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THE DETERMINANTS OF FINANCIAL FLEXIBILITY AND INVESTMENT EFFICIENCY: SOME EVIDENCE FROM JSE-LISTED NON-FINANCIAL FIRMS

BY

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DEDICATION

This dissertation is dedicated to the Almighty God and all my family. Thank you for the support you extended to me throughout my studies.

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DECLARATION

I, **KAYIIRA JOSEPH student number 19020837,** declare that this dissertation for a Master of Commerce in Accounting (MCOM in COST ACCOUNTING AND MANAGEMENT) submitted to the School of Management Sciences at the University of Venda has not been submitted previously for any degree at this or any other University. I declare that I have wholly written this dissertation and have not used sources or resources other than the ones mentioned and that all reference material contained therein has been duly acknowledged.

Signature:  Date: 21/04/2021

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ABSTRACT

Making and implementing financing decisions to achieve corporate objectives has been a challenging task for many corporate managers for decades. Achieving and maintaining financial flexibility, investment efficiency and ensuring the availability of funds for investment through payout policies are important financing decisions to maximise shareholder's value. Financial flexibility is important as it determines the financing, investment and distribution policies of a firm and the firm's payout policy determine the amount of capital available for investment. On the other hand, investment efficiency is fundamental in making strategic investment decisions as it requires that capital investment should only be allocated to profitable projects. Therefore, it is essential to understand the driving factors of these financial management aspects as there are no studies that have examined the impact of firm specific factors and payout policies on the firm's financial flexibility and investment efficiency in Africa, including South Africa. To examine these financial management aspects, firstly, the study derived and tested estimation models of financial flexibility and investment efficiency in the context of the South African non-financial firms listed on the JSE Limited. Secondly, the study investigated the impact of selected firm-specific factors on the financial flexibility of the non-financial firms listed on the JSE Limited. It further analysed the impact of selected firm-specific factors on the investment efficiency of the non-financial firms listed on the JSE Limited. Lastly, the study examined the relationship between financial flexibility and investment efficiency of non-financial firms listed on the JSE Limited. A panel of 106 non-financial firms with complete data for periods from 2000 to 2019 was constructed and used in these tests. The research hypotheses were formulated and tested using the appropriate regression models selected from the Random Effect Model (REM), Fixed Effect Model (FEM) and System Generalized Method of Moments (GMM-SYS). The study shows that financial flexibility decreases with an increase in leverage, investment opportunities, payout and finance costs. However, it increases with profitability, cash and cash equivalents and asset tangibility. Based on the study, JSE-listed firms are financially flexible and the determinants of financial flexibility in these firms are leverage, Tobin's Q, finance cost, dividends, profitability, tangibility and cash and cash equivalents.

The significant factors that determine financial flexibility in the JSE-listed non-financial firms are Tobin's Q and finance cost as they show a significant correlation with financial flexibility. On the

other hand, dividends, profitability, tangibility and cash and cash equivalents show an insignificant relationship.

Also, the study shows that investment efficiency in the JSE-listed non-financial firms increases with leverage, payout, growth options, sales growth and cash flow. It, however, decreases with financial flexibility, firm age and size. The main determinants of investment efficiency in these firm are leverage, payout policy, growth options, sales growth, cash and cash equivalents, firm age and firm size.

Keywords: *Financial flexibility, Investment efficiency, payout, profitability, large firms, small firms, agency costs, leverage, the pecking order*.

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ABBREVIATIONS

AltX	Alternative Stock Exchange
DIV	Dividend paid
EBIDTA	Earnings before interest, depreciation, tax and amortisation
FCF	Free Cash Flow
FE	Fixed Effects
FF	Financial Flexibility
G7	Group 7 countries(United Kingdom, France, Germany, Italy, Japan, the United States and Canada)
IE	Investment Efficiency
IAS	International Accounting Standards
JSE	JSE Limited
K	Capital
LEV	Leverage
MTB	Growth options
NA	Net assets
NPV	Net present value
OCF	Cash flow from operations
POLS	Pooled Ordinary Least of Squares
POP	Payout policy
PROF	Firm profitability
RE	Random Effects
S&P	Standard & Poors
SG	Sales growth
SIZE	Firm size
WFE	World Federation of Exchange

CHAPTER ONE: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

Making and implementing financing decisions that lead to investment efficiency and optimal capital structures has been a challenging task for many corporate managers for decades (Barclay & Smith, 2005; Mann, 1989; Modugu, 2013; S. C. Myers, 1984). Recent studies have found that the need to achieve and maintain financial flexibility is one of the most important determinants of financing decisions by the majority of senior corporate managers in the world (Bancel & Mittoo, 2004: 119). Similarly, Le Quang (2016: 1) highlighted that, in a firm, the need to achieve and maintain financial flexibility influences almost all the firm's important financial management decisions such as financing, investment and distribution of excess earnings to shareholders. The need for the firm to achieve and maintain financial flexibility is consistent with the hypothesis of the pecking order theory of Myers and Majluf (1984), which posits that capital structure is driven by firms' desire to finance new investments, first internally, then with low-risk debt, and finally with equity only as a last resort (Harris & Raviv, 1991: 306). This financing behaviour enables high quality firms, which are usually large, mature, and profitable to retain most of the firm's earnings, thereby maintaining low leverage and this enables these firms to build and maintain borrowing capacity.

On the other hand, the concept of investment efficiency has become very important in financial management research as the future success of a firm depends on its investment efficiency (Li & Naeem, 2019:53). Investing in projects with the highest positive NPV values is consistent with the goal of attaining investment efficiency, and this promotes the firm's sustainable profitability and growth. Furthermore, the pay-out policy affects both the firm's financing and distribution policies as it determines the amount of retained earnings that are available to fund profitable future investments, and this, in turn, affects the firm's investment efficiency of firms.

The study focuses on the non- financial firms drawn from JSE Limited and this is important because these firms have the largest market capitalisation in the South African economy. As of 4th March 2020, the non-financial firms had a market capitalisation of R15 Trillion representing 87% of the total market capitalisation of firms listed on the JSE (JSE, 2020). This, therefore, mean that they greatly contribute a large portion of the GDP in the South African economy.

1.2 Background of the study

Financial flexibility can be traced back to the seminal works of Modigliani and Miller (1963: 442), who defined financial flexibility as a firm's ability to maintain "*substantial reserves of*

untapped borrowing power." According to Byoun (2016: 1), financial flexibility is a firm's capacity to mobilize its financial resources in response to unexpected future financial needs. Denis (2011: 667) defines financial flexibility as a firm's ability to access business funding at a low cost and at short notice in order to respond to unexpected changes in the firm's cash flows or investment opportunities

The need for the firm to achieve and maintain financial flexibility is consistent with the hypothesis of the pecking order theory of Myers and Majluf (1984). The theory suggests that capital structure is driven by firms' desire to finance new investments, first internally, then with low-risk debt, and finally with equity only as a last resort (Harris & Raviv, 1991: 306). This enables high quality firms, which are usually large, mature, and profitable firms that have substantial amounts of retained earnings to build and maintain borrowing capacity by keeping low leverage, thereby achieving financial flexibility.

A study by Rapp, Schmid and Urban (2014: 288) discovered that US companies that place more value on financial flexibility had lower dividend payouts, preferred share repurchases to dividend payments, had lower leverage ratios, and tended to accumulate more cash. In another study, Rahimi and Mosavi (2016: 207) documented that, in Asian firms, financial flexibility had a significant inverse relationship with the firm's dividend payouts, financial leverage, and the change in its cash balances. A study by Arslan-Ayaydin, Florackis and Ozkan (2014: 211) to identify a relationship between financial flexibility, investment and firm performance during the 1997-1998 Asian financial crisis also reported that firms with low levels of leverage and high cash balances prior to the financial crisis had greater financial flexibility in taking investment opportunities during the financial crisis.

In another study carried out in Kenya, Kingwara (2015: 51) found that there is a significant relationship between financial flexibility and dividend policy. He found that the probability of paying dividends and the number of dividends decreased as financial flexibility increased. Similarly, Abdulkadir, Abdurraheem and Siyanbola (2017: 10) indicated that the need to preserve financial flexibility measured by cash reserves influenced decisions to pay or not to pay dividends and that it had an impact on the amounts of dividends in Nigerian firms.

Furthermore, the concept of investment efficiency has become very important in financial management research as the future success of a firm depends on its investment efficiency (Li & Naeem, 2019:53). Investing in projects with the highest positive NPV values is consistent with the goal of attaining investment efficiency, and this promotes the firm's sustainable profitability and growth.

Theoretically, investment efficiency means allocating the firm's capital resources to their most highly valued use (S. P. Kothari, Ramanna, & Skinner, 2010: 247). Mauboussin, Callahan and Majd (2016: 3) indicated that investment efficiency is a function of capital investment decisions, and it involves allocating firm resources to value-maximizing projects. Khan, He, Akram and Sarwar (2017:63) reported that investment efficiency is creating a balance between overinvestment and underinvestment. Overinvestment is defined as investing in projects with negative NPV or poor returns. This occurs when mature, profitable, and stable firms that generate high cash flows maintain excess funds after investing in all the positive NPV projects. The excess cash will then be invested in poor projects and non-value adding activities such as increased managerial compensations, managerial perquisites, and managerial skills enhancement investments to improve job security. Grullon, Michaely and Swaminathan, 2002: 390; Shao, Kwok and Guedhami, 2010: 1393) argue that the firm can reduce the agency costs of overinvestment by returning the excess free cash flow to shareholders in the form of increased dividend or the company can buy back some of its shares to distribute the excess cash flow to its shareholders.

On the other hand, underinvestment means withholding investments despite the existence of profitable projects (Biddle, Hilary, & Verdi, 2009: 113). This occurs when managers of young, small, and less profitable firms identify projects with positive NPV, but due to lack of capital, the managers cannot invest in those projects.

Agency theory predicts that investment efficiency is associated with agency costs of overinvestment and underinvestment (M. C. Jensen, 1986; C. Myers, 1977). Shareholders bear agency costs as a result of management discretion (Stulz, 1990: 5). The large, mature and highly profitable firms generate high cash levels but tend to have declining investment opportunities (DeAngelo, DeAngelo, & Stulz, 2006: 228) and exhibit agency problems than young, small and less profitable firms (Vogt, S.C., 1994: 16). Overinvestment is concentrated in firms that have free cash flows (Richardson, 2006: 159). Jensen (1987: 16) explained that managers tend to waste funds as a result of financial flexibility in the form of free cash flow reflected in high cash balances and future free cash flow as a result of unused borrowing power, by over-investing in less profitable or NPV-negative projects thereby impeding investment efficiency. Capital investment is discretionary (Myers, 1977: 148). Therefore, investment efficiency in a firm will depend on how well the firm's investment capital is deployed.

Available literature (Biddle et al., 2009; Black, 1976; Easterbrook, 1984; Gao & Yu, 2018; Holder, Langrehr, & Hexter, 1998; M. C. Jensen, 1986; Marchica & Mura, 2010; C. Myers,

1977) indicate that there is a link between the firm's financial flexibility, payout policy and its investment efficiency. A study conducted by Cherkasova and Kuzmin (2018) found that there is a significant relationship between investment efficiency and financial flexibility. The study reported that financially flexible firm had higher levels of new investment than financially inflexible firms and achieved investment efficiency even during the financial crisis as they were able to absorb negative business shocks. Le Quang (2016: 1) examines the effect of financial flexibility on corporate investment efficiency, and the study concluded that maintaining and achieving financial flexibility is vital in order to avoid investment distortions.

The increase in dividends as a form of payout, in large, stable, and highly profitable firms, reduces the excess cash flow available to be invested in projects with negative NPV (Cheng, Cullinan, & Zhang, 2014: 587; Gao & Yu, 2018: 23). This, in turn, may reduce the firm's agency costs of overinvestment and thus improving its investment efficiency.

Harris and Raviv (1990: 321) suggest that reducing excess resources under managers' control is a mechanism of disciplining managers and monitoring managers' decisions. Payout of excess funds reduces managers' power, and it makes it more likely they will incur the monitoring and disciplining effect of the capital markets as debt is likely to replace internal equity. This occurs when the firm must obtain capital for new projects (DeAngelo et al., 2006; Hansen, Kumar, & Shome, 1994). Therefore, managers of large, mature, and highly profitable firms with high payout ratios are likely to make valuable investment decisions (Cheng et al, 2014: 589), leading to investment efficiency.

Empirically, Shao et al (2010: 1403) found that firm age, size, and profitability are significantly positively related to payout, implying that young, small, and less profitable firms are less likely to pay dividends. These firms usually have high investment opportunities, generate low profits, and they are less attractive to capital markets due to insufficient debt security(Iyer, Feng, & Rao, 2017: 634). This makes these firms to majorly rely on internal equity (Vogt, S.C., 1994: 18). The payment of huge dividends by these firms may lead to financial distress reflected in internal equity deficiency which in turn leads to agency costs of underinvestment. Financial distress means that firm managers will pass projects with positive NPV as a result of insufficient funds, thereby reducing investment efficiency.

Blau and Fuller (2008: 133) explained that by not paying dividends, management maintains funds to invest in valuable projects. The restriction of dividend payout could protect a firm from suboptimal investment decisions induced by risky debt (Myers, 1977: 159) as the firm financed

with risky debt may pass up valuable projects (Myers, 1977: 149). This mitigates the debt overhang problem.

1.3 Problem statement

The investment efficiency of firms has been studied using data from markets such as the UK (Aktas, Andreou, Karasamani, & Philip, 2019; Biddle & Hilary, 2006; Naeem & Li, 2019; Scharfstein & Stein, 2000), USA (R. Chen, El Ghoul, Guedhami, & Wang, 2017; Le Quang, 2016), Brazil (Linhares, Da Costa, & Beiruth, 2018) and Asia (He, Chen, & Hu, 2019; Zeng, Hu, & Su, 2016; Zhang, Zhang, & Zhang, 2016). The findings of these studies show that investment efficiency is driven by investment, sales, revenue, capital, cash flows, leverage, firm age, size, and firm growth potential. Most of the above studies excluded the impact of financial flexibility and payout policies on the investment efficiency of firms. This is besides several studies such as those of Graham and Harvey (2001); Bancel and Mittoo (2004); Gamba and Triantis (2008); Rapp et al (2014) showing that financial flexibility is a key determinant of the firm's financing, investment and distribution policies. Furthermore, the payout policy affects both the firm's financing and distribution policies as it determines the amount of retained earnings that are available to fund profitable future investments, and this, in turn, affects the firm's investment efficiency.

A limited number of studies such as those of (Biddle et al., 2009; Chan, Song, & Fan, 2018; Cherkasova & Kuzmin, 2018; Le Quang, 2016) have investigated the impact of the firm's financial flexibility and pay-out policies on its investment efficiency. A study conducted by Cherkasova and Kuzmin, (2018) in Asia found that there is a significant relationship between investment efficiency and financial flexibility. The study concluded that financially flexible firms had higher levels of new investment than financially inflexible firms and achieved high levels of investment efficiency even during the financial crisis as these firms were able to absorb negative business shocks. Le Quang, (2016: 1) examined the effect of financial flexibility on investment efficiency in USA firms, and the study concluded that achieving and maintaining financial flexibility is vital in order to avoid investment distortions.

On the other hand, the research by Chan et al (2018) in China, found that payout can improve investment efficiency by mitigating overinvestment. Biddle et al (2009: 126) used dividend payout as a control variable in the model that tested investment efficiency in firms from China

and the USA, and it showed that dividend payout was negatively correlated with investment efficiency.

To the researcher's best knowledge, there are no studies in Africa, including South Africa, that have examined the impact of the firm's financial flexibility and payout policies on its investment efficiency. The findings from UK, USA, Brazil, and Asia may not necessarily apply to the South African context due to different institutional factors such as market characteristics, the profitability of firms, level of investment in firms, and sophistication of financial markets. The understanding of factors that drive investment efficiency is essential in making strategic investment decisions aimed at maximising shareholders' value as it dictates that capital investment should only be allocated to profitable projects. It is, therefore, necessary to investigate the impact of financial flexibility and payout policies on investment efficiency in the African context.

1.4 Aim of the study

This study aimed at investigating the impact of payout and financial flexibility on investment efficiency and also the impact of payout on the financial flexibility of non-financial firms listed on the JSE.

1.5 Objectives of the study

The following specific objectives guided the study.

i. Determine the impact of selected firm-specific variables on the financial flexibility of non-financial firms listed on JSE.
ii. Determine the impact of the selected firm-specific variables on the investment efficiency of non-financial firms listed on JSE.
iii. Investigate the impact of payout on the investment efficiency of non-financial firms listed on JSE.
iv. Investigate the impact of payout on the financial flexibility of non-financial firms listed on JSE.
v. Investigate the impact of financial flexibility on the investment efficiency of non-financial firms listed on JSE.

1.6 The hypothesis of the study

The study hypothesises the following.

H1: Some selected firm specific factors have a significant relationship with the financial flexibility of non-financial firms listed on JSE.

H2: Payout has a significant negative impact on the financial flexibility of non-financial firms listed on JSE.

The study expects financial flexibility to vary with payout and the following explanatory variables, as shown in the table.

Table 1. 1 Payout and selected firm specific variables

Explanatory variable	Relationship
Leverage ↑	_
Payout ↑	_
Profitability ↑	+
Cash holdings ↑	+
Retained earnings ↑	+
Asset tangibility ↑	+
Investment opportunities↑	_
Finance costs ↑	_

Source: Author (2020)

H3: Some selected firm-specific factors have a significant relationship with the investment efficiency of non-financial firms listed on JSE.

H4: Financial flexibility has a significant impact on the investment efficiency of non-financial firms listed on JSE.

H5: Payout has a significant impact on the investment efficiency of non-financial firms listed on JSE.

The study expects the investment efficiency to vary with the payout, financial flexibility and the following explanatory variables, as shown in the table below.

Table 1. 2 Financial flexibility and selected firm specific factors

Explanatory variable	Relationship	
	Large firms	**Small firms**
Financial Flexibility ↑	-	+
Leverage ↑	+	_
Payout ↑	+	_
Level of investment ↑	+	+

Investment opportunities↑	+	+
Sales revenue↑	–	+
Cost of Finance↑	+	–
Cashflow↑	–	+
Firm size ↑	–	–
Firm age ↑	–	–

Source: Author (2020)

1.7 Significance of the study

This study makes four contributions to the body of financial management literature. Firstly, the study provides evidence of theories that have discussed the relation between financial flexibility, payout policies, and investment efficiency.

Secondly, it establishes a significant relationship between financial flexibility and key firm specific variables of non-financial firms listed on the JSE. Thirdly, it establishes a significant relationship between investment efficiency and key firm specific variables that determine capital structure in the context of non-financial firms listed on the JSE

Lastly, financial flexibility and investment efficiency theories have always been tested using data collected from advanced economies such as the United States and Europe, and Asia, which is an emerging and rapidly growing economy. However, there have been limited studies that test the theories in Africa, South Africa, inclusive.

The study, therefore, tests whether the hypotheses of these theories apply in South Africa, which is experiencing a slowly growing economy.

1.8 Scope of the study

This study focused on investigating the impact of payout and financial flexibility on investment efficiency and also the impact of payout on financial flexibility of non-financial firms listed on the JSE in the eleven sectors of the South African economy for a period of 20 years from 2000 to 2019. For this study, the population consisted of **223** non-financial firms listed on the JSE.

1.9 Delimitations of the study

The period of this study was limited to 20 years from 2000 to 2019, covering non-financial firms listed on the JSE in the eleven sectors. The study split the sample into two samples, Sample A and Sample B, with Sample A, including the large and medium firms based on market capitalisation, and Sample B including small firms based on their market capitalisation. The reason for having two samples was to exclude misrepresentation issues when analysing the

results of the samples. The grouping followed JSE Limited firm categorisation (JSE, 2020) as shown below.

- Large-Cap: Market cap above R 10 Billion.
- Medium-Cap: Market cap of between R 1 Billion and R 10 Billion.
- Small-Cap: Market cap is below R 1 Billion.

1.10 Definition of key terms

This section defines the key terms that were used in the study.

Financial flexibility

Financial flexibility can be traced back to the important works of Modigliani and Miller (1963: 442), who defined financial flexibility as a firm's ability to maintain significant stocks of borrowing power. Similarly, Bancel and Mittoo (2011: 180) define it as the ability of a firm to respond effectively to unanticipated shocks to its cash flows or its investment opportunities. Bouchani and Ghanbari (2015: 217) state that financial flexibility refers to the ability of a trading entity based on effective action for changing the extent and time of its cash flows so that the trading entity can respond to unexpected events and opportunities. It is, therefore, the capacity of a firm to quickly access financial resources at a lower cost to address the firm's financial needs.

Investment efficiency

Investment efficiency according to Kothari et al. (2010: 247) relates to allocating the firm's capital resources to their most highly valued use. According to Khan et al. (2017: 63), investment efficiency is creating a balance between overinvestment and underinvestment where overinvestment means investing in projects with negative or low NPVs and underinvestment means withholding investments despite the existence of profitable projects (Biddle et al., 2009: 113). Aktas et al. (2019: 476) indicate that the value created by investment in a firm significantly depends on investment efficiency. According to Tag (2017: 5), investment efficiency involves accurately evaluating and ranking all NPV-positive projects and allocating capital to only those that are less risky and exhibiting the highest NPV.

Payout

Payout policy is an approach that a firm uses to distribute excess cash to the shareholders of that firm. According to Barclay and Smith (1988: 61), firms can distribute wealth to their shareholders in five different ways which are payment of regular cash dividends, open market

repurchases/ buybacks, intra-firm tender offers, targeted repurchase/buybacks and specially designated dividends. The payout policy is generally categorised into dividends and repurchases/ share buybacks (Baker, Mukherjee, & Powell, 2005: 111).

Leverage

Leverage shows the amount of debt used by a firm in its capital structure and it is generally expressed as the debt to equity ratio (Ahmad, Salman, & Shamsi, 2015: 75). Firms that use a high amount of debt in their capital structure as compared to equity are high leveraged firms, and those that use less debt to equity are less leveraged firms (Zou & Adams, 2008: 438).

JSE Limited

The JSE is currently ranked the 19th largest stock exchange in the world by market capitalisation and it is the largest exchange on the African continent (JSE, 2020). There are 62 equities members, 120 Equity Derivatives members, 92 Commodity Derivatives members and 102 Interest Rate and Currency Derivatives members licensed in South Africa, a mix of local and international operations (ibid).

1.11 Outline of the dissertation

The remainder of this dissertation is structured as follows:

Section 1: Introduction and background of the study. This section introduces the research and presents the background, statement of the problem, research objectives, significance of the study, definition of concepts, research methodology and delimitations of the study. It then concludes with a summary of the section and introduces Section 2.

Section 2: Literature review. The literature review of this study constitutes only secondary information, journal articles, textbooks, and other relevant sources which were collected and then reviewed. The literature section of this study discussed the theoretical aspects of financial flexibility, payout policies, and investment efficiency models. This study further reviewed empirical studies of emerging and developed markets. It ends with a summary of the chapter and then introduces Section 3.

Section 3: Research design and methodology. This section presents the research methodology and design employed for performing the analysis. This process is accomplished by describing the population, sampling period, data collection procedures, different sectors and the different variables used in the analysis and interpretation of the different models applied in this chapter.

Ethical considerations are discussed. It then concludes with a summary of the section and introduces Section 4.

Section 4: Data analysis and Interpretations. This section presents the data interpretations and empirical analysis of the effects of selected firm specific factors on financial flexibility and investment efficiency and also the relationship between financial flexibility, investment efficiency and payout. Graphs and figures aid in illustrating the results of the findings. It ends with a summary of the section and then introduces Section 5.

Section 5: Conclusion and recommendation. Finally, this section provides a summary of the study. Conclusions are drawn from the analysed data and findings of the study. It draws conclusions on the effect of selected firm specific factors on financial flexibility and investment efficiency and also the relationship between financial flexibility, investment efficiency and payout from a South African perspective. This section also highlights the limitations and provides recommendations for future research.

1.12 Chapter summary

Section one introduced the study by providing information on the background of the research area. This section provided the problem statement, aim and objectives, significance, and scope of the study. The section also emphasised the justification of the study from a South African perspective. It also included information about the limitations and outline of the study. Section two presents a review of theoretical and empirical literature about the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter provides a literature review associated with financial flexibility, payout policies and the firms' investment efficiency. It briefly introduces the history of the Johannesburg Security Exchange. This is followed by a discussion of financial flexibility, pay-out policies and investment efficiency. The section further discusses the link between financial flexibility, payout policies and the firm's investment efficiency. The section concludes with a discussion of the determinants of financial flexibility, payout policies and investment efficiency.

2.2 The JSE Limited (JSE)

The JSE Limited (JSE) is the 19th largest exchange in the world with a market capitalisation of R 17.057 Trillion (JSE, 2020). The JSE was formed in 1887 and it is the largest exchange in Africa. It is also a member of the World Federation of Exchanges (JSE, 2018: 1; World Federation of Exchange, 2019). There are two separate boards on the JSE, and these are the main board, and the junior board called the alternative stock exchange (AltX). The well-established companies are listed on the main board of the JSE. The JSE's top 40 and the JSE All-share indices are made up of stocks of companies listed on the JSE's mainboard. Other securities that are traded on the JSE's main board include bonds (Green Bonds, Government Bonds, Corporate Bonds and Repo Bonds) which are traded on the JSE's bond market, derivatives (futures, options, warrants and contract for difference) which are traded on the JSE's derivatives market and the commodity (white maize, yellow maize, wheat and soybeans) derivatives (futures, options) which are traded on JSE's commodity markets. The JSE's junior stock exchange, the AltX board, is an alternative public equity exchange for small and medium-sized companies and well established firms that are not yet ready to list on the JSE's main board (JSE, 2020). As of 4 March 2020, a total number of 357 firms with a total market capitalisation of R17.057 Trillion were listed on the JSE (JSE, 2020). The JSE-listed firms are drawn from nine sectors of the industry of which five are large

sectors in terms of market capitalisation and these are- Basic Materials, Industrial, Consumer goods, Consumer services, and the Financial Services sector. The six smaller sectors in terms of market capitalisation are the Energy, Telecommunications, Healthcare and Technology sectors (JSE 2018: 2). These sectors form the South African JSE Limited market. Several studies such as those of Graham and Harvey (2001: 232) and Bancel and Mittoo (2004: 112), that focused on the UK and USA markets, suggest that financial flexibility is the most important factor that influences the financing decisions of a firm as it determines a firm's financing, investing and distribution policy.

2.3 Financial flexibility

Financial flexibility can be traced back to the seminal works of Modigliani and Miller (1963: 442). According to Byoun (2016: 1), financial flexibility is a firm's capacity to mobilize its financial resources in response to unexpected future financial needs. Denis (2011: 667) defines financial flexibility as a firm's ability to access business funding at a low cost and at short notice to respond to unexpected changes in the firm's cash flows or investment opportunities.

Modigliani and Miller (1963: 42) argued that the firm's need to build and preserve financial flexibility in the form of unused borrowing power might be achieved by issuing little or no debt and retaining higher proportions of earnings to increase internal equity. This financing behaviour enables a firm to "*maintain reserves of untapped borrowing power*" because of low leverage. They stated that although maximum debt levels offer a tax shield advantage, firms that issue a significant amount of debt increase a firm's leverage which in turn reduces its borrowing capacity. Their argument implies that firm leverage is one of the key determinants of a firm's financial flexibility. There is an inverse relationship between leverage and borrowing capacity or financial flexibility (Rapp et al. 2014: 295). However, the Modigliani and Miller (1963) capital structure-relevant theory did not explain how firms achieve and maintain financial flexibility in the form of unused borrowing capacity (Myers 1977: 147–148). Theoretically, firms consider financial flexibility as the most important factor that influences their financing decisions (Graham & Harvey, 2001: 232; Bancel & Mittoo, 2004: 112; Gamba & Triantis, 2008: 2263; Rapp et al., 2014: 288). A firm's financial flexibility in the form of unused debt capacity enables it to borrow at short notice and a low cost in order for it to respond to an immediate investment opportunity or unexpected expenditure. The implication of the findings of Graham and Harvey (2001: 232) and Bancel and Mittoo (2004: 112) is that the firm's financing needs are driven by its need to build and maintain financial flexibility which may involve maintaining reserves of borrowing or/and equity raising power.

2.4 The determinants of financial flexibility

Past studies (Denis, 2011: 672; Marchica & Mura, 2010: 1343; Rapp et al., 2014: 292; Gamba & Triantis, 2008: 2265; Bancel & Mittoo, 2011: 187–188) on financial flexibility have identified capital structure, payout policy, cash holdings, industry averages, asset tangibility, profitability, credit ratings, retained earnings, financing costs and investment opportunities as the main determinants of the firm's financial flexibility.

2.4.1 Capital structure

Following the capital structure literature of Modigliani and Miller (1958 and 1963), several capital structure theories have been developed in an attempt to explain the firm's financing behaviour (Nassar 2016: 2). The main theories that are used to explain the financing behaviour of firms are the agency costs theory, the trade-off theories (static and dynamic trade-off), the pecking order theory and the information asymmetry theories (market timing and signalling theories) (Mostafa & Boregowda, 2014: 114–117).

According to Graham and Harvey (2001: 232), the pecking order theory of capital structure, which was proposed by Myers (1984: 576) based on information asymmetry and advanced by Myers and Majluf (1984: 188), is consistent with the concept of financial flexibility. The theory predicts that all firms desire to achieve and maintain a financial slack or financial flexibility. Therefore, the firm's capital structure will be driven by its desire to finance new investments, first internally, then with low-risk debt, and finally with equity only as a last resort (Harris & Raviv, 1991:306). This financing hierarchy implies that the main determinant of the firm's capital structure is the firm's need to build and maintain financial flexibility which may involve keeping firm leverage as low as possible. The pecking order theory of capital structure posits that the firm's low leverage may be achieved by increasing internal equity through retaining a high proportion of the firm's earnings and maintaining large cash balances or marketable securities (Myers & Majluf 1984: 220). This financing behaviour reduces the firm's leverage, thereby increasing its future borrowing power which then, in turn, increases its financial flexibility. DeAngelo and DeAngelo (2007:11) argue that firms should maintain their capital structure leverage as low as possible, in most periods to preserve the option to borrow in times of high capital needs. This means that a firm's ability to maintaining low leverage enables it to achieve financial flexibility in the form of unused borrowing capacity. In France, a study by Bancel and Mittoo (2011: 179) established that firms that maintained high levels of earned equity before the global financial crisis of 2008, had low leverages and high cash balances. The study reported that

the business operations of these firms suffered less from the effects of the crisis as they were able to absorb the economic shocks of the financial crisis.

Denis and McKeon (2012: 28) argue that firms reduce their debt levels in their capital structure, to lower long-run target debt levels whenever possible. The low target debt ratios enable such firms to raise debt in the future. This means that higher firm leverage reduces a firm's future ability to raise additional debt for investment, thereby reducing its financial flexibility. Myers (2001: 83), indicates that there is an inverse relationship between firm profitability and leverage. According to Myers (2001: 94), management focuses on paying off debt during favourable and profitable financial years, as the firm has accumulated internal equity in the form of retained earnings. This financing behaviour reduces the firm's outstanding debt, the firm's leverage ratio and its financial risk thereby increasing its future borrowing capacity (Denis & McKeon 2012:30).

Additionally, this financing behaviour has the potential to increase the firm's equity raising power since the firm is less leveraged which reduces its cost of equity, thereby increasing its financial flexibility. In another empirical study, Rapp et al. (2014:289) found out that there is an inverse relationship between financial flexibility and the firm's leverage ratio in the USA firms. The results of their study further revealed that financially flexible firms maintained lower levels of leverage, high cash balances and low payout ratios, which in turn increased their future borrowing capacity.

Using firms from across 9 European countries and the UK, (Ferrando, Marchica, & Mura, 2017: 87), documented that firms achieved financial flexibility through conservative leverage policies. The study also reports that financial flexibility is essential for firms in countries with poor access to credit and weaker investor protection because such factors may cause borrowing to be expensive. This suggests that in imperfect capital markets, achieving and maintaining financial flexibility is essential for a firm to raise capital to address its future capital requirements cheaply.

2.4.2 Payout policy

Payout policy is a strategy that a firm adopts in distributing excess cash to its shareholders. According to Barclay and Smith (1988: 61), firms can distribute wealth to their shareholders in five different ways which are payment of regular cash dividends, open market repurchases/ buybacks, intra-firm tender offers, targeted repurchase/buybacks and specially designated dividends. The payout policy is generally categorised into dividends and repurchases/ share buybacks.

According to Dittmar (2000: 331), the payment of dividends or share repurchases reduces the firm's internal equity leading to internal equity deficiency. High levels of internal equity deficiency reduce the firm's credit ratings which in turn reduces the firm's borrowing capacity resulting in the firm's reduced financial flexibility. Yensu and Adusei (2016: 63), found a significant positive relationship between payout and leverage in firms across 13 African countries that included Botswana, Ivory Coast, Egypt, Ghana, Kenya, Morocco, Namibia, Nigeria, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

The pecking order theory envisages that firms give priority to financial slack or financial flexibility maximisation (Myers & Majluf 1984: 194). Firms achieve this by discretionarily retaining a large portion of their earnings through adopting a conservative or sticky dividend/share buyback policy (Myers, 1984: 581).

Fama and French (2001: 4) argue that small and less-profitable firms are less expected to pay dividends. These firms usually have low earned equity, high leverage ratios, and hold high growth options. To realise these growth options, they need to raise funds. Their financing needs are driven by the need to preserve financial flexibility, which is important for them to realise their growth options. These firms can increase equity by retention and adopting sticky payout policies. Low payout ratios allow these firms to retain a higher proportion of their earnings for future investment, maximise the size of the assets under their control and reduce firm leverage, thereby increasing their financial flexibility.

In contrast, Jensen (1987: 113) explains that financial flexibility in the form of high cash holdings and spare debt capacity in large and profitable firms may bring about excess cash flows because of low growth opportunities, which in turn may lead to agency costs of overinvestment. These firms are expected to pay out the excess cash flows to the existing shareholders to reduce agency costs of free cash flow and replace earned equity with debt if needed. Debt disciplines managers as it forces them to invest in the positive-NPV project to meet debt obligations. The introduction of debt increases the firm's leverage ratio and making regular payments of principal and interest reduces cash available to the managers, which in turn reduces the firm's debt capacity. This means that payout is inversely proportional to financial flexibility. This relationship may, however, be prevalent in small, young, and less profitable firms.

In his empirical research, Lie (2005: 2190) found out that the dividend-paying and share-repurchasing firms in the USA had high levels of spare debt capacity reflected by their low debt ratios and high earned equity. Besides, these firms also had low capital expenditures due to low growth opportunities determined by low market-to-book ratios. The study further revealed that

the firms that decreased dividends had high debt ratios, high capital expenditure and growth opportunities. This suggests that a decrease in the firm's payout increases retained earnings and internal equity which reduces leverage ratio and increases spare debt capacity resulting in increased financial flexibility.

Rahimi and Mosavi (2016: 207) documented that, in Asian firms, financial flexibility has a significant inverse relationship with the firm's dividend payouts. These findings imply that firms in Asia achieve and maintain financial flexibility by cutting down or not paying dividends at all, and this pay-out policy enables them to achieve financial flexibility. Consistent with these results, Kingwara (2015: 51) found out that in Kenyan firms, the probability of paying dividends and the number of dividends decreased as financial flexibility increased. His study adopted the three-step procedure developed by Rapp et al. (2014: 292) to test the relationship between financial flexibility and payout policy empirically. The study measured financial flexibility firstly by determining the firm annual cumulative abnormal returns based on Fama and French (1993: 20) three factor asset pricing model and regressed the returns on changes in the Kenyan firm specific characteristics as shown in the model below. These firm characteristics are; firm growth opportunities measured by the firm's Tobin's Q, profitability measured by operating cash flow, costs of holding cash and tax rates (individual and corporate), costs of external financing measured by the volatility of a firm's total shareholder returns and the reversibility of capital measured by a firm's tangibility. This model is shown below:

$$r_{i,t} - R_{i,t} = \gamma_0 + \gamma_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \gamma_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \gamma_4 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \gamma_5 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \gamma_6 \frac{\Delta D_{i,t}}{M_{i,t-1}}$$
$$+ \gamma_7 \frac{C_{i,t-1}}{M_{i,t-1}} + \gamma_8 L_{i,t} + \gamma_9 \frac{NF_{i,t}}{M_{i,t-1}} + \gamma_{10} TobQ_{i,t} + \gamma_{11} \frac{OCF_{i,t}}{M_{i,t-1}} + \gamma_{12} T_{i,t} + \gamma_{13} PV_{i,t}$$
$$+ \gamma_{14} Tang_{i,t} + \gamma_{15} \frac{C_{i,t-1}}{M_{i,t-1}} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{16} L_{i,t} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{17} TobQ_{i,t} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}}$$
$$+ \gamma_{18} \frac{OCF_{i,t}}{M_{i,t-1}} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{19} T_{i,t} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{20} PV_{i,t} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_{21} Tang_{i,t} \cdot \frac{\Delta C_{i,t}}{M_{i,t-1}}$$
$$+ \epsilon_{i,t}$$

Where:

$r_{i,t} - R_{i,t}$ is the cumulative abnormal return (above benchmark return) of firm *i* in year *t*, $M_{i,t-1}$is the firm market capitalisation of the firm, $C_{i,t}$ is cash and near cash assets to lagged market capitalization, $E_{i,t}$ is EBITDA to lagged market capitalization, $NA_{i,t}$ is total assets minus cash and near cash assets to lagged market capitalization, $RD_{i,t}$ is research and development expense to lagged market capitalization, $I_{i,t}$ is interest expense to lagged market capitalization,

$D_{i,t}$ is cash dividends to lagged market capitalization, $L_{i,t}$ is leverage calculated as total debt divided by the sum of total debt and market capitalization, $TobQ_{i,t}$ is Tobin's Q defined as the market capitalization of common equity divided by total assets, $NF_{i,t}$ is net cash flow from financing activities to lagged market capitalization, $OCF_{i,t}$ is cash flow from operating activities to lagged market capitalization, $T_{i,t}$ is measures as the relative taxation of interest at the corporate and individual level, $PV_{i,t}$ is the one-year volatility of monthly total shareholder returns, $Tang_{i,t}$ is tangibility, defined as tangible assets divided by total assets

Secondly, based on the coefficients of $\frac{\Delta C_{i,t}}{M_{i,t-1}}$ and the interaction terms, he calculated the value of financial flexibility (VOFF) as follows:

$$VOFF_{i,t} = \gamma_1 + \gamma_{15}\frac{C_{i,t-1}}{M_{i,t-1}} + \gamma_{16}L_{i,t} + \gamma_{17}TobQ_{i,t} + \gamma_{18}\frac{OCF_{i,t}}{M_{i,t-1}} + \gamma_{19}T_{i,t}. + \gamma_{20}PV_{i,t} + \gamma_{21}Tang_{i,t}$$

Similarly, Abdulkadir et al. (2017:10) indicated that the need to preserve financial flexibility measured by cash reserves influenced decisions to pay or not to pay dividends and that it had an impact on the amounts of dividends in Nigerian firms.

2.4.3 Profitability, cash holdings and retained earnings

Prior literature (Myers & Majluf 1984: 220) predicts that all firms desire to achieve and maintain a financial slack or financial flexibility. Quality firms generate high profits and retain a large portion of their earnings which increases their earned equity. However, because of limited investment opportunities, these firms accumulate free cashflows reflected in their cash balances which in turn increases their financial flexibility (Jensen, 1987: 113). Free cash flow is the cash above what the firm requires to invest in the positive-NPV projects (Jensen, 1986: 323). The presence of free cash flows in large and profitable firms may stimulate agency costs of free cash flows. The firm's financing behaviour is driven by the need to reduce these costs by returning the excess capital to the shareholders in the form of increased dividends or the firm can buy back some of its shares to distribute the excess cash flow to its shareholders as well as maintaining financial flexibility.

On the other hand, the small and less-profitable firms, adopt sticky dividend policies to achieve financial flexibility which enables these firms to realise their growth opportunities. This means that both large and small firms desire to achieve and maintain financial flexibility. However, the level of financial flexibility may vary due to the profitability levels, the amount of retained earnings and the available cash reserves. Consequently, the increase in profitability and retention of high levels of earnings leads to increased cash holdings and low leverages due to increased

earned equity. This subsequently results in the firm's increased financial flexibility in the form of cash reserves and spare debt capacity. This suggests that profitability, cash holdings and retained earnings are directly related to the firm's financial flexibility. This view is consistent with the pecking order theory of capital structure which predicts that leverage decreases with the increase in profitability and cash flows from a firm's operations, as firms would prefer to finance their projects with internal equity rather than debt (Denis, 2011: 668). Using a sample size of 4557 firms from the G7 countries (USA, Japan, Germany, France, Italy, UK and Canada), a study by Rajan and Zingales (1995: 1457) found a negative relationship between profitability and leverage. A number of studies (Chen et al. 2019: 369; Frank & Goyal, 2015: 1415; Dalci & Ozyapici, 2018: 1266; Jermias & Yigit, 2019: 171; Boguszewski & Lissowska, 2012: 37; Lambrinoudakis, Skiadopoulos, & Gkionis, 2019: 5; Castro, Teresa, Fernández, Amor-Tapia, & Miguel, 2016: 195; Xu 2012: 428; Salim & Yadav 2012: 156) have subsequently documented similar results. This means that the increase in profitability increases internal equity and reduces the need for external debt, which in turn decreases the firm's leverage ratio, thereby increasing financial flexibility in the form of the firm's cash reserves and borrowing capacity. Further evidence by Marchica and Mura (2010: 1348) revealed that firms that have greater profitability or cash holdings in the UK tend to borrow less as a result of achieving financial flexibility reflected in their high cash balances.

2.4.4 Asset tangibility

The stock of tangible assets can amount to a firm's security that it can provide to the capital providers to secure funds for investment (Almeida, Campello, & Weisbach, 2004: 1781). This implies that firms with high stocks of tangible assets offer lenders increased collateral security, which in turn increases their borrowing capacity and lowers the cost of debt. This ultimately results in increased financial flexibility for the firm. A study by Charalambakis and Psychoyios (2012: 1727) investigated the impact of asset tangibility among other factors that determine the capital structure decisions of USA and UK firms. They find that asset tangibility has a significant positive association with the firms' leverage in the USA and UK firms. Rajan and Zingales (1995: 1451) indicate that when the portion of the firm's tangible assets on the firm's balance sheet is large, this should serve as collateral to secure debt. This is predicted to reduce the prospective lender's risk of suffering from agency costs of debt such as risk-shifting. According to Benmelech and Bergman (2009: 1546) and Morellec (2001: 200), the collateral value of the firm's assets can be enhanced by their liquidity and redeployability. A study of collateral pricing using USA airlines, Benmelech and Bergman (2009: 39) documented that debt secured by more

redeployable collateral attracts lower credit spreads and higher credit ratings. Hall (2012: 580) shows that there is a strong association between tangibility and leverage when debt holders have access to perfect claims on the firm's physical assets such as land. This means that the higher the proportion of tangible assets with high collateral values on the firm's balance sheet, the more the debt providers should be willing to supply debt at a low cost, which increases the firm's borrowing capacity and in turn increases financial flexibility.

The high quality firms, usually large, mature and profitable firms, have a high stock of tangible assets in place, which can be used as collateral for borrowing (Zou & Adams, 2008: 445). These firms' high level of collateral assets coupled with their high earnings quality increase both their debt capacity and credit ratings, resulting in them incurring low borrowing costs (Agha & Faff 2014: 37). Their increased spare debt capacity consequently leads to increased financial flexibility. On the other hand, small and less- profitable firms usually have low stock of tangible assets and a high stock of intangible assets in the form of growth opportunities (Zou & Adams, 2008: 444). This coupled with low profitability and cash levels lower their borrowing capacity and credit ratings which in turn reduces their financial flexibility. This means that asset tangibility is positively correlated with financial flexibility.

2.4.5 Credit ratings

A firm's credit rating reflects a rating agency's opinion of its overall creditworthiness and its capacity to satisfy its financial obligations (Samson et al. 2006: 8). A credit rating involves an evaluation of the firm's credit risk, predicting its ability to pay back the debt, and an implicit forecast of the likelihood of default. Bancel and Mittoo (2004: 112) and Graham and Harvey (2001: 189) identified credit rating as a significant factor that influences the firm's borrowing capacity in firms within the European Union. According to Kisgen (2006: 1036), information on the firm's credit ratings acts as a signal of the firm's quality. This suggests that high quality firms have high credit ratings which in turn increases their borrowing capacities resulting in increased financial flexibility

De Jong et al. (2012: 246) found that, while leverage has a significant negative relationship with the Standard & Poor's credit rating in the USA firms, the firm's size, profitability and retained earnings are positively correlated with credit ratings. This study implies that increased profitability and earnings retention increases internal equity which lowers the firm's leverage ratio and increases its credit rating. The increased credit ratings, in turn, increases the firm's borrowing power, thereby increasing financial flexibility.

2.4.6 Investment opportunities and finance cost

The investment opportunities of a firm represent projects that have the potential to help it grow significantly, leading to high returns for it. New positive-NPV investments are usually viewed as profitable firm growth opportunities. DeAngelo et al. (2006: 228); Fama and French (2001: 4) and Jensen (1986: 324) document that large and high quality firms usually have limited investment opportunities. This causes these firms to generate and maintain high levels of free cash flows due to high profitability levels from existing business operations, which in turn leads to financial flexibility in the form of high cash balances. Their financing behaviour is, therefore, driven by the need to minimise the agency costs of free cash flows as well as to maintain financial flexibility.

On the other hand, the small and less-profitable firms are usually characterised by high investment opportunities. Their capital needs are, therefore, driven by the need to achieve and maintain financial flexibility to realise these investment opportunities. This can be achieved through a firm's retention policies. Studies by (Marchica & Mura, 2010: 1339; Gamba & Triantis, 2008: 2293) show that financial flexibility is directly proportional to new investments. This implies that the increase in investment opportunities increases financial flexibility. There is, therefore, a positive relationship between financial flexibility and investment opportunities. The realisation of investment opportunities increases profitability, earned equity, assets under the firm's control which reduces the firm's leverage ratio, and in turn, this increases the firm's financial flexibility.

Financing costs refer to the costs involved in raising capital, such as interest rates and costs of raising equity finance. Finance costs reflect the riskiness of the securities available for the firm as a source of capital. The study conducted by Bancel and Mittoo (2004: 125) of firms in 16 European countries found a positive relationship between financial flexibility and finance cost. Barclay and Smith (2005: 10) and Hennessy and Whited (2007: 1707) argue that the high cost of capital may cause a firm to withdraw from borrowing and pass its investment opportunities. This, therefore, may force firms to retain more of their earnings and reduce or not pay dividends, which in turn increases their financial slack or financial flexibility through increased internal equity. This, however, may be predominant in small, young and less-profitable firms which are usually less attractive to potential lenders due to their characteristics such as poor profitability records and low credit ratings.

2.5 Investment efficiency

Investment efficiency is defined as allocating the firm's capital resources to their most highly valued use Kothari et al. (2010: 247). It relates to investing the firm's capital in the most profitable

projects. This can only be possible if managers maximise the productivity of the existing firm assets, invest in highly positive NPV and less risky projects (Stulz, 1990: 5). Khan et al. (2017: 63) define investment efficiency as creating a balance between overinvestment and underinvestment. Overinvestment is defined as investing in projects with negative or low NPVs, and underinvestment means withholding investments despite the existence of profitable projects (Biddle et al., 2009: 113).

2.6 Determinants of investment efficiency

Prior literature (Biddle & Hilary, 2006: 970; Aktas et al., 2019: 489; Naeem & Li, 2019: 58; Chen et al., 2017: 222; Quang, 2016: 17; Linhares et al., 2018: 300; Zhang et al., 2016: 6; He et al., 2019: 505) show that investment efficiency is driven by capital structure, payout policy, the level of investment, sales revenue, cash flows, leverage, firm age, firm size and firm growth opportunities.

2.6.1 Capital structure

One of the critical determinants of efficient investment and financing decisions is the availability of sufficient capital (Chen, Xie, & Zhang, 2017: 217). The agency theory of capital structure predicts that agency problems in a firm reduce investment efficiency (Myers, 2001: 96; Jensen, 1986: 323). Agency problems occur when there is a conflict of interest between the firm's principals, who are the existing and new equity holders, and its managers referred to as the agents (Jensen & Meckling, 1976: 308). This conflict of interest is about the financing, investment and distribution policy of a firm (Harris & Raviv, 1991: 306). The investors (providers of the capital), as principals appoint managers as agents to run the firm and make decisions on their behalf. In this relationship, the investors expect the managers to promote and advance the investors' best interests.

Harris and Raviv (1991:321), contend that managers usually do not behave in the best interest of the investors and according to Myers (2001: 96), the managers seek to maximise their managerial rents. These usually include higher-than-market salaries, consumption of perquisites, job security and in extreme cases, takeover firm assets or cash flows. In addition, the managers invest in improving their managerial skills in line with the existing business operations. However, they may be inclined to use the skills in such a way to become indispensable and increase their power leading to empire building (Myers, 2001: 96) which may result in reduced returns. All these interests are not aligned with the shareholders' interests, but rather fulfil the interests of the

managers, which may give rise to agency costs (La Rocca et al., 2007: 79), and in turn, reduce investment efficiency.

Agency costs are costs that are incurred by shareholders as a result of managerial discretion (Stulz, 1990: 5). Managers use their discretion to make and implement a firm's financing, investing and payout decisions. Myers (2001: 81,97) identifies two types of agency costs which are agency costs of overinvestment and agency costs of underinvestment. Overinvestment occurs when a firm invests in value-destroying projects (Biddle et al., 2009: 113). Such projects could either have a negative NPV or very low positive NPV-values. Large, mature and high quality firms are usually highly profitable, and as a result, they have a high propensity to generate excess free cash flow as they also have limited investment opportunities. These high levels of excess cash flows combined with limited growth options may result in increased agency costs of overinvestment in these firms which reduces investment efficiency.

On the other hand, underinvestment happens when firm managers withhold investment despite the existence of profitable projects (Biddle et al., 2009: 113). This occurs when managers of young, small and less profitable firms identify projects with positive NPV, but due to limited funds, the managers pass those projects. These firms are generally characterised by low leverage ratios, high growth options and low cash flows derived from poor profitability conditions. These features make external equity very costly to raise, and due to the low amount of profits, they usually have limited internal equity to invest in the growth options.

According to the pecking order theory of capital structure, firms will usually retain most of their earnings and adopt sticky dividend policies in order to increase their internal equity (Myers, 1984: 581). High earnings retention ratios and low payout ratios allow these firms to increase their cash balances, increase internal equity, increase assets under their control and maintaining low leverage in their capital structure. This increases their credit ratings and in turn, increases the firm's borrowing capacity. The high credit ratings enable the firms to borrow at a low cost and at short notice (Elsas & Florysiak, 2011: 206) to realise their growth opportunities which in turn may increase their investment efficiency.

Empirical research conducted by Cherkasova and Kuzmin (2018: 137) in Asia found that there is a positive and significant relationship between the firm's investment efficiency and a financially flexible capital structure. This means that, in the presence of growth opportunities, maintaining low debt ratios tied with high internal equity, leads to a corresponding increase in the number of investments, as firms spend more on new positive-NPV projects. The study concluded that firms that had financially flexible capital structures had higher levels of new

investment than firms that had financially inflexible capital structures and achieved high levels of investment efficiency even during the financial crisis as these firms were able to absorb negative business shocks.

In their study, Marchica and Mura (2010: 1339) documented that firms that had high levels of spare debt capacity (SDC) reflected in their low leverage ratios also had an increased number of new investments that were financed through the issue of new debt. Their study implies that leverage is positively correlated with investment efficiency. That is, the introduction of debt increases a firm's leverage ratio and forces managers to invest in high return projects because they have to meet debt obligations. This, in turn, increases the firm's investment efficiency. Further evidence that financially flexible capital structures increase investment efficiency was presented by Ferrando et al. (2017: 87). The study used the 2007 financial crisis as a natural experiment and sampled 289,839 non-financial firms across 9 European countries. The study concluded that a higher degree of financial flexibility in the form of borrowing capacity allowed firms to borrow cheaply to reduce the negative impact of liquidity shocks on investments.

A similar study by Arslan-Ayaydin et al. (2014: 211) investigated the impact of financial flexibility on a firm's investment efficiency focusing on the periods of the Asian crisis of 1997–1998 and the credit crisis of 2007–2009. The study found that firms that had financially flexible capital structures during the economic crisis of 1997–1998, could take up new investments and performed better than the financially inflexible firms. This was because the financially flexible firms were able to access debt at a low cost, which enabled these firms to absorb the financial shocks. Furthermore, during the credit crisis period of 2007–2009, the period of severe external capital constraints, financially flexible firms continued to perform better than the financially inflexible firms as they were able to switch to their internally generated capital reflected in their high cash balances to respond to the unexpected expenditures. De Jong et al. (2012: 243) and Quang (2016: 1) examined the effect of financial flexibility on investment efficiency in USA firms and the studies concluded that achieving and maintaining a financially flexible capital structure is vital to avoid investment distortions. This implies that when capital markets in the USA are constrained, firms with high unused debt capacity can issue low-cost debt and invest more than firms with low unused debt capacity. This, in turn, increases the firms' number of new investments thus increasing their investment efficiency.

On the other hand, Jensen (1987: 113) argues that the desire to achieve a financially flexible capital structure may result in excess cashflows which firm managers may channel to low return or negative-NPV projects leading to agency costs of overinvestment, thereby reducing the firm's

investment efficiency. The firms can, however, restructure their capital structure to reduce the agency cost of overinvestment by paying out the excess cash and replacing internal equity with debt if required to undertake investment opportunities (Jensen, 1986: 323). Debt forces managers to invest in positive-NPV projects as they have to meet debt obligations, thereby increasing investment efficiency.

2.6.2 Payout policy

Payout policy is important as it affects the firm's financing, investing and distribution policies since it determines the amount of internal capital available to realise the firm's growth opportunities. According to Whited (1992: 1430), dividends or repurchases are a firm's cash outflows. This means that payment of dividends or repurchases reduces the amount of cash available for investment in new projects; this, in turn, may lead to underinvestment.

Empirical research by (Chan, Song, & Fan, 2018: 1) in China, found that payout can improve investment efficiency by mitigating overinvestment. Biddle et al. (2009: 126), used dividend payout as a control variable in the model that tested investment efficiency in firms from China and the USA and it showed that dividend payout was negatively correlated with investment efficiency. Chen et al. (2017: 225) also found that a huge payout of dividends reduces the firm's investment level, which in turn reduces the firm's investment efficiency.

Using a sample of 213 listed Brazilian firms, Iturriaga and Crisóstomo (2010: 81) found that payment of dividends reduces agency costs of overinvestment in Brazilian firms with fewer growth opportunities as it reduces free cash flow under managerial control. Their study revealed that payout is positively correlated with investment efficiency in the absence of growth opportunities, and it is negatively correlated with investment efficiency in the presence of investment opportunities.

In another empirical study, Lie (2000: 219) investigated the effect of incremental cash disbursement levels of firms with excess funds and agency problems in the USA. The findings of the study suggest that large incremental disbursements in the form of large special dividends effectively curb overinvestment. The overinvestment problem should, however, be prevalent in those firms with limited investment opportunities and low Tobin's q ratios (Baker, Mukherjee, & Powell, 2005: 116). These are usually large, mature and successful firms with excellent profitability records and limited growth opportunities. The study of Lie, therefore, suggests that payout is directly proportional to investment efficiency in large, profitable and mature firms.

On the contrary, high payout levels in young, small and less-profitable firms, which are also high growth firms, may lead to agency costs of underinvestment reflected in financial distress due to

debt overhang which may reduce the firm's investment efficiency (Cheng et al, 2014: 596). This implies that payout is inversely proportional to investment efficiency in young, small and less-profitable firms.

2.6.3 The level of investment

The primary objective of financial management is to maximise the value of the firm through continued and increased investment in NPV-positive projects (Hayashi, 1982: 214). This objective is achieved when a firm operates at its expected optimal level of investment (Biddle et al., 2009: 114; Eisdorfer et al., 2013: 552). The firm's optimal level of investment is the point at which optimal investment efficiency is attained and is a benchmark used to determine whether a firm has under or over-invested. This implies that the firm's negative deviation from its optimal level of investment induces its investment inefficiency. The level of the firm's deviation from the optimal level of investment is estimated by determining the difference between the actual and expected investment levels (Eisdorfer et al., 2013: 552).

Generally, neoclassical theories identified marginal efficiency of capital and Tobin's marginal q as a measure of the firms' optimal levels of investment (Abel, 1983: 229–230; Hayashi, 1982: 214). The assumption is that firms invest until the marginal efficiency of investment passes the required rate of return of capital, which is the cost of capital. Tobin's marginal q is the ratio of the market value of an additional unit of capital to its replacement cost. Unlike the marginal efficiency of capital, Tobin's marginal q takes into consideration the capital installation costs. Tobin's marginal q is not observable (Hayashi, 1982: 213) and therefore, prior studies have used different measures to proxy for Tobin's marginal q. These measures are the fitted q, sales-to-capital ratios, the industry average or the median market-to-book ratio, price earnings ratios, lagged industry stock returns, earnings forecasts and the average q (Gao and Yu, 2018: 10). The average q is the ratio of the market value of existing capital to its replacement cost, and the firm's optimal level of investment is at a point where the average $q > 1$, indicating an increase in a firm's growth opportunities. Moreover, if the average $q < 1$, additional investment in the capital will lower the value of the firm, indicating a decrease in a firm's investment opportunities (Gao and Yu, 2018: 16). La Rocca et al. (2007: 85) pointed out that high growth firms have high Tobin's q, while low growth firms have low Tobin's q.

Abiad, Oomes, & Ueda (2008: 282), found that equalised accessibility to capital improved investment efficiency as it reduced negative deviation from the expected return to investment, which was measured by dispersion in Tobin's q across firms in India, Jordan, Korea, Malaysia and Thailand. A study by Wurgler (2000: 187) across 65 countries drawn from Asia, Europe and

Africa, found out that unlike countries with undeveloped financial sectors, countries with developed financial sectors increase investment more in the high growth (high Tobin's q) industries, and decrease investment more in their declining (low Tobin's q) industries to achieve investment efficiency.

Biddle et al. (2009: 117) estimates a firms' optimal level of investment as a benchmark of its investment efficiency by regressing investment in sales revenue growth. Using the residuals of the model, a firm was considered to have over-invested if it was above the optimal level and under-invested if it was below the optimal level. The model is:

$$Investment_{i,t+1} = \beta_0 + \beta_1 salesgrowth_{i,t} + \varepsilon_{i,t+1}$$

Following Biddle et al. (2009), subsequent studies (Linhares et al. 2018: 301; R. Chen et al. 2017: 218; Zhang et al. 2016: 6; García Lara, García Osma, Penalva, 2016: 226) adopted the same model to determine investment efficiency of firms in their research.

2.6.4 Firm growth opportunities

The financing decision to undertake investments heavily depends on the availability of the firm's growth opportunities as the realisation of the profitable growth opportunities increases the firm's investment efficiency. Firm growth opportunities are positively correlated with investment efficiency as firms with these opportunities are likely to invest more. According to Popov and Barbiero (2018: 12), firm growth opportunities are not directly observable. Studies such as those of González (2018: 7); Lamont (1997: 104) and Linhares et al. (2018: 301) used sales growth and market-to-book (MTB) value to proxy for firm growth opportunities.

2.6.5 Sales revenue

Sales revenue represents the amount of income derived from the sale of the firm's goods and services that are generated by the firm's capital assets. It is the proxy for the output of capital investment. An increase in sales revenue reflects increased firm performance which is a function of investment efficiency. A study of Galindo, Schiantarelli, & Weiss (2007: 566) across nine countries used the sales revenue to determine the marginal return on capital investment, as a measure of the firm's investment efficiency. In their study, firms that had a higher marginal return on capital compared to the benchmark were considered to have invested efficiently. Other studies such as those of Naeem and Li (2019: 56); Khan et al. (2017: 66); Setianto and Kumumaputera (2017: 79) used sales revenue growth as a control variable in the models that predicted investment efficiency. On the other hand, González (2018: 8); and Ferrando et al. (2017: 93) used it as an alternative proxy for growth opportunities.

2.6.6 The cost of capital

Capital is important as it enables a firm to realise its growth opportunities, which in turn increases investment efficiency. The relationship between investment capital and investment efficiency is linked to the growth opportunities of a firm (Aivazian, Ge, & Qiu, 2005: 279). According to T. Chen et al. (2017: 217), one of the major determinants for a firm to make efficient investment decisions is the availability of sufficient capital. However, capital is raised at a cost and the cost of capital influences the investment and financing decisions of a firm (Modugu, 2013: 16).

Theoretically, the increase in the cost of capital increases the cost of financing new projects (Denis 2011: 668), and this may force firms with growth options to cut back on new investments, which may lead to underinvestment. Biddle and Hilary (2006: 963) argue that reducing capital accessibility barriers such as high financing costs may increase the firm's investment efficiency as this may enable a firm to borrow cheaply and invest in new profitable projects. This implies that finance cost and investment efficiency are negatively correlated.

2.6.7 Firm size and age

Literature (DeAngelo et al., 2006: 228) predicts that there is a relationship between firm size, firm age and investment efficiency. The assumption is that large and mature firms usually exhibit agency costs of overinvestment which reduces the firm's investment efficiency. This occurs when these firms maintain free cash flows from their outstanding profitable operations as they also have reduced investment opportunities (Richardson, 2006: 159). As a result of reduced growth options, the managers of these firms may be tempted to channel the free cash flow to negative-NPV or low-return projects, thereby reducing the firm's investment efficiency. To improve investment efficiency in these firms, the free cash flow should be distributed to shareholders in the form of payout and internal equity be replaced with debt if needed to undertake investment opportunities (Grullon et al., 2002: 390). The introduction of debt disciplines managers because it compels them to invest in positive-NPV since they have to make regular principal and interest payments. On the other hand, small and young firms are usually less profitable and generate less cashflow, which causes them to exhibit agency costs of underinvestment as they have growth options but may lack enough funds to finance all their growth opportunities (Vogt, S.C., 1994: 16). This means that firm size and age are negatively correlated with investment efficiency.

2.6.8 Cash flows and leverage

Cash flow is the net amount of cash and cash equivalents being transferred into and out of a firm. Positive cash flows indicate that a firm's liquid assets are increasing. The availability of cash flow

is important as it enables a firm to invest in its growth opportunities, thereby increasing investment efficiency. This may be achieved in young and small firms as the assumption is that these firms usually exhibit growth opportunities. This means that cash flow is positively correlated with investment efficiency.

Leverage reflects the amount of debt in the firm's capital structure as the debt to equity ratio. Firms that use a high amount of debt in their capital structure as compared to equity are high leveraged firms, and those that use less debt to equity are less leveraged firms. Agency theory of capital structure predicts that leverage increases investment efficiency in highly profitable firms that generate free cashflows as the introduction of debt in the capital structure disciplines managers, as explained in section 2.6.7. This suggests that leverage is positively correlated with investment efficiency. On the other hand, high leverage levels, in young, small and less-profitable firms may lead to agency costs of underinvestment reflected in financial distress due to debt overhang. Mondosha and Majoni (2018: 1) study the impact of leverage on investment decisions in the South African industrial firms with different growth opportunities. The study finds a negative relation between leverage and investment efficiency in firms with high growth opportunities and an insignificant relationship in firms with low growth opportunities.

The impact of selected firm-specific factors on investment efficiency is summarised, as shown in the table below.

Table 2. 1 The impact of selected firm-specific factors on investment efficiency

Explanatory variable	**Relationship**	
	Large firms	Small firms
Payout ↑	+	_
Leverage ↑	+	_
Level of investment ↑	+	+
Investment opportunities↑	+	+
Sales revenue↑	_	+
Cost of Finance↑	+	_
Cashflow↑	_	+
Firm size ↑	_	_
Firm age ↑	_	_

Source: Author (2020)

The impact of payout and financial flexibility on investment efficiency and also payout and financial flexibility are hypothesised as follows:

A firm's payout has a positive impact on investment efficiency in large and mature firms, and a negative impact in small and less profitable firms.

Financial flexibility has a negative impact on investment efficiency in large and mature firms, and a positive impact on investment efficiency in small and less profitable firms.

A firm's payout has a limited impact on the financial flexibility of large and mature firms and has a negative impact on small and less profitable firms.

2.7 Chapter summary

This chapter provided an overview of the financial management concepts related to financial flexibility, payout and investment efficiency based on the objectives of the study and the problem statement. The first part of the chapter briefly discussed the history of JSE-Limited, its major components and the securities that are traded on it. The second part discussed the concept of financial flexibility and its relationship with the pecking order theory of capital structure. It further discussed the impact of the select firm-specific factors on financial flexibility, providing both the theoretical and the empirical evidence justifying them. The third part discussed the concept of investment efficiency and its link with the agency theory of capital structure. It further discussed the impact of the selected firm-specific factors on investment efficiency and also providing both theoretical and empirical evidence justifying them. The chapter finally discussed the relationship between the concepts of financial flexibility and investment efficiency which were tested using the methodology discussed in the next chapter.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a discussion of the methodology that was used to test the relationship between financial flexibility, payout policies and the investment efficiencies of the firms listed on the JSE. The section starts by briefly discussing the research philosophy of the study and then proceeds to discuss the research design, the population and sample of the study. This is followed by an explanation of data collection, processing and analysis techniques. The section then presents a detailed description and specifications of the models that were used in the study and the econometric estimators that were used to fit these models. It ends with a discussion of the ethical considerations of the study.

3.2 Research philosophy

Research philosophy is a system of beliefs and assumptions on how knowledge is developed and created (Saunders, Lewis, & Thornhill, 2019:130). According to Žukauskas, Vveinhardt and Andriukaitienė (2018: 121), it is the basis of the research, as it underpins the choice of research strategy, formulation of the problem, data collection, processing, analysis and interpretation. Saunders et al. (2019: 135) present three categories of assumptions. These are ontology, which describes the nature of reality, epistemology, which looks at how knowledge is obtained and axiology, which focuses on the values of the researcher in relation to the objects studied. These assumptions are viewed under research paradigms such as positivism, critical realism, interpretivism, postmodernism and pragmatism to formulate a research methodology relevant to a study (Saunders et al., 2019: 145). This study adopted a research paradigm of positivism under the ontological, epistemological, axiological assumptions. The paradigm of positivism defines a worldview, which is based on a scientific method of investigation (Kivunja, Ahmed, & Kuyini, 2017: 30). This method involves a process of experimentation, observation of measurable facts, and it searches for cause and effect relationships to make casual explanations and predictions (Winit-Watjana, 2016: 430). Research based on the paradigm of positivism relies on deductive logic, formulation and testing of the hypothesis by using verifiable empirical data to support the theoretical background. It further depends on operationalising concepts so that they can be measured and statistical analysis for numerical data to derive conclusions (Amakiri & Gift Juliet,

2018: 2). In this paradigm, the observed occurrences in a particular phenomenon studied can be generalised about what can be expected elsewhere in the world. Therefore, the paradigm of positivism uses quantitative research methods as the basis for describing the parameters and coefficients in data that are gathered, analysed and interpreted (Amakiri & Gift Juliet, 2018: 3). The table below illustrates the positivism research paradigm concerning ontology, epistemology, axiology assumptions and the research methods.

Table 3. 1 Table of the characteristics of the positivist paradigm in relation to the research assumptions

Positivist paradigm			
Ontology	**Epistemology**	**Axiology**	**Typical methods**
• **Real, external, independent** • **One true reality (universalism)** • **Granular (things)** • **Ordered**	• Scientific method • Observable and measurable facts • Law-like generalisations • Numbers • Causal explanation and prediction as a contribution	• Value-free research • The researcher is detached, neutral and independent of what is researched • Researcher maintains an objective stance	• Typically, deductive • Highly structured • Large samples • Measurement • Typically, a quantitative method of analysis is used • A range of data can be analysed

Source: Adopted from Saunders, Lewis and Thornhill (2019: 144)

From Table 3.1 above, ontologically, the current study sought to find the relationship between financial flexibility, pay-out policy and investment efficiency, and their determinants using data derived from non-financial firms listed on JSE. The relationships entirely depended on the variations of the dependent and independent variables derived from the empirical and theoretical literature of the study. Epistemologically, the study sought to identify observable and measurable facts and regularities, and only phenomena that were observable and measurable. The study identified causal relationships between financial flexibility, payout policy and investment efficiency using the data collected from the financial statements and other financial documents of non-financial firms listed on JSE. Also, the hypotheses of the study were developed, and facts that provided the basis for hypothesis testing were gathered. The study used theories related to financial flexibility, payout and investment efficiency to explain and predict the financing and

investing behaviour of firms listed on JSE. Axiologically, the findings of the study depended on the nature of the data collected from the financial statement of non-financial firms listed on JSE, and they were objectively determined and presented (Kivunja et al., 2017: 33).

3.3 Research design

A research design is a plan, structure and strategy used to collect and analyse subjects and data to test the assumptions of the study (Kumar, 2011: 95). There are usually three types of research designs, and these are qualitative, quantitative and mixed research designs (Williams, 2007: 65). Kumar (2011:103), posits that quantitative research design is specific and well-structured, and it is one where validity and reliability have been tested and can explicitly be defined and recognised. It uses structured tools to generate numerical data and uses statistical measures such as descriptive and inferential statistics to interpret, organise and represent the collected data (Creswell, 2014: 4; Frels & Onwuegbuzie, 2013: 186).

On the other hand, a qualitative research design is flexible, considering different aspects of the problem (Kothari, 2004: 3). It is aimed at deriving an understanding of the scientific community or discovering the underlying motives of human behaviour, that is, it tends to focus on meanings and motivations that underlie cultural symbols and personal experiences (Aspers & Corte, 2019: 146). It uses unstructured or semi-structured instruments for the collection of data such as interviews, observations, artefacts, focus group and case studies (Singh, 2007: 68). Besides, it usually uses descriptive, exploratory, explanatory methods to interpret, organise and represent the collected data to understand the complex processes as they naturally occur within specified bounded systems or groups (Kumar, 2011: 34).

Mixed methods research design is about using both quantitative and qualitative elements of the research approach in a single study or series of studies in order to gain a better understanding of the research problems (Timans, Wouters & Heilbron, 2019: 206).

The study was to test relationships between financial flexibility, payout and investment efficiency by use of panel data approach, which is the pooling of observations on a cross-section of subjects over several times (Wooldridge, 2010: 6). This research design is quantitative in nature, and according to Singh (2007: 63), a quantitative research study determines the relationships between independent and dependent variables in a population. The quantitative research design was suitable for this research because the study involved the development of hypotheses to be tested to establish relationships between financial flexibility, payout and investment efficiency using numerical data obtained from published financial statement of non-

financial firms listed on the JSE. The data were analysed using statistical or mathematical, or computational techniques over multiple periods (2000-2019) for the same firms.

3.4 Population of the study

A population is the entire collection of entities, objects or individuals a researcher seeks to understand or draw inference from (Salkind, 2010: 2). The population of the current study consisted of non-financial firms listed on the JSE for the period from 2000 to 2019. According to JSE (2020), firms listed on the JSE are categorised into nine industry sectors which are made up of five large sectors of the industry and four small industry sectors in terms of market capitalisation. The large sectors of the industry in terms of market capitalisation are the Basic Materials, Industrial, Consumer goods, Consumer services, and the Financial industry sector and the four smaller industrial sectors are the Oil and Gas, Telecommunications, Healthcare, and Technology (JSE, 2020). The Basic materials industry consists of firms that trade in forestry and paper, industrial metals and mining, and chemicals sectors. The Industrial industry comprises firms that are in the construction, building materials and support services, industrial, electronics and electrical engineering and industrial transportation sectors. The Consumer goods industry consists of firms that trade in food producing, beverages, and automobiles sectors. The Consumer services consist of firms that trade in food and drug retailers, media firms, and travel and leisure sectors. As of March 31, 2020, there were 223 non-financial firms listed on JSE as shown in table 3.1 below.

Table 3. 2 Industry categories of non-financial firms listed on the JSE

Industry	Number of firms
Basic Materials	53
Industrial	60
Consumer goods	22
Consumer services	48
Oil and gas	6
Telecommunications	6
Healthcare	10
Technology sectors	18
Total	**223**

Source: Author (2020)

3.5 Sample design

A sample design, according to Kothari and Garg (2014: 52), refers to the technique or the procedure adopted in selecting items for a sample. A sample is a subgroup of the population selected by a researcher, as a foundation for estimating and predicting the properties of a population (Meadows, 2003: 522). A sample is obtained through a sampling process that involves applying a particular sampling method (Lance & Hattori, 2016: 1) on a selected sampling frame. This means that sampling involves selecting a few subjects (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group (Singh, 2007: 88). The sampling frame of the study consisted of only non-financial firms listed on the JSE. Firms in the financial sector were explicitly excluded from the population as their capital structure is controlled by particular regulations that make their capital structure differ from other firms in the sample as they mostly depend on borrowed funds and have low asset bases.

Sampling methods are generally categorised into probability sampling or random sampling and non-probability sampling or non-random sampling (Taherdoost, 2018: 20–22). Probability sampling is where each unit in the population has an equal and independent chance of selection in the sample (Kothari, 2004: 15). Equal chance means that the probability of selecting each unit in the population is the same; that is, the choice of a unit to be included in the sample is not influenced by other considerations such as personal preference. The concept of independence means that the choice of one element is not dependent upon the choice of another element in the sample; that is, the selection or rejection of one element does not affect the inclusion or exclusion of another (Kumar, 2011:182). Probability samples are those based on simple random sampling, systematic sampling, stratified sampling and cluster/area sampling (Kumar, 2011: 185). However, this study did not apply any of the above sampling methods because of the objective of the study, which only focuses on non-financial firm listed on JSE with data for a specified period.

Non-probability sampling, on the other hand, does not involve the process of random selection; that is, the probability of selection of each sampling unit is not known (Kothari, 2004: 15). According to Kumar (2011: 188), non-probability samples are those based on quota sampling, accidental sampling, purposive sampling, expert sampling and snowball sampling.

This study employed a purposive non-random sampling method in which samples were deliberately selected from the sampling frame. According to Tongco (2007: 147), purposive

sampling is a non-probability sampling method that is used based on the characteristics of the population and the objective of the study, that is, researchers use purposive sampling when they want to access a particular subset of study subjects. This sampling method is appropriate for this study because the study seeks only to analyse non-financial firms listed on JSE with complete data for the period under study and firm with at least less than 3 years of incomplete data for the period under study. The study consisted of 20 years' worth of data for a sample period from January 2000 to December 2019. The sample size purposively comprised of firms that were continuously listed on the JSE for the study period under observation, and such firms should have complete financial data of more than 17 years for the same study period.

As such, as of March 31, 2020, a total of 378 firms were listed on the JSE, 16 non-financial firms were suspended from trading, and a further total of 97 firms were eliminated because they were not listed for the duration of the sample period and those that had missing data for more than 3 years. Besides, a total of 159 firms are financial firms for which this study notably excluded. After considering all the necessary adjustments, the total sample size of the study consisted of 106 non-financial firms that were continuously listed during the study period and also those firms with only 3 years missing data. This study used panel data or cross-sectional data for analysis. The collected data were arranged into a panel according to the industry sections. The sub-panels of each sector were created as well, based on table 3.2 below.

Table 3. 3 A breakdown of industries and sectors of the sample of non-financial firms listed on JSE.

Industry	Sector	Number of firms
Industrials	Construction and material	5
	Electronics and electrical equipment	2
	General Industrials	6
	Industrial engineering	2
	Industrial transportation	8
	Support services	5
Oil and gas	Oil and gas producing	1

Source: Author (2020)

Table 3. 4 A breakdown of industries and sectors of the sample of non-financial firms listed on JSE continued.

Industry	Sector	Number of firms
Technology	Software and computer services	10
	Technology hardware and equipment	2
Telecommunications	Mobile telecommunications	1
	Fixed-line telecommunications	1
Healthcare	Pharmaceuticals and biotechnology	1
	Healthcare equipment and services	1
Consumer services	General retailing	12
	Food and drugs retailing	2
	Media	5
	Travel and leisure	7
Basic materials	Chemical	5
	Industrial metals and mining	4
	Mining	13
	Forestry and Paper	2
Consumer goods	Food producing	8
	Automobile and parts	1
	Leisure goods	1
	Personal goods	1

Source: Author (2020)

3.6 Data collection and analysis

This empirical research was divided into two parts. The first part derived and tested a model to investigate the effect of selected firm-specific factors and pay-out policy on the financial flexibility of non-financial firms listed on JSE. The second part of the study investigated the impact of selected firm-specific factors and the firm's financial flexibility on the investment efficiency of non-financial firms listed on the JSE. For each part, the study developed the hypotheses and models that tested and then described the testing methods that were applied.

3.6.1 Data collection

This study made use of the panel data that were obtained from the published financial statements of non-financial firms listed on the JSE. The financial statements data were drawn from the IRESS research domain database as researchers usually use it because of its reliable and versatile data. This database contains all published financial information of all firms listed on JSE since 1971. The collected financial data included data such as total assets, total liabilities, outstanding shares, owner's equity, operating income, and operating expenses. The collected financial data were quoted in the South African Rand currency (ZAR) and any data in foreign currency were converted to ZAR using the guidelines of *International Accounting Standards (IAS) 21*: The Effects of Changes in Foreign Exchange Rates which outlines how to account for foreign currency transactions and operations in financial statements, and also how to translate financial statements into the presentation currency. The balance sheet items were translated using the company's year-end exchange rate whilst income statement and statement of cash flows items were translated using the year average exchange rates. These rates were obtained from the SARB website which has all the historical exchange rates that can be downloaded in Microsoft Excel.

Panel data (or longitudinal data) refers to the pooling of observations on a cross-section of subjects over several periods in time (Wooldridge, 2010: 6). This means that each subject such as individuals, household and firms in the sample is observed over repeated periods. These panels can either be balanced or unbalanced. The unbalanced panel has missing observations while the balanced panel has all the observations a researcher requires for the study. The structure of the data this study seeks to use meets the definition of the unbalanced panel.

Financial data, according to Elsas and Florysiak (2015: 1111) is very challenging to work with as it bears distinct characteristics, it is typically unbalanced and dynamic and it has variables that adjust slowly over time. Elsas and Florysiak (2015) argue that the dependent variables are usually

fractional in nature and a limited number of econometric estimators that can accommodate these unique characteristics of financial panel data, as the usual estimators can be very biased. There are, however, some advantages of using panel data in research.

Panel data was employed for this research study because of its advantages. According to Lavrakas (2011:2), the panel data set has several advantages. Firstly, it provides more observations leading to larger sample sizes and allows for control of unobserved cross-section heterogeneity among the subjects. Secondly, because it combines cross-section and time-series observations, it gives more informative data, more variability, less collinearity among variables, more degrees of freedom, and more efficiency. Thirdly, it can also detect and measure effects that are not commonly observed when using only cross-sectional or time-series data and it minimises the bias that might result from the aggregation of individual units into broad aggregates. This is because data are made available for several units in a panel data set. Fourthly, it helps in handling more complicated behavioural models such as technological change, which may not be comfortable with only cross-sectional or time-series data. Moreover, lastly, it helps to take off heterogeneity in the estimation process because it allows for individual-specific variables. A panel data set is better suited when a study is dealing with the dynamics of change such as revenue because it involves the repeated cross-section of observations.

There are, however, some limitations of panel data. The significant drawbacks of using panel data are heterogeneity and sample selectivity biases.

3.6.2 Data analysis

Data were analysed using STATA 15 software. STATA 15 software was used for data analysis because it is suitable for panel data or cross-sectional data analysis with multiple variables. This software is compatible with several modern econometric estimators such as the Blundell and Bond (1991), Keane and Runkle (1992), Anderson–Hsiao, Arellano and Bover (1995), the Blundell and Bond (1998) system GMM and Elsas and Florysiak (2015) linear dynamic data with a fractional dependent variable (Moyo, 2015: 215). Data for a period from 2000 – 2019 of the non-financial firms listed on JSE drawn from the IRESS research domain database were analysed.

3.6.3 Model specifications

The study tested the hypotheses developed in section 1.5 using the models constructed as follows.

Hypothesis 1: Firm specific factors identified in Table 1.1 have a significant relationship with financial flexibility and **Hypothesis 5:** Payout has a negative impact on the financial flexibility of non-financial firms listed on JSE was tested using the following model:

$$FF_{i,t} = \beta_0 + \beta_1 Lev_{i,t} + \beta_2 Div_{i,t} + \beta_3 TobQ_{i,t} + \beta_4 Profit_{i,t} + \beta_5 Cash_{i,t} + \beta_6 retained_{i,t} + \beta_7 Tang_{i,t} + \beta_8 Fincost_{i,t} + \varepsilon_{i,t} \quad \textbf{(1)}$$

Hypothesis 2: Firm specific factors identified in Table 1.2 have a significant relationship with the investment efficiency, **Hypothesis 3:** Financial flexibility has a significant positive impact on the investment efficiency of small non-financial firms listed on JSE and **Hypothesis 4:** Payout has a negative impact on the investment efficiency of non-financial firms listed on JSE was tested using the model following Cherkasova and Kuzmin (2018: 148): The model was modified to include factors such as leverage, dividends, sales growth, cashflows and age to investigate the impact of these factors on investment efficiency.

$$IE_{i,t} = \beta_0 + \beta_1 FF_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Div_{i,t} + \beta_4 TobQ_{i,t} + \beta_5 Sale\ growth_{i,t} + \beta_6 Cash_{i,t} + \beta_7 Size_{i,t} + \beta_8 Age_{i,t} + \varepsilon_{i,t} \quad \textbf{(2)}$$

Measurement of Financial flexibility

Theoretically, financial flexibility means that a firm has unused debt capacity or spare debt capacity (Modigliani & Miller, 1963: 442; Denis, 2011: 667). The study identified financially flexible firms by estimating the firms' spare debt capacities following the study of Marchica and Mura (2010: 1343): Yung, Li and Jian (2015: 29); Setianto and Kumumaputera, (2017: 78) and Mirkhalili and Mahmoudabadi (2018: 147).

Firms with spare debt capacities were identified using Frank and Goyal's (2009) baseline model, which includes median industry leverage, market-to-book ratio, size, tangibility, profitability, and expected inflation as follows.

$$Lev_{i,t} = \beta_0 + \beta_1 Lev_{i,t-1} + \beta_2 Indlev_{i,t} + \beta_3 TobQ_{i,t} + \beta_4 Size_{i,t} + \beta_5 Tang_{i,t} + \beta_6 Infl_{i,t} + firm\ fixed\ effects + year\ fixed\ effects + \varepsilon_{i,t} \quad \textbf{(3)}$$

The study compared the fitted values from the regression analysis with the actual values and define the financially flexible firm as those firms that exhibit a negative deviation between actual and predicted leverage. Financially flexible firms were then assigned a dummy variable that takes the value of 1 if a firm had at least two consecutive years of unused debt capacity, and 0 if otherwise.

Measurement of Investment efficiency

From the prior literature (Gao & Yu, 2018: 3; Linhares et al., 2018: 306; Aktas et al., 2019: 488; Chen et al, 2017: 218; Cherkasova & Kuzmin, 2018: 143; Majeed et al, 2018: 45), the firm's negative deviation from its optimal or expected level of investment, the baseline of investment efficiency, amounts to a firm's investment inefficiency. The level of a firm's deviation from its optimal investment level is estimated by determining the difference between the actual and expected investment levels (Eisdorfer et al. 2013: 552). Following Richardson (2006: 167), this study estimated the firm's expected level of investment using the following model.

$$Inv_{i,t} = \beta_0 + \beta_1 Inv_{i,t-1} + \beta_2 TobQ_{i,t-1} + \beta_3 Lev_{i,t-1} + \beta_4 Cash_{i,t-1} + \beta_5 Age_{i,t-1} + \beta_6 Size_{i,t-1} + \beta_7 Stock\ returns_{i,t-1} + + \varepsilon_{i,t} \quad \text{..... (4)}$$

The residuals from model **5** reflected the deviation from the expected investment level of firms, and these residuals were used as a firm-specific proxy for investment inefficiency. A positive residual means that the firm is making investments at a higher rate than expected so that it may overinvest. In contrast, a negative residual assumes that real investment is less than expected, representing an underinvestment situation. Therefore, investment efficiency was the absolute values of the residuals.

3.6.4 Possible statistical errors

The above models were tested and corrected for the following statistical errors.

Heteroscedasticity: These are regression disturbances or random error components whose variances are not consistent across observations (Greene, 2008: 158). The study used the Breusch and Pagan Test (Lagrange multiplier test) to assess whether the models exhibit heteroscedasticity. This was achieved by estimating a variance function that depends on the independent variables and testing the null hypothesis that heteroskedasticity is not present against the alternative that heteroskedasticity is present.

Autocorrelation: This is the degree of correlation between the values of the same variable across different observations in the data. Autocorrelation affects the standard error, even when the coefficients are unbiased. It increases the variance of the coefficients, thereby causing the estimates of the coefficients to be biased, and this increases the forecast inefficiency of a model (Wang & Akabay, 1994: 19). The study used the Durbin-Watson (1950) test method among the residuals to test for autocorrelation since this is a widely used method of testing for autocorrelation (Greene, 2008: 116).

Multicollinearity: This refers to the degree of correlation between two or more independent variables in a given model (Alauddin & Nghiemb, 2010:353). The presence of multicollinearity

in the regression model inflates the variance of the affected variables, causes confidence intervals for coefficients to be very wide and t-statistics to be very small (Weaving et al., 2019: 3). In order for coefficients to be statistically significant, they needed to be larger. Therefore, under these conditions, it makes it harder to reject the null. The study tested for the presence of multicollinearity by use of the Variance Inflation Factor (VIF) approach (Greene, 2008: 60).

Stationarity: This occurs when statistical properties such as mean, variance and autocorrelation in a time series regression analysis are all constant over time. According to Dwivedi and Rao Subba (2011: 68), if regression analysis is performed without testing the stationarity assumption, the resulting model may be misspecified and the predictions of the model may be inappropriate, that is, a model describing the data may vary in accuracy at different time points. Jaisinghani and Kanjilal (2017: 163) argue that in case the data is not stationary, suitable modifications have to be applied to make the data stationary.

The study tested the stationarity of the time series data using the Augmented Dickey-Fuller (ADF) test following Karp and Van Vuuren (2017: 241). In each case, the null and alternate hypotheses to be tested are:

$\boldsymbol{H_0}$ = The data exhibit non-stationarity.

$\boldsymbol{H_1}$ = The data exhibit stationarity.

3.6.5 Definition of variables

Following Chen et al, 2017: 239; Benlemlih and Bitar, 2018: 668 and Moyo, 2015: 218, the variables are described as shown in Table 3.5 below.

Table 3. 5: The description of the variables used in the study

Variables	Acronym	Description
Financial flexibility	FF	As stated in section 3.5.3 above.
Investment efficiency	IE	The absolute values of the residuals in model **(4)** were used as a firm-specific proxy for investment inefficiency.
Payout	Div	Total cash gross dividends deflated by total assets
Investment	Inv	The ratio of the net changes in property, plant, and equipment deflated by the total assets
Profitability	Prof	Earnings before interest and tax (EBIT) deflated by total assets.
Leverage	Lev	Market-to-debt ratio (MDR): Book value of total interest-bearing debt divided by firm market value (market value of equity plus book value of total interest-bearing debt).
Retained earnings	Ret	Retained earnings to total assets
Tobin's Q	TobQ	Growth (MTB): market value of equity plus book value of debt deflated by the total assets.
Age	Age	The number of the firm's years since incorporation.
Size	Size	The size of the firm measured as the natural logarithm of the total assets.
Sales growth	Sgr	Percentage year to year change in revenue deflated by total assets.
Returns	Returns	The annual stock return, calculated as the % change in the market capitalization of the company in two periods.
Cash	Cash	Cash and cash equivalents deflated by total assets.
EBITDA	EBITDA	Earnings before interest, tax, depreciation, and amortisation deflated by total assets.
Finance cost	Fincost	Finance cost deflated by total assets.
Inflation	Inflation	Financial year end inflation rate.
Industry leverage	IndLev	The industry average of the leverage ratios of the sampled firms.
Asset tangibility	Tang	The sum of the value of property, plant, and equipment to total assets

Source: Author (2020)

3.6.6 Panel data estimators

The models presented and discussed in section 3.5.3 above can be fitted using the Fixed Effects (FE) and Random Effects (RE) estimators. However, there are better estimators such as Arellano and Bond estimator, that can be used, especially if the models are dynamic.

In this study, model 1 and model 2 were fitted using the Fixed Effects (FE) or Random Effects (RE) estimators. The disadvantage of using the Fixed effects estimators is that they do not retain the observed individual heterogeneity (Hunter and Schmidt, 2000: 180) and drop the n-degrees of freedom in the regression model (Bell, Fairbrother and Jones, 2019: 1065). On the other hand, Random fixed estimators have the advantage of retaining this heterogeneity and the n-degrees of freedom (Dougherty, 2011: 525). The Hausman-Wu (1978) test for random effects is used to decide whether to use a fixed or random-effects estimator. The question is whether there is a significant correlation between the unobserved unit of observation between the specific random effects and the regressors. If no such correlation exists, then the Random effects model may be more appropriate. But when such a correlation exists, the Fixed effects model would be more suitable because the random-effects model would be inconsistently estimated. The test takes the following form:

$$H_0: E(u_{i,t}/X_{i,t}0) = 0 \quad \text{(6)}$$

$$H_1: E(u_{i,t}/X_{i,t}0) \neq 0 \quad \text{(7)}$$

Where.

H_0 = null hypothesis

H_1 = alternative hypothesis

If the null hypothesis is rejected, then the fixed effects estimator is used instead of the Random-effects estimator.

In the case of model 3 and 4, since T (more than17 years) of our study is less than N (106 firms), the study applied the system generalized method of moments (GMM-SYS) estimator proposed by Blundell and Bond (1998) to fit it, moreover, this estimator is widely used to estimate dynamic panel data (Škrabić Perić, 2019: 45). One of the advantages of this dynamic panel data model is that it gives a better understanding of the dynamics of adjustment characterised by the presence of a lagged dependent variable, like that in model 3 and 4 (Roodman, 2009: 86; Ajide, 2017: 113).

3.7 Ethical consideration

Research ethics is a system of moral conduct observed during a research process where behavioural rules and expectations about the most acceptable concern towards experimental subjects, respondents and sponsors are morally put into consideration (Fouka & Mantzorou,

2011: 3). Since the study did not directly interact with experimental subjects, humans or any confidential data, the ethical considerations were limited to the validity and reliability of the data obtained from the IRESS research domain database. The data from this database were obtained after seeking accessibility rights to the database. The permission to collect this data was obtained from the University of Venda as per the University's research policy.

3.8 Chapter summary

This section addresses all issues relevant to the overall research methodology that may be adopted for the study, namely research design, study population, sample size, and data collection methods and analysis. This study utilised the secondary data collection method and a quantitative approach to analyse the data of non-financial firms on the JSE. The sample period for the study was for 20 years, from January 2000 to December 2019. The study conducted a cross-sectional analysis of the eleven sectors of the JSE by testing the hypotheses of the study. Ethical considerations of the study are also outlined in this section. The section that follows presents data interpretations, estimates, and discusses the findings of the hypotheses described in this section.

CHAPTER 4: RESULTS ANALYSIS

4.1 Introduction

This chapter presents and discusses the empirical findings of the regression results of the models that were fitted using different estimators. These models included model 1, which tested for the impact of selected firm specific factors and payout on financial flexibility; model 2, which tested for the impact of financial flexibility and payout on investment efficiency; model 3, which was used to measure financial flexibility and model 4 which was used to measure investment efficiency as discussed in section 3.5.3. The study used a panel dataset that was constructed using data that was obtained from 106 non-financial firms listed on the JSE Limited. The data were drawn from the IRESS research domain database. The chapter begins by presenting and discussing the descriptive statistics of the full sample and sub-samples that were used in the study. It then presents and discusses the regression output of the models in the study.

4.2 Summary statistics of the full sample and sub-samples

The panel dataset consisted of data from 43 large non-financial firms representing 41% of the sample, 36 medium non-financial firms representing 34% of the sample and 27 small non-financial firms representing 25% of the sample of firms listed on JSE with complete data and those with 3years missing data for the period from 2000 to 2019. The descriptive statistics of the full sample is presented in Table 4.1, while the descriptive statistics of the large, medium and small firms' sample are presented in Tables 4.2, Table 4.3 and Table 4.4 in appendices 1, 2 and 3, respectively.

Table 4. 1: Descriptive statistics of the full sample

Table 4.1 shows the descriptive statistics of the full sample.

The variables in Table 4.1 are defined as follows: **Inv** represents investment which is measured as the ratio of the net changes in property, plant, and equipment deflated by the total assets. **TobQ** represents Tobin's Q is the firm growth measured as the market-to-book ratio (MTB). **Lev** represents Leverage and it is measured as the market-to-debt ratio (MDR). Cash represents the cash and cash equivalents measured as cash and cash equivalents deflated by total assets. **Return** represents the annual stock return which is measured as the % change in the market capitalization of the company in two periods. **Firm age** represents the age of a firm which is measured as the number of years of the firm's existence since incorporation. **Firm size** represents the size of the firm which is measured as the natural logarithm of the total assets. **Sg** represents sales growth which is measured as the percentage year to year change in revenue deflated by total assets. **Ret** represents Retained earnings which are measured as the distributable or retained earnings deflated by total assets. **Prof** represents Firm profitability which is measured as earnings before interest and tax (EBIT) deflated by total assets. **Div** represents Payout and it is measured as the total actual cash dividends paid in a year deflated by total assets. **Fincost** represents Finance cost which measured as finance and interest charges deflated by total assets. **Tang** represents Asset tangibility which measured as the total value of property, plant and equipment to total assets. **Industry leverage (IndLev)** is the industry average of the leverage ratios of the sampled firms. **Inflation(Inf)** is the inflation rate at a firm's financial year end as determined by SARB.

Variables	Obs.	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
Investment (Inv)	2,100	0.0752	0.1019	-0.6967	1.1286	1.3352	22.7437
Tobin's Q (firm growth) (MTB)	2,100	1.1723	0.8914	0.0000	8.5326	2.24716	11.5430
Leverage (MDR)	2,100	0.2168	0.2333	0.0000	1.8994	1.66433	6.5674
Cash (Cash and cash equivalents)	2,100	0.1282	0.1253	0.0000	0.9882	2.54201	13.1324
Returns (return)	2,100	0.1096	0.5893	-8.1850	7.2635	-0.56340	45.2359
Firm Age (Age)	2,100	31.0233	23.7354	1.0000	124.0000	1.05178	3.5122
Firm Size (Size)	2,100	15.0362	2.3565	0.0000	21.2863	-0.44625	4.1418
Sales Growth(Sales growth)	2,100	0.1284	0.4201	-4.3038	8.1316	2.47793	88.7648
Retained earnings (Ret)	2,100	0.2323	0.5286	-10.4870	1.1570	-6.49744	94.6012
Firm profitability (Prof)	2,100	0.1018	0.1592	-1.9606	1.3070	-2.19793	31.1399
Payout (Actual dividend paid)	2,100	0.0356	0.0534	-0.0001	0.9077	5.29824	57.1524
Finance cost (Fincost)	2,100	0.0190	0.0201	0.0000	0.3070	4.02647	40.8892
Asset tangibility (Tang)	2,100	0.9107	0.1548	0.0000	4.3610	3.66780	123.5284
Industry Leverage (IndLev)	2,100	0.2190	0.0995	0.0000	0.6955	0.49097	2.8384
Inflation	2,100	0.0569	0.0239	0.0000	0.1340	0.86980	5.0435

Table 4.1 shows the descriptive statistics of the full sample of the study. The descriptive statistics of the large, medium and small firm are shown in Table 4.2, Table 4.3 and Table 4.4, in appendices 1,2 and 3, respectively.

The mean investment ratio of JSE-listed firms is 0.075 with a standard deviation of 0.102. A study of Compustat firms by Chen et al (2017: 224) documented an investment ratio of 0.137 with a standard deviation of 0.111. Other studies of Compustat firms by De Jong et al (2012: 253) and Hovakimian (2011: 272) respectively documented a mean investment ratio of 0.109 and standard deviation of 0.049 and a mean investment ratio of 0.249 and a standard deviation of 0.056. This suggests that the JSE-listed firms have low and relatively stable investments than their counterparts in the Compustat.

In the sub-samples (Table 4.2, 4.3 and 4.4), large firms had a stable and high mean investment ratio of 0.082 and a standard deviation of 0.099. This is followed by medium firms which had a mean investment ratio of 0.079 and a standard deviation of 0.113 and small firms having the least mean investment ratio of 0.054 and a standard deviation of 0.106. This implies that the rate of investment in the JSE large firms is higher than in the JSE small firms, as large firms can take up new investments because of their high profitability levels, which results in excess cash flow that can be used to fund new investments. According to Ferrando et al (2017: 108), it is usually the financially flexible young and small firms that have higher investments, derived from their higher growth options.

Tobin's Q is a proxy of the firm's growth options. The descriptive statistics of the JSE firms in the full sample have a mean Tobin's Q ratio of 1.17236 and a standard deviation of 0.89147. A study of Compustat firms by Campello and Graham (2013: 96) reported a Tobin's Q ratio of 1.386 with a standard deviation of 0.8126. Another study of firms from Compustat by Elsas and Florysiak (2011: 209) documented a mean Tobin's Q ratio of 1.305 and a standard deviation of 0.789. Other studies of Compustat-firms by Eisdorfer et al (2013: 554) recorded a mean Tobin's Q ratio of 3.884 and standard deviation of 4.208 and Denis and McKeon, (2012: 253) recorded a mean Tobin's Q ratio of 2.914. These descriptive statistics suggest that JSE-firms have low growth opportunities as compared to Compustat firms. However, the stability of the growth options of the Compustat firms appears to be mixed.

The sample of medium firms in Table 4.3 has a higher and volatile growths option with a market-to-book mean ratio of 1.444 and a standard deviation of 0.988. This is followed by a sample of large

firms in Table 4.2 which also present a high and unstable market-to-book mean ratio of 1.299 and standard deviation of 0.916. On the other hand, a sample of small firms in Table 4.4 has low but stable growth options with a market-to-book mean ratio of 0.798 and a standard deviation of 0.691. The descriptive statistics imply that small firms have consistent growth firms.

The descriptive statistics of the full sample in Table 4.1 show that the JSE-firms have leverage mean ratio of 0.217 and standard deviation of 0.233, finance cost mean ratio of 0.019 and standard deviation of 0.020 and industry leverage mean ratio of 0.22 and a standard deviation of 0.099. Studies of the Compustat samples by Campello and Graham (2013: 96); Eisdorfer et al (2013: 554) and De Jong et al (2012; 247) found leverage mean averages and standard deviations of 0.240(0.148), 0.270(0.149) and 0.361(0.318), respectively.

This result means that on average, South African firms have a lower leverage ratio as compared to the related firms in the UK and the USA. Again, This evidence suggests that South African firms use less debt than the UK and the USA counterparts.

From the sub-sample in Table 4.4, the small firms have a high and volatile leverage ratio of 0.242 and a standard deviation of 0.274. The medium firms (Table 4.2), on the other hand, have a lower and stable leverage mean ratio of 0.209 and a standard deviation of 0.212. The sample for the large firms(Table 4.2) has the lowest mean leverage ratio of 0.207 and a standard deviation of 0.221. This, therefore, suggests that the large and medium firms in South Africa use less debt than the small firms. This is in line with the study of Cheng et al (2014: 596) which concluded that small, young and less profitable firms borrow at high interest rates as they are perceived to be risky investments by lenders and this financing behaviour may lead to debt overhang. These firms are characterised by high levels of intangible assets in form of growth options. And for these firms to realise the growth options and avoid underinvestment, they will usually borrow at high interest rates since they have low internal equity due to low levels of profitability and stock of tangible assets which makes them less attractive to lenders. This, in turn, increases their leverage ratios.

The payout in the full sample shows a mean value of 0.036 and a standard deviation of 0.053. The study of the Compustat-firms by Lemmon et al, (2008: 1579) and Rapp et al (2014: 296) documented payout mean ratios and standard deviations of 0.39(0.49) and 0.312(0.463). Another study by Chen et al (2017: 223) recorded a payout mean ratio of 0.519 and a standard deviation of 0.50 of the Compustat firms. The results suggest there are more dividend-paying firms in the UK and the USA than South Africa and also JSE-firms pay less dividends consistently than their counterparts in the UK and the USA.

The sub-samples show that the large firms have a high and stable payout mean ratio of 0.0436 and a standard deviation of 0.0516. This is followed by the medium firms with a payout mean ratio of 0.0347 and a standard deviation of 0.0518. Then again, the small firms' sample shows a low and unstable payout out mean ratio of 0.0237 and standard deviation of 0.0561. Fama and French (2001: 4) argue that small and less-profitable firms are less expected to pay dividends. The financing decisions of these firms are driven by the desire to achieve financial flexibility as they are characterised by high growth potions, which they usually desire to realise. These firms, therefore, adopt conservative or sticky dividend policies to achieve financial flexibility (Myers 1984: 581) to help them realise the growth options.

The mean ratio for profitability in the JSE-firms is 0.1019 and the standard deviation is 0.15933. Studies of the Compustat-firm sample by Chen et al (2019: 376) and Ferrando et al (2017: 1425), reported a mean profitability ratio and standard deviation of 0.168(0.13) and 0.120(0.112) respectively. The results imply that JSE-firms have low and volatile profitability levels as compared to the UK and USA firms.

The sub-sample of large firms in Table 4.2 shows that JSE large firms have high and more stable profitability mean ratio of 0.1241 and standard deviation of 0.1224 than the sample of medium-firms which have a mean ratio of 0.1095 and a standard deviation of 0.1349 and small firms which shows low and volatile profitability mean ratio of 0.0554 and standard deviation of 0.2211. The results are consistent with prior studies (Fama and French (2001: 4); Vogt, S.C., (1994: 16); DeAngelo et al, (2006: 228)) which documented that small and young firms are characterised by low profitability level as compared to the large and mature firms.

The descriptive statistics of the full sample in Table 4.1 show that the JSE-firms have an asset tangibility mean ratio of 0.909 and a standard deviation of 0.135, implying that 90% of the total assets in the JSE-firms are tangible assets. The studies of the Compustat-firms sampled by Rapp et al (2014:293); Chen et (2017: 223); Chen et al (2019: 376) document a lower and unstable tangibility mean ratio of 0.26(0.224), 0.318(0.229) and 0.338(0.228) respectively. The results suggest that total assets of Compustat firms comprise mostly intangible assets and the total assets of the JSE-firms mostly comprised of tangible assets.

The sub-samples in Table 4.2, 4.3 and 4.4 show a similar trend of tangibility mean ratios in large, medium and small firms, although less stable in small firms.

4.3 Financial flexibility and selected firm-specific variables

This section presents the regression results of model 3 which was used to measure financial flexibility and model 1 which was used to test for the impact of payout and the selected firm specific variables on financial flexibility. The full sample of the study was used to measure financial flexibility and test the impact of payout and the selected firm specific variables on financial flexibility.

The selected firm-specific variables used in the test included leverage, profitability, cash, retained earnings, asset tangibility, finance cost and growth. The section begins with the presentation of correlation results and continues with the discussion of the correlation results.

4.3.1 Financial flexibility measurement: Correlation result of model 3.

The full sample panel data set was constructed from data drawn from 43 large non-financial firms, 36 medium non-financial firms and 27 small non-financial firms listed on JSE with complete data and those firms with 3 years missing data for the period 2000 to 2019. This sample was used to fit model 3 to estimate the leverage model, which was instrumental in the identification of firms with spare debt capacity. The model's regression results are shown in Table 4.5 below.

Table 4.5: Leverage model results for the full sample.

This table presents the estimates used to determine the predicted leverage level of the firms in the sample. The variables of the model were Leverage, lagged values of leverage, Industry leverage, Tobin's Q, Size, Tangibility, Inflation, Firm fixed effects and year fixed effects. The model was estimated using the GMM-SYS estimator as this simultaneously controls for the endogeneity of the regressors and for fixed effects that may be correlated with the explanatory variables (Marchica & Mura, 2010: 1344). The results of the model are shown in Table 4.5 below.

Table 4.5: Correlation results of model 3

Table 4.5 presents the results of model 3 which was fitted using the GMM-SYS estimator. $Lev_{i,t}$ is defined as the ratio of the sum of interest-bearing long term and short term debt to the sum of interest-bearing long term and short term debt and market value of equity. $Lev_{i,t-1}$ is defined as the lagged value of the ratio of the sum of interest-bearing long term and short term debt to the sum of interest-bearing long term and short term debt and market value of equity. $Indlev_{i,t}$ is defined as the year end average leverage ratios of firms in a particular industry. $TobQ_{i,t}$ is defined as the ratio of the market value of equity plus book value of debt to total assets. $Size_{i,t}$ is the natural logarithm of the firm's total assets. $Tang_{i,t}$ is defined as the ratio of the sum of property, plant and equipment to total assets. $Infl_{i,t}$ is defined as the year end inflation rate as determined by the SARB.

$Lev_{i,t}$	Coef.	Std. Err.
$Lev_{i,t-1}$	0.50111***	0.0241744
$Indlev_{i,t}$	0.70043***	0.0089969
$TobQ_{i,t}$	-0.06806***	0.0060841
$Size_{i,t}$	0.0490***	0.0348317
$Tang_{i,t}$	0.0168	0.0946984
$Infl_{i,t}$	-0.0443	0.2413301
Constant	-0.7573***	0.0947862
Firm effects	Yes	Yes
Year effects	Yes	Yes
No. Observations		**1,985**
No. of firms		**106**
Wald chi2(42)		**1331.84**
Prob > chi2		**0.000**
** p<.05; ** p<.01; *** p<.001*		

4.3.2 Financial flexibility and firm specific variables: Correlation results of model 1.

Model 1 can be fitted with either a RE or FE estimator. The Hausman test for random effects was used to decide which estimator was appropriate to fit the model. In the Hausman test statistics (Table 4.6) in appendix 4, Chi2 is 11.62 and Prob>Chi2 is 0.1690. Since the *p-value* is more than 5% (p >0.05), the statistic accepts the null hypothesis that the GLS RE estimator is more appropriate to fit this model than the Fixed effect estimator. Therefore, the model was fit using the Random-effects estimator. To control for heteroscedasticity, the robust standard error option which yielded similar coefficients was used. The results of the model are shown in Table 4.7 below.

Table 4.7: Correlation results of model 1

Table 4.7 presents the results of the Random-effects estimator. $\boldsymbol{FF_{i,t}}$ is defined as in section 3.5.3. $\boldsymbol{Lev_{i,t}}$ is defined as the ratio of the sum of interest-bearing long term and short term debt to the sum of interest-bearing long term and short term debt and market value of equity. $\boldsymbol{Profit_{i,t}}$ is defined as the ratio of earnings before interest and tax to total assets. $\boldsymbol{TobQ_{i,t}}$ is defined as the ratio of the market value of equity plus book value of debt to total assets. $\boldsymbol{Cash_{i,t}}$ is defined as the ratio of the cash and cash equivalents to total assets. $\boldsymbol{Tang_{i,t}}$ is defined as the ratio of the sum of property, plant and equipment to total assets. $\boldsymbol{Retained_{i,t}}$ is defined as the ratio of retained earnings to total assets.

$\boldsymbol{FF_{i,t}}$	Coef.	Std. Err.
$Lev_{i,t}$	-0.85138***	0.0603347
$Div_{i,t}$	-0.39534	0.2494314
$TobQ_{i,t}$	-0.11541***	0.0165056
$Profit_{i,t}$	0.04067	0.0823541
$Cash_{i,t}$	0.02105	0.1214459
$Retained_{i,t}$	-0.069623*	0.0298062
$Tang_{i,t}$	0.03638	0.0798293
$Fincost_{i,t}$	-2.20544**	0.8080851
Constant	0.94402***	0.0836179
sigma_u	0.26613581	
sigma_e	0.37804864	
rho	0.33136181	(fraction of variance due to u_i)
Wald chi2(8)	276.66	
Prob > chi2	0.0000	
Number of Obs.	1,469	
Number of firms	74	
* p<.05; ** p<.01; *** p<.001		

The correlation results of financial flexibility and firm specific variables obtained from the Random-effects estimator shown in Table 4.7 above are discussed below.

***Leverage*:** The results of the full sample indicate that leverage has a strong and significant negative correlation with financial flexibility. This result suggests that financial flexibility increases with a decrease in leverage levels. According to (Modigliani & Miller, 1963: 442; Myers & Majluf, 1984: 220) financial flexibility is a firm's ability to maintain substantial reserves of untapped borrowing power. The untapped borrowing power is spare debt capacity which is achieved by following a conservative leverage policy (Marchica & Mura, 2010: 1361). According to Barclay and Smith (2005: 10) and Hennessy and Whited (2007: 1707), high quality firms are usually profitable and maintain high cash balances by retaining more of their profits. This, in turn, increases their internal equity, which drops leverage levels, as there is less need to borrow as they have almost sufficient internal equity to fund their growth options.

The results of the study are consistent with the pecking order theory of capital structure which posits that firms will usually retain most of their earnings and adopt sticky dividend policies to increase their internal equity which, in turn, reduces internal funds deficit, hence less debt required to take up investment opportunities (Myers, 1984: 581).

The findings of Bancel and Mittoo (2011: 79); Denis and McKeon (2012: 30); Rapp et al (2014: 289); Rahimi and Mosavi (2016: 207); Ferrando et al (2017: 87) confirm similar results. The negative correlation is consistent with the hypothesis in Table 1.1; thus, the hypothesis is accepted.

***Dividend*:** The full sample results show that there is a negative correlation between the actual amount of dividend paid and financial flexibility. However, the results are insignificant at 1%, 5% and 10%. The inverse relationship means that financial flexibility increases with less or non-payment of dividends. This occurs when firms retain most of their profits which, in turn, increases their earned equity in the capital structure, thereby reducing leverage levels which in turn increases financial flexibility.

The results of the study confirm the hypothesis of the pecking order theory which envisages that firms give priority to financial slack or financial flexibility maximisation (Myers & Majluf 1984: 194). And firms achieve this by discretionarily retaining a large portion of their earnings through adopting a conservative or sticky dividend/share buyback policy (Myers, 1984: 581). The studies conducted by Rahimi and Mosavi (2016: 207); Kingwara (2015: 56) and Abdulkadir et al (2017: 10) found out that there is a significant negative correlation between payout and financial flexibility.

This negative correlation is consistent with the hypothesis in Table 1.1; therefore, the hypothesis is accepted.

***Tobin's Q*:** Results of the study present a significant negative correlation between Tobin's Q (growth options) and financial flexibility. The results imply that financial flexibility decreases with increased investment opportunities. According to the study of Harris and Raviv (1991: 334), leverage increases with growth opportunities. This implies that growth options reduce financial flexibility or spare debt capacity due to high leverage as a result of borrowing. This relationship confirms the pecking order theory which implies that firms with growth opportunities should accumulate more debt over time (Frank & Goyal, 2009: 8). According to the pecking order theory of Myers and Majluf (1984), firms desire to finance new investments, first internally, then with low-risk external debt, and finally with external equity only as a last resort. The realisation of growth options in these firms implies an increased internal equity deficit. The increase in internal equity deficit increases leverage since firms will need to approach external markets to fill the deficit with external borrowing. In the external markets, firms will choose to raise debt first before equity because debt is cheaper than equity.

On the other hand, the relationship is contrary to the trade-off theory which posits that growth options reduce leverage (Frank & Goyal, 2009: 8), which increases financial flexibility. Firms with growth options are usually young and small, with limited tangible assets and low profitability levels. These features make them have limited borrowing capacity which makes them mostly rely on external equity to realise their growth options. The realisation of growth options increases profitability, earned equity, assets under the firm's control which reduces the firm's leverage ratio, and in turn, this increases the firm's financial flexibility.

Studies by Marchica and Mura (2010: 133); Gamba and Triantis (2008: 2293) show a positive correlation between financial flexibility and the increase in new investments. The need to realise investment opportunities causes firms to either use up their earned equity which may also result in internal equity deficiency or approach capital markets to borrow funds to finance the growth opportunities. This financing behaviour reduces internal equity and increases leverage levels, thereby reducing financial flexibility. Modigliani and Miller (1963:42) stated that although maximum debt levels offer a tax shield advantage, firms that issue a significant amount of debt to carry out business plans increases a firm's leverage level and this, in turn, may reduce the firm's borrowing capacity.

Small and young firms tend to have low internal equity due to low profitability levels, limited cashflows, low stocks of quality assets and low credit ratings (Iyer et al, 2017: 634). This makes

them less attractive to capital markets. Therefore, the need for them to realise their growth options usually exposes them to risky debt. Risky debt to take up growth options in these firms increases leverage ratios and may result in debt overhang (Myers, 1977: 149), hence reducing their financial flexibility. The negative correlation is consistent with the hypothesis in Table 1.1; thus, the hypothesis is accepted.

***Profitability*:** The results from the full sample show a positive and significant relationship between profitability and financial flexibility. The positive correlation implies that financial flexibility increases with profitability. This occurs when the firm's profitability levels increase, which increases the firm's internal equity, thereby, reducing the need for external debt. This, in turn, decreases the firm's leverage ratio, thus increasing financial flexibility in the form of the firm's cash reserves. This view is consistent with the pecking order theory of capital structure which predicts that leverage decreases with the increase in profitability and cash flow from a firm's operations, as firms would prefer to finance their projects with internal equity rather than debt (Denis, 2011: 668). The studies such as that of Marchica and Mura (2010: 1348) found out that firms that have greater profitability in the UK tend to borrow less as a result of achieving financial flexibility reflected in their high cash balances as a result of high profitability levels. The positive correlation between profitability and financial flexibility is consistent with the hypothesis in Table 1.1, consequently, the hypothesis is accepted.

***Cash and cash equivalents*:** Based on the results in table 4.7 above, the study show a positive correlation between cash and cash equivalents and financial flexibility. The results are however insignificant at 1%, 5% and 10%. The positive correlation implies that financial flexibility increases with cash and cash equivalents. This is in line with the findings of Arslan-Ayaydin et al (2014: 211) and Rapp et al. (2014: 289) who found out that financially flexible firms usually maintain high cash balances. The pecking order theory of capital structure posits that the firm's low leverage may be achieved by increasing internal equity through retaining a high proportion of the firm's earnings and maintaining large cash balances (Myers & Majluf 1984: 220). The positive correlation between cash and cash equivalents and financial flexibility is consistent with the hypothesis in Table 1.1, therefore, the hypothesis is accepted.

***Retained earnings*:** The results of the full sample show a significant negative correlation between retained earnings and financial flexibility. The implication of this is that financial flexibility increases with reduced retained earnings. This result contradicts the pecking order theory of Myers and Majluf (1984) which posits that internal equity in a firm is increased by retaining more of the firm's profits to achieve and maintain financial flexibility in form of reduced leverage levels. The

studies of De Jong et al (2012: 253) and Arslan-Ayaydin et al (2014: 231) find a positive significant correlation between retained earnings and financial flexibility. Yung et al (2015: 35) found an insignificant positive correlation between financial flexibility and retained earnings. The negative correlation is not consistent with the hypothesis in Table 1.1. and hence the hypothesis is rejected. This result is mixed as it contradicts the results on profitability, leverage, cash and cash equivalents and dividends, therefore, the study classifies this result as inconclusive since it does not show the expected sign.

***Tangibility*:** The results of the study show a positive correlation between asset tangibility and financial flexibility although the result is insignificant at 1%, 5% and 10%. This implies that financial flexibility increases with an increase in tangible assets. A study by (Almeida et al., 2004: 1781) shows that firms with high stocks of tangible assets offer lenders increased collateral security, which in turn increases their borrowing capacity and lowers the cost of debt, thereby increasing their financial flexibility. The positive correlation is consistent with the hypothesis in Table 1.1. and hence the hypothesis is accepted.

***Finance cost*:** Based on the results in Table 4.7**,** there is a negative significant correlation between finance costs and financial flexibility. The results suggest that when financing costs are high, firms refrain from borrowing and resort to using internal equity. This result is consistent with the hypothesis of the pecking order theory of Myers and Majluf (1984), where firms desire to finance new investments, first internally, then with low-risk debt, and finally with equity only as a last resort (Harris & Raviv, 1991: 306). Barclay and Smith (2005: 10) and Hennessy and Whited (2007: 1707) argue that the high cost of capital may cause a firm to withdraw from borrowing and therefore, may force firms to retain more of their earnings, which in turn increases their financial slack or financial flexibility through increased internal equity. The negative correlation is consistent with the hypothesis in Table 1.1. and hence the hypothesis is accepted.

In the full sample, the main determinants of financial flexibility in the non-financial firms listed on JSE are leverage, Tobin's Q, finance cost, dividends, profitability, tangibility and cash and cash equivalents. Results of leverage, Tobin's Q, finance cost show a significant correlation with financial flexibility. On the other hand, dividends, profitability, tangibility and cash and cash equivalents show an insignificant relationship.

4.4 Investment efficiency and selected firm specific variables

This section presents the regression results of model 4 which was used to measure investment efficiency and model 2 which was used to test for the impact of payout and the selected firm specific

variables on investment efficiency. The firm-specific variables included leverage, sales growth, cash and control variables such as firm age and size. It begins with the presentation of correlation results and continues with the discussion of the regression results.

4.4.1 Investment efficiency measurement: Correlation results of model 4.

The panel dataset consisted of 43 large non-financial firms, 36 medium non-financial firms and 27 small non-financial firms listed on JSE with complete data and those with 3years missing data for the period 2000 to 2019. This sample was used to run model 4 to estimate the optimal level of the investment model, which was important in determining the investment efficiency of firms. The model was estimated using the GMM-SYS estimator as this controls for heteroscedasticity and collinearity problems that arise when a model includes the lagged variable of the dependant variable. The results of the model are shown in Table 4.8 below.

Table 4.8: Results of the predicted level of investment: Model 4

Table 4.8 presents the results of model 4 that fitted using the GMM-SYS estimator. $\boldsymbol{Inv_{i,t}}$ is defined as the ratio of the net changes in property, plant, and equipment deflated by the total assets. $\boldsymbol{Inv_{i,t-1}}$ is defined as the lagged value of the ratio of the net changes in property, plant, and equipment deflated by the total assets. $\boldsymbol{Lev_{i,t-1}}$ is defined as the lagged ratio of the sum of interest-bearing long term and short term debt to the sum of interest-bearing long term and short term debt and market value of equity. $\boldsymbol{Profit_{i,t-1}}$ is defined as the lagged ratio of earnings before interest and tax to total assets. $\boldsymbol{TobQ_{i,t}}$ is defined as the ratio of the market value of equity plus book value of debt to total assets. $\boldsymbol{Cash_{i,t-1}}$ is defined as the lagged ratio of the cash and cash equivalents to total assets. $Returns_{i,t-1}$ is defined as the lagged percentage change in the market capitalization of the company in two periods. $\boldsymbol{Firm\ Age_{i,t-1}}$ is the lagged number of years of a firm since incorporation. $\boldsymbol{Firm\ size_{i,t-1}}$ is defined as the lagged natural logarithm of the total assets of the firm.

$\boldsymbol{Inv_{i,t}}$	**Coef.**	**Std. Err.**
$\boldsymbol{Inv_{i,t-1}}$	0.08326***	0.018834
$\boldsymbol{TobQ_{i,t-1}}$	0.02497***	0.005759
$\boldsymbol{Lev_{i,t-1}}$	-0.10447***	0.017888
$\boldsymbol{Cash_{i,t-1}}$	0.38008***	0.032245
$\boldsymbol{Firm\ Age_{i,t-1}}$	-0.00064	0.000535
$\boldsymbol{Firm\ size_{i,t-1}}$	-0.01582***	0.003771
$\boldsymbol{Returns_{i,t-1}}$	-0.01494***	0.00445
Constant	0.26988***	0.048257
Obs.		**1,985**
Number of firms		**106**
Wald chi2(7)		**367.54**
Prob>chi2		**0.000**
**** p<.05; ** p<.01; *** p<.001***		

4.5 Investment efficiency and financial flexibility

This section presents the test results on the impact of financial flexibility on investment efficiency and firm specific factors. It begins with the presentation of the regression results and continues with the discussion of the regression results.

4.5.1 Investment efficiency and financial flexibility and firm specific factors: correlation results of model 2.

Model 2 can be fitted with either a RE or FE estimator. The Hausman-Wu test for random effects was used to decide which estimator was appropriate to fit the model. The Hausman test statistics in Table 4.9, appendix 5, Chi2 is 177.05 and Prob>Chi2 is 0.0000. Since the *p-value* is less than 5% ($p < 0.05$), the statistic rejects the null hypothesis that the GLS RE estimator was more appropriate to fit this model than the Fixed effect estimator. Therefore, the alternative hypothesis that the Fixed effects estimator was the appropriate estimator to fit this model was accepted. To control for heteroscedasticity, the robust standard error option which yielded similar coefficients was used. The results of the model are shown in Table 4.10 below.

Table 4.10: Results of model 2

Table 4.10 presents the results of the Fixed effects estimator. $\boldsymbol{IE_{i,t}}$ is defined as shown in section 3.5.3. $\boldsymbol{FF_{i,t}}$ is defined as shown in section 3.5.3. $\boldsymbol{Lev_{i,t-1}}$ is defined as the ratio of the sum of interest-bearing long term and short term debt to the sum of interest-bearing long term and short term debt and market value of equity. $\boldsymbol{Div_{i,t}}$ is defined as the ratio of the total cash gross dividends to total assets. $\boldsymbol{TobQ_{i,t}}$ is defined as the ratio of the market value of equity plus book value of debt to total assets. $Sgr_{i,t}$ is defined as the percentage year to year change in revenue deflated by total assets. $\boldsymbol{Cash_{i,t}}$ is defined as the ratio of the cash and cash equivalents to total assets. $\boldsymbol{Tang_{i,t}}$ is defined as the ratio of the sum of property, plant and equipment to total assets. $\boldsymbol{Retained_{i,t}}$ is defined as the ratio of retained earnings to total assets. $\boldsymbol{Firm\ Age_{i,t}}$ is the number of years of a firm since incorporation. $\boldsymbol{Firm\ size_{i,t}}$ is defined as the natural logarithm of the total assets of the firm.

$IE_{i,t}$	**Coef.**	**Std. Err.**
$FF_{i,t}$	-0.01377***	0.002493
$Lev_{i,t}$	-0.07918***	0.005467
$Div_{i,t}$	0.09355***	0.021828
$TobQ_{i,t}$	0.01438***	0.001371
$Sgr_{i,t}$	0.01185***	0.003220
$Cash_{i,t}$	0.22086***	0.009025
$Firm\ size_{i,t}$	-0.00313*	0.000475
$Firm\ age_{i,t}$	-0.001817***	0.000044
Constant	0.14511***	0.007812
Number of firms	74	
sigma_u	0.006946	
sigma_e	0.040747	
rho	0.028242	(fraction of variance due to u_i)
F test that all u_i=0: F(18, 1585) = 2.38		Prob > F = 0.0000
** p<.05; ** p<.01; *** p<.001*		

The correlation results of investment efficiency, financial flexibility and firm specific variables obtained from the Fixed effects estimator shown in Table 4.10 above are discussed below.

Financial flexibility: The results show a significant negative correlation between investment efficiency and financial flexibility. The negative correlation implies that a reduction in financial flexibility results in increased investment efficiency. According to the agency costs theory, large, mature and profitable firms generate excess free cash flows which, in turn, increases their financial flexibility (Grullon et al., 2002: 390). These firms, however, have limited growth options and therefore tend to over-invest in less profitable or NPV-negative projects (Jensen, 1987: 16). The excess free cash flow in such firms can be reduced by paying out the excess cash and replacing it with debt (Jensen, 1986: 323; Barclay & Smith, 2005: 10). Debt disciplines managers as it forces them to invest in the NPV-positive projects to meet debt obligations. This financing behaviour reduces financial flexibility because of high leverage, thereby improving investment efficiency.

On other hand, small and young firms are characterised by high growth options. The financing needs of these firms are therefore driven by the need to achieve and maintain financial flexibility which important for them to realise the growth option to avoid the agency costs of under-investment, thereby increasing investment efficiency. The empirical literature of Le Quang, (2016: 54) and Cherkasova and Kuzmin (2018: 155) also reported similar results. The negative correlation is consistent with the hypothesis in Table 1.2. and hence the hypothesis is accepted.

Leverage: The results of the study show a significantly negative relationship between investment efficiency and leverage. The negative correlation suggests that investment efficiency decreases with increased leverage level in a firm. This trend is, however, prevalent in high growth firms which are usually young and small (Cheng et al, 2014: 596). These firms tend to have low internal equity due to low profitability levels, limited cashflows, low stocks of quality assets and low credit ratings (Iyer et al, 2017: 634). This makes them less attractive to capital markets and they are, therefore, usually faced with the risk of very expensive debt. Risky debt in these firms increases leverage ratios, lowers the value of growth options and results in debt overhang (Myers, 1977: 149). This financing behaviour also causes these small firms to pass projects with positive-NPV due to a lack of enough funds to realise their growth options resulting in agency costs of underinvestment (Popov & Barbiero, 2018: 7). The negative correlation is consistent with the

hypothesis in Table 1.2; thus, the hypothesis is accepted. Mondosha and Majoni (2018:1) find similar results in industrial firms with high growth opportunities in South Africa.

On the other hand, in large and mature firms, leverage increases investment efficiency (Barclay and Smith, 2005: 10). These firms usually generate free cash flows as a result of high profits and retained earnings which increases their earned equity reflected in high cash balances (Ferrando et al, 2017:100). However, due to low growth options and low capital expenditure, these firms tend to over-invest which impedes investment efficiency. The free cash flow in these firms should be distributed to shareholders in form of increased dividends or share buyback. Payout of excess funds makes the managers incur the monitoring and disciplining effect of the capital markets as debt is likely to replace internal equity when investment opportunities are available (Ha, 2019:2). This, in turn, increases leverage and investment efficiency.

Dividend: The results indicate a significant positive correlation between actual dividends paid and the firm's investment efficiency. The results mean that investment efficiency increases with payout. This means that payment of dividends increases investment efficiency and this is consistent with the agency theory of capital structure (M. C. Jensen, 1986; C. Myers, 1977). This relationship is however prevalent in high quality firms that are highly profitable but exhibiting low growth options, which makes them generate free cash flow (DeAngelo et al, 2006: 228). The presence of free cash flow in these firms stimulates agency costs of free cash flow as managers of these firms tend to promote their interests as they incline to waste the free cash flow by maximising their managerial rents (Myers, 2001: 96). These usually include higher-than-market salaries, consumption of perquisites, job security and in extreme cases, takeover firm assets or cash flow. All these interests are not aligned with the shareholders' interests, but rather fulfil the interests of the managers, which gives rise to agency costs (La Rocca et al., 2007:79), and in turn, reduce investment efficiency.

According to Harris and Raviv (1990: 321), paying out the excess cash flow to shareholders reduces the free cash flow and makes it more likely that the managers of these firms will incur the monitoring and disciplining effect of the capital markets as debt is likely to replace internal equity. This occurs when the firm must obtain capital for new projects (DeAngelo et al., 2006; Hansen et al., 1994). Therefore, managers of large, mature, and highly profitable firms with high payout

ratios are likely to make valuable investment decisions (Cheng et al, 2014: 589), leading to investment efficiency.

Conversely, small and young firms usually have high investment opportunities, are less profitable and less attractive to capital markets due to insufficient debt security (Iyer et al, 2017: 634). This makes these firms to majorly rely on internal equity (Vogt, S.C., 1994: 18). The payment of huge dividends by these firms may lead to financial distress reflected in internal equity deficiency which in turn leads to agency costs of underinvestment.

The positive correlation is consistent with the hypothesis in Table 1.2; therefore, the hypothesis is accepted.

Tobin's Q: This financial measure reflects the growth options of a firm. According to La Rocca et al. (2007: 85), high growth firms are associated with high Tobin's Q, while low growth firms are associated with low Tobin's Q. The results show a significant positive relationship between growth options and investment efficiency. The positive correlation suggests that investment efficiency increases with growth options. A study by Wurgler (2000: 187) across 65 countries drawn from Asia, Europe and Africa, found out that unlike countries with undeveloped financial sectors, countries with developed financial sectors increased investment more in the high growth (high Tobin's Q) industries, and decrease investment more in their declining (low Tobin's Q) industries to achieve and increase investment efficiency. A study conducted by Cherkasova and Kuzmin (2018: 155) in Asia found a direct relationship between Tobin's Q and investment efficiency. Using the Compustat panel data set, Chen et al., (2017: 414) also found similar results. The positive correlation is consistent with the hypothesis in Table 1.2; therefore, the hypothesis is accepted.

Sales growth: The results of the study show a positive and significant correlation between sales growth and investment efficiency. These results mean that investment efficiency increases with an increase in sales or revenue. Studies such as those of Naeem and Li (2019: 60); Khan et al., (2017: 70); Popov and Barbiero (2018: 45); Setianto and Kumumaputera (2017: 81), documented the same result. These studies used sales growth as a control variable. The positive correlation is consistent with the hypothesis in Table 1.2; therefore, the hypothesis is accepted.

***Cash*:** Results of the study show a positive significant correlation between cash and cash equivalents and investment efficiency. These results imply that investment efficiency increases with an increase in cash flow. This may, however, be important in firms exhibiting agency costs of under-investment as these are usually small and young firms, which have low internal equity due to low cash records as a result of low profitability levels (Biddle et al., 2009: 113). These firms are characterised by high growth options and the availability of cash and cash equivalents is important as it enables these firms to invest in their growth opportunities, thereby increasing investment efficiency. According to T. Chen et al. (2017: 217), one of the major determinants for a firm to make efficient investment decisions is the availability of sufficient capital. The positive correlation is consistent with the hypothesis in Table 1.2; therefore, the hypothesis is accepted.

Firm size and Firm age: The results show a significant negative relationship between firm size and firm age and investment efficiency. This result implies that investment efficiency reduces with increased firm size and age. That is, investment efficiency increases in small and young firms and declines in large and mature firms. This result is consistent with the agency theory of capital structure which predicts that investment efficiency is associated with agency costs of free cash flow (M. C. Jensen, 1986; C. Myers, 1977). The large, mature and highly profitable firms generate high cash levels but tend to have declining investment opportunities (DeAngelo et al, 2006: 228) and exhibit agency problems more than young, small and less profitable firms (Vogt, S.C., 1994: 16). Jensen (1987: 16) explained that managers of large and mature firm tend to waste funds in form of free cash flow reflected in high cash balances and future free cash flow as a result of unused borrowing power, by over-investing in less profitable or NPV-negative projects. This, in turn, reduces investment efficiency.

Studies such as those of Vogt, S.C. (1994: 16) found out that small firms exhibit more growth options than large and mature firms and the realisation of these growth opportunities increases the firm's investment efficiency. Similarly, a study by Cherkasova and Kuzmin (2018: 155) in Asia also found a significant negative relationship between size and investment efficiency. The negative correlation is consistent with the hypothesis in Table 1.2; therefore, the hypothesis is accepted.

In the full sample, the main determinants of investment efficiency in the non-financial firms listed on JSE are:- leverage, payout policy, growth options, sales growth, cash and cash equivalents, firm

age and firm size. The results of the study show a significant relationship between investment efficiency and these firm specific variables.

4.6 Chapter summary

This chapter presented the results of the regression models that were instrumental in measuring financial flexibility and investment efficiency. It further presented and discussed the results of the regression models that tested the impact of selected firm specific factors and payout on financial flexibility; the impact of financial flexibility, payout and selected firm specific factors on investment efficiency.

Firstly, the most significant firm specific determinants of financial flexibility are leverage, growth(MTB), profitability and finance cost.

Secondly, financial flexibility has an inverse relationship with investment efficiency and the most significant firm specific determinants of investment efficiency are leverage, payout policy, growth options, sales growth, cash and cash equivalents, firm age and firm size.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusion and recommendations based on the hypotheses and results of the study. The objectives of the study were first, to test for the impact of selected firm-specific factors and payout on financial flexibility. Secondly, to test for the impact of selected firm-specific factors on investment efficiency and lastly to test for the impact of financial flexibility on investment efficiency. The study was based on a sample of 74 non-financial firms listed on the JSE Limited in the period from 2000-2019.

5.2 The impact of selected firm-specific factors and payout on financial flexibility

The results of the study show that financial flexibility decreases with an increase in leverage, investment opportunities, payout and finance costs. On the other hand, it increases with profitability, cash and cash equivalents and asset tangibility.

The results confirm that the need for the firm to achieve and maintain financial flexibility is consistent with the hypothesis of the pecking order theory of Myers and Majluf (1984) which hypothesises that firms give priority to financial slack or financial flexibility maximisation. Firms achieve and maintain financial flexibility by discretionarily retaining a large portion of their earnings as a result of their profitability levels, through adopting conservative or sticky payout policy (Myers 1984: 581: Myers & Majluf 1984: 220). This, in turn, increases their internal equity and cash balances which reduces leverage as there is no need for debt, thereby increasing financial flexibility. The financial flexibility achieved and maintained enables firms to borrow cheaply, that is, at low finance costs to realise investment opportunities (Denis, 2011: 667; Byoun, 2016:1), which in turn increase shareholder value.

According to Rajan and Zingales (1995: 1451), when the portion of the firm's tangible assets on the firm's balance sheet is large, this should serve as collateral to secure debt. This means that the higher the proportion of tangible assets with high collateral values on the firm's balance sheet, the more the debt providers should be willing to supply debt at a low finance cost, which increases the firm's borrowing capacity and, in turn, increases financial flexibility.

Based on the study, the results show that JSE-listed firms are financially flexible and the determinants of financial flexibility in these firms are leverage, Tobin's Q, finance cost,

dividends, profitability, tangibility and cash and cash equivalents. However, the significant factors that determine financial flexibility in the JSE-listed firms are Tobin's Q and finance cost as they show a significant correlation with financial flexibility. On the other hand, dividends, profitability, tangibility and cash and cash equivalents show an insignificant relationship.

5.3 The impact of selected firm-specific factors and payout on investment efficiency

The results of the study show that investment efficiency increases with leverage, payout, growth options, sales growth and cash flow. It, however, decreases with firm age and size. The findings of this study provided some evidence related to the agency theory of capital structure and investment efficiency in the context of the South African non-financial firms listed on the JSE Limited.

Agency theory predicts that investment efficiency is associated with agency costs of overinvestment and underinvestment (M. C. Jensen, 1986; C. Myers, 1977). The large, mature and highly profitable firms generate high cash levels but tend to have low stocks of growth options (DeAngelo et al, 2006: 228), which results in them having excess free cashflows. The excess free cash flows combined with limited growth options may result in increased agency costs of overinvestment in these firms, which reduces investment efficiency. Payout of excess funds to shareholders in these firms reduces managers' powers and excess cash flow available to be invested in projects with negative NPV as it makes it more likely that these managers will incur the monitoring and disciplining effect of the capital markets as debt is likely to replace internal equity. Debt increases leverage and this occurs when the firm must obtain capital for new projects (DeAngelo et al., 2006; Hansen et al., 1994) which, in turn, may reduce the firm's agency costs of overinvestment and thus improving its investment efficiency.

On the other hand, young, small, and less profitable firms are less likely to pay dividends. These firms usually have high growth options, generate low profits, low cashflows and they are less attractive to capital markets due to insufficient debt security (Iyer et al, 2017: 634). This makes these firms to majorly rely on internal equity (Vogt, S.C., 1994: 18). The payment of huge dividends by these firms may lead to financial distress reflected in internal equity deficiency which in turn leads to agency costs of underinvestment. Financial distress means that firm managers will pass projects with positive NPV as a result of insufficient funds, thereby reducing investment efficiency. Therefore, the financing needs in these firms are driven by their need to

achieve and maintain financial flexibility which is important for them to realise their investment option which increases investment efficiency.

The main determinants of investment efficiency in the non-financial firms listed on JSE are:- leverage, payout policy, growth options, sales growth, cash and cash equivalents, firm age and firm size. The results of the study show a significant relationship between investment efficiency and these firm specific variables.

The study provides evidence in support of the agency theory of capital structure and also some evidence of investment efficiency in non-financial firm listed on JSE. The agency theory of capital structure and some evidence of investment efficiency in these firms is confirmed by the correlation between investment efficiency and leverage, payout policy, growth options, sales growth, cash and cash equivalents, firm age and firm size.

5.4 Financial flexibility on investment efficiency

The results show that investment efficiency decreases with financial flexibility. The findings of this study provided evidence of the impact of financial flexibility on investment efficiency in the context of the South African non-financial firms listed on the JSE Limited. The results show a significant negative correlation between investment efficiency and financial flexibility. This result shows some evidence of the theory of agency costs of cash flows in JSE-listed firms. According to the theory of agency costs of cashflows, large, mature and profitable firms generate excess free cash flows as a result of limited growth options which, in turn, increases their financial flexibility (Grullon et al, 2002: 39). As a result of the free cash flows and limited growth options, the managers of these firms tend to over-invest in less profitable or NPV-negative projects (Jensen, 1987: 16). The excess free cash flow in such firms can be reduced by distributing the excess cash to the shareholders and replacing it with debt (Jensen, 1986: 323; Barclay & Smith, 2005: 10). This financing behaviour increases leverage, thereby reducing financial flexibility. Debt disciplines managers as it forces them to invest in the NPV-positive projects to meet debt obligations, thereby improving investment efficiency. On the other hand, small, young and less profitable firms usually have high levels of growth options but with limited capital to realise the growth options (Bliss et al, 2015: 521). Their financing needs are usually driven by the need to achieve and maintain financial flexibility which is important for them to realise the growth options which in turn increases investment efficiency.

5.5 Limitations of the study and Recommendation for future research

The study had four limitations. Firstly, the study was limited to a sample of non-financial firms listed on the JSE limited. It excluded unlisted non-financial firms and listed and unlisted financial firms. Therefore, the results of the study cannot be generalised to all South African firms. Future studies can however be extended to include the excluded firms.

Secondly, the size and balance of the panels used were also a limitation to this study. Several observations were removed, as the panels were unbalanced due to missing data. The quality of the results could be improved if the size and balance of the panels were increased.

Thirdly, the study was limited to widely used firm-specific factors as determinants of financial flexibility and investment efficiency. However, the determinants of financial flexibility and investment efficiency are not only limited to firm-specific factors but also country-specific macroeconomic-level factors such as interest rates, taxes, corporate governance systems and investor protection laws. According to Yung et al (2015: 36), such additional factors may improve the understanding of the factors which determine financial flexibility and investment efficiency.

Lastly, the measurement of financial flexibility was limited to the model used by Marchica and Mura (2010: 1345–1346) to measure financial flexibility and determine firms that have spared debt capacity. There are other measurement models of financial flexibility such as that of Rapp et al, (2014: 291–293). This model was not used in this study due to time constraints. The use of this model as a measure of financial flexibility could present different results of the study. Further research on South African firms could adopt this model to measure financial flexibility and compare the results obtained in the current study. Similarly, there are several models that prior studies have used to measure investment efficiency (Gao and Yu, 2018). These models could yield different results of investment efficiency of non-financial firms listed on JSE. This study could not test all these models due to time constraints. However, it adopted a widely used model that was developed by Richardson (2006: 167) to measure investment efficiency. Future studies on firms listed on JSE could also use some of these models and compare their results with this study.

In summary, future studies could conduct research in the following areas: Investigate the factors considered in arriving at financing decisions in JSE listed firms. This research can be done by conducting a survey and holding discussion groups of the Chief Finance Officers of JSE- listed firms and other major finance practitioners. The survey and discussions groups could provide the views of these major finance practitioners concerning financial flexibility, investment efficiency and capital structure in the context of the South African environment. The major finance practitioners to focus on could be the academicians in the finance field and financial institutions.

Investigate the impact of firm-specific factors on financial flexibility and investment efficiency of firms listed on JSE in each sector or industry. This kind of study will provide a detailed understanding of the determinants of financial flexibility and investment efficiency sector-wise or industry-wise in the South African context.

References

Abdulkadir, R. I., Abdurraheem, A. A., & Siyanbola, A. A. (2017). Financial flexibility and dividend payout: Evidence from the Nigerian financial sector. *Osogbo Journal of Management*, *2*(3), 9–17.

Abel, A. B. (1983). Optimal investment under uncertainty. *American Economic Review*, *73*(1), 228–233.

Abiad, A., Oomes, N., & Ueda, K. (2008). The quality effect: Does financial liberalization improve the allocation of capital? *Journal of Development Economics*, *87*(2), 270–282. https://doi.org/10.1016/j.jdeveco.2007.12.002

Agha, M., & Faff, R. (2014). An investigation of the asymmetric link between credit re-ratings and corporate financial decisions: 'Flicking the switch' with financial flexibility. *Journal of Corporate Finance*, *29*, 37–57. https://doi.org/10.1016/j.jcorpfin.2014.08.003

Aivazian, V. A., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance*, *11*(1–2), 277–291. https://doi.org/10.1016/S0929-1199(03)00062-2

Ajide, F. M. (2017). Firm-specific, and institutional determinants of corporate investments in Nigeria. *Future Business Journal*, *3*(2), 107–118. https://doi.org/10.1016/j.fbj.2017.05.002

Aktas, N., Andreou, P. C., Karasamani, I., & Philip, D. (2019). CEO Duality, Agency Costs, and Internal Capital Allocation Efficiency. *British Journal of Management*, *30*(2), 473–493. https://doi.org/10.1111/1467-8551.12277

Alauddin, M., & Nghiemb, H. S. (2010). Do Instructional Attributes pose Multicollinearity Problems? An Empirical Exploration. *Economic Analysis and Policy*, *40*(3), 351–361. https://doi.org/10.1016/S0313-5926(10)50034-1

Almeida, H., Campello, M., & Weisbach, M. S. (2004). The Cash Flow Sensitivity of Cash. *The Journal of Finance*, *59*(4), 1777–1804.

Amakiri, D.-S., & Gift Juliet, E. (2018). ONTOLOGICAL & EPISTEMOLOGICAL PHILOSOPHIES UNDERLYING THEORY BUILDING: A SCHOLARLY DILEMMA OR AXIOMATIC ILLUMINATION- THE BUSINESS RESEARCH PERSPECTIVE.

European Journal of Business and Innovation Research, *6*(2), 1–7.

Arslan-Ayaydin, Ö., Florackis, C., & Ozkan, A. (2014). Financial flexibility, corporate investment and performance: Evidence from financial crises. *Review of Quantitative Finance and Accounting*, *42*(2), 211–250. https://doi.org/10.1007/s11156-012-0340-x

Aspers, P., & Corte, U. (2019). What is Qualitative in Qualitative Research. *Qualitative Sociology*, *42*(2), 139–160. https://doi.org/10.1007/s11133-019-9413-7

Baker, H. K., Mukherjee, T. K., & Powell, G. E. (2005). Distributing Excess Cash: The Role of Specially Designated Dividends. *Financial Services Review*, *14*(2), 111–131.

Bancel, F., & Mittoo, U. R. (2004). The Determinants of Capital Structure Choice: A Survey of European Firms. *Financial Management*, *33*(4), 103–132.

Bancel, F., & Mittoo, U. R. (2011). Financial flexibility and the impact of the global financial crisis: Evidence from France. *International Journal of Managerial Finance*, *7*(2), 179–216. https://doi.org/10.1108/17439131111122157

Barclay, M. J., & Smith, C. W. (1988). Corporate payout policy. Cash Dividends versus Open-Market Repurchases. *Journal of Financial Economics*, *22*(1), 61–82. https://doi.org/10.1016/0304-405X(88)90022-0

Barclay, M. J., & Smith, C. W. (2005). The Capital Structure Puzzle: The Evidence Revisited. *Journal of Applied Corporate Finance*, *17*(1), 8–17. https://doi.org/10.1111/j.1745-6622.2005.012_2.x

Bell, A., Fairbrother, M., & Jones, K. (2019). Fixed and random effects models: making an informed choice. *Quality and Quantity*, *53*(2), 1051–1074. https://doi.org/10.1007/s11135-018-0802-x

Benlemlih, M., & Bitar, M. (2018). Corporate Social Responsibility and Investment Efficiency. *Journal of Business Ethics*, *148*(3), 647–671. https://doi.org/10.1007/s10551-016-3020-2

Benmelech, E., & Bergman, N. K. (2009). Collateral pricing☆. *Journal of Financial Economics*, *91*(3), 339–360. https://doi.org/10.1016/j.jfineco.2008.03.003

Biddle, G. C., & Hilary, G. (2006). Accounting quality and firm-level capital investment. *Accounting Review*, *81*(5), 963–982. https://doi.org/10.2308/accr.2006.81.5.963

Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, *48*(2–3), 112–131. https://doi.org/10.1016/j.jacceco.2009.09.001

Black, F. (1976). The Dividend Puzzle. *The Journal of Portfolio Management*, *2*(2), 5–8. https://doi.org/10.3905/jpm.1976.408558

Blau, B. M., & Fuller, K. P. (2008). Flexibility and dividends. *Journal of Corporate Finance*, *14*(2), 133–152. https://doi.org/10.1016/j.jcorpfin.2008.02.003

Bliss, B. A., Cheng, Y., & Denis, D. J. (2015). Corporate payout, cash retention, and the supply of credit: Evidence from the 2008-2009 credit crisis. *Journal of Financial Economics*, *115*(3), 521–540. https://doi.org/10.1016/j.jfineco.2014.10.013

Boguszewski, P., & Lissowska, M. (2012). The problem of choice of leverage: Example of Polish firms. *Journal of Business Management*, *2012*(6), 28–40.

Bouchani, Z., & Ghanbari, M. (2015). The relation between financial flexibility and financial performance with the ratio of book value to market value in Tehran listed firms. *JournalofScientificResearchand Development*, *2*(2), 216–222.

Byoun, S. (2016). The Effects of Financial Flexibility Demand on Corporate Financial Decisions. *SSRN Electronic Journal*, *1*(254). https://doi.org/10.2139/ssrn.2817972

Campello, M., & Graham, J. R. (2013). Do stock prices influence corporate decisions? Evidence from the technology bubble. *Journal of Financial Economics*, *107*(1), 89–110. https://doi.org/10.1016/j.jfineco.2012.08.002

Castro, P., Teresa, M., Fernández, T., Amor-Tapia, B., & Miguel, A. De. (2016). Target leverage and speed of adjustment along the life cycle of European listed firms. *Business Research Quarterly*, *19*, 188–205.

Chan, R. S. Y., Song, B. Y., & Fan, L. (2018). Dividend Policy and Investment Efficiency -- The Changes of the Mandatory Dividends Payment. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2715220

Charalambakis, E. C., & Psychoyios, D. (2012). What do we know about capital structure? Revisiting the impact of debt ratios on some firm-specific factors. *Applied Financial*

Economics, *22*(20), 1727–1742. https://doi.org/10.1080/09603107.2012.676733

Chen, R., El Ghoul, S., Guedhami, O., & Wang, H. (2017). Do state and foreign ownership affect investment efficiency? Evidence from privatizations. *Journal of Corporate Finance*, *42*, 408–421. https://doi.org/10.1016/j.jcorpfin.2014.09.001

Chen, T., Xie, L., & Zhang, Y. (2017). How does analysts' forecast quality relate to corporate investment efficiency? *Journal of Corporate Finance*, *43*, 217–240. https://doi.org/10.1016/j.jcorpfin.2016.12.010

Chen, Z., Harford, J., & Kamara, A. (2019). Operating Leverage, Profitability, and Capital Structure. *Journal of Financial and Quantitative Analysis*, *54*(1), 369–392. https://doi.org/10.1017/S0022109018000595

Cheng, Z., Cullinan, C. P., & Zhang, X. (2014). *Free Cash Flow, Growth Opportunities, And Dividends : Does Cross-Listing of Shares Matter? 30*(2), 587–598.

Cherkasova, V., & Kuzmin, E. (2018). Financial flexibility as an investment efficiency factor in Asian companies. *Gadjah Mada International Journal of Business*, *20*(2), 137–164. https://doi.org/10.22146/gamaijb.26239

Creswell, J. (2014). *Research Design in Qualitative and Quantitative Methods* (4th ed.; V. Knight, Ed.). Lincoln: SAGE Publications, Inc.

Dalci, I., & Ozyapici, H. (2018). Working capital management policy in health care: The effect of leverage. *Health Policy*, *122*(11), 1266–1272. https://doi.org/10.1016/j.healthpol.2018.09.012

De Jong, A., Verbeek, M., & Verwijmeren, P. (2012). DOES FINANCIAL FLEXIBILITY REDUCE INVESTMENT DISTORTIONS? *Journal of Financial Research*, *35*(2), 243–259. https://doi.org/10.1111/j.1475-6803.2012.01316.x

DeAngelo, H., & DeAngelo, L. (2007). *Capital Structure, Payout Policy, and Financial Flexibility*. 1–24.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, *81*(2), 227–254. https://doi.org/10.1016/j.jfineco.2005.07.005

Denis, D. J. (2011). Financial flexibility and corporate liquidity. *Journal of Corporate Finance*, *17*(3), 667–674. https://doi.org/10.1016/j.jcorpfin.2011.03.006

Denis, D. J., & McKeon, S. B. (2012). Debt financing and financial flexibility evidence from proactive leverage increases. *Review of Financial Studies*, *25*(6), 1897–1929. https://doi.org/10.1093/rfs/hhs005

Dittmar, A. K. (2000). Why Do Firms Repurchase Stock? *The Journal of Business*, *73*(3), 331–355. https://doi.org/10.1086/209646

Dougherty, C. (2011). *Introduction to Econometrics* (Fourth). New York: Oxford University Press.

Dwivedi, Y., & Subba Rao, S. (2011). A test for second-order stationarity of a time series based on the discrete Fourier transform. *Journal of Time Series Analysis*, *32*(1), 68–91. https://doi.org/10.1111/j.1467-9892.2010.00685.x

Easterbrook, F. H. (1984). Two Agency-Cost Explanations of Dividends. *The American Economic Review*, *74*(4), 650–659.

Eisdorfer, A., Giaccotto, C., & White, R. (2013). Capital structure, executive compensation, and investment efficiency. *Journal of Banking and Finance*, *37*(2), 549–562. https://doi.org/10.1016/j.jbankfin.2012.09.011

Elsas, R., & Florysiak, D. (2011). Heterogeneity in the Speed of Adjustment toward Target Leverage. *International Review of Finance*, *11*(2), 181–211. https://doi.org/10.1111/j.1468-2443.2011.01130.x

Elsas, R., & Florysiak, D. (2015). Dynamic Capital Structure Adjustment and the Impact of Fractional Dependent Variables. *Journal of Financial and Quantitative Analysis*, *50*(5), 1105–1133. https://doi.org/10.1017/S0022109015000496

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, *60*(1), 3–43.

https://doi.org/10.1016/S0304-405X(01)00038-1

Ferrando, A., Marchica, M. T., & Mura, R. (2017). Financial Flexibility and Investment Ability Across the Euro Area and the UK. *European Financial Management*, *23*(1), 87–126. https://doi.org/10.1111/eufm.12091

Fouka, G., & Mantzorou, M. (2011). What are the major ethical issues in conducting research? is there a conflict between the research ethics and the nature of nursing? *Health Science Journal*, *5*(1), 3–14.

Frank, M. Z., & Goyal, V. K. (2009). Capital Structure Decisions around the World: Which Factors Are Reliably Important? *Financial Management*, *50*(3), 1–37.

Frank, M. Z., & Goyal, V. K. (2015). The profits-leverage puzzle revisited. *Review of Finance*, *19*(4), 1415–1453. https://doi.org/10.1093/rof/rfu032

Frels, R. K., & Onwuegbuzie, A. J. (2013). Administering quantitative instruments with qualitative interviews: A mixed research approach. *Journal of Counseling and Development*, *91*(2), 184–194. https://doi.org/10.1002/j.1556-6676.2013.00085.x

Galindo, A., Schiantarelli, F., & Weiss, A. (2007). Does financial liberalization improve the allocation of investment?. Micro-evidence from developing countries. *Journal of Development Economics*, *83*(2), 562–587. https://doi.org/10.1016/j.jdeveco.2005.09.008

Gamba, A., & Triantis, A. (2008). The value of financial flexibility. *Journal of Finance*, *63*(5), 2263–2296. https://doi.org/10.1111/j.1540-6261.2008.01397.x

Gao, R., & Yu, X. (2018). How to measure capital investment efficiency: A literature synthesis. *Accounting and Finance*, (1998). https://doi.org/10.1111/acfi.12343

García Lara, J. M., García Osma, B., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, *61*(1), 221–238. https://doi.org/10.1016/j.jacceco.2015.07.003

González, F. (2018). Creditor rights, financial health, and corporate investment efficiency. *North American Journal of Economics and Finance*, (February), 1–22. https://doi.org/10.1016/j.najef.2018.11.002

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence

from the field. *Journal of Financial Economics*, *60*(2–3), 187–243. https://doi.org/10.1016/S0304-405X(01)00044-7

Greene, W. H. (2008). ECONOMETRIC ANALYSIS. In D. Alexander (Ed.), *Production* (6th ed.). New Jersey 07458: Pearson Education, Inc.

Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are Dividend Changes a Sign of Firm Maturity? *Journal of Business*, *75*(3), 387–424. https://doi.org/10.1086/339889

Ha, J. (2019). Agency costs of free cash flow and conditional conservatism. *Advances in Accounting*, *46*(100417), 1–17. https://doi.org/10.1016/j.adiac.2019.04.002

Hall, T. W. (2012). The collateral channel: Evidence on leverage and asset tangibility. *Journal of Corporate Finance*, *18*(3), 570–583. https://doi.org/10.1016/j.jcorpfin.2011.12.003

Hansen, R. S., Kumar, R., & Shome, D. K. (1994). Dividend Policy and Corporate Monitoring : Evidence from the. *Financial Management*, *23*(1), 16–22.

Harris, M., & Raviv, A. (1990). Capital Structure and the Informational Role of Debt. *The Journal of Finance*, *45*(2), 321–349. https://doi.org/10.1111/j.1540-6261.1990.tb03693.x

Harris, M., & Raviv, A. (1991). The Theory of Capital Structure. *The Journal of Finance*, *1*(1), 297–355.

Hayashi, F. (1982). Tobin ' s Marginal q and Average q : A Neoclassical Interpretation. *Econometrica*, *50*(1), 213–224.

He, Y., Chen, C., & Hu, Y. (2019). Managerial overconfidence, internal financing, and investment efficiency: Evidence from China. *Research in International Business and Finance*, *47*(August 2018), 501–510. https://doi.org/10.1016/j.ribaf.2018.09.010

Hennessy, C. A., & Whited, T. M. (2007). How Costly Is External Financing ? Evidence from a Structural Estimation. *Journal of Finance*, *62*(4), 1705–1745.

Holder, M. E., Langrehr, F. W., & Hexter, J. L. (1998). Dividend Policy Determinants: An Investigation of the Influences of Stakeholder Theory. *Financial Management*, *27*(3), 73. https://doi.org/10.2307/3666276

Hovakimian, G. (2011). Financial constraints and investment efficiency: Internal capital

allocation across the business cycle. *Journal of Financial Intermediation*, *20*(2), 264–283. https://doi.org/10.1016/j.jfi.2010.07.001

Hunter, J. E., & Schmidt, F. L. (2000). Fixed Effects vs. Random Effects Meta-Analysis Models: Implications for Cumulative Research Knowledge. *International Journal of Selection and Assessment*, *8*(4), 275–292. https://doi.org/10.1111/1468-2389.00156

Iturriaga, F. J. L., & Crisóstomo, V. L. (2010). Do leverage, dividend payout, and ownership concentration influence firms' value creation? an analysis of Brazilian firms. *Emerging Markets Finance and Trade*, *46*(3), 80–94. https://doi.org/10.2753/REE1540-496X460306

Iyer, S. R., Feng, H., & Rao, R. P. (2017). Payout flexibility and capital expenditure. *Review of Quantitative Finance and Accounting*, *49*(3), 633–659. https://doi.org/10.1007/s11156-016-0603-z

Jaisinghani, D., & Kanjilal, K. (2017). Non-linear dynamics of size, capital structure and profitability: Empirical evidence from Indian manufacturing sector. *Asia Pacific Management Review*, *22*(3), 159–165. https://doi.org/10.1016/j.apmrv.2016.12.003

Jensen, C., & Meckling, H. (1976). THEORY OF THE FIRM : MANAGERIAL BEHAVIOR, AGENCY COSTS AND OWNERSHIP STRUCTURE. *Journal of Financial Economics*, *3*(1976), 305–360.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economic Review*, *76*(2), 323–329.

Jensen, M. C. (1987). The Free Cash Flow Theory of Takeovers: A Financial Perspective on Mergers and Acquisitions and the Economy. *Conference Series Proceeding [31]*, 104–148.

Jermias, J., & Yigit, F. (2019). Factors affecting leverage during a financial crisis: Evidence from Turkey. *Borsa Istanbul Review*, *19*(2), 171–185. https://doi.org/10.1016/j.bir.2018.07.002

JSE. (2018). Enhanced ICB Structure. Retrieved from JSE Limited Reg No: 2005/022939/06 Member of the World Federation of Exchanges website: https://www.jse.co.za/content/JSEICANoticeItems/2015/FTSE-JSE-Africa/20180416 Market Note Changes to ICB and SA Sector Indices.pdf

JSE. (2020a). Find an Equity Issuer. Retrieved 31 March 2020, from

https://www.jse.co.za/current-companies/companies-and-financial-instruments

JSE. (2020b). Small, medium and large caps. Retrieved 16 September 2020, from https://www.jse.co.za/grow-my-wealth/small-medium-and-large-caps

Karp, A., & Van Vuuren, G. (2017). *The Capital Asset Pricing Model And Fama-French Three Factor Model In An Emerging Market Environment*. *16*(3), 231–256.

Khan, M. K., He, Y., Akram, U., & Sarwar, S. (2017). Financing and monitoring in an emerging economy: Can investment efficiency be increased? *China Economic Review*, *45*(May), 62–77. https://doi.org/10.1016/j.chieco.2017.05.012

Kingwara, R. (2015). The Relationship between Financial Flexibility and Dividend Payouts : A Case of Listed Firms in Kenya. *European Journal of Business and Management*, *7*(3), 51–59.

Kisgen, D. J. (2006). Credit ratings and capital structure. *Journal of Finance*, *61*(3), 1035–1072. https://doi.org/10.1111/j.1540-6261.2006.00866.x

Kivunja, A. C., Ahmed, A., & Kuyini, B. (2017). *Understanding and Applying Research Paradigms in Educational Contexts*. *6*(5), 26–41. https://doi.org/10.5430/ijhe.v6n5p26

Kothari, C. R. (2004). *Research Methodology* (SECOND REV). New Delhi-110 002: NEW AGE INTERNATIONAL (P) LIMITED, PUBLISHERS.

Kothari, C. R., & Garg, G. (2014). *RESEARCH METHODOLOGY: Methods and Techniques* (3rd ed.). New Delhi-110 002: New Age International (P) Limited New Age International (P) Limited.

Kothari, S. P., Ramanna, K., & Skinner, D. J. (2010). <Kothariramanna&Skinner(2010).Pdf>. *Journal of Accounting and Economics*, *50*(2–3), 246–286. https://doi.org/10.1016/j.jacceco.2010.09.003

Kumar, R. (2011). *RESEARCH METHODOLOGY* (3rd ed.). New Delhi: SAGE Publications India Pvt Ltd.

La Rocca, M., La Rocca, T., & Cariola, A. (2007). Overinvestment and Underinvestment Problems: Determining Factors, Consequences and Solutions. *Corporate Ownership and Control*, *5*(1), 79–95. https://doi.org/10.22495/cocv5i1p7

Lambrinoudakis, C., Skiadopoulos, G., & Gkionis, K. (2019). Capital structure and financial flexibility: Expectations of future shocks. *Journal of Banking and Finance*, *104*, 1–18. https://doi.org/10.1016/j.jbankfin.2019.03.016

Lamont, O. (1997). Cash flow and investment: Evidence from internal capital markets. *Journal of Finance*, *52*(1), 83–109. https://doi.org/10.1111/j.1540-6261.1997.tb03809.x

Lance, P., & Hattori, A. (2016). *Sampling and Evaluation – A Guide to Sampling for Program Impact Evaluation*. Chapel Hill, North Carolina: University of North Carolina.

Lavrakas, P. (2011). Panel Data Analysis. In *Encyclopedia of Survey Research Methods*. https://doi.org/10.4135/9781412963947

Le Quang, S. (2016). Value of financial flexibility, investment efficiency and adjustment speed of working capital. *World Finance Conference (2016) Annual Meetings*, 1–89. Athens: European Financial Management Association.

Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back to the Beginning : Persistence and the Cross-Section of Corporate Capital Structure. *The Journal of Finance*, *LXIII*(4), 1575–1608.

Lie, E. (2000). Excess Funds and Agency Problems: An Empirical Study of Incremental Cash Disbursements. *Review of Financial Studies*, *13*(1), 219–248. https://doi.org/10.1093/rfs/13.1.219

Lie, E. (2005). Financial flexibility, performance, and corporate payout choice. *Journal of Business*, *78*(6), 2179–2203. https://doi.org/10.1086/497043

Linhares, F. S., Da Costa, F. M., & Beiruth, A. X. (2018a). Earnings management and investment efficiency. *Review of Business Management*, *20*(2), 295–310. https://doi.org/10.7819/rbgn.v20i2.3180

Linhares, F. S., Da Costa, F. M., & Beiruth, A. X. (2018b). Gerenciamento de resultados e eficiência de investimentos. *Revista Brasileira de Gestao de Negocios*, *20*(2), 295–310. https://doi.org/10.7819/rbgn.v20i2.3180

Majeed, M. A., Zhang, X., & Umar, M. (2018). Impact of investment efficiency on the cost of equity: evidence from China. *Journal of Asia Business Studies*, *12*(1), 44–59.

https://doi.org/10.1108/JABS-09-2015-0163

Mann, S. V. (1989). The Dividend Puzzle : A Progress Report. *Quarterly Journal of Business and Economics*, *28*(3), 3–35.

Marchica, M. T., & Mura, R. (2010). Financial Flexibility, Investment Ability, and Firm Value: Evidence from Firms with Spare Debt Capacity. *Financial Management*, *39*(4), 1339–1365. https://doi.org/10.1111/j.1755-053X.2010.01115.x

Mauboussin, M. J., Callahan, D., & Majd, D. (2016). Capital Allocation: Evidence, Analytical Methods, and Assessment Guidance. In *CREDIT SUISSE Report*.

Meadows, K. A. (2003). So you want to do research? 3. An introduction to qualitative methods. *British Journal of Community Nursing*, *8*(10), 464–469.

Mirkhalili, T. A., & Mahmoudabadi, H. K. (2018). The Effect of Financial Flexibility on Financial Behavior of Companies Listed in Tehran Stock Exchange. *American Journal of Industrial and Business Management*, *08*(01), 143–155. https://doi.org/10.4236/ajibm.2018.81009

Modigliani, F., & Miller, M. H. M. (1963). American Economic Association Corporate Income Taxes and the Cost of Capital : A Correction. *American Economic Review*, *53*(3), 433–443. https://doi.org/10.1126/science.151.3712.867-a

Modugu, K. P. (2013). Capital Structure Decision : An Overview. *Journal of Finance and Bank Management*, *1*(1), 14–27.

Mondosha, M., & Majoni, A. (2018). The impact of leverage on investment decisions for South African firms with different growth opportunities. *Journal of Economic and Financial Sciences*, *11*(1), 1–7. https://doi.org/10.4102/jef.v11i1.192

Morellec, E. (2001). Asset liquidity, capital structure, and secured debt. *Journal of Financial Economics*, *61*(2), 173–206. https://doi.org/10.1016/S0304-405X(01)00059-9

Mostafa, H. T., & Boregowda, S. (2014). A Brief Review of Capital Structure Theories. *Research Journal of Recent Sciences*, *3*(10), 113–118.

Moyo, V. (2015). DYNAMIC CAPITAL STRUCTURE A DJUSTMENT : WHICH ESTIMATOR YIELDS CONSISTENT AND EFFICIENT ESTIMATES ? *Journal of*

Economic and Financial Sciences, *9*(April 2016), 209–227.

Myers, C. (1977). DETERMINANTS OF CORPORATE Stewart C. MYERS. *Journal of Financial Economics*, *5*, 147–175.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, *39*(3), 574–592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x

Myers, S. C. (2001). Capital Structure. *The Journal of Economic Perspectives*, *15*(2), 81–102.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

Naeem, K., & Li, M. C. (2019). Corporate investment efficiency: The role of financial development in firms with financing constraints and agency issues in OECD non-financial firms. *International Review of Financial Analysis*, *62*(August 2018), 53–68. https://doi.org/10.1016/j.irfa.2019.01.003

Nassar, S. (2016). The impact of capital structure on the Financial Performance of the firms : Evidence From Borsa Istanbul. *Business & Financial Affairs*, *5*(2), 5–8. https://doi.org/10.4172/2167-0234.100017

Popov, A., & Barbiero, F. (2018). WORKING PAPER SERIES: Debt overhang and investment efficiency. In *Accounting & Finance* (No. 2213). https://doi.org/10.2866/234067

Rahimi, K., & Mosavi, A. (2016). Value of Financial Flexibility and Firm's Financial Policies: Empirical Evidence from the Firms Listed in Tehran Stock Exchange. *International Journal of Economics and Finance*, *8*(4), 207. https://doi.org/10.5539/ijef.v8n4p207

Rajan, R. G., & Zingales, L. (1995). American Finance Association What Do We Know about Capital Structure ? Some Evidence from International Data. *The Journal of Finance*, *50*(5), 1421–1460. https://doi.org/10.1111/j.1540-6261.1994.tb00086.x

Rapp, M. S., Schmid, T., & Urban, D. (2014). The value of financial flexibility and corporate financial policy. *Journal of Corporate Finance*, *29*, 288–302. https://doi.org/10.1016/j.jcorpfin.2014.08.004

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, *11*(2–

3), 159–189. https://doi.org/10.1007/s11142-006-9012-1

Roodman, D. (2009). How to do xtabond2 : An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86–136.

Salim, M., & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *Procedia - Social and Behavioral Sciences*, *65*(ICIBSoS), 156–166. https://doi.org/10.1016/j.sbspro.2012.11.105

Salkind, N. (2010). Encyclopedia of Research Design. In *Choice Reviews Online* (Vol. 48). https://doi.org/10.4135/9781412961288

Samson, S. B., Sprinzen, S., Dubois-Pelerin, E., & Pfeil, K. C. (2006). Corporate Rating Criteria. *Standard&Poor's*, 1–128.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Chapter 4: Understanding the research philosophy and approaches to theory development. In *Research Methods for Business Students* (8th ed., pp. 2–30). United Kingdom: Pearson Education, Inc.

Scharfstein, D. S., & Stein, J. C. (2000). The dark side of internal capital markets: Divisional rent-seeking and inefficient investment. *Journal of Finance*, *55*(6), 2537–2564. https://doi.org/10.1111/0022-1082.00299

Setianto, R. H., & Kumumaputera, A. (2017). Corporate Financial Flexibility, Investment Activities, and Cash Holding : Evidence from Indonesia. *Indonesian Capital Market Review*, *9*(March), 75–85. https://doi.org/10.21002/icmr.v9i2.7470

Shao, L., Kwok, C. C. Y., & Guedhami, O. (2010). National culture and dividend policy. *Journal of International Business Studies*, *41*(8), 1391–1414. https://doi.org/10.1057/jibs.2009.74

Singh, K. (2007). *QUANTITATIVE SOCIAL RESEARCH METHODS*. New Delhi 110 044: SAGE Publications.

Škrabić Perić, B. (2019). Do the most frequently used dynamic panel data estimators have the best performance in a small sample? A Monte Carlo comparison. *Croatian Operational Research Review*, *10*(1), 45–55. https://doi.org/10.17535/crorr.2019.0005

South African Market Insights. (2019). JSE trading statistics 4 March 2019 - South African Market Insights. Retrieved 19 November 2019, from https://www.southafricanmi.com/jse-

trading-stats-4mar2019.html

Stulz, R. M. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, *26*(1), 3–27. https://doi.org/10.1016/0304-405X(90)90011-N

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management (IJARM)*, *5*(September), 18–27. https://doi.org/10.2139/ssrn.3205035

Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: what it is and what it could be. *Theory and Society*, *48*(2), 193–216. https://doi.org/10.1007/s11186-019-09345-5

Tongco, M. D. C. (2007). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research and Applications*, *5*, 147. https://doi.org/10.17348/era.5.0.147-158

Vogt, S.C. (1994). The Cash Flow/Investment Relationship: Evidence from U.S. Manufacturing Firms. *Financial Management*, *23*(2), 3–20.

Wang, G. c. s., & Akabay, C. K. (1994). Autocorrelation: Problems and solutions in regression modelling. *The Journal of Business Forecasting*, (Summer,1994-95), 18–26.

Weaving, D., Jones, B., Ireton, M., Whitehead, S., Till, K., & Beggs, C. B. (2019). Overcoming the problem of multicollinearity in sports performance data: A novel application of partial least squares correlation analysis. *PLoS ONE*, *14*(2), 1–17. https://doi.org/10.1371/journal.pone.0211776

Whited, T. M. (1992). American Finance Association Debt, Liquidity Constraints, and Corporate Investment : Evidence from Panel Data. *The Journal of Finance*, *47*(4), 1425–1460.

Williams, C. (2007). Research Methods. *Journal of Business & Economic Research*, *5*(3), 65–72.

Winit-Watjana, W. (2016). Research philosophy in pharmacy practice: necessity and relevance. *International Journal of Pharmacy Practice*, *24*(6), 428–436. https://doi.org/10.1111/ijpp.12281

Wooldridge. (2010). *Econometric Analysis of Cross Section and Panel Data.* Cambridge, Massachusetts: The MIT Press.

World Federation of Exchange. (2019). Membership & Events | The World Federation of

Exchanges. Retrieved from https://www.world-exchanges.org/membership-events#member-list

Wurgler, J. (2000). Financial markets and the allocation of capital. *Journal of Financial Economics 5*, *58*(5), 187–214.

Xu, J. (2012). Profitability and capital structure: Evidence from import penetration. *Journal of Financial Economics*, *106*(2), 427–446. https://doi.org/10.1016/j.jfineco.2012.05.015

Yensu, J., & Adusei, C. (2016). Dividend Policy Decision across African Countries. *International Journal of Economics and Finance*, *8*(6), 63. https://doi.org/10.5539/ijef.v8n6p63

Yung, K., Li, D. D., & Jian, Y. (2015). The value of corporate financial flexibility in emerging countries. *Journal of Multinational Financial Management*, *32–33*, 25–41. https://doi.org/10.1016/j.mulfin.2015.07.001

Zeng, S., Hu, M., & Su, B. (2016). Research on Investment Efficiency and Policy Recommendations for the Culture Industry of China Based on a Three-Stage DEA. *Sustainability*, *8*(4), 324. https://doi.org/10.3390/su8040324

Zhang, M., Zhang, W., & Zhang, S. (2016). National culture and firm investment efficiency: international evidence. *Asia-Pacific Journal of Accounting & Economics*, *23*(1), 1–21. https://doi.org/10.1080/16081625.2015.1027714

Zou, H., & Adams, M. B. (2008). Debt Capacity, Cost of Debt, and Corporate Insurance. *Journal of Financial and Quantitative Analysis*, *43*(2), 433–466. https://doi.org/10.1017/s0022109000003586

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and Paradigm of Scientific Research. In *Management Culture and Corporate Social Responsibility* (p. 29). https://doi.org/10.5772/intechopen.70628

Abdulkadir, R. I., Abdurraheem, A. A., & Siyanbola, A. A. (2017). Financial flexibility and dividend payout: Evidence from the Nigerian financial sector. *Osogbo Journal of Management*, *2*(3), 9–17.

Abel, A. B. (1983). Optimal investment under uncertainty. *American Economic Review*, *73*(1), 228–233.

Abiad, A., Oomes, N., & Ueda, K. (2008). The quality effect: Does financial liberalization improve the allocation of capital? *Journal of Development Economics*, *87*(2), 270–282. https://doi.org/10.1016/j.jdeveco.2007.12.002

Agha, M., & Faff, R. (2014). An investigation of the asymmetric link between credit re-ratings and corporate financial decisions: 'Flicking the switch' with financial flexibility. *Journal of Corporate Finance*, *29*, 37–57. https://doi.org/10.1016/j.jcorpfin.2014.08.003

Aivazian, V. A., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance*, *11*(1–2), 277–291. https://doi.org/10.1016/S0929-1199(03)00062-2

Ajide, F. M. (2017). Firm-specific, and institutional determinants of corporate investments in Nigeria. *Future Business Journal*, *3*(2), 107–118. https://doi.org/10.1016/j.fbj.2017.05.002

Aktas, N., Andreou, P. C., Karasamani, I., & Philip, D. (2019). CEO Duality, Agency Costs, and Internal Capital Allocation Efficiency. *British Journal of Management*, *30*(2), 473–493. https://doi.org/10.1111/1467-8551.12277

Alauddin, M., & Nghiemb, H. S. (2010). Do Instructional Attributes pose Multicollinearity Problems? An Empirical Exploration. *Economic Analysis and Policy*, *40*(3), 351–361. https://doi.org/10.1016/S0313-5926(10)50034-1

Almeida, H., Campello, M., & Weisbach, M. S. (2004). The Cash Flow Sensitivity of Cash. *The Journal of Finance*, *59*(4), 1777–1804.

Amakiri, D.-S., & Gift Juliet, E. (2018). ONTOLOGICAL & EPISTEMOLOGICAL PHILOSOPHIES UNDERLYING THEORY BUILDING: A SCHOLARLY DILEMMA OR AXIOMATIC ILLUMINATION- THE BUSINESS RESEARCH PERSPECTIVE. *European Journal of Business and Innovation Research*, *6*(2), 1–7.

Arslan-Ayaydin, Ö., Florackis, C., & Ozkan, A. (2014). Financial flexibility, corporate investment and performance: Evidence from financial crises. *Review of Quantitative Finance and Accounting*, *42*(2), 211–250. https://doi.org/10.1007/s11156-012-0340-x

Aspers, P., & Corte, U. (2019). What is Qualitative in Qualitative Research. *Qualitative Sociology*, *42*(2), 139–160. https://doi.org/10.1007/s11133-019-9413-7

Baker, H. K., Mukherjee, T. K., & Powell, G. E. (2005). Distributing Excess Cash: The Role of Specially

Designated Dividends. *Financial Services Review*, *14*(2), 111–131.

Bancel, F., & Mittoo, U. R. (2004). The Determinants of Capital Structure Choice: A Survey of European Firms. *Financial Management*, *33*(4), 103–132.

Bancel, F., & Mittoo, U. R. (2011). Financial flexibility and the impact of the global financial crisis: Evidence from France. *International Journal of Managerial Finance*, *7*(2), 179–216. https://doi.org/10.1108/17439131111122157

Barclay, M. J., & Smith, C. W. (1988). Corporate payout policy. Cash Dividends versus Open-Market Repurchases. *Journal of Financial Economics*, *22*(1), 61–82. https://doi.org/10.1016/0304-405X(88)90022-0

Barclay, M. J., & Smith, C. W. (2005). The Capital Structure Puzzle: The Evidence Revisited. *Journal of Applied Corporate Finance*, *17*(1), 8–17. https://doi.org/10.1111/j.1745-6622.2005.012_2.x

Bell, A., Fairbrother, M., & Jones, K. (2019). Fixed and random effects models: making an informed choice. *Quality and Quantity*, *53*(2), 1051–1074. https://doi.org/10.1007/s11135-018-0802-x

Benlemlih, M., & Bitar, M. (2018). Corporate Social Responsibility and Investment Efficiency. *Journal of Business Ethics*, *148*(3), 647–671. https://doi.org/10.1007/s10551-016-3020-2

Benmelech, E., & Bergman, N. K. (2009). Collateral pricing☆. *Journal of Financial Economics*, *91*(3), 339–360. https://doi.org/10.1016/j.jfineco.2008.03.003

Biddle, G. C., & Hilary, G. (2006). Accounting quality and firm-level capital investment. *Accounting Review*, *81*(5), 963–982. https://doi.org/10.2308/accr.2006.81.5.963

Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, *48*(2–3), 112–131. https://doi.org/10.1016/j.jacceco.2009.09.001

Black, F. (1976). The Dividend Puzzle. *The Journal of Portfolio Management*, *2*(2), 5–8. https://doi.org/10.3905/jpm.1976.408558

Blau, B. M., & Fuller, K. P. (2008). Flexibility and dividends. *Journal of Corporate Finance*, *14*(2), 133–152. https://doi.org/10.1016/j.jcorpfin.2008.02.003

Bliss, B. A., Cheng, Y., & Denis, D. J. (2015). Corporate payout, cash retention, and the supply of credit:

Evidence from the 2008-2009 credit crisis. *Journal of Financial Economics*, *115*(3), 521–540. https://doi.org/10.1016/j.jfineco.2014.10.013

Boguszewski, P., & Lissowska, M. (2012). The problem of choice of leverage: Example of Polish firms. *Journal of Business Management*, *2012*(6), 28–40.

Bouchani, Z., & Ghanbari, M. (2015). The relation between financial flexibility and financial performance with the ratio of book value to market value in Tehran listed firms. *JournalofScientificResearchand Development*, *2*(2), 216–222.

Byoun, S. (2016). The Effects of Financial Flexibility Demand on Corporate Financial Decisions. *SSRN Electronic Journal*, *1*(254). https://doi.org/10.2139/ssrn.2817972

Campello, M., & Graham, J. R. (2013). Do stock prices influence corporate decisions? Evidence from the technology bubble. *Journal of Financial Economics*, *107*(1), 89–110. https://doi.org/10.1016/j.jfineco.2012.08.002

Castro, P., Teresa, M., Fernández, T., Amor-Tapia, B., & Miguel, A. De. (2016). Target leverage and speed of adjustment along the life cycle of European listed firms. *Business Research Quarterly*, *19*, 188–205.

Chan, R. S. Y., Song, B. Y., & Fan, L. (2018). Dividend Policy and Investment Efficiency -- The Changes of the Mandatory Dividends Payment. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2715220

Charalambakis, E. C., & Psychoyios, D. (2012). What do we know about capital structure? Revisiting the impact of debt ratios on some firm-specific factors. *Applied Financial Economics*, *22*(20), 1727–1742. https://doi.org/10.1080/09603107.2012.676733

Chen, R., El Ghoul, S., Guedhami, O., & Wang, H. (2017). Do state and foreign ownership affect investment efficiency? Evidence from privatizations. *Journal of Corporate Finance*, *42*, 408–421. https://doi.org/10.1016/j.jcorpfin.2014.09.001

Chen, T., Xie, L., & Zhang, Y. (2017). How does analysts' forecast quality relate to corporate investment efficiency? *Journal of Corporate Finance*, *43*, 217–240. https://doi.org/10.1016/j.jcorpfin.2016.12.010

Chen, Z., Harford, J., & Kamara, A. (2019). Operating Leverage, Profitability, and Capital Structure.

Journal of Financial and Quantitative Analysis, *54*(1), 369–392. https://doi.org/10.1017/S0022109018000595

Cheng, Z., Cullinan, C. P., & Zhang, X. (2014). *Free Cash Flow, Growth Opportunities, And Dividends : Does Cross-Listing of Shares Matter? 30*(2), 587–598.

Cherkasova, V., & Kuzmin, E. (2018). Financial flexibility as an investment efficiency factor in Asian companies. *Gadjah Mada International Journal of Business*, *20*(2), 137–164. https://doi.org/10.22146/gamaijb.26239

Creswell, J. (2014). *Research Design in Qualitative and Quantitative Methods* (4th ed.; V. Knight, Ed.). Lincoln: SAGE Publications, Inc.

Dalci, I., & Ozyapici, H. (2018). Working capital management policy in health care: The effect of leverage. *Health Policy*, *122*(11), 1266–1272. https://doi.org/10.1016/j.healthpol.2018.09.012

De Jong, A., Verbeek, M., & Verwijmeren, P. (2012). DOES FINANCIAL FLEXIBILITY REDUCE INVESTMENT DISTORTIONS? *Journal of Financial Research*, *35*(2), 243–259. https://doi.org/10.1111/j.1475-6803.2012.01316.x

DeAngelo, H., & DeAngelo, L. (2007). *Capital Structure, Payout Policy, and Financial Flexibility*. 1–24.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, *81*(2), 227–254. https://doi.org/10.1016/j.jfineco.2005.07.005

Denis, D. J. (2011). Financial flexibility and corporate liquidity. *Journal of Corporate Finance*, *17*(3), 667–674. https://doi.org/10.1016/j.jcorpfin.2011.03.006

Denis, D. J., & McKeon, S. B. (2012). Debt financing and financial flexibility evidence from proactive leverage increases. *Review of Financial Studies*, *25*(6), 1897–1929. https://doi.org/10.1093/rfs/hhs005

Dittmar, A. K. (2000). Why Do Firms Repurchase Stock? *The Journal of Business*, *73*(3), 331–355. https://doi.org/10.1086/209646

Dougherty, C. (2011). *Introduction to Econometrics* (Fourth). New York: Oxford University Press.

Dwivedi, Y., & Subba Rao, S. (2011). A test for second-order stationarity of a time series based on the

discrete Fourier transform. *Journal of Time Series Analysis*, *32*(1), 68–91. https://doi.org/10.1111/j.1467-9892.2010.00685.x

Easterbrook, F. H. (1984). Two Agency-Cost Explanations of Dividends. *The American Economic Review*, *74*(4), 650–659.

Eisdorfer, A., Giaccotto, C., & White, R. (2013). Capital structure, executive compensation, and investment efficiency. *Journal of Banking and Finance*, *37*(2), 549–562. https://doi.org/10.1016/j.jbankfin.2012.09.011

Elsas, R., & Florysiak, D. (2011). Heterogeneity in the Speed of Adjustment toward Target Leverage. *International Review of Finance*, *11*(2), 181–211. https://doi.org/10.1111/j.1468-2443.2011.01130.x

Elsas, R., & Florysiak, D. (2015). Dynamic Capital Structure Adjustment and the Impact of Fractional Dependent Variables. *Journal of Financial and Quantitative Analysis*, *50*(5), 1105–1133. https://doi.org/10.1017/S0022109015000496

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, *60*(1), 3–43. https://doi.org/10.1016/S0304-405X(01)00038-1

Ferrando, A., Marchica, M. T., & Mura, R. (2017). Financial Flexibility and Investment Ability Across the Euro Area and the UK. *European Financial Management*, *23*(1), 87–126. https://doi.org/10.1111/eufm.12091

Fouka, G., & Mantzorou, M. (2011). What are the major ethical issues in conducting research? is there a conflict between the research ethics and the nature of nursing? *Health Science Journal*, *5*(1), 3–14.

Frank, M. Z., & Goyal, V. K. (2009). Capital Structure Decisions around the World: Which Factors Are Reliably Important? *Financial Management*, *50*(3), 1–37.

Frank, M. Z., & Goyal, V. K. (2015). The profits-leverage puzzle revisited. *Review of Finance*, *19*(4), 1415–1453. https://doi.org/10.1093/rof/rfu032

Frels, R. K., & Onwuegbuzie, A. J. (2013). Administering quantitative instruments with qualitative interviews: A mixed research approach. *Journal of Counseling and Development*, *91*(2), 184–194.

https://doi.org/10.1002/j.1556-6676.2013.00085.x

Galindo, A., Schiantarelli, F., & Weiss, A. (2007). Does financial liberalization improve the allocation of investment?. Micro-evidence from developing countries. *Journal of Development Economics*, *83*(2), 562–587. https://doi.org/10.1016/j.jdeveco.2005.09.008

Gamba, A., & Triantis, A. (2008). The value of financial flexibility. *Journal of Finance*, *63*(5), 2263–2296. https://doi.org/10.1111/j.1540-6261.2008.01397.x

Gao, R., & Yu, X. (2018). How to measure capital investment efficiency: A literature synthesis. *Accounting and Finance*, (1998). https://doi.org/10.1111/acfi.12343

García Lara, J. M., García Osma, B., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, *61*(1), 221–238. https://doi.org/10.1016/j.jacceco.2015.07.003

González, F. (2018). Creditor rights, financial health, and corporate investment efficiency. *North American Journal of Economics and Finance*, (February), 1–22. https://doi.org/10.1016/j.najef.2018.11.002

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, *60*(2–3), 187–243. https://doi.org/10.1016/S0304-405X(01)00044-7

Greene, W. H. (2008). ECONOMETRIC ANALYSIS. In D. Alexander (Ed.), *Production* (6th ed.). New Jersey 07458: Pearson Education, Inc.

Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are Dividend Changes a Sign of Firm Maturity? *Journal of Business*, *75*(3), 387–424. https://doi.org/10.1086/339889

Ha, J. (2019). Agency costs of free cash flow and conditional conservatism. *Advances in Accounting*, *46*(100417), 1–17. https://doi.org/10.1016/j.adiac.2019.04.002

Hall, T. W. (2012). The collateral channel: Evidence on leverage and asset tangibility. *Journal of Corporate Finance*, *18*(3), 570–583. https://doi.org/10.1016/j.jcorpfin.2011.12.003

Hansen, R. S., Kumar, R., & Shome, D. K. (1994). Dividend Policy and Corporate Monitoring : Evidence from the. *Financial Management*, *23*(1), 16–22.

Harris, M., & Raviv, A. (1990). Capital Structure and the Informational Role of Debt. *The Journal of Finance*, *45*(2), 321–349. https://doi.org/10.1111/j.1540-6261.1990.tb03693.x

Harris, M., & Raviv, A. (1991). The Theory of Capital Structure. *The Journal of Finance*, *1*(1), 297–355.

Hayashi, F. (1982). Tobin ' s Marginal q and Average q : A Neoclassical Interpretation. *Econometrica*, *50*(1), 213–224.

He, Y., Chen, C., & Hu, Y. (2019). Managerial overconfidence, internal financing, and investment efficiency: Evidence from China. *Research in International Business and Finance*, *47*(August 2018), 501–510. https://doi.org/10.1016/j.ribaf.2018.09.010

Hennessy, C. A., & Whited, T. M. (2007). How Costly Is External Financing ? Evidence from a Structural Estimation. *Journal of Finance*, *62*(4), 1705–1745.

Holder, M. E., Langrehr, F. W., & Hexter, J. L. (1998). Dividend Policy Determinants: An Investigation of the Influences of Stakeholder Theory. *Financial Management*, *27*(3), 73. https://doi.org/10.2307/3666276

Hovakimian, G. (2011). Financial constraints and investment efficiency: Internal capital allocation across the business cycle. *Journal of Financial Intermediation*, *20*(2), 264–283. https://doi.org/10.1016/j.jfi.2010.07.001

Hunter, J. E., & Schmidt, F. L. (2000). Fixed Effects vs. Random Effects Meta-Analysis Models: Implications for Cumulative Research Knowledge. *International Journal of Selection and Assessment*, *8*(4), 275–292. https://doi.org/10.1111/1468-2389.00156

Iturriaga, F. J. L., & Crisóstomo, V. L. (2010). Do leverage, dividend payout, and ownership concentration influence firms' value creation? an analysis of Brazilian firms. *Emerging Markets Finance and Trade*, *46*(3), 80–94. https://doi.org/10.2753/REE1540-496X460306

Iyer, S. R., Feng, H., & Rao, R. P. (2017). Payout flexibility and capital expenditure. *Review of Quantitative Finance and Accounting*, *49*(3), 633–659. https://doi.org/10.1007/s11156-016-0603-z

Jaisinghani, D., & Kanjilal, K. (2017). Non-linear dynamics of size, capital structure and profitability: Empirical evidence from Indian manufacturing sector. *Asia Pacific Management Review*, *22*(3), 159–165. https://doi.org/10.1016/j.apmrv.2016.12.003

Jensen, C., & Meckling, H. (1976). THEORY OF THE FIRM : MANAGERIAL BEHAVIOR, AGENCY

COSTS AND OWNERSHIP STRUCTURE. *Journal of Financial Economics*, *3*(1976), 305–360.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economic Review*, *76*(2), 323–329.

Jensen, M. C. (1987). The Free Cash Flow Theory of Takeovers: A Financial Perspective on Mergers and Acquisitions and the Economy. *Conference Series Proceeding [31]*, 104–148.

Jermias, J., & Yigit, F. (2019). Factors affecting leverage during a financial crisis: Evidence from Turkey. *Borsa Istanbul Review*, *19*(2), 171–185. https://doi.org/10.1016/j.bir.2018.07.002

JSE. (2018). Enhanced ICB Structure. Retrieved from JSE Limited Reg No: 2005/022939/06 Member of the World Federation of Exchanges website: https://www.jse.co.za/content/JSEICANoticeItems/2015/FTSE-JSE-Africa/20180416 Market Note Changes to ICB and SA Sector Indices.pdf

JSE. (2020a). Find an Equity Issuer. Retrieved 31 March 2020, from https://www.jse.co.za/current-companies/companies-and-financial-instruments

JSE. (2020b). Small, medium and large caps. Retrieved 16 September 2020, from https://www.jse.co.za/grow-my-wealth/small-medium-and-large-caps

Karp, A., & Van Vuuren, G. (2017). *The Capital Asset Pricing Model And Fama-French Three Factor Model In An Emerging Market Environment*. *16*(3), 231–256.

Khan, M. K., He, Y., Akram, U., & Sarwar, S. (2017). Financing and monitoring in an emerging economy: Can investment efficiency be increased? *China Economic Review*, *45*(May), 62–77. https://doi.org/10.1016/j.chieco.2017.05.012

Kingwara, R. (2015). The Relationship between Financial Flexibility and Dividend Payouts : A Case of Listed Firms in Kenya. *European Journal of Business and Management*, *7*(3), 51–59.

Kisgen, D. J. (2006). Credit ratings and capital structure. *Journal of Finance*, *61*(3), 1035–1072. https://doi.org/10.1111/j.1540-6261.2006.00866.x

Kivunja, A. C., Ahmed, A., & Kuyini, B. (2017). *Understanding and Applying Research Paradigms in Educational Contexts*. *6*(5), 26–41. https://doi.org/10.5430/ijhe.v6n5p26

Kothari, C. R. (2004). *Research Methodology* (SECOND REV). New Delhi-110 002: NEW AGE

INTERNATIONAL (P) LIMITED, PUBLISHERS.

Kothari, C. R., & Garg, G. (2014). *RESEARCH METHODOLOGY: Methods and Techniques* (3rd ed.). New Delhi-110 002: New Age International (P) Limited New Age International (P) Limited.

Kothari, S. P., Ramanna, K., & Skinner, D. J. (2010). <Kothariramanna&Skinner(2010).Pdf>. *Journal of Accounting and Economics*, *50*(2–3), 246–286. https://doi.org/10.1016/j.jacceco.2010.09.003

Kumar, R. (2011). *RESEARCH METHODOLOGY* (3rd ed.). New Delhi: SAGE Publications India Pvt Ltd.

La Rocca, M., La Rocca, T., & Cariola, A. (2007). Overinvestment and Underinvestment Problems: Determining Factors, Consequences and Solutions. *Corporate Ownership and Control*, *5*(1), 79–95. https://doi.org/10.22495/cocv5i1p7

Lambrinoudakis, C., Skiadopoulos, G., & Gkionis, K. (2019). Capital structure and financial flexibility: Expectations of future shocks. *Journal of Banking and Finance*, *104*, 1–18. https://doi.org/10.1016/j.jbankfin.2019.03.016

Lamont, O. (1997). Cash flow and investment: Evidence from internal capital markets. *Journal of Finance*, *52*(1), 83–109. https://doi.org/10.1111/j.1540-6261.1997.tb03809.x

Lance, P., & Hattori, A. (2016). *Sampling and Evaluation – A Guide to Sampling for Program Impact Evaluation*. Chapel Hill, North Carolina: University of North Carolina.

Lavrakas, P. (2011). Panel Data Analysis. In *Encyclopedia of Survey Research Methods*. https://doi.org/10.4135/9781412963947

Le Quang, S. (2016). Value of financial flexibility, investment efficiency and adjustment speed of working capital. *World Finance Conference (2016) Annual Meetings*, 1–89. Athens: European Financial Management Association.

Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back to the Beginning : Persistence and the Cross-Section of Corporate Capital Structure. *The Journal of Finance*, *LXIII*(4), 1575–1608.

Lie, E. (2000). Excess Funds and Agency Problems: An Empirical Study of Incremental Cash Disbursements. *Review of Financial Studies*, *13*(1), 219–248. https://doi.org/10.1093/rfs/13.1.219

Lie, E. (2005). Financial flexibility, performance, and corporate payout choice. *Journal of Business*,

78(6), 2179–2203. https://doi.org/10.1086/497043

Linhares, F. S., Da Costa, F. M., & Beiruth, A. X. (2018a). Earnings management and investment efficiency. *Review of Business Management*, *20*(2), 295–310. https://doi.org/10.7819/rbgn.v20i2.3180

Linhares, F. S., Da Costa, F. M., & Beiruth, A. X. (2018b). Gerenciamento de resultados e eficiência de investimentos. *Revista Brasileira de Gestao de Negocios*, *20*(2), 295–310. https://doi.org/10.7819/rbgn.v20i2.3180

Majeed, M. A., Zhang, X., & Umar, M. (2018). Impact of investment efficiency on the cost of equity: evidence from China. *Journal of Asia Business Studies*, *12*(1), 44–59. https://doi.org/10.1108/JABS-09-2015-0163

Mann, S. V. (1989). The Dividend Puzzle : A Progress Report. *Quarterly Journal of Business and Economics*, *28*(3), 3–35.

Marchica, M. T., & Mura, R. (2010). Financial Flexibility, Investment Ability, and Firm Value: Evidence from Firms with Spare Debt Capacity. *Financial Management*, *39*(4), 1339–1365. https://doi.org/10.1111/j.1755-053X.2010.01115.x

Mauboussin, M. J., Callahan, D., & Majd, D. (2016). Capital Allocation: Evidence, Analytical Methods, and Assessment Guidance. In *CREDIT SUISSE Report*.

Meadows, K. A. (2003). So you want to do research? 3. An introduction to qualitative methods. *British Journal of Community Nursing*, *8*(10), 464–469.

Mirkhalili, T. A., & Mahmoudabadi, H. K. (2018). The Effect of Financial Flexibility on Financial Behavior of Companies Listed in Tehran Stock Exchange. *American Journal of Industrial and Business Management*, *08*(01), 143–155. https://doi.org/10.4236/ajibm.2018.81009

Modigliani, F., & Miller, M. H. M. (1963). American Economic Association Corporate Income Taxes and the Cost of Capital : A Correction. *American Economic Review*, *53*(3), 433–443. https://doi.org/10.1126/science.151.3712.867-a

Modugu, K. P. (2013). Capital Structure Decision : An Overview. *Journal of Finance and Bank Management*, *1*(1), 14–27.

Mondosha, M., & Majoni, A. (2018). The impact of leverage on investment decisions for South African

firms with different growth opportunities. *Journal of Economic and Financial Sciences*, *11*(1), 1–7. https://doi.org/10.4102/jef.v11i1.192

Morellec, E. (2001). Asset liquidity, capital structure, and secured debt. *Journal of Financial Economics*, *61*(2), 173–206. https://doi.org/10.1016/S0304-405X(01)00059-9

Mostafa, H. T., & Boregowda, S. (2014). A Brief Review of Capital Structure Theories. *Research Journal of Recent Sciences*, *3*(10), 113–118.

Moyo, V. (2015). DYNAMIC CAPITAL STRUCTURE A DJUSTMENT : WHICH ESTIMATOR YIELDS CONSISTENT AND EFFICIENT ESTIMATES ? *Journal of Economic and Financial Sciences*, *9*(April 2016), 209–227.

Myers, C. (1977). DETERMINANTS OF CORPORATE Stewart C. MYERS. *Journal of Financial Economics*, *5*, 147–175.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, *39*(3), 574–592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x

Myers, S. C. (2001). Capital Structure. *The Journal of Economic Perspectives*, *15*(2), 81–102.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

Naeem, K., & Li, M. C. (2019). Corporate investment efficiency: The role of financial development in firms with financing constraints and agency issues in OECD non-financial firms. *International Review of Financial Analysis*, *62*(August 2018), 53–68. https://doi.org/10.1016/j.irfa.2019.01.003

Nassar, S. (2016). The impact of capital structure on the Financial Performance of the firms : Evidence From Borsa Istanbul. *Business & Financial Affairs*, *5*(2), 5–8. https://doi.org/10.4172/2167-0234.100017

Popov, A., & Barbiero, F. (2018). WORKING PAPER SERIES: Debt overhang and investment efficiency. In *Accounting & Finance* (No. 2213). https://doi.org/10.2866/234067

Rahimi, K., & Mosavi, A. (2016). Value of Financial Flexibility and Firm's Financial Policies: Empirical Evidence from the Firms Listed in Tehran Stock Exchange. *International Journal of Economics and Finance*, *8*(4), 207. https://doi.org/10.5539/ijef.v8n4p207

Rajan, R. G., & Zingales, L. (1995). American Finance Association What Do We Know about Capital Structure ? Some Evidence from International Data. *The Journal of Finance*, *50*(5), 1421–1460. https://doi.org/10.1111/j.1540-6261.1994.tb00086.x

Rapp, M. S., Schmid, T., & Urban, D. (2014). The value of financial flexibility and corporate financial policy. *Journal of Corporate Finance*, *29*, 288–302. https://doi.org/10.1016/j.jcorpfin.2014.08.004

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, *11*(2–3), 159–189. https://doi.org/10.1007/s11142-006-9012-1

Roodman, D. (2009). How to do xtabond2 : An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86–136.

Salim, M., & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *Procedia - Social and Behavioral Sciences*, *65*(ICIBSoS), 156–166. https://doi.org/10.1016/j.sbspro.2012.11.105

Salkind, N. (2010). Encyclopedia of Research Design. In *Choice Reviews Online* (Vol. 48). https://doi.org/10.4135/9781412961288

Samson, S. B., Sprinzen, S., Dubois-Pelerin, E., & Pfeil, K. C. (2006). Corporate Rating Criteria. *Standard&Poor's*, 1–128.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Chapter 4: Understanding the research philosophy and approaches to theory development. In *Research Methods for Business Students* (8th ed., pp. 2–30). United Kingdom: Pearson Education, Inc.

Scharfstein, D. S., & Stein, J. C. (2000). The dark side of internal capital markets: Divisional rent-seeking and inefficient investment. *Journal of Finance*, *55*(6), 2537–2564. https://doi.org/10.1111/0022-1082.00299

Setianto, R. H., & Kumumaputera, A. (2017). Corporate Financial Flexibility, Investment Activities, and Cash Holding : Evidence from Indonesia. *Indonesian Capital Market Review*, *9*(March), 75–85. https://doi.org/10.21002/icmr.v9i2.7470

Shao, L., Kwok, C. C. Y., & Guedhami, O. (2010). National culture and dividend policy. *Journal of International Business Studies*, *41*(8), 1391–1414. https://doi.org/10.1057/jibs.2009.74

Singh, K. (2007). *QUANTITATIVE SOCIAL RESEARCH METHODS*. New Delhi 110 044: SAGE

Publications.

Škrabić Perić, B. (2019). Do the most frequently used dynamic panel data estimators have the best performance in a small sample? A Monte Carlo comparison. *Croatian Operational Research Review*, *10*(1), 45–55. https://doi.org/10.17535/crorr.2019.0005

South African Market Insights. (2019). JSE trading statistics 4 March 2019 - South African Market Insights. Retrieved 19 November 2019, from https://www.southafricanmi.com/jse-trading-stats-4mar2019.html

Stulz, R. M. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, *26*(1), 3–27. https://doi.org/10.1016/0304-405X(90)90011-N

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management (IJARM)*, *5*(September), 18–27. https://doi.org/10.2139/ssrn.3205035

Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: what it is and what it could be. *Theory and Society*, *48*(2), 193–216. https://doi.org/10.1007/s11186-019-09345-5

Tongco, M. D. C. (2007). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research and Applications*, *5*, 147. https://doi.org/10.17348/era.5.0.147-158

Vogt, S.C. (1994). The Cash Flow/Investment Relationship: Evidence from U.S. Manufacturing Firms. *Financial Management*, *23*(2), 3–20.

Wang, G. c. s., & Akabay, C. K. (1994). Autocorrelation: Problems and solutions in regression modelling. *The Journal of Business Forecasting*, (Summer,1994-95), 18–26.

Weaving, D., Jones, B., Ireton, M., Whitehead, S., Till, K., & Beggs, C. B. (2019). Overcoming the problem of multicollinearity in sports performance data: A novel application of partial least squares correlation analysis. *PLoS ONE*, *14*(2), 1–17. https://doi.org/10.1371/journal.pone.0211776

Whited, T. M. (1992). American Finance Association Debt, Liquidity Constraints, and Corporate Investment : Evidence from Panel Data. *The Journal of Finance*, *47*(4), 1425–1460.

Williams, C. (2007). Research Methods. *Journal of Business & Economic Research*, *5*(3), 65–72.

Winit-Watjana, W. (2016). Research philosophy in pharmacy practice: necessity and relevance.

International Journal of Pharmacy Practice, *24*(6), 428–436. https://doi.org/10.1111/ijpp.12281

Wooldridge. (2010). *Econometric Analysis of Cross Section and Panel Data.* Cambridge, Massachusetts: The MIT Press.

World Federation of Exchange. (2019). Membership & Events | The World Federation of Exchanges. Retrieved from https://www.world-exchanges.org/membership-events#member-list

Wurgler, J. (2000). Financial markets and the allocation of capital. *Journal of Financial Economics 5*, *58*(5), 187–214.

Xu, J. (2012). Profitability and capital structure: Evidence from import penetration. *Journal of Financial Economics*, *106*(2), 427–446. https://doi.org/10.1016/j.jfineco.2012.05.015

Yensu, J., & Adusei, C. (2016). Dividend Policy Decision across African Countries. *International Journal of Economics and Finance*, *8*(6), 63. https://doi.org/10.5539/ijef.v8n6p63

Yung, K., Li, D. D., & Jian, Y. (2015). The value of corporate financial flexibility in emerging countries. *Journal of Multinational Financial Management*, *32–33*, 25–41. https://doi.org/10.1016/j.mulfin.2015.07.001

Zeng, S., Hu, M., & Su, B. (2016). Research on Investment Efficiency and Policy Recommendations for the Culture Industry of China Based on a Three-Stage DEA. *Sustainability*, *8*(4), 324. https://doi.org/10.3390/su8040324

Zhang, M., Zhang, W., & Zhang, S. (2016). National culture and firm investment efficiency: international evidence. *Asia-Pacific Journal of Accounting & Economics*, *23*(1), 1–21. https://doi.org/10.1080/16081625.2015.1027714

Zou, H., & Adams, M. B. (2008). Debt Capacity, Cost of Debt, and Corporate Insurance. *Journal of Financial and Quantitative Analysis*, *43*(2), 433–466. https://doi.org/10.1017/s0022109000003586

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and Paradigm of Scientific Research. In *Management Culture and Corporate Social Responsibility* (p. 29). https://doi.org/10.5772/intechopen.70628

Abdulkadir, R. I., Abdurraheem, A. A., & Siyanbola, A. A. (2017). Financial flexibility and dividend payout: Evidence from the Nigerian financial sector. *Osogbo Journal of*

Management, *2*(3), 9–17.

Abel, A. B. (1983). Optimal investment under uncertainty. *American Economic Review*, *73*(1), 228–233.

Abiad, A., Oomes, N., & Ueda, K. (2008). The quality effect: Does financial liberalization improve the allocation of capital? *Journal of Development Economics*, *87*(2), 270–282. https://doi.org/10.1016/j.jdeveco.2007.12.002

Agha, M., & Faff, R. (2014). An investigation of the asymmetric link between credit re-ratings and corporate financial decisions: 'Flicking the switch' with financial flexibility. *Journal of Corporate Finance*, *29*, 37–57. https://doi.org/10.1016/j.jcorpfin.2014.08.003

Aivazian, V. A., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of Corporate Finance*, *11*(1–2), 277–291. https://doi.org/10.1016/S0929-1199(03)00062-2

Ajide, F. M. (2017). Firm-specific, and institutional determinants of corporate investments in Nigeria. *Future Business Journal*, *3*(2), 107–118. https://doi.org/10.1016/j.fbj.2017.05.002

Aktas, N., Andreou, P. C., Karasamani, I., & Philip, D. (2019). CEO Duality, Agency Costs, and Internal Capital Allocation Efficiency. *British Journal of Management*, *30*(2), 473–493. https://doi.org/10.1111/1467-8551.12277

Alauddin, M., & Nghiemb, H. S. (2010). Do Instructional Attributes pose Multicollinearity Problems? An Empirical Exploration. *Economic Analysis and Policy*, *40*(3), 351–361. https://doi.org/10.1016/S0313-5926(10)50034-1

Almeida, H., Campello, M., & Weisbach, M. S. (2004). The Cash Flow Sensitivity of Cash. *The Journal of Finance*, *59*(4), 1777–1804.

Amakiri, D.-S., & Gift Juliet, E. (2018). ONTOLOGICAL & EPISTEMOLOGICAL PHILOSOPHIES UNDERLYING THEORY BUILDING: A SCHOLARLY DILEMMA OR AXIOMATIC ILLUMINATION- THE BUSINESS RESEARCH PERSPECTIVE. *European Journal of Business and Innovation Research*, *6*(2), 1–7.

Arslan-Ayaydin, Ö., Florackis, C., & Ozkan, A. (2014). Financial flexibility, corporate investment and performance: Evidence from financial crises. *Review of Quantitative*

Finance and Accounting, *42*(2), 211–250. https://doi.org/10.1007/s11156-012-0340-x

Aspers, P., & Corte, U. (2019). What is Qualitative in Qualitative Research. *Qualitative Sociology*, *42*(2), 139–160. https://doi.org/10.1007/s11133-019-9413-7

Baker, H. K., Mukherjee, T. K., & Powell, G. E. (2005). Distributing Excess Cash: The Role of Specially Designated Dividends. *Financial Services Review*, *14*(2), 111–131.

Bancel, F., & Mittoo, U. R. (2004). The Determinants of Capital Structure Choice: A Survey of European Firms. *Financial Management*, *33*(4), 103–132.

Bancel, F., & Mittoo, U. R. (2011). Financial flexibility and the impact of the global financial crisis: Evidence from France. *International Journal of Managerial Finance*, *7*(2), 179–216. https://doi.org/10.1108/17439131111122157

Barclay, M. J., & Smith, C. W. (1988). Corporate payout policy. Cash Dividends versus Open-Market Repurchases. *Journal of Financial Economics*, *22*(1), 61–82. https://doi.org/10.1016/0304-405X(88)90022-0

Barclay, M. J., & Smith, C. W. (2005). The Capital Structure Puzzle: The Evidence Revisited. *Journal of Applied Corporate Finance*, *17*(1), 8–17. https://doi.org/10.1111/j.1745-6622.2005.012_2.x

Bell, A., Fairbrother, M., & Jones, K. (2019). Fixed and random effects models: making an informed choice. *Quality and Quantity*, *53*(2), 1051–1074. https://doi.org/10.1007/s11135-018-0802-x

Benlemlih, M., & Bitar, M. (2018). Corporate Social Responsibility and Investment Efficiency. *Journal of Business Ethics*, *148*(3), 647–671. https://doi.org/10.1007/s10551-016-3020-2

Benmelech, E., & Bergman, N. K. (2009). Collateral pricing☆. *Journal of Financial Economics*, *91*(3), 339–360. https://doi.org/10.1016/j.jfineco.2008.03.003

Biddle, G. C., & Hilary, G. (2006). Accounting quality and firm-level capital investment. *Accounting Review*, *81*(5), 963–982. https://doi.org/10.2308/accr.2006.81.5.963

Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, *48*(2–3), 112–131. https://doi.org/10.1016/j.jacceco.2009.09.001

Black, F. (1976). The Dividend Puzzle. *The Journal of Portfolio Management*, *2*(2), 5–8. https://doi.org/10.3905/jpm.1976.408558

Blau, B. M., & Fuller, K. P. (2008). Flexibility and dividends. *Journal of Corporate Finance*, *14*(2), 133–152. https://doi.org/10.1016/j.jcorpfin.2008.02.003

Bliss, B. A., Cheng, Y., & Denis, D. J. (2015). Corporate payout, cash retention, and the supply of credit: Evidence from the 2008-2009 credit crisis. *Journal of Financial Economics*, *115*(3), 521–540. https://doi.org/10.1016/j.jfineco.2014.10.013

Boguszewski, P., & Lissowska, M. (2012). The problem of choice of leverage: Example of Polish firms. *Journal of Business Management*, *2012*(6), 28–40.

Bouchani, Z., & Ghanbari, M. (2015). The relation between financial flexibility and financial performance with the ratio of book value to market value in Tehran listed firms. *JournalofScientificResearchand Development*, *2*(2), 216–222.

Byoun, S. (2016). The Effects of Financial Flexibility Demand on Corporate Financial Decisions. *SSRN Electronic Journal*, *1*(254). https://doi.org/10.2139/ssrn.2817972

Campello, M., & Graham, J. R. (2013). Do stock prices influence corporate decisions? Evidence from the technology bubble. *Journal of Financial Economics*, *107*(1), 89–110. https://doi.org/10.1016/j.jfineco.2012.08.002

Castro, P., Teresa, M., Fernández, T., Amor-Tapia, B., & Miguel, A. De. (2016). Target leverage and speed of adjustment along the life cycle of European listed firms. *Business Research Quarterly*, *19*, 188–205.

Chan, R. S. Y., Song, B. Y., & Fan, L. (2018). Dividend Policy and Investment Efficiency -- The Changes of the Mandatory Dividends Payment. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2715220

Charalambakis, E. C., & Psychoyios, D. (2012). What do we know about capital structure? Revisiting the impact of debt ratios on some firm-specific factors. *Applied Financial Economics*, *22*(20), 1727–1742. https://doi.org/10.1080/09603107.2012.676733

Chen, R., El Ghoul, S., Guedhami, O., & Wang, H. (2017). Do state and foreign ownership affect investment efficiency? Evidence from privatizations. *Journal of Corporate Finance*, *42*,

408–421. https://doi.org/10.1016/j.jcorpfin.2014.09.001

Chen, T., Xie, L., & Zhang, Y. (2017). How does analysts' forecast quality relate to corporate investment efficiency? *Journal of Corporate Finance*, *43*, 217–240. https://doi.org/10.1016/j.jcorpfin.2016.12.010

Chen, Z., Harford, J., & Kamara, A. (2019). Operating Leverage, Profitability, and Capital Structure. *Journal of Financial and Quantitative Analysis*, *54*(1), 369–392. https://doi.org/10.1017/S0022109018000595

Cheng, Z., Cullinan, C. P., & Zhang, X. (2014). *Free Cash Flow, Growth Opportunities, And Dividends : Does Cross-Listing of Shares Matter? 30*(2), 587–598.

Cherkasova, V., & Kuzmin, E. (2018). Financial flexibility as an investment efficiency factor in Asian companies. *Gadjah Mada International Journal of Business*, *20*(2), 137–164. https://doi.org/10.22146/gamaijb.26239

Creswell, J. (2014). *Research Design in Qualitative and Quantitative Methods* (4th ed.; V. Knight, Ed.). Lincoln: SAGE Publications, Inc.

Dalci, I., & Ozyapici, H. (2018). Working capital management policy in health care: The effect of leverage. *Health Policy*, *122*(11), 1266–1272. https://doi.org/10.1016/j.healthpol.2018.09.012

De Jong, A., Verbeek, M., & Verwijmeren, P. (2012). DOES FINANCIAL FLEXIBILITY REDUCE INVESTMENT DISTORTIONS? *Journal of Financial Research*, *35*(2), 243–259. https://doi.org/10.1111/j.1475-6803.2012.01316.x

DeAngelo, H., & DeAngelo, L. (2007). *Capital Structure, Payout Policy, and Financial Flexibility*. 1–24.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics*, *81*(2), 227–254. https://doi.org/10.1016/j.jfineco.2005.07.005

Denis, D. J. (2011). Financial flexibility and corporate liquidity. *Journal of Corporate Finance*, *17*(3), 667–674. https://doi.org/10.1016/j.jcorpfin.2011.03.006

Denis, D. J., & McKeon, S. B. (2012). Debt financing and financial flexibility evidence from

proactive leverage increases. *Review of Financial Studies*, *25*(6), 1897–1929. https://doi.org/10.1093/rfs/hhs005

Dittmar, A. K. (2000). Why Do Firms Repurchase Stock? *The Journal of Business*, *73*(3), 331–355. https://doi.org/10.1086/209646

Dougherty, C. (2011). *Introduction to Econometrics* (Fourth). New York: Oxford University Press.

Dwivedi, Y., & Subba Rao, S. (2011). A test for second-order stationarity of a time series based on the discrete Fourier transform. *Journal of Time Series Analysis*, *32*(1), 68–91. https://doi.org/10.1111/j.1467-9892.2010.00685.x

Easterbrook, F. H. (1984). Two Agency-Cost Explanations of Dividends. *The American Economic Review*, *74*(4), 650–659.

Eisdorfer, A., Giaccotto, C., & White, R. (2013). Capital structure, executive compensation, and investment efficiency. *Journal of Banking and Finance*, *37*(2), 549–562. https://doi.org/10.1016/j.jbankfin.2012.09.011

Elsas, R., & Florysiak, D. (2011). Heterogeneity in the Speed of Adjustment toward Target Leverage. *International Review of Finance*, *11*(2), 181–211. https://doi.org/10.1111/j.1468-2443.2011.01130.x

Elsas, R., & Florysiak, D. (2015). Dynamic Capital Structure Adjustment and the Impact of Fractional Dependent Variables. *Journal of Financial and Quantitative Analysis*, *50*(5), 1105–1133. https://doi.org/10.1017/S0022109015000496

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3–56. https://doi.org/10.1016/0304-405X(93)90023-5

Fama, E. F., & French, K. R. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, *60*(1), 3–43. https://doi.org/10.1016/S0304-405X(01)00038-1

Ferrando, A., Marchica, M. T., & Mura, R. (2017). Financial Flexibility and Investment Ability Across the Euro Area and the UK. *European Financial Management*, *23*(1), 87–126.

https://doi.org/10.1111/eufm.12091

Fouka, G., & Mantzorou, M. (2011). What are the major ethical issues in conducting research? is there a conflict between the research ethics and the nature of nursing? *Health Science Journal*, *5*(1), 3–14.

Frank, M. Z., & Goyal, V. K. (2009). Capital Structure Decisions around the World: Which Factors Are Reliably Important? *Financial Management*, *50*(3), 1–37.

Frank, M. Z., & Goyal, V. K. (2015). The profits-leverage puzzle revisited. *Review of Finance*, *19*(4), 1415–1453. https://doi.org/10.1093/rof/rfu032

Frels, R. K., & Onwuegbuzie, A. J. (2013). Administering quantitative instruments with qualitative interviews: A mixed research approach. *Journal of Counseling and Development*, *91*(2), 184–194. https://doi.org/10.1002/j.1556-6676.2013.00085.x

Galindo, A., Schiantarelli, F., & Weiss, A. (2007). Does financial liberalization improve the allocation of investment?. Micro-evidence from developing countries. *Journal of Development Economics*, *83*(2), 562–587. https://doi.org/10.1016/j.jdeveco.2005.09.008

Gamba, A., & Triantis, A. (2008). The value of financial flexibility. *Journal of Finance*, *63*(5), 2263–2296. https://doi.org/10.1111/j.1540-6261.2008.01397.x

Gao, R., & Yu, X. (2018). How to measure capital investment efficiency: A literature synthesis. *Accounting and Finance*, (1998). https://doi.org/10.1111/acfi.12343

García Lara, J. M., García Osma, B., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, *61*(1), 221–238. https://doi.org/10.1016/j.jacceco.2015.07.003

González, F. (2018). Creditor rights, financial health, and corporate investment efficiency. *North American Journal of Economics and Finance*, (February), 1–22. https://doi.org/10.1016/j.najef.2018.11.002

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, *60*(2–3), 187–243. https://doi.org/10.1016/S0304-405X(01)00044-7

Greene, W. H. (2008). ECONOMETRIC ANALYSIS. In D. Alexander (Ed.), *Production* (6th

ed.). New Jersey 07458: Pearson Education, Inc.

Grullon, G., Michaely, R., & Swaminathan, B. (2002). Are Dividend Changes a Sign of Firm Maturity? *Journal of Business*, *75*(3), 387–424. https://doi.org/10.1086/339889

Ha, J. (2019). Agency costs of free cash flow and conditional conservatism. *Advances in Accounting*, *46*(100417), 1–17. https://doi.org/10.1016/j.adiac.2019.04.002

Hall, T. W. (2012). The collateral channel: Evidence on leverage and asset tangibility. *Journal of Corporate Finance*, *18*(3), 570–583. https://doi.org/10.1016/j.jcorpfin.2011.12.003

Hansen, R. S., Kumar, R., & Shome, D. K. (1994). Dividend Policy and Corporate Monitoring : Evidence from the. *Financial Management*, *23*(1), 16–22.

Harris, M., & Raviv, A. (1990). Capital Structure and the Informational Role of Debt. *The Journal of Finance*, *45*(2), 321–349. https://doi.org/10.1111/j.1540-6261.1990.tb03693.x

Harris, M., & Raviv, A. (1991). The Theory of Capital Structure. *The Journal of Finance*, *1*(1), 297–355.

Hayashi, F. (1982). Tobin ' s Marginal q and Average q : A Neoclassical Interpretation. *Econometrica*, *50*(1), 213–224.

He, Y., Chen, C., & Hu, Y. (2019). Managerial overconfidence, internal financing, and investment efficiency: Evidence from China. *Research in International Business and Finance*, *47*(August 2018), 501–510. https://doi.org/10.1016/j.ribaf.2018.09.010

Hennessy, C. A., & Whited, T. M. (2007). How Costly Is External Financing ? Evidence from a Structural Estimation. *Journal of Finance*, *62*(4), 1705–1745.

Holder, M. E., Langrehr, F. W., & Hexter, J. L. (1998). Dividend Policy Determinants: An Investigation of the Influences of Stakeholder Theory. *Financial Management*, *27*(3), 73. https://doi.org/10.2307/3666276

Hovakimian, G. (2011). Financial constraints and investment efficiency: Internal capital allocation across the business cycle. *Journal of Financial Intermediation*, *20*(2), 264–283. https://doi.org/10.1016/j.jfi.2010.07.001

Hunter, J. E., & Schmidt, F. L. (2000). Fixed Effects vs. Random Effects Meta-Analysis Models:

Implications for Cumulative Research Knowledge. *International Journal of Selection and Assessment*, *8*(4), 275–292. https://doi.org/10.1111/1468-2389.00156

Iturriaga, F. J. L., & Crisóstomo, V. L. (2010). Do leverage, dividend payout, and ownership concentration influence firms' value creation? an analysis of Brazilian firms. *Emerging Markets Finance and Trade*, *46*(3), 80–94. https://doi.org/10.2753/REE1540-496X460306

Iyer, S. R., Feng, H., & Rao, R. P. (2017). Payout flexibility and capital expenditure. *Review of Quantitative Finance and Accounting*, *49*(3), 633–659. https://doi.org/10.1007/s11156-016-0603-z

Jaisinghani, D., & Kanjilal, K. (2017). Non-linear dynamics of size, capital structure and profitability: Empirical evidence from Indian manufacturing sector. *Asia Pacific Management Review*, *22*(3), 159–165. https://doi.org/10.1016/j.apmrv.2016.12.003

Jensen, C., & Meckling, H. (1976). THEORY OF THE FIRM : MANAGERIAL BEHAVIOR, AGENCY COSTS AND OWNERSHIP STRUCTURE. *Journal of Financial Economics*, *3*(1976), 305–360.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economic Review*, *76*(2), 323–329.

Jensen, M. C. (1987). The Free Cash Flow Theory of Takeovers: A Financial Perspective on Mergers and Acquisitions and the Economy. *Conference Series Proceeding [31]*, 104–148.

Jermias, J., & Yigit, F. (2019). Factors affecting leverage during a financial crisis: Evidence from Turkey. *Borsa Istanbul Review*, *19*(2), 171–185. https://doi.org/10.1016/j.bir.2018.07.002

JSE. (2018). Enhanced ICB Structure. Retrieved from JSE Limited Reg No: 2005/022939/06 Member of the World Federation of Exchanges website: https://www.jse.co.za/content/JSEICANoticeItems/2015/FTSE-JSE-Africa/20180416 Market Note Changes to ICB and SA Sector Indices.pdf

JSE. (2020a). Find an Equity Issuer. Retrieved 31 March 2020, from https://www.jse.co.za/current-companies/companies-and-financial-instruments

JSE. (2020b). Small, medium and large caps. Retrieved 16 September 2020, from https://www.jse.co.za/grow-my-wealth/small-medium-and-large-caps

Karp, A., & Van Vuuren, G. (2017). *The Capital Asset Pricing Model And Fama-French Three Factor Model In An Emerging Market Environment*. *16*(3), 231–256.

Khan, M. K., He, Y., Akram, U., & Sarwar, S. (2017). Financing and monitoring in an emerging economy: Can investment efficiency be increased? *China Economic Review*, *45*(May), 62–77. https://doi.org/10.1016/j.chieco.2017.05.012

Kingwara, R. (2015). The Relationship between Financial Flexibility and Dividend Payouts : A Case of Listed Firms in Kenya. *European Journal of Business and Management*, *7*(3), 51–59.

Kisgen, D. J. (2006). Credit ratings and capital structure. *Journal of Finance*, *61*(3), 1035–1072. https://doi.org/10.1111/j.1540-6261.2006.00866.x

Kivunja, A. C., Ahmed, A., & Kuyini, B. (2017). *Understanding and Applying Research Paradigms in Educational Contexts*. *6*(5), 26–41. https://doi.org/10.5430/ijhe.v6n5p26

Kothari, C. R. (2004). *Research Methodology* (SECOND REV). New Delhi-110 002: NEW AGE INTERNATIONAL (P) LIMITED, PUBLISHERS.

Kothari, C. R., & Garg, G. (2014). *RESEARCH METHODOLOGY: Methods and Techniques* (3rd ed.). New Delhi-110 002: New Age International (P) Limited New Age International (P) Limited.

Kothari, S. P., Ramanna, K., & Skinner, D. J. (2010). <Kothariramanna&Skinner(2010).Pdf>. *Journal of Accounting and Economics*, *50*(2–3), 246–286. https://doi.org/10.1016/j.jacceco.2010.09.003

Kumar, R. (2011). *RESEARCH METHODOLOGY* (3rd ed.). New Delhi: SAGE Publications India Pvt Ltd.

La Rocca, M., La Rocca, T., & Cariola, A. (2007). Overinvestment and Underinvestment Problems: Determining Factors, Consequences and Solutions. *Corporate Ownership and Control*, *5*(1), 79–95. https://doi.org/10.22495/cocv5i1p7

Lambrinoudakis, C., Skiadopoulos, G., & Gkionis, K. (2019). Capital structure and financial flexibility: Expectations of future shocks. *Journal of Banking and Finance*, *104*, 1–18. https://doi.org/10.1016/j.jbankfin.2019.03.016

Lamont, O. (1997). Cash flow and investment: Evidence from internal capital markets. *Journal of Finance*, *52*(1), 83–109. https://doi.org/10.1111/j.1540-6261.1997.tb03809.x

Lance, P., & Hattori, A. (2016). *Sampling and Evaluation – A Guide to Sampling for Program Impact Evaluation*. Chapel Hill, North Carolina: University of North Carolina.

Lavrakas, P. (2011). Panel Data Analysis. In *Encyclopedia of Survey Research Methods*. https://doi.org/10.4135/9781412963947

Le Quang, S. (2016). Value of financial flexibility, investment efficiency and adjustment speed of working capital. *World Finance Conference (2016) Annual Meetings*, 1–89. Athens: European Financial Management Association.

Lemmon, M. L., Roberts, M. R., & Zender, J. F. (2008). Back to the Beginning : Persistence and the Cross-Section of Corporate Capital Structure. *The Journal of Finance*, *LXIII*(4), 1575–1608.

Lie, E. (2000). Excess Funds and Agency Problems: An Empirical Study of Incremental Cash Disbursements. *Review of Financial Studies*, *13*(1), 219–248. https://doi.org/10.1093/rfs/13.1.219

Lie, E. (2005). Financial flexibility, performance, and corporate payout choice. *Journal of Business*, *78*(6), 2179–2203. https://doi.org/10.1086/497043

Linhares, F. S., Da Costa, F. M., & Beiruth, A. X. (2018a). Earnings management and investment efficiency. *Review of Business Management*, *20*(2), 295–310. https://doi.org/10.7819/rbgn.v20i2.3180

Linhares, F. S., Da Costa, F. M., & Beiruth, A. X. (2018b). Gerenciamento de resultados e eficiência de investimentos. *Revista Brasileira de Gestao de Negocios*, *20*(2), 295–310. https://doi.org/10.7819/rbgn.v20i2.3180

Majeed, M. A., Zhang, X., & Umar, M. (2018). Impact of investment efficiency on the cost of equity: evidence from China. *Journal of Asia Business Studies*, *12*(1), 44–59. https://doi.org/10.1108/JABS-09-2015-0163

Mann, S. V. (1989). The Dividend Puzzle : A Progress Report. *Quarterly Journal of Business and Economics*, *28*(3), 3–35.

Marchica, M. T., & Mura, R. (2010). Financial Flexibility, Investment Ability, and Firm Value: Evidence from Firms with Spare Debt Capacity. *Financial Management*, *39*(4), 1339–1365. https://doi.org/10.1111/j.1755-053X.2010.01115.x

Mauboussin, M. J., Callahan, D., & Majd, D. (2016). Capital Allocation: Evidence, Analytical Methods, and Assessment Guidance. In *CREDIT SUISSE Report*.

Meadows, K. A. (2003). So you want to do research? 3. An introduction to qualitative methods. *British Journal of Community Nursing*, *8*(10), 464–469.

Mirkhalili, T. A., & Mahmoudabadi, H. K. (2018). The Effect of Financial Flexibility on Financial Behavior of Companies Listed in Tehran Stock Exchange. *American Journal of Industrial and Business Management*, *08*(01), 143–155. https://doi.org/10.4236/ajibm.2018.81009

Modigliani, F., & Miller, M. H. M. (1963). American Economic Association Corporate Income Taxes and the Cost of Capital : A Correction. *American Economic Review*, *53*(3), 433–443. https://doi.org/10.1126/science.151.3712.867-a

Modugu, K. P. (2013). Capital Structure Decision : An Overview. *Journal of Finance and Bank Management*, *1*(1), 14–27.

Mondosha, M., & Majoni, A. (2018). The impact of leverage on investment decisions for South African firms with different growth opportunities. *Journal of Economic and Financial Sciences*, *11*(1), 1–7. https://doi.org/10.4102/jef.v11i1.192

Morellec, E. (2001). Asset liquidity, capital structure, and secured debt. *Journal of Financial Economics*, *61*(2), 173–206. https://doi.org/10.1016/S0304-405X(01)00059-9

Mostafa, H. T., & Boregowda, S. (2014). A Brief Review of Capital Structure Theories. *Research Journal of Recent Sciences*, *3*(10), 113–118.

Moyo, V. (2015). DYNAMIC CAPITAL STRUCTURE A DJUSTMENT : WHICH ESTIMATOR YIELDS CONSISTENT AND EFFICIENT ESTIMATES ? *Journal of Economic and Financial Sciences*, *9*(April 2016), 209–227.

Myers, C. (1977). DETERMINANTS OF CORPORATE Stewart C. MYERS. *Journal of Financial Economics*, *5*, 147–175.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, *39*(3), 574–592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x

Myers, S. C. (2001). Capital Structure. *The Journal of Economic Perspectives*, *15*(2), 81–102.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

Naeem, K., & Li, M. C. (2019). Corporate investment efficiency: The role of financial development in firms with financing constraints and agency issues in OECD non-financial firms. *International Review of Financial Analysis*, *62*(August 2018), 53–68. https://doi.org/10.1016/j.irfa.2019.01.003

Nassar, S. (2016). The impact of capital structure on the Financial Performance of the firms : Evidence From Borsa Istanbul. *Business & Financial Affairs*, *5*(2), 5–8. https://doi.org/10.4172/2167-0234.100017

Popov, A., & Barbiero, F. (2018). WORKING PAPER SERIES: Debt overhang and investment efficiency. In *Accounting & Finance* (No. 2213). https://doi.org/10.2866/234067

Rahimi, K., & Mosavi, A. (2016). Value of Financial Flexibility and Firm's Financial Policies: Empirical Evidence from the Firms Listed in Tehran Stock Exchange. *International Journal of Economics and Finance*, *8*(4), 207. https://doi.org/10.5539/ijef.v8n4p207

Rajan, R. G., & Zingales, L. (1995). American Finance Association What Do We Know about Capital Structure ? Some Evidence from International Data. *The Journal of Finance*, *50*(5), 1421–1460. https://doi.org/10.1111/j.1540-6261.1994.tb00086.x

Rapp, M. S., Schmid, T., & Urban, D. (2014). The value of financial flexibility and corporate financial policy. *Journal of Corporate Finance*, *29*, 288–302. https://doi.org/10.1016/j.jcorpfin.2014.08.004

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, *11*(2–3), 159–189. https://doi.org/10.1007/s11142-006-9012-1

Roodman, D. (2009). How to do xtabond2 : An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86–136.

Salim, M., & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *Procedia - Social and Behavioral Sciences*, *65*(ICIBSoS), 156–166. https://doi.org/10.1016/j.sbspro.2012.11.105

Salkind, N. (2010). Encyclopedia of Research Design. In *Choice Reviews Online* (Vol. 48). https://doi.org/10.4135/9781412961288

Samson, S. B., Sprinzen, S., Dubois-Pelerin, E., & Pfeil, K. C. (2006). Corporate Rating Criteria. *Standard&Poor's*, 1–128.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Chapter 4: Understanding the research philosophy and approaches to theory development. In *Research Methods for Business Students* (8th ed., pp. 2–30). United Kingdom: Pearson Education, Inc.

Scharfstein, D. S., & Stein, J. C. (2000). The dark side of internal capital markets: Divisional rent-seeking and inefficient investment. *Journal of Finance*, *55*(6), 2537–2564. https://doi.org/10.1111/0022-1082.00299

Setianto, R. H., & Kumumaputera, A. (2017). Corporate Financial Flexibility, Investment Activities, and Cash Holding : Evidence from Indonesia. *Indonesian Capital Market Review*, *9*(March), 75–85. https://doi.org/10.21002/icmr.v9i2.7470

Shao, L., Kwok, C. C. Y., & Guedhami, O. (2010). National culture and dividend policy. *Journal of International Business Studies*, *41*(8), 1391–1414. https://doi.org/10.1057/jibs.2009.74

Singh, K. (2007). *QUANTITATIVE SOCIAL RESEARCH METHODS*. New Delhi 110 044: SAGE Publications.

Škrabić Perić, B. (2019). Do the most frequently used dynamic panel data estimators have the best performance in a small sample? A Monte Carlo comparison. *Croatian Operational Research Review*, *10*(1), 45–55. https://doi.org/10.17535/crorr.2019.0005

South African Market Insights. (2019). JSE trading statistics 4 March 2019 - South African Market Insights. Retrieved 19 November 2019, from https://www.southafricanmi.com/jse-trading-stats-4mar2019.html

Stulz, R. M. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, *26*(1), 3–27. https://doi.org/10.1016/0304-405X(90)90011-N

Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management (IJARM)*, *5*(September), 18–27. https://doi.org/10.2139/ssrn.3205035

Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: what it is and what it could be. *Theory and Society*, *48*(2), 193–216. https://doi.org/10.1007/s11186-019-09345-5

Tongco, M. D. C. (2007). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research and Applications*, *5*, 147. https://doi.org/10.17348/era.5.0.147-158

Vogt, S.C. (1994). The Cash Flow/Investment Relationship: Evidence from U.S. Manufacturing Firms. *Financial Management*, *23*(2), 3–20.

Wang, G. c. s., & Akabay, C. K. (1994). Autocorrelation: Problems and solutions in regression modelling. *The Journal of Business Forecasting*, (Summer,1994-95), 18–26.

Weaving, D., Jones, B., Ireton, M., Whitehead, S., Till, K., & Beggs, C. B. (2019). Overcoming the problem of multicollinearity in sports performance data: A novel application of partial least squares correlation analysis. *PLoS ONE*, *14*(2), 1–17. https://doi.org/10.1371/journal.pone.0211776

Whited, T. M. (1992). American Finance Association Debt, Liquidity Constraints, and Corporate Investment : Evidence from Panel Data. *The Journal of Finance*, *47*(4), 1425–1460.

Williams, C. (2007). Research Methods. *Journal of Business & Economic Research*, *5*(3), 65–72.

Winit-Watjana, W. (2016). Research philosophy in pharmacy practice: necessity and relevance. *International Journal of Pharmacy Practice*, *24*(6), 428–436. https://doi.org/10.1111/ijpp.12281

Wooldridge. (2010). *Econometric Analysis of Cross Section and Panel Data.* Cambridge, Massachusetts: The MIT Press.

World Federation of Exchange. (2019). Membership & Events | The World Federation of Exchanges. Retrieved from https://www.world-exchanges.org/membership-events#member-list

Wurgler, J. (2000). Financial markets and the allocation of capital. *Journal of Financial Economics 5*, *58*(5), 187–214.

Xu, J. (2012). Profitability and capital structure: Evidence from import penetration. *Journal of Financial Economics*, *106*(2), 427–446. https://doi.org/10.1016/j.jfineco.2012.05.015

Yensu, J., & Adusei, C. (2016). Dividend Policy Decision across African Countries. *International Journal of Economics and Finance*, *8*(6), 63. https://doi.org/10.5539/ijef.v8n6p63

Yung, K., Li, D. D., & Jian, Y. (2015). The value of corporate financial flexibility in emerging countries. *Journal of Multinational Financial Management*, *32–33*, 25–41. https://doi.org/10.1016/j.mulfin.2015.07.001

Zeng, S., Hu, M., & Su, B. (2016). Research on Investment Efficiency and Policy Recommendations for the Culture Industry of China Based on a Three-Stage DEA. *Sustainability*, *8*(4), 324. https://doi.org/10.3390/su8040324

Zhang, M., Zhang, W., & Zhang, S. (2016). National culture and firm investment efficiency: international evidence. *Asia-Pacific Journal of Accounting & Economics*, *23*(1), 1–21. https://doi.org/10.1080/16081625.2015.1027714

Zou, H., & Adams, M. B. (2008). Debt Capacity, Cost of Debt, and Corporate Insurance. *Journal of Financial and Quantitative Analysis*, *43*(2), 433–466. https://doi.org/10.1017/s0022109000003586

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and Paradigm of Scientific Research. In *Management Culture and Corporate Social Responsibility* (p. 29). https://doi.org/10.5772/intechopen.70628

Appendix 1: Table 4.2: Summary statistics for Large Cap firms

Variable	Obs	Mean	Std. Dev.	Min	Max
Investment (Inv)	857	0.08512	0.08617	-0.29119	1.12869
Tobin's Q (firm growth) (MTB)	857	1.44352	0.98815	0.00000	8.53264
Leverage (MDR)	857	0.20777	0.22077	0.00000	1.89944
Cash (Cash and cash equivalents)	857	0.10062	0.07292	0.00000	0.44228
Returns (return)	857	0.16029	0.56279	-2.17232	7.26358
Firm Age (Age)	857	37.20537	25.35357	1.00000	109.00000
Firm Size (Size)	857	16.76971	1.59260	0.00000	21.28634
Sales Growth(Sales growth)	857	0.12651	0.29321	-2.43428	3.50554
Retained earnings (Ret)	857	0.30829	0.24503	-1.31287	1.15708
Firm profitability (Prof)	857	0.12412	0.12246	-0.89370	1.30702
Payout (Actual dividend paid)	857	0.04367	0.05162	0.00000	0.38977
Finance cost (Fincost)	857	0.01799	0.01458	0.00000	0.10270
Asset tangibility (Tang)	857	0.91961	0.16408	0.00000	4.36105
Industry Leverage (IndLev)	857	0.21675	0.09644	0.00000	0.60190
Inflation	857	0.05700	0.02392	0.00000	0.13400

Appendix 2: Table 4.3: Summary statistics for Medium Cap firms

Variable	Obs	Mean	Std. Dev.	Min	Max
Investment (Inv)	714	0.078678	0.113242	-0.69679	0.995987
Tobin's Q (firm growth) (MTB)	714	1.124135	0.787154	0.002709	6.070387
Leverage (MDR)	714	0.208883	0.212761	0	1
Cash (Cash and cash equivalents)	714	0.138805	0.112365	0	0.894482
Returns (return)	714	0.101757	0.547299	-8.18502	4.57321
Firm Age (Age)	714	27.83613	23.53505	1	124
Firm Size (Size)	714	14.6945	1.57062	9.224834	18.07241
Sales Growth(Sales growth)	714	0.156163	0.496014	-4.30389	8.131618
Retained earnings (Ret)	714	0.24565	0.397075	-2.47681	0.817778
Firm profitability (Prof)	714	0.109512	0.134993	-0.97452	0.624592
Payout (Actual dividend paid)	714	0.034727	0.051812	-0.00014	0.675846
Finance cost (Fincost)	714	0.019774	0.024382	0	0.307015
Asset tangibility (Tang)	714	0.899342	0.144687	0.334063	1
Industry Leverage (IndLev)	714	0.222656	0.097469	0.035956	0.438866
Inflation	714	0.057149	0.023925	0.003	0.134

Appendix 3: Table 4.4: Summary statistics for Small Cap firms

Variable	Obs	Mean	StdDev.	Min	Max
Investment (Inv)	529	0.05448	0.10665	-0.5935	0.872054
Tobin's Q (firm growth) (MTB)	529	0.79816	0.69051	0.0000	5.468183
Leverage (MDR)	529	0.24247	0.27471	0.0000	1
Cash (Cash and cash equivalents)	529	0.15859	0.18563	0.0000	0.988215
Returns (return)	529	0.03830	0.67323	-5.7815	4.844504
Firm Age (Age)	529	25.33459	18.44924	1.0000	74
Firm Size (Size)	529	12.68929	2.01986	0.0000	19.94564
Sales Growth(Sales growth)	529	0.09493	0.47759	-3.6842	3.805266
Retained earnings (Ret)	529	0.09123	0.87815	-10.4870	0.940001
Firm profitability (Prof)	529	0.05543	0.22114	-1.9607	1.296375
Payout (Actual dividend paid)	529	0.02371	0.05612	0.0000	0.907757
Finance cost (Fincost)	529	0.01963	0.02156	0.0000	0.189255
Asset tangibility (Tang)	529	0.91173	0.15179	0.0000	1.199058
Industry Leverage (IndLev)	529	0.21804	0.10693	0.0000	0.695532
Inflation	529	0.05663	0.02410	0.0030	0.134

Appendix 4: Table 4.6: The Hausman Test Statistics

```
. hausman fe re
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
levii	-.8981897	-.85138	-.0468096	.0144547
divit	-.357596	-.395342	.0377461	.0317908
tobi	-.114025	-.1154139	.0013889	.0036404
profiti	.0457826	.0406744	.0051082	.0039579
cashi	-.0011251	.0210561	-.0221812	.0314308
rei	-.0513858	-.0696229	.0182371	.0104407
tangi	.0254626	.0363856	-.0109231	.0179433
fincosti	-2.027293	-2.205445	.1781518	.1823585

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =       11.62
            Prob>chi2 =      0.1690
            (V_b-V_B is not positive definite)
```

Appendix 5: Table 4.9: The Hausman Test Statistics

```
. hausman fe re, sigmamore
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
ff	-.0137709	-.0088852	-.0048857	.0019616
levii	-.0791851	-.0875708	.0083856	.0048892
divit	.0935579	.0487087	.0448492	.0115399
tobi	.0143845	.0176582	-.0032736	.0011747
sgi	.0118528	.0109561	.0008967	.0011334
cashi	.2208624	.2838499	-.0629875	.0084797
sizei	-.0031369	-.0131896	.0100527	.0012961
agei	-.0018171	-.0006897	-.0011274	.0002359

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 177.04
Prob>chi2 = 0.0000

Appendix 6: A Sample of AECI LTD Financial statements used in the study

FINANCIAL STATEMENTS REPORT
AECI LTD (AFE)
Report Date: 14 May 2020 03:55:05 AM
Statement of Financial Position [Year: 1999 - 2019, Financials: Published]

Year	2019	2018	2017	2016	2015	2014	2013	2012
Months Covered	12	12	12	12	12	12	12	12
Year End Month	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Statement of Financial Position Published (000)	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**
Assets								
Non-Current Assets								
025 Intangible Assets	4,165,000	4,449,000	1,712,000	1,752,000	1,847,000	1,538,000	1,266,000	1,338,000
026 Goodwill	3,201,000	3,410,000	1,524,000	1,541,000	1,590,000	1,291,000	1,123,000	1,124,000
027 Patents & Trademarks	21,000	11,000	10,000	12,000	37,000	14,000	17,000	10,000
028 Cost of Control	0	0	0	0	0	0	0	0
029 Other Intangible Assets	943,000	1,028,000	178,000	199,000	220,000	233,000	126,000	204,000
031 Investments & Loans	281,000	519,000	590,000	546,000	590,000	671,000	578,000	97,000
032 Investment at Cost/Market Value	273,000	494,000	564,000	527,000	533,000	623,000	537,000	16,000
033 Long Term Loans	8,000	25,000	26,000	19,000	57,000	48,000	41,000	81,000
023 Fixed Assets	6,542,000	5,990,000	4,181,000	4,130,000	4,433,000	4,218,000	3,929,000	4,178,000
024 Mining Assets	0	0	0	0	0	0	0	0
030 Other Non-Current Assets	896,000	723,000	882,000	1,110,000	1,504,000	734,000	699,000	701,000
054 Total Non-Current Assets	11,884,000	11,681,000	7,365,000	7,538,000	8,374,000	7,161,000	6,472,000	6,314,000
034 Current Assets	11,249,000	10,594,000	8,606,000	8,282,000	9,420,000	7,626,000	7,921,000	6,752,000
035 Inventory	4,034,000	4,081,000	3,355,000	3,174,000	3,358,000	2,879,000	3,090,000	2,867,000
036 Trade Receivables	5,160,000	4,875,000	3,948,000	3,592,000	3,892,000	3,328,000	3,612,000	2,737,000
037 Cash & Near Cash	1,978,000	1,581,000	1,206,000	1,465,000	2,114,000	1,376,000	1,219,000	1,148,000
038 Dividends Receivable	0	0	0	0	0	0	0	0
039 Tax Receivable	77,000	57,000	97,000	51,000	56,000	43,000	0	0
050 Total Assets (Excluding Intangible Assets)	18,968,000	17,826,000	14,259,000	14,068,000	15,947,000	13,249,000	13,127,000	11,728,000

051 Total Assets (Including Intangible Assets)	23,133,000	22,275,000	15,971,000	15,820,000	17,794,000	14,787,000	14,393,000	13,066,000
Equity								
001 Ordinary Shareholders Interest	10,912,000	10,043,000	9,234,000	8,913,000	8,932,000	7,726,000	6,819,000	5,715,000
002 Ordinary Share Capital	110,000	110,000	110,000	110,000	110,000	116,000	116,000	116,000
003 Share Premium	0	0	0	0	0	496,000	496,000	496,000
004 Non-Distributable Reserves	1,487,000	1,557,000	1,102,000	1,280,000	1,605,000	830,000	813,000	406,000
005 Distributable Reserves	9,315,000	8,376,000	8,022,000	7,523,000	7,217,000	6,284,000	5,394,000	4,697,000
008 Preference Shares	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
009 Irredeemable	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
010 Redeemable	0	0	0	0	0	0	0	0
011 Convertible	0	0	0	0	0	0	0	0
012 Outside Shareholders Interest	166,000	156,000	116,000	127,000	104,000	71,000	52,000	48,000
013 Total Equity	11,084,000	10,205,000	9,356,000	9,046,000	9,042,000	7,803,000	6,877,000	5,769,000
Liabilities								
057 Non-Current Liabilities	6,764,000	6,646,000	1,614,000	2,324,000	1,871,000	2,691,000	2,214,000	2,488,000
014 Deferred Tax	527,000	547,000	93,000	254,000	427,000	189,000	168,000	232,000
017 Convertible Debentures	0	0	0	0	0	0	0	0
018 Director's & Shareholders Loans	0	0	0	0	0	0	0	0
019 Long Term Non Interest Bearing	0	0	0	0	0	0	0	0
020 Long Term Interest Bearing	5,603,000	5,475,000	1,100,000	1,600,000	672,000	1,459,000	1,099,000	1,251,000
015 Other Non-Current Liabilities	634,000	624,000	421,000	470,000	772,000	1,043,000	947,000	1,005,000
041 Current Liabilities	5,285,000	5,424,000	5,001,000	4,450,000	6,881,000	4,293,000	5,302,000	4,809,000
042 Trade Payables	4,760,000	5,010,000	4,272,000	4,148,000	4,018,000	3,513,000	3,284,000	2,912,000
043 Dividends Payable	0	0	0	0	0	0	0	0
044 Tax Payable	120,000	131,000	69,000	65,000	207,000	148,000	136,000	159,000
045 Short-Term Interest Bearing	405,000	283,000	660,000	237,000	2,656,000	632,000	1,882,000	1,738,000
022 Total Liabilities	12,049,000	12,070,000	6,615,000	6,774,000	8,752,000	6,984,000	7,516,000	7,297,000
058 Total Equity and Liabilities	23,133,000	22,275,000	15,971,000	15,820,000	17,794,000	14,787,000	14,393,000	13,066,000
048 Adjusted Market/Direct Value in Investment	0	0	0	0	0	0	0	0
047 Net Current Assets	5,964,000	5,170,000	3,605,000	3,832,000	2,539,000	3,333,000	2,619,000	1,943,000

049 Employment of Capital	**17,848,000**	**16,851,000**	**10,970,000**	**11,370,000**	**10,913,000**	**10,494,000**	**9,091,000**	**8,257,000**
General Supplementary								
201 Shares in Issue Y/E Ordinary	109,944	109,944	109,944	109,944	110,387	116,356	116,356	107,251
202 Shares in Issue Y/E 'N'	0	0	0	0	0	0	0	0
259 Shares Authorised Ordinary	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000
260 Par Value Ordinary Shares (Cents)	100	100	100	100	100	100	100	100
261 Shares Authorised 'N'	0	0	0	0	0	0	0	0
262 Par Value 'N' Shares (Cents)	0	0	0	0	0	0	0	0
206 Shares in Issue Weighted Average	105,518	105,518	105,518	105,663	110,538	111,930	111,930	111,712
207 Shares in Issue Fully Diluted	109,507	108,965	110,549	107,968	113,656	117,916	119,584	117,222
232 Treasury Shares (Number '000)	11,885	11,885	11,885	11,885	11,885	11,885	11,885	11,885
233 Treasury Shares (Value R'000)	0	0	0	0	0	12,000	12,000	12,000
249 Share Trusts and Other (Number '000)	10,118	10,118	10,118	10,118	10,118	10,118	10,118	10,118
250 Share Trusts and Other (Value R'000)	0	0	0	0	0	0	0	0
274 Share Buyback (Number '000)	0	0	0	442	5,970	0	0	0
275 Share Buyback (Value R'000)	0	0	0	0	6,000	0	0	0
208 Revaluation Reserve	0	0	0	0	0	0	237,000	237,000
228 Foreign Currency Translation Reserve - Cumulative	1,181,000	1,327,000	883,000	1,086,000	1,455,000	663,000	500,000	143,000
211 Commitments: Land & Buildings	35,000	932,000	367,000	443,000	331,000	358,000	203,000	178,000
212 Commitments: Other	0	0	0	0	0	0	0	0
213 Foreign Borrowings	1,925,000	1,995,000	0	160,000	504,000	296,000	230,000	1,000
215 Convertible Debentures & Loans	0	0	0	0	0	0	0	0
219 Medical Aid Liabilities	207,000	216,000	185,000	207,000	481,000	827,000	715,000	771,000
220 Pension Fund Liabilities	221,000	194,000	0	0	0	0	0	0
221 Long Term Loans - Interest Bearing	5,603,000	5,475,000	1,100,000	1,600,000	672,000	1,459,000	1,099,000	1,251,000
222 Long Term Loans - Interest Free	0	0	0	0	0	0	0	0
223 Short Term Loans - Interest Bearing	405,000	283,000	660,000	237,000	2,656,000	632,000	1,882,000	1,738,000
224 Short Term Loans - Interest Free	0	0	0	0	0	0	0	0
225 Property Revaluation Surplus - I/S	0	0	0	0	0	0	0	0
229 Foreign Assets	0	0	0	0	0	0	0	0
230 Foreign Liabilities	0	0	0	0	0	0	0	0
276 Asset Retirement Obligations - Mining Assets	163,000	149,000	155,000	146,000	159,000	161,000	168,000	155,000

236 Provisions - Long Term	602,000	583,000	392,000	412,000	702,000	1,043,000	947,000	1,005,000
237 Provisions - Short Term	92,000	127,000	161,000	173,000	165,000	0	167,000	84,000
247 Bee Share of Accumulative Profits - B/S	0	0	0	0	0	0	0	0
277 Property Companies - Value of Property Portfolios	0	0	0	0	0	0	0	0
278 Property Companies - Debenture Liability	0	0	0	0	0	0	0	0
279 Property Companies - Linked Unitholders Interest	0	0	0	0	0	0	0	0
258 Bookvalue Land & Buildings	1,872,000	1,533,000	1,027,000	948,000	941,000	1,010,000	1,427,000	1,430,000
253 Bookvalue Plant & Machinery/Manufacturing Equipment	3,495,000	3,517,000	2,458,000	2,496,000	2,700,000	2,454,000	2,494,000	2,540,000
254 Bookvalue Furniture & Office Equipment	54,000	48,000	53,000	41,000	35,000	34,000	47,000	42,000
255 Bookvalue Vehicles	351,000	121,000	118,000	160,000	207,000	174,000	161,000	154,000
256 Bookvalue Computer Hardware & Software	72,000	66,000	81,000	65,000	82,000	88,000	89,000	95,000
257 Bookvalue Other Fixed Assets	698,000	705,000	444,000	420,000	468,000	604,000	312,000	232,000
311 Right of Use Assets	592,000	0						
312 Lease Liabilities - Non-current	366,000	0						
313 Lease Liabilities - Current	210,000	0						

Income Statement

Year	2019	2018	2017	2016	2015	2014	2013	2012
Months Covered	12	12	12	12	12	12	12	12
Year End Month	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Income Statement Published (000)	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**
060 Turnover	**24,799,000**	**23,314,000**	**18,482,000**	**18,596,000**	**18,446,000**	**16,903,000**	**15,942,000**	**14,916,000**
061 % Change in Turnover	**6**	**26**	**-1**	**1**	**9**	**6**	**7**	**11**
053 Cost of Sales	**22,768,000**	**21,315,000**	**16,903,000**	**12,561,000**	**12,286,000**	**11,467,000**	**10,621,000**	**10,255,000**
094 Gross Profit	3,556,930	3,011,042	2,459,870	2,266,197	2,521,281	2,377,917	2,142,606	1,868,871
095 Total Income	**3,556,930**	**3,011,042**	**2,459,870**	**2,266,197**	**2,521,281**	**2,377,917**	**2,142,606**	**1,868,871**
322 Intangible Assets Written off	75,000	64,000	23,000	28,000	25,000	18,000	18,000	11,000
323 Amortisation of Goodwill	0	0	0	0	0	0	0	0
301 Lease Charge: Land Building	127,000	229,000	173,000	189,000	178,000	137,000	105,000	95,000
302 Lease Charge: Other	0	0	0	0	0	0	0	0
303 Research & Development	64,000	61,000	50,000	52,000	53,000	57,000	62,000	53,000

088 Depreciation	956,000	646,000	574,000	598,000	565,000	529,000	519,000	464,000
089 Audit Fees	31,000	50,000	27,000	25,000	20,000	22,000	18,000	21,000
090 Directors Emoluments	38,930	40,042	33,870	39,197	28,281	18,917	21,606	18,871
079 Extra Ordinary Items	0	0	0	0	0	0	0	0
096 Other	0	0	0	0	0	0	0	0
077 Convertible Debenture Interest	0	0	0	0	0	0	0	0
097 Total Cost Shown	**1,291,930**	**1,090,042**	**880,870**	**931,197**	**869,281**	**781,917**	**743,606**	**662,871**
098 Earnings Before Interest & Tax (Ebit)	**2,265,000**	**1,921,000**	**1,579,000**	**1,335,000**	**1,652,000**	**1,596,000**	**1,399,000**	**1,206,000**
062 Investment Income	0	0	0	0	0	0	0	0
064 Interest Received	59,000	38,000	35,000	55,000	66,000	54,000	37,000	40,000
066 Interest & Finance Charges	516,000	403,000	202,000	270,000	253,000	204,000	212,000	263,000
104 Investment Income, Interest & Finance Charges	**-457,000**	**-365,000**	**-167,000**	**-215,000**	**-187,000**	**-150,000**	**-175,000**	**-223,000**
074 Associate Companies	**30,000**	**0**	**0**	**28,000**	**28,000**	**31,000**	**43,000**	**0**
099 Profit Before Tax	**1,838,000**	**1,556,000**	**1,412,000**	**1,148,000**	**1,493,000**	**1,477,000**	**1,267,000**	**983,000**
067 Taxation	**511,000**	**529,000**	**429,000**	**336,000**	**464,000**	**368,000**	**313,000**	**345,000**
068 Current	451,000	362,000	415,000	515,000	514,000	474,000	403,000	329,000
069 Deferred	50,000	94,000	-16,000	-142,000	-89,000	-105,000	-104,000	9,000
070 Other	10,000	73,000	30,000	-37,000	39,000	-1,000	14,000	7,000
100 Profit After Interest and Tax	**1,327,000**	**1,027,000**	**983,000**	**812,000**	**1,029,000**	**1,109,000**	**954,000**	**638,000**
075 Discontinued Operations	0	0	0	0	0	0	0	0
072 Preference Share Dividends	3,000	3,000	3,000	3,000	3,000	3,000	3,000	2,000
073 Minority Interest	33,000	34,000	30,000	32,000	19,000	10,000	5,000	6,000
101 Profit Attributable to Ordinary Shareholders	**1,291,000**	**990,000**	**950,000**	**777,000**	**1,007,000**	**1,096,000**	**946,000**	**630,000**
093 Total Headline Earnings	1,213,000	1,103,000	1,012,000	864,000	988,000	943,000	885,000	611,000
086 Headline Earnings Per Share	1,150.0	1,045.0	959	818	894	842	791	547
103 Dividends Per Share - Gross	570	515	478	300	385	744	315	263
087 Dividends Per Share - Net	456	412	382.4	240	327.3	632.4	267.8	223.6
091 Interest Distribution Per Linked Unit (Cents)	0	0	0	0	0	0	0	0
105 Capital Distribution Per Instrument (Cents) - Gross	0	0	0	0	0	0	0	0
092 Capital Distribution Per Instrument (Cents) - Net	0	0	0	0	0	0	0	0

102 Earnings Before Interest, Tax, Depreciation and Amortisation (Ebitda)	3,443,000	2,662,000	2,179,000	1,989,000	2,246,000	2,143,000	1,941,000	1,690,000
General Supplementary								
301 Lease Charge: Land Building	127,000	229,000	173,000	189,000	178,000	137,000	105,000	95,000
302 Lease Charge: Other	0	0	0	0	0	0	0	0
303 Research & Development	64,000	61,000	50,000	52,000	53,000	57,000	62,000	53,000
305 Eps-Bottom Line	1,223.0	938	900	735	911	979	845	564
306 Eps-Headline	1,150.0	1,045.0	959	818	894	842	791	547
307 Eps-Fully Diluted Headline	1,108.0	1,012.0	915	800	870	800	740	521
308 Eps-Fully Diluted Bottomline	1,179.0	909	859	720	886	929	791	537
374 Eps-Continuing Operations	0	0	0	0	0	0	0	0
359 Earnings Per Linked Unit	0	0	0	0	0	0	0	0
375 Core Headline Earnings - Total Value	0	0	0	0	0	0	0	0
376 Core Headline Earnings Per Share	0	0	0	0	0	0	0	0
311 Deferred Tax: Current	50,000	94,000	-16,000	-142,000	-89,000	-105,000	-104,000	9,000
312 Deferred Tax: Other	-17,000	23,000	13,000	-21,000	-24,000	16,000	-20,000	-23,000
309 Effective Tax Rate	28	34	30	29	31	25	25	35
319 Accumulated Computed Tax Loss	92,000	20,000	30,000	78,000	18,000	16,000	16,000	13,000
320 Prior Year Tax Adjustment	-3,000	2,000	-12,000	-16,000	17,000	-38,000	10,000	5,000
338 Foreign Tax	30,000	43,000	36,000	40,000	44,000	21,000	24,000	3,000
364 Foreign Tax - Normal	30,000	43,000	36,000	40,000	44,000	21,000	24,000	3,000
365 Foreign Tax - Previous Year	0	0	0	0	0	0	0	0
366 Foreign Tax - Deferred	0	0	0	0	0	0	0	0
313 Interest Capitalised	0	0	0	0	0	0	0	0
373 Interest Paid - Debentures	0	0	0	0	0	0	0	0
315 Dilution: Interest Saved	0	0	0	0	0	0	0	0
316 Dilution: Dividends Saved	0	0	0	0	0	0	0	0
317 Dilution: Equity Income Converted	0	0	0	0	0	0	0	0
322 Intangible Assets Written off	75,000	64,000	23,000	28,000	25,000	18,000	18,000	11,000
350 Impairments of Intangible Assets	0	0	0	0	0	0	0	0
383 Goodwill Written off	147,000	31,000	3,000	28,000	4,000	0	5,000	9,000
351 Impairments of Goodwill	147,000	31,000	3,000	28,000	4,000	0	5,000	9,000
323 Amortisation of Goodwill	0	0	0	0	0	0	0	0
384 Impairment of Trade Receivables	0	0	0	0	0	0	0	0
324 Impairment of Investments	0	0	0	0	0	0	0	0
325 Impairment of Loans	0	0	0	0	0	0	0	0

326 Capital Profit /Loss on Financial Assets	0	0	-2,000	0	0	0	0	0
360 Gains/Losses on Mark to Market Value of Financial Assets	0	0	0	0	0	0	1,000	2,000
327 Impairment of Fixed Assets	0	0	-10,000	-54,000	-19,000	-24,000	-9,000	-3,000
328 Capital Profit /Loss on Fixed Assets	69,000	-6,000	8,000	-9,000	26,000	3,000	49,000	18,000
329 Profit /Loss Forex Translations - I/S	0	0	0	0	0	0	0	0
330 Profit /Loss Forex Transactions - I/S	-38,000	88,000	-45,000	-87,000	64,000	-28,000	92,000	1,000
331 Profit /Loss Disposal of Subsidiaries/ Businesses	0	0	0	0	0	0	3,000	15,000
377 Expense in Regard to Bee Transaction	0	0	0	0	0	0	0	-138,000
336 Foreign Turnover	9,438,000	8,284,000	6,236,000	6,479,000	6,361,000	5,417,000	5,224,000	4,527,000
337 Foreign Profit	0	0	0	0	0	0	0	0
357 Ordinary Dividends Declared	618,000	563,000	524,000	478,000	425,000	1,063,000	361,000	301,000
358 Ordinary Dividends Paid	568,000	540,000	477,000	430,000	833,000	0	332,000	294,000
353 Minority Dividends Paid	23,000	28,000	17,000	2,000	2,000	0	1,000	1,000
343 Auditors - Audit Fees - Current Year	25,000	24,000	19,000	19,000	19,000	18,000	16,000	18,000
378 Auditors - Audit Fees - Previous Year	0	0	0	0	0	0	0	0
379 Auditors - Audit Expenses	0	0	0	0	0	0	0	0
344 Auditors - Other Fees	6,000	26,000	8,000	6,000	1,000	4,000	2,000	3,000
345 Staff Costs(Excluding Directors Remuneration)	4,484,000	4,193,000	3,246,000	3,471,000	3,429,000	2,896,000	3,023,000	2,465,000
372 Other Staff Share Based Payments - I/S	83,000	81,000	73,000	67,000	77,000	91,000	47,000	30,000
361 Directors Share Based Payments - I/S	0	0	0	0	0	0	0	0
387 Legal Fees	0	0	0	0	0	0	0	0
363 Bee Share of Profits - I/S	0	0	0	0	0	0	0	138,000
410 Depreciation: Right of Use Assets	220,000	0						
411 Interest Expense: Lease Liabilities	62,000	0						

Changes In Equity Statement [Year: 1999 - 2019, Financials: Published]

Year	2019	2018	2017	2016	2015	2014	2013	2012
Months Covered	12	12	12	12	12	12	12	12

Year End Month	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Changes In Equity Statement Published (000)	ZAR	ZAR	ZAR	ZAR	ZAR	ZAR	ZAR	ZAR
901 Ordinary Shareholders Equity at Beginning of Year	10,043,000	9,234,000	8,913,000	8,932,000	7,726,000	6,819,000	5,714,000	4,998,000
902 Movements in Issued Capital & Share Premium	0	0	0	0	0	0	0	0
903 Balance at Begin of Year/Issued Capital & Share Premium	110,000	110,000	110,000	110,000	612,000	612,000	612,000	215,000
904 Adj to Prior Year/Issued Capital & Share Premium	0	0	0	0	0	0	0	0
905 Ordinary Shares Issued/Issued Capital & Share Premium	0	0	0	0	0	0	0	397,000
906 Share Based Payments/Issued Capital & Share Premium	0	0	0	0	0	0	0	0
908 Share Issue Expenses/Issued Capital & Share Premium	0	0	0	0	0	0	0	0
910 Capital Distributions/Issued Capital & Share Premium	0	0	0	0	0	0	0	0
911 Treasury Shares/Issued Capital & Share Premium	0	0	0	0	0	0	0	0
913 Cancelling of Shares/Issued Capital & Share Premium	0	0	0	0	-502,000	0	0	0
939 Sundry/Issued Capital & Share Premium	0	0	0	0	0	0	0	0
940 Balance at End of Year/Issued Capital & Share Premium	110,000	110,000	110,000	110,000	110,000	612,000	612,000	612,000
941 Movements in Non-Distributable Reserve	0	0	0	0	0	0	0	0
942 Balance at Begin of Year/Non-Distrib Reserve	1,557,000	1,102,000	1,280,000	1,605,000	830,000	813,000	405,000	344,000
943 Adj to Prior Year/Non-Distrib Reserve	0	0	0	0	0	0	0	0
945 Profit/(Loss) on Sale of Investments/Non-Distrib Reserve	0	0	0	0	0	0	0	0
949 Capital Distributions/Non-Distrib Reserve	0	0	0	0	0	0	0	0
952 Treasury Shares/Non-Distrib Reserve	0	0	0	0	0	0	0	0
954 Profit/(Loss) on Forex Translations/Non-Distrib Reserve	-146,000	444,000	-203,000	-369,000	792,000	170,000	362,000	46,000
955 Profit/(Loss) on Forex Transactions/Non-Distrib Reserve	0	0	0	0	0	0	0	0

957 Net Transfer (to)/from Distributable Reserve	0	0	0	2,000	0	-234,000	3,000	-5,000
969 Share Based Payments/Non-Distrib Reserve	76,000	35,000	29,000	45,000	-17,000	91,000	47,000	30,000
970 Net Unrealised (Losses)/Gains on Hedging Instrum/Non-Distrib Reserve	0	0	0	0	0	0	0	0
999 Sundry/Non-Distrib Reserve	0	-24,000	-4,000	-3,000	0	-10,000	-4,000	-9,000
000 Balance at End of Year/Non-Distrib Reserve	**1,487,000**	**1,557,000**	**1,102,000**	**1,280,000**	**1,605,000**	**830,000**	**813,000**	**406,000**
001 Movements in Distributable Reserve	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
002 Balance at Begin of Year/Distrib Reserve	**8,376,000**	**8,022,000**	**7,523,000**	**7,217,000**	**6,284,000**	**5,394,000**	**4,697,000**	**4,439,000**
003 Adj to Prior Year/Distrib Reserve	11,000	-42,000	0	0	0	0	0	0
004 Net Profit/(Loss) for the Year	1,291,000	990,000	950,000	777,000	1,007,000	1,096,000	946,000	630,000
005 Ordinary Dividends	-568,000	-540,000	-477,000	-430,000	-833,000	-375,000	-332,000	-294,000
006 Preference Dividends	0	0	0	0	0	0	0	0
008 Net Transfer (to)/from Non-Distributable Reserves	0	0	0	-2,000	0	234,000	-3,000	5,000
025 Share Based Payments/Distrib Reserve	0	0	0	0	0	0	0	138,000
059 Sundry/Distrib Reserve	205,000	-54,000	26,000	-39,000	759,000	-65,000	86,000	-221,000
060 Balance at End of Year/Distrib Reserve	**9,315,000**	**8,376,000**	**8,022,000**	**7,523,000**	**7,217,000**	**6,284,000**	**5,394,000**	**4,697,000**
091 Ordinary Shareholders Equity at End of Year	**10,912,000**	**10,043,000**	**9,234,000**	**8,913,000**	**8,932,000**	**7,726,000**	**6,819,000**	**5,715,000**

Cash Flow Statement [Year: 1999 - 2019, Financials: Published]

Year	2019	2018	2017	2016	2015	2014	2013	2012
Months Covered	12	12	12	12	12	12	12	12
Year End Month	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Cash Flow Statement Published (000)	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**
701 Operating Profit/Loss	1,962,000	1,999,000	1,571,000	1,335,000	1,261,000	1,238,000	1,413,000	1,184,000
702 Depreciation & Non Cash-Items	1,385,000	956,000	779,000	993,000	904,000	927,000	712,000	565,000
703 Cash Ex Operations	**3,347,000**	**2,955,000**	**2,350,000**	**2,328,000**	**2,165,000**	**2,165,000**	**2,125,000**	**1,749,000**

704 Investment Income	50,000	18,000	55,000	46,000	30,000	43,000	62,000	0
705 Other Income	-85,000	-155,000	-178,000	-261,000	311,000	67,000	220,000	0
706 Decrease/Increase Working Capital	**-538,000**	**-155,000**	**-358,000**	**624,000**	**-526,000**	**480,000**	**-646,000**	**-290,000**
707 Decrease/Increase Inventory	47,000	-330,000	-194,000	173,000	-479,000	211,000	-379,000	-283,000
708 Decrease/Increase Accounts Receivable	-275,000	-208,000	-452,000	513,000	-582,000	83,000	-709,000	35,000
709 Increase/Decrease Accounts Payable	-310,000	383,000	288,000	-62,000	535,000	186,000	442,000	-42,000
710 Increase/Decrease Interest-Free Loans	0	0	0	0	0	0	0	0
711 Cash Ex Operating Activity	**2,774,000**	**2,663,000**	**1,869,000**	**2,737,000**	**1,980,000**	**2,755,000**	**1,761,000**	**1,459,000**
712 Net Interest Paid/Received	397,000	332,000	167,000	183,000	187,000	150,000	175,000	205,000
713 Taxation Paid	509,000	302,000	481,000	636,000	532,000	488,000	464,000	308,000
714 Cash Available	**1,868,000**	**2,029,000**	**1,221,000**	**1,918,000**	**1,261,000**	**2,117,000**	**1,122,000**	**946,000**
715 Ordinary Dividend	591,000	568,000	494,000	432,000	835,000	375,000	333,000	295,000
716 Preference Dividend	3,000	3,000	3,000	3,000	3,000	3,000	3,000	2,000
733 Cash from Operating Activities	**1,274,000**	**1,458,000**	**724,000**	**1,483,000**	**423,000**	**1,739,000**	**786,000**	**649,000**
719 Fixed Assets Acquired	833,000	847,000	704,000	502,000	583,000	745,000	633,000	557,000
720 Increase in Investments	53,000	5,000	97,000	5,000	31,000	101,000	106,000	16,000
721 Net Investment in Subsidiaries/ Businesses	0	4,021,000	0	0	312,000	414,000	78,000	102,000
722 Other Expenses/Losses	0	0	0	0	0	0	0	0
724 Proceeds Disposal Fixed Assets	123,000	113,000	18,000	14,000	73,000	541,000	70,000	56,000
725 Proceeds Disposal Investment	461,000	1,000	30,000	41,000	9,000	0	0	0
726 Other Proceeds	0	0	0	0	0	0	30,000	0
734 Cash from Investment Activities	**-302,000**	**-4,759,000**	**-753,000**	**-452,000**	**-844,000**	**-719,000**	**-717,000**	**-619,000**
728 Increase/Decrease Long-Term Liabilities	-246,000	4,320,000	55,000	1,100,000	434,000	381,000	712,000	-284,000
730 Change in Share Capital	-45,000	-46,000	-44,000	-39,000	-563,000	0	0	0
735 Increase/Decrease Short-Term Liabilities	-256,000	-755,000	-132,000	-2,610,000	820,000	-1,278,000	-795,000	317,000
731 Other (Cash Generated)	0	0	0	0	0	0	0	0
736 Cash from Financing Activities	**-547,000**	**3,519,000**	**-121,000**	**-1,549,000**	**691,000**	**-897,000**	**-83,000**	**33,000**
737 Increase/(Decrease) in Cash and Near Cash	**425,000**	**218,000**	**-150,000**	**-518,000**	**270,000**	**123,000**	**-14,000**	**63,000**
General Supplementary								

801 Minority Dividends (Ordinary)	23,000	28,000	17,000	2,000	2,000	0	1,000	1,000
802 Net Intangible Assets Movements	16,000	1,000	0	0	0	0	0	3,000
803 Preference Shares Issued by the Company	0	0	0	0	0	0	0	0
804 Share Incentive Trust Options Exercised	0	0	0	0	0	0	0	0
805 Minority Dividends (Preference)	0	0	0	0	0	0	0	0

Value Added Statement

Year	2019	2018	2017	2016	2015	2014	2013	2012
Months Covered	12	12	12	12	12	12	12	12
Year End Month	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Value Added Statement Published (000)	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**	**ZAR**
760 Turnover	0	0	0	0	0	0	16,023,000	14,916,000
761 Extraordinary Items	0	0	0	0	0	0	0	0
762 Other Income/Value Added	0	0	0	0	0	0	0	41,000
763 Bought Material/Services	0	0	0	0	0	0	11,031,000	10,803,000
764 Value Added	**0**	**0**	**0**	**0**	**0**	**0**	**4,992,000**	**4,154,000**
765 Salaries & Wages	0	0	0	0	0	0	2,976,000	2,435,000
766 Interest (Net)	0	0	0	0	0	0	212,000	263,000
767 Dividends: Ordinary	0	0	0	0	0	0	332,000	294,000
768 Dividends: Preference	0	0	0	0	0	0	3,000	2,000
769 Dividends: Minority	0	0	0	0	0	0	1,000	1,000
770 Taxation	0	0	0	0	0	0	313,000	345,000
771 Depreciation	0	0	0	0	0	0	537,000	475,000
772 Retention	0	0	0	0	0	0	618,000	339,000
773 Minority Interest	0	0	0	0	0	0	0	0
774 Other Expenses/Distrib of Value Added	0	0	0	0	0	0	0	0
775 Disburse of Value Added	**0**	**0**	**0**	**0**	**0**	**0**	**4,992,000**	**4,154,000**
776 Leasing : Property	127,000	229,000	173,000	189,000	178,000	137,000	105,000	95,000
777 Leasing : Other	0	0	0	0	0	0	0	0
778 Dividends Received	0	0	0	0	0	0	0	0
779 Interest Received	59,000	38,000	35,000	55,000	66,000	54,000	37,000	40,000
780 Deferred Taxation	33,000	117,000	-3,000	-163,000	-113,000	-89,000	-124,000	-14,000

781 Number of Employees	7,506	8,038	6,522	6,630	6,246	6,443	6,279	6,895

Sundry Items

Year	2019	2018	2017	2016	2015	2014	2013	2012
Months Covered	12	12	12	12	12	12	12	12
Year End Month	Dec	Dec	Dec	Dec	Dec	Dec	Dec	Dec
Sundry Items Published (000)	ZAR	ZAR	ZAR	ZAR	ZAR	ZAR	ZAR	ZAR
101 Ordinary Shares in Issue @ Year End Split Adjusted	109,944	109,944	109,944	109,944	110,387	116,356	116,356	107,251
102 Nr of Ordinary Shares in Issue @ Year End	109,944	109,944	109,944	109,944	110,387	116,356	116,356	107,251
115 Months Covered by Financial Statements	12	12	12	12	12	12	12	12
116 Month of Financial Year End	12	12	12	12	12	12	12	12
118 Inflation Adjusted Other Fixed Asset	1,915,160	1,771,223	1,081,117	128,746	187,307	143,657	235,100	331,722
119 Inflation Adjusted Depreciable Fixed Asset	314,135	263,418	204,654	25,171	31,590	25,127	39,169	48,979
122 No of Quoted Subsidiaries	0	0	0	0	0	0	0	0
126 Directors Shareholding Beneficial	200	162	125	101	68	25	15	14
127 Directors Shareholding Non-Beneficial	0	0	0	0	0	0	0	0
129 Deferred Tax for Year	33,000	117,000	-3,000	-163,000	-113,000	-89,000	-124,000	-14,000
130 Items Not Representing Cashflow	1,385,000	956,000	779,000	993,000	904,000	927,000	712,000	565,000
131 No Persons Employed	7,506	8,038	6,522	6,630	6,246	6,443	6,279	6,895
175 Foreign Employees	0	0	0	0	0	0	0	0
132 Inventory: Raw Material	1,471,000	1,503,000	1,114,000	1,023,000	1,249,000	917,000	951,000	840,000
133 Inventory: Finished Goods	2,324,000	2,180,000	1,970,000	1,917,000	1,729,000	1,572,000	1,546,000	1,418,000
134 Inventory: Merchandise	0	0	0	0	3,000	0	0	0
135 Inventory: Consumable Stores	221,000	330,000	246,000	218,000	268,000	313,000	266,000	286,000
136 Inventory: Work in Progress	18,000	68,000	25,000	16,000	109,000	16,000	12,000	8,000
137 Inventory: Uncompleted Contracts	0	0	0	0	0	0	0	0
144 Headline Earnings Per Share	1,150.0	1,045.0	959	818	894	842	791	547
148 Number of Analyst	9	9	9	9	8	9	2	2
149 Average Price Per Share	9,475	10,537	10,404	9,346	10,711	12,374	10,843	8,323
150 Share Price @ Company Financial Year End	10,740	8,661	9,235	9,966	8,790	13,086	11,915	7,799

158 Currency Adjustment: R1000 to ?	0	0	0	0	0	0	0	0
162 Trade Creditors	3,373,000	3,736,000	3,016,000	2,759,000	2,962,000	2,325,000	2,091,000	2,008,000
140 Capital Commitments	662,000	607,000	4,578,000	233,000	436,000	342,000	746,000	225,000
166 Leasehold Commitments	35,000	932,000	367,000	443,000	331,000	358,000	203,000	178,000
167 Contingent Liabilities	0	0	0	0	0	0	0	0
170 No of Shares Traded	50,634	55,516	60,262	75,023	42,024	33,458	46,972	38,817
171 No of Transactions	155,436	132,243	142,652	126,112	116,105	63,328	69,256	46,509
172 Value of Transactions	4,797,447	5,849,497	6,269,862	7,011,835	4,501,290	4,140,139	5,092,974	3,230,668
173 Split Factor	1	1	1	1	1	1	1	1
174 Month of Stock Split	0	0	0	0	0	0	0	0

Appendix 7: Letter for data collection

University of Venda

Director: Library Services
University Road, Thohoyandou, Limpopo
Private Bag X 5050, Thohoyandou, 0950
Limpopo, South Africa
+27 15 962 8106
+27 15 962 4746

Enquiries: Mrs. M.T. Mulaudzi
Telephone: (015) 962 8106/8166

Date: 23 November 2020

The Executive Director: Library Services
University of South Africa
P.O. Box 392
UNISA, 0003

APPLICATION FOR LIBRARY MEMBERSHIP

It will be much appreciated if you could grant the following student, membership of the University of South Africa Library.

Name	:	Joseph Kayiira
Student Number	:	**19020837**
Department	:	Management Sciences
Research Topic/ Area	:	**"The Determinants of Financial Flexibility and Investment Efficiency: Some Evidence from JSE-listed Non-Financial Firms".**
Telephone Number	:	***0790291234***
Residential Address	:	**ERF No.33, Mathaphu Street, BlockA, White Area, SIBASA**
Email Address	:	19020837@mvula.univen.ac.za/nsemera@gmail.com
Period Required	:	23 November 2020 – 23 December 2020

UNIVEN Library undertakes to stand surety for the applicant in this regard.

Yours Faithfully

Mrs. M.T. Mulaudzi
Director: Library Services

Appendix 8: Language editing report

Language Editing Report

25/Nov /2020

To Whom It May Concern

This letter serves to confirm that I Ghemia Stevens, have edited a dissertation titled "**THE DETERMINANTS OF FINANCIAL FLEXIBILITY AND INVESTMENT EFFICIENCY: SOME EVIDENCE FROM JSE-LISTED NON-FINANCIAL FIRMS** " by **KAYIIRA JOSEPH** Student No: **19020837** to be submitted to the department of Account and Auditing in the School of Management Sciences at the University of Venda.

I carefully read through the dissertation focusing on language, grammar and spellings to the best of my ability. Neither the dissertation content nor the author's intentions were altered in any way during the editing process.

Yours Sincerely,

Ghemia Stevens
(Language Editor)
Email: sghemia@gmail.com

Appendix 9: Ethical clearance certificate

ETHICS APPROVAL CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mr J Kayiira

STUDENT NO:
19020837

PROJECT TITLE: **The determinants of financial flexibility and investment efficiency: Some evidence from JSE-listed non-financial firms.**

ETHICAL CLEARENCE NO: SMS/20/ACC & AUD/09/2202

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof V Moyo	University of Venda	Supervisor
Dr F Munzhelele	University of Venda	Co - Supervisor
Mr J Kayiira	University of Venda	Investigator – Student

Type: **Masters Research**
Risk: **Minimal risk to humans, animals or environment**
Approval Period: **February 2021 – February 2023**

The Research Ethics Social Sciences Committee (RESSC) hereby approves your project as indicated above.

General Conditions
While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following.

- The project leader (principal investigator) must report in the prescribed format to the REC:
  - Annually (or as otherwise requested) on the progress of the project, and upon completion of the project
  - Within 48hrs in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.
  - Annually a number of projects may be randomly selected for an external audit.
- The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the REC. Would there be deviated from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.
- The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date; a new application must be made to the REC and new approval received before or on the expiry date.
- In the interest of ethical responsibility, the REC retains the right to:
  - Request access to any information or data at any time during the course or after completion of the project,
  - To ask further questions; Seek additional information; Require further modification or monitor the conduct of your research or the informed consent process.
  - withdraw or postpone approval if:
  - Any unethical principles or practices of the project are revealed or suspected.
  - It becomes apparent that any relevant information was withheld from the REC or that information has been false or misrepresented.
  - The required annual report and reporting of adverse events was not done timely and accurately,
  - New institutional rules, national legislation or international conventions deem it necessary

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE
Date Considered: February 2021

Name of the RESSC Chairperson of the Committee: Prof Takalani Mashau

Signature:

UNIVERSITY OF VENDA
OFFICE OF THE DIRECTOR
RESEARCH AND INNOVATION
2021 -02- 23
Private Bag X5050
Thohoyandou 0950

University of Venda
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