

**CHANGING PATTERNS OF DIVIDEND PAYING INDUSTRIAL FIRMS ON THE
JOHANNESBURG STOCK EXCHANGE**

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ABSTRACT

The following study examined whether there are changes in the patterns of dividend paying Industrial firms on the JSE Limited over the 1990 to 2015 period. The patterns were identified by examining three factors based on the findings of Fama and French (2001), and DeAngelo, DeAngelo, and Skinner (2004). Data was collected from the INET BFA database, consisting of 51 industrial firms. These firms were further classified into two groups, namely: dividend payers and non-dividend payers. The non-dividend payers are classified as former payers and firms that have never paid dividends.

The first factor examined the relationship between dividend payments and firm characteristics in the form of firm size, profitability, and investment opportunities. Fama and French (2001) found that dividend payers tend to be large, profitable, and did not aggressively pursue investment opportunities. Using summary statistics, this study finds that dividend payers are large in size, relatively more profitable than non-payers, and do not pursue as many investment opportunities, compared to former dividend payers. However, dividend payers are found to have the best growth opportunities when an alternative measure is used for investment opportunities. Unlike the findings of Fama and French (2001) the logistic regression results do not confirm the findings based on the summary statistics. The logistic regression results suggest that profitability is the only firm characteristic that is significant in determining the probability of dividend payouts over the sample period. The regression results are mixed over the identified sub-periods. Furthermore, the multiple linear regression results suggest that size and investment opportunities are the only significant factors in the probability of dividend payouts over the sample period. In addition, the regression results are mixed over the identified sub-periods.

The second factor examined whether the propensity to pay dividends has increased or decreased over the period. Fama and French (2001) found that given the firm size, probability, and investment opportunities characteristics, firms have become less likely to pay dividends. This study finds that there is increasing propensity to pay dividends during the sub-periods of 1994 to 2001 and 2010 to 2015. However, there is a decreasing propensity to pay dividends during the 2002 to 2009 sub-period. This study suggests that the macro-economic events during these sub-periods and advancements on the JSE Limited contribute to the propensity to pay dividends.

The third factor examined whether the proportion of dividend payers had increased over the period and whether this implied an increase or decrease in dividend and earnings concentration. Fama and French (2001) found that the proportion of firms paying cash dividends decreased over the period, due in part to changing firm characteristics of publicly traded firms in the U.S. This study finds that the number of dividend paying firms on the JSE Limited increases over the period but decreases over the 2006 to 2015 sub-period. From 2006 onwards, the proportion of dividend payers decreases significantly, whilst the proportions of non-payers increases. Unlike Fama and French (2001), new lists do not necessarily seem to contribute to the declining proportion of payers over the period. In addition, DeAngelo et al. (2004) found that aggregate earnings and dividends concentration had increased over the period despite the decline in the proportion of listed publicly listed dividend paying U.S. firms. They specifically found that a smaller proportion of dividend paying firms account for the vast bulk of dividend payments and earnings. This study finds that aggregate dividends and earnings increased over the sample period. Similar to DeAngelo et al. (2004), a relatively small number of firms pay the overwhelming majority of aggregate industrial dividends. However, contrary to DeAngelo et al. (2004) dividend concentration has decreased over the period.

The findings of this study therefore suggest that given the changes in the relationship between firm characteristics and the probability of dividend payments and the changing propensity to pay dividends over the sub-periods, dividends are not disappearing. Therefore, the changing patterns of dividend paying firms have not resulted in a disappearance of dividends over the 1990 to 2015 period. A few recommendations are proposed post the findings of the study. The first recommendation is to consider a wider set of firm characteristics in addition to the characteristics identified by Fama and French (2001). A second recommendation is to consider specific macro-economic variables, such as indicators for GDP, foreign exchange investment, Consumer Price Inflation (CPI), Producer Price Inflation (PPI), and share prices. The third recommendation is to consider the capital structure decisions that affect dividend payments, such as debt facilities that may restrict dividend payments. A final recommendation is to consider tax variables, such as the corporate and the dividend withholding taxes, in relation to dividend decisions.

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Table of Contents

Abstract.....	i
Declaration.....	Error! Bookmark not defined.
Acknowledgements.....	iv
List of Tables	vii
List of Figures	viii
CHAPTER 1	1
1.1 Background and motivation for the study.....	1
1.2 problem statement.....	2
1.3 Research objectives.....	3
1.5 LIMITATIONS.....	3
1.6 DEFINITION OF KEY TERMS	3
1.7 Importance and benefits of the study	4
1.8 STRUCTURE OF DISSERTATION.....	4
1.9 Conclusion	4
CHAPTER 2	6
LITERATURE REVIEW	6
2.1 Introduction.....	6
2.2 Profitability and dividends.....	6
2.2.1 Profitability of Dividend payers and Non-dividend payers	8
2.2.2 Signalling theory	10
2.3 Dividend conservatism.....	12
2.4 Investment Opportunities.....	15
2.5 Size.....	19
2.6 Propensity to pay dividends	22
2.6.1 Catering Theory	22
2.6.2 Agency costs	27
2.6.3 Share repurchases.....	33
2.6.4 Life cycle theory of dividends	36
2.6.5 Capital structure	38
2.7 Conclusion	39
CHAPTER 3	41

METHODOLOGY (RESEARCH DESIGN AND METHODS)	41
3.1 INTRODUCTION	41
3.2 Sampling and data collection	41
3.3 DESCRIPTION OF OVERALL RESEARCH DESIGN	42
3.3.1 Logistic regressions.....	42
3.3.2 Changing characteristics and propensity to pay.....	43
3.3.3 Proportion of firms with positive and negative changes in treasury stock.....	43
3.3.4 Dividend and Earnings concentration	43
3.4 DATA AND VARIABLE DEFINITION	44
3.5 Conclusion	46
CHAPTER 4	47
RESULTS	47
4.1 INTRODUCTION	47
4.2 SUMMARY STATISTICS.....	47
4.2.1 Profitability	51
4.2.2 Investment opportunities.....	55
4.2.3 Size.....	55
4.3 Statistical significance results	57
4.4 Binary logistic regressions.....	60
4.4.1 The propensity to pay dividends	63
4.5 Regressions for different dividend groups	66
4.5.1 Dividend payers	68
4.5.2 Former payers	68
4.5.3 Never paid.....	70
4.5.4 The dividend decisions of dividend payers.....	76
4.5.5 The dividend decisions of former payers	76
4.5.6 The dividend decisions of firms that have never paid.....	77
4.6 DIVIDENDS and EARNINGS CONCENTRATION	77
4.7 Conclusion	85
CHAPTER 5	86
5. Conclusions and Recommendations	86
5.1. Conclusion	86
5.2. Recommendations.....	87
REFERENCE LIST	89

List of Tables

	Page Number
Table 1.1: Definition of key terms	4
Table 3.1: Financial statement items	44
Table 3.2: Variable definitions	45
Table 3.3: Annual ratios	46
Table 4.1: Number and percentages of JSE firms in different groups	48
Table 4.2: Average firm size, and ratios of aggregate earnings, investment, firm value, and liabilities to aggregate assets and book equity, for different firm groups and for new lists	53
Table 4.3: Percentage of aggregate values accounted for by firms paying dividends	57
Table 4.4: Pearson Correlations matrix	58
Table 4.5: Pearson Correlations matrix excluding V_t/A_t	58
Table 4.6: Omnibus Tests of Model Coefficients	59
Table 4.7: Omnibus Tests of Model Coefficients	59
Table 4.8: Classification Table	60
Table 4.9: Classification Table	60
Table 4.10: Logit regressions to explain which firms pay dividends	63
Table 4.11: Estimates from logistic regressions of the effect of changing characteristics and declining propensity to pay on the percent of firms paying dividends	65
Table 4.12: Pearson Correlations matrix	67
Table 4.13: Model Summary	67
Table 4.14: Analysis of Variation (ANOVA) model	67
Table 4.15: Pearson Correlations Matrix	70
Table 4.16: Model Summary	70
Table 4.17: Analysis of Variation (ANOVA) model	70
Table 4.18: Pearson Correlations Matrix	72
Table 4.19: Model Summary	72
Table 4.20: Analysis of Variation (ANOVA) model	72

List of Tables (continued)

Table 4.21: Multiple Linear Regressions to explain which firms pay dividends	73
Table 4.22: Estimates from multiple linear regressions of the effect of changing characteristics and propensity to pay on the percent of firms paying dividends	75
Table 4.23: Aggregate earnings, dividends, and losses	78
Table 4.24: Dividend-paying industrial firms by cash dividends paid in 1990 and 2015.	79
Table 4.25: Cross-sectional distribution of dividends in 1990 and in 2015, with dividend-paying firms categorized by real dividends paid	80
Table 4.26: Dividend-paying firms by their earnings in 1990 and 2015	81
Table 4.27: Cross-sectional earnings distribution of dividend-paying and non-dividend paying firms	82
Table 4.28: Pooled distributions of real earnings for dividend payers and non-payers	83

List of Figures

	Page number
Figure 1.1: Johannesburg Stock Exchange: Key Milestones	2
Figure 4.1: Number of firms in each group	50
Figure 4.2: Proportion (or Percentage) of firms in each group	51
Figure 4.3: Aggregate earnings, dividends, and losses	78

CHAPTER 1

1.1 BACKGROUND AND MOTIVATION FOR THE STUDY

A firm's decision to pay dividends has been widely regarded as one of the most important financial decisions to be taken from a strategic point of view (Wolmarans, 2003). Firms in various industries have differing capital structures, and it can be expected that dividend paying firms will have differing dividend policies, as the dividend decision has implications for both the investment and financing decisions taken by these firms (Wolmarans, 2003). Dividend theories have provided various avenues, through extensive literature, to explain dividend policy; however, these theories do not complement one another in providing clarity as to why firms pay dividends. Black (1976) found that the reason behind firms deciding to pay dividends is actually not clear or obvious and subsequently termed this the dividend puzzle. He describes dividend policy as a puzzle that does not fit together, having found that the harder one tries to look at the dividend picture, the more complicated it seems.

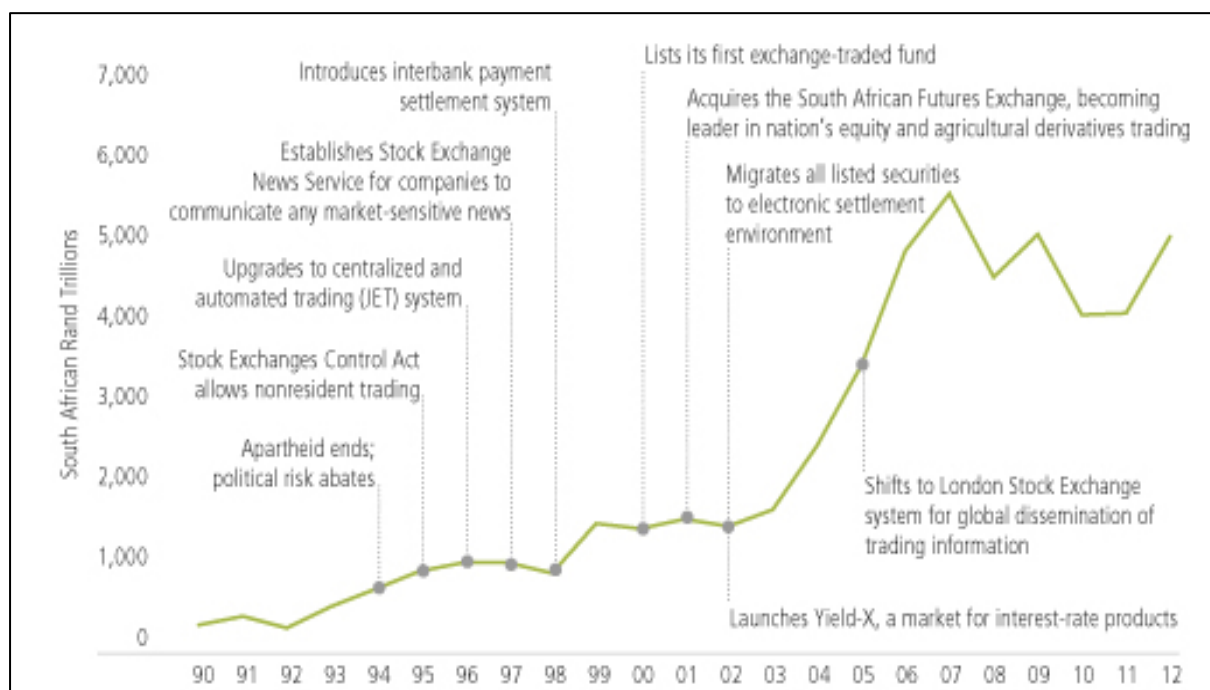
Fama and French (2001) examined various firm characteristics of dividend paying listed firms in the United States of America (U.S.)¹, specifically profitability, investment opportunities, and size; also examining the listed firms' propensity to pay. Their main finding was that regardless of these characteristics, firms have become less likely to pay dividends. This finding is interesting because it refers one back to Modigliani and Miller (1961), who found that in perfect and frictionless markets, investors should be indifferent to receiving their returns in the form of dividends or price appreciation. DeAngelo, DeAngelo, and Skinner (2004) confirm the radical transformation in corporate dividend practices of U.S. listed firms over time as identified by Fama and French (2001); however, they disagree on the finding that dividends are themselves disappearing. They find that even though the number and percentage of dividend paying firms has fallen, dividends themselves are not disappearing. It is also important to highlight the fact that the behaviour of dividend firms in Fama and French (2001)'s sample was influenced by significant economic events, such as the Great Depression.²

¹ Firms listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX) and National Association of Securities Dealers Automated Quotations System (NASDAQ) during the 1926 to 1999 financial period.

² Fama, E., & French, K. (2001). Disappearing dividends: changing firm characteristics or lower propensity to pay? *Journal of Financial Economics*, 60, 6.

The South African economy has undergone some significant economic changes as a democratic country. These economic changes have been reflected within the South African Stock market, specifically the Johannesburg Stock Exchange (JSE Limited). Figure 1.1 provides an overview of the various changes that have affected the value of the JSE Limited over the period of the post-Apartheid era.

Figure 1.1: Johannesburg Stock Exchange: Key Milestones



Source: <http://topforeignstocks.com/2010/11/27/south-africa-ftsejse-all-share-index-historical-total-returns-chart/>

During the 2008 to 2012 period, JSE Limited listed companies across the different sectors were faced with a significant change affecting dividend paying companies. The Secondary Tax on Companies (STC) was phased out during this period and replaced with a tax on dividends, effective April 2012, in order to promote the attractiveness of conducting business in South Africa (Cobbett & Wingate-Pearse, 2007). This change simply meant that the tax charged on companies for paying dividends was transferred to the investors receiving the dividend. Given the macroeconomic and structural changes in South Africa, it would be interesting to understand how the performance - measured by dividends and other financial metrics - of dividend paying firms within the General Industrials sector was affected.

1.2 PROBLEM STATEMENT

Fama and French (2001) identified a new wave of lists in the USA during the 1978 period. This new wave is characterised by lists with different characteristics leaning towards those of firms that typically do not pay dividends, which have had a significant impact on their

findings on disappearing dividends. Within the South African context, Viviers, Firer and Muller (2013) is the closest study that has focused on the behavior of dividend paying firms on the JSE Limited during changing economic periods. Other South African studies have reported on various dividend theories on a microeconomic level through surveys and quantitative analysis (Wolff & Auret, 2006; Bester, 2008; Firer, Gilbert & Maytham, 2008). This study seeks to investigate whether there have been changes in the nature of dividend paying Industrial firms, mainly as a result of the impact of macro-economic events on the behaviour of firms. The changes in economic behaviour may have resulted in a change in the identity of dividend paying industrials, which could possibly affect the dividend patterns.

1.3 RESEARCH OBJECTIVES

The main research objective of this study is to investigate whether there have been changes in the patterns of dividend paying industrial firms on the JSE Limited

The sub objectives of this study are to investigate whether:

- there has been a change in the characteristics of dividend paying firms on the JSE over the 1990 to 2015 period;
- dividend paying firms have become more or less likely to pay dividends.

1.5 LIMITATIONS

There are certain delimitations to the study. The first challenge is the issue of data availability of cash dividend paying firms for the period of study, which may lead to a reduction in the sample size. Survivorship bias is another issue that may affect the sample size of the study, if not carefully accounted over the period of the study. A delimitation to the study is selection bias resulting from the period chosen and the specifications imposed on the firms, specifically new firms.

1.6 DEFINITION OF KEY TERMS

Table 1.1 presents the key terms used in the study.

