it appears to be reasonably unlikely that the company will be able to pay all of its debts as they fall due and payable within the immediately ensuing six months; or

    ii.   it appears to be reasonably likely that the company will become insolvent within the immediately ensuing six months" (Sect 128 (1) (f)).

With this in mind Chapter 6 Sect 128 (1) (f) (i)

> it appears to be reasonably unlikely that the company will be able to pay all of its debts as they fall due and payable within the immediately ensuing six months; or

talks to the **liquidity position** of a firm and Chapter 6 Sect 128 (1) (f) (ii)

> it appears to be reasonably likely that the company will become insolvent within the immediately ensuing six months.

talks to the **solvency** of a firm.

For the sample used in this research the aggregate liquidity and solvency for all cases in the sample is shown in Table 9.1, Figures 9.2 and 9.3. Data were gathered for a total of 127 cases. The data were sourced from official business rescue documents, company records, business rescue plans, minutes of creditors meetings and legal affidavits. Each of the cases was reviewed for suitability to be included and the final sample set of 104 cases complied and was analysed.

9.2.1 Aggregate Liquidity

The variables current assets and current liabilities are not directly used in the conceptual research model. They are, however, used in the calculation of the measure of severity of distress (Taffler Z-score) and thus were available to the research for consideration. By summing these two variables for all cases in the sample, it was possible to calculate the aggregated liquidity position of the sample as shown in Figure 9.2 and Table 9.1.
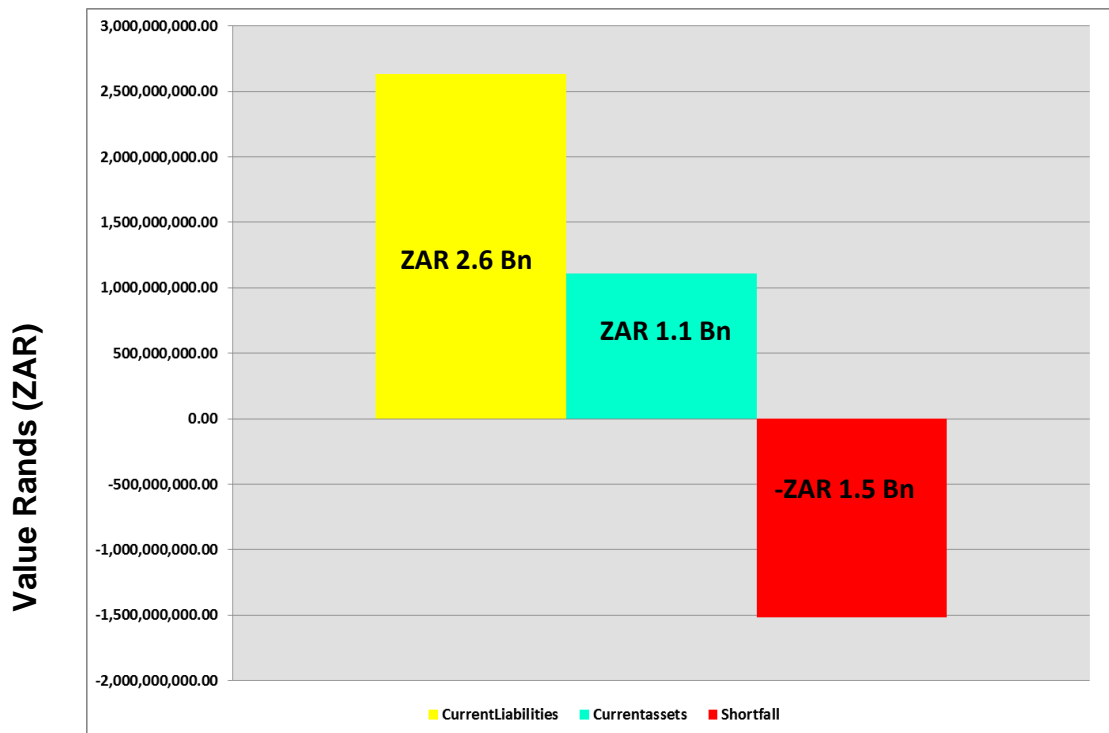
Figure 9.2:   Aggregate Liquidity Position of All Sample Cases

Table 9.1: Descriptive Statistics – Liquidity Values

	Sum for total sample (ZAR)	**Minimum (ZAR)**	**Maximum individual value (ZAR)**	**Mean individual value (ZAR)**	**Standard deviation (ZAR)**
Descriptive Statistics					
Current Liabilities	2,631,829,574	0	300,986,140	25,306,054	49,440,606
Current Assets	1,110,570,729	0	173,227,317	10,678,565	26,677,165

Source: Own compilation.

Figure 9.2 shows a total ZAR 2.6 Bn for the sample's aggregated current liabilities against a total of ZAR 1.1 Bn for the sample's aggregated current assets with a resultant liquidity shortfall of -ZAR 1.5 Bn for the sample. It is obvious that, at an aggregate level, the firms in the sample used for this research would be unable to meet their short-term debt requirements[5].

9.2.2 Aggregate Solvency

The test for solvency is carried out by simply calculating the difference between total assets and total liabilities and, if the result is a positive number, then the firm is considered solvent. If, however, the number is negative the firm is considered insolvent.

In the case of financially distressed firms it is common practice to use only the value of tangible assets (Altman & Narayanan, 1997; Dimitras et al., 1996; Lopez-Gracia & Mestre-Barberá, 2015; Smith & Graves, 2005) as it is argued that this may support the raising of further capital to fund a turnaround (Smith & Graves, 2005).

Figure 9.3 shows that, for the sample studied, the sum of total liabilities for all 104 cases was ZAR 4.0 Bn and the sum of tangible assets was ZAR 2.8 Bn. The resulting shortfall of tangible assets to cover total liabilities was ZAR -2.0 Bn. Thus, at an aggregate level, the firms contained in the sample used for this research may be considered to be functionally insolvent.

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[5] While this research was being carried out the Rand exchange rate was quite volatile but traded for much of the time around the ZAR14.30 = USD1.00 exchange rate. Therefore, dividing the Rand totals by ZAR14.30 would provide an approximate dollar value.
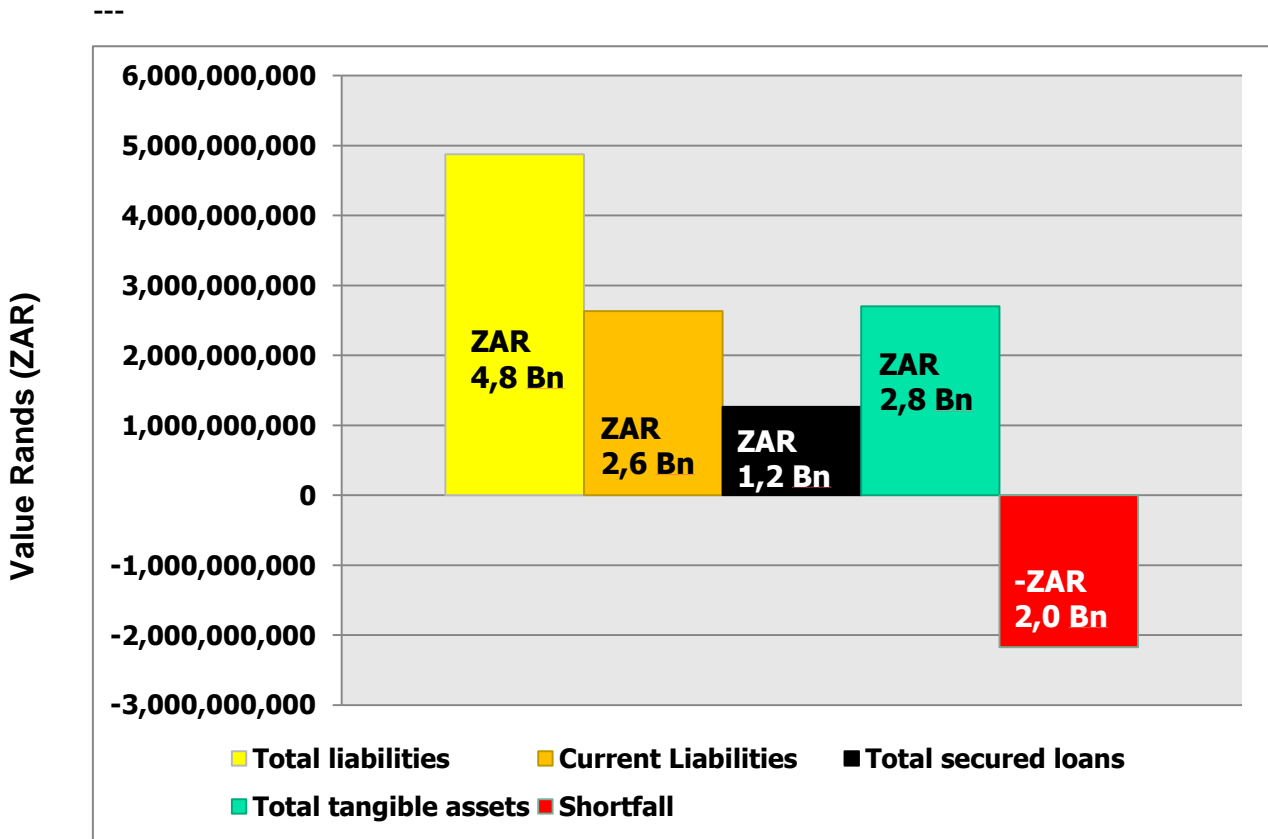
Figure 9.3:   **Key Solvency Metrics for the Aggregate Sample**

9.3   EMPIRICAL FINDINGS – RESEARCH VARIABLES

The descriptive statistics for each of the variables in the conceptual research model are reported in Table 9.2 and are described thereafter individually for each variable. This document uses the convention of $\overline{X}$ as the annotation for the statistical Mean and S as the annotation for Standard Deviation. For ease of reference it should be noted that:

$\overline{X} \pm 1$ x S includes 68.27 % of the observations in the sample

$\overline{X} \pm 2$ x S includes 95.45 % of the observations in the sample

$\overline{X} \pm 3$ x S includes 99.73 % of the observations in the sample.

(Spiegel, 1992; Spiegel, Schiller & Srinivasan, 2009).

Table 9.2: Descriptive Statistics – All Variables

Conceptual Model Component	Variable Name Allocated	N	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
Control variable	Size (Log_n)	104	11.96	19.85	16.02	1.642	-0.095	-0.147
Fraction of funding from external sources	External fund	104	0.01	1.00	0.846	0.236	-1.664	1.972
Fraction of equity owned by management	Management shares	104	0.00	1.00	0.938	0.194	-3.629	13.212
Board composition variable 1	Total directors	104	1.00	7.00	1.911	1.199	1.965	4.544
Board composition variable 2	Independent directors	104	0.00	2.00	.0198	0.196	10.194	103.942
Turnaround potential variable 1	Free assets	104	-13.93	1.00	0.231	1.691	-6.470	49.803
Turnaround potential variable 2	Taffler Z-score	104	-956.47	24.60	-28.410	103.965	-7.409	63.144
Turnaround potential variable 3	TMT change	104	0.00	1.00	0.036	0.169	4.886	23.436
Return to secured creditors	Return secured	104	0.14	1.00	0.938	0.177	-3.077	8.780
Return to unsecured creditors	Return unsecured	104	0.00	1.00	0.481	0.401	0.123	-1.643
	Valid n (listwise)	104						

Source: Own compilation.

9.3.1 Size – Control Variable

Asset size of firms is considered to be important when predicting financial distress (Altman, 2000). Size is likewise considered important when contemplating the turnaround of a firm in financial distress (Francis & Desai, 2005; LoPucki & Doherty, 2015; Trahms et al., 2013). Therefore, in this research, size has been included as a control variable and is measured by the Natural Logarithm (Log_n) of total assets.

The mean of the control variable size was $\overline{X} = 16.0197$, with $S = 1.642$.

The control variable, size was normally distributed with a skewness of -0.095 and kurtosis of -0.147 (Table 9.2).

Size is measured by Log_n of total assets which is consistent with previous research (Parker et al., 2002). However, it is also of importance to note the size of companies in the sample, by total assets measured in currency terms, as follows:

Smallest company in sample measured by total assets: ZAR   156,195

Largest company in sample measured by total assets: ZAR 416,335,884

Mean of the total assets for all companies in the sample: ZAR   30,094,062

9.3.2 Variable – Fraction of Equity Owned by Management

It has been argued that where management owns a significant portion of equity in a firm then they may see the firm as existing for their own utility maximization exclusively. Such management may thus frame decisions such that these decisions are not aligned with the best interests of the firm (Wiseman & Gomez-Mejia, 1998). Additionally when faced with the prospect of loss they may become risk seeking (Kahneman & Tversky, 1979; Tversky & Kahneman, 1981). For these reasons the fraction of equity owned by management has been included as a variable in the conceptual research model.

The mean fraction of equity owned by management in the sample was $\overline{X} = 0.9381$, with $S = 0.194$ The fraction of equity owned by management was not normally distributed with a skewness of -3.629 and a kurtosis of 13.212 (Table 9.2).

9.3.3   Variable – Fraction of Funding from External Sources

It has been argued that as the level of external funding, either debt or equity, provided to a firm grows then so does the quantum of agency cost (Jensen & Meckling, 1976). It may also be argued that some agency costs can serve as a proxy measure for corporate governance activities which may also be reflected in the board composition of a firm. Thus, one may expect to find a relationship between level of external funding provided to a firm and measures of board composition and for these reasons it is included as a component in the conceptual research model of this thesis.

The mean and standard deviation of External Funding in the sample was $\overline{X} = 0.8462$, and with $S = 0.2361$.

The fraction of external funding was not normally distributed with a skewness of -1.664 and a kurtosis of 1.972 (Table 9.2).

9.3.4   Board Composition

This element of the conceptual research model has three variables that have been assessed individually. Namely, total number of directors, the number of independent directors in each case, and the existence of CEO duality, where the CEO and Chairman is the same person.

9.3.4.1   Total Number of Board Directors

Board size and has been shown in previous research to correlate with the incidence of distress (Jaikengkit, 2004). Board diversity has also been shown to be associated with the prevention of distress (Abatecola et al., 2011; Fich & Slezak, 2008; Jaikengkit, 2004) and it is logical that board diversity can only occur

if there is more than one director on the board. Therefore, the measure of total number of directors has been included as a variable in this research.

The mean of Total Directors in the sample was $\overline{X}$ = 1.91, with a standard deviation of S = 1.2.

The total Number of Board Directors was not normally distributed with a skewness of -1.965 and a kurtosis of 4.544 (Table 9.2).

9.3.4.2   Number of Independent Board Directors

Previous research has identified board independence as playing a significant role in the avoidance of financial distress (Abatecola et al., 2011; Fich & Slezak, 2008; Jaikengkit, 2004) and in the incidence of successful turnarounds (Trahms et al., 2013).

The mean of the number of **Independent Directors** in the sample was $\overline{X}$ = 0.0198, with standard deviation of S = 0.196.

The number of **Independent Board Directors** was not normally distributed with a skewness of 10.194 and a kurtosis of 103.942 (Table 9.2).

9.3.4.3   CEO Duality

The most widely accepted corporate governance codes of best practice support the view that independence and diversity of a board is enhanced by the appointment of an independent non-executive chairman (Financial Reporting Council, 2014; *King III King Code of Governance Principles for South Africa*, 2009). Where this is not the case the role of chairman function is most often fulfilled by the CEO and is described as the **existence of CEO duality**. In other words, the role of chairman and the role of CEO are fulfilled by the same person. The existence of CEO duality was also identified by Jaikengkit (2004) as a significant feature of financial distress.

CEO Duality is a dichotomous categorical variable where the existence of CEO duality was coded as a 1 and where the CEO and Chairman roles were held by separate people was coded as a 2. **CEO duality** existed in 102 cases (98.1 %)

and there were only two cases (1.9 %) where it did not exist. The result is shown in Table 9.3 and, to illustrate the point that the existence of CEO duality is a predominant feature of the sample of private firms in the zone of insolvency, the same data are shown in Figure 9.4.

Table 9.3: Frequency of Evidence of CEO Duality

Finding	Frequency n	Percent
CEO Duality was present	102	98.1
CEO Duality was not present	2	1.9
Total	**104**	**100.0**
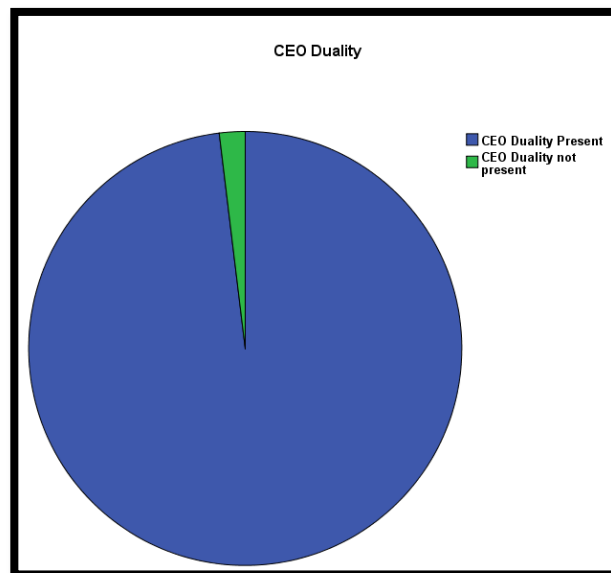
Source: Own compilation.

Figure 9.4:   Presence of CEO Duality in the Sample of Private Firms in Financial Distress

9.3.5 Turnaround Potential

This component of the conceptual research model also has three variables which have each been assessed individually. Namely, "free-assets", "severity of distress" (Taffler Z-score) and "turnover of top management team" (TMT).

9.3.5.1 Variable – Free assets

Smith and Graves (2005) in their research on turnarounds found that the **availability of free or unencumbered assets** is significantly associated with successful turnarounds. It is calculated as follows: (Total tangible assets – secured loans) divided by total tangible assets (Smith & Graves, 2005). The result is a ratio but, for convenience, the term "free assets" is maintained throughout this thesis.

The mean of free assets data for the sample was $\overline{X}$ = 0.2314, with standard deviation S = 1.69.

The data for free assets was not normally distributed with a skewness of -6.470 and a kurtosis of 49.803 (Table 9.2).

9.3.5.2 Variable – Severity of distress

Smith and Graves (2005) also found that **severity of the distressed** state of the firm is significantly associated with successful turnarounds. The metric used to assess severity of distress is Taffler Z-score:

Z = 3.20 + 2.18 x (Profit before tax/Average current liabilities) + 2.50 (Current assets/Total liabilities) - 10.68 x (Current liabilities/Total assets) + 0.0289 x (No credit interval) (Smith & Graves, 2005; Taffler, 1983).

The mean of the measure of Severity of distress (Taffler Z-score) in the sample was $\overline{X}$ = -28.41, with standard deviation S = 103.97.

If the Z-score calculation result is negative then the firm is distressed according to Taffler and, the greater the negative number, the more distressed the firm is. The

mean of the data in this research is moderately distressed with a range from severely distressed to marginally non distressed.

The data for severity of distress was not normally distributed with a skewness of -7.409 and a kurtosis of 63.144 (Table 9.2).

9.3.5.3   *Variable – Turnover Top Management Team*

A long-standing generalized view is that for any turnaround to be successful "replacement of top management" (Hofer, 1980: p. 8) is necessary or at the very least those that may impede a turnaround should be removed (Burbank, 2005). In financially distressed firms, leaders are often seen as a contributing source of decline with a concomitant loss of credibility, resulting in further deterioration of a firm's internal climate with an increase in dysfunctional consequences (Arogyaswamy et al., 1995). Where those leaders are part of top management and significant equity holders, necessary changes in the TMT may not happen, thereby impeding the firm's turnaround potential.

Turnover of top management team (TMT Change) is defined as the percentage of top management team that changed in the 12 months prior to filing for business rescue and has a mean of $\overline{X} = 0.04$, with standard deviation $S = 0.17$.

The data for turnover of TMT was not normally distributed with a skewness of 4.886 and a kurtosis of 23.436 (Table 9.2).

9.3.6   *Return to Creditors*

It has been argued that even if a company is not legally insolvent or bankrupt, as it nears the point of bankruptcy and by continuing to operate in a zone of insolvency during which shareholders are "out of the money", creditors may be viewed as the rightful recipients of any residual value derived from corporate actions (Tung, 2006). Thus it can be argued that the ultimate measure in respect of any financially distressed firm is the **likely return to creditors**.

In this regard it must be noted that there are different classes of creditors, most significantly: 1) secured creditors, and 2) unsecured creditors. In keeping with convention and to allow for meaningful comparison, return to creditors is measured for each creditor as a proportion of the total claim for that creditor. For instance, a 20 % return would often be referred to as "20 cents in the Rand". For the purpose of this research, we have standardised on percentage as a decimal (for example, 20 cents in the rand would be 0.2.)

9.3.6.1 *Variable – Return to secured creditors*

In liquidation, insolvency law deems **secured creditors** to have a statutory preferent right over unsecured creditors in respect of the distribution of any residual value that may be realized from a firm (Loubser, 2010: p. 116). It, therefore, follows that the return to secured creditors should be calculated prior to, and excluding, any claim that unsecured creditors may have.

The mean of return to secured creditors in the sample was $\overline{X} = 0.94$, with a standard deviation $S = 0.18$.

The data for return to secured creditors was not normally distributed with a skewness of -3.077 and a kurtosis of 8.780 (Table 9.2).

9.3.6.2 *Variable – Return to Unsecured Creditors*

As a result of the statutory preferent right accorded to secured creditors it is only possible to calculate the return to **unsecured creditors** after all of the claims of secured creditors have been met. The term "waterfall distribution" describes the practical approach quite eloquently. Only if there is surplus residual value after secured claims have been met in full will residual value cascade down to meet unsecured claims.

After calculating the return to secured creditors the return to unsecured creditors has a mean of $\overline{X} = 0.48$, with standard deviation of $S = 0.4$.

The data for return to **unsecured creditors** was not normally distributed with a skewness of 0.123 and a kurtosis of -1.643. (Table 9.2).

It is worth noting that the data for return to unsecured creditors meets the skewness test for normality but not the kurtosis test. Visual inspection of the frequency distribution in Figure 9.5 reveals the symetrical (absence of skewness) but noticeable kurtosis pattern of the data distribution.
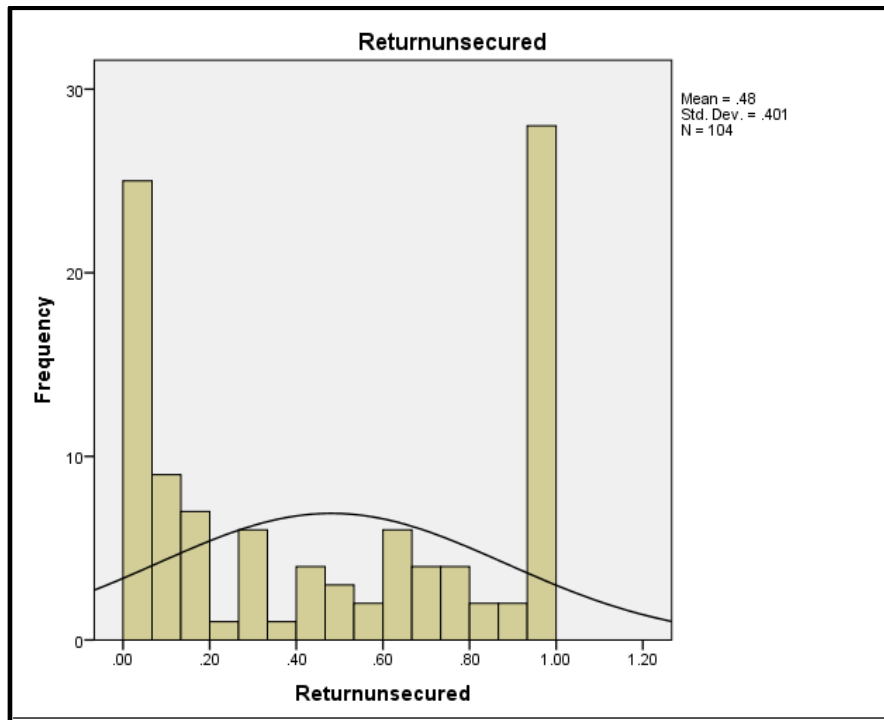
Source: Own compilation.

Figure 9.5:   Frequency Distribution of Return to Unsecured Creditors

9.4 EMPIRICAL FINDINGS

9.4.1 Hypothesis 1

Hypothesis 1$_A$ – In the **zone of insolvency**, a negative correlation exists between the fraction of equity owned by management and the amount of free (unencumbered) assets available when the firm enters business rescue. In other words, when a firm is in the zone of insolvency the higher the fraction of equity owned by management the lower the amount of free (unencumbered) assets

H 1$_{A0}$ – In the **zone of insolvency** no correlation exists between the fraction of equity owned by management and the amount of free (unencumbered) assets.

A Pearson's product-moment correlation was run to assess the relationship between the fraction of shareholding owned by management and the free (unencumbered) assets available when the firm entered business rescue. The results are shown in Table 9.4.

Table 9.4: Correlation Between the Fraction of Total Shares Held by Management and Free Assets

		Freeassets
Managementshares	Pearson Correlation	-0.051
	Sigma (2-tailed)	0.610
	n	104

Results indicated a very low, negative correlation that was not statistically significant between fraction of shareholding owned by management and free assets*, r* = -0.051, *p* > 0.05, n = 104.

One can, therefore, not reject the ***null hypothesis*** which states that no relationship exists between fraction of equity owned by management and the amount of free (unencumbered) assets.

In the multivariate analysis the interaction variable MngmntShFreeA showed up as non-significant in the regression model for return to secured creditors. However, in

the model for return to unsecured creditors the variable MngmntShFreeA proved to be significant $p = 0.045 < 0.05$. Thus, it may be argued that, although the null hypothesis cannot be rejected, the interaction between the fraction of equity owned by management and the amount of free (unencumbered) assets is of significant importance to Unsecured creditors (Table 9.31 to Table 9.34).

Hypothesis 1$_B$ – At the point in time when decisive action is taken by management in the **zone of insolvency** a positive correlation exists between the fraction of equity owned by management and the severity of financial distress. In other words, when a firm is in the zone of insolvency, the higher the fraction of equity owned by management, the greater severity of financial distress before decisive action (application for business rescue) is taken.

H 1$_{B0}$ – In the **zone of insolvency** no correlation exists between the fraction of equity owned by management and the severity of financial distress at the point in time when decisive action is taken by management.

A Pearson's product-moment correlation was run to assess the relationship between the fraction of shareholding owned by management and the severity of distress as measured by Taffler Z-score. The results are shown in Table 9.5.

Table 9.5: Correlation Between the Fraction of Total Shares Held by Management and Severity of Distress (Taffler Z-Score)

		Taffler Z
Managementshares	Pearson Correlation	-0.046
	Sigma (2-tailed)	0.639
	n	104

Results indicate a small, negative correlation that was not statistically significant between fraction of shareholding owned by management and severity of distress (Taffler Z-score)*, r* = -0.046, *p* > 0.05, n = 104.

Therefore, the **null hypothesis** that no relationship exists between the fraction of equity owned by management and the severity of financial distress at the point in time when decisive action is taken by management cannot be rejected.

In the multivariate regression analysis, the interaction variable MngmntShTaffler was excluded in the analysis as a result of high collinearity output for both the return to secured and return to unsecured creditors. Thus it might be argued that this interaction variable adds little value to understanding the eventual return to creditors (Table 9.31 to Table 9.34).

Hypothesis 1$_C$ – At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between the fraction of equity owned by management and prior executive management turnover. In other words, when a firm is in the zone of insolvency the higher the fraction of equity owned by management the lower the amount of executive management turnover.

H 1$_{C0}$ – In the zone of insolvency no correlation exists between the fraction of equity owned by management and the amount of executive management turnover at the point in time when decisive action is taken by management.

A Pearson's product-moment correlation was run to assess the relationship between the fraction of shareholding owned by management and the change in top management team. The results are presented in Table 9.6.

Table 9.6: Correlation Between the Fraction of Total Shares Held by Management and Change in Top Management Team

		TMTchange
Managementshares	Pearson Correlation	-0.225[*]
	Sigma (2-tailed)	0.021
	n	104

Results indicate a small, significant negative correlation between fraction of shareholding owned by management and turnover of top management team, $r = -0.225$, $p < 0.05$, n = 104.

One can therefore reject the **null hypothesis** that in the zone of insolvency no correlation exists between the fraction of equity owned by management and the amount of executive management turnover at the point in time when decisive action is taken by management.

The interaction variable MngmntShTMTch is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors regression models. This suggests that interaction between the two vairables has a non-significant impact on the return to secured and unsecured creditors, notwithstanding that there is a significant correlation between the two variables (Table 9.31 to Table 9.34).

9.4.2 Hypothesis 2

Hypothesis 2$_A$ – At the point in time when decisive action is taken by management in the zone of insolvency the higher the fraction of equity owned by management the smaller the board.

H 2$_{A0}$ – In the zone of insolvency no correlation exists between the fraction of equity owned by management and the size of the board.

A Pearson's product-moment correlation was run to assess the relationship between the fraction of shareholding owned by management and the total number of directors on the board.The results are tabled below in Table 9.7

Table 9.7: Correlation Between the Fraction of Total Shares Held by Management and Total Number of Directors

		TotalDirectors
Managementshares	Pearson Correlation	-0.235[*]
	Sigma (2-tailed)	0.016
	n	104

Results indicate a small, statistically significant negative correlation between fraction of shareholding owned by management and the total number of directors on the board, $r = -0.235$, $p < 0.05$, n = 104.

One can therefore reject the **null hypothesis** that no relationship exists between the fraction of equity owned by management and the total number of directors on the board.

The interaction variable MngmntShTotDirs is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors regression models. This suggests that interaction between the two vairables has a non-significant impact on the return to secured and unsecured creditors notwithstanding that there is a significant correlation between the two variables (Table 9.31 to Table 9.34).

Hypothesis 2$_B$ At the point in time when decisive action is taken by management in the zone of insolvency the higher the fraction of equity owned by management the lower the number of outside directors.

H 2$_{B0}$ – In the zone of insolvency no correlation exists between the fraction of equity owned by management and the number of outside directors at the point in time when decisive action is taken by management.

A Pearson's product-moment correlation was run to assess the relationship between the fraction of shareholding owned by management and the number of independent directors on the board. The results are tabled below in Table 9.8.

Table 9.8: Correlation Between the Fraction of Total Shares Held by Management and Number of Independent Directors

		IndDirs
Managementshares	Pearson Correlation	0.032
	Sig. (2-tailed)	0.744
	n	104

Results indicate a very small, positive correlation that was not statistically significant between fraction of shareholding owned by management and the number of independent directors on the board, $r = 0.032$, $p > 0.05$, n = 104.

One can, therefore, not reject the **null hypothesis** that in the zone of insolvency no relationship exists between the fraction of equity owned by management and the number of outside directors.

The interaction variable MngmntShIndDirs is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors regression models (Table 9.31 to Table 9.34).

Hypothesis 2$_C$ The higher the fraction of equity owned by management, the lower the incidence of separate people fulfilling the CEO and Chairman roles.

H 2$_{C0}$ – In the zone of insolvency no correlation exists between the fraction of equity owned by management and the incidence of separate people fulfilling the CEO and Chairman roles at the point in time when decisive action is taken by management.

A Point-Biserial correlation was run between CEO duality and fraction of equity owned by management. The Point-Biserial Correlation Coefficient is a correlation measure of the strength of relationship between a continuous-level variable (ratio or interval data) and a binary variable. Binary variables are variables of nominal scale with only two values. The results are shown in Table 9.9.

Table 9.9: Point-Biserial Correlation Between the Fraction of Total Shares Held by Management and Board Duality

		Boarddualitycoded
Managementshares	Pearson Correlation	-0.316[**]
	Sig. (2-tailed)	0.001
	n	104

The correlation between CEO duality and fraction of equity owned by management, is $r_{pb}(104) = -0.316$ and it is statistically highly significant. The fact that the coefficient has a negative sign suggests that the binary variable coded 2 (separation of CEO and Chairman role exists) has a lower mean value than the binary variable coded 1 (CEO duality exists).

Based on the significant negative correlation, the ***null hypothesis*** that no correlation exists between the fraction of equity owned by management and the

incidence of separate people fulfilling the CEO and Chairman roles can be rejected.

In the multivariate analysis the interaction variable MngmntShBoardDual showed up as non-significant in the regression model for return to secured creditors. However, in the model for return to unsecured creditors the variable MngmntShBoardDual proved to be significant $p = 0.019 < 0.05$. Considering rejection of the null hypothesis and that the interaction between the fraction of equity owned by management and board duality is of significance in the expanded regression model, it suggests that these two variables may be of particular importance to unsecured creditors (Table 9.31 to Table 9.34).

9.4.3   Hypothesis 3

This set of hypotheses deals with the relationship between the individual variables collectively referred to as board composition and the individual variables collectively referred to as turnaround potential. Each relationship is identified separately and is dealt with as a separate hypothesis.

A Pearson's product-moment correlation was run to assess the relationship between the board composition (total number of directors, number of independent directors) and turnaround potential (free assets, severity of distress, change in TMT). A Point-Biserial correlation was run between CEO duality, free assets, severity of distress (Taffler Z-score) and TMT change. The results for each hypothesis are reported below.

Hypothesis 3_{A1} – At the point in time when decisive action is taken by management in the zone of insolvency, a positive correlation exists between total number of directors on the board and free assets. In other words, when a firm is in the zone of insolvency the greater the total number of directors, the higher the amount of free assets

H 3_{A10} – In the zone of insolvency no correlation exists between total number of directors on the board and free assets.

Table 9.10: **Correlation Between the Total Number of Directors and Free Assets**

		Freeassets
TotalDirectors	Pearson Correlation	-0.312[**]
	Sig. (2-tailed)	0.001
	n	104

Results indicate a medium, statistically significant negative correlation between total number of directors on the board and the amount of free assets, $r = -0.312$, $p < 0.05$, n = 104.

The **null hypothesis**, that in the zone of insolvency, no relationship exists between the total number of directors and amount of free assets can, therefore, be rejected.

In the multivariate analysis, the interaction variable TotalDirsFreeAl showed up as significant in the regression model for return to secured creditors $p = 0.007 < 0.05$. However, in the model for return to unsecured creditors, the variable MngmntShBoardDual proved to be non-significant $p = 0.324 > 0.05$ (Table 9.31 to Table 9.34).

Hypothesis 3$_{A2}$ – At the point in time when decisive action is taken by management in the zone of insolvency, a negative correlation exists between total number of directors on the board and severity of distress. In other words, when a firm is in the zone of insolvency, the higher the total number of directors, the better the severity of distress score (Taffler Z-score).

H 3$_{A20}$ – In the zone of insolvency, no correlation exists between the total number of directors on the board and the severity of distress.

Table 9.11: **Correlation Between the Total Number of Directors and Severity of Distress (Taffler Z-score)**

		Taffler Z
TotalDirectors	Pearson Correlation	0.015
	Sig. (2-tailed)	0.882
	n	104

Results indicate a small, positive correlation that is not statistically significant between the total number of directors on the board and the severity of distress (Taffler Z-score), $r = 0.015$, $p > 0.05$, n = 104.

The **null hypothesis**, that in the zone of insolvency, no relationship exists between the total number of directors and severity of distress (Taffler Z-score) could, therefore, not be rejected.

The interaction variable TotalDirsTaffler is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors regression models (Table 9.31 to Table 9.34).

Hypothesis 3$_{A3}$ – At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between total number of directors on the board and change in top management team (change in TMT). In other words, when a firm is in the zone of insolvency, the higher the total number of directors, the greater the amount of change in the top management team.

H 3$_{A30}$ – In the zone of insolvency no correlation exists between the total number of directors on the board and the change in the top management team.

Table 9.12:   Correlation Between the Total Number of Directors and Change in the Top Management Team

		TMTchange
TotalDirectors	Pearson Correlation	0.000
	Sig. (2-tailed)	0.999
	n	104

Results indicate no correlation between the total number of directors on the board and the change in top management team, $r = 0.000$, $p > 0.05$, n = 104.

Therefore, the **null hypothesis** that, in the zone of insolvency, no relationship exists between the total number of directors and the change in top management team cannot be rejected.

In the multivariate analysis the interaction variable TotalDirsTMTch showed up as significant in the regression model for return to secured creditors $p = 0.013 < 0.05$. However, in the model for return to unsecured creditors, the variable TotalDirsTMTch proved to be non-significant $p = 0.323 > 0.05$.

Hypothesis 3$_{B1}$ – At the point in time when decisive action is taken by management in the zone of insolvency, a positive correlation exists between the number of independent directors on the board and free assets In other words, when a firm is in the zone of insolvency, the higher the number of independent directors, the greater the amount of free assets.

H 3$_{B10}$ – In the zone of insolvency no correlation exists between the total number of independent directors on the board and the free assets.

Table 9.13: **Correlation Between the Number of Independent Directors and Free Assets**

		Freeassets
IndDirs	Pearson Correlation	-0.023
	Sig. (2-tailed)	0.817
	n	104

Results indicate a small, negative correlation that is not statistically significant between the number of independent directors on the board and free assets, $r = -0.023$, $p > 0.05$, n = 104.

One can, therefore, not reject the ***null hypothesis*** that, in the zone of insolvency, no relationship exists between the number of independent directors and free assets.

The interaction variable IndDirsFreeA is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors regression models. It is noteworthy though that, in the expanded regression model for return to unsecured creditors, this interaction variable IndDirsFreeA is only marginally non-significant $p = 0.0062 > 0.05$ but the interaction variable coeffecient

is -23.330 . So, although strictly speaking, the variable is non-signifcant it has potentially a very high influence on the eventual return to unsecured creditors.

Hypothesis 3$_{B2}$ – at the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between number of independent directors on the board and severity of distress (Taffler Z-score). In other words, when a firm is in the zone of insolvency, the higher the number of independent directors, the better the severity of distress score (Taffler Z-score).

H 3$_{B20}$ – In the zone of insolvency no correlation exists between total number of independent directors on the board and the severity of distress score.

Table 9.14:   Correlation Between the Number of Independent Directors and Severity of Distress

		Taffler Z
IndDirs	Pearson Correlation	0.021
	Sig. (2-tailed)	0.829
	n	104

Results indicate a small, positive correlation that is not statistically significant between number of independent directors on the board and severity of distress (Taffler Z-score)*, r* = 0.021, *p* > 0.05, n = 104.

One can, therefore, not reject the ***null hypothesis*** that in the zone of insolvency no relationship exists between the number of independent directors and the severity of distress (Taffler Z-score).

The interaction variable IndDirsTaffler is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors regression models.

Hypothesis 3$_{B3}$ – At the point in time when decisive action is taken by management in the zone of insolvency, a positive correlation exists between the number of independent directors on the board and turnover of TMT. In other words, when a firm is in the zone of insolvency, the higher the number of independent directors, the greater the change in the top management team.

H 3$_{B30}$ – In the zone of insolvency no correlation exists between the total number of independent directors on the board and the change in the top management team.

Table 9.15:   Correlation Between the Number of Independent Directors and the Change in the Top Management Team

		TMTchange
IndDirs	Pearson Correlation	-0.022
	Sig. (2-tailed)	0.828
	n	104

Results indicate a small, negative correlation that is not statistically significant between number of independent directors on the board and change in top management team*, r* = -0.022, *p* > 0.05, n = 104.

One can, therefore, not reject the ***null hypothesis*** that, in the zone of insolvency no relationship exists between the number of independent directors and change in top management team.

In the multivariate regression analysis, the interaction variable IndDirsTMTch was excluded in the analysis as a result of high collinearity output for both the return to secured and return to unsecured creditors. Thus, it might be argued that this interaction variable adds little value to understanding the eventual return to creditors.

Hypothesis 3$_{C1}$ – At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between CEO

duality and free assets. In other words, when a firm is in the zone of insolvency, the greater the occurrence of CEO duality, the lower the value of free assets.

H 3$_{C10}$ – In the zone of insolvency, no correlation exists between CEO duality and free assets.

A Point-Biserial correlation was run between CEO duality, and free assets. The results are presented in Table 9.16.

Table 9.16: **Point-Biserial Correlation Between the CEO Duality and Free Assets**

		Freeassets
Boardddualitycoded	Pearson Correlation	0.015
	Sig. (2-tailed)	0.879
	n	104

There was a small probability of correlation between CEO duality and free assets. It was statistically not significant $r_{pb}(104) = 0.015$. One can, therefore, not reject the **null hypothesis** that no relationship exists between CEO duality and free assets.

The fact that the coefficient has a positive sign suggests that the dichotomous variable coded 1 (CEO duality exists) has a lower mean value than the dichotomous variable coded 2 (separation of CEO and Chairman's role exists).

In the multivariate regression analysis, the interaction variable BoardDualFreeA was excluded in the analysis as a result of high collinearity output for both the return to secured and return to unsecured creditors. Thus, it might be argued that this interaction variable adds little value to understanding of the eventual return to creditors.

Hypothesis 3$_{C2}$ – At the point in time when decisive action is taken by management in the zone of insolvency, a negative correlation exists between CEO duality and severity of distress (Taffler Z-score). In other words, when a firm is in

the zone of insolvency, the greater the occurrence of CEO duality, the worse the severity of distress.

H 3$_{C20}$ – In the zone of insolvency, no correlation exists CEO duality and severity of distress.

A Point-Biserial correlation was run between CEO duality, and severity of distress. The results are presented in Table 9.17.

Table 9.17:   Point-Biserial Correlation Between the CEO Duality and Severity of Distress

		Taffler Z
Boarddualitycoded	Pearson Correlation	-0.011
	Sig. (2-tailed)	0.908
	n	104

There was a small probability of correlation between CEO duality and severity of distress (Taffler Z-score). It was statistically not significant $r_{pb}(104) = -0.011$. One can, therefore, not reject the **null hypothesis** that no relationship exists between CEO duality and severity of distress.

The fact that the coefficient has a negative sign suggests that the dichotomous variable coded 2 (separation of CEO and Chairman role exists) has a lower mean value than the dichotomous variable coded 1 (CEO duality exists).

In the multivariate regression analysis, the interaction variable BoardDualTaffler was excluded in the analysis as a result of high collinearity output for both the return to secured and return to unsecured creditors. Thus, it might be argued that this interaction variable adds little value to understanding of the eventual return to creditors.

Hypothesis 3$_{C3}$ – At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between CEO duality and turnover of the top management team (TMT change). In other words, when a firm is in the zone of insolvency, the greater the occurrence of CEO duality, the lower the turnover of the top management team.

H 3$_{C30}$ – In the zone of insolvency no correlation exists CEO duality and turnover of the top management team.

A Point-Biserial correlation was run between CEO duality, and free assets. The results are presented in Table 9.18.

Table 9.18:   Point-Biserial Correlation Between the CEO Duality and Change in the Top Management Team

		TMTchange
Boarddualitycoded	Pearson Correlation	0.384[**]
	Sig. (2-tailed)	0.000
	n	104

There was a statistically significant moderate probability of correlation between CEO duality and TMT change, $r_{pb} = 0.384$, $p < 0.05$. One can, therefore, reject the **null hypothesis** that there is no relationship between CEO duality and change in the top management team.

The fact that the coefficient has a positive sign suggests that dichotomous variable coded 1 (CEO duality exists) has a lower mean value than the dichotomous variable coded 2 (separation of CEO and Chairman's role exists). This suggests that there is a higher probability of change in the top management team if CEO duality is not present and that separate people fill the CEO and Chairman roles.

In the multivariate regression analysis, the interaction variable BoardDualTMTch is present in the regression model for return to secured creditors and is a significant variable $p = 0.022 < 0.05$. The interaction variable BoardDualTMTch is, however, excluded in the model for return to unsecured creditors.

9.4.4   Hypothesis 4

This set of hypotheses deals with the relationship between the variable fraction of external funding and the individual variables collectively referred to as "board composition". Each relationship is identified separately and is dealt with as a separate hypothesis. A Pearson's product-moment correlation was run to assess

the relationship between the fraction of external funding and total number of directors (**H 4$_A$**), and number of independent directors on the board (**H 4$_B$**). A Point-Biserial correlation was run to assess the relationship between external funding and CEO duality.

Hypothesis 4$_A$ – At the point in time when decisive action is taken by management in the zone of insolvency, a positive correlation exists between the fraction of external funding and number of directors on the board. In other words, when a firm, is in the zone of insolvency, the higher the fraction of external funding, the higher the number of directors on the board.

H 4$_{A0}$ – In the zone of insolvency, no correlation exists between the fraction of external funding and the number of directors on the board.

Table 9.19: **Correlation Between the Fraction of External Funding and the Total Number of Directors on the Board**

		TotalDirectors
Externalfund	Pearson Correlation	-0.140
	Sig. (2-tailed)	0.157
	N	104

Results indicate a small, negative correlation that was statistically not significant between fraction of external funding and total number of directors on the board, r = -0.140, p > 0.05, n = 104.

One can, therefore, not reject the ***null hypothesis***, that there is no relationship between fraction of external funding and the total number of directors on the board.

The interaction variable ExtFundTotDirs is present but shows up as non-significant in both the return to secured creditors and the return to unsecured creditors extended regression models.

Hypothesis 4$_B$ – At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between the fraction of external funding and number of independent directors on the board. In

other words, when a firm is in the zone of insolvency, the higher the fraction of external funding, the higher the number of independent directors on the board.

H 4$_{B0}$ – In the zone of insolvency no correlation exists between the fraction of external funding and the number of independent directors on the board.

Table 9.20:   Correlation Between the Fraction of External Funding and the Number of Independent Directors on the Board

		IndDirs
Externalfund	Pearson Correlation	0.064
	Sig. (2-tailed)	0.519
	N	104

Results indicate a very small, positive correlation that was statistically not significant between fraction of external funding and number of independent directors on the board, $r = 0.064$, $p > 0.05$, n = 104.

One can, therefore, not reject the ***null hypothesis***, that there is no relationship between fraction of external funding and the number of independent directors on the board.

In the multivariate regression analysis, the interaction variable ExtFundIndDirs was excluded in the analysis as a result of high collinearity output for both the return to secured and return to unsecured creditors. Thus, it might be argued that this interaction variable adds little value to understanding of the eventual return to creditors.

Hypothesis 4$_C$ – At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between the fraction of external funding and CEO duality. In other words, when a firm is in the zone of insolvency the higher the fraction of external funding the lower the incidence of CEO duality.

H 4$_{C0}$ – In the zone of insolvency no correlation exists between the fraction of external funding and the incidence of CEO duality.

A Point-Biserial correlation was run between external funding and CEO duality.

Table 9.21: **Point-Biserial Correlation Between the Fraction of External Funding and the CEO Duality**

		Boarddualitycoded
Externalfund	Pearson Correlation	-0.100
	Sig. (2-tailed)	0.312
	N	104

There was a small probability that was statistically not significant of correlation existing between external funding and CEO duality, $r_{pb}(104) = -0.100$.

One can, therefore, not reject the ***null hypothesis***, that there is no relationship between fraction of external funding and board CEO duality.

In the multivariate regression analysis, the interaction variable ExtFundBoardDual is present but is non-significant in the regression model for return to secured creditors. It is, however, entirely excluded from the return to unsecured creditors regression model. It shows very high collinearity in the return to unsecured model.

9.4.5 Hypothesis 5

It may be argued that when contemplating data analysis the selection of statistical methods to be used will depend on three factors, 1) the nature of the problem at hand, 2) the properties of the data being contemplated and 3) the pertinent assumptions that relate to the chosen statistical method (Wu, Li & Chang, 2015). **Hypothesis 5$_A$** and **Hypothesis 5$_B$** are based on the view that, for a firm in the zone of insolvency, the ultimate claimants on any residual value are the creditors. It would, therefore, be valuable to be able to estimate, from multiple variables, the level of return that is likely to accrue to creditors of a firm in the zone of insolvency. Thus the dependent variable in **Hypothesis 5$_A$** is return to secured creditors and in **Hypothesis 5$_B$** to unsecured creditors.

The independent variables, fraction of equity owned by management, fraction of funding from external sources, free assets, severity of distress and changes in executive management are continuous variables. The independent variables,

number of outsiders on the board and board size are ordinal variables and the independent variable CEO duality is categorical.

The conceptual research model depicts that the fraction of equity owned by management directly influences the turnaround potential of a firm in the zone of insolvency. Furthermore, in the **zone of insolvency**, the options that are available to management are constrained by the expectations of the external providers of funding and, as previous literature (Smith & Graves, 2005; Trahms et al., 2013) suggests, firm size may also have a material influence on turnaround potential. The conceptual research framework also depicts the variables, fraction of equity owned by management and fraction of funding from external sources, as having relationships with the variables collectively described as board composition.

Corporate governance theory argues that a firm's board of directors has a fiduciary role in respect of stakeholders and thus fulfils an oversight role in respect of the decisions that management make in respect of the firm. It has been argued in this thesis that the very composition of a firm's board of directors will have a relationship with the turnaround potential of firm that that comes about directly as a result of management's decisions and actions.

The conceptual research model also shows that the dependent variable return to secured creditors is directly dependent on the firm's turnaround potential as measured by the variables, free assets, severity of distress and changes in executive management (Smith & Graves, 2005). It further shows that, because of preference in law accorded to secured creditors, the dependent variable return to unsecured creditors has a direct relationship with the turnaround potential after adjustments are made for the return to secured creditors.

With these factors in mind, a multiple hierarchical regression analysis was selected as the appropriate statistical method. This method allowed for multiple models to be considered, starting with the base model comprising the independent variables of fraction of equity owned by management, fraction of funding from external sources and size. The method allows for more comprehensive models that include the variables collectively described as, board composition and turnaround potential to be added. Using a multiple hierarchical regression analysis a final model that includes all independent variables and return to unsecured

creditors as the dependent variable shows how predictability of the dependent variable improves by the incremental inclusion of independent variables.

Thus the researcher was able, by contemplating the various possible models derived from using a multiple hierarchical regression analysis, to assess which variables are likely to be most important when considering the possible return to creditors. To ensure that this statistical approach could be used successfully the necessary tests of assumptions were carried out. The results of the tests of assumptions are presented separately under the findings for **Hypothesis 5$_A$** (Table 9.22) and **Hypothesis 5$_B$** (Table 9.26), respectively.

Hypothesis 5$_B$ There is a relationship between the independent variables fraction of equity owned by management, fraction of funding from external sources and the return to secured creditors (dependent variable) who have a claim against financially distressed businesses. This relationship is further enhanced by the variables described collectively as board composition and turnaround potential.

H 5$_{A0}$ – There is no relationship between the independent variables fraction of equity owned by management, fraction of funding from external sources and the return to secured creditors (dependent variable) who have a claim against financially distressed businesses. This relationship is not further enhanced by the variables described collectively as board composition and turnaround potential.

A hierarchical multiple regression was run to determine if the addition of board composition variables and then of turnaround potential variables improved the prediction of return to secured creditors over and above fraction of shareholding owned by management and fraction of external funding alone. **Size (L$_n$ (total assets))** was included as a control variable. Table 9.23 depicts the details for each regression model used. Prior to running this hierarchical multiple regression, the required tests of assumptions were carried out and are summarized in Table 9.22.

The aim of Table 9.22 is to inform the regression findings of the results of the tests of assumptions. The findings reported in Table 9.22 show that the data extracted from the sample used in this research satisfy the assumptions upon which regression analysis is based.

As a result of conducting the tests of assumptions for a regression analysis detailed in Table 9.22, it was concluded that it was feasible and appropriate to conduct a hierarchical multiple regression analysis on the data with the dependent variable return to secured creditors.

Hypothesis 5$_A$:   Regression Results

The base model (**Model 1**) using the independent variables of size, fraction of equity owned by management and fraction of external funding explains only 1.9 % ($R^2 = 0.019$) of the variability in the dependent variable, return to secured creditors. The addition of board composition to the base model for prediction of return to secured creditors (**Model 2**) led to an increase, that was statistically not significant, in R^2 of 0.005, $F_{(3, 97)} = 0.25$, $p > 0.05$. The further addition of turnaround potential to the prediction of return to secured creditors (**Model 3**) led to a statistically significant increase in R^2 of 0.284, $F_{(3, 94)} = 12.876$, $p < 0.05$.

The full model of external funding; size; fraction of management shareholding; number of independent directors; total number of directors; board duality; free assets; TMT change, and severity of distress (Taffler Z-score) to predict return to secured creditors (**Model 3**) was statistically significant. The independent variables explain 30.9 % of the variance in the dependent variable (return to secured creditors) of which the independent variables total number of directors and free assets are individually statistical significant contributors: $R^2 = 0.309$, $F_{(3, 94)} = 12.876$, $p < 0.05$.

Table 9.22: **Findings for Tests of Assumptions for Regression Analysis with Return to Secured Creditors as the Dependent Variable**

No.	Assumption	Test Conducted	Findings
1	**Variables are either continuous or categorical**	Inspect the data properties	Confirmed that one variable is categorical and the rest are all continuous
2	**Independence of residuals**	Durbin Watson	Moderate independence of residuals – Durbin-Watson = 1.772 (within thresholds of -2.0 and +2.0)
3	**Linearity**	• Plot of studentized residuals against predicted values for collective linearity. • Partial regression plots for individual variables	Inspection showed the data to meet the test for collective and individual linearity (Appendix D)
4	**Existence of Homoscedasticity**	Visual inspection of plot of studentized residuals versus unstandardized predicted values	Displayed a spread of residuals that does not increase or decrease with a change in predicted values (Appendix D)
5	**No Multi-collinearity**	Measure of tolerance values and VIF value	Tolerance values for all variables < 0.1
6	**Unacceptable influence of outliers does not exist**	• Investigated a case-wise diagnostic of predicted values in excess of ± 3 standard deviations. • Investigated all cases where studentized residuals exceeded ± 3 standard deviations.	• There were no cases of predicted values exceeding ± 3 standard deviations • The five cases where studentized residuals exceeded ± 3 standard deviations were individually investigated. It was determined that these cases were not outliers but valid values that needed inclusion.
7	**Assumption of normality**	A normal P-P plot of Regression Standardized residuals was constructed	Inspection showed that the points were aligned roughly along the diagonal line indicating the residuals to be approximately normally distributed.

Table 9.23:   Multiple Hierarchical Regression Model Results for Hypothesis 5$_A$

| Model | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
				R Square Change	F Change	df1	df2	Sig. F Change	
1	0.019	-0.010	0.17829	0.019	0.650	3	100	0.585	
2	0.025	-0.036	0.18053	0.005	0.178	3	97	0.911	
3	0.309	0.242	0.15439	0.284	12.876	3	94	0.000	1.772

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.062	3	0.021	0.650	0.585^b
	Residual	3.179	100	0.032		
	Total	3.241	103			
2	Regression	0.079	6	0.013	0.406	0.873^c
	Residual	3.161	97	0.033		
	Total	3.241	103			
3	Regression	1.000	9	0.111	4.662	0.000^d
	Residual	2.241	94	0.024		
	Total	3.241	103			

a. Dependent Variable: Returnsecured.

b. Predictors: (Constant), Managementshares, Externalfund, Size.

c. Predictors: (Constant), Managementshares, Externalfund, Size, IndDirs, TotalDirectors, Boarddualitycoded.

d. Predictors: (Constant), Managementshares, Externalfund, Size, IndDirs, TotalDirectors, Boarddualitycoded, TafflerZ, Freeassets, TMTchange.

Table 9.24: **Multiple Hierarchical Regression Model Results for Hypothesis 5$_A$ – Continued**

Coefficients[a]							
	Unstandardized Coefficients		Standardized Coefficients			Colinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	1.083	0.225		4.811	0.000		
Size	-0.001	0.011	-0.006	-0.057	0.955	0.937	1.068
Externalfund	-0.068	0.077	-0.090	-0.882	0.380	0.944	1.059
Managementshares	-0.083	0.093	-0.091	-0.891	0.375	0.934	1.071
2 (Constant)	1.155	0.380		3.042	0.003		
Size	-.002	0.012	-0.018	-0.169	0.866	0.853	1.173
Externalfund	-.065	0.079	-0.087	-0.821	0.413	0.906	1.104
Managementshares	-.087	0.109	-0.096	-0.795	0.429	0.696	1.436
TotalDirectors	0.009	0.017	0.061	0.534	0.594	0.772	1.295
IndDirs	-0.020	0.147	-0.022	-0.136	0.892	0.383	2.611
Boarddualitycoded	-0.065	0.211	-0.051	-0.308	0.759	0.373	2.682
3 (Constant)	0.957	0.356		2.692	0.008		
Size	-0.010	0.011	-0.094	-0.919	0.361	0.696	1.436
Externalfund	-0.028	0.070	-0.037	-0.397	0.692	0.846	1.183
Managementshares	-0.032	0.094	-0.035	-0.337	0.737	0.687	1.456
TotalDirectors	0.044	0.016	0.297	2.748	0.007	0.629	1.589
IndDirs	-0.162	0.137	-0.179	-1.181	0.241	0.319	3.132
Boarddualitycoded	0.104	0.213	0.081	0.486	0.628	0.267	3.740
Freeassets	0.060	0.010	0.570	5.919	0.000	0.792	1.262
TafflerZ	0.000	0.000	-0.084	-0.894	0.374	0.841	1.190
TMTchange	-0.192	0.112	-0.184	-1.706	0.091	0.635	1.575

a. Dependent Variable: Returnsecured.

The analysis shows, that in **Model 3**, the total number of directors (a board composition variable), and the amount of free assets (a turnaround potential variable), are the only variables that are individually significantly related with return to secured creditors.

The formulae based on multiple regression **Models 1, 2** and **3** are presented below:

Model 1:	Output of the regression analysis shows that the first model will predict only 1.9 % ($R^2 = 0.019$) of the variability in the return to secured creditors as a result of the variables contained in the model below.
Return to secured creditors:	$= \alpha + \beta_1(size) + \beta_2(externalfunding) + \beta_3(Managementshare)$

Model 2:	Output of the regression analysis shows that the second model will predict 2.5 % ($R^2 = 0.025$) of the variability in the return to secured creditors as a result of the variables contained in the model below.
Return to secured creditors:	$= \alpha + \beta_1(size) + \beta_2(externalfunding) + \beta_3(Managementshare) + \beta_4(totaldirectors) + \beta_5(inddirs) + \beta_6(Boarddualitycoded)$

Model 3:	Output of the regression analysis shows that the third model will predict 31 % ($R^2 = 0.309$) of the variability in the return to secured creditors as a result of the variables contained in the model below.
Return to secured creditors:	$= \alpha + \beta_1(size) + \beta_2(externalfunding) + \beta_3(Managementshare) + \beta_4(totaldirectors) + \beta_5(inddirs) + \beta_6(Boarddualitycoded) + \beta_7(Freeassets) + \beta_8(TafflerZ) + \beta_9(TMTchange)$

Notwithstanding that the entire **Model 3** is significant, the analysis shows that **total directors** and **free assets** are the only two variables that are individually statistically significant predictors. Thus, it is useful to consider an alternative regression model using only these two variables as independent variables even

Table 9.25: **Alternative Multiple Regression Model Results for Hypothesis 5$_A$**

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.514[a]	0.264	0.242	0.154	0.264	11.985	3	100	0.000	1.791

a. Predictors: (Constant), Freeassets, Size, TotalDirectors.

b. Dependent Variable: Returnsecured.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.857	3	0.286	11.985	0.000[b]
	Residual	2.384	100	0.024		
	Total	3.241	103			

a. Dependent Variable: Returnsecured

b. Predictors: (Constant), Freeassets, Size, TotalDirectors

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.084	0.154		7.049	0.000		
	Size	-0.015	0.010	-0.138	-1.484	0.141	0.845	1.184
	TotalDirectors	0.042	0.014	0.282	2.906	0.005	0.780	1.282
	Freeassets	0.058	0.010	0.557	5.944	0.000	0.838	1.193

a. Dependent Variable: Returnsecured.

though it is not necessarily the optimum model. This is because the other independent variables improve the amount of variability of the dependent variable that the model predicts from 26.4 % ($R^2 = 0.264$) to 30.9 % ($R^2 = 0.309$). This alternative regression model is shown in Table 9.25.

Hypothesis 5_A – Alternative model (Table 9.25): Output of the regression analysis shows that the alternative model is statistically significant ($p < 0.05$) and will predict 26.4 % ($R^2 = 0.264$) of the variability in the **return to secured creditors** as a result of the independent variables contained in the model below.

Return to secured creditors:	$= \alpha + \beta_1(size) + \beta_2(totaldirectors) + \beta_3(freeassets)$

In summary, the analysis shows that **Model 3** is statistically significant ($p < 0.05$) and that 30.9 % of the variability in the dependent variable (**Return to Secured Creditors**) can be attributed to the independent variables, size, fraction of equity owned by management, fraction of funding from external sources, board composition and turnaround potential. Put another way. The variables of **Model 3** explain 30.9 % of the return to secured creditors but 69.1 % of the variability in return to secured creditors cannot be explained by the variables in **Model 3**. However, it is also true to say that the significance of the model ($p < 0.05$) suggests that there is less than a 5 % chance of the ***null hypothesis*** being true and, therefore, it is possible to say that the model will explain the return to secured creditors significantly better than use of the mean alone (Field, 2009: Section 8.4.3.1). It is worth noting that 26 % of the variability can be explained by the variables, size, total directors and free assets.

The analysis also provides sufficient evidence to reject the ***null hypothesis*** that there is no relationship between the independent variables fraction of equity owned by management, fraction of funding from external sources and the **return to secured creditors** (dependent variable) who have a claim against financially distressed businesses. This relationship is not further enhanced by the variables described collectively as board composition and turnaround potential.

Hypothesis 5$_B$ There is a relationship between the independent variables: fraction of equity owned by management: fraction of funding from external sources, and the dependent variable **return to unsecured creditors** (those who have a claim against financially distressed businesses). This relationship is further enhanced by the variables described collectively as board composition and turnaround potential and the **return to secured creditors**.

H 5$_{B0}$ – There is no relationship between the independent variables, fraction of equity owned by management, fraction of funding from external sources and the dependent variable **return to unsecured creditors** (those who have a claim against financially distressed businesses). This relationship is not further enhanced by the variables described collectively as board composition and turnaround potential and the return to secured creditors.

A hierarchical multiple regression was run to determine if the addition of board composition, turnaround potential and return to secured creditors improved the prediction of return to unsecured creditors over and above the fraction of shareholding owned by management and the fraction of external funding alone. Size (Log$_n$ total assets) was included as a control variable. See Table 9.27 for full details on each regression model. Prior to running this hierarchical multiple regression, the required tests of assumptions were carried out and are summarised in Table 9.26. The findings reported in Table 9.26 showed that the data extracted from the sample used in this research satisfy the assumptions upon which regression analysis is based

Table 9.26: **Findings for Tests of Assumptions for Regression Analysis with Return to Unsecured Creditors as the Dependent Variable**

No.	Assumption	Test Conducted	Findings
1	**Variables are either continuous or categorical**	Inspect the data properties	Confirmed that one variable is categorical and the rest are all continuous
2	**Independence of residuals**	Durbin Watson	Acceptable independence of residuals – Durbin Watson = 1.529 (within thresholds of -2.0 and +2.0)
3	**Linearity**	• Plot of studentized residuals against predicted values for collective linearity. • Partial regression plots for individual variables	Inspection showed the data to meet the test for collective and individual linearity (Appendix D)
4	**Existence of Homoscedasticity**	Visual inspection of plot of studentized residuals versus unstandardized predicted values	Displayed a spread of residuals that does not increase or decrease with a change in predicted values (Appendix D)
5	**No Multi-colinearity**	Measure of tolerance values and VIF value	Tolerance values for all variables < 0.1
6	**Unacceptable influence of outliers does not exist**	• Investigated a case-wise diagnostic of predicted values in excess of $\pm$ 3 standard deviations. • Investigated all cases where studentized residuals exceeded $\pm$ 3 standard deviations.	• There were no cases of predicted values exceeding $\pm$ 3 standard deviations • There were no cases where studentized residuals exceeded $\pm$ 3 standard deviations.
7	**Assumption of normality**	A normal P-P plot of Regression Standardised residual was constructed	Inspection showed that the points were aligned roughly along the diagonal line, indicating the residuals to be approximately normally distributed.

As a result of conducting the tests of assumptions for a regression analysis detailed in Table 9.26 it was concluded that it was feasible and appropriate to conduct a hierarchical multiple regression analysis on the data with the dependent variable return to unsecured creditors.

Hypothesis 5$_B$ Regression results

The base model (**Model 1**) using the independent variables of size, fraction of equity owned by management and the fraction of external funding was statistically significant and will predict only 19 % ($R^2 = 0.19$) of the variability in the dependent variable, **return to unsecured creditors**.

The addition of board composition to the prediction of **return to unsecured creditors (Model 2)** led to a statistically non-significant increase in R^2 of 0.028, $F_{(6, 97)} = 4.526$, $p > 0.05$. The addition of turnaround potential to the prediction of return to unsecured creditors (**Model 3**) led to a statistically significant increase in R^2 of 0.076, $F_{(9, 94)} = 4.368$, $p < 0.05$.

The full model of external funding, size, fraction of management shares, number of independent directors, total directors, board duality, free assets, TMT change, and severity of distress (Taffler Z-score) and return to secured creditors to predict return to unsecured creditors (**Model 4**) was statistically significant. The independent variables explain 41.2 % of the variance in the dependent variable (**return to unsecured creditors**) of which the independent variables size, fraction of management share-holding and return to secured creditors are individually significant contributors, $R^2 = 0.412$, $F_{(10, 93)} = 6.529$, $p < 0.05$.

Table 9.27:   Multiple Hierarchical Regression Model Results for Hypothesis 5$_B$

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
1	0.190	0.166	0.366	0.190	7.840	3	100	0.000	
2	0.219	0.170	0.365	0.028	1.172	3	97	0.325	
3	0.295	0.227	0.353	0.076	3.384	3	94	0.021	
4	0.412	0.349	0.324	0.118	18.615	1	93	0.000	1.529

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.155	3	1.052	7.840	0.000[b]
	Residual	13.415	100	0.134		
	Total	16.570	103			
2	Regression	3.624	6	0.604	4.526	0.000[c]
	Residual	12.946	97	0.133		
	Total	16.570	103			
3	Regression	4.886	9	0.543	4.368	0.000[d]
	Residual	11.684	94	0.124		
	Total	16.570	103			
4	Regression	6.835	10	0.683	6.529	0.000[e]
	Residual	9.735	93	0.105		
	Total	16.570	103			

a. Dependent Variable: Returnunsecured
b. Predictors: (Constant), Managementshares, Externalfund, Size
c. Predictors: (Constant), Managementshares, Externalfund, Size, IndDirs, TotalDirectors, Boarddualitycoded
d. Predictors: (Constant), Managementshares, Externalfund, Size, IndDirs, TotalDirectors, Boarddualitycoded, TafflerZ, Freeassets, TMTchange
e. Predictors: (Constant), Managementshares, Externalfund, Size, IndDirs, TotalDirectors, Boarddualitycoded, TafflerZ, Freeassets, TMTchange, Returnsecured

Table 9.28: **Multiple Hierarchical Regression Model Results for Hypothesis 5$_B$ – Continued**

		Unstandardized Coefficients		Standardized Coefficients			Colinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-1.175	0.462		-2.542	0.013		
	Size	0.096	0.023	0.392	4.221	0.000	0.937	1.068
	Externalfund	-0.257	0.157	-0.152	-1.637	0.105	0.944	1.059
	Managementshares	0.361	0.192	0.175	1.883	0.063	0.934	1.071
2	(Constant)	-1.100	0.769		-1.431	0.156		
	Size	0.102	0.024	0.419	4.306	0.000	0.853	1.173
	Externalfund	-0.248	0.160	-0.146	-1.549	0.125	0.906	1.104
	Managementshares	0.331	0.221	0.161	1.498	0.137	0.696	1.436
	TotalDirectors	-0.012	0.034	-0.037	-0.363	0.717	0.772	1.295
	IndDirs	-0.247	0.297	-0.121	-0.833	0.407	0.383	2.611
	Boarddualitycoded	-.0127	0.427	-0.044	-0.297	0.767	0.373	2.682
3	(Constant)	-0.917	0.812		-1.129	0.262		
	Size	0.077	0.025	0.316	3.041	0.003	0.696	1.436
	Externalfund	-0.168	0.160	-0.099	-1.047	0.298	0.846	1.183
	Managementshares	0.373	0.215	0.181	1.733	0.086	0.687	1.456
	TotalDirectors	0.034	0.037	0.102	0.932	0.354	0.629	1.589
	IndDirs	-.0330	0.314	-0.161	-1.053	0.295	0.319	3.132
	Boarddualitycoded	-0.104	0.487	-0.036	-0.213	0.832	0.267	3.740
	Freeassets	.0066	0.023	0.279	2.868	0.005	0.792	1.262
	TafflerZ	0.000	0.000	0.105	1.113	0.268	0.841	1.190
	TMTchange	0-.055	0.257	-0.023	-0.214	0.831	0.635	1.575

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Colinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
4 (Constant)	-1.809	0.773		-2.340	0.021		
Size	0.087	0.023	0.355	3.705	0.000	0.690	1.449
Externalfund	-0.142	0.147	-0.083	-0.963	0.338	0.844	1.185
Managementshares	0.402	0.197	0.195	2.037	0.044	0.686	1.457
TotalDirectors	-0.007	0.035	-0.021	-0.199	0.842	0.583	1.716
IndDirs	-0.179	0.290	-0.087	-0.617	0.539	0.315	3.179
Boarddualitycoded	-0.200	0.447	-0.069	-0.447	0.656	0.267	3.749
Freeassets	0.010	0.025	0.044	0.419	0.676	0.577	1.733
TafflerZ	0.001	0.000	0.140	1.604	0.112	0.833	1.200
TMTchange	0.124	0.239	0.052	0.518	0.606	0.616	1.624
Returnsecured	0.933	0.216	0.412	4.315	0.000	0.691	1.446

a. Dependent Variable: Returnunsecured.

Table 9.28 indicates that **return to unsecured creditors** can be explained by the formulae based on the multiple **Regression Models 1, 2, 3** and **4** that are presented below:

Model 1:	Output of the regression analysis shows that the first model explains 19 % ($R^2 = 0.19$) of the variability in the return to unsecured creditors as a result of the variables contained in the model below
Return to unsecured creditors:	= α β_1(*size*) + β_2(*externalfunding*) + β_3(*Managementshare*)

Model 2:	Output of the regression analysis shows that the second model explains 21.9 % ($R^2 = 0.219$) of the variability in the return to unsecured creditors as a result of the variables contained in the model below.
Return to unsecured creditors:	= α + β_1(*size*) + β_2(*externalfunding*) + β_3(*Managementshare*) + β_4(*totaldirectors*) + β_5(inddirs) + β_6(*Boarddualitycoded*)

Model 3:	Output of the regression analysis shows that the third model explains 29.5 % ($R^2 = 0.295$) of the variability in the return to secured creditors as a result of the variables contained in the model below.
Return to unsecured creditors:	= α + β_1(size) + β_2(externalfunding) + β_3(Managementshare) + β_4(totaldirectors) + β_5(inddirs) + β_6(Boarddualitycoded) + β_7(Freeassets) + β_8(TafflerZ) + β_9(TMTchange)

Model 4:	Output of the regression analysis shows that the third model explains 41.2 % ($R^2 = 0.412$) of the variability in the return to secured creditors as a result of the variables contained in the model below.
Return to unsecured creditors:	$= \alpha + \beta_1(size) + \beta_2(externalfunding) + \beta_3(Managementshare) + \beta_4(totaldirectors) + \beta_5(inddirs) + \beta_6(Boarddualitycoded) + \beta_7(Freeassets) + \beta_8(TafflerZ) + \beta_9(TMTchange) + \beta_{10} (returnsecured)$

Notwithstanding that the entire **Model 4** is significant the analysis shows that, size, fraction of shares owned by management and return to secured creditors are three variables that are individually significant. Thus it is useful to consider an alternative regression model using only these variables as independent variables even though it is not necessarily the optimum model. This is because the other independent variables improves the amount of variability of the dependent variable that the model predicts from 35.6 % ($R^2 = 0.356$) to 41.2 % ($R^2 = 0.412$).

Table 9.29:   Alternative Multiple Regression Model Results for Hypothesis 5$_B$

Alternative Regression Model Summary[b]

Model	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.356	0.336	0.327	0.356	18.396	3	100	0.000	1.426

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.893	3	1.964	18.396	0.000[b]
	Residual	10.677	100	0.107		
	Total	16.570	103			

a. Dependent Variable: Returnunsecured

b. Predictors: (Constant), Returnsecured, Size, Managementshares

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	-2.432	0.430		-5.659	0.000		
	Size	0.100	0.020	0.411	5.013	0.000	0.957	1.045
	Managementshares	0.406	0.170	0.197	2.392	0.019	0.947	1.056
	Returnsecured	0.983	0.183	0.435	5.386	0.000	0.989	1.012

a. Dependent Variable: Returnunsecured

Hypothesis 5$_B$ Alternative model

Output of the regression analysis shows that the alternative model is statistically significant ($p < 0.05$) and explains 35.6 % ($R^2 = 0.356$) of the variability in the return to secured creditors as a result of the independent variables contained in the model below.

Return to unsecured creditors:	$= \alpha + \beta_1(size) + \beta_2(Managementshare) + \beta_3(returnsecured)$

In summary, the analysis shows that **Model 4** is statistically significant ($p < 0.05$) and that 41.2 % of the variability in the dependent variable (**return to unsecured creditors**) can be attributed to the independent variables, size, fraction of equity owned by management, fraction of funding from external sources, board composition, turnaround potential and return to secured creditors.

In other words, the variables of **Model 4** explain 41.2 % of the return to unsecured creditors but 58.8 % of the variability in return to unsecured creditors cannot be explained by the variables in **Model 4**. However, it is also true to say that the significance of the model ($p < 0.05$) suggests that there is less than a 5 % chance of the **null hypothesis** being true and, therefore, it is possible to say that the model will explain the **return to unsecured creditors** significantly better than use of the mean alone (Field, 2009: Section 8.4.3.1). It is worth noting that 35.6 % of the variability can be explained by the variables, size, fraction of shares owned by management and return to secured creditors.

The analysis provides sufficient evidence to reject the **null hypothesis** that there is no relationship between the independent variables; fraction of equity owned by management; fraction of funding from external sources, and the **return to unsecured creditors** (dependent variable) who have a claim against the financially distressed business. Furthermore, it is possible to reject the view that the relationship is not enhanced by the variables described collectively as board composition, turnaround potential and the return to secured creditors.

9.4.6 Validating the Regression Models

According to Hair et al. (2013) there are a number of ways to validate the results of a regression analysis. The purpose is to assess the generalizability of the results to the population from which the sample was drawn. In the case of this research, the possibility of an additional holdout sample was explored, but was disregarded due to unavailability of futher relaible data. Thus, it was decided to use the adjusted R^2 alternative as the method of assessment.

In the case of **Hypothesis 5$_A$** the final model (**Model 3**) showed an **adjusted** R^2 result $= 0.242$ versus an $R^2 = 0.309$, showing a reduction of 0.067 which reveals very little loss of predictive power. This suggests that there is little risk of overfitting of the model and, furthermore, having more than five variables in the model provides an adequate ratio of observations to variables in the variate (Hair et al., 2013).

In the case of **Hypothesis 5$_B$** the final model (**Model 4**) showed an **adjusted** R^2 result $= 0.349$ versus an $R^2 = 0.412$, showing a reduction of 0.063 which also reveals very little loss of predictive power. Thus it also suggests that there is little risk of overfitting of the model and furthermore having more than five variables in the model provides an adequate ratio of obesrvations to variables in the variate (Hair et al., 2013).

9.4.7 Multivariate analysis – Regression analysis extended

In oder to expand the analysis for **Hypotheses 1** to **4** from a univariate perspective to a multivariate perspective, the interaction between the individual variables for each hypothesis was considered. This was done in the context of the overall conceptual research model, with return to secured creditors as the dependent variable in the first regression model, and return to unsecured creditors as the dependent variable in the second regression model.

The interaction variables were created as dummy variables by simply multiplying the two variables together and using the resulting product in the respective multiple regression analyses. These dummy variables are shown in Table 9.30.

Table 9.30: **Interaction Variables for Hypotheses 1 to 4**

Hypotheses	Interaction Dummy variable = Product of values of the two interacting variables	Name
Hypothesis 1$_A$	Managementshares X Freeassets	MngmntShFreeA
Hypothesis 1$_B$	Managementshares X TafflerZ	MngmntShTaffler
Hypothesis 1$_C$	Managementshares X TMTChange	MngmntShTMTch
Hypothesis 2$_A$	Managementshares X TotalDirectors	MngmntShTotDirs
Hypothesis 2$_B$	. Managementshares X IndDirs	MngmntShIndDirs
Hypothesis 2$_C$	Managementshares X Boarddualitycoded	MngmntShBoardDual
Hypothesis 3$_{A1}$	TotalDirectors X Freeassets	TotalDirsFreeA
Hypothesis 3$_{A2}$	TotalDirectors X TafflerZ	TotalDirsTaffler
Hypothesis 3$_{A3}$	TotalDirectors X TMTChange	TotalDirsTMTch
Hypothesis 3$_{B1}$	IndDirs X Freeassets	IndDirsFreeA
Hypothesis 3$_{B2}$	IndDirs X TafflerZ	IndDirsTaffler
Hypothesis 3$_{B3}$	IndDirs X TMTChange	IndDirsTMTch
Hypothesis 3$_{C1}$	Boarddualitycoded X Freeasets	BoardDualFreeA
Hypothesis 3$_{C2}$	Boarddualitycoded X TafflerZ	BoardDualTaffler
Hypothesis 3$_{C3}$	Boarddualitycoded X TMTchange	BoardDualTMTch
Hypothesis 4$_A$	Externalfund X TotalDirectors	ExtFundTotDirs
Hypothesis 4$_B$	Externalfund X IndDirs	ExtFundIndDirs
Hypothesis 4$_C$	Externalfund X Boarddualitycoded	ExtFundBoardDual

In order to extend the analysis to a multivariate view, the final regression models developed in **Hypothesis 5$_A$** and **Hypothesis 5$_B$** were extended by adding dummy variables that accounted for the interaction between the variables in

Hypothesis 1 to **Hypothesis 4**. The univariate analysis, may be seen as being synonmous with the interactions between variables existing in isolation. The multivariate analysis allowed for the interaction between variables to be observed within the context of the entire conceptual research model (Field, 2013: Section 10.3 ; Coulton & Chow, 1992).

The output of the expanded regression analysis, including the interaction variables are shown in Tables 9.31 to 9.34.

Table 9.31: **Multiple Hierarchical Regression Model Extended for Interaction variables- Secured Creditors**

| Model | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
				R Square Change	F Change	df1	df2	Sig. F Change	
1	0.766	0.719	0.09443	0.766	16.351	17	85	0.000	1.982

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.479	17	0.146	16.351	.000[b]
	Residual	0.758	85	0.009		
	Total	3.237	102			

a. Dependent Variable: Returnsecured

b. Predictors: (Constant), ExtFundBoardDual, TotalDirectors, TafflerZ, BoardDualTMTch, Freeassets, MngmntShBoardDual, Size, MngmntShTMTch, IndDirsFreeA, TotalDirsFreeA, ExtFundTotDirs, MngmntShTotDirs, TotalDirsTMTch, IndDirsTaffler, TotalDirsTaffler, MngmntShIndDirs, MngmntShFreeA
a. Dependent Variable: Returnsecured

**Table 9.32:   Multiple Hierarchical Regression Model Extended for
Interaction variables- Secured Creditors- Continued**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.010	0.186		5.432	0.000
Size	-0.002	0.008	-0.016	-0.235	0.815
TotalDirectors	0.020	0.044	0.133	0.453	0.652
Freeassets	0.077	0.187	0.735	0.411	0.682
TafflerZ	0.000	0.001	0.151	0.508	0.613
MngmntShFreeA	0.114	0.187	1.085	0.612	0.542
MngmntShTMTch	-0.196	0.121	-0.156	-1.628	0.107
MngmntShTotDirs	-0.015	0.037	-0.093	-0.394	0.695
MngmntShIndDirs	-0.018	1.150	-0.020	-0.016	0.987
MngmntShBoardDual	-0.095	0.135	-0.119	-0.708	0.481
TotalDirsFreeA	-0.025	0.009	-1.372	-2.784	0.007
TotalDirsTaffler	0.000	0.000	-0.256	-0.457	0.649
TotalDirsTMTch	0.296	0.116	0.596	2.549	0.013
IndDirsFreeA	0.010	3.704	0.002	0.003	0.998
IndDirsTaffler	-0.010	0.117	-0.067	-0.084	0.934
BoardDualTMTch	-0.469	0.202	-0.632	-2.326	0.022
ExtFundTotDirs	-0.010	0.029	-0.062	-0.346	0.730
ExtFundBoardDual	0.006	0.076	0.009	0.082	0.934

The extended multivariate model for return to secured creditors that includes the interaction variables shown in Table 9.31 will predict 77 % ($R^2 = 0.766$) of the variability in the return to secured creditors as a result of the variables contained in Table 9.32. The generalizability of the model to the entire population, sometimes referred to as the "robustness" of the regression model, can be assessed by considering the Adjusted R^2 figure in Table 9.31 (Hair et al., 2013). The Adjusted $R^2 = 0.719$ which shows neglible loss against the R^2 of 0.766, suggests that there is little overfitting of the model. Additionally having more than five variables in the model results in an adequate ratio of variables to variate (Hair et al., 2013).

The significant variables in the model are TotalDirsFreeA $p = 0.007 < 0.05$, TotalDirsTMTch $p = 0.013 < 0.05$ and BoarDualTMTCh $p = 0.022 < 0.05$. These are

all interaction variables and all relate to board composition which encourages support for the view that board composition, free assets and the provision of personal surety are worthy of future research.

Table 9.33: **Multiple Hierarchical Regression Model Extended for Interaction variables- Unsecured Creditors**

| Model | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
				R Square Change	F Change	df1	df2	Sig. F Change	
1	0.486	0.376	0.31604	0.486	4.410	18	84	0.000	1.466

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.928	18	0.440	4.410	.000[b]
	Residual	8.390	84	0.100		
	Total	16.318	102			

a. Dependent Variable: Returnunsecured

b. Predictors: (Constant), Returnsecured, Boarddualitycoded, TafflerZ, MngmntShBoardDual, MngmntShTMTch, TotalDirsFreeA, Externalfund, Size, TotalDirectors, IndDirsFreeA, ExtFundTotDirs, MngmntShTotDirs, TotalDirsTMTch, MngmntShFreeA, IndDirsTaffler, TotalDirsTaffler, MngmntShIndDirs, Freeassets

Table 9.34: **Multiple Hierarchical Regression Model Extended for Interaction variables- Unsecured Creditors- Continued**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.754	1.559		-0.484	0.630
Size	0.092	0.025	0.375	3.635	0.000
Externalfund	0.173	0.255	0.102	0.679	0.499
TotalDirectors	0.193	0.146	0.580	1.320	0.190
Boarddualitycoded	-2.137	1.375	-0.741	-1.553	0.124
Freeassets	1.352	0.627	5.744	2.156	0.034
TafflerZ	-0.001	0.002	-0.163	-0.368	0.714
MngmntShFreeA	-1.273	0.626	-5.390	-2.034	0.045
MngmntShTMTch	-0.452	0.620	-0.160	-0.729	0.468
MngmntShTotDirs	-0.128	0.125	-0.362	-1.027	0.307
MngmntShIndDirs	-2.956	3.927	-1.456	-0.753	0.454
MngmntShBoardDual	1.085	0.452	0.602	2.402	0.019
TotalDirsFreeA	-0.031	0.031	-0.762	-0.992	0.324
TotalDirsTaffler	0.001	0.002	0.602	0.719	0.474
TotalDirsTMTch	0.400	0.403	0.360	0.994	0.323
IndDirsFreeA	-23.330	12.357	-2.023	-1.888	0.062
IndDirsTaffler	0.132	0.393	0.401	0.335	0.739
ExtFundTotDirs	-0.111	0.098	-0.302	-1.135	0.260
Returnsecured	0.809	0.363	0.360	2.228	0.029

The extended multivariate model for return to unsecured creditors that includes the interaction variables shown in Table 9.33 will predict 49 % ($R^2 = 0.486$) of the variability in the return to unsecured creditors as a result of the variables contained in Table 9.34. The generalizability of the model to the entire population, sometimes referred to as the "robustness" of the regression model, can be assessed by considering the Adjusted R^2 figure in Table 9.33. The Adjusted $R^2 = 0.376$ which shows loss of 0.11 against the R^2 of 0.486, suggests that there is little overfitting of the model. Additionally, having more than five variables in the model results in an adequate ratio of variables to variate (Hair et al., 2013).

The significant variables in the model are Size $p = 0.000 < 0.05$, Freeassets $p = 0.034 < 0.05$ and MngmntShFreeA $p = 0.045 < 0.05$, MngmntShBoardDual

$p = 0.019 < 0.05$, IndDirsFreeA $p = 0.062 < 0.05$ and Returnsecured $p = 0.029 < 0.05$.

The variables Size and Free assets speak to the fact that unsecured creditors can share only in the residual value after secured creditors have been paid. Thus, it seems logical that Size will make a difference and Free assets are self-evident as free assets are calculated by subtracting secured debt from total tangible assets.

The interaction variables, MngmntShFreeA and IndDirsFreeA, are both significant in themselves and have coeffecients that are negative as follows: MngmntShFreeA $\beta = -1.273$ and IndDirsFreeA $\beta = -23.33$. These negative coeffecients show that the interaction between these variables has a negative influence on the return to unsecured creditors and are worthy of attention by both researchers and practitioners in the future.

> *"There are crimes of passion and crimes of logic. The boundary between them is not clearly defined."*
>
> **Albert Camus - French Philosopher 1913-1960**

It may be that companies in financial distress are driven more by passion than logic. The aggregate solvency and liquidity statistics reported in Section 9.2.1 and Section 9.2.2 of this chapter suggest that it is possible, and that any reasonable man may be logically expected to take earlier turnaround action. So, it would appear at the aggregate level that logic is lacking. In order to avoid spurious and speculative attempts at explaining what happens in practice, this chapter has detailed the findings of this research using the conceptual research model developed in Section 7.5.1.

The findings reported in terms of equity owned by management, funding from external sources, board composition and turnaround potential suggest that it might not be as simple as a deficiency of logic. The correlations and regression reported in respect of **Hypothesis 1** to **Hypothesis 4** and the regression analysis in respect of **Hypothesis 5$_A$** and **Hypothesis 5$_B$** suggest that understanding financial distress and turnarounds of private firms is a complex and multi-faceted endeavour as argued by

Balcaen and Ooghe (2006). There appear to be opposing dynamics at play that may not be immediately obvious.

The next chapter is devoted to a discussion of the findings reported in this chapter. The discussion is an attempt at interpreting the findings with a view to investigation of the implications of the findings in respect of funding, board composition and the turnaround potential of private firms in financial distress.

10   DISCUSSION

DISCUSSION	10.1	SOLVENCY, LIQUIDITY AND DECISION MAKING	
	10.2	SIZE	
	10.3	EQUITY OWNED BY MANAGEMENT AND FINANCIAL DISTRESS	
	10.4	EQUITY OWNED BY MANAGEMENT AND BOARD COMPOSITION	
	10.5	BOARD COMPOSITION AND TURNAROUND POTENTIAL	
	10.6	EXTERNAL FUNDING AND BOARD COMPOSITION	
		10.6.1	Agency Cost and Debt Funding
		10.6.2	Agency Cost and Distressed Debt Funding – Application
	10.7	EQUITY OWNED BY MANAGEMENT, FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL	
		10.7.1	Secured Creditors
		10.7.2	Unsecured Creditors
	10.8	DISCUSSION SUMMARY	

This thesis opened by noting the observation of Gopinath (1991). He maintained that the first step in arresting decline and preventing failure was for management to recognise and admit that there was a problem. The cross-sectional research done in this study was founded on the premise that the formal filing for legal protection under a business rescue regime is evidence that recognition of a problem within a firm had taken place. Furthermore, it is evidence that management had admitted there was a problem. It is also a signal that at least some stakeholders believe that a turnaround may be possible. Thus, the filing for formal and legally protected turnaround, serves to mark a boundary between decline and possible turnaround.

This boundary may not be the same as the boundary between financial wellness and financial distress. So, in reality, a firm that has entered the "zone of insolvency" will have crossed this first boundary ("distress"), albeit an imprecisely defined boundary (Barondes et al., 2007), before it reaches the boundary between "decline" and possible "turnaround".

Thus, it may be argued that even though the zone between the two boundaries falls within the zone of insolvency it is also somewhat of a *no-man's land.* It is an observation of the researcher that this *no-man's land* may be characterised by low visibility, apparently risky decisions, and inadequate oversight. Indicative of this observation is the fact that 13 % (17 cases) had to be excluded from analysis in this research because of incomplete or incomprehensible financial data. Furthermore, the data used in this research were gathered from formal documentation that was part of a legally protected turnaround process (Business Rescue) published by licensed Business Rescue practitioners. It is reasonable, therefore, to suggest that prior to intervention by a rescue practitioner the information available would be presented selectively to support increasingly desperate choices by management and, at best, it would be biased.

The notion of two boundaries (**Zone of Insolvency** and **Turnaround**) is shown as an idealised[6] concept in Figure 10.1. Delay in cognition by management as argued

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[6] The notion of an "idealized concept" is borrowed from scientific (physics) research,

by Panicker and Manimala (2015) is likely to see a firm's distress worsening and the turnaround potential eroded. This inertia and resistance to change, as identified by Brunninge et al. (2007) is likely to result in cognition of distress (the first step required for a turnaround) only occurring at some time after the onset of financial distress. Hence the argument, that for firms in financial distress and attempting a turnaround, there are likely to be two boundaries that exist within the zone of insolvency, namely: 1) the **zone of insolvency boundary**, as discussed in Section 5.1 of this document and 2) the **turnaround boundary** that occurs at some time after the onset of distress and once management has recognised and accepted the distressed position.
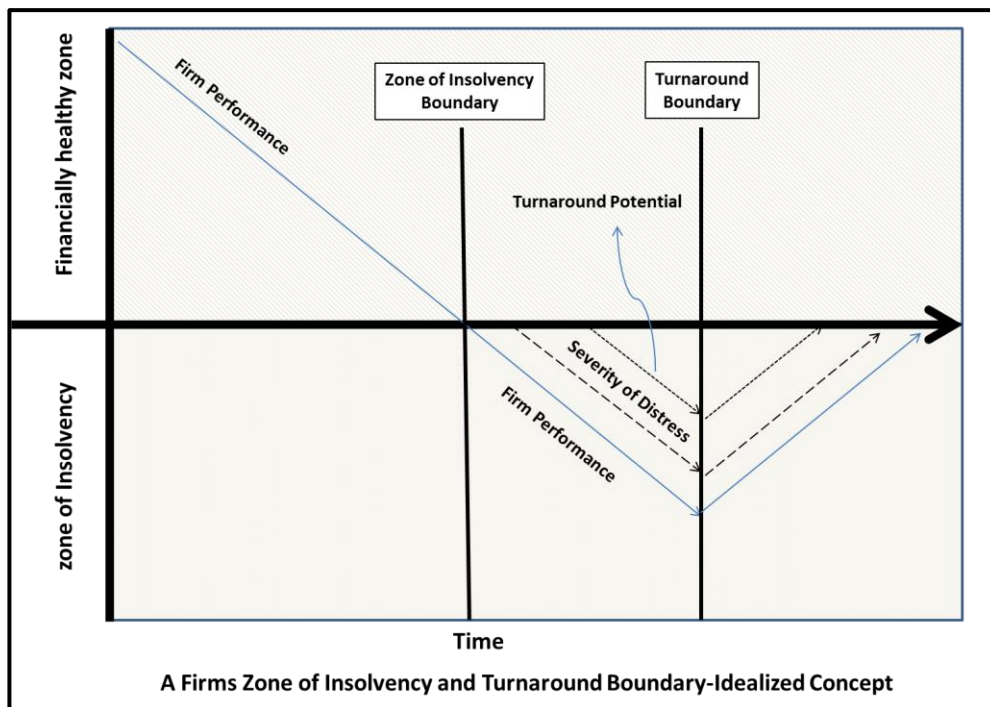
Source: Own compilation.

Figure 10.1: **Idealized Concept of the Zone of Insolvency Boundary and Turnaround Boundary with the "No-Man's Land" in Between**

Given that the success of business rescue is shown by prior research to be less than 10 % (Pretorius, 2015) it follows that many firms that enter the zone of insolvency will

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Only by creating fictitious, ideal entities and then descending from them by means of experiment and approximation to the "roughness of experience" is it possible to combine mathematics and reality (Coniglione, 2004).

not follow the idealised improvement beyond the turnaround boundary as shown in Figure 10.1. Nevertheless, with such a scenario as the backdrop, this chapter is devoted to a discussion of the findings reported in Chapter 9. **Firstly**, the aggregate findings that relate to the sample and population are discussed. Then, **secondly**, using the conceptual research framework as a guide, the findings that relate to **Hypotheses 1** to **5** are discussed.

10.1 SOLVENCY, LIQUIDITY AND DECISION MAKING

The definition of financial distress used in this research is as defined in the South African Companies Act 71 of 2008 (2011) (RSA, 2008). As noted in Section 9.2 of this document, the definition talks to both the solvency and liquidity position of a company in financial distress. To this end the aggregate solvency and liquidity position of the sample used in this research assisted to understand features of privately owned firms that become financially distressed.

For the sample used in this research, it was found that the mean of the distribution of funding provided to firms from outside sources was 84.6 %. The data were also noticeably skewed (skewness -1.664) towards the 100 % mark, suggesting that financial risk is biased towards the external providers of funding and away from shareholders. This begs the question as to why would the providers of credit be prepared to take on such a high risk? One can speculate that it is entirely possible that external funders have a distorted or poorly informed view of the risk that they are taking on.

Thus one can argue that one of the benefits of carrying out a simple solvency and liquidity test for any individual firm is that the result will be an indication of the financial health of the said firm. The analysis should also assist the providers of funding to reach a conclusion on the credit risk they assume.

The Business Rescue Status report reported that the main reasons firms file for Business Rescue is creditor pressure and profitability problems (Pretorius, 2015). This supports the view of this research that management holds on desperately for far too long before taking decisive action. This action frequently comes about as a result of outside pressure and results in a very weak solvency and liquidity position.

Furthermore, it suggests that any firm responding to external pressure and seeking legal protection via a formal turnaround process is probably a result of management making a "last gasp" attempt at a turnaround. At the aggregate level, the amount of current assets (ZAR 1.1 Bn) against current liabilities (ZAR 2.6 Bn) amounted to a shortfall of ZAR 1.5 Bn. In other words only 42 % of the total short-term debt of the sample could be serviced by current assets.

Further evidence of management holding out against all odds is the aggregate solvency of the sample used in this research. The total liabilities amounted to ZAR 4.8 Bn and the total tangible assets amounted to ZAR 2.8 Bn, leaving a shortfall of ZAR 2.0 Bn. This translates to only 58 % of the total debt that could be covered by the total assets. This appears to be a better picture than the 42 % short-term debt that could be covered but, nevertheless, indicates that the majority of firms entering formal turnaround are already desperately insolvent.

> *"How did you go bankrupt?"*
> *"Two ways. Gradually and then suddenly."*
>
> ***Ernest Hemingway – The Sun also rises***
>
> *Set in Post-World War I – Described as an age of moral bankruptcy, unrealised love and vanishing illusions.*

The 58 % cover of total debt is comparable to findings published by Davydenko (2012) who determined the average level of the "value-based default boundary" was 66 % of the face value of debt. The "value-based default boundary" to which he refers is the market value of the firm's assets (Davydenko, 2012). In this research, the value attached to tangible assets was extracted from published rescue plans but is likely to be overly optimistic, as a result of information asymmetry and biased reporting on the part of management who may be inclined to present the best possible picture and mask any shortcomings of the firm (Smudde & Courtright, 2011). In fact, on the open market, the value is likely to be significantly lower than the reported value. So, the 58 % coverage may be considered as conservative

(generous). This further supports the argument that, on average, the sample firms in this research were already desperately insolvent before decisive action was taken. Informal personal discussions[7] with business rescue practitioners, turnaround professionals, and bankers revealed that the true market value of a distressed firm's assets may be as little as 10 % or 20 % of the value reported in the company's records.

These large shortfall statistics suggest that incumbent management simply held on for far too long before taking decisive action. A potential explanation for this could be one of two reasons: 1) management cognition of the problem had simply not taken place, which is consistent with the views of Smudde and Courtright (2011) or 2) cognition had taken place but the fact that management owns 93.8 % of the equity leads them to become risk seeking when faced with the prospect of loss as described by Kahneman and Tversky (1979), and Fich and Slezak (2008).

It is also likely that these business owners will have provided some form of additional personal surety (White, 2016) which may not be visible to other creditors but will inevitably amplify the business owner's anxiety, thereby increasing the possibility of them becoming more risk seeking rather than risk averse, with the risk in terms of any business decisions they make being carried primarily by the creditors.

In the case of the first reason (cognition), the solvency and liquidity evidence is supported by the view that lack of cognition may be a result of fixed mental models (Combe & Carrington, 2015) or management bias (Abatecola et al., 2011; Rockwell, 2016). This may further support the contention that existence of management inertia is a noteworthy contributor to organisational failure.

As for management becoming risk seeking, it appears impossible for a definitive conclusion to be formed in respect of specific cases. However, based on the evidence, it seems that, at the aggregate level, firms are desperately insolvent and definitely unable to service the level of debt. It further follows and supports the view that once a firm is in the zone of insolvency but, has not commenced a formal

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[7] In order to respect confidentiality, the names and organisations of the individuals with whom the researcher had personal discussions, are excluded from the reference list.

turnaround process, the risk resulting from management decisions is carried by creditors.

As the prospect of personal loss for management and shareholders increases, the possibility of them becoming increasingly risk seeking also increases (Kahneman & Tversky, 1979). In a distressed private firm situation, shareholders, directors and management are faced with the prospect of many categories of loss. These include, but are not limited to one's immediate financial loss, loss of status and prestige, loss of asset utilization, loss of future income, and loss of esteem. It is beyond the scope of this research to investigate these losses in any detail but the point can be illustrated using an example of the financial (nett worth) loss that a shareholder/director/manager may experience if they have provided personal surety for company debts.

Using the aggregate amounts for this research's sample an exemplar case can be created as follows;

For simplicity, a number of assumptions are necessary:

1. There is only one shareholder who owns only one company.

2. As the company is in distress it has no positive impact on the shareholder's personal nett worth.

3. With the exception of personal surety provided by the shareholder, his liability is limited to his initial investment. Thus, there is no further negative impact on the shareholder's nett worth.

4. There are many forms of personal surety but it is not uncommon for funders and providers of credit to expect shareholders of privately owned companies to provide personal surety to the full extent of the credit advanced even if that is significantly more than the shareholder's nett personal wealth. For illustration, the extent of the personal surety is set at ZAR 1,000 over and above the level of security provided by the company assets.

5. At time 1 (t-1) it is assumed that the amount of debt of the company equals the amount of tangible assets.

6. At time 2 (t-2) it is assumed that the company is in distress in the same ratio as the aggregate solvency position of the sample in this research.

Table 10.1: Worked Example of Personal Surety – Non-Distressed Position

Relevant Company information @ t-1	
• Total Liabilities:	R 2,800
• Total Tangible Assets:	R 2,800
• **Shortfall:**	**R 0,000**
Relevant Personal information @ t-1	
• Shareholder's nett worth before impact of personal security:	R1,000
• Less Personal Surety called up:	R0,000
• **Shareholder's nett worth after impact of personal security:**	**R1,000**

Source: Own compilation.

The example in Table 10.1 shows that, while the company's assets can cover the company's obligations, the personal surety provided by a shareholder will not impact the shareholder's personal nett worth. However, the example in Table 10.2 shows this may not hold true once the company is established in the zone of insolvency and there is the likelihood that a shortfall of assets against liabilities exists. The shortfall triggers the personal surety to be called up, resulting in a negative impact on an individual's personal nett worth.

Table 10.2:   **Worked Example of Personal Surety – Distressed Position**

Relevant Company information @ t–2	
• Total Liabilities:	R 4,800
• Total Tangible assets:	R 2,800
• **Shortfall:**	**R 2,000**
Relevant Personal information @ t–2	
• Shareholder's nett worth before impact of personal security:	R1,000
• Less Personal surety called up:	R1,000
• **Shareholder's net worth after impact of personal security:**	**R0,000**

Source: Own compilation.

Thus, it may be reasonable to argue that the shareholder/director/manager who is likely to be the same person in any private company will be motivated strongly to protect their own personal nett worth even, if the risk is carried by creditors.

The problem is that due to selective and biased reporting on the part of management, the type of situation displayed in Table 10.2 may not be evident to outside parties. Hence, owing to this probable lack of visibility, it is almost certain that earlier decisive action and involvement of an independent party would benefit all parties concerned. This is one of the benefits that are expected of a legally protected turnaround process such as Chapter 11 (USA) or Chapter 6 (South Africa).

In the case of Chapter 6 in South Africa and, according to Levenstein (2016 p. 305), the intention of legislators, when drafting Chapter 6 of the Companies Act (RSA, 2008) and, providing for the formal assessment of distress by a company's board of directors, was that early action and maximising the likelihood of a return to creditors, employees and the company itself (Levenstein, 2016: p. 305), would be the

outcome. The results of the aggregate solvency and liquidity position of the firms in this research's sample suggests that this is seldom achieved for private firms.

It may be argued that the personal utility drive of shareholders in management positions and the needs of the firm itself may not be compatible, which leads to management making risky decisions while attempting to alleviate the financial distress of the firm. The end result is that the truly decisive action of entering a formal turnaround process is delayed for far too long. Even the availability of a legally protected turnaround mechanism may be insufficient inducement for management to take decisive action early enough.

When considered through the lens of the company it seems that there may be no stakeholder with the necessary authority and the necessary motivation to act and decide in the interest of the company. Management and shareholders are driven to make decisions that are in their own interests (a self-serving bias) and any decisions they make or action they take may be at the expense of the company and other stakeholders.

It has been long established that a firm acts as a nexus of contracts (Coase, 1937; Jensen & Meckling, 1976) that addresses the often diverse objectives of different stakeholders. Suppliers are interested in being paid for their goods and services and employees for their labour. In addition, regulators and tax authorities expect to be paid in accordance with the law of the firm's operating domain. Now it has been argued that it is entirely possible that the shareholders, managers and executive directors of private firms are motivated to serve their own interests at the expense of the company. So, the notion of an independent party stepping into the shoes of the board is sensible, and everything that could be done to bring about early and decisive action should be done. This would be in the interest of the creditors, employees, the economy and society at large.

10.2 SIZE

As discussed in Section 9.3.1, size is recognised as an important predictor of both distress (Altman, 2000) and turnaround potential (Francis & Desai, 2005; LoPucki & Doherty, 2015; Trahms et al., 2013). The convention has been to measure size by

the Natural Logarithm (Log_n) of total assets (Parker et al., 2002) and, because the firms in question are financially distressed, only tangible assets are considered.

The firms in the sample were approximately normally distributed as shown in Figure 10.2.

Mean = 16.02
Std. Dev. = 1.642
N = 104
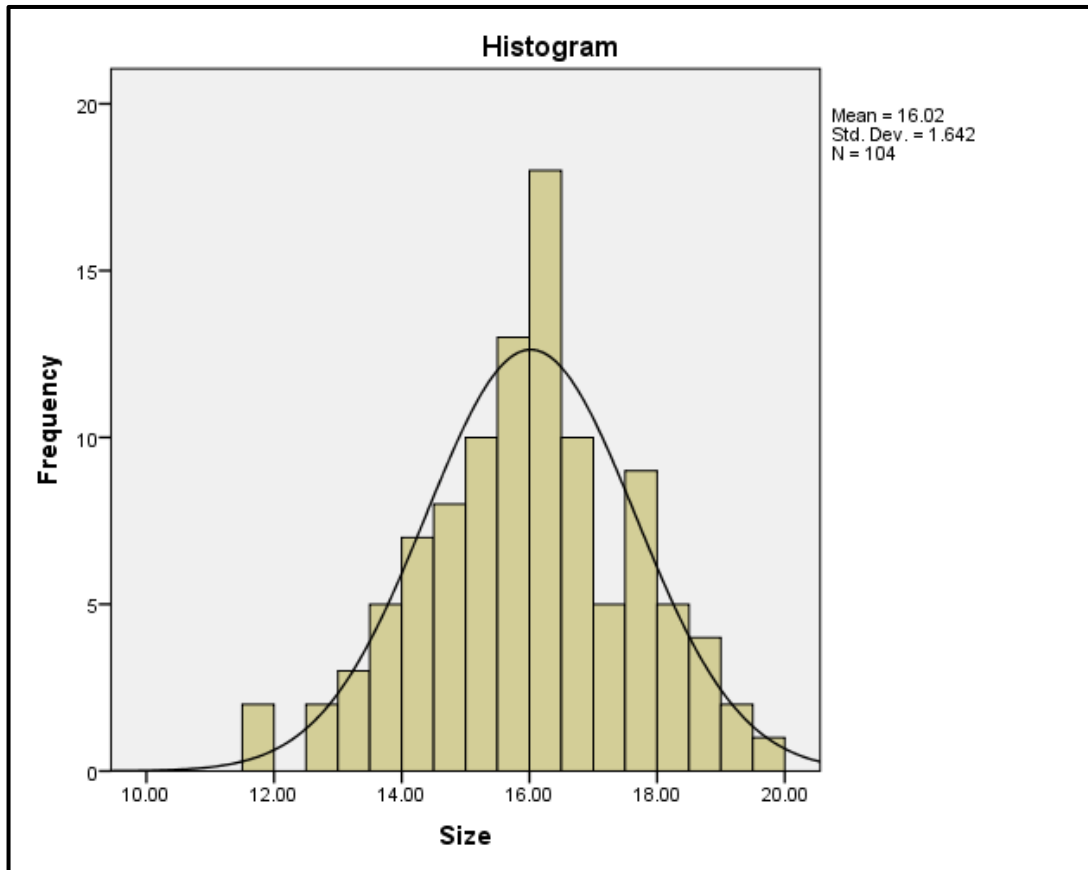
Figure 10.2:   Distribution of Sample Cases by Size (Logn)

The sample size range when expressed in the local currency was:

Size-range: ZAR 156,195 < x < ZAR 416,335,884
Mean size: ZAR 30,094,062.

This shows that the findings of this research are limited **not only** to small companies (SMEs) which may be an erroneous assumption when a conversation turns to privately owned businesses.

As much as it may be true that the characteristics of large firms and small firms are significantly different, it may be inappropriate to assume that they have no similarities. Certainly, it can be argued quite strongly that the output of this research may be applicable equally to large and small distressed firms providing that they are privately owned and not listed on a public stock exchange. This may seem counter-intuitive but a review of the Companies Act 71 of 2008 (RSA, 2008) suggests that there is a neglible difference in the regulatory requirements for large and small private companies. Yet, significant differences do exist between regulatory requirements of private and publically held companies.

10.3 EQUITY OWNED BY MANAGEMENT AND FINANCIAL DISTRESS

It is argued that, for firms managed by a controlling owner(s), the value the controlling owner(s) attach to the firm is equal to the owner(s) view of the personal utility that the firm provides (Schulze et al., 2003). It follows, therefore, that controlling owners may not manage the firm in the firm's best interest but in their own personal interest. Thus, it is entirely conceivable that for firms that have crossed the boundary of financial distress, controlling owners may worsen the firm's financial position while protecting their own personal utility position. This controlling ownership could result in weaker turnaround potential of any firm that has controlling shareholders in management positions and has crossed the boundary of financial distress.

This research has investigated and measured the relationship between **fraction of equity owned by management** and three determining variables collectively called **turnaround potential**. The three variables are: amount of free assets; severity of distress, and turnover of top management team.

The findings of this research in respect of **equity owned by management** and **free assets** shows a negative relationship that was not significant. Thus, one is unable to reject the *null hypothesis* (**H $_{1A0}$**) that there is no relationship between equity owned by management and free assets, despite the analysis showing a negative correlation of -0.051. This is, however, in keeping with the argument that in financially distressed firms where management hold high proportions of equity it is possible that turnaround potential will be worsened. Furthermore, the interaction variable **equity**

owned by management and **free assets** was significant in the expanded regression model for return to unsecured creditors, This suggests, that even though the null hypothesis may not be rejected, these variables may continue to be of considerable interest to unsecured creditors.

In respect of the variable: **severity of distress**, similar observations can be made in that the analysis showed a weak negative correlation of -0.046. This correlation was also not significant but it is also reasonable to suggest that turnaround potential may be worsened for financially distressed firms where management holds high proportions of equity.

For the variable, **turnover of top management**, a weak significant negative correlation of -0.225 was found to exist that allows the *null hypothesis* to be rejected. Therefore, the **alternative hypothesis** ($H 1_C$) may be accepted.

Hypothesis 1_C At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between the fraction of equity owned by management and prior executive management turnover. In other words, when a firm is in the zone of insolvency the higher the fraction of equity owned by management the lower the amount of executive management turnover.

This is in keeping and is supported by the view expressed by Jensen and Ruback (1983) that management might resist replacement even in the face of failed internal control and management systems. In the case of private firms in distress this is even more the case because of the high equity proportion (93.8 %) owned by management and low number (0.02) of independent directors on the boards.

If **Hypothesis 1_C** is considered in conjunction with the very weak liquidity and solvency position of private firms in financial distress, then it is possible to confirm:

- The views of Arogyaswamy et al. (1995) that executives either directly caused the problems or failed to recognise the problems early enough.

- The views of Hofer (1980) that for a turnaround to be successful replacement of the top management team is necessary and Burbank's (2005) contention that only capable management should be retained.

- The view that there are many reasons advanced for "industrial sickness or causes of failure" (Panicker & Manimala, 2015) including but not limited to failed leadership, operational inefficiency, inertia, loss of competitiveness and lack of resources. However 80 % of business failures come about as a result of management's inability to manage the internal functions of a business successfully (Scherrer, 2003).

- Nystrom and Starbuck (1984) put forward the view that, in order to survive, organisations need to sometimes unlearn. However, organisations in financial distress initially respond with superficial remedies followed later by severe actions such as formal and legally protected rescue. Thus organisations in serious crisis often remove the top management team in order to prevent them dominating decisions and blocking new ideas through the inability to unlearn (Nystrom & Starbuck, 1984). It is clear from this research that, in privately owned firms where a high percentage of the equity (93.8 %) is owned by management, this has not happened and may result in weak turnaround potential and very low turnaround success (< 10 %[8]) (Pretorius, 2015).

10.4 EQUITY OWNED BY MANAGEMENT AND BOARD COMPOSITION

In situations where greater than 90 % of the equity of an organisation is owned by management, as is the case with this research, it will be unlikely to find a classic agency relationship to be present. That is, circumstances where there is separation of ownership and authority (control), where shareholders are the principle and management are the agent.

This separation of ownership and control is central to governance theory (Eisenhardt, 1989; Shleifer & Vishny, 1997). Corporate Governance has been defined as a "system by which companies are directed and controlled" (Cadbury, 1992) and corporate governance "therefor focuses on the board" (Cadbury, 2000: p. 8). Cadbury goes on to say that the board is the "bridge between the

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[8] In the "Business Rescue Status Report" (Pretorius, 2015) the definition of "success" includes a return to creditors that is better than liquidation but not necessarily a successful turnaround and return to sustainable trading. Thus, the success of 9.4 % that is reported includes cases that might be described as an *orderly wind-down*. The report does not distinguish between the two, hence the point that "successful turnaround" is less than 10 %.

providers of capital and executives who put the capital to work" (Cadbury, 2000: p. 8).

In this research, the capital was largely (84.6 %) provided by external parties (non-shareholders). Thus, if the bridge to which Cadbury refers was robust, one could expect to see it reflected in the variables, board size, number of independent directors and limited or no CEO duality.

Therefore, for this research in respect of the cost of governance, an immediate tension is evident in that the full cost of governance is carried by shareholders. This takes the form of monitoring and controlling expenses as agency costs (Jensen & Meckling, 1976). However, the benefit will accrue to the outside providers of capital.

These circumstances may result in shareholders resisting implementation of good governance policies and practices, and the appointment of a robust and independent board. This might not necessarily be a problem while the organisation is healthy and meeting its debt obligations. However, if the boundary of distress is crossed and the organisation enters the zone of insolvency, resulting in default then equilibrium is disturbed and conflicting objectives are likely to surface.

It has been argued that it is practical to use corporate governance variables to examine and predict financial distress and corporate failure (Jaikengkit, 2004: p. 168). Furthermore, Jaikengkit argues that one of the prime roles of the board is to monitor management. Thus the board must be independent of management, with the CEO not acting as the board chair. Finally, he argues that the board must be large enough that it will be difficult for management to control the board with similar arguments being echoed by other researchers (Azeez, 2015; Brédart, 2014; Platt & Platt, 2012).

In this research the collective variable, board composition, comprises 1) total number of directors, 2) number of independent directors and 3) existence of CEO duality. The conceptual research model (Figure 7.1) was developed to investigate the relationship between these three variables and the fraction of equity owned by management.

Investigation into the relationship between the fraction of equity owned by management and the total number of directors resulted in a significant negative correlation of -0.235. This allowed the ***null hypothesis*** to be rejected and the alternative, **Hypothesis 2$_A$** to be accepted.

Hypothesis 2$_A$ – At the point in time when decisive action is taken by management in the zone of insolvency, the higher the fraction of equity owned by management, the smaller the board.

Thus, one can conclude that, for private firms that have entered the zone of insolvency, the higher the concentration of equity owned by management the smaller the board may be. The consequence of which is that management of these distressed firms cannot be monitored adequately by an independent board of directors that is large enough not to be controlled by management. Additionally, the fact that 93.8 % of the equity of the sample firms was owned by management, suggests that management who are also shareholders, make decisions motivated by their personal utility needs and not necessarily in the interests of the company. Furthermore, the fact that the high percentage of funding (84.6 %) received by the sample companies was external (creditors), suggests that these creditors carry a disproportionate proportion of the risks of the management decisions.

The analysis showed a very small correlation that was not significant for the hypothesis that the fraction of equity owned by management and the number of independent directors were not related.

However, the correlation (Point-Biserial) between fraction of equity owned by management and CEO duality was significant (r_{pb} = -0.316; $p < 0.05$). This allows the ***null hypothesis*** to be rejected and the alternative (Hypothesis **H 2$_C$**) to be accepted. It suggests a significant probability at the r_{pb} = 0.316 level that CEO duality will exist. Furthermore, the interaction variable between fraction of equity owned by management and CEO duality was siginificant in the expanded regression model of return to unsecured to creditors, but it was not signifcant in the expanded regression model for return to secured creditors. Once again this seems to support a view that, in the absence of security for a debt, creditors would be well advised to look at the indpendence and interests of company decision makers.

Hypothesis 2$_C$ – The higher the fraction of equity owned by management, the lower the incidence of separate people fulfilling the CEO and Chairman roles.

This also further reinforces the view that creditors of privately owned firms, that have entered the zone of insolvency, cannot expect any independent oversight of management decisions and actions. Once a firm has reached this point, the creditors will have to rely exclusively on legal processes to protect their exposure as the firm's reputation is also unlikely to be very good. Legal processes include all the remedies provided for under formal business rescue such as Ch 6, Business Rescue in South Africa and Chapter 11 Reorganisation in the USA.

This, however, does not mean that creditors are powerless when in the zone of insolvency. In fact the power is in creditors' hands as affected parties (Pretorius, 2016). They are legally entitled to file for the firm to enter a formal legally protected turnaround process such as Chapter 6 in South Africa or Chapter 11 in the USA.

Although the actual process and detail differs from jurisdiction to jurisdiction, one aspect that is consistent across jurisdictions is the introduction of an independent party to oversee the business. In South Africa it is a Business Rescue Practitioner and in the USA it is the court. It is beyond the scope of this study to investigate the attributes of the different regimes but it is fair to say that creditors may have a powerful tool at their disposal. They just need to use it wisely.

10.5 BOARD COMPOSITION AND TURNAROUND POTENTIAL

An investigation into the relationship between board composition and turnaround is a reasonable extension of Jaikengkit's (2004) view that corporate governance variables can be used to examine and predict financial distress and corporate failure (Jaikengkit, 2004: p. 168). Thus, this research has considered the relationship between the board composition variables, total number of directors, total number of independent directors and existence of CEO Duality, and the turnaround potential variables of amount of free assets (unencumbered assets), severity of distress, and turnover of top management team (TMT). This collection of relationships is illustrated in Figure 10.3.
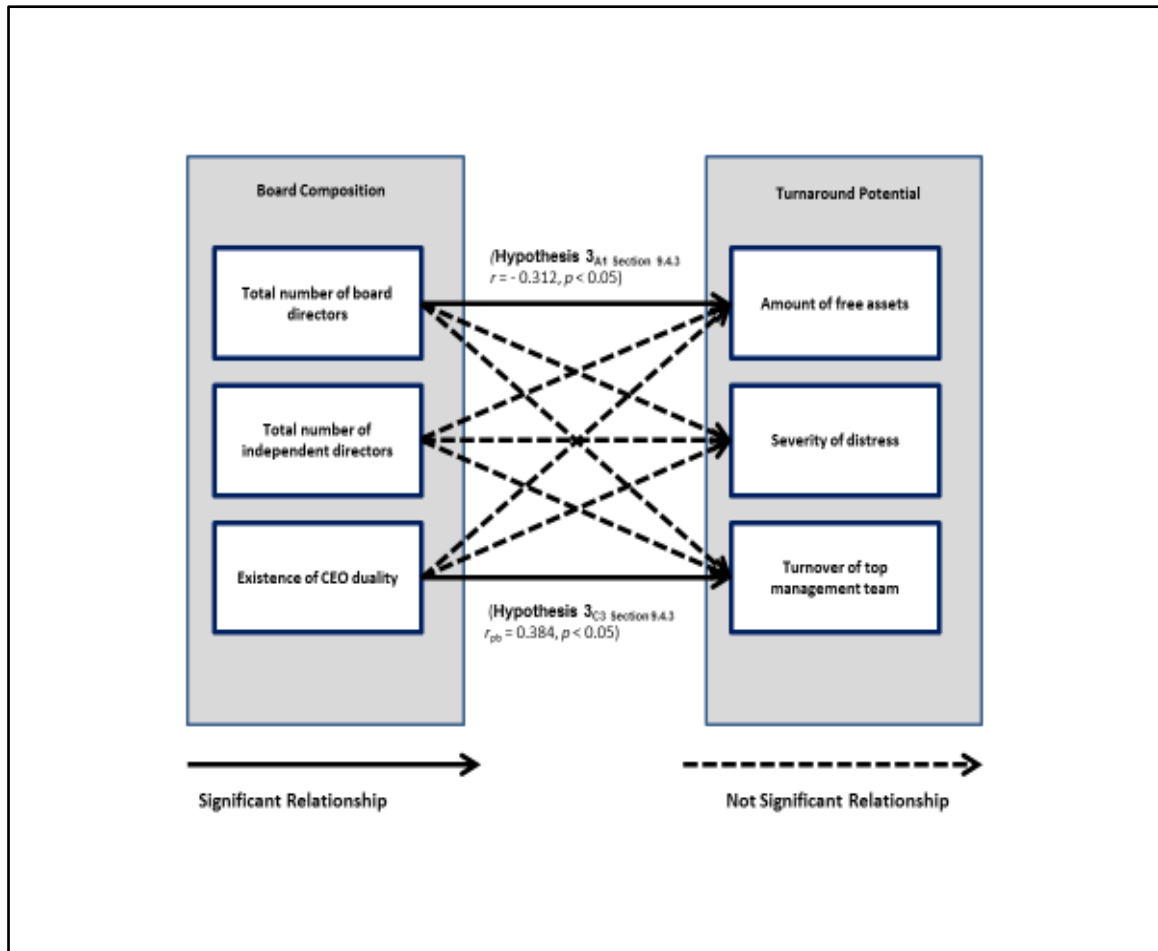
Figure 10.3:   Schematic illustrating multiple relationships between board composition variables and turnaround potential variables

Investigation into this myriad of relationships is interesting. Firstly, only two of these nine hypotheses (Section 9.4.3) resulted in statistically significant findings. They are **Hypothesis 3$_{A1}$** and **Hypothesis 3$_{C3}$** and are depicted in Figure 10.3 by solid lines.

Hypothesis 3$_{A1}$ – At the point in time when decisive action is taken by management in the zone of insolvency a positive correlation exists between total number of directors on the board and free assets. In other words, when a firm is in the zone of insolvency, the higher total number of directors the higher the amount of free assets.

Hypothesis 3$_{C3}$ – At the point in time when decisive action is taken by management in the zone of insolvency a negative correlation exists between CEO duality and turnover of the top management team (TMT change). In other words, when a firm is

in the zone of insolvency, the greater the occurrence of CEO duality, the lower the turnover of the top management team.

The correlation coefficient for **Hypothesis 3_{A1}** was -0.312 ($p < 0.05$). **Hypothesis 3_{A1}** suggests that as the total number of directors of a board increases then so does the amount of free assets: a positive correlation. The negative coefficient suggests that as the number of directors increases the amount of free assets decreases. In the expanded regression models the interaction variable for total number of directors on the board and free assets was significant for return to secured creditors but non-significant for return to unsecured creditors. However, in both expanded regression models, the coeffeciant for the variable was negative which may be interepreted as the interaction variable reducing the return to creditors.

This finding immediately seems counter intuitive but, if other factors are considered, some sense can be made of it. **Firstly,** the descriptive statistics of the sample show that 93.8 % of the equity of companies in the sample is owned by management and, **secondly**, the mean number of independent directors present is 0.02.

Thus, it can be reasoned that, for all intents and purposes, there was almost zero involvement of independent parties in the management of the business. It may also be concluded that the majority of directors on the board were also shareholders. The lack of independent directors suggests that the directors are either shareholders, managers or indirect beneficiaries of the shareholders. So, although it has not been measured it can be contended that there was a high concentration of equity held by managers who were also directors of the companies in the sample.

By extension, it is therefore reasonable to argue that the "good" practice of the size of the board being large enough to prevent management from controlling the board was outweighed totally by the combination of the concentrated equity position of directors and the lack of independent directors on the boards. With this in mind it is necessary for two additional issues to be considered in order to make sense of the relationship between board size and the amount of free assets (unencumbered assets).

They are, **firstly**, the statistic that shows that on average 84.6 % of the funding used by businesses in the sample came from outside sources. It is also worth being

reminded that this statistic is negatively skewed towards the 100 % end of the scale. **Secondly**, is the argument that in most privately owned firms, providers of funding obtain additional security over and above that which can be provided by the firm alone (White, 2016).

Thus, it may also be reasoned that, in general, even if the firms in the sample were not severely distressed when funding was advanced, they were not sufficiently secure for funding to be advanced without further personal or other security external to the firm. The only people who are likely to be willing to provide such security are the shareholders who, as has been shown, are also likely to be the majority of the directors on the boards. It, therefore, follows that the more directors there are, the more personal wealth or assets available as security. So it can be argued that, because the presence of more directors will allow for greater access to personal and other non-firm specific security, outside providers of funding will be prepared to advance funding which will see more assets of the firm being encumbered. As shown, this could result in the significant and negative correlation, between the total number of directors and the level of free assets.

The significance of **Hypothesis 3$_{C3}$** may be linked to the notion of independent oversight and the removal and replacement of top management teams. High concentration of equity owned by management generally results in low levels of independent oversight. Instances where CEO duality is not present will, by definition, also be instances where independent board members are present. It may consequently be argued that where CEO duality is not present and the Chairman of the board is independent, then there may be sufficient influence within the board to prevent management from controlling the board. Thus, the significance of the finding is that where CEO duality is not present, there is a greater chance of a change in the top management team which is necessary (Burbank, 2005; Gopinath, 1991) for and positively associated with successful turnarounds (Smith & Graves, 2005).

10.6 EXTERNAL FUNDING AND BOARD COMPOSITION

Eisenhardt (1989) stated that **governance mechanisms** are one of the outcomes of researching agency theory and attempting to solve the agency problem. Agency costs as defined by Jensen and Meckling (1976) are one of the features of agency

theory (Section 6.1.1). The costs, collectively known as "agency costs" are a combination of lost value and the cost of limiting the loss of value. Agency costs (Jensen & Meckling, 1976) are the sum of:

1. The *monitoring expenditures* by the principal (Owners and Shareholders)
2. The *bonding expenditures* by the agent (CEO and Management) and
3. The residual loss.

In Section 6.1.1, it was stated that **monitoring (and control) costs** are the costs incurred by owners to monitor choices and behaviour of managers. It was also argued that the costs of maintaining a robust board would be included in the definition of monitoring costs.

Jensen and Meckling (1976) characterise **agency conflict** (that gives rise to agency costs) as the conflict between owner manager and outside shareholders (Jensen & Meckling, 1976: p. 317). They also argue (p. 316) that, in the case where an owner manager owns 100 % of the firm, the benefit the owner derives will be a combination of pecuniary and non-pecuniary benefits that the owner derives. It follows that, in such a case, there will be no agency costs because there is no need to monitor or control the manager, no need to incur bonding costs and there is no residual loss because the manager who is the owner is entitled to all the residual benefit.

The mean of equity owned by management for sample firms in this research was 93.8 %. This is very close to the 100 % scenario as envisaged by Jensen and Meckling (1976). So, it is not surprising that the mean number of directors on the boards for the sample firms is fairly small at 1.89 and the mean number of independent directors is even smaller at a mean of 0.02. As argued in this document, this is not a problem while a firm is financially healthy and meeting its obligations. Equilibrium is maintained by means of the contracts that are in place to protect the interests of various stakeholders.

Jensen and Meckling (1976) further argue that agency costs increase as the level of external funding increases irrespective of whether it originates from debt or equity. With this in mind it has been shown in this study that the average funding sourced from external sources is 84.6 % of total funding. Based on Jensen and Meckling's

(1976) view, this level of external funding would be likely to contribute to fairly high agency costs.

Jensen and Meckling (1976, p. 356) elaborate on the nature of agency costs and describe specifically the nature of agency costs associated with debt as:

1) the opportunity wealth loss caused by the impact of debt on the investment decisions of the firm,

2) the monitoring and bonding expenditures by the bondholders and the owner manager (that is, the firm),

3) the bankruptcy and reorganization costs.

They have a number of assumptions that are noted but have not been studied as part of this thesis.

Before attention is turned to discussion of the specific agency costs of debt as articulated by Jensen and Meckling (1976), it is worth understanding the implications of their assumptions in the real world. They made eight "permanent assumptions" and three "temporary assumptions" in their research.

This research was not concerned specifically with the assumptions made by Jensen and Meckling (1976) so, for the purposes of providing additional background to this research, it is worth noting whether or not the sample used in this research violated the assumption. Further investigation into the empirical implications of these assumptions has been left to future researchers.

Table 10.3: **Jensen and Meckling's (1976) Assumptions and This Study of Private Firms in the Zone of Insolvency**

Assumption	Finding for this study sample	Comment
All taxes are zero	Violated	This is an impossible assumption to meet in the real world. Companies in this sample are required to pay Value-Added Tax, employee pay as you earn and company tax.
No trade credit is available	Violated	The fraction of funding from external sources included trade creditors.
All outside equity shares are non-voting	Violated	Although the fraction of equity owned by outside shareholders (6.2 %) was low, there was no evidence that any of the outside shareholding was non-voting.
No complex financial claims such as convertible bonds or preferred stock or warrants can be issued	Not violated	There was no evidence of complex claims of this nature. In general, the sample consisted of companies with simple shareholding structures.
No outside owner gains utility from ownership in a firm in any way other than through its effect on his wealth or cash flows	Probably violated	Although the fraction of outside owners was low (6.2 %) it was not possible to investigate. However, considering the low level of independent oversight it is highly likely that benefits other than wealth or cash flow would have accrued to all shareholders. Including outside owners.
All dynamic aspects of the multiperiod nature of the problem are ignored by assuming there is only one production-financing decision to be made by the entrepreneur	Not violated	The data used in this study were gathered at a single point in time for each case (cross-sectional study). Namely, the date of filing for business rescue. So, there were no multi-period problems to deal with.
The entrepreneur-manager's money wages are held constant throughout the analysis	Not violated	The cross-sectional nature of this study ensured that any money wages were constant.

Assumption	Finding for this study sample	Comment
There exists a single manager (the peak coordinator) with ownership interest in the firm.	Violated	There were multiple managers in many of the individual cases.
The size of the firm is fixed	Not violated	Again, the cross-sectional nature of the study ensures that the firm size was fixed at the date of filing for business rescue.
No monitoring or bonding activities are possible	Violated	These were possible.
No debt financing through bonds, preferred stock, or personal borrowing (secured or unsecured) is possible	Violated	All of these methods were possible and although there was no obvious evidence of bonds or preferred stock there was definitely cases of personal borrowing, both secured and unsecured.
Source: Own compilation.		

10.6.1 Agency Cost and Debt Funding

Jensen and Meckling (1976) argue that agency costs are as real as any other cost to a business and they describe the agency cost of debt as:

1)   the opportunity wealth loss caused by the impact of debt on the investment decisions of the firm,

2)   the monitoring and bonding expenditures by the bondholders and the owner-manager (that is, the firm),

3)   the bankruptcy and reorganization costs"(Jensen & Meckling, 1976, p. 356).

Thus it may be argued that the total agency cost of debt can be calculated as follows:

Total agency cost of debt =
Opportunity cost + monitoring and bonding costs + bankruptcy and reorganisation
debts

10.6.1.1   Opportunity costs

Polley provides a common definition of opportunity cost as, "that which is given up in order to get something else" (Polley, 2015: p. 13). He goes on to say that the common understanding of opportunity cost involves a trade-off of goods for goods. Thus, it may be argued that opportunity cost only exists when management has options to choose from. In other words, they are in a position to trade off one course of action over another course of action. One of the consequences for companies in the zone of insolvency is a reduction of options available to management. The choices available to management decrease as the company proceeds deeper and deeper into the zone of insolvency. This may be attributed partly, to the withdrawal of support by key stakeholders such as banks, creditors and suppliers as described by Trahms et al. (2013), and partly to the lack of funds available to the company such that management will not be in a position to commit to any action that generates cost.

Simply put, companies deep in the zone of insolvency do not have any resources to trade off. Hence it may be argued that the opportunity cost of debt for a company that is in the zone of insolvency in fact tends towards zero. Practically speaking the company should have no alternative but to allocate all resources to the reduction of what is owed to creditors.

Monitoring and bonding costs will undoubtedly include the costs incurred by external funders to protect their position. This may be in the form of security taken over the assets of the company and covenants requiring certain action on the part of management and the company. These costs will inevitably be passed on to the company in some form

10.6.1.2   Monitoring costs

The monitoring aspect of this agency cost would include the costs of maintaining a board of directors. The establishment of a board of directors happens prior to the onset of distress and the cost of maintaining such a board is carried by the shareholders. Thus, as argued in this thesis the motivation to establish and maintain a board may be low. The small average board size (1.89 directors) and even more

importantly low presence of independent directors (0.02 independent directors) and the high proportion (98.1 %) of cases in the sample with CEO duality is evidence supporting this argument.

This situation would be of little consequence for financially healthy companies that meet their obligations. However, when a company enters the zone of insolvency it is argued that, because they have first claim on any residual value in the firm (Tung, 2006), the position of principal shifts away from shareholders and to the providers of funding also referred to as "creditors".

What is worrying about such a situation is that shareholders of firms that are highly leveraged, such as those in this research sample, may be motivated to increase a firm's risk for their own gain and at the expense of creditors (Helwege, Huang, & Wang, 2016). In the absence of any independent oversight, the creditors can only rely on the law of contracts, insolvency legislation and the level of security that they have as mechanisms to manage their individual exposure to the distressed firm. This is not an encouraging position for any creditor, particularly when the decision-making power (management) is within the purview of those shareholders who may be motivated to increase risk at the expense of creditors.

10.6.1.3   Bankruptcy and reorganisation costs

The findings of this research are that there is no significant correlation between the level of debt and the board composition variables. So, one can argue that the agency costs of maintaining a board are effectively zero. It is also fair to suggest that any other bonding and monitoring costs are those that arise through actions initiated by the creditors. These are likely to increase as the firm approaches the zone of insolvency but, once a firm moves **into** the zone of insolvency, any of these costs that remain unrecovered could be described as "bankruptcy" or "re-organisation" costs. The motivation has moved from monitoring and bonding to rescue or recovery. For firms that have filed for business rescue in South Africa any of these costs would be included in creditors' claims and as such would, by definition, be part of the bankruptcy and reorganisation costs of a firm. So it is possible to say that once a private firm has entered the zone of insolvency it is likely that the bonding and

monitoring will become zero and the costs of bankruptcy and re-organisation are likely to increase.

In summary, it can be proposed that approaching the zone of insolvency will see the opportunity costs tend to zero and the bonding and monitoring costs increasing. Once the threshold of the zone of insolvency has been crossed the intention of costs incurred in monitoring and bonding shifts to recovery and loss limitation and thus may be reclassified and included as costs of bankruptcy and reorganisation. Crossing the threshold of the zone of insolvency is likely to trigger other recovery and loss limitation activities which all will contribute to increasing bankruptcy and reorganisation costs. Figure 10.4 illustrates the agency cost trends in relation to the zone of insolvency and each other.
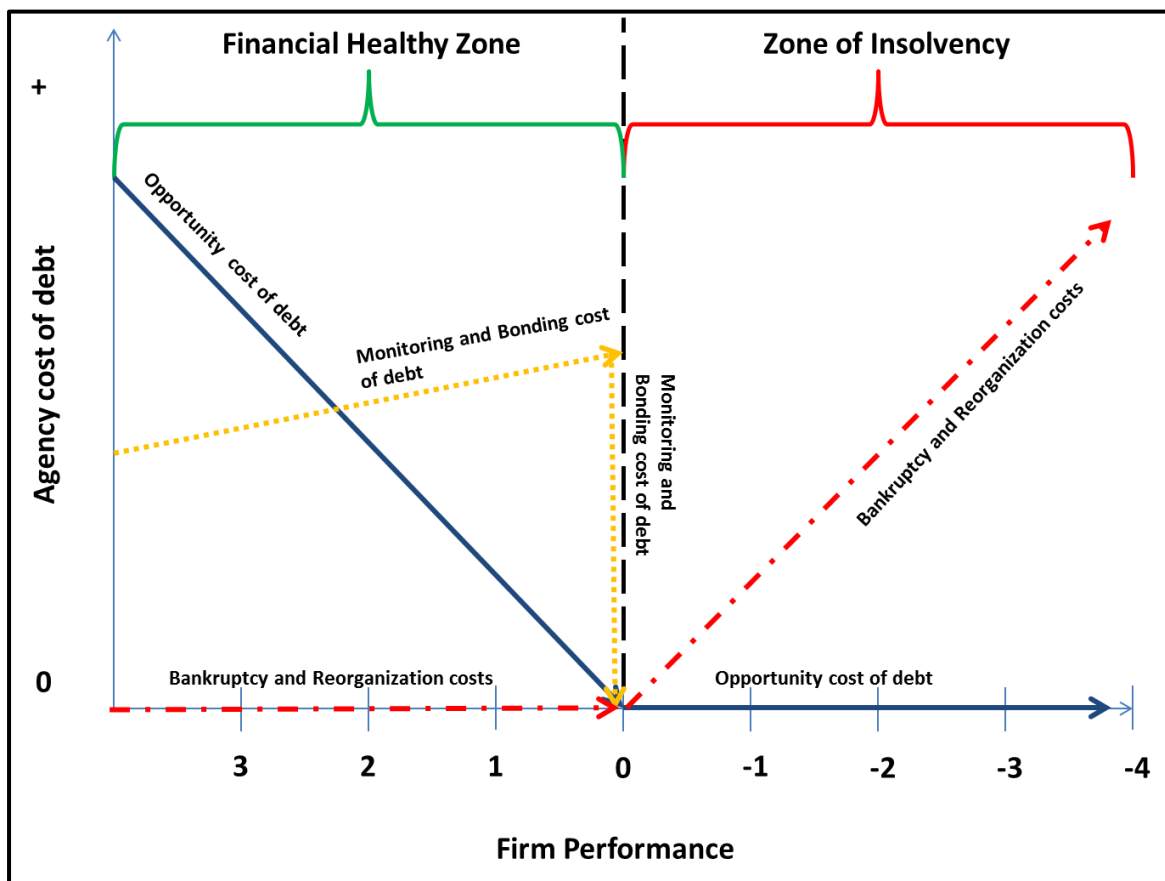
Source: Own compilation.

Figure 10.4:   Agency Cost Debt vs Firm Performance Framework

If the agency cost of debt as per Jensen and Meckling (1976) is calculated as follows:

Total agency cost of debt =
Opportunity cost + monitoring and bonding costs + bankruptcy and reorganisation debts

then, by taking into account the arguments represented in Figure 10.4, it is possible to advance the view that, once a private firm has crossed into the zone of insolvency, the opportunity cost becomes zero and monitoring and bonding costs become zero. Thus, the total **agency cost of distressed debt** is equal to the **bankruptcy and reorganisation costs**.

Total agency cost of distressed debt = bankruptcy and reorganisation costs

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To distinguish this from other forms of agency cost it is referred to as **agency cost of distressed debt**.

Based on the findings of this research, it will **firstly** be different for secured and unsecured creditors. **Secondly**, it may be argued that the minimum agency cost of distressed debt will be equivalent to the shortfall that creditors will experience should liquidation occur at the time of cognition by management, assuming that the asset values at that time are realistic.

In this research, it has been assumed that filing for business rescue is a signal that cognition has occurred. However, because the values of assets at filing date are likely to be biased in favour of management and shareholders, a conservative approach would be to view this shortfall as a theoretical minimum.

The findings of this research suggest that, for private firms in the zone of insolvency, the minimum **agency cost of distressed secured debt** may be an estimation that can be calculated as:

1 less the mean return to secured creditors.

The minimum **agency cost of distressed unsecured debt** may be calculated as:

1 less the mean return to unsecured creditors.

Thus, informed by Table 9.2 and Figure 10.4, the minimum agency cost of secured and unsecured debt may be calculated as follows:

Minimum **agency cost of distressed secured debt:**

= 1- mean return to secured creditors

= 1 - 0.937

= 0.063

= 6.3 % of the secured debt

Minimum **agency cost of distressed unsecured debt:**

= 1- mean return to unsecured creditors
= 1 - 0.48
= 0.52
= 52 % of the unsecured debt

Note: Given, that the estimated agency cost of distressed debt is calculated using the mean for return to secured and return to unsecured creditors, respectively, then a more holistic understanding of the estimated value of agency cost of distressed debt will be achieved by considering the spread of observations based on Standard Deviation (SD). See Table 9.2 and Figure 10.4.

10.6.2 Agency Cost and Distressed Debt Funding – Application

It is useful to have a theoretical foundation for estimating the **agency cost of debt** for private companies that have entered the zone of insolvency. It is even more valuable to recognise that the estimated minimum **agency cost of distressed secured debt** for private companies is 6.3 % (v_s= 0.063) of the total face value of secured debt and, similarly, for unsecured debt it is 52 % (v_u= 0.52) of the face

value. However, it is even more valuable to be able to reach an **estimated agency cost of distressed debt** for all companies **before** they enter the zone of insolvency.

This thesis proposes a further development to the calculation method by incorporating a probability of distress term, thereby facilitating the calculation of an expected value for the agency cost of distressed debt prior to a company entering the zone of insolvency. It is best to illustrate this by means of an example using Altman's Z-score probability of bankruptcy prediction method.

Using Altman's Z-score it is possible to attach a high-, medium- or low- probability of a company entering bankruptcy within one year. Thus, one could attach a range of probabilities to high, medium and low as follows:

High Probability of Bankruptcy within 1 year: 0.67 to 1.00
Medium Probability of Bankruptcy within 1 year: 0.34 to 0.66
Low Probability of Bankruptcy within 1 year: 0.00 to 0.33

So, if a company scored on the Altman Z-score a high probability of bankruptcy, it is possible to say that the probability of bankruptcy occurring is between 0.67 and 1.00 and similarly for the medium- and low-probability ranges.

To calculate an expected value, the outcome value is simply multiplied by the probability of it occurring, that is, $E(v) = p(v)$. Using this concept, one can calculate an expected minimum value range for the agency cost of distressed secured and unsecured debt for private firms that may become distressed but are not yet in the zone of insolvency.

Using the findings of this research, the range of expected agency cost of distressed secured debt for private firms is shown below

Given that $v_s = 0.063$ (as per this research finding):

For **high** probability $0.67 < p < 1.00$

For **medium** probability $0.34 < p < 0.66$

For **low** probability $0.0 < p < 0.33$.

Thus the expected **agency cost of distressed secured debt** for an individual company may lie within one the following ranges.

E(v$_s$) High $\qquad$ = 0.67(0.063) < E(v$_s$) < 1.00(0.063)
$\qquad\qquad\qquad$ = 0.04 < E(v$_s$) < 0.063

E(v$_s$) Medium $\qquad$ = 0.34(0.063) < E(v$_s$) < 0.66(0.063)
$\qquad\qquad\qquad$ = 0.02 < E(v$_s$) < 0.04

E(v$_s$) Low $\qquad$ = 0.00(0.063) < E(v$_s$) < 0.33(0.063)
$\qquad\qquad\qquad$ = 0.00 < E(v$_s$) < 0.02

To extend the calculation for the **agency cost of distressed unsecured debt**, one simply substitutes the value v$_u$ for v$_s$ to find:

E(v$_u$) High $\qquad$ = 0.67(0.52) < E(v$_u$) < 1.00(0.52)
$\qquad\qquad\qquad$ = 0.35 < E(v$_u$) < 0.52

E(v$_u$) Medium $\qquad$ = 0.34(0.52) < E(v$_u$) < 0.66(0.52)
$\qquad\qquad\qquad$ = 0.18 < E(v$_u$) < 0.34

E(v$_u$) Low $\qquad$ = 0.00(0.52) < E(v$_u$) < 0.33(0.52)
$\qquad\qquad\qquad$ = 0.00 < E(v$_u$) < 0.17

It is beyond the scope of this research to investigate bankruptcy prediction models in any depth. However, the multi-discriminant model developed by Altman (1968) is recognised as the first model to be widely accepted. For this reason, it has been used to illustrate the theoretical extension and general applicability of the agency cost of distressed debt concept. It is left to future scholars to research which bankruptcy model may be most suited to extending the agency cost of distressed debt to non-distressed firms that are privately owned.

10.7 EQUITY OWNED BY MANAGEMENT, FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL

> "*Most failing companies can be saved if prompt aggressive action is taken. But, management often refuses to look the tiger in eye…..*"
>
> David Vance – Preface to his book – Corporate Restructuring (2009)

For the firms in this research sample, not looking the tiger in the eye, resulted in a minimum liquidity shortfall of ZAR 1.5 Bn and minimum solvency shortfall of ZAR 2.0 Bn (see Section 9.2). Any firm that enters the zone of insolvency and does not turnaround, results in the solvency shortfall being ultimately carried by creditors, but not equally by all classes of creditors.

Secured creditors generally have a priority claim over the assets of a company. The security is normally in the form of collateral over assets of the company and, if a company proceeds to bankruptcy: "Secured creditors are outside the priority ordering and are allowed to take their collateral in bankruptcy" (White, 2016). Thus, secured creditors lay first claim to the value of the assets of the business before unsecured creditors can potentially share in any residual value that may derive.

The next section is devoted to a discussion on the return to, firstly, secured creditors and then, secondly, unsecured creditors.

10.7.1 Secured Creditors

This thesis argues that decisions made by management directly impact on the turnaround potential of any firm that enters the zone of insolvency. With this in mind, it also follows that variables of turnaround potential, namely: free assets, severity of distress and turnover of top management team, may have a direct impact on the return to creditors. Furthermore, the contention has been made that the variables of board composition, number of directors, number of independent directors and CEO duality, play a role in the eventual distribution to creditors. This is reflected in the conceptual research model used in this thesis (Section 7.5.1).

In an attempt to explain the amount of variability that could be attributed to each of these variables, a multiple hierarchical regression analysis was used. Multiple models were considered (Section 9.4.5), starting with the base model comprising the independent variables of the fraction of equity owned by management; the fraction of funding from external sources and size. A more comprehensive model that includes the variables collectively, described as: board composition and turnaround potential, was then used. A final model that included all independent variables and return to secured creditors as the dependent variable was run.

The base model (**Model 1** – Section 9.4.5) using the independent variables of size, fraction of equity owned by management and fraction of external funding could only explain 1.9 % ($R^2 = 0.019$) of the variability in the dependent variable, return to secured creditors. The addition of the board composition variables showed no significant improvement (Section 9.4.5) but the addition of turnaround potential resulted in a significant improvement in the model's ability to explain the variability in return to secured creditors.

The full model of external funding, size, fraction of management shareholding, number of independent directors, total directors, board duality, free assets, TMT change, and severity of distress (Taffler Z-score) to predict return to secured creditors (**Model 3**) was statistically significant. The independent variables explain 30.9 % of the variance in the dependent variable (return to secured creditors) of which the independent variables total directors and free assets are individually significant statistical contributors: $R^2 = 0.309$, $F_{(3, 94)} = 12.876$, $p < 0.05$.

The two statistically significant variables of total directors and free assets reflect the finding that total directors and free assets are significantly correlated ($r = -0.312$, $p < 0.05$) (Section 9.4) and it stands to reason that free assets will be significant in the return to secured creditors because the calculation of free assets is given by the formula:

$$\textbf{Free assets} = \frac{\text{(Total tangible assets – secured loans)}}{\text{Total tangible assets}}$$

It should be noted at this juncture that although the connection between return to secured creditors and free assets is obvious, collinearity does not exist in the sample data. The measure of tolerance values for all variables is less than 0.1 (Table 9.22: Tests of Assumptions for Regression Analysis with Return to Secured Creditors as the Dependent Variable).

The final model (**Model 3**) that explains 31 % ($R^2 = 0.309$) of the variability in the return to secured creditors, as a result of the variables contained in the model, is:

Return to secured creditors

$= \alpha + \beta_1(size) + \beta_2(externalfunding) + \beta_3(Managementshare) + \beta_4(totaldirectors) +$
$\beta_5(inddirs) + \beta_6(Boarddualitycoded) + \beta_7(Freeassets) + \beta_8(TafflerZ) + \beta_9(TMTchange)$

Considering the two significant variables of total directors and free assets, and the negative correlation between total directors and free assets may be as a result of the need by creditors for additional security in the form of personal assets from directors. It may be reasonable to advance the view that secured creditors do not look at a firm on the merits of the firm on its own, but they view the firm and the key stakeholders collectively, and they assess the credit worthiness on that basis.

Thus, it is also reasonable to propose that secured creditors mirror the argument that the value, controlling owner(s) attach to the firm, is equal to the owner's/owners' view of the personal utility that the firm provides (Schulze et al., 2003). This being the case, it may present an immediate problem to creditors who are not influential enough individually to demand personal surety. In as much as it is not normally a requirement to publish the extent to which personal surety is provided/utilised.

As has been shown for the sample used in this research, secured creditors do not emerge from a distressed situation unscathed but, with a mean return to secured creditors of 0.94, it is clear that the majority of the solvency shortfall is carried by unsecured creditors. The mean return to unsecured creditors for the sample was 0.48 – that is, a 52 % shortfall versus 6 % for secured creditors (Section 9.3.6.1 and Section 9.3.6.2). The implications for unsecured creditors are discussed in the next section.

10.7.2 Unsecured Creditors

A hierarchical multiple regression was run to determine if the addition of board composition, turnaround potential and then of return to secured creditors improved the prediction of return to unsecured creditors over and above the fraction of shareholding owned by management and fraction of external funding alone. Size (Log_n total assets) was included as a control variable. The full model produced by the hierarchical multiple regression was significant and the variables external funding, size, fraction of management shares, number of independent directors, total directors, board duality, free assets, TMT change, and severity of distress (Taffler Z) and return to secured creditors explained 41.2 % of the variance in the dependent variable return to unsecured creditors (Section 7.4.5). This allows the **null hypothesis (H 5$_{B0}$)** to be rejected and the alternative **(H 5$_B$)** to be accepted.

Hypothesis 5$_B$ – There is a relationship between the independent variables fraction of equity owned by management, fraction of funding from external sources and the return to unsecured creditors (dependent variable) who have a claim against financially distressed businesses. This relationship is further enhanced by the variables described collectively as board composition, turnaround potential, and the return to secured creditors.

The final model (**Model 4**) returned by the regression analysis is:

Return to unsecured creditors

$= α + β_1(size) + β_2(externalfunding) + β_3(Managementshare) + β_4(totaldirectors) + β_5(inddirs) + β_6(Boarddualitycoded) + β_7(Freeassets) + β_8(TafflerZ) + β_9(TMTchange) + β_{10}(returnsecured)$

The independent variables size, fraction of management share-holding, and return to secured creditors are individually significant variables. When used in an alternative model, these three variables in combination explain 35.6 % of the variation in return to unsecured creditors. The alternative model (Section 9.4.5) is statistically significant ($p < 0.05$) and explains 35.6 % ($R^2 = 0.356$) of the variability in the return to secured creditors as a result of the independent variables contained in the model below.

Return to unsecured creditors

$= α + β_1(size) + β_2(Managementshare) + β_3(returnsecured)$

The logic of the variable size is relatively simple to follow. Larger companies will have more tangible assets to settle the claims of creditors. The fact that size is significant in explaining the return to unsecured creditors and that the coefficient of the variable is $β_1 = 0.087$ (Table 9.28) a positive number suggests the larger the company is, the better the return to unsecured creditors. It also suggests that larger companies have a larger level of free assets because it is essentially the free assets that would be used to settle the claims of unsecured creditors.

The logic of the variable return to secured creditors is also relatively simple to follow, in that the legal priority afforded to secured creditors introduces a waterfall effect in respect of the unsecured creditors and unsecured creditors can only receive a distribution if there are surplus assets once the claims of secured creditors have been settled. Thus, the direct relationship is very evident.

The logic of the variable fraction of management share-holding is not at all clear. There is no easy explanation for the significance of this variable. It can be speculated that management who has significant shareholding may also have shareholders' loan accounts which would rank as concurrent along with unsecured creditors. This cannot be more than approximately 15 % of total funding for the sample studied because the mean of the fraction of funding provided by outside sources is shown to be 84.6 % (Table 9.2 – Descriptive statistics – All Variables) but may have an influence on the return to unsecured creditors. This is worthy of further investigation and has been left for future scholars to research.

Notwithstanding that the regression analysis performed helps to explain 42 % of the variability in the return to unsecured creditors, these creditors still carry the bulk of the cost of bankruptcy and re-organisation in the form of the mean shortfall of approximately 52 % (mean return to unsecured creditors 0.48) against their claims. Thus, using the argument presented in Section 10.6.2 that the shortfall carried by unsecured creditors is in fact the agency cost of distressed debt, then it is possible to suggest that it might be worth considering some well-established agency cost-management methods to reduce this cost. An obvious method is the presence of a robust board of directors of suitable size and with appropriate levels of independence and suitable experience.

As argued by Cadbury, the board is a "bridge between the providers of capital and executives who put the capital to work" (Cadbury, 2000: p. 8). Yet, in this research there is no significant evidence suggesting this is the case. The variables: number of independent directors, total directors and board duality are not individually significant in explaining the variability in the return to unsecured creditors. This is not surprising when one sees that the mean for total directors is 1.89, and the mean for independent directors is only 0.02 and the CEO duality was found to exist in 98.1 % of the cases in the sample.

Therefore, it is reasonable to propose that it is in the interest of unsecured creditors to actively influence board size, board independence and limit CEO duality, thereby introducing a new level of corporate governance. Increased levels of robust corporate governance could reduce the risk that unsecured creditors carry and could

result in a better return for unsecured creditors should a company enter the zone of insolvency.

10.8 DISCUSSION SUMMARY

The cross-sectional research done in this study was founded on the premise that the formal filing for legal protection under a business rescue regime is evidence that recognition of a problem within a firm has taken place. Furthermore, it is evidence that management has admitted there was a problem. It is also a signal that at least some stakeholders believe that a turnaround may be possible.

The notion of two boundaries (Zone of Insolvency and Turnaround) was presented with the suggestion that between the two boundaries may be described as somewhat of a *no-man's land* characterised by low visibility, apparently risky decisions, and inadequate oversight. This was shown as an idealized concept in Figure 10.1.

It was asserted that organisational inertia and management holding out against all odds may see the gap between the two boundaries widening, distress worsening and turnaround potential eroded. It may also be argued that this widening is a reflection of increased risk that is biased towards the external providers of funding and away from shareholders.

The aggregate solvency of the sample used in this research showed that only 58 % of total debt was covered by tangible assets. This is comparable to findings published by Davydenko (2012) who determined the average level of the "value-based default boundary" was 66 % of the face value of debt and is argued to be further evidence of management holding out against all odds.

This could be for one of two reasons: 1) management cognition of the problem had simply not taken place or 2) cognition had taken place but the fact that management owns 93.8 % of the equity leads them to become risk seeking when faced with the prospect of loss. It is, also a contention of this thesis that it is likely for business owners to have provided some form of additional personal surety which may not be visible to all creditors. This thesis argues that the business owner's anxiety is likely to be amplified and that a shareholder/director/manager, who is likely to be the same

person in any private company, will be strongly motivated to protect their own personal nett worth even if the risk is carried by creditors.

This personal utility drive of shareholders in management positions may not be compatible with the needs of the firm itself. In this research more than 90 % of the equity of the firms in the sample was owned by management, which suggests that a classical agency relationship was unlikely to be present. This would further suggest generally low levels of independent oversight, leading to the view that creditors of privately owned firms, that have entered the zone of insolvency, cannot expect any independent oversight of management decisions and actions.

This lack of independent oversight, heavy concentration of equity ownership by management and high ratio of external funding for firms in this research sample underpinned the introduction of the agency cost of distressed debt as an extension to the classical work of Jensen and Meckling (1976) in the Agency cost of debt.

The notion that the Agency cost of distressed debt is equal to bankruptcy and re-organization costs has been advanced by this thesis. The findings of this research show it to be different for secured debt and unsecured debt. It is further proposed that the concept may be enhanced by incorporating a probability of distress term, thereby facilitating the calculation of an expected value for the agency cost of distressed debt prior to a company entering the zone of insolvency. This was illustrated by using Altman's Z-score probability of bankruptcy prediction method.

> *"Whenever you see a successful business, someone once made a courageous decision."*
> — **Peter F. Drucker**

Successful turnaround is inevitably the result of decisive action and it takes courage, but it also takes insight and the ability to deal with the multi-dimensional and complex problem of financial distress (Balcaen & Ooghe, 2006). To support insight and enhance understanding of the multi-dimensional problem of financial distress and turnaround potential, a summary of the conclusions and recommendations for future research are covered in the next chapter.

11 CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

CONCLUSIONS, LIMITATIONS ANRED FUTURE SEARCH	**11.1**	**RESEARCH QUESTIONS**
	11.2	**THE LITERATURE AND RESEARCH MODEL**
	11.3	**CONCLUSIONS**
	11.4	**CONTRIBUTIONS OF THIS STUDY**
	11.5	**LIMITATIONS**
		11.5.1 Sample Definition
		11.5.2 Geography
		11.5.3 Information Asymmetry
	11.6	**FUTURE RESEARCH**

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11.1 RESEARCH QUESTIONS

In Chapter 3 of this research, it was noted that most, if not all, firms experience a downturn at some time (Trahms et al., 2013). With this in mind, the research set out to investigate three key questions.

1. How does board composition that is based on agency theory enhance or detract from the turnaround potential of privately owned firms that have crossed the boundary of financial distress?

2. What relationship exists between:
   a) sources of private firms' funding,
   b) equity participation by management, and
   c) board composition with the turnaround potential of private firms that have crossed the boundary of financial distress?

3. What is the nature of the relationship between these variables and both secured and unsecured creditors?

11.2 THE LITERATURE AND RESEARCH MODEL

The investigation started by considering literature drawn from the fields of agency theory, corporate failure and bankruptcy prediction, turnarounds and the zone of insolvency, corporate governance, and business rescue. This led to the development of a conceptual research model (Figure 7.1) which depicts five key relationships supported by the hypotheses described in Section 7.5.2.

The key relationships in the model are:

1. A relationship between the fraction of equity owned by management and the turnaround potential of the firm (**Hypothesis 1**).

2. A relationship between the fraction of equity owned by management and board composition (**Hypothesis 2**).

3. A relationship between board composition and turnaround potential (**Hypothesis 3**).

4. A relationship between fraction of funding from external sources and board composition (**Hypothesis 4**).

5. A final relationship between all the other independent variables of the model and the impact each of them has on the return to creditors, both secured and unsecured (**Hypotheses 5$_A$ and 5$_B$**).

11.3 CONCLUSIONS

The quantitative research approach that was followed used a sample of 104 cases which showed that, at an aggregate level only 42 % of the total short term debt of the sample could be serviced by current assets, and only 58 % of the total debt could be covered by the total assets. This suggests that, at an aggregate level, management of private firms operating in the zone of insolvency simply hold out for far too long. The aggregate solvency cover of only 58 % of total debt covered by total assets is very close to the average level of the "value based default boundary" of 66 % of the face value of debt as identified by Davydenko (2012).

The aggregate statistics also suggest that, by the time management takes decisive action, the firm may be severely distressed with limited possibility of turnaround. It can be speculated that this may be because the owners of firms managed by a controlling owner(s), value the firm as equal to the personal utility that the firm provides them (Schulze et al., 2003). It follows, therefore, that controlling owners may not manage the firm in the firm's own best interest but in their own personal interest which may result in a degree of anxiety on the owners' part, particularly when they have provided some form of personal security as is often expected (White, 2016).

A weak, but significant, negative correlation ($r = -0.225$, $p < 0.05$) was found to exist for the relationship between fraction of equity owned by management and the turnaround potential variable, turnover of top management. This allowed the ***null hypothesis*** (**H 1$_0$**) to be rejected. Thus, although the relationship (correlation) between fraction of equity owned by management and 1) free assets, and

2) severity of distress were both not significant, the findings help answer **Research Question 1**. Where management owns a high proportion of a firm's equity, it is unlikely that management will strongly influence turnaround potential positively or negatively.

It may be argued that such management is more oriented towards protecting their personal utility position than serving the interests of the company. However, the significant negative correlation between equity owned by management and turnover of top management is likely to result in the management that managed the firm into distress remaining in control during distress. It is, therefore, possible that management inertia will result in a worsening of the turnaround potential of private firms that have crossed the boundary of financial distress. Furthermore, for private firms that cross the boundary of distress and enter the zone of insolvency, it would be advisable for creditors, particularly those that are unsecured, to take swift and bold action.

The sample firms studied in this research had a mean of 93.8 % of the firm's equity owned by management. This indicates that for private firms within the zone of insolvency there is unlikely to be a separation of ownership and authority, which is the predominant underlying requirement for most corporate governance theory. This research also found that the respective *null hypotheses* for **Hypothesis 2$_A$** and **Hypothesis 2$_B$** could be rejected, and thus:

Hypothesis 2$_A$: At the point in time when decisive action is taken by management in the zone of insolvency, the higher the fraction of equity owned by management, the smaller the board.

Hypothesis 2$_B$: At the point in time when decisive action is taken by management in the zone of insolvency, the higher the fraction of equity owned by management, the lower the number of outside directors.

This supports the view, that for private firms within the zone of insolvency, the greater the fraction of equity owned by management, the smaller the board is likely to be and the lower the likelihood of independence existing within the board.

> *We are often confident even when we are wrong, and an objective observer is more likely to detect our errors than we are.*
>
> **Kahneman, Daniel. Thinking, Fast and Slow**

These findings suggest that creditors of private firms in financial distress are unlikely to have any independent or sufficiently motivated board members to provide oversight of management decision making and to ensure that their (the creditors') interests are not neglected by management. Of further interest is the fact that the mean fraction of funding from external sources for the firms studied in this research was 84.6 % and it has been argued in this thesis that, once a firm enters the zone of insolvency, then the creditors become the principal.

In summary, and in consideration of **Research Questions 1** and **2**, it may be hypothesised that, at the outset and if left to their own devices, the shareholders of private firms do not have compelling reasons to institute a sufficiently large and independent board of directors. This, was argued elsewhere (Section 6.1.1) in this thesis and is not a problem while the firm is meeting its debt obligations and equilibrium is maintained between stakeholders, who will possibly have conflicting objectives. However, once a private firm enters the zone of insolvency, the condition of separation of ownership and authority may well exist and equilibrium is likely to be disturbed. Thus, a robust and independent board could be very beneficial to creditors but the incumbent managers who are also the shareholders are unlikely to promote this. This view may also help to explain the conundrum that was presented in the introduction to this thesis, namely:

> ***Why do the boards of directors not take corrective action sooner, thereby avoiding or ameliorating the distressed position?***

Furthermore, it may be argued, that this feature, as observed in the sample of this research, is a contributing factor to the low level of success in business rescue at 9.4 % (Pretorius, 2015). Additionally, it follows that the majority of the cost of distress is carried by the external funders who provided 84.6 % (in this study sample) of the

funding, with the balance of 15.4 % being carried by insiders, shareholders and or management.

The cost carried by outsiders may be referred to as the agency cost of distressed debt and can be separated into the cost for secured debt and the cost for unsecured debt. Section 10.6 of this thesis proposed that, for private firms in the zone of insolvency, the agency cost of secured distressed debt was likely to be at least 6.3 % of the face value of secured distressed debt. Similarly, for unsecured distressed debt, the agency cost was likely to be at least 52 % of the face value of unsecured distressed debt.

In answer to **Research Question 3**, it may be that the agency cost of secured distressed debt and unsecured distressed debt are a quantification of the influence that funding, shareholding owned by management, and turnaround potential have on the return to secured and unsecured creditors of private firms in distress. This was extended (Section 10.6.2) by calculating an estimated agency cost of distressed debt for all firms, using an expected value formula:

Expected value (E(v)) = the product of probability of occurrence and the value should the event occur (p(v)).

Thus, by substituting the probability of bankruptcy derived by Altman (1968) a range of minimum agency costs of distressed debt has been estimated for all private firms in the sample studied. The detail of these workings was presented in Section 10.6. Figure 10.4 illustrates the concept of agency cost of distressed debt but it is also important to note that the agency cost of distressed debt is not uniform for secured and unsecured debt.

The dramatic difference between the estimate of minimum agency cost of distressed secured debt and the estimate of minimum agency cost of distressed unsecured debt is shown in Figure 11.1. It shows quite vividly how, when the probability of bankruptcy grows, the agency cost of unsecured debt increases significantly more than the agency cost of distressed secured debt.
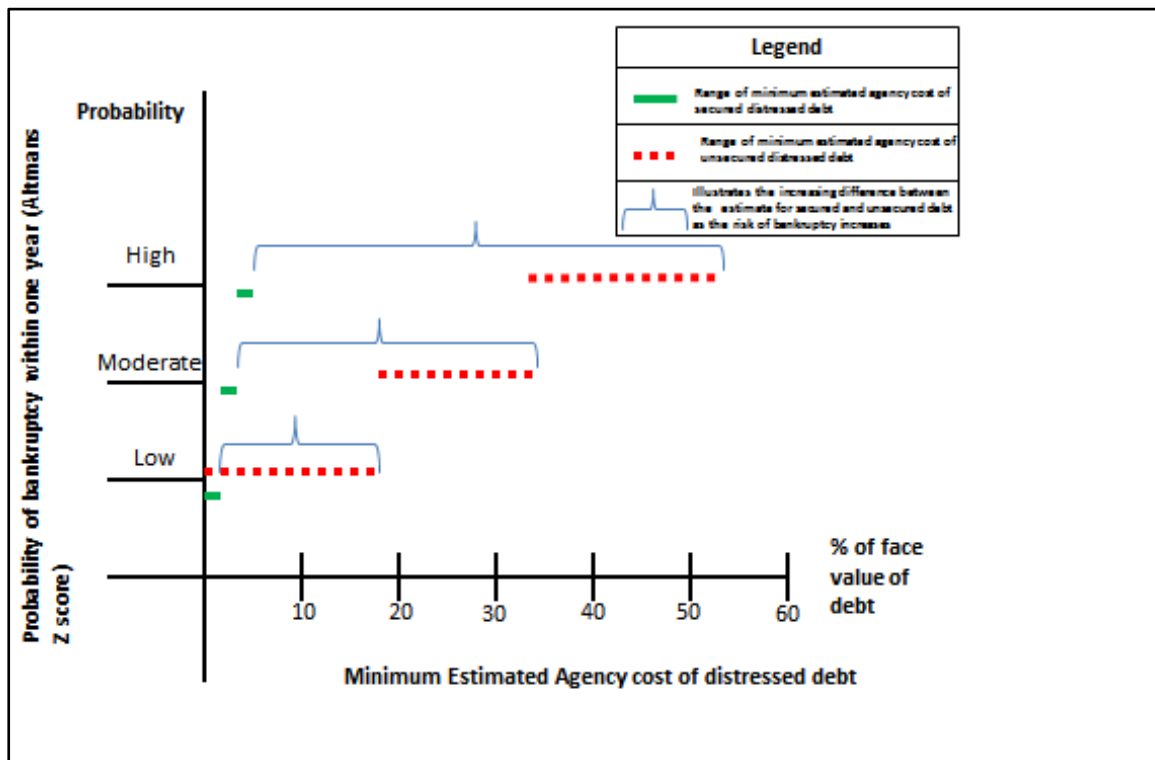
Source: Own compilation.

Figure 11.1:   Graphic Representation – Agency Cost of Distressed Secured and Unsecured Debt

The detail and supporting arguments depicted in Figure 11.1 have already been discussed in Section 10.6.1 and Section 10.6.2. With this in mind, it is important to recognize that what is shown in Figure 11.1 is derived for the portfolio of cases studied in this research's sample and caution should be exercised when looking at any one case in isolation.

However, what is immediately obvious from Figure 11.1 is the substantially greater rate at which the range of possible outcomes for the agency cost of unsecured debt grows (red dotted lines), as the probability of bankruptcy increases, when compared with that of secured debt (green solid lines). This reinforces the view that when a company enters the zone of insolvency, the agency cost of debt is very heavily biased towards unsecured creditors and, as the level of distress increases, it is more and more heavily biased towards unsecured creditors.

It is possible to speculate that the majority of secured lenders are institutional lenders such as banks, private equity funds and developmental funding institutions (DFIs) while the majority of unsecured lenders are trade creditors. If this argument is

reasonable then it may help to understand why the view exists that banks seem to be ambivalent about turnaround or business rescue attempts and often seem to support liquidation efforts (Pretorius, 2016). Figure 11.1 shows clearly that secured creditors have very little to gain in a turnaround and have very little at risk when compared with unsecured creditors. It also shows how the risk of decisions made by management moves to creditors, but particularly unsecured creditors, when a firm is in the zone of insolvency.

In conclusion, it follows that providers of credit or the insurers of providers of credit to privately owned companies could consider actively encouraging robust corporate governance practices in the companies who make use of the credit, long before there is any hint of financial distress. If the credit providers or insurers underwrote the cost of good independent governance and the cost was less than the agency cost of distressed debt calculated using the theoretical minimum estimated cost approach derived in Section 10.6, it may be possible that the providers of credit or their credit insurers would be better off. Alternatively, the providers of credit and the insurers may consider rewarding private companies who have robust corporate governance structures, in the form of sufficiently large and independent boards. The reward may be in the form of better credit terms and lower costs or charges to the recipients of the credit.

11.4 **CONTRIBUTIONS OF THIS STUDY**

The study informed the following key observations: **firstly**, for science and, **secondly**, for the South African business rescue industry:

- It exposed the apparent difference between public and private governance systems building on La Porta et al. (2000: p. 4), who described corporate governance as a set of mechanisms [to a large extent] through which outside investors protect themselves against expropriation by the insiders.

- This research has shown for the sample studied that, at the outset there was a low level of outside equity holders. The mean of shareholding owned by management was 93.8 % and the mean of the fraction of funding from external sources was 84.6 % (see also Table 9.2). It, therefore, follows that the external funders are outsiders

but it may be argued that, at the outset, they do not fit the classical definition of a "principal" in an agency relationship with management. Therefore, little motivation exists to institute robust corporate governance structures (board of directors) and practices (policies) within a private company. Consequently, a valuable source of oversight is lost that could reduce the risk of bankruptcy and financial distress. When this view is contrasted with public companies, it seems to illustrate quite strongly that stakeholders involved with private companies may rely predominantly on security, both from the company and personal security from directors and shareholders along with legal mechanisms to protect their exposure. However, the heavy agency cost of distressed debt that is carried by unsecured creditors suggests that adopting a different approach to corporate governance for private companies is required urgently.

- Confirmed the relationship articulated by Jensen and Meckling (1976) that as the level of external funding, either debt or equity, increases then so does the total agency cost. Additionally, what this research **adds** to the work of Jensen and Meckling and the body of knowledge, is that once a private company enters the zone of insolvency, then the agency cost of debt consists entirely of bankruptcy and reorganisation costs. This cost would be exclusively carried by the providers of debt funding (creditors) and not by the providers of equity funding (shareholders). Hence, introduction of the term "agency cost of distressed debt" as argued in Section 10.6.1 and illustrated in Figure 10.4.

- Showed that the concentration of shareholding in the hands of management is likely to result in an ineffectual board for firms that enter the zone of insolvency. Certainly, most of the companies studied in this research had relatively small boards, lacking in independence with a predominance of CEO duality present. These features tend to fall short of the recommendations expressed in two of the most recognised corporate governance codes of best practice: namely, the UK's Financial Reporting Council (2014), and *King III King Code of Governance Principles for South Africa* (2009).

- Supported the contention that the decisions and choices of owners of private companies may be driven more by personal utility maximization than by seeking the best outcome for the company. Once a company has entered the zone of insolvency and the prospect of loss for

shareholders' increases, it is also possible that the shareholders, who are likely to be both directors and senior managers, will become increasingly risk seeking. The aggregate solvency shortfall of ZAR 2.0 Bn reported in Section 9.2.2 shows that, on aggregate, the companies studied were severely insolvent at the time of decisive action. This is in keeping with Kahneman and Tversky's (1979) work on Prospect Theory and the view that management may take increasingly risky decisions when faced with distress (Wiseman & Gomez-Mejia, 1998).

- Highlighted additional variables such as personal surety provided by shareholders and directors as possibly having significant bearing on the understanding of financial distress and turnaround potential. The unexpected negative significant correlation between the number of board directors and free assets (Section 9.4.3) suggests that something else may have been at play and the argument in respect of personal surety provided by directors may help explain it.

- It is not a requirement to report personal surety in private company financial statements but it is reasonable to speculate, based on the findings in this research, that where a director has provided personal surety, then that director may be influenced to make decisions that are not entirely in the company's best interest. In the normal course of events this risk would be invisible to the general body of creditors of a company in distress and where it is possible creditors (in practice) may be well advised to seek from directors and shareholders a statement on the level of personal surety provided.

- Shows that, unsurprisingly, the bulk of the credit risk for private firms in distress is carried by unsecured creditors. The mean shortfall for secured creditors in this study was 6.3 % while, for unsecured creditors, it was 52 %. With this in mind, the most significant variables that help explain return to unsecured creditors are: 1) firm size; 2) fraction of management shareholding, and 3) return to secured creditors, which collectively help explain 35.6 % of the variability in return to unsecured creditors. It follows that the variables of 1) firm size and 3) return to secured creditors impact on unsecured creditors by way of the value of free assets. However, variable 2) management shareholding is less obvious but it is reasonable to deduce that a high fraction of management shareholding (93.8 % in this study) is likely to have a pervasive influence on all decisions taken in the company. This

is perhaps why secured lenders place such high emphasis on personal surety as argued by White (2016). Therefore, for any unsecured lender it would be advisable to pay particular attention to these variables.

- Supported the view that secured creditors often seem to have very little at stake (upside) by comparison to unsecured creditors and thus may be ambivalent to turnaround efforts but may be inclined to support liquidation as an alternative.

- Quantified the extent to which private companies are beyond the boundary of the zone of insolvency when decisive action (filing for business rescue) is taken. In this research, the aggregate value of tangible assets at the date of business rescue was 58 % of the total face value of claims (debt), which is slightly worse but still close to the 66 % default boundary as identified by Davydenko (2012).

- Provided evidence that may be able to assist business rescue practitioners in forming a view on the concept of, reasonable prospect, as grounds for the suitability of commencing with a turnaround.

- Supported the view that the earlier an intervention occurs, the better for all stakeholders, and provides hard evidence, using the default boundary concept as a measure, to creditors who wish to motivate for business rescue by court application.

- Confirmed that, by using the findings of this research, business rescue practitioners should be in a position to conduct more informed investigations and develop more informed turnaround plans.

- Likewise using this research's findings, stakeholders should be in a position to interrogate turnaround plans with more insight, thereby ensuring a more robust and better turnaround plan.

- Provided regulators, administrators and legislators with deeper insight into the reality of financial distress, turnarounds and business rescue, thereby equipping the responsible parties to enhance legislation and regulatory practices.

11.5 **LIMITATIONS**

Limitations of a study have been described as those characteristics of design or methodology that impacted or influenced the interpretation of the findings or constraints on generalizability, applications to practice, and/or utility of findings (Price

& Murnan, 2004). With this in mind, three possible limitations have been identified for this research. They are sample definition, geography and the possibility of information asymmetry.

11.5.1 Sample Definition

This research uses the definition of financial distress as contained in Ch. 6 of the new Companies Act (RSA, 2008), and recognises that filing for business rescue signals two features: 1) formal recognition of distress and 2) the point at which decisive turnaround action is taken. Thus, the sampling frame for this research consists of the entire population defined as all private companies and close corporations that made valid filings for business rescue and where such filing was not declared a nullity between the period of 01 May 2011 and 30 June 2016.

It is, however, possible for a private company to exist that meets the definition of distress and for management to recognise the existence of financial distress and to effect a turnaround without the company having entered formal and legally protected business rescue. Companies having these characteristics between the period of 01 May 2011 and 30 June 2016 will have been omitted from the sample drawn in this research. Thus it is advisable to be mindful of this possible limitation when extending the findings of this research to all or any businesses exhibiting financial distress but not utilising formal business rescue mechanisms.

11.5.2 Geography

South Africa was selected as a research setting because the country boasts a regulatory and institutional framework that supports the enforcement of good corporate governance and South Africa has been instrumental in the shaping of codes of corporate governance practice for other African countries (Rossouw, 2005). Additionally, South Africa instituted a new Companies Act on 01 May 2011 (*Companies Act 71 of 2008*, 2011) (RSA, 2008) which includes provision for the rehabilitation of financially distressed companies via a business rescue mechanism in "Chapter 6 Business Rescue and Compromise with Creditors". The rather unique combination of these factors makes South Africa a fertile domain for researching

agency theory, corporate governance and financially distressed businesses. It is, however, also fair to argue that other geographic regions in the world may have equally compelling factors that influence behaviour of private firms in financial distress. Thus generalization of this research's findings to other geographies and economies should only be done with this in mind.

11.5.3 Information Asymmetry

It was argued in Section 5.3.1 of this thesis that asymmetry of information relating to any individual firm exists (Chancharat & Chancharat, 2013; Clarke, 2007; Eisenhardt, 1989; Taljaard, 2013; Tung, 2006). Furthermore, 17 individual cases (13 % of the total sample) drawn in the original sample for this research were rejected for analysis on the grounds of incomplete or incomprehensible information. Consequently, it is possible that information in respect of other private firms may be biased or otherwise inaccurate. Therefore, the generalisability of the findings of this research should be considered with this possibility in mind.

11.6 **FUTURE RESEARCH**

This research found an unexpected significant negative correlation between the total number of directors and the amount of free assets. It was not the significance of the correlation that was surprising but the fact that it was negative, which suggests that with more directors, the amount of free assets is reduced. For the sample studied, it was likely that a high proportion of equity would have been owned by directors and it is also likely that providers of secured debt would have expected additional personal security from the firm's directors (White, 2016). Thus, it has been speculated that the decision to provide secured debt to a firm is taken not on the basis of the firm's financial position but on the "pooled" position of the firm and the shareholders/directors of the firm. The provision of personal surety is not visible to other creditors who are the biggest proportion of claims (70 % in Section 9.2.2) and undoubtedly will influence the choices that management are likely to make. Further research into the influence of provision of personal surety by shareholders and directors would be valuable to theorists and practitioners alike.

Future research into the provision of personal surety and how shareholders loan accounts feature in decision making could also be valuable. This research noted that, in many of the firms in the research sample where funding was provided by shareholders, it was in the form of shareholders' loan accounts as opposed to equity. In the sample studied, the impact of this practice was lower capitalisation levels and higher debt levels for the companies. The reasons for the practice have not been investigated but it is possible to speculate that there may be tax benefits that accrue to the shareholders who have provided funding by means of shareholders' loan accounts. In the zone of insolvency or, in the case of bankruptcy, these loan accounts generally become concurrent claims. Thus, it is also reasonable to argue that in such circumstances the behaviour of shareholders and directors may be heavily influenced in favour of their own interests and not necessarily the company or other creditors. Future research to explore the prevalence of shareholders' loans and the influence they have on company performance and shareholder and director behaviour would be valuable.

One of the findings of this research was an estimate for the agency cost of secured and unsecured distressed debt for private firms that were in the zone of insolvency. This estimate was calculated using the mean return to secured and mean return to unsecured creditors' value. The data used in calculating the mean return was the value of tangible assets at the time of filing for business rescue. This value may be considered conservative (generous) which is prudent for this research. However it is, as discussed in Section 10.1, highly probable that in order to raise cash quickly any sale of assets may be at a discount. Thus, it is entirely conceivable that any final return to secured or unsecured creditors could be lower. Future research to establish the extent of possible discounts on assets in a bankruptcy situation of private firms would add to the findings of this research.

A further argument advanced in this research is to extend the estimate of agency cost of distressed debt for firms in distress to an estimate of agency cost of distressed debt for all private firms by using the notion of expected value and the probability of bankruptcy. To illustrate this extension conceptually Altman's Z-score was used.

However, this research proposed that although Altman's Z-score is widely accepted, it also has some limitations as noted by Balcaen & Ooghe, (2006) and may not be the best method to use in all circumstances. It is also not the only method available to predict bankruptcy probability. Therefore, further research into the most suitable probability bankruptcy prediction models could enhance the agency cost of distressed debt concept.

The final area for future recommended research is the differences or similarities between large and small private firms. It seems that company legislation emphasises the differences between private and public companies but does not seem to distinguish significantly between large and small private companies. Anecdotally it also seems that much research into private companies emphasises that they are either small or family owned. This may not always be the case and a more comprehensive study of the types and categories of private companies versus public companies could be useful and valuable.

"Many small businesses are doomed from day one, not from competition or the economy, but from the ignorance of their owners . . . their destiny is already decided because they have no idea how a business should be operated."
— **William Manchee** (**Go Broke, Die Rich: Turning Around the Troubled Small Business**)

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APPENDICES

APPENDICES	**APPENDIX A**	**DRAFT LETTER OF PERMISSION FOR AN ORGANISATION TO PARTICIPATE IN AN ACADEMIC RESEARCH STUDY**
	APPENDIX B	**RESEARCH DATA SHEET (ANONYMIZED)**
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APPENDIX A: DRAFT LETTER OF PERMISSION FOR AN ORGANISATION TO PARTICIPATE IN AN ACADEMIC RESEARCH STUDY

[Type the recipient name]
[Type the recipient address]

Permission for your organisation to participate in an academic research study

Topic:

INVESTIGATING FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL OF PRIVATE FIRMS IN FINANCIAL DISTRESS

Dear <name>

Your company is invited to participate in an academic research study conducted by Keith Fairhurst (Student Number: 14460221) a Doctoral student from the University of Pretoria.

The purpose of the study is to explore the antecedent board characteristics of financially distressed businesses that are privately owned. The output of the study will be more specifically aimed at exploring the influence that shareholding and executive management have on board composition and independence, and the strength of relationship between the fraction of equity owned by management and the turnaround potential of the business at the point of crossing the boundary between financial health and financial distress.

The research is a quantitative study that will explore the association between 1) antecedent board composition, 2) equity ownership patterns and turnaround potential of privately owned businesses that have entered formal Business Rescue since 01 May 2011.

Secondary data will be used as the basis for analysis. This secondary data will consist principally of financial and other statutory data extracted from business rescue plans or other business rescue documents published as part of a company's business rescue process.

Please note the following:

- All components of the study will be treated as <u>strictly confidential.</u> Any results will be of such a nature that it will not be possible to identify your organisation or any individuals in your organisation.

- Your participation in this study is very important to us. Your organisation may, however, choose not to participate in this study and you may also stop the participation of your organisation at any time without negative consequences.

- The data to be included in the study will be selected in collaboration with yourself and all of your organisational requirements in respect of privacy and security of information will be observed.

- The results of the study will be used for academic purposes and may be published in an academic journal or other lay articles. We will discuss interim results of our research with you and will provide you with a summary of our findings on request.

- Please contact my supervisor, Prof. Marius Pretorius ((c) 082 822 6333, marius.pretorius@up.ac.za) if you have any questions or comments regarding the study.

- The study has started and the aim is to submit the thesis by March 2017.

Please sign the form to indicate that:

- You have read and understand the information provided above.

- You give your consent for your organisation to participate in the study.

_____   _____
Initials and surname   Position in the organisation

_____   _____
Signature   Date

APPENDIX B: RESEARCH DATA SHEET (ANONYMIZED)

Research Data for: Not Applicable

Date: **01 June 2015**   **Source:** **Business Rescue Plan**

Industry: Manufacturing

Information

Variable	Value in ZAR	Comment	Reference
			February 2015 published results in BR Plan
Amount of external funding	9,153,000		
Shareholder equity and other shareholder funding	13,582,110	Shareholder equity ZAR 200 Shareholder loan ZAR 13,581,910	
Number of shares issued	100		
Number of shares owned by management	75		
Total number of directors	2		
Number of independent directors	0		

Variable	Value in ZAR	Comment	Reference
Board duality	Yes		
Total tangible assets (ZAR)	14,631,863		
Total secured loans (ZAR)	1,931,995		
Profit before tax (ZAR)	-8,055,850		
Current liabilities (ZAR)	6,484,893		
Current assets (ZAR)	5,921,604		
Total liabilities (ZAR)	22,734,910		
Total assets (ZAR)	14,631,863		
No credit interval (months)	0		
Percentage top management team change	0		
Return to secured creditors %	100		
Return to unsecured creditors %	70		

Captured: 22 March 2016.

APPENDIX C: DATA CAPTURE TEMPLATE

INVESTIGATING FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL OF PRIVATE FIRMS IN FINANCIAL DISTRESS

No.	Industry	Size or Annual Turnover	Amount of External Funding	External Funding Percentage of Total Funding	Shareholders' Equity + Other Shareholder Funding	Total Funding	Number of Shares Issued	Number of Shares Owned by Management	Ratio of Total Shares owned by Management	Total Number of Directors on the Board	Number of Independent Directors on the Board	Number of Non-Independent Directors on the Board	Percentage of Independent Directors on the Board	Board Duality	Total Tangible Assets (TTA)	Total Secured Loans (SL)	Free Assets (TTA-SL)/TTA
1	Fishing	13.86397019	13,000,000	1.00	100	13,000,100	100	100	1.00	7	0	7	0.00	No	1,049,653	15,674,000	-13.93
2	Building materials	15.31958795	3,589,119	0.36	6,400,000	9,989,119	100	100	1.00	2	0	2	0.00	No	4,500,000	3,589,119	0.20
3	Property development	16.23142434	3,938,563	1.00	100	3,938,663	100	100	1.00	1	0	1	0.00	No	11,200,000	3,928,563	0.65
4	Packaging	16.27103757	6,138,421	0.95	350,000	6,488,421	100	100	1.00	1	0	1	0.00	No	11,652,573	6,138,421	0.47
5	Property development	18.97011529	82,675,178	0.52	75,838,446	158,513,624	100	100	1.00	1	0	1	0.00	No	173,227,317	92,345,000	0.47
6	Manufacturing	13.41125572	142,878	0.22	503,718	646,596	100	100	1.00	1	0	1	0.00	No	503,718	142,578	0.72
7	Property rental	15.84458561	4,620,000	0.74	1,606,756	6,226,756	100	100	1.00	1	0	1	0.00	No	6,598,469	4,620,000	0.30
8	Wholesaling	16.56608863	11,352,464	1.00	100	11,352,564	100	100	1.00	2	0	2	0.00	No	15,651,677	13,278,782	0.15
9	Clothing retail	15.35987647	3,110,000	1.00	100	3,110,100	100	100	1.00	3	0	3	0.00	No	4,685,000	0.00	1.00
10	Rental properties	15.70258021	7,707,641	1.00	100	7,707,741	100	100	1.00	2	0	2	0.00	No	6,600,000	7,707,641	-0.17
11	Credit collections	15.76142071	20,800,000	0.36	37,600,000	58,400,000	100	0	0.00	3	0	3	0.00	Yes	1,526,988	0.00	1.00
12	Property development	18.87443032	141,003,096	0.47	157,420,374	298,423,470	100	100	1.00	3	0	3	0.00	No	157,420,373	62,700,000	0.60
13	Construction	12.99801031	12,514,483	1.00	100	12,514,583	100	100	1.00	1	0	1	0.00	No	441,534	0.00	1.00
14	Pharmaceutical products	17.87404083	121,978,257	1.00	100	121,978,357	100	100	1.00	6	2	4	0.33	Yes	57,889,167	68,038,863	-0.18
15	Property development and rental	14.07787482	28,710,781	1.00	100	28,710,881	100	100	1.00	1	0	1	0.00	No	800,000	723,675	0.10
16	Property development and rental	12.61153775	27,044,663	1.00	100	27,044,763	100	100	1.00	1	0	1	0.00	No	300,000	86,528	0.71
17	Property development and rental	16.5534749	3,046,200	1.00	100	3,046,300	100	100	1.00	2	0	2	0.00	No	13,004,567	0.00	1.00
18	Property development and rental	15.87883199	6,250,000	1.00	100	6,250,100	100	100	1.00	1	0	1	0.00	No	207,953.00	0.00	1.00
19	Manufacturing	13.64260612	886,864	0.89	105,100	991,964	100	100	1.00	2	0	2	0.00	No	841,218	499,227	0.41
20	Manufacturing	13.66413984	650,524	0.57	495,100	1,145,624	100	100	1.00	2	0	2	0.00	No	859,529	0.00	1.00
21	Construction	14.48473793	1,789,851	0.92	162,876	1,952,727	100	100	1.00	1	0	1	0.00	No	1,952,728	874,000	0.55
22	Construction	15.42494847	2,922,382	1.00	100	2,922,482	100	100	1.00	1	0	1	0.00	No	4,550,000	2,922,382	0.36
23	Manufacturing	18.47093003	87,829,053	0.99	1,277,596	89,106,649	100	100	1.00	1	0	1	0.00	No	99,014,911	47,069,524	0.52
24	Property holding	14.18348423	1,444,804	1.00	100	1,444,904	100	100	1.00	1	0	1	0.00	No	1,444,804	1,444,804	0.00
25	Trading	14.12666499	2,015,357	1.00	300	2,015,657	300	300	1.00	3	0	3	0.00	No	1,365,000	1,915,357	-0.40
26	Transport	16.2038171	12,646,468	0.88	1,778,570	14,425,038	100	100	1.00	1	0	1	0.00	No	8,628,005	9,328,630	-0.08
27	Construction	13.26351566	1,000,000	1.00	100	1,000,100	100	100	1.00	1	0	1	0.00	No	575,800	996,656	-0.73
28	Manufacturing	15.48170132	15,854,333	0.67	7,818,265	23,672,598	100	100	1.00	1	0	1	0.00	No	5,291,971	15,421,892	-1.91
29	Printing	15.86696265	13,336,787	1.00	5,000	13,341,787	100	100	1.00	3	0	3	0.00	No	8,251,608	5,065,833	0.39
30	Transport	14.95920296	2,561,745	0.90	300,000	2,861,745	100	100	1.00	1	0	1	0.00	No	3,138,335	883,636	0.72
31	Equipment leasing	15.20180492	1,035,221	0.37	1,800,000	2,835,221	100	100	1.00	1	0	1	0.00	No	4,000,000	671,643	0.83
32	Transport	14.52674321	2,370,599	1.00	100	2,370,699	100	100	1.00	2	0	2	0.00	No	2,036,500	1,571,760	0.23
33	Manufacturing	11.95886051	1,063,398	0.91	103,100	1,166,498	100	100	1.00	1	0	1	0.00	No	156,195	149,828	0.04
34	Manufacturing	15.37017544	7,694,556	1.00	100	7,694,656	100	100	1.00	2	0	2	0.00	No	4,733,500	993,628	0.79
35	Manufacturing	16.51532695	14,703,000	0.74	5,300,100	20,003,100	100	100	1.00	2	0	2	0.00	No	11,064,000	8,206,000	0.26
36	Wholesale	17.30147614	3,633,639	1.00	100	3,633,739	100	100	1.00	1	0	1	0.00	No	195,000	105,000	0.46
37	Property development	16.54987807	110,535,967	1.00	100	110,536,067	100	100	1.00	1	0	1	0.00	No	15,400,000	108,100,981	-6.02
38	Manufacturing	17.97946625	50,331,323	0.53	44,808,967	95,140,290	100	70	0.70	5	0	5	0.00	No	64,325,472	17,153,539	0.73
39	Manufacturing	15.3445175	26,045,245	0.62	16,072,100	42,117,345	100	100	1.00	2	0	2	0.00	No	4,613,593	352,386	0.92
40	Engineering	18.91773211	317,064,000	0.95	16,907,000	333,971,000	100	11.59	0.12	5	0	5	0.00	No	88,689,696	95,064,000	-0.07
41	Property holding	15.21519611	2,643,669	0.75	867,531	3,511,200	100	100	1.00	2	0	2	0.00	No	4,053,925	2,588,746	0.36
42	Retail (tyres)	13.63817654	2,346,836	1.00	100	2,346,936	100	100	1.00	2	0	2	0.00	No	837,500	822,783	0.02
43	Retail	16.03319114	21,405,980	0.84	4,028,960	25,434,940	100	100	1.00	2	0	2	0.00	No	9,186,000	4,638,613	0.50

No.	Industry	Size or Annual Turn-over	Amount of External Funding	External Funding Percentage of Total Funding	Share-holders' Equity + Other Share-holder Funding	Total Funding	Number of Shares Issued	Number of Shares Owned by Manage-ment	Ratio of Total Shares owned by Manage-ment	Total Number of Directors on the Board	Number of Independent Directors on the Board	Number of Non-Independent Directors on the Board	Percentage of Independent Directors on the Board	Board Duality	Total Tangible Assets (TTA)	Total Secured Loans (SL)	Free Assets (TTA-SL)/TTA
44	Transport	17.57151543	108,688,801	1.00	100	108,688,901	100	0	0.00	1	0	1	0.00	No	42,777,184	29,819,028	0.30
45	Retail	16.13275754	10,149,298	0.83	2,084,187	12,233,485	100	100	1.00	1	0	1	0.00	No	10,147,699	7,071,106	0.30
46	Wholesale	15.87484773	15,263,734	1.00	100	15,263,834	100	100	1.00	1	0	1	0.00	No	7,840,771	1,871,536	0.76
47	Construction	14.22558304	3,370,370	1.00	100	3,370,470	100	100	1.00	1	0	1	0.00	No	649,213	1,812,612	-1.79
48	Manufacturing	17.24443824	19,883,191	0.91	1,898,572	21,781,763	100	82.3	0.82	3	0	3	0.00	No	30,843,551	7,523,796	0.76
49	Agriculture/dairy	18.82312297	126,781,526	1.00	100	126,781,626	100	100	1.00	3	0	3	0.00	No	82,250,202	643,830	0.99
50	Engineering	16.22428885	16,722,102	1.00	1,000	16,723,102	100	74.9	0.75	2	0	2	0.00	No	11,120,367	268,523	0.98
51	Warehousing	17.08345255	13,185,076	0.69	5,884,764	19,069,840	100	100	1.00	3	0	3	0.00	No	26,257,246	5,740,701	0.78
52	Agriculture	15.39401637	5,004,330	0.92	413,032	5,417,362	100	100	1.00	1	0	1	0.00	No	4,847,707	2,493,137	0.49
53	Information technology	14.90137527	6,178,000	1.00	100	6,178,100	100	100	1.00	2	0	2	0.00	No	2,962,000	234,000	0.92
54	Construction	15.79305779	24,904,000	1.00	100	24,904,100	100	100	1.00	2	0	2	0.00	No	7,225,000	2,520,000	0.65
55	Transport	16.30432622	27,024,000	1.00	100	27,024,100	100	100	1.00	2	0	2	0.00	No	12,047,000	10,240,000	0.15
56	Wholesale	16.3885807	6,225,000	0.39	9,549,100	15,774,100	100	100	1.00	2	0	2	0.00	No	13,106,000	0.00	1.00
57	Construction	16.41290298	6,959,173	0.42	9,422,751	16,381,924	100	100	1.00	1	0	1	0.00	No	13,428,676	0.00	1.00
58	Manufacturing	16.49871211	9,153,000	0.40	13,582,110	22,735,110	100	75	0.75	2	0	2	0.00	No	14,631,863	1,931,995.	0.87
59	Construction	18.26444811	98,301,420	0.79	25,984,923	124,286,343	100	74	0.74	4	0	4	0.00	No	85,536,018	46,612,552	0.46
60	Manufacturing	16.24093256	31,553,000	0.91	3,200,100	34,753,100	100	100	1.00	3	0	3	0.00	No	11,307,000	5,445,000	0.52
61	Manufacturing	14.93621044	4,638,000	1.00	100	4,638,100	100	100	1.00	2	0	2	0.00	No	3,067,000	161,000	0.95
62	Wholesale	13.70793537	1,927,761	0.91	182,005	2,109,766	100	100	1.00	2	0	2	0.00	No	898,009	321,945.0	0.64
63	Restaurant	16.47000026	19,563,015	1.00	100	19,563,115	100	100	1.00	1	0	1	0.00	No	14,217,729	767,624.00	0.95
64	Restaurant	16.18878438	7,880,384	1.00	100	7,880,484	100	100	1.00	1	0	1	0.00	No	10,732,471	0.00	1.00
65	Restaurant	14.47084995	16,571,683	1.00	100	16,571,783	100	100	1.00	1	0	1	0.00	No	1,925,796	0.00	1.00
66	Restaurant	16.38277377	15,584,505	1.00	100	15,584,605	100	100	1.00	1	0	1	0.00	No	13,030,115	0.00	1.00
67	Restaurant	16.31004001	673,815	0.08	7,350,000	8,023,815	100	100	1.00	1	0	1	0.00	No	12,116,031	0.00	1.00
68	Transport and logistics	17.9496202	61,530,376	1.00	120	61,530,496	100	100	1.00	2	0	2	0.00	No	62,433,978	17,408,902	0.72
69	Property	16.73812575	21,762,853	0.87	3,146,648	24,909,501	100	100	1.00	4	0	4	0.00	No	18,589,840	7,142,274	0.62
70	Liquor	17.73069642	44,484,883	1.00	100	44,484,983	100	100	1.00	2	0	2	0.00	No	50,158,393	11,895,991	0.76
71	Financing	17.32134623	31,323,140	1.00	100	31,323,240	100	100	1.00	2	0	2	0.00	No	33,309,268	0.00	1.00
72	Meat processing	16.824691	47,538,237	1.00	100	47,538,337	100	100	1.00	2	0	2	0.00	No	19,884,631	24,354,712	-0.22
73	Construction	16.13695057	28,528,433	1.00	100	28,528,533	100	100	1.00	1	0	1	0.00	No	10,190,338	10,139,121	0.01
74	Engineering	16.52303622	95,105,410	0.67	46,335,495	141,440,905	100	100	1.00	4	0	4	0.00	No	14,992,134	29,935,106	-1.00
75	Electrical contracting	17.07210597	37,706,105	0.86	6,314,719	44,020,824	100	100	1.00	1	0	1	0.00	No	18,449,000	7,532,488	0.59
76	Tyre fitment	14.4787932	4,312,864	0.92	396,663	4,709,527	100	70	0.70	2	0	2	0.00	No	1,941,154	2,076,772	-0.07
77	Packaging	16.82800166	94,286,712	0.83	19,882,939	114,169,651	100	100	1.00	3	0	3	0.00	No	20,338,001	51,066,654	-1.51
78	Retail	17.50351463	67,876,000	0.82	14,640,289	82,516,289	100	30	0.30	4	0	4	0.00	No	39,965,000	20,316,686	0.49
79	Electrical contracting	15.88666788	7,812,049	0.92	658,514	8,470,563	100	100	1.00	1	0	1	0.00	No	7,934,000	4,280,541	0.46
80	Printing	18.27974695	83,555,867	0.65	44,883,463	128,439,330	100	100	1.00	5	0	5	0.00	No	86,854,681	45,663,326	0.47
81	Construction	16.48708279	26,672,753	0.95	1,294,510	27,967,263	100	100	1.00	2	0	2	0.00	No	14,462,690	147,694	0.99
82	Manufacturing	18.15409696	73,305,524	1.00	100	73,305,624	100	100	1.00	2	0	2	0.00	No	76,599,182	12,453,284	0.84
83	Construction	15.77461683	11,902,831	0.83	2,396,343	14,299,174	100	100	1.00	2	0	2	0.00	No	6,092,985	286,170	0.95
84	Construction	14.86866443	8,448,858	1.00	100	8,448,958	100	100	1.00	2	0	2	0.00	No	2,866,678	2,280,816	0.20
85	Mining	15.7166633	9,504,335	0.69	4,193,099	13,697,434	100	44	0.44	1	0	1	0.00	No	6,693,606	5,494,056	0.18
86	Construction	19.84700291	607,925,222	1.00	100	607,925,322	100	100	1.00	3	0	3	0.00	No	416,335,884	121,793,467	0.71
87	Construction	18.33465434	31,158,225	1.00	100	31,158,325	100	100	1.00	1	0	1	0.00	No	91,757,000	22,837,680	0.75
88	Construction	15.262606	68,144,952	1.00	100	68,145,052	100	100	1.00	1	0	1	0.00	No	4,250,750	20,536,072	-3.83
89	Construction	17.85891264	140,616,544	1.00	100	140,616,644	100	100	1.00	1.875	0.019230769	1.855769231	0.01	No	27,020,000	8,075,405	0.70
90	Mining	17.88513717	47,059,125	0.41	68,213,243	115,272,368	100	100	1.00	1	0.019230769	0.980769231	0.02	No	58,535,102	13,933,101	0.76
91	Food	19.17115299	290,900,000	1.00	1	290,900,001	100	100	1.00	2	0	2	0.00	No	211,800,000	33,686,179	0.84
92	Environmental sampling	13.2314617	5,217,088	1.00	100	5,217,188	100	100	1.00	1	0	1	0.00	No	557,636	179,740	0.68
93	Motor industry	15.72347152	7,450,337	1.00	100	7,450,437	100	100	1.00	1	0	1	0.00	No	6,739,333	6,456,279	0.04
94	Electrical contracting	16.90421656	50,802,819	0.91	5,231,313	56,034,132	100	100	1.00	1	0	1	0.00	No	21,948,658	31,502,530	-0.44
95	Contracting	14.75341639	7,753,136	1.00	100	7,753,236	100	100	1.00	1	0	1	0.00	No	2,554,626	1,835,067	0.28
96	Construction	14.52817748	3,197,338	1.00	100	3,197,438	100	100	1.00	2	0	2	0.00	No	2,039,423	0.00	1.00
97	Contracting	14.65861492	2,737,614	1.00	100	2,737,714	100	100	1.00	1	0	1	0.00	No	2,323,569	895,201.00	0.61
98	Tyre fitment	11.98639184	2,463,001	1.00	100	2,463,101	100	100	1.00	2	0	2	0.00	No	160,555	0.00	1.00
99	Mining	19.0904286	3,618,203	0.01	325,615,026	329,233,229	100	100	1.00	6	0	6	0.00	No	12,303,507	0.00	1.00
100	Training	17.97671554	44,445,191	0.25	133,938,236	178,383,427	100	49	0.49	3	0	3	0.00	No	61,221,905	6,000,000	0.90
101	Plastic packaging	16.87632025	19,893,783	0.96	725,525	20,619,308	100	100	1.00	1	0	1	0.00	No	21,344,833	7,205,761	0.66

INVESTIGATING FUNDING, BOARD COMPOSITION AND TURNAROUND POTENTIAL OF PRIVATE FIRMS IN FINANCIAL DISTRESS

No.	Industry	Size or Annual Turnover	Amount of External Funding	External Funding Percentage of Total Funding	Shareholders' Equity + Other Shareholder Funding	Total Funding	Number of Shares Issued	Number of Shares Owned by Management	Ratio of Total Shares owned by Management	Total Number of Directors on the Board	Number of Independent Directors on the Board	Number of Non-Independent Directors on the Board	Percentage of Independent Directors on the Board	Board Duality	Total Tangible Assets (TTA)	Total Secured Loans (SL)	Free Assets (TTA-SL)/TTA
102	Mining supplies	15.65360623	6,648,158	0.55	5,396,949	12,045,107	100	100	1.00	1	0	1	0.00	No	6,284,559	1,917,165	0.69
103	Manufacturing	15.57841657	5,378,417	1.00	100	5,378,517	100	100	1.00	1	0	1	0.00	No	5,829,353	211,768	0.96
104	Motorcycle dealer	16.1158793	4,487,301	0.49	4,610,629	9,097,930	100	75	0.75	2	0	2	0.00	No	9,977,861	3,823,728	0.62

| | | | | **Dependent Variable Severity of Distress Taffler's Z-Score** | | | | | | **Dependent variable** Ratio of the Top management team (TMT) that has changed in the 1 year prior to distress | **Dependent variable** | | |
Taffler Z-score calculation	Profit before tax (PBT)	Average current liabilities (ACL)	Profit before tax/average current liabilities (PBT/ACL) – Term 1	Current Assets (CA)	Total Liabilities (TL)	Current assets/Total Liabilities (CA / TL) – Term 2	Average current liabilities / Total assets (ACL / TA) – Term 3	Total assets (TA)	No Credit interval – Term 4	(BR)	Return to Secured Creditors (ratio)	Return to Unsecured Creditors (ratio)	Year of Business Rescue
-256.5405	-1,124,964	25,523,385	-0.04	518,853	25,598,545	0.02	1,049,653	24.32	0	0.00	1.00	0.13	2011
1.0403	-1.00	910,000	0.00	0.00	10,789,119	0.00	4,500,000	0.20	0	0.00	1.00	0.12	2012
2.9726	-1.00	238,420	0.00	0.00	11,668,419	0.00	11,200,000	0.02	0	0.00	1.00	1.00	2011
1.4104	-1.00	2,427,840	0.00	2,004,000	11,501,261	0.17	11,652,573	0.21	0	0.00	1.00	0.51	2011
0.3144	-1,145,730	86,619,363	-0.01	173,227,317	174,372,652	0.99	173,227,322	0.50	0	0.00	1.00	0.98	2011
-13.2707	-463,328	988,124	-0.47	163,756	1,130,702	0.14	667,474	1.48	0	0.00	1.00	0.10	2012
-1.4936	-263	3,585,597	0.00	1,008,576	7,403,774	0.14	7,607,047	0.47	0	0.00	1.00	0.16	2011
-5.0727	-1.00	14,048,613	0.00	14,877,782	28,318,563	0.53	15,651,677	0.90	0	0.00	1.00	0.15	2012
-14.3184	-2,895,000	7,580,000	-0.38	1,800,000	7,580,000	0.24	4,685,000	1.62	0	0.00	1.00	0.61	2012
-3.0397	-1.00	3,864,163	0.00	60,967	11,571,804	0.01	6,600,000	0.59	0	0.00	0.86	0.00	2011
-33.6865	-51,400,000	20,800,000	-2.47	5,500,000	58,400,000	0.09	7,000,000	2.97	0	1.00	1.00	0.12	2012
1.1428	573,163	31,598,122	0.02	2,650,210	141,003,096	0.02	157,420,373	0.20	0	0.33	1.00	1.00	2012
-299.5053	-1.00	12,514,483	0.00	0.00	12,514,483	0.00	441,534	28.34	0	0.00	1.00	0.04	2012
-6.1686	-1.00	53,760,550	0.00	18,010,765	81,904,557	0.22	57,889,167	0.93	0	0.00	0.85	0.00	2012
-226.7248	-1.00	27,987,106	0.00	0.00	28,710,781	0.00	1,300,000	21.53	0	0.00	1.00	0.00	2011
-956.4701	-1.00	26,957,026	0.00	0.00	27,044,663	0.00	300,000	89.86	0	0.00	1.00	0.00	2011
1.0950	-1.00	3,046,200	0.00	0.00	3,046,200	0.00	15,455,491	0.20	0	0.00	1.00	1.00	2011
-5.1946	-1.00	6,250,000	0.00	211,953	6,250,000	0.03	7,872,073	0.79	0	0.00	1.00	1.00	2011
-1.5771	-1.00	492,737	0.00	586,718	991,964	0.59	841,218	0.59	0	0.00	1.00	0.88	2012
-3.0836	-1.00	650,524	0.00	824,529	1,145,524	0.72	859,529	0.76	0	0.00	1.00	0.75	2012
1.1110	-1.00	415,851	0.00	132,728	1,789,851	0.07	1,952,728	0.21	0	0.00	1.00	1.00	2012
1.4050	-1.00	1.00	-1.00	450,000	2,922,382	0.15	5,000,000	0.00	0	0.00	0.78	0.00	2012
-0.5360	4,283,077	40,759,529	0.11	6,138,407	87,829,053	0.07	105,153,320	0.39	0	1.00	0.45	0.00	2012
1.0200	-1.00	1.00	-1.00	0.00	1,444,804	0.00	1,444,804	0.00	0	0.00	1.00	0.00	2012
2.4176	-1.00	100,000	0.00	0.00	2,015,357	0.00	1,365,000	0.07	0	0.00	0.71	0.00	2012
-0.1497	-1,751,540	1,539,368	-1.14	3,236,072	12,646,468	0.26	10,895,028	0.14	0	0.00	0.92	0.00	2012
3.6904	-1.00	0.00	0.00	195,500	996,656	0.20	575,800	0.00	0	0.00	0.57	0.00	2012
-13.4512	-1.00	8,250,706	0.00	0.00	23,672,598	0.00	5,291,971	1.56	0	0.00	0.34	0.00	2012
-7.1929	-1.00	8,270,954	0.00	5,133,456	13,336,787	0.38	7,779,189	1.06	0	0.00	1.00	0.32	2012
-0.2969	-1.00	1,225,644	0.00	452,465	1,678,109	0.27	3,138,335	0.39	0	0.00	1.00	1.00	2012
2.2292	-1.00	363,578	0.00	0.00	2,835,221	0.00	4,000,000	0.09	0	0.66	1.00	1.00	2011
-0.8981	-1.00	798,839	0.00	86,500	2,370,599	0.04	2,036,500	0.39	0	0.00	1.00	0.58	2012
-59.2663	-1.00	913,570	0.00	0.00	1,063,398	0.00	156,195	5.85	0	0.00	1.00	0.00	2012
-11.9190	-1.00	6,700,928	0.00	0.00	7,694,556	0.00	4,733,500	1.42	0	0.00	1.00	0.56	2012
-0.9876	-1.00	6,497,000	0.00	3,813,000	20,003,000	0.19	14,877,000	0.44	0	0.00	1.00	1.00	2011
2.0459	-1.00	3,528,639	0.00	0.00	3,633,639	0.00	32,653,942	0.11	0	0.00	1.00	1.00	2011
1.5113	-1.00	2,434,986	0.00	0.00	110,535,967	0.00	15,400,000	0.16	0	0.00	0.14	0.00	2011
-3.6848	-39,285,759	33,177,784	-1.18	28,343,450	58,802,264	0.48	64,325,472	0.52	0	0.00	1.00	1.00	2011
-56.4143	-4,409,000	25,692,859	-0.17	2,460,493	26,045,245	0.09	4,613,593	5.57	0	0.00	1.00	0.17	2014
-11.2372	-62,221,000	222,000,000	-0.28	75,697,000	317,064,000	0.24	164,386,696	1.35	0	0.00	1.00	0.31	2015
24.5972	542,727	54,923	9.88	0.00	2,643,669	0.00	4,053,925	0.01	0	0.00	1.00	1.00	2015
-16.2351	-1.00	1,524,053	0.00	0.00	2,346,836	0.00	837,500	1.82	0	0.00	1.00	0.01	2015
-17.8941	-18,667,662	16,767,367	-1.11	7,084,082	21,405,980	0.33	9,186,000	1.83	0	0.00	1.00	0.27	2013

## Dependent Variable Severity of Distress Taffler's Z-Score

Taffler Z-score calculation	Profit before tax (PBT)	Average current liabilities (ACL)	Profit before tax/average current liabilities (PBT/ACL) – Term 1	Current Assets (CA)	Total Liabilities (TL)	Current assets/Total Liabilities (CA / TL) – Term 2	Total assets (TA)	Average current liabilities / Total assets (ACL / TA) – Term 3	No Credit interval – Term 4	Ratio of the Top management team (TMT) that has changed in the 1 year prior to distress (BR)	Return to Secured Creditors (ratio)	Return to Unsecured Creditors (ratio)	Year of Business Rescue
-16.4911	-1.00	78,869,773	0.00	0.00	108,688,801	0.00	42,777,184	1.84	0	0.00	1.00	0.16	2013
-0.9434	-2,911,634	3,068,192	-0.95	4,687,006	10,149,298	0.46	10,147,699	0.30	0	0.00	1.00	1.00	2015
-8.0627	-3,142,678	8,641,667	-0.36	7,943,196	15,263,734	0.52	7,840,771	1.10	0	0.00	1.00	0.69	2014
-20.0541	-126,633	3,370,370	-0.04	963,360	3,370,370	0.29	1,506,927	2.24	0	0.00	0.35	0.00	2012
1.3567	-1.00	12,359,395	0.00	21,227,048	21,781,663	0.97	30,843,551	0.40	0	0.00	1.00	1.00	2015
-4.4812	-1.00	126,137,696	0.00	67,297,051	126,781,526	0.53	149,547,253	0.84	0	0.00	1.00	1.00	2015
-12.6020	-1.00	16,453,579	0.00	0.00	16,722,102	0.00	11,120,367	1.48	0	0.00	1.00	0.66	2015
1.6426	-1.00	4,342,890	0.00	1,594,957	19,069,740	0.08	26,257,246	0.17	0	0.00	1.00	1.00	2014
-6.1766	-3,855,209	2,972,873	-1.30	0.00	5,417,262	0.00	4,847,707	0.61	0	0.00	1.00	0.79	2011
-17.0938	-1.00	5,944,000	0.00	2,813,000	6,178,000	0.46	2,962,000	2.01	0	0.00	1.00	0.46	2011
-29.2924	-1.00	22,384,000	0.00	5,934,000	24,904,000	0.24	7,225,000	3.10	0	0.00	1.00	0.06	2012
-10.9823	-1.00	16,784,000	0.00	7,536,000	27,024,000	0.28	12,047,000	1.39	0	0.00	1.00	0.11	2013
0.1048	-1.00	6,225,000	0.00	11,383,000	15,774,000	0.72	13,106,000	0.47	6	0.75	1.00	1.00	2013
-1.1865	-1.00	6,959,173	0.00	7,523,685	16,381,824	0.46	13,428,676	0.52	0	0.00	1.00	0.82	2015
-3.5918	-8,055,880	6,484,893	-1.24	5,921,604	22,784,910	0.26	14,631,863	0.44	0	0.00	1.00	0.70	2015
-1.7477	-1.00	51,688,868	0.00	74,879,231	124,286,243	0.60	85,536,018	0.60	0	0.00	1.00	0.50	2014
-20.6773	-1.00	26,108,000	0.00	9,882,000	31,553,000	0.31	11,307,000	2.31	0	0.00	1.00	0.22	2013
-10.9944	-1.00	4,477,000	0.00	2,589,000	4,638,000	0.56	3,067,000	1.46	0	0.00	1.00	0.65	2013
-20.3712	-1.00	2,040,115	0.00	583,830	2,109,666	0.28	898,009	2.27	0	0.00	1.00	0.28	2014
-6.2752	-1.00	13,157,681	0.00	3,196,764	19,563,015	0.16	14,217,729	0.93	0	0.00	1.00	0.69	2015
-3.7944	-1.00	7,226,109	0.00	619,045	7,880,384	0.08	10,732,471	0.67	0	0.00	1.00	1.00	2015
-81.5944	-1.00	15,308,386	0.00	677,699	16,571,683	0.04	1,925,796	7.95	0	0.00	1.00	0.12	2015
-7.3900	-1.00	15,464,505	0.00	12,999,499	15,584,505	0.83	13,030,115	1.19	0	0.00	1.00	0.84	2015
-8.9392	-1.00	14,013,815	0.00	1,197,722	14,013,815	0.09	12,116,031	1.16	0	0.00	1.00	0.18	2015
-1.9444	917,487	30,683,721	0.03	963,698	61,530,376	0.02	62,433,978	0.49	0	0.00	1.00	0.97	2014
-5.1881	-1.00	14,620,579	0.00	100,000	21,762,853	0.00	18,589,840	0.79	0	0.00	1.00	0.78	2013
-2.6994	-1.00	31,976,152	0.00	16,177,684	44,484,883	0.36	50,158,393	0.64	0	0.00	1.00	1.00	2013
-6.7231	-1.00	31,323,140	0.00	1,504,000	31,323,140	0.05	33,309,268	0.94	0	0.00	1.00	1.00	2013
-7.2643	-6,776,087	18,555,012	-0.37	2,050,441	47,538,237	0.04	20,270,780	0.92	0	0.00	0.82	0.00	2015
-15.3743	-1.00	18,389,311	0.00	7,972,538	28,528,433	0.28	10,190,338	1.80	0	0.00	1.00	0.00	2014
-36.4410	-1.00	55,837,730	0.00	7,710,859	141,440,805	0.05	14,992,134	3.72	0	0.00	0.50	0.00	2015
-7.8696	-9,675,900	27,597,000	-0.35	18,449,000	44,020,824	0.42	25,961,000	1.06	0	0.00	1.00	0.61	2016
-11.2849	-1.00	2,632,719	0.00	0.00	4,709,427	0.00	1,941,154	1.36	0	0.00	0.93	0.00	2015
-19.9549	-9,100,000	43,220,057	-0.21	0.00	114,168,651	0.00	20,338,001	2.13	0	0.00	0.39	0.00	2015
-8.2903	-1.00	45,609,000	0.00	23,038,000	82,515,289	0.28	39,965,000	1.14	0	0.00	1.00	0.32	2015
-0.9856	-1.00	3,531,508	0.00	1,925,000	8,470,463	0.23	7,934,000	0.45	0	0.00	1.00	1.00	2015
-1.9359	-12,384,633	45,451,324	-0.27	34,992,269	83,555,867	0.42	86,854,681	0.52	0	0.00	1.00	0.90	2015
-16.1359	-14,673,166	26,226,779	-0.56	13,994,404	27,966,363	0.50	14,462,690	1.81	0	0.00	1.00	0.51	2015
-2.9581	1,901,306	57,519,767	0.03	52,476,779	73,305,524	0.72	76,599,182	0.75	0	0.00	1.00	1.00	2015
-13.3595	-1.00	11,380,726	0.00	3,297,721	14,299,074	0.23	7,092,985	1.60	0	0.00	1.00	0.41	2015
-11.7675	-1.00	4,187,055	0.00	2,134,678	8,448,538	0.25	2,866,678	1.46	0	0.00	1.00	0.09	2015
-17.8001	-11,082,727	12,475,334	-0.89	4,592,965	13,643,334	0.34	6,693,606	1.86	0	0.00	1.00	0.15	2016
-4.9485	-317,721,369	210,825,787	-1.51	132,532,768	607,925,222	0.22	416,335,884	0.51	0	0.00	1.00	0.61	2013
-0.4266	-1.00	31,158,225	0.00	0.00	199,605,226	0.00	91,757,000	0.34	0	0.00	1.00	0.34	2012
-117.9741	-34,000,000	47,608,878	-0.71	0.00	68,144,952	0.00	4,250,750	11.20	0	0.00	0.21	0.00	2015
-53.1512	-1.00	300,986,140	0.00	3,000,000	309,061,545	0.01	57,020,000	5.28	0	0.00	1.00	0.16	2012
-2.6172	-1.00	33,126,024	0.00	10,457,102	115,271,368	0.09	58,535,102	0.57	0	0.00	1.00	0.44	2015

| | | | | Dependent Variable Severity of Distress Taffler's Z-Score | | | | | | Dependent variable | Dependent variable | | |
Taffler Z-score calculation	Profit before tax (PBT)	Average current liabilities (ACL)	Profit before tax/average current liabilities (PBT/ACL) – *Term 1*	Current Assets (CA)	Total Liabilities (TL)	Current assets/Total Liabilities (CA / TL) – *Term 2*	Total assets (TA)	Average current liabilities / Total assets (ACL / TA) – *Term 3*	No Credit interval – *Term 4*	Ratio of the Top management team (TMT) that has changed in the 1 year prior to distress (BR)	Return to Secured Creditors (ratio)	Return to Unsecured Creditors (ratio)	Year of Business Rescue
-8.5813	-1.00	252,900,000	0.00	113,000,000	290,900,000	0.39	211,800,000	1.19	0	0.00	1.00	0.69	2016
-93.2947	-1.00	5,047,348	0.00	362,136	5,217,088	0.07	557,636	9.05	0	0.00	1.00	0.08	2015
2.3465	-1.00	994,057	0.00	2,151,226	7,450,337	0.29	6,739,333	0.15	0	0.00	1.00	0.28	2015
-5.7690	-1.00	18,700,339	0.00	2,650,848	50,802,819	0.05	21,948,658	0.85	0	0.00	0.69	0.00	2015
-21.7997	-7,898,406	5,336,801	-1.48	1,668,520	7,753,136	0.22	2,554,626	2.09	0	0.00	1.00	0.12	2014
-12.5520	-1.00	3,197,338	0.00	1,268,323	3,197,338	0.40	2,039,423	1.57	0	0.00	1.00	0.63	2014
-4.2848	-1.00	1,842,413	0.00	1,077,169	2,737,614	0.39	2,323,569	0.79	0	0.00	1.00	0.77	2014
-160.6370	-1.00	2,463,001	0.00	0.00	2,463,001	0.00	160,555	15.34	0	0.00	1.00	0.07	2016
-3.9664	-11,566,031	3,618,203	-3.20	0.00	206,940,496	0.00	195,374,464	0.02	0	0.00	1.00	0.94	2015
-1.5641	-17,284,784	27,751,617	-0.62	21,581,968	44,445,191	0.49	64,148,774	0.43	0	0.00	1.00	1.00	2015
-0.5215	-1,557,052	9,303,415	-0.17	10,708,514	20,619,308	0.52	21,344,833	0.44	0	0.00	1.00	1.00	2015
-2.6082	-732,859	3,264,716	-0.22	1,104,535	12,045,107	0.09	6,284,559	0.52	0	0.00	1.00	0.43	2016
-4.3249	-1,800,253	4,732,713	-0.38	4,249,515	5,378,517	0.79	5,829,353	0.81	0	0.00	1.00	1.00	2015
-2.0684	-1,169,279	6,414,832	-0.18	7,260,793	9,097,670	0.80	9,977,861	0.64	0	0.00	1.00	1.00	2016

APPENDIX D: VISUAL INSPECTION TEST OF ASSUMPTION FOR LINEARITY AND HOMOSCEDACITY

Secured creditors – Assumption 3 and **Assumption 4** Table 9.22 (Field, 2009: sec. 5.3.3)

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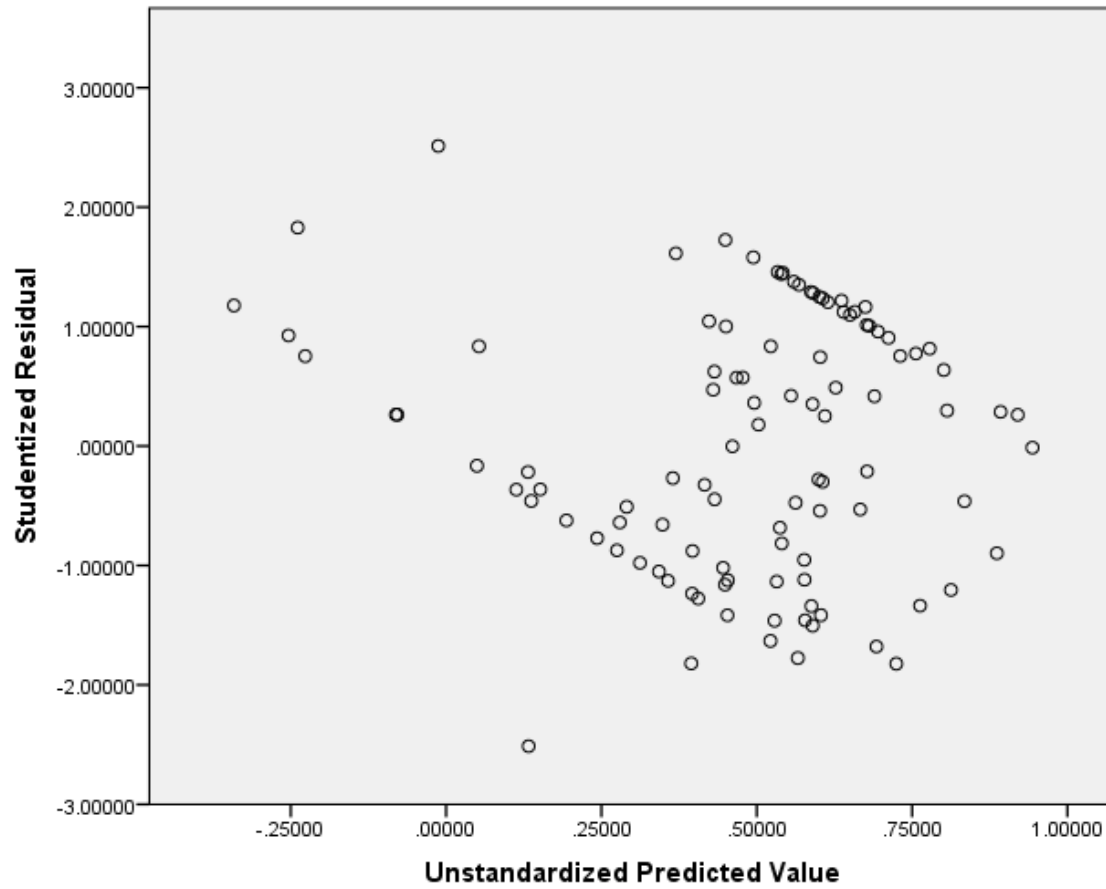
Unsecured creditors – Assumption 3 and **Assumption 4** Table 9.26 (Field, 2009: sec. 5.3.3)
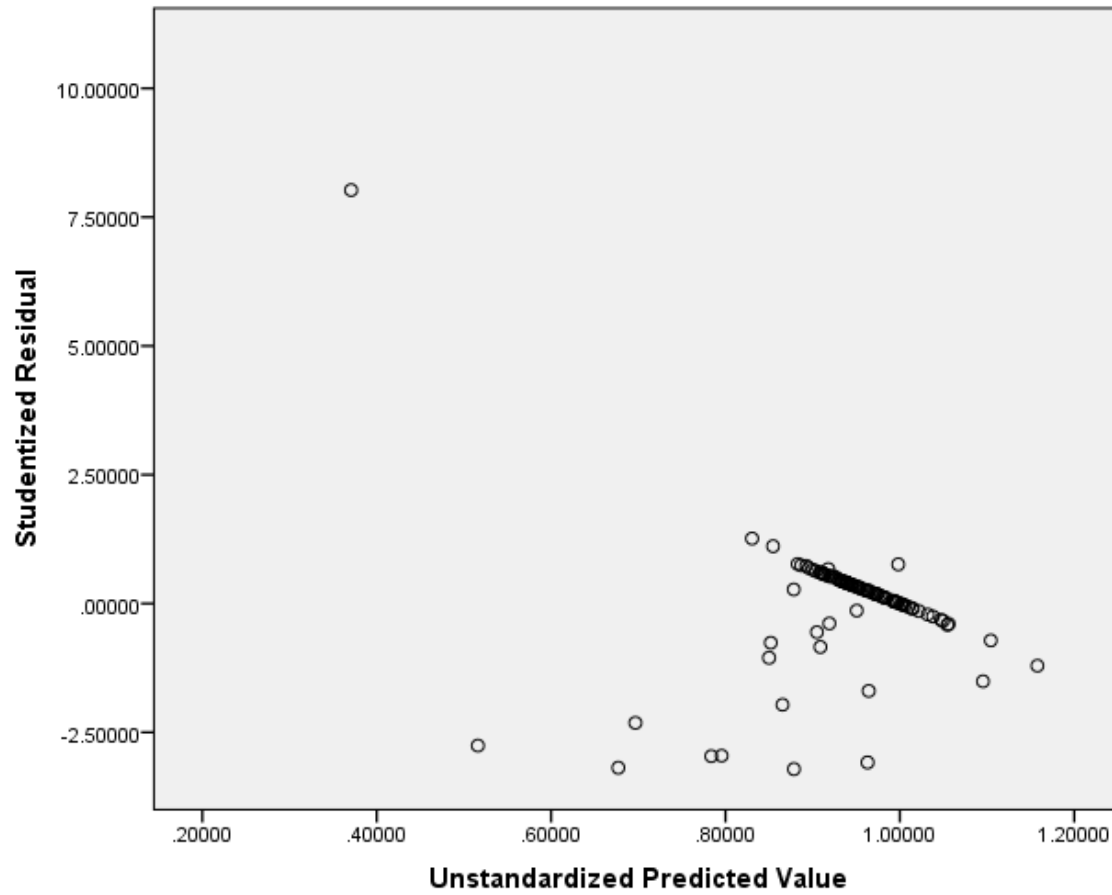
APPENDIX E: SUMMARISED CORRELATIONS FOR ALL VARIABLES

Correlations											
		Size	External fund	Management shares	Total Directors	Ind Dirs	Free assets	Taffler Z	TMT change	Return secured	Return unsecured
Size	Pearson Correlation	1	-0.179	-0.208*	0.300**	0.115	0.149	0.369**	0.100	0.029	0.383**
	Sig. (2-tailed)		0.070	0.034	0.002	0.244	0.132	0.000	0.313	0.769	0.000
	N	104	104	104	104	104	104	104	104	104	104
Externalfund	Pearson Correlation	-0.179	1	0.188	-0.140	0.064	-0.140	-0.134	-0.274**	-0.106	-0.189
	Sig. (2-tailed)	0.070		0.057	0.157	0.519	0.157	0.174	0.005	0.284	0.055
	N	104	104	104	104	104	104	104	104	104	104
Management-shares	Pearson Correlation	-0.208*	0.188	1	-0.235*	0.032	-0.051	-0.046	-0.225*	-0.107	0.065
	Sig. (2-tailed)	0.034	0.057		0.016	0.744	0.610	0.639	0.021	0.280	0.509
	N	104	104	104	104	104	104	104	104	104	104
TotalDirectors	Pearson Correlation	0.300**	-0.140	-0.235*	1	0.337**	-0.312**	0.015	0.000	0.067	0.017
	Sig. (2-tailed)	0.002	0.157	0.016		0.000	0.001	0.882	0.999	0.498	0.863
	N	104	104	104	104	104	104	104	104	104	104
IndDirs	Pearson Correlation	0.115	0.064	0.032	0.337**	1	-0.023	0.021	-0.022	0-.048	-0.120
	Sig. (2-tailed)	0.244	0.519	0.744	0.000		0.817	0.829	0.828	0.629	0.226
	N	104	104	104	104	104	104	104	104	104	104
Freeassets	Pearson Correlation	0.149	-0.140	-0.051	-0.312**	-0.023	1	0.172	0.073	0.448**	0.318**
	Sig. (2-tailed)	0.132	0.157	0.610	0.001	0.817		0.080	0.462	0.000	0.001
	N	104	104	104	104	104	104	104	104	104	104

		Correlations									
		Size	**External fund**	**Manageme nt shares**	**Total Directors**	**Ind Dirs**	**Free assets**	**Taffler Z**	**TMT change**	**Return secured**	**Return unsecured**
Taffler Z	Pearson Correlation	0.369**	-0.134	-0.046	0.015	0.021	0.172	1	0.041	-0.020	0.271**
	Sig. (2-tailed)	0.000	0.174	0.639	0.882	0.829	0.080		0.682	0.843	0.005
	N	104	104	104	104	104	104	104	104	104	104
TMTchange	Pearson Correlation	0.100	-0.274**	-0.225*	0.000	-0.022	0.073	0.041	1	-0.102	0.009
	Sig. (2-tailed)	0.313	0.005	0.021	0.999	0.828	0.462	0.682		0.303	0.929
	N	104	104	104	104	104	104	104	104	104	104
Returnsecured	Pearson Correlation	0.029	-0.106	-0.107	0.067	-0.048	0.448**	-0.020	-0.102	1	0.426**
	Sig. (2-tailed)	0.769	0.284	0.280	0.498	0.629	0.000	0.843	0.303		0.000
	N	104	104	104	104	104	104	104	104	104	104
Returnunsecured	Pearson Correlation	0.383**	-0.189	0.065	0.017	-0.120	0.318**	0.271**	0.009	0.426**	1
	Sig. (2-tailed)	0.000	0.055	0.509	0.863	0.226	0.001	0.005	0.929	0.000	
	N	104	104	104	104	104	104	104	104	104	104

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).