Table 1.1: Definition of key terms

<u>Terminology</u>	<u>Definition</u>
JSE Limited	Johannesburg Stock Exchange
STC	Secondary Tax on Companies
Industrials	JSE listed companies that do not belong to Financials, Oil & Gas producers and Mining (JSE code: J272)
Non-payers	Firms that have either never paid dividends or have stopped paying dividends
Dividends	Annual cash dividends paid

1.7 IMPORTANCE AND BENEFITS OF THE STUDY

The Industrials index, as of 2015, was the most represented sector on the JSE Limited in terms of the total market value of the outstanding shares of the listed companies, and number of stocks that make up the index. This study seeks to investigate whether there could be a contribution to managerial practice, specifically the decision process of selecting industrial shares to include in portfolios under management. The identification of possible changes in dividend paying Industrials' performance over a period, measured by changing firm characteristics and dividend patterns, will hopefully aid in the criteria of share selection. The proposed study aims to expand on the existing literature on corporate dividend practices in South Africa by emphasising the linkages between economic events and the patterns observed in the dividend patterns of industrial firms on the JSE Limited. Lastly, the proposed study aims to also focus on studies conducted on dividend policy in emerging markets, where there is great opportunity for research that will contribute to the body of knowledge.

1.8 STRUCTURE OF DISSERTATION

The rest of this study is structured as follows: CHAPTER 2 reviews the literature on dividend theory; CHAPTER 3 discusses the data and methodology; CHAPTER 4 reports the results; and CHAPTER 5 concludes the study in addition to providing recommendations.

1.9 CONCLUSION

Chapter 1 provided an overview of the background on a firm's decision to pay dividends, which has been an on-going debate in the Finance literature, and subsequently termed as the dividend puzzle by Black (1976). In addition, the motivation for the study is based on the findings of Fama and French (2001) and DeAngelo et al. (2004) who examined the patterns

of dividend paying firms over specific periods. The problem statement and objectives of the study were subsequently defined in line with the two base studies. Overall, the study aims to expand on the existing literature on corporate dividend practices in South Africa by emphasising the linkages between economic events and the patterns observed in the dividend patterns of industrial firms on the JSE Limited. The next Chapter examines the existing literature around dividend policy, firm characteristics, and propensity to pay dividends.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses the theory and empirical literature relating to the factors that influence dividend policy. Section 2.2 provides a review of the literature relating to the relationship between profitability and dividend policy. Section 2.3 provides a review of the literature around the role of dividend conservatism in relation to dividend policy. Section 2.4 reviews the role of investment opportunities in relation to dividend policy. Section 2.5 discusses the role of firm size and dividend paying firms. Section 2.6 discusses the propensity to pay dividends, and finally, Section 2.7 concludes the chapter.

2.2 PROFITABILITY AND DIVIDENDS

There has been no unanimous agreement on the relationship between profitability and dividends in the extant finance literature.³ According to some studies, dividends and profitability have a positive relationship (Lintner, 1956; Fama & French, 2001). These studies have posited that dividends contain information content about the earnings of firms, that dividend decisions should be made conservatively in relation to earnings stability, and that the profile of firms determines the level of profitability. However, some studies have found no support for the relationship between dividends and profitability (Miller & Modigliani, 1961; Benartzi, Michaely & Thaler, 1997).

Von Eije and Megginson (2007) tested whether the linkage between cash dividends and earnings had weakened over time, and whether the total payout of companies that pay both cash dividends and repurchase shares regularly, had become more sensitive to earnings for firms operating in the 15 member nations of the European Union. They found a positive relation between earnings and cash dividends over the sample period, and that the speed of adjustment of cash dividends to earnings increases significantly with time. With respect to share repurchases, their results reveal that share repurchases have become increasingly dependent on earnings, in line with the findings by Brav, Graham, Harvey, and Michaely (2005). They also found, however, that the speed of adjustment of share repurchases to earnings declines significantly over the sample period. Overall, it was found that earnings influence cash dividends significantly more than repurchases. Similarly, Skinner (2008) obtained results supporting the weakened relation between earnings and payout policy.

³ The term profitability is used interchangeably with the term earnings.

Skinner (2008)'s results indicate that earnings perform a good job of explaining payouts for firms that both pay dividends and make repurchases and firms that only make repurchases. Using Lintner's (1956) model to examine how the relation between dividends and earnings had changed over time, Skinner (2008) found that this relation had weakened considerably after 1980 in conjunction with the increasing reluctance of managers to increase dividends. Skinner (2008) also found that the reluctance by managers to pay dividends is explained by the increasing strength between earnings and the combination of dividends and repurchases. This finding suggests that dividend payments alone were found to be less common in Skinner (2008)'s sample without a coincident increase in share repurchases, which is in line with the findings by Fama and French (2001).⁴ Skinner (2008) also found that there was an equally strong relation between earnings and payouts for firms that only make repurchases. The regressions of payouts on earnings were found to have greater explanatory power when estimated using windows that were longer than one year, and suggests that firms were increasingly making payout decisions based on earnings over two to three year windows.

A study by Ouma (2012) revealed that there is a strong relationship between dividends paid and profitability for firms listed on the Nairobi Securities Exchange. Ouma (2012)'s results indicate that dividends paid, total assets and revenue significantly affect the net profit after tax. Based on the findings, Ouma (2012) concluded that dividend policy is relevant in determining firm value. This is contrary to the irrelevance theory of Miller and Modigliani (1961). Similarly, Ajanthan (2013) sought to establish whether there was a relationship between dividend payout and firm profitability among hotels and restaurant companies listed on the Colombo Stock Exchange (CSE). The results indicate a strong, positive and significant relationship between dividend payout and firm performance, suggesting that dividend policy is relevant as it is a crucial factor affecting firm performance. Managers should therefore pay attention to designing a dividend policy that would enhance shareholder value. Al-Kuwari (2010) examined the corporate dividend payout decisions of firms listed on the emerging Gulf Cooperation Council (GCC) states' stock market, and found a positive and significant relationship between firm profitability and the dividend payout ratio. Al-Kuwari (2010) suggests that profitability is a critical determinant of the dividend policies of companies listed on the emerging GCC states' stock exchanges and that shareholders, regardless of dividend stability, take whatever they can generate from company profits since their legal protection is

⁴ The details around Skinner (2008)'s findings are discussed further in Section 2.3.

poor.⁵ On the contrary, Mehta (2012) found that profitability is negatively related to the dividend payout for firms listed on the Abu Dhabi Stock Exchange. This finding indicates that firms that are more profitable, listed on the Abu Dhabi Stock exchange, pay fewer dividends. Mehta (2012) suggests that these firms would prefer investing in their assets rather than paying dividends to shareholders, which is supportive of the pecking order theory.

Several studies have examined the profitability and dividend relationship within the context of Africa. For instance, Abor and Fiador (2013) examined, *inter alia*, the manner in which corporate board characteristics and institutional ownership structures affect dividend payout in South Africa, Nigeria, Kenya and Ghana. They found that profitability was not an important determinant of dividend policy in South Africa and Kenya. This is due to the significant role of good corporate governance structures in the two countries. Therefore, corporate governance mechanisms, rather than profitability, were identified as important determinants of dividend policy. In a related study, Elmi and Muturi (2016) assessed the effects of profitability on dividend payout by commercial and services firms listed on the Nairobi Securities Exchange (NSE). Using questionnaires and descriptive statistics, their results revealed that profitability has a positive but insignificant effect on dividend payout. Firstly, the respondents indicate that companies reduce dividend payments when profitability reduces. Secondly, dividend decisions convey information about company information to investors. Lastly, respondents indicate that companies projecting high profitability growth tend to pay relatively higher dividends.

2.2.1 Profitability of Dividend payers and Non-dividend payers

Several studies have found that the level of profitability of a firm can be determined by whether it pays dividends or not (Fama & French, 2001; Ferris, Sen, & Yui, 2006), and the jurisdiction in which the firm operates in (Denis & Osobov, 2008; Ferris, Jayaraman, & Sabherwal, 2009). Fama and French (2001) divided their sample of firms into dividend and non-dividend payers, and they documented several findings. Firstly, they found that dividend payers have higher measured profitability compared to the non-payers. Secondly, they found that the non-dividend paying group indicates that former payers have lower profitability than firms that have never paid dividends. Lastly, they found that the majority of new lists, dividend paying and non-dividend, were unprofitable later in the sample period. Furthermore, Aivazian, Booth, and Cleary (2003) conducted a study comparing dividend paying firms based in either emerging or developed financial markets. They particularly examined whether

⁵ In total, there were 245 firms listed on the 5 stock exchanges in the GCC countries. The 5 stock exchanges are as follows: Muscat, Saudi Arabia, Kuwait, Qatar, and Bahrain.

emerging market firms followed different dividend policies from U.S. firms. Firstly, they found that the average dividend payment was generally higher for emerging market firms than for U.S. firms.⁶ Secondly, they found that profitable firms in the U.S. with low debt levels and relatively high market values seem to pay out larger amounts of dividends. Thirdly, they found that larger U.S. firms with more tangible assets and lower risk tend to pay higher dividends. Lastly, they found that emerging market firms exhibit dividend behaviour similar to US firms, in the sense that dividends are explained by profitability, debt, and the market-to-book ratio. Furthermore, Aivazian et al. (2003) found that profitability has more of an effect on dividend payments for emerging market firms than for U.S. firms.⁷

Amidu and Abor (2006) examined the determinants of dividend paying firms listed on the Ghana Stock Exchange. They found evidence of a positive and significant relationship between the dividend payout ratio and firm profitability.⁸ Their findings imply that profitability is an important factor in considering whether to pay out dividends. In line with Fama and French (2001), Ferris, Sen, and Yui (2006) found that dividend paying firms were more profitable than those that did not pay over the period examined.⁹ Their results indicate that this is also true for newly listed firms. Furthermore, Denis and Osobov (2006) examined the commonality of the firm characteristics of dividend payers and non-payers across several developed countries.¹⁰ Firstly, they found that dividend payers in the six developed countries observed tend to be more profitable and in addition have a positive relationship with earned or contributed equity mix.¹¹ However, they found that when all firm characteristics were considered together, firms in each of the six developed financial markets observed became more likely to exhibit characteristics typical of non-paying firms overtime. They reasoned that their results suggest that firms in each country tend to be smaller and less profitable over the sample period. Secondly, they found that when controlling for firm characteristics, firms that currently paid dividends preferred continuing to do so, while firms that did not pay dividends preferred not to initiate. They suggest that this finding indicates that those firms with the longest history of profitability and the highest probability of paying dividends were unlikely to abandon dividends. Thirdly, their results indicate that dividend payers tend to have substantially higher ratios of retained earnings to total equity than non-payers do.

⁶ Aivazian, Booth, and Cleary (2003) found that this is true for six out of the eight countries sampled.

⁷ Aivazian, Booth, and Cleary (2003) found that this is true for seven out of the eight countries sampled.

⁸ Amidu and Abor (2006) formulated a hypothesis that profitability, cash flow and institutional holdings would be expected to have a positive relationship with dividend payout policy and that however, risk, tax, sales growth and market-to-book ratio value would have a negative relationship with dividend payout policy.

⁹ Ferris, Sen, and Yui (2006, pp. 1157 - 1160).

¹⁰ Denni and Osobov (2008) observed firms in the U.S., Canada, Japan, United Kingdom (U.K.), Germany, and France.

¹¹ Denis and Osobov (2008) found that the likelihood of paying dividends, in the six countries observed, is strongly associated with the ratio of retained earnings to total equity.

Lastly, they found that reductions in the propensity to pay dividends were small in the highest groups of the ratio of retained earnings to total equity. Their results indicate that the reductions observed in the propensity to pay dividends appeared to be concentrated among those firms that did not appear to be reasonable candidates to pay dividends.¹² Overall, they found that declines observed in the propensity to pay dividends are mainly driven by newly-listed firms that fail to initiate dividends when expected to do so.¹³

Similarly, Ferris, Jayaraman, and Sabherwal (2009) considered the jurisdictions in which firms operate within when examining the characteristics of firms in relation to profitability.¹⁴ Firstly, they found that the most profitable firms were more likely to pay dividends.¹⁵ Secondly, they found that larger firms with relatively higher profitability and low growth opportunities and former dividend paying firms had a greater propensity to pay dividends. Lastly, they found that the demand by outside investors for dividends was influenced by their legal protection, and that the valuation effects of their demands enticed managers to provide dividends.

2.2.2 Signalling theory

The literature has been mixed in terms of dividends being used as a mechanism to signal firm profitability. Signalling theory is defined as the information content of dividends that is used to indicate the future prospects of a firm (Bhattacharya, 1979; John & Williams, 1985; Anand, 2002). The intuition underlying this theory is based on the information asymmetry between managers (insiders) and outside investors, where managers have private information about the current and future profitability of the firm that is not available to outsiders.

Signalling theory essentially assumes that outside investors have imperfect information about firm profitability and that cash dividends are taxed at a higher rate than capital gains (Bhattacharya, 1979). Bhattacharya (1979) based the signalling theory on a model in which cash dividends function as a signal of expected cash flows. Bhattacharya (1979) assumed a risk-neutral world in which there is valuation of cash flow streams, also assuming that agents have a need to realize their wealth over a certain horizon in which expected discounted wealth is maximized.¹⁶ Bhattacharya (1979) found that the horizon over which shareholders realize their wealth is directly related to the equilibrium proportion of dividends to expected earnings. Farsio, Geary, and Moser (2004) argued that no significant relationship held between earnings and dividends in the long run. They instead argued that empirical studies

¹² Denis and Osobov (2008, p. 71).

¹³ Denis and Osobov (2008) attribute this partly to the expanded Worldscope coverage over the sample period.

¹⁴ Ferris et al. (2009) conducted a study testing for the international presence of dividend catering across firms in.

¹⁵ Ferris et al. (2009, pp. 6 - 9).

¹⁶ Bhattacharya (1979, pp. 260 – 261).

that had concluded the existence of a causal relationship between earnings and dividends were misleading as they tend to be based on short periods. Their empirical tests indeed reveal that no significant relationship exists between dividends and earnings, therefore supporting their hypothesis.

Several studies have examined whether both dividend and share repurchase decisions convey information to investors in the 21st century. Brav et al. (2005) surveyed 384 Chief Financial Officers (CFOs) and Treasurers of U.S. corporations in order to determine the key factors that affect dividend and share repurchase policies. The survey responses suggest that earnings announcements and direct communication with the investor community convey the majority of information to outsiders. A small group of respondents indicate that they strongly or very strongly agreed that they use dividend and repurchase policy to make their firm look better than their competitors. In addition, the vast majority of respondents indicate that they did not agree with the premise of using payout policy as a tool to show that their firms could bear costs to make their company look better than competitors could. Contrary to Bhattacharya (1979), approximately 19 percent of dividend payers agree or strongly agree that they use dividends to show that they are strong enough to bear the cost of external capital if needed. On the contrary, Firer, Gilbert, and Maytham (2008) obtained evidence supporting the signalling theory. Firer et al. (2008) reviewed the work done on dividend policy in South Africa over a 25-year period by comparing and contrasting their findings with those of Brav et al. (2005). They found that over 80 percent of the South African dividend paying respondents indicated that dividend decisions convey information to the market. Over 80 percent of respondents also indicate that repurchase decisions are seen to be as equally important in terms of conveying information. They also found that only 26 percent of respondents agreed that they use their dividend decisions to distinguish themselves from their competitors, which is similar to the responses of Brav et al. (2005). Only 3 percent of respondents agreed that they use dividends or repurchases to signal to the market that they could bear costs associated with borrowing additional funds or passing on investments to distinguish themselves from competitors. Dennis and Osobov (2008) found that dividends are paid by the largest, most profitable firms, contrary to the rationale that dividends are primarily paid by smaller, less profitable firms in need of signaling. Furthermore, Mollah (2011) examined the behaviour of payout policies of listed firms on the Dhaka Stock Exchange (DSE) after the 1998 Asian financial crisis. Mollah (2011) found a negative relationship between the earnings and the dividend payout ratio. Mollah (2011) concluded

that this finding suggests firms have a tendency of paying lower dividends during times of uncertainty, and therefore imply that dividends convey the correct information to the market. Younis and Javid (2014) obtained results indicating that dividends are used as a signalling device to investors in order to indicate firm profitability on the Karachi Stock Exchange (KSE). They suggest that this finding indicates that high growth firms are more likely to pay high dividends, and that increases in sales of the company's products is likely to raise its profits and provide more cash for its use and operational activities.

2.3 DIVIDEND CONSERVATISM

Dividend conservatism is defined as dividend decisions that are made conservatively based on the patterns in which firms set their dividends (Lintner, 1956; Skinner, 2006). The literature has been mixed regarding the relationship between dividend policy and dividend conservatism as some studies posit that firms should focus on earnings stability as this will result in a positive dividend policy (Firer, et al. 2008; Kiboi, 2015). Other studies have found no relation between earnings and dividend policy (Wolff & Auret, 2006; Abor & Fiador, 2013).

During the 1950s, Lintner (1956) conducted a study focusing on corporate dividend policies of 28 companies by interviewing the managers representing these companies. Firstly, Lintner's findings reveal that managers set long run target dividend payout ratios and only change dividends to match long-term, sustainable changes in earnings. Secondly, Lintner (1956)'s findings also indicate that that dividend changes are the prime concern of managers. Overall, Lintner (1956)'s results revealed that dividends are made conservatively and that managers are reluctant to cut dividends. In line with Lintner (1956), Brav et al. (2005) found that 94 percent of dividend payers strongly or very strongly agreed that they attempted to avoid dividend reductions. They found that most respondents view lagged dividends per share as given, and that the most common dividend decision was about whether a firm should increase dividends. Approximately 40 percent of the respondents representing dividend paying firms indicate that they target dividends per share, 28 percent target dividend payout, and 27 percent target growth in dividends per share. Respondents representing non-dividend paying firms were found to view dividends as inflexible, and that this made them very hesitant to initiate dividends. Brav et al. (2005) found that the majority of these respondents took the current dividend as the starting point. They also found that more than two thirds of respondents regard the stability of future earnings as an important or very important factor affecting dividend decisions. Their survey findings also reveal that profitable firms with stable earnings felt compelled to link their growth in dividend payout to earnings growth. In

terms of share repurchases, more than 40 percent of the respondents indicate that they target the dollar value of repurchases. The respondents also indicate that they were less conservative with their repurchase policies as they believed the market was more willing to accept a reduction in repurchases than dividends. Firer et al. (2008) examined dividend conservatism within the South African context. They found that the majority of SA respondents would try to avoid reducing dividends per share, and emphasised the importance of maintaining a consistent historic dividend policy. However, approximately 60 percent of SA respondents indicate that maintaining a smooth dividend stream was not of much importance. Similar to Lintner (1956), more than 50 percent of SA respondents indicate that they target the payout ratio, implying that the current dividend policy is a base from which firms begin their decision. When examining the manner in which earnings affect the payout ratio among dividend paying firms, over 80 percent of SA respondents indicate that the stability of future earnings and sustainable changes in earnings are important or very important factors in their dividend decisions.

Skinner (2008) linked the changes in corporate payout policy to changes in the nature of reported earnings to provide evidence on how and why payout policy had changed. Firstly, Skinner (2008) found that dividend policy becomes more conservative over the sample period. Skinner (2008) suggested that this was mainly explained by earnings increases being less sustainable than in prior years due to the increase in earnings volatility as indicated in the statistical analysis.¹⁷ Secondly, Skinner (2008) also provided an alternative explanation that managers could adapt their payout policies to include repurchases on an ongoing basis as opposed to the possibility of changing attributes of earnings for these firms. The results indicate increasing evidence of a relation between dividends and repurchases as the sample time period progressed. Skinner (2008) suggested that managers of firms that pay out cash in the form of dividends and repurchases made these decisions as part of a coordinated payout policy. Furthermore, Skinner (2008)'s results support the view that managers' repurchase decisions are increasingly tied to earnings. In addition, Lily, Venkatesh and Sukserm (2009) found that the stability of earnings and financial policy of firms in Thailand are important variables that may influence companies to pay low or high dividends. They also found that firms were willing to pay higher dividends when they had more stable profits and fewer obligations to lenders. Similarly, Adesola and Okwong (2009) found evidence of dividend conservatism for firms listed in Nigeria.¹⁸ Firstly, they found that their earnings and previous

¹⁷ Skinner (2008, p. 35).

¹⁸ Their sample covered 15 sectors of the Nigerian Stock Exchange, and they based their model on the Lintner (1956) partial adjustment model.

year dividend significantly influence the dividend policies of quoted firms in Nigeria. Secondly, they found that the reluctance to cut dividends results in companies only partially adjusting their dividends to changes in earnings. Thirdly, they found that average earnings per share are a significant factor of the average dividend payment confirming their overall finding of earnings, specifically current earnings, being a significant decision for paying dividends. Overall, their results provide strong support for the explanatory power of Linter (1956)'s model. Furthermore, Adjaoud and Ben-Amar (2010) obtained evidence in support of dividend conservatism for companies listed on the Toronto Stock Exchange (TSX).¹⁹ They specifically reported that the coefficient of the lagged dividend variable is positive and statistically significant, suggesting that companies listed on the TSX maintain a constant pattern of dividend payouts over time. In a related study, Uwuigbe, Jafaru, and Ajayi (2012) investigated the relationship between financial performance and dividend payout for 50 listed firms in Nigeria. Their results suggest that firm performance has a significant impact on the dividend payout. Uwuigbe et al. (2012) posited that this finding implies financial well-being of listed firms tends to positively affect the dividend level of these firms.

Younis and Javid (2014) examined dividend stability and smoothing relating to firms listed on Karachi Stock Exchange (KSE). Their results indicate that net income and lagged dividends are positively correlated, and statistically significant, indicating that firms follow dividend smoothing policies according to Lintner (1956)'s payout target.²⁰ In addition, they found no evidence of dividend stability when using Fama and Babiak (1968)'s dividend per share as the dependent variable and earnings per share. In a related study, Kiboi (2015) tested for dividend conservatism by examining the relationship between earnings per share (EPS) and dividends per share (DPS) for companies listed on the Nigerian Stock Exchange (NSE). The results indicate that EPS have a positive and significant effect on DPS. Based on these results, Kiboi (2015) posited that the dividend policy of listed firms in Kenya is strongly influenced by EPS and that managers should therefore focus on improving earnings, which would translate into a positive dividend policy.

Several studies have found no support for dividend conservatism. For example, Miller and Modigliani (1961) argued that managers should not be concerned with dividend payout strategies. They instead found that in perfect and complete markets, the value of a firm is independent of its dividend policy. They argued that firm value is determined by selecting

¹⁹ Adjaoud and Ben-Amar (2010) examined the relationship between the quality of corporate governance and dividend policy of firms listed on the Toronto Stock Exchange (TSX).

²⁰ Younis and Javid (2014, p.23).

optimal investments. They concluded that a firm's dividend policy does not influence the wealth of shareholders. Evidence from Ahmed and Javid (2008) suggests that listed firms on the Karachi Stock Exchange (KSE) rely on both current earnings per share and dividend per share to set their dividend payments. Firstly, they found that firms listed on the KSE did not smooth dividends as the results show low target payout ratios and high speed of adjustment. They concluded that these results indicate a trend towards low smoothing and instability of dividend payout policies. Secondly, their results indicate that profitable firms with stable earnings can afford larger free cash flows allowing for larger dividend payouts. Furthermore, Wolff and Auret (2009) found no support for dividend conservatism. Their empirical analysis was based on JSE listed firms consistently declaring dividends. They found a positive relationship between the size of the dividend increase and current earnings. However, the analysis produced results that fail to support the ability of dividend size to consistently predict future earnings. In addition, they also found a strong concurrent relationship between dividends and earnings changes. However, they found a non-significant relationship between dividends and future earnings changes post dividend change.

2.4 INVESTMENT OPPORTUNITIES

One of the key implications of Miller and Modigliani (1961) is that payout decisions are of lesser importance than operating decisions, particularly the pursuit of investment opportunities. Numerous studies have attempted to prove the relationship between investment opportunities and dividend payout policy. However, no unanimous consensus has been reached (Jensen, 1986; Smith & Watts, 1992; Gaver & Gaver, 1993; Abbott, 2001; Jones & Sharma, 2001; Jeong, 2011; Kent Baker, Saadi, Dutta, & Gandhi, 2007; Naceur et al., 2006). Several studies have documented a negative relationship between investment opportunities and dividend payout policy. For instance, Fama and French (2001) found that firms that had never paid dividends had the best growth opportunities compared to dividend-and former-payers. In addition, they found that dividend paying new lists invested at a higher rate during the entire period of study than all dividend payers. They also found that the asset growth rates of non-paying new lists were higher than all non-paying firms. Considering the investment opportunity hypothesis, Julio and Ikenberry (2004) found mixed evidence regarding this hypothesis to explain the disappearance and subsequent reappearance of dividends in corporate America.²¹ They expected high asset growth in both fixed assets as well as short-term assets for companies with high levels of investment opportunities; and dividends to fall

²¹ Investment opportunity hypothesis (Julio & Ikenberry, 2004, pp. 14 - 15).

in times of high cash acquisition takeover activity. Their results support their expectations of declining dividends, as asset growth and cash acquisitions increased during the mid to late 1990s and early 2000s. However, contrary to their expectations, during the 2003 and 2004 periods, dividends were found to be increasing as asset growth and cash acquisitions increased. Similar to Fama and French (2001), Amidu & Abor and (2006) applied the market to book ratio and sales growth as proxies for investment opportunities of firms listed on the Ghana Stock Exchange (GSE). They found a negative relationship between investment opportunities and dividend payout, suggesting that dividend paying Ghanaian firms tend to have less growth opportunities.

The findings by Fama and French (2001) were further examined within the United Kingdom (U.K.) context. Ferris, Sen, and Yui (2006) employed three different proxies for the comparative analysis of corporate investment opportunities across dividend payers and non-payers in the U.K. equity market.²² The objective of their study was to examine whether the decline observed by Fama and French (2001) in the number of dividend payers was purely a U.S. phenomenon or part of a global trend. Firstly, they obtained confounding results limiting the interpretation of investment opportunities, and reasoned that this was due to the comparative nature of investment opportunities between dividend payers and non-payers not being easily inferred from the univariate analysis applied.²³ Secondly, their multivariate analysis, however, provided much clearer results consistent with those of Fama and French (2001), indicating that the investment opportunities of U.K. listed firms reduced the likelihood of dividend payments.

Studies that rely on survey evidence appear to suggest that dividend decisions are subordinate to investment decisions. For instance Brav et al. (2005) found that approximately 34 percent of U.S. respondents agreed or strongly agreed that dividend decisions were made after investment plans were determined, suggesting that the dividend decision is subordinate to the investment decision. They also found that less than 50 percent of respondents had indicated that investment opportunities were an important or very important factor affecting both their dividend and repurchase decisions. Within the South African context, Firer et al. (2008) found that over 80 percent of their respondents indicated that investment opportunities were an important or very important factor affecting both their dividend and repurchase decisions. The majority of respondents also indicated that they agreed or strongly agreed that dividend decisions were made after investment plans had been determined. These findings support

²² Ferris, Sen, and Yui (2006, p.1160).

²³ Ferris et al (2006, pp. 1160 – 1161).

Miller and Modigliani (1961)'s rationale that dividend decisions are subordinate to the investment decision.

In a related study, Auret and Britten (2008) proposed that the level of dividends should decline in the years after the Initial Public Offering (IPO), if companies solely listed to pursue profitable growth opportunities. They also posited that dividend payouts would increase if IPO firms no longer had above average growth prospects, which would therefore decrease the likelihood of resources being wasted on unprofitable investments (Jensen, 1986). They found that IPOs listed on the JSE initially increased their long-term investment, but that the higher level of investment had not persisted beyond the third year after listing. They concluded that managers were initially overoptimistic about their firms' prospects, later realizing that their firms' investment opportunities were not as profitable as initially anticipated. This subsequently led to these firms scaling down their investments. Several studies have examined the effect of growth opportunities on dividend policy from a cross-country perspective. Denis and Osobov (2008) observed that the effect of dividends on growth opportunities was conditional on a country's legal origin. Firstly, in line with Fama and French (2001), dividend payers were found to have less valuable growth opportunities in the U.S. There was, however, mixed evidence regarding the growth opportunities of dividend payers in Germany, France, and Japan. Secondly, their findings indicate that dividend payers in some of the sampled countries had more valuable growth opportunities.²⁴ Overall, their results appeared to indicate a trend towards firms with characteristics that were less likely to pay dividends in each of the countries observed. Furthermore, Ahmed and Javid (2008) explored the dividend and investment relationship for firms listed on the Karachi Stock Exchange (KSE). They found a strong negative and significant relationship between dividend payout and investment opportunities. This finding implies that growing firms with more investment opportunities paid low dividends to their shareholders. In a related study, Brown, Bartram, How, and Verhoeven (2009) investigated the roles of firm and country level agency conflicts in determining corporate payout across 43 countries. Their results revealed that high growth firms had significantly lower payouts when agency conflicts at both the firm and country were low. This finding suggests that when investment opportunities are present, investors are willing to defer the receipt of a return on their investment to a later period. They found that this was the case given that these investors could enjoy high protection at both the country and firm levels.

²⁴ Denis and Osobov (2008, pp. 64 - 65).

Ferris et al. (2009) examined the relation between the propensity to pay dividends and investment opportunities. They found that the propensity to pay dividends was significantly negatively related to the market-to-book value of assets. This suggests that firms with more growth opportunities are less likely to pay dividends. Overall, their results confirmed that firms with greater growth opportunities have a lower propensity to pay dividends. In line with Myers and Majluf (1984), Al-Kuwari (2010) found a negative relation between firms with high growth opportunities and the likelihood of paying dividends for firms in the GCC.²⁵ Al-Kuwari's findings suggest that firms with high growth opportunities are unlikely to pay dividends since they lower free cash flows.

In a related study, Mollah (2011) investigated the behaviour of pay-out policies of firms listed on the Dhaka Stock Exchange (DSE), and found a negative relationship between firms with high growth prospects and the likelihood of paying dividends. Mollah (2011)'s results for the period preceding the Asian financial crisis indicate that higher growth generally presented more investment opportunities for firms listed on the DSE. In addition, it was found that these firms had a tendency of using internally generated funds for investment and consequently paid lower dividends. These support the residual theory of dividends and the pecking order theory of capital structure (Myers & Majluf, 1984). Similarly, Subramaniam, Devi, and Marimuthu (2011) investigated the relationship between investment opportunities and dividend policy, and whether in the context of an emerging economy, the ownership structure moderated this relationship. Their analysis indicates a significant negative association between investment opportunities and the dividend payout ratio. They linked the negative association between dividend policy and investment opportunities to the free cash flow hypothesis, which states that high growth firms pay lower dividends and low growth firms pay higher dividends (Jensen, 1986).

Several studies have found a positive relationship between dividends and investment opportunities. For instance, within the South African context, Abor and Fiador (2013) found a positive relation between growth opportunities and dividends for firms in South Africa. These results are contrary to the findings of Auret and Britten (2008) and Bester (2008) who found a negative relationship between growth opportunities and dividends for firms in South Africa. Abor and Fiador (2013) concluded that high growth firms in South Africa would be in a better position to pay high dividends to their shareholders than those with low growth opportunities. Ardestani, Rasid, Basiruddin, and Mehri (2013) investigated the impact of

²⁵ Al-Kuwari's (2010) fourth hypothesis is as follows: *Ceteris paribus*, growth and investment opportunities negatively affect the probability of paying dividends.

investment opportunities on dividend payout policy for companies listed on the main board of Bursa Malaysia. Firstly, their results indicate that there was a positive and significant relationship between investment opportunities and the dividend payout policy. They supported their results by suggesting that companies with positive expected growth opportunities were eager to payout dividends. Secondly, they also posited that Malaysian investors were more in favour of increases in earnings per share rather than dividends per share, which explains the positive relationship between dividend payout and investment opportunities. Younis and Javid (2014), in the case of Pakistani manufacturing firms listed on the Karachi Stock Exchange (KSE), found supporting evidence. A positive and significant relationship between the growth return on assets and lagged dividends was found, indicating that high growth manufacturing firms listed on the KSE were more likely to pay high dividends.

2.5 SIZE

The relationship between firm size and dividends has mixed within the extant literature. According to some studies, firm size and dividends have a positive relationship (Stiglitz, 1973; Smith & Watts, 1992; Fama & French, 2001; Avazian, Varouj, Booth, & Cleary, 2003; Jeong, 2008). Other studies have, however, found a negative or non-existent relationship between firm size and dividends (Ahmed & Javid, 2008; Denis & Osobov, 2008; Ferris et al., 2009).

Fama and French (2001) found that large firms tend to pay dividends, as they are more profitable and require stringent monitoring in order to avoid possible agency problems. Firstly, their results indicate that dividend payers were much larger than non-payers, and that in the non-payer group, former payers were about three times larger than those that had never paid. Secondly, they also found that as their sample grew in the later years, the number of payers became even larger relative to non-payers. Overall, their results suggest that dividend payers were larger, more profitable than non-payers and that non-payers derived more of their market value from expected growth.

Similar to Fama and French (2001), Ferris et al. (2006) found a positive relation between firm size and dividends paid. Across their sample period, they found that the assets of dividend paying firms were nearly twice as large as those of the non-payers, and that the size of these dividend-paying firms appeared to increase over time. New lists that paid dividends were found to be smaller than non-payers for the first half of their sample period. However, over a subset of their sample period, new lists that paid dividends were found to be four times larger

than non-payers. In line with Fama and French (2001), Denis and Osobov (2008) found that firm size and dividends paid were positively related in all six countries observed. These findings were confirmed in Ferris et al. (2009). Firstly, their results indicate that dividend payers tend to be large and more profitable, and that dividend payers based in common law countries tend to have less valuable growth opportunities. The evidence was found to be mixed for civil law countries. Secondly, they found that the expected proportion of dividend payers declines in all countries over their forecast period, and that the magnitude of this effect differed across these countries. Lastly, similar to DeAngelo et al. (2004), they found that dividends were concentrated among a small number of the largest firms across the sampled countries observed.

Bester (2008) obtained results supporting the relationship between firm size and dividends. Bester specifically found that firm size was a factor in dividends paid. Firstly, the analysis indicated that large and mid-capped stocks have similar high levels of distribution. Secondly, Bester (2008) found that while small capped companies have similar levels of dividend payouts as large and mid-capped stocks, they in turn had significantly lower levels of share repurchases. Bester (2008) concluded that these findings suggested that firm size was a factor in the choice of distribution method. Bester (2008) reasoned that this was the case as larger capped companies were found to be more inclined to use share repurchases as a method of distribution than smaller cap companies. Furthermore, Al-Kuwari (2009) found a positive relation between the size of firms listed in Gulf Co-operation Council (GCC) countries and the dividend payout ratio.²⁶ Al-Kuwari (2009) reasoned that the relatively weak control in monitoring management in large firms in GCC countries led to large dividend payouts, which in turn increased the need for external financing (Jensen & Meckling, 1976). Al-Kuwari additionally reasoned that large companies had a tendency of paying out dividends in order to lower agency costs and because of the lower issuance costs faced from external financing in the capital markets.²⁷

Mehta (2012) examined the extent in which various determinants of dividend policy explain the dividend decisions of UAE companies. Firstly, Metha (2012) found that size was one of the significant determinants influencing dividend decision, which implies that larger sized firms on the Abu Dhabi Stock exchange tend to be dividend payers. Secondly, Metha (2012)'s results also indicate that profitable firms were not necessarily dividend payers,

²⁶ Al-Kuwari's (2009) third hypothesis is as follows; *Ceteris paribus*, company size positively affects the probability of paying dividends.

²⁷ Al-Kuwari (2010, pp. 22 – 26).

implying that less profitable firms that were also larger in size, tend to be dividend payers. Furthermore, Uwuigbe et al. (2012) found a significant relationship between firm size and the dividend payout of Nigerian firms. They posited that this outcome implied that relatively larger firms in Nigeria tend to pay more dividends due to the ease of access to external financing and less reliance on internal capital. They also suggested that larger firms were more sensitive to political factors and therefore preferred to decrease political costs by distributing dividends. In addition, Ranti (2013) obtained results in line with the findings of Uwuigbe et al (2012) for firms listed on the Nigerian Stock Exchange (NSE). Ranti (2013) found a positive and significant relationship between firm size and dividend payout decisions. Ranti (2013) supported this finding by reasoning that larger firms generally had easier and better access to the capital market compared to smaller firms. Similarly, Younis and Javid (2014) also found a positive and significant relationship between firm size and dividend yield, suggesting that large manufacturing firms listed on the KSE tend to generate external finance easily and benefit from ownership dispersion. They also found a positive and significant relationship between sales growth and dividend yield, indicating that the increase in sales of a firm's products increases profitability, and in turn the probability of paying dividends.

Whilst several studies have found a positive relationship between size and dividends paid, several other studies have documented a negative or inconclusive relationship. For example, Ahmed and Javid (2008) obtained results indicating a negative and significant relationship between firm size and dividend payout for firms listed on the Karachi Stock Exchange (KSE). Their results suggest that large-sized firms on the KSE prefer to pay fewer dividends. They found that this was the case as large-sized firms prefer to invest in their assets rather than paying dividends to shareholders.

Aivazian et al. (2003) found that the relationship between firm size and dividend payments was mixed across eight emerging markets sampled.²⁸ They posited a positive relationship between size and dividend payments as larger firms with better market access are expected to be able to pay higher dividends. They, however, found that the size coefficient did not display consistent signs across the sampled countries as size was found to be important in one country but insignificant in another. They concluded that size does not affect dividend policy in a significant or consistent manner. Furthermore, Moradi, Salehi, and Honarmand (2010) found no relation between firm size and distributed dividends. Moradi et al. (2010) examined

²⁸ Korea, Zimbabwe, India, Malaysia, Thailand, Jordan, Pakistan, Turkey are the eight emerging countries that were sampled (Booth & Cleary, 2003, pp. 376 – 380).

the effects of dividends in relation to firm size for firms listed in the Tehran Stock Exchange (TSE). They obtained results that suggest that firm size did not have a significant relationship with the amount of dividend distribution percentage. Similarly, Trang (2012) found that there is no significant relationship between firm size and the dividend yield for privatised companies in Vietnam. Trang (2012) instead found that firm characteristics, such as profitability and business risk, have a significant relationship with dividend yield.

2.6 PROPENSITY TO PAY DIVIDENDS

The Oxford living Dictionaries define propensity as an inclination or natural tendency to behave in a particular way. The relationship between the propensity to pay dividends and dividend payout policy has been examined in the literature in relation to the catering, agency costs, life-cycle theories, and capital structure (Jensen & Meckling, 1976; Forjan, Durr, & Theis, 2000; Julio & Ikenberry, 2004; Baker & Wurgler, 2004; and Miller & Modigliani, 1961).

2.6.1 Catering Theory

The relationship between catering and the propensity to pay dividends has been defined as managers catering to investor needs by paying dividends when these investors place a stock price premium on dividend paying firms (Baker & Wurgler, 2004). Managers would in turn not pay out dividends when investors do not place a stock price premium on dividend paying firms. The literature has been mixed results regarding the relationship between dividends and catering.

Fama and French (2001) found that regardless of certain firm characteristics, firms have become less likely to pay dividends. They characterised the decline in the likelihood that a firm pays dividends, given its characteristics, as a lower propensity to pay. They reason that the lower propensity to pay is at least as important as changing firm characteristics in the declining incidence of dividend-paying firms. They suggest that investors have become more willing to hold the shares of small, relatively unprofitable growth companies. Overall, they concluded that the perceived benefits of dividends have declined over time.²⁹ Furthermore, the catering model of Baker and Wurgler (2004) suggests that investor demand for dividends varies over time and that managers act in response to this demand. The catering model could be a probable explanation to the disappearing dividends evident in the study by Fama and French (2001). Baker and Wurgler (2004) also found that the propensity to pay a dividend has a strong link to the premium that investors place on the share price providing

²⁹ The benefits from dividends are not explicitly stated (Fama & French, 2001, p.5).

psychological reasons as to why investors do so. In addition, Dong, Robinson and Veld (2004) found evidence of the catering theory. Dong et al. (2004) conducted their study during the new Dutch tax system that does not tax dividends and capital gains differently. They focused on various investor demographics from a sample of 2723 households and found that the preference for dividends is greater among older investors, compared with younger investors. Their findings indicate that retail investors prefer dividends and that this was particularly true for older investors. Younger investors within their sample were found to be indifferent between returns in the form of dividends or price appreciation, which supports the irrelevance of dividends theorem of Modigliani and Miller (1961). Similarly, Ferris et al. (2006) found evidence of a catering effect in the U.K. equity market. Firstly, their results are in line with those of Fama and French (2001), as they found a reduced propensity to pay dividends by U.K. firms over the same period as those observed for U.S. firms. However, their results also indicate lower levels of reduced propensity to pay dividends than those observed by Fama and French (2001). In addition, the reduced propensity to pay does not occur gradually over the sample period as observed for U.S. firms. Instead, they found that the reduced propensity to pay dividends in the U.K. becomes evident in the latter era of their sample period. Secondly, their results suggest that the tax law change at the time provided no meaningful independent impact on the corporate decision to pay dividends. Overall, they concluded that a change in catering incentives in the U.K. equity market did not provide a reasonable and significant explanation as to why fewer British firms were paying dividends.

The extension of Baker and Wurgler's (2004a) catering theory by Li and Lie (2006) included increases and decreases in existing dividends. Li and Lie (2006) argued that the capital markets reward managers for considering investor demand for dividends when making decisions about the level of dividends, as opposed to the initiation and termination of dividends that were less frequent. Firstly, their results suggest that firms were more likely to raise their dividends if they were large and profitable, and the past dividend yield, debt ratio, cash ratio and market-to-book (MTB) ratio, respectively, were low. Secondly, they found that firms were more likely to cut dividends if they had poor operating income, low cash balances and a low MTB ratio. They emphasized that the MTB ratio was low in both instances of increasing and decreasing dividends. Thirdly, they found that firms facing poor growth opportunities required less future funding, thereby consequently increasing their dividends. In the case where dividends are decreased, they interpreted this as firms with poor performance being forced to cut their dividends. They found that consistent with their first proposition; firms were more likely to increase dividends when the dividend premium was large and were

more likely to decrease dividends when the dividend premium was small. Lastly, they also examined the magnitude of the dividend premium coefficients and found that the results support their second proposition stating that the magnitude of dividend increases or decreases is increasing or decreasing during the sample period. Overall, their results indicate that dividend increases are larger when past dividends, debt ratios, cash ratios, MTB ratios, profitability, and the dividend premium are large.

In a related study, Li and Lie (2006) examined whether the dividend premium affects stock price reaction to announcements of dividend decreases and increases. Their results indicate that the announcement period returns for dividends were positively related to the magnitude of the dividend change, and that these returns were positively related to the dividend yield. Overall, they found that the announcement of period returns for dividend increases were positively related to the estimated dividend premium at the time of the announcements, and were negatively related for dividend decreases. Furthermore, Ferris et al. (2009) argued that some studies did not find evidence of dividend catering because they did not formally test for the presence of dividend catering.³⁰ Firstly, when examining the catering theory, Ferris et al. (2009) found that firms were more likely to pay dividends if the dividend premium was large.³¹ They found that both the coefficients for the dividend premium and life cycle effect were positive and statistically significant; therefore concluding that catering remained an important determinant of dividend policy even after controlling for possible life-cycle effects. Secondly, they examined the effect of dividend catering on the propensity to pay dividends across common and civil law countries sampled. They found that the dividend premium coefficient is positive and significant for the common law group but insignificant for the civil law group. Overall, they suggest that catering tends to occur in the set of common law nations. In addition, Adesola et al. (2009) found a positive and significant effect of dividend payments on share price market prices for their sample of listed Nigerian firms. They suggest that this finding indicates that Nigerian companies may increase their share market price by increasing the rate of the dividend paid, which is contradictory to Modigliani and Miller (1961)'s proposition of dividend irrelevance. They also suggest that corporate managers should follow a generous dividend policy that will maximize the long-term benefits to its stockholders.

³⁰ Debis and Osobov (2008) is one of the studies mentioned by Ferris et al. (2009) as not having formally tested for dividend catering.

³¹ Ferris et al. (2009) computed the dividend premium as the difference in the logs of the value-weighted average market-to-book ratios of payers and non-payers.

Similarly, Mollah (2011) found a positive relationship between the dividend payout ratio (DPR) and the coefficient of business risk for firms listed on the Dhaka Stock Exchange (DSE). This finding is supportive of the tax clientele of dividends; but was found to be statistically insignificant mainly due to the minority status of institutional shareholders on the DSE.

Several studies have found no evidence of dividend catering. For instance, Julio and Ikenberry (2004) observed reappearing dividends from their empirical results. They considered five plausible reasons pointing towards evidence indicating a material reversal in dividend policy by corporate America.³² With respect to dividends and taxes as a plausible reason behind the reappearance of dividends, they considered changes in dividend policy by different levels of payout ratio. They assumed that firms with high payout ratios prior to the Bush tax cut were not significantly constrained by the comparatively high tax rate; whereas firms with low payouts were expected to increase their payouts when the tax constraint was lifted.³³ Their results show a sharp increase in the number of companies initiating dividends after the Bush tax cut was adopted, consistent with the tax hypothesis. They mainly observed this trend among low payout firms that appeared to have been constrained by taxes in the past. Overall, their results cast considerable doubt on the catering hypothesis, as there was no clarity as to whether the catering theory could explain the reappearance in dividends observed during their time of study. They concluded that the shifts observed in dividend policy did not appear to be driven by changes in investor demand for dividends. In addition, some survey studies have found that managers perceive taxes as of second order importance despite the fact that dividends are competitively disadvantaged (Brav et al., 2005; & Firer et al., 2008). These studies also reveal that the attraction of clienteles is not a major factor in a firm's payout decisions. Brav et al. (2005) found that 53 percent of respondents agreed or strongly agreed that their institutional shareholders were important in the dividend decision. Within the South African context, Firer et al. (2008) found that the majority of SA respondents strongly disagreed with the notion that taxes ranked uppermost in the minds of managers when considering the dividend policy. The survey responses also indicated that they placed

³² Julio and Ikenberry (2004, p. 3).

³³ The Bush tax cuts are a series of temporary income tax relief measures enacted by former President George W. Bush in 2001 and 2003. The cuts lowered federal income tax rates for everyone, decreased the marriage penalty, lowered capital gains taxes, lowered the tax rate on dividend income, increased the child tax credit, eliminated the phaseout on personal exemptions for higher- income taxpayers, eliminated the phaseout on itemized deductions, and eliminated the estate tax (Investopedia. n.d. *Bush Tax Cuts*. Retrieved August 4, 2018, from [ps://www.investopedia.com/terms/b/bush-tax-cuts.asp](https://www.investopedia.com/terms/b/bush-tax-cuts.asp)).

little importance on dividends and share repurchases when attempting to attract different types of investors. Firer et al. (2008) suggested that the attraction of particular clienteles is not a large factor in the firm's payout decision. Overall, the survey results of both Brav et al. (2005) and Firer et al. (2008) suggest that the attraction of particular clienteles is not a large factor in firm's payout decisions.

Several studies have examined the effect of dividend catering in various jurisdictions. Denis and Osobov (2008) extended the catering theory literature by examining the time-series evidence on the propensity to pay dividends in the financial markets of six developed countries.³⁴ Their results suggest negative and significant slopes on the dividend premium of firms in two of the common law countries, whereas these slopes are positive and significant in two of civil law countries. Therefore, they found limited support for the catering hypothesis in common law countries and contradictory evidence in some of the civil law countries. Overall, their evidence fails to provide much support for the catering hypothesis outside of the U.S. They suggested that this might be due to managers in civil law countries being less inclined to cater to investor preferences, as they may be less concerned with maximizing shareholder wealth. They also suggest that the dividend premium, as defined by Baker and Wurgler (2004a), may be an incorrect measure of investor sentiment. Overall, Denis and Osobov (2008) cast considerable doubt on the catering hypothesis as a first-order explanation for the dividend payments. Furthermore, when examining catering, Von Eje and Megginson (2007) employed Baker and Wurgler's (2004) dividend catering measure for each year within their sample period. Their study examined whether shareholder protection influenced the probability of paying dividends or repurchasing shares by including a proxy for the companies headquartered in a common law country versus a civil law country. Their results indicate a persistently negative catering dummy suggesting that listed firms in the EU 15 were less likely to pay dividends when the market assigned a relative valuation premium to dividend paying companies. This finding implies that catering is not an important factor influencing EU payout policies. In addition, Mirza and Afza (2010) did not find evidence of a positive effect of dividend payments on share price for firms listed on the Karachi Stock Exchange (KSE). They found a negative and significant relationship between individual ownership and dividend payout, implying that individual investors do not prefer dividends over capital gain. They found that this was due to the double taxation on dividends and non-applicability of tax on capital gains in the Pakistan stock market. Therefore, they concluded

³⁴ They estimated several regressions, similar to those in Baker and Wurgler (2004a), and firm characteristics observed by Fama and French (2001), in order to explore possible dividend catering and agency cost explanations in their sample.

that managers of firms listed on the KSE tend to be reluctant to pay high dividends as they incentivize shareholders according to their expectations, and pay dividends only when investors put a premium on shares of dividend paying companies.

2.6.2 Agency costs

Several studies have found the relationship between agency costs and the propensity to pay dividends to be mixed. Some studies have found that dividends are used as a tool to control or minimize agency costs, whilst other studies have found no clear relationship between agency costs and dividends.

Easterbrook (1984) argued that dividends are useful in reducing the agency costs of management. Easterbrook (1984) suggests that dividends keep firms in the capital market, which helps in explaining why firms simultaneously pay out dividends whilst raising new funds. In addition, Easterbrook (1984) suggests that capital markets allow for the monitoring of managers at a lower cost. Furthermore, Easterbrook (1984) suggests that dividends are useful in adjusting the level of risk taken by managers, and that dividends keep firms in the capital market as monitoring of managers is available at a lower cost. In addition, Officer (2006) found that dividend policy is a substitute for weak internal and external governance.³⁵ Firstly, Officer (2006) found that predicted dividend payers with weaker governance structures were more likely to actually pay dividends than were predicted payers with strong governance structures. Officer (2006) found that the results did not provide any evidence in favour of the notion that strong governance resulted in a higher likelihood of dividends being paid. Based on this finding, Officer (2006) rejected the outcome model of La Porta et al. (2000). According to the outcome model, dividends are paid because minority shareholders pressure corporate insiders to disgorge cash, therefore assuming that the payment of dividends is the result of effective governance (La Porta et al., 2000). Secondly, when examining dividend initiation announcement returns, Officer (2006) found that when using internal governance measures, the average abnormal announcement returns for dividend initiators with weak governance were insignificantly different from the average announcement returns for initiators with strong governance.³⁶ However, Officer (2006) also found that when using the external governance measures, more positive abnormal initiation returns were observed for firms with weaker governance than for firms with strong governance.

³⁵ Officer (2006) used the models in Fama and French (2001) and DeAngelo et al. (2006) to identify the predicted dividend payers; and Officer (2006, pp. 12 -19).

³⁶ Officer (2006, p.9) states that the outcome and substitute models offer differing predictions about the relation between dividend initiation announcement returns and governance characteristics.

In a related study, Amidu and Abor (2006) found a positive and significant relationship between the cash flows and dividend payout ratios of firms listed in Ghana. They suggest that the finding implies that good and stable cash flows influence the probability of paying dividends. The suggestion is that this finding implies cash flows are paid out as a mechanism to avoid agency costs. In addition, Mollah (2007) found that there was a relationship between agency costs and the dividend payout ratio (DPR). Mollah (2007) reasoned that firms pay higher amounts of dividends as tools for monitoring and bonding packages. These firms were found to consist of insiders with relatively lower percentage holdings of common equity and a greater number of common stock held by outsiders in order to reduce agency costs. Furthermore, Adjaoud and Ben-Amar (2010) obtained results supporting a positive association between free cash flow and dividend payouts of firms listed on the Toronto Stock Exchange (TSX). This finding suggests that firms that hold high levels of excess cash are associated with higher agency costs.

Several studies have found that ownership and board composition are significant factors affecting agency costs. For instance, Jain and Kini (1994) investigated the change in the operating performance of firms transitioned from private to public ownership. They found that higher agency costs were a source in the long-run underperformance of new lists. They reasoned that IPOs suffered from long-run underperformance because of higher agency costs that arise when a firm becomes publicly owned. In a related study, Aivazian et al. (2003) examined the direct influence of institutional factors on the dividend policies of eight emerging markets firms. Firstly, they found that the ownership concentration in the observed emerging markets ranged from 37 percent to 59 percent, whereas the average concentration in the U.S. was 20 percent. Secondly, their results also revealed that firms across the observed emerging economies all pay higher dividends relative to the U.S. Overall, Aivazian et al. (2003) considered the higher dividend payments by the observed emerging firms to be a puzzle as firm-specific characteristics were controlled for and because emerging market firms operate under relatively more severe financial constraints.

Boone, Field, Karpoff, and Raheja (2007) examined the development of corporate boards during the first 10 years after a firm's IPO.³⁷ Their results indicate that the monitoring hypothesis helps to explain the cross-sectional variation in board independence, implying that there is a trade-off between the costs and benefits of adding a board member. In addition, they used five measures to test whether the composition of the board reflects a negotiation

³⁷ Boone et al. (2007, pp. 70 - 72) grouped existing theories about corporate boards into the Operations, Monitoring, and Negotiation hypotheses.

between the CEO and outside board members.³⁸ Their results indicate that all five measures are significantly related to board independence, therefore providing support for the negotiation hypothesis. Furthermore, Adjaoud and Ben-Amar (2010) found evidence of a positive relation between board composition and dividend payouts for firms listed on the Toronto Stock Exchange (TSX). Firstly, results obtained indicated that board composition is positively related to dividend payouts. They suggest that the board of directors may be effective in pressuring managers to distribute dividends instead of retaining excess cash generated from operations that may potentially be used for private benefits. Secondly, they found that the strength of shareholder rights has a positive effect on dividend payouts. They suggest that firms with strong shareholder rights are less vulnerable to the opportunistic behaviour of insiders, thus supporting the outcome model of dividends. Thirdly, their results also show a positive and significant association between governance quality and dividend payments, suggesting that better governed firms are more likely to pay dividends to their shareholders. Overall, their results indicate that better governed firms on the TSX pay higher dividends to their shareholders.

In a related study, Al-Kuwari (2010) found a positive relationship between government ownership and dividend payout. Al-Kuwari (2010) investigated possible factors that may influence the decision to pay, or not to pay, dividends for non-financial companies listed on the five stock exchanges in the emerging Gulf Cooperation Council (GCC) states.³⁹ Firstly, the results indicate that there is a positive and significant relation between the government ownership percentage coefficient and dividend payout decisions. Al-Kuwari (2010) reasoned that government ownership plays a significant role in the decision-making process regarding dividend payments where the legal protection of outside shareholders is weak. Secondly, the results also show that the probability of a firm paying dividends increases as the number of shares owned by the government increases, and that this consequently results in reduced agency conflict and good firm reputation. Similarly, Uwuigbe et al. (2012) obtained results indicating a significant and positive relationship between ownership structure and the financial performance of listed firms in Nigeria. They suggest that this finding implies that the ownership structures of listed firms have a direct impact on the dividend policy. They reasoned that companies where more shareholders sit on the board tend to have a significant influence when using their power in the decision making regarding dividend policy. Their findings are further supported by Ranti (2013) who found a positive and significant

³⁸ These variables are as follows, CEO job tenure, CEO share ownership, outside director ownership, venture capital investment, and investment bank reputation (Boone et al, 2007, pp. 86 – 87).

³⁹ Al-Kuwari (2010, pp. 22 -26).

relationship between board independence and dividend policy decisions of listed firms in Nigeria. Ranti (2013) found that a greater number of independent directors monitor investor interest by participating in board decisions. In addition, Abor and Fiador (2013) found that good corporate governance structures in sub-saharan Africa lead to relatively high dividend payout. They found that in the case of South Africa and Kenya, firms with a higher percentage of institutional ownership tend to implement a high dividend payout policy. They suggest that this finding implies that institutional shareholders influence higher dividend payouts by companies to enhance managerial monitoring by external capital markets. Their results mainly indicate that the level of financial market development in countries like South Africa, Kenya and Ghana tend to allow easy access to lower cost of external capital, which therefore allows firms to payout high dividends to shareholders. They also suggest that corporate boards and institutional shareholders may sway managers to payout high dividends so that they can be forced to raise capital from the external capital market.

Several studies have found that country-level aspects are significant factors affecting agency costs. Pinkowitz et al. (2006) investigated whether the value of liquid assets was lower for minority shareholders in countries where investor protection is lower. Their results indicate a stronger relation between changes in cash and firm value for countries with better institutions. These results were found to support their first hypothesis, which states that cash is valued at a discount in countries with weak investor protection. In addition, their results also indicate that dividends were worth more in countries with poorer investor protection. In addition, Brown et al. (2009) obtained findings indicating that investors in high protection countries are able to use their legal powers to extract cash from firms, but that their ability to do so is limited by high agency costs at the firm level. Firstly, they found that investors in poor protection countries tend to curb agency conflicts by seeking refuge in firm level governance mechanisms, suggesting a substitution between country and firm level investor protection. Repurchases were also included in their tests as a form of payout. Secondly, they found that under the outcome model of corporate payouts, investors in high protection countries are not only able to use their legal powers to pressure firms to distribute cash but can also dictate the preferred form of payout. Lastly, they also found that dividends are more likely to be the preferred form of payout in high protection countries and less closely held firms. In addition, investors in poor protection countries were found to likely welcome any form of cash distribution. Furthermore, Von Eje and Megginson (2007) assumed that a company operating under common law was more likely to pay dividends and repurchase shares than a company headquartered in a civil law country. They found that companies headquartered in a

common law country were more likely to pay cash dividends, but were no more likely to repurchase shares than were companies headquartered in a civil law country. In line with Jensen (1986), they assumed that leverage helped to control agency costs, and therefore reduced the need to distribute cash to shareholders through dividends or repurchases. Their results indicate a negative and highly significant relation between leverage and the probability to pay cash dividends throughout the sample period. They reasoned that this finding implies that agency costs and financial covenants are a significant factor in explaining dividend policy.

In a related study, Brockman and Unlu (2009) established a country-level balance of power between debt and equity claimants by examining the influence of creditor rights on dividend policies. Firstly, they obtained results indicating that there is a positive relationship between creditor rights and the likelihood of paying dividends. They suggest that this finding implies that weak creditor rights lead managers to substitute restrictive dividend policies for poor creditor protection. In addition, they also found that managers in countries with weak creditor rights are more likely to omit dividends as a substitute governance mechanism, implying a negative relation between creditor rights and the likelihood of dividend omissions. They also suggest that this finding is in accordance with the substitute hypothesis, as managers tend to implement very restrictive dividend policies to reassure relatively unprotected creditors during times of uncertainty. Secondly, they found that firms in common law countries were more likely to pay dividends than firms in civil law countries, and were more likely to pay larger dividends than firms in civil law countries. Lastly, they found that the variable of the interaction term between creditor rights and credit quality is negative and significant. They suggest that this result implies that high credit quality reduces the impact of creditor rights on the propensity to pay dividends. In addition, they also conclude that their findings support both the outcome and substitution hypotheses when examining the relation between creditor rights and dividend amounts. Similarly, Bae, Chang, Kang, and Park (2010) highlighted the importance of including cross-country factors, such as cultural differences, when examining corporate dividend policy.⁴⁰ They argued that these cross country cultural differences may explain the lack of consensus on the optimal dividend levels. Firstly, their results suggest that cultural differences across countries offer additional power in explaining variations in dividends.⁴¹ They particularly found that when uncertainty avoidance was high within a

⁴⁰ They mainly examined how the cultural framework and corporate governance were interrelated in explaining corporate dividend policies, and whether cultural differences had additional explanatory power in explaining variations in dividend levels across countries. Their tests included governance, firm-and country-specific factors, and proxies for culture.

⁴¹ Bae et al. (2010) employed Hofstede's (1980, 1991) three cultural dimensions.

country, the dividend levels of firms within the specified country depended on the strength of its shareholder rights protection. They reasoned that this finding indicates that the dividend level is higher when shareholder rights protections are stronger and lower when shareholder rights protections are weak. They also argued that weaker shareholder rights protection suggests that the desire of investors to have sure dividends do not outweigh the desire of managers to keep more cash in the firm. In addition, they also found that in countries where the degree of uncertainty avoidance is low, investors tend to prefer uncertain capital gains to sure cash dividends.

Some studies have found that very few firms view dividends as having a disciplinary role. For instance, Brav et al. (2005) found that approximately 15 to 20 percent of U.S. respondents agreed or strongly agreed that dividends and share repurchases were viewed as having a disciplinary role. In addition, Firer et al. (2008) found that only 40 percent of SA respondents agreed or strongly agreed that dividends and share repurchases were viewed as having a disciplinary role. Furthermore, Mirza and Afza (2010) examined agency costs in relation to operating cash flows.⁴² Firstly, their results indicate a positive and significant relationship between operating cash flow and the proxies of dividend behaviour. They suggest that this finding implies that operating cash flows are of significant importance in determining the level of cash dividends for firms listed on the KSE. Secondly, cash flow sensitivity was found to have a negative and insignificant relationship with dividend payout, implying that companies with highly sensitive cash flows tend to be reluctant to pay high dividends. Lastly, they found that managerial ownership, individual ownership and operating cash flows are highly significant determinants of the dividend behaviour of firms listed on the KSE. In a related study, Dong, Robinson and Veld (2004) obtained results that are not consistent with the agency theory of Easterbrook (1984). They instead found that individual investors do not view dividends as a method to control for overinvestment tendencies by management. Rather, their results indicate that individual investors believe that dividend payments contain a signal about the profitability of the firm.

Several studies have found a negative or inconclusive relationship between ownership, board composition governance factors and agency costs. For example, Mirza and Afza (2010) obtained results that reveal that managerial ownership has a negative and significant relationship with dividend payout and dividend intensity.⁴³ They suggest that management practices in Pakistan are not strongly monitored by corporate law authorities. Therefore,

⁴² Mirza and Afza (2010, pp. 216 – 217).

⁴³ Mirza and Afza (2010, pp. 216 – 217).

corporate managers were found to have a greater tendency to increase funds under their control at the expense of low dividend payouts. In a related study, Ferreira, Massa, and Matos (2010) examined the relationship between foreign institutional ownership and dividend payout policy in publicly listed firms.⁴⁴ Firstly, their results support the transaction cost hypothesis as they found a negative and statistically significant relation between foreign ownership and the amount of dividends distributed. In addition, they found that the higher the transaction costs and taxation of dividends, the more intensely foreign investors were associated with lower dividend distributions. Their results, however, indicate a positive and statistically significant relation between domestic ownership and dividends paid, which is consistent with the agency costs and information hypotheses. Secondly, they also found that the negative relation between foreign ownership and payout is stronger when the incentives to cater are higher. Contrary to agency theory, their findings suggest that international investors prefer fewer dividends when agency problems are worse within dividend paying firms. Younis and Javid (2014) found a positive but insignificant relationship between insider ownership and dividend yield in the case of manufacturing firms listed on the KSE. They specifically found that the relationship between beta and dividend yield is negative but insignificant, indicating that expensive external financing leads to high beta.⁴⁵ They, therefore, suggest that dividends are used as a tool to reduce transaction costs associated with issuing external finance.

2.6.3 Share repurchases

The relationship between share repurchases and the propensity to pay dividends was initially examined from a substitution point of view in a perfect and complete market (Miller & Modigliani, 1961). However, the extant literature findings on the relationship between dividends and share repurchases have not been unanimous when examined in imperfect and incomplete markets.

Forjan, Durr, & Theis (2000) posited that dividend policy enhances the signalling effect of share repurchases. They found that repurchases by dividend paying companies result in a higher abnormal return than repurchases by non-dividend paying companies.⁴⁶ In addition, Grullon and Michaely (2002) found that U.S. corporations that decreased dividends whilst also engaged in share repurchases did not lead to a negative market reaction. They found that repurchases had become a significant form of payout for U.S. corporations, especially for the

⁴⁴ Ferreira et al. (2010) applied proxies that directly quantify the dividend taxes and transaction costs faced by foreign investors and informational uncertainty.

⁴⁵ They used three proxy variables to test the significance of transaction costs and residual theory.

⁴⁶ Forjan et al. (2000, p. 14).

younger firms within their sample. They additionally found evidence of increasing propensity to pay cash through dividends by large, established firms despite not finding a trend in cutting their dividends. Overall, they found that U.S. corporations gradually substituted repurchases for dividends over their sample period. Furthermore, Caudill, Marshall, and Roumantzi (2006) found that a high degree of shareholder heterogeneity tends to favour open market share repurchases, while firms with low shareholder heterogeneity will select special dividends for payout.⁴⁷ In addition, they found that firms that were already paying high dividends were less likely to institute an open market repurchase and were instead more likely to issue a special dividend.

When examining repurchases in relation to the dividend premium, Li and Lie (2006) found that firms are more likely to repurchase shares when the dividend premium is low, implying a substitution effect between dividends and repurchases. They also found that firms that repurchased shares tend to have low debt ratios and low MTB ratios, high cash levels and high operating income. In addition, Skinner (2008) investigated the determinants of the payout policy choices made by managers in order to understand the extent to which the disappearance of dividends could be explained by changes in firm characteristics.⁴⁸ Firstly, Skinner (2008) found consistently statistically significant firm variables, which indicate that firms that only made repurchases were likely to have lower levels of retained earnings, higher R&D intensity, and were smaller than firms that paid both dividends and repurchases. Secondly, it was found that firms that paid both dividends and made repurchases were largely firms that had historically paid dividends, and that firms that only made repurchases were mainly firms that had never paid dividends. Skinner (2008) suggests that these results indicate reluctance from dividend payers to discontinue paying out cash, and that firms that had no history of paying dividends were unlikely to initiate dividends. Skinner (2008) also suggested that the observed emergence of firms that consistently made repurchases, but did not pay dividends, helped in explaining the declining propensity to pay dividends. Lastly, Skinner (2008) found that non-payers were less profitable and less mature with relatively more growth opportunities than firms that made repurchases.

Several studies have found no relation between share repurchases and the propensity to pay dividends. For instance, Ferris et al. (2006) found that the level of share repurchase activity is not high in the U.K., and that the number of firms that undertook share repurchases did not

⁴⁷ Caudill et al. (2006) examined fixed-price self-tender offers, Dutch auction self-tender offers, special dividends, and open market share repurchases. They also examined three alternative mechanisms for distributing cash.

⁴⁸ Skinner (2008) interestingly investigates the disappearance of dividends by examining changes in selected firm characteristics rather than the declining propensity to pay dividends.

meaningfully substitute for the reduction in dividend paying firms. They argued that the lower propensity of U.K. firms is related to factors other than the decision to repurchase shares. In addition, Dennis and Osobov (2008) did not find any evidence of a relationship between share repurchase activity and the propensity to pay dividends for any of their sampled countries. They instead found that the observed reductions in the propensity to pay dividends are driven by a failure of newly listed firms to initiate dividends when expected to do so. They also found that aggregate dividends have not declined across the sampled countries, but are instead concentrated among the largest, most profitable firms with high retained earnings.

In a related study, Von Eije and Megginson (2007) examined whether the cash payout policies of industrial companies in the 15 member nations of the European Union (EU 15) displayed similar trends to those observed by Fama and French (2001) for U.S. firms.⁴⁹ Firstly, their findings reveal that the fraction of EU 15 listed companies paying dividends had declined from 88 percent in 1989 to 51 percent, which is similar to the findings of Fama and French (2001). This decline was observed in every country throughout the sample period. Secondly, their findings also reveal increased concentration of dividends amongst a small group of high dividend payers, which is similar to the findings of DeAngelo et al. (2004). Thirdly, they found that the largest decile firms of listed companies paid 79% of cash dividends, made 98% of share repurchases, and distributed 82% of total cash payouts. Lastly, they found that share repurchases are more concentrated among larger firms than are cash dividends. Furthermore, Von Eije and Megginson (2007) observed a declining propensity to pay cash dividends similar to Fama and French (2001). Firstly, they found that the characteristics of EU 15 companies change over time, but result in a relatively small decline in the expected percentage of firms paying cash dividends. In addition, they also found that the actual change in payers was more pronounced than the decline based on changing characteristics. Secondly, with respect to repurchases, they found no evidence of changing expected repurchase likelihood, but instead found that the actual number of companies repurchasing shares increased significantly over the sample period. Overall, they found that dividend and share repurchase policies of European companies are similar in numerous aspects to those of American firms.

In a related study, Bester (2008) noted that the different alternative payout methods were not completely understood during the period in which share buybacks were initially introduced in

⁴⁹ They also employed logistic regression analyses of the likelihood to pay dividends and share repurchases, and panel data analyses of payout amounts to verify if similar influences affected payout in Europe as in America.

South Africa. As a result, there was slow adoption of share repurchases. However, after the clarification of tax implications at the time, companies became familiar with repurchase programmes, which resulted in repurchase announcements consequently reaching a peak at the end of 2000.⁵⁰ Firstly, Bester (2008) found that the proportion of companies paying dividends had increased since the introduction of share buybacks up to the 2007 financial year. Bester (2008) concluded that dividends had not been substituted by the share buybacks over the examined period. Secondly, Bester (2008) also noted that factors such as shareholder diversity, dividend diversity, dividend preferences, size of distribution, and Black Economic Empowerment (BEE) requirements had a significant influence on the choice of distribution method. It was found that the source of shareholder heterogeneity is largely a result of information asymmetry and tax implications. Furthermore, Brav et al. (2005) and Firer et al. (2008) found that the majority of SA respondents indicated that dividends and repurchases are not viewed as substitutes. Instead, Firer et al. (2008) found that mergers and acquisitions would be the most likely alternative use of cash that could be used to pay dividends and make repurchases. Brav et al. (2008) instead found that debt reduction was the most likely alternative. Firer et al. (2008) also found that SA non-payers would initiate dividends, whereas U.S. non-payers preferred making share repurchases, followed by a combination of dividends and share repurchases. More than 50% of the current SA payers indicated that they would still pay dividends, suggesting that dividends were the most preferred method of returning cash to shareholders in South Africa.

2.6.4 Life cycle theory of dividends

The relationship between the life-cycle theory and the propensity to pay dividends is based on the proposition that the optimal dividend policy of a firm depends on the firm's stage in its life cycle (Mueller, 1972). The firm life cycle theory of dividends is based on the notion that as a firm becomes mature, its ability to generate cash overtakes its ability to find profitable investment opportunities. Eventually, it becomes optimal for the firm to distribute its free cash flow to shareholders in the form of dividends (this is in sharp contrast to the signalling theory of dividends, which predicts that a firm will pay dividends in order to signal to the market that its growth and profitability prospects have improved. i.e that dividend initiations and increases convey good news). There have been no unanimous findings on the relationship between dividend payout policy and the life-cycle theory in the extant literature.

⁵⁰ Bester (2008, p. 13).

Julio and Ikenberry (2004) investigated the maturity hypothesis, which suggests that a life cycle is created when there are new entrants and exits into a business sector in a competitive market. Employing a method similar to Fama and French (2001), they found that the likelihood of paying dividends increases with firm size and age.⁵¹ They attribute a portion of the reappearance of dividends in corporate America to young firms maturing and moving to a new stage in the life cycle.

Consistent with a life-cycle theory of dividends, DeAngelo, DeAngelo and Stulz (2006) found that the fraction of publicly traded industrial firms that pay dividends is high when retained earnings are a large portion of total equity (and of total assets) and falls to near zero when most equity is contributed rather than earned. DeAngelo et al. (2006) also found that the propensity to pay dividends is positively related to the ratio of retained earnings to total equity (used to measure the life cycle theory) for publicly traded industrial firms in the U.S. They observed a highly significant relation between the decision to pay dividends and the earned or contributed capital mix, controlling for profitability, growth, firm size, total equity, cash balances, and dividend history. In their regressions, the mix of earned or contributed capital has a quantitatively greater impact than measures of profitability and growth opportunities. Controlling for the earned/contributed capital mix, firms with negative retained earnings show virtually no change in their propensity to pay dividends (from the mid-1970s to 2002), while those who earned equity makes them reasonable candidates to pay dividends have a propensity reduction that is twice the overall reduction in Fama and French (2001).

In addition, Von Eije and Megginson (2007) investigated the probability of paying cash dividends and repurchasing shares by including additional variables in their estimations.⁵² They assumed that older companies are better able to accumulate funding than younger firms, while at the same time having fewer growth opportunities. Their results reveal a positive and significant relationship between the age variable and the likelihood of paying dividends throughout the sample period, which suggests that older EU 15 companies are more likely to pay cash dividends than are younger companies.

In a related study, Denis and Osobov (2008) found evidence of the Life Cycle theory in six sampled countries. They found that the concentration of dividends was amongst the largest, most profitable firms, which they suggest is expected if the primary determinant of dividends is the payout of free cash flow. On the contrary, the results of Younis and Javid (2014) indicate that the Life Cycle theory is irrelevant in explaining the dividend decisions of firms

⁵¹They employed a method similar to Fama and French (2001) by forecasting their sampled firms' propensity to pay dividends using firm characteristics (Julio & Ikenberry, 2004, pp. 12 – 14).

⁵² Eije and Megginson (2007, pp. 20 - 21).

listed on the KSE. Firstly, they found a positive but insignificant relationship between firm age and dividend yield, suggesting that firm maturity did not affect a firm's ability to pay dividends. In addition, they also found that both the Price-to-Earnings ratio (P/E) and MTB are negatively and insignificantly related with the dividend yield, therefore failing to support the firm life cycle theory.

2.6.5 Capital structure

The literature has found no unanimous relationship between the propensity to pay dividends and capital structure.

According to Miller and Modigliani (1961)'s tradeoff theory, the propensity to include debt in a capital structure should be higher than the propensity to pay dividends. The trade-off theory of Miller and Modigliani (1961) assumes that there are benefits to leverage within a capital structure, whereas there are no benefits from paying dividends. Therefore, according to the trade-off theory, the propensity to include debt in a capital structure should be higher than the propensity to pay dividends. In a related study, Aivazian et al. (2003) found that increased debt reduced dividend payments and that the effect of increased debt is significantly more pronounced in their sample of emerging markets.⁵³ They also found evidence of poor financial health in these emerging countries due to high indebtedness relative to U.S. firms. Overall, their study reveals that the responsiveness of dividend policy to firm-level factors differs across the observed emerging market firms and that these firms generally display dividend behaviour similar to U.S. firms in terms of the firm-level factors observed. In addition, they found that the only difference is the higher sensitivity of emerging market firms to the observed firm characteristics which indicates the greater financial constraints faced by these firms. Furthermore, Mirza and Afza (2010) found that leverage is negatively but insignificantly related with dividend payout, implying that debt tends to play less of an important role in dividend behaviour. They reasoned that this was the case, as the public debt market is not well established in Pakistan. In addition, they also found that profitability increased the propensity of paying dividends especially for small and low leveraged firms, compared to large and highly leveraged firms that were found to be more reluctant to pay high dividends. On the contrary, Mollah (2011) found that firms with more collateralized assets tend to have fewer conflicts of interests between shareholders and bondholders, and consequently pay out more dividends. Their results support the transaction cost hypothesis as they found that larger firms tend to face lower issuance costs and are

⁵³ Booth and Cleary (2003, p. 376) used the debt ratio, the times interest earned ratio, and the current ratio.

therefore able to pay more dividends. In addition, Adjaoud and Ben-Amar (2010) found a negative relation between transaction costs and dividend payouts. They reasoned that riskier firms should be less likely to offer dividends to their shareholders. They also argued that firms with high growth opportunities would rather use funds generated from operations to finance positive net present value (NPV) projects.⁵⁴ Furthermore, Julio and Ikenberry (2004) investigated the payout policy of firms in different leverage groups. They found that low-leverage firms, which Jensen (1986) assumed to be at the most risk for governance problems, exhibit large swings in the payout policy around the same time as the dot.com bubble in the year 2000. They reasoned that some of the firms, which were potentially at risk for concern over investor confidence during the dot.com bubble, responded by committing to dividend payments. In contrast, firms classified within the medium and high leverage quintiles exhibited no significant shift in the proportion of payers over time. They reasoned that firms with higher levels of debt are subject to higher levels of monitoring, and are therefore less at risk for misappropriating firm resources. In addition, Ardestani, Rasid, and Mehri (2013) investigated the impact of corporate financing on dividend policy.⁵⁵ Their results indicate a negative, but insignificant relationship between dividend payout and corporate financing. They suggest that the higher the debt maturity, the lower the level of free cash flows available which led to managers preferring to cut dividend payouts in order to maintain the funding resources within the company.

2.7 CONCLUSION

The literature review revealed the literature around the characteristics identified by Fama and French (2001) in explaining the patterns of dividend paying firms. Section 2.2 reviewed the literature on the relation between dividend policy and profitability. The literature reviewing the characteristics of dividend paying and non-dividend paying firms suggests that firms with certain characteristics determine profitability levels and the likelihood of paying dividends. The literature regarding the signaling theory is mixed. The 21st century survey by Brav et al. (2005) suggests that any conveyance of information through payout policy is viewed as one part of an overall communication with the investor community. However, Firer et al. (2008) who also examined payout policy in the 21st century found that payout policy is viewed as a significant tool for communicating with the investor community. Overall, the literature regarding the signaling theory was found to be mixed. Section 2.3 reviewed the literature

⁵⁴ Adjaoud and Ben-Amar (2010) used market price volatility as a measure for firm risk and the market-to-book ratio as a measure for growth opportunities.

⁵⁵ Ardestani et al. (2013) used financial leverage and debt maturity to measure corporate financing which was defined as the independent variable.

regarding dividend conservatism, which is based on the propositions of Lintner (1956). The literature was found to be supportive of Lintner (1956) in some cases and not supportive in other cases, implying that there was no unanimous support. Section 2.4 reviewed investment opportunities in relation to dividend policy. The literature was mainly based on Miller and Modigliani's (1961) proposition that payout decisions should rank lower than operating decisions, such as the pursuit of investments. The literature was found to be mixed in terms of the pursuit of investment opportunities by dividend paying and non-dividend paying firms.

Section 2.5 reviewed the literature on the relation between dividend policy and firm size. The literature was mainly based on the findings of Fama and French (2001) that the firm size played a significant role in the likelihood of dividend payout. The literature was found to be mixed with some support for Fama and French (2001) and some not in support as size was found to be either insignificant in relation to the likelihood of dividend payout, or other firm characteristics were found to be relevant instead in the likelihood of dividend payout. Section 2.6 reviewed the literature on the likelihood or propensity to pay dividends. The likelihood of dividends being paid was examined in relation to the catering theory, agency costs theory, life cycle theory, share repurchases, and capital structure. The literature was mixed with no unanimous agreement across the theories in terms of the likelihood of dividends being paid. The capital structure literature mainly examined the relation between debt and dividend payout. The literature was found to be mixed in terms of the preference of debt over dividends with no clear support for Miller and Modigliani's (1961) trade-off theory.

The next Chapter examines the methodologies applied to a sample of JSE Limited firms.

CHAPTER 3

METHODOLOGY (RESEARCH DESIGN AND METHODS)

3.1 INTRODUCTION

This chapter presents the methods and procedures used to accomplish the purpose of the research. Section 3.2 discusses the sampling and data collection. Section 3.3 provides a description of the overall research design. Section 3.4 provides the data and variable definitions. Section 3.5 concludes the chapter.

3.2 SAMPLING AND DATA COLLECTION

The sample consists of JSE listed companies, classified under the General Industrials Index (Share index code: J272), over the 1990 to 2015 period. The selection of industrial firms is based on the study of Fama and French (2001) which examined industrial firms listed on the NYSE, AMEX, and NASDAQ. The industrials sector is also selected, as it was the most represented sector on the JSE Limited during 2015, in terms of the total market value of the outstanding shares of the listed companies. In addition, the 2002 period was characterised by formal classifications and listings of the Industrial index (J257) and Satrix INDI 25 EFT, which solely focus on the performance of industrial companies listed on the JSE Limited. As at September 2015, the Industrial sector was the most represented sector on the JSE in terms of market capitalisation – the J257's market capitalisation was 66% of the All Share Index's market cap while Financials and Resources were 23% and 11% respectively. The industrial firms are further classified into two groups, namely firms that paid cash dividends and non-dividend paying firms. The non-dividend payers consist of former dividend payers and firms that have never paid dividends. A firm is defined as a dividend payer in calendar year t if it has positive gross cash dividends per share in the last financial year that ends in year t . A firm is defined as a non-payer if there are no recorded dividends throughout the financial history of the firm, or if the firm stopped paying dividends for at least two consecutive years. A firm is defined as a new list if it listed between the 2010 to 2015 period.⁵⁶

The sample data was collected from the INET BFA database during the 1990 to 2015 period.⁵⁷ The sample data consists of 51 industrial firms.

⁵⁶ It is to be noted that new lists were not formally defined as the 2010 – 2015 period is assumed to encapsulate new lists.

⁵⁷ 60 firms classified under the General Industrials sector were collected in total. Of the 60 firms, 9 firms had missing data, therefore resulting in 51 firms in total.

3.3 DESCRIPTION OF OVERALL RESEARCH DESIGN

This study follows the two approaches used by Fama and French (2001) to quantify how certain characteristics and the propensity to pay dividends combine to produce the behaviour of dividend payers. The first approach uses summary statistics to examine the characteristics of dividend paying firms followed by logistic regressions to examine the relationship further, while controlling for firm specific factors that influence dividends.

3.3.1 Logistic regressions

Multiple linear regressions are estimated separately for each year t for the 1990 to 2015 period for dividend payers, which are the firms that paid dividends in year $t - 1$, for firms that have never paid in year $t - 1$, and former payers, which are firms that did not pay in $t - 1$ but had paid dividends in an earlier year (Fama & French, 2001). These regressions allow one to examine how the effects of changing characteristics and propensity to pay differ across the groups.

The probability value, otherwise known as the p -value, is used to determine the significance of the average coefficients.⁵⁸ The logistic regressions document the marginal effects of size, profitability, and investment opportunities on the likelihood that a firm pays dividends. The dependent variable is one if a firm pays dividends in year t , or zero otherwise (Fama & French, 2001). The explanatory variables are profitability (E_t/A_t), the growth rate of assets (dA_t/A_t), market-to-book ratio (V_t/A_t), and the percentage of listed industrial firms on the JSE Limited with the same or smaller market capitalisation ($JSEP_t$).⁵⁹ The financial data used to define the explanatory variables is defined as follows; assets (A_t), book common equity (Be_t), market value of common equity ($JSEP_t$), book liabilities (L_t), and total market value (V_t/A_t), earnings before interest but after taxes (E_t), after-tax earnings to common stock (Y_t), dividends (D_t), investment (dA_t) and R&D (RD_t) expenditures for fiscal year t . The ratios calculated for the year t aggregate values of the variables for the dividend and non-dividend paying firms are averaged over the years in a period.⁶⁰ The logistic regressions are estimated for each year t for the 1990 to 2015 period. The dependent variable, p , is 1 in year t if a firm pays dividends, 0 otherwise. The logistic regression for each year is expressed as follows:

$$p = \frac{e^{(a+b_1\left(\frac{E_t}{A_t}\right)+b_2\left(\frac{dA_t}{A_t}\right)+b_3\left(\frac{V_t}{A_t}\right)+b_4(JSEP_t))}}{1+e^{(a+b_1\left(\frac{E_t}{A_t}\right)+b_2\left(\frac{dA_t}{A_t}\right)+b_3\left(\frac{V_t}{A_t}\right)+b_4(JSEP_t))}} \quad (1)$$

⁵⁸ p -value = 0.05

⁵⁹ The size measure ($JSEP_t$) is meant to neutralize any effects of the growth in typical firm size through time.

⁶⁰ The ratios calculated were averaged over the specified sub-periods (e.g. the E_t/A_t ratios calculated during 1990, 1991, and 1993 were averaged to obtain a single E_t/A_t variable for the 1990 – 1993 sub-period).

The variables in equation 1 are defined in Table 3.2.

3.3.2 Changing characteristics and propensity to pay

The approach in Fama and French (2001) estimates the probabilities that publicly listed firms with given characteristics pay dividends during a certain base period to be determined. Logistic regressions are estimated for each firm year. The 1990 to 1993 period was chosen to be the base year as it precedes the beginning of the democratic era in South Africa. The propensity to pay is measured by the difference between the expected proportion of payers for a year t and the actual proportion of payers for a year t . The expected proportion of payers for a year t is estimated by applying the average logistic regression coefficients for the 1990 to 1993 period (base period) to the values of the explanatory variables for each firm for year t . These values are then aggregated and divided by the number of firms, and then multiplied by 100. The evolution of the expected proportion measures the effects of changing characteristics on the proportion of dividend payers. The probabilities from the base period are applied to the samples of firm characteristics observed in the following years to estimate the expected proportion of dividend payers for each year after the base period. The change in the propensity to pay dividends is measured by the difference between the expected proportion of payers for a year and the actual proportion. A positive difference between the expected and actual proportion of payers implies a decline in the propensity to pay dividends. All firms are used to explain for each year of the base period to estimate logit regressions that explain whether a firm pays dividends.

3.3.3 Proportion of firms with positive and negative changes in treasury stock

The change in treasury stock, dT_t , is measured from the end of the financial year $t - 1$ to the end of financial year t . The reported proportion of firms with a positive change in treasury stock, $dT_t > 0$, or a negative change in treasury stock, $dT_t < 0$, is the average of the annual proportions.

3.3.4 Dividend and Earnings concentration

DeAngelo et al. (2004) followed the sample procedure of Fama and French (2001), and subsequently found that aggregate dividends of CRSP industrial firms had increased in the face of a radical decline in the number of dividend payers. The methodology (DeAngelo et al., 2004, p. 431 - 437) applied is organised as follows:

The aggregate dividends, earnings, and losses of the sampled industrial firms were tracked over the 1990 to 2015 period. A firm's dividends and earnings are those amounts reported for the fiscal years ending in 1990 or 2015. Real dividends in 2015 are defined as nominal

dividends converted to 1990 ZAR using the consumer price index. To determine the concentration of total dividends paid, firms are ranked from the largest to the smallest total dividends paid in each year. Dividend paying industrial firms are ranked by cash dividends paid in 1990 and 2015, in groups of 5.

Real earnings are defined as nominal earnings before interest and tax converted to 1990 ZAR using the consumer price index. To determine the concentration of earnings of industrial firms that paid dividends in 1990 and 2015, firms are ranked from the highest to lowest total earnings in each year. Dividend paying industrial firms were ranked by earnings in groups of 5 firms in 1990 and 2015. The real earnings of non-dividend paying firms are also ranked highest to lowest total earnings in each year in groups of 5.

3.4 DATA AND VARIABLE DEFINITION

The variables used in the summary statistics and logistic regressions are derived according to the methodology applied by Fama and French (2001, pp. 41). Table 3.1 provides the financial items obtained from the Statement of Financial Position, Income Statement, and the Statement of in Changes in Equity. Total assets are required to be available in years t and $t-1$ and all other items must be available in year t .

Table 3.1: Financial statement items

<u>Statement of Financial Position Items</u>
total assets including intangibles
average annual closing stock price and shares outstanding at the financial year end
total equity
total liabilities
treasury shares
par value ordinary shares
preference shares
convertible preference shares

Table 3.1 (Continued)

redeemable preference shares
ordinary shareholders interest
share buyback
<u>Income Statement Variables</u>
profit after interest and tax
interest and finance charges
gross dividends per share
earnings before interest and tax (EBIT)
profit attributable to ordinary shareholders
deferred taxes
‘other’
<u>Statement of Changes in Equity Variables</u>
issued capital and share premium
ordinary shares issued

The variable definitions are provided in Table 3.2.

Table 3.2: Variable definition

A_t	aggregate book value of assets
D_t	cash dividends to common stock for financial years that end in calendar year t .
Y_t	after-tax earnings to common stock for financial years that end in calendar year t .
$JSEP_t$	market value of common equity at the end of financial year t
SP_t	gross share repurchases for financial year t
SI_t	share issues for financial year t
dT_t	change in treasury stock for financial year t
NP_t	net share repurchases ($SP_t - SI_t$)

Table 3.3 provides annual ratios that are calculated as the aggregate value of the numerator divided by the aggregate value of the denominator, and are averaged over the years in a period. These ratios were averaged over the four year sub-periods within the overall 1990 to 2015 period.

Table 3.3: Annual ratios

D_t/Y_t	aggregate dividends as a proportion of aggregate earnings
$D_t/ JSEP_t$	aggregate dividends as a proportion of aggregate market equity
SP_t/Y_t	aggregate share repurchases as a proportion of aggregate earnings
SI_t/Y_t	share issues as a proportion of aggregate earnings
E_t/A_t	Ratios of aggregate earnings before interest to aggregate assets
RD_t/A_t	Research and Development expenditures investment
V_t/A_t	Aggregate market value to aggregate book value of assets
Y_t/BE_t	Aggregate common stock earnings to book equity
dA_t/A_t	Average asset growth rate
L_t/A_t	Liabilities to aggregate assets

3.5 CONCLUSION

In conclusion, the methodology provided an overview of the research design and methods used in the empirical analysis. The methodology is predominantly based on the methods applied by Fama and French (2001) and DeAgelo et al. (2004). The next chapter provides the empirical results.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

The following chapter discusses the empirical results in relation to the literature discussed in Chapter 2 and macroeconomic events over the sample period. Section 4.2 presents the summary statistics, Section 4.3 presents the statistical significance results, section 4.4 presents the binary logistic results, section 4.5 provides the multiple linear regression results, and section 4.6 provides the results for earnings and dividend concentration. Section 4.7 concludes the chapter.

4.2 SUMMARY STATISTICS

The results presented in the following section are mainly compared to the findings of both Fama and French (2001) and DeAngelo et al (2004). The results are also interpreted in relation to the literature and the macro-economic events that occurred in South Africa during 1990 to 2015.

The overall business sentiment in South Africa over the 1990 to 2015 period reflects cyclical conditions over the period under review. Business sentiment fell sharply during the 1998 East Asian crisis, and then rebounded in a volatile manner, peaked in 2004 and fell significantly during the 2007/2008 global financial and economic crises. In addition, business confidence fell significantly during 2008 to 2009 as recessionary conditions became increasingly evident both globally and domestically. During 2013, weak demand underpinned by a sluggish global economic recovery and a more moderate pace of growth in domestic consumptions spending were at the core of the neutral levels of business confidence.

Table 4.1 shows the number and percentages of JSE firms in different groups classified as payers, former payers, never paid, and new lists. The numbers are averages of annual values for the specified time periods. Of the total number of firms over the 1990 to 2015 period, 72% are payers, 19% are former payers, 6% are non-payers, and 2% are new lists. Fama and French (2001) found that the percentage of payers decreased significantly from 74.7% of all firms during 1926 to 1962, to 20.8% in 1999. They also found that firms that have never paid increase from 10% during 1926 to 1962, to 70.1% in 1999. They additionally found that former payers make up 15.3% of all firms during 1926 to 1962, but decreased to 9.1% in 1999. New lists are found to increase slightly from 3.5% during 1926 to 1962, to 6.3% in 1999. Table 4.1 indicates that the percentage of payers decreases over the years, from 94%

during the 1990 to 1993 period, to 57% during the 2013 to 2015 period. Firms that have never paid increase from 9% during 2006 to 2009, to 12% during 2013 to 2015. Former payers increase significantly from 6% during 1990 to 1993, to 22% during 2013 to 2015. New lists make up 4% of all firms during 2010 to 2012, and increase to 9% during 2013 to 2015.

Table 4.1: Average number and percentage of JSE firms in different groups

Average number of JSE industrials	1990 – 2015	1990 – 1993	1994 – 1997	1998 - 2001	2002 – 2005	2006 - 2009	2010 - 2012	2013 - 2015
Payers	23	17	18	21	22	27	28	28
Never paid	2	0	0	0	0	4	2	6
New lists	1	0	0	0	0	0	2	4
Former payers	6	1	3	5	9	9	11	11
All firms	31	18	21	26	27	39	47	49
Percentage of JSE firms (%)	1990 – 2015	1990 – 1993	1994 – 1997	1998 - 2001	2002 – 2005	2006 - 2009	2010 - 2012	2013 - 2015
Payers	72	94	85	80	81	69	60	57
Never paid	6	0	0	0	0	9	13	12
New lists	2	0	0	0	0	0	4	9
Former payers	19	6	15	20	19	22	23	22

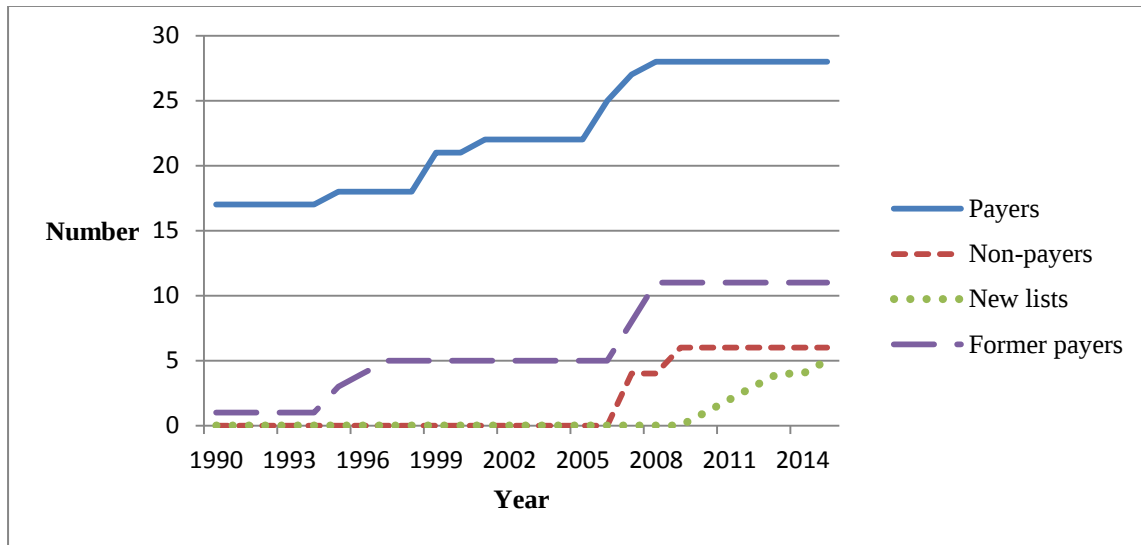
Source: I-Net BFA and Author's own calculations

Figure 4.1 shows the total number of industrial firms that pay cash dividends, that do not pay, and that formerly paid. Figure 4.1 shows that the number of payers increased at a relatively steady rate over the sample period. There seems to be a relatively steep increase in the number of payers during the 1994 to 1998 period and 2006 to 2009 periods. The increase in the number of payers may have partly been because of the corporate governance modifications, such as the introduction of the first version of the King Code on corporate governance during 1994 to 1998. These corporate governance modifications promoted transparency and new legislation and have had a significant positive effect on the market. In addition, these reforms led to the broadening of institutional ownership, eliminated pyramid group company structures and dual classes of shares. Another significant change during this period was the migration of local firms listed on the JSE. Specifically, during 1995, the JSE started a series of changes that modernized the South African investment markets. These changes resulted in significantly higher trading volumes and soaring market liquidity. Other significant events during the 1994 to 1998 period were the inclusion of the country in the MSCI Emerging Market Index due to structural reforms, the reintegration of South Africa

into the global financial markets and the opening up of the South African market to foreign investors. The impact of these changes is evident during 1998 to 1999, and 2005 to 2008, respectively, as the number of listed firms increased. In addition, Figure 4.1 also shows that the rate of increase in the number of payers seems to be relatively slower during the 1999 to 2005 period. This may have partly been attributable to the 1998 East Asian crisis that resulted in a downturn in the economy during a time when South Africa was being reintegrated in the world economy. During this period, the economy was also affected by the “dot.com crisis” in 2000, the 9/11 events in the United States during 2001, and the subsequent corporate scandals during 2002 and 2003.

Figure 4.1 also shows that the number of non-payers starts to pick up from 2005, indicating the effect of the events during the 1999 to 2004 period. Another significant event during this period was the partnership between the JSE, the London Stock Exchange (LSE) and FTSE Group to launch a new series of free-float equity indices, which has since developed to include benchmarks. During the 2004 to 2007 period, the South African economy was characterised by a strong bull-market and booming commodities markets as the economy recorded its fastest growth rates since the 1960s. Figure 4.1 shows significant growth in the number of industrial dividend-payers over the 2004 to 2007 period. During this period, the manufacturing sector generally recorded strong growth due to robust export demand for some of its products and solid growth in domestic growth. The manufacturing sector was adversely impacted upon by the 2008 global economic downturn, particularly due to weakened demand in traditional markets, as well as difficult trading conditions domestically.

Figure 4.1: Number of firms in each group

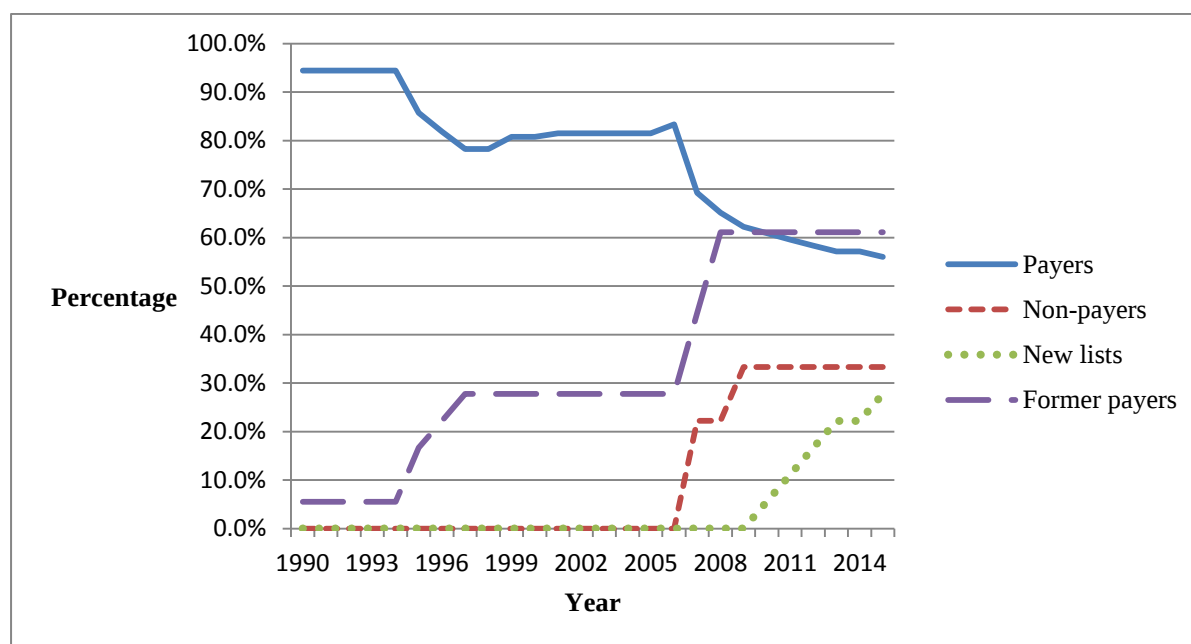


Source: I-Net BFA and Author's own calculations

Fama and French (2001) found that the proportion of NYSE industrial firms paying dividends fell by half during the early years of the Great Depressions. They also found that new lists caused their sample to expand significantly over the 1978 to 1999 period. In addition, they also found that dividend payers decreased over time as these firms stopped paying dividends or disappeared from the database due to mergers or delisting. Figure 4.2 shows that the proportion of JSE industrial firms paying dividends falls over the sample period, from 94% during 1990 to 1993, to 57% during 2013 to 2015. Fama and French (2001) found that both the numerator (the number of dividend payers) and the denominator (the number of sample firms) contribute to the decline in the percent of dividend paying firms in their sample after 1978. They found that the population of dividend payers shrinks by more than 50% after 1978, interpreting this as a failure by payers added to the sample to replace those lost. This study finds that both the numerator and denominator increase over the 1990 to 2009 period, but the numerator decreases whilst the denominator remains increasing over the 2010 to 2015 period. The increasing proportion of firms that have never paid dividends is evident from 2006 to 2015. The proportion of new lists (which include both payers and non-payers) increases during the 2010 to 2015 period. The proportion of former payers increases consistently over the entire sample period. The decline in the proportion of payers during 1998 to 2001 and 2006 to 2015 could be as a result of the negative effects that the 1998 and 2008/2009 financial crises had on the South African economy. In addition, the decline in the proportion of payers during the 2006 to 2015 period could also be attributable to the first phase of the Dividend Withholding Tax (DWT), which was introduced in October 2007 when

the STC was reduced from 12.5% to 10%. The second phase of the DWT came into effect in April 2012 when the liability shifted from the company to the shareholder. The Dividends Tax was introduced to make South Africa a more attractive destination for international investment by eliminating the perception of a higher corporate tax rate, coupled with lower accounting profits. Interestingly, the proportion of former payers increased substantially from 2006 to 2009, which could be attributable to the introduction of the DWT.

Figure 4.2: Percentage of firms in each group



Source: I-NET BFA and author's own calculations

4.2.1 Profitability

Table 4.2 presents evidence from summary statistics that payers and non-payers differ in terms of profitability, investment opportunities, and size. Fama and French (2001) found that dividend payers have higher measured profitability than non-payers over the full sample period. Among the non-payers, they found that former payers are less profitable than firms that have never paid. They also found that low profitability becomes more common in the second half of the 1963 to 1998 period. Table 4.2 provides an overview of the characteristics of firms in various dividend groups. The results indicate that dividend payers have higher measured profitability than non-payers (firms that have never paid and former payers). For the full 1990 to 2015 period, E_t/A_t averages 9.92% per year for payers compared to 8.90% for non-payers. Amongst the non-payers, E_t/A_t averages 6.47% per year for former dividend

payers. This is higher than the profitability of firms that have never paid dividends, 2.43% per year, which in turn is below the profitability of dividend payers. The average profitability of payers is consistently higher than the average profitability of non-payers throughout 1990 to 2001, and 2006 to 2012. This is not the case, however, for the 2002 to 2005 and 2013 to 2015 period. The average profitability for dividend payers during the 2002 to 2005 period is 8.68% per year compared to 10.90% for former payers. Similarly, the average profitability for dividend payers during the 2013 to 2015 period is 6.40% per year compared to 6.73% for firms that have never paid and 6.37% for former payers. Among the new firms, average profitability, over the entire sample period, is higher for payers (2.19%) than non-payers (1.81%). However, during the 2013 to 2015 period, the average profitability of payers is lower (10.57%) than the average profitability of non-payers (15.35%).

Fama and French (2001) posit that earnings available for common, Y_t , may be more relevant than earnings before interest and tax, E_t/A_t , for the decision to pay dividends.⁶¹ Similar to the findings of Fama and French (2001), the gap between the profitability of payers and non-payers is generally wider throughout the sample period when profitability is measured as Y_t/BE_t . For the 1990 to 2015 period, Y_t/BE_t averages 17.20% for dividend payers, versus 3.11% for firms that have never paid and 2.33% for former payers. Among the new firms, average profitability is higher for payers, 2.44%, than non-payers, 1.93%. It seems that low profitability, measured by both E_t/A_t and Y_t/BE_t , becomes more common among payers during the 2013 to 2015 period. Similarly, among the new firms, payers are less profitable (13.37%) than payers (16.27%) during the 2013 to 2015 period. Fama and French (2001) found that many of the firms that are unprofitable later in their sample period are new lists. However, this study finds that both old and new firms are less profitable later on in the sample period.

⁶¹ Fama and French (2001) They reason that E_t/A_t mainly focuses on the payoff on a firm's assets, whereas Y_t may be more relevant for the decision to pay dividends.

Table 4.2: Average firm size, and ratios of aggregate earnings, investment, firm value and liabilities to aggregate assets and book equity, for different firm groups and for new lists

	1990 – 2015	1990 – 1993	1994 – 1997	1998 – 2001	2002 – 2005	2006 – 2009	2010 – 2012	2013 – 2015
E_t/A_t (percentage)								
All firms	12.10	15.98	11.03	13.13	9.35	11.90	9.73	13.33
Payers	9.92	13.98	10.68	8.85	8.68	10.93	8.77	6.40
Never paid	2.43	0.00	0.00	0.00	0.00	4.73	8.00	6.73
Former payers	6.47	5.90	-3.65	8.48	10.90	9.73	7.90	6.37
All new firms	4.00	0.00	0.00	0.00	0.00	0.00	8.80	25.87
Payers	2.19	0.00	0.00	0.00	0.00	0.00	8.40	10.57
Non-payers	1.81	0.00	0.00	0.00	0.00	0.00	0.40	15.30
Y_t/BE_t (percentage)								
All firms	17.60	20.45	14.20	17.68	19.83	20.35	19.00	10.23
Payers	17.20	20.50	14.63	16.43	19.88	20.73	15.23	10.97
Never paid	3.11	0.00	0.00	0.00	0.00	3.98	10.43	11.20
Former payers	2.33	-0.75	-45.23	12.93	18.18	15.78	10.27	8.70
All new firms	4.37	0.00	0.00	0.00	0.00	0.00	8.20	29.63
Payers	2.44	0.00	0.00	0.00	0.00	0.00	7.77	13.37
Non-payers	1.93	0.00	0.00	0.00	0.00	0.00	0.43	16.27
dA_t/A_t								
All firms	5.82	13.33	1.28	19.73	10.90	15.05	3.83	-31.27
Payers	10.48	11.11	0.32	20.33	9.30	10.53	8.20	12.43
Never paid	12.11	19.31	0.00	0.00	0.00	53.43	7.63	22.07
Former payers	15.32	0.00	31.80	18.80	15.08	27.08	4.03	7.33
All new firms	15.37	0.00	0.00	0.00	0.00	0.00	100.70	27.37
Payers	10.85	0.00	0.00	0.00	0.00	0.00	67.37	23.03
Non-payers	4.52	0.00	0.00	0.00	0.00	0.00	33.33	4.33

Table 4.2 (continued)

	1990 – 2013	1990 – 1993	1994 – 1997	1998 – 2001	2002 – 2005	2006 – 2009	2010 – 2012	2013 – 2015
V_t/A_t								
All firms	3.51	2.17	3.70	2.76	2.85	4.59	4.36	4.65
Payers	1.43	1.23	1.77	1.29	1.43	1.53	1.37	1.32
Never paid	0.75	0.00	0.00	0.00	0.00	1.78	1.93	2.24
Former payers	1.33	0.94	1.93	1.47	1.43	1.28	1.06	1.08
All new firms	1.89	0.00	0.00	0.00	0.00	0.00	4.09	12.25
Payers	0.30	0.00	0.00	0.00	0.00	0.00	1.18	1.43
Non-payers	1.58	0.00	0.00	0.00	0.00	0.00	2.91	10.82
RD_t/A_t								
All firms	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Payers	0.16	0.15	0.33	0.23	0.15	0.10	0.10	0.03
Never paid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Former payers	0.43	0.00	1.68	0.45	0.48	0.10	0.07	0.10
All new firms	0.01	0.00	0.00	0.00	0.00	0.00	0.10	0.00
Payers	0.01	0.00	0.00	0.00	0.00	0.10	0.10	0.00
Non-payers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A_t (R'bn)								
All firms	174.19	29.84	37.83	74.86	155.79	278.81	341.05	399.08
Payers	187.23	34.05	38.37	81.57	158.43	273.59	335.61	505.70
Never paid	1.72	0.00	0.00	0.00	0.00	1.52	4.22	8.68
Former payers	16.23	0.20	0.91	4.24	7.38	25.68	38.92	50.51
All new firms	1.58	0.00	0.00	0.00	0.00	0.00	4.00	9.68
Payers	1.55	0.00	0.00	0.00	0.00	0.00	3.95	9.50
Never paid	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.17
L_t/A_t								
All firms	57.83	64.53	56.03	61.93	53.05	59.43	57.40	50.53
Payers	52.89	56.10	52.78	54.00	48.93	53.10	51.20	54.00
Never paid	15.53	0.00	0.00	0.00	0.00	32.85	41.23	49.60
Former payers	65.73	81.28	66.30	54.95	64.63	68.80	61.87	59.90
All new firms	57.83	64.53	56.03	61.93	53.05	59.43	57.40	50.53
Payers	52.89	56.10	52.78	54.00	48.93	53.10	51.20	54.00
Non-payers	15.53	0.00	0.00	0.00	0.00	32.85	41.23	49.60

Source: I-Net BFA and Author's own calculations

4.2.2 Investment opportunities

Table 4.2 also suggests that investment opportunities differ across the firm groups. Fama and French (2001) found that firms that have never paid dividends have the best growth opportunities, followed by dividend payers and former payers, respectively. This study finds that non-dividend paying firms generally have the best growth opportunities. Table 4.2 shows that among the non-payers, former payers have much higher asset growth rates (15.32%), measured by dA_t/A_t , than dividend payers (10.48%) and firms that have never paid dividends (12.11%) over the sample period. During the 2010 to 2012 period, dividend payers are found to invest at a higher rate on average per year (8.20%) than both former payers (4.03%) and firms that have never paid (7.63%). Newly listed firms that pay dividends generally have the best growth opportunities. Dividend-paying new lists invest at a higher rate on average per year (10.85%) than non-payers (4.52%) do during the entire sample period.

Fama and French (2001) found that investment opportunities, measured by V_t/A_t , are highest for firms that have never paid, followed by dividend payers and former payers over the sample period. Table 4.2 indicates that investment opportunities measured by V_t/A_t are higher for dividend paying firms, 1.43, than for former payers, 1.33, and firms that have never paid, 0.75. This, however, is not the case during the 1994 to 2015 sub-periods, as the investment opportunities for dividend payers are consistently lower than those for non-payers. Among the new lists, the non-payers are found to invest at a higher rate (1.58) on average per year than dividend payers (0.3) over the sample period.

The R&D expenditures across the different dividend groups indicate that former payers (0.43) invest much more than dividend payers (0.16) over the sample period. This is not the case, however, over the 1990 to 1993 sub-period as dividend payers (0.15) are found to invest at a higher rate than non-payers (0.00). Dividend-paying new lists are found to invest at a higher rate, 0.01, than non-payers (0.00) during the sample period.

4.2.3 Size

Similar to Fama and French (2001), dividend payers are much larger than non-payers. Over the sample period, the assets of dividend payers are on average approximately ten times those of non-payers. In the non-paying group, former payers are about nine times the size of firms that have never paid. The average firm size, measured by assets, of dividend payers (R187.23bn) are much larger than those for both former payers (R16.27bn) and firms that have never paid (R1.23bn) over the sample period. Similarly, amongst the new lists, the

average firm size of dividend payers (R1.55bn) is higher than those for non-payers (R0.03bn) over the sample period.

Table 4.3 provides a different perspective on the relative size of dividend payers and non-payers. The percentage of aggregate values accounted for by firms paying dividends are presented in Table 4.3. Fama and French (2001) found that dividend payers account for 90.3 – 90.7% of the aggregate market and book values of assets and common stock during the 1963 to 1998 period. Similarly, Table 4.3 shows that payers account for 92.77 – 95.60% of the aggregate book and market values of assets and common stock over the sample period, when 76.7% of firms pay dividends. In addition, Fama and French (2001) found that dividend payers are more profitable and that non-payers derive more of their market value from expected growth. They specifically found that during each of the time periods, payers on average account for 97% of common stock earnings. Table 4.3 shows that during 1990 to 1993, payers account for 99.70% of common stock earnings (Y_t) and 99.73% of earnings before interest and tax (E_t), when 94.4% of firms pay dividends. During 2013 to 2015, payers account for approximately 89.68% of common stock earnings and 86.39% of earnings before interest and tax (E_t), when 56.8% of firms pay dividends.

Fama and French (2001) found that firms that do not pay dividends are big issuers of equity. They particularly found that dividend payers' share of gross stock issues drops from 90.4% during 1973 to 1977, to 35.8% for 1993 to 1998. Table 4.3 indicates that share issuances were low (50%) during 1990 to 1993, and significantly high (96.01%) during 1994 to 1997. This possibly indicates that non-payers were big issuers of shares during 1990 to 1993, but not necessarily so during 1994 to 1997. In addition, 69.03% of share issuances are accounted for by 56.8% of firms that pay dividends during 2013 to 2015. This suggests that both payers and non-payers are almost equally issuers of shares. Share repurchases, which were formally introduced in 1999 in South Africa, picked up from 21.24% during 2002 to 2005, to a peak of 87.86% during 2010 to 2012. During these periods, 81.5% and 59.6% of firms that paid dividends accounted for these share repurchases. Similar to share issues, 69.86% of share repurchases are accounted for by 56.8% of dividend payers. This suggests that both payers and non-payers are almost equally engaged in share repurchase activity.

Table 4.3: Percentage of aggregate values accounted for by firms paying dividends

%	1990 – 2015	1990 – 1993	1994 – 1997	1998– 2001	2002 – 2005	2006 – 2009	2010 – 2012	2013 – 2015
Y_t	95.20	99.70	97.04	96.53	97.10	95.96	86.96	89.68
E_t	92.67	99.73	100.23	84.13	94.46	92.50	88.65	86.39
dA_t	12.11	14.15	5.53	22.35	10.05	11.48	8.11	12.81
A_t	92.77	94.97	82.87	91.90	94.02	93.35	96.98	97.57
V_t/A_t	95.16	99.53	97.20	95.28	95.49	92.14	91.47	93.68
B_t	95.91	99.71	98.29	94.90	96.86	93.74	92.58	93.95
JSEP_t	95.60	99.87	96.99	95.50	96.17	94.24	93.76	91.11
L_t	94.04	99.13	97.63	94.95	94.18	89.14	87.86	93.77
SP_t	32.97	0.00	0.00	0.00	21.24	74.76	87.86	69.86
SI_t	74.03	50.00	96.01	82.69	85.71	74.45	54.07	69.03
D_t	18.87	0.00	0.00	0.00	25.00	85.66	13.66	-3.96

Source: I-Net BFA and Author's own calculations

4.3 STATISTICAL SIGNIFICANCE RESULTS

Table 4.4 presents the Pearson correlation coefficients which are used to examine the strength and direction of the linear relationship between the independent variables. The correlation coefficients between firm size (JSEP_t) and both measures of investment opportunities, V_t/A_t, dA_t/A_t, are both positive (0.98) and negative (-0.08), respectively. The correlation between firm size and investment opportunities, measured by dA_t/A_t, is negative, which suggests that investment opportunities decrease as firm size increases, and vice versa. This relationship is, however, statistically insignificant. Furthermore, the correlation coefficient of -0.05 is relatively low, suggesting a weak relationship between the firm size and investment opportunities. The correlation between firm size and investment opportunities, measured by V_t/A_t, is positive and statistically significant. This suggests that investment opportunities increase as firm size increases. Furthermore, the correlation coefficient of 0.98 is high and close to 1, suggesting a strong positive relationship between firm size and investment opportunities. The high correlation may however also be due to the presence of multicollinearity between the variables. The correlation between firm size and profitability (E_t/A_t) is moderately positive, which suggests that profitability increases as firm size increases. The correlation coefficient of 0.23 is, however, statistically insignificant. The correlation between profitability and both measures of investment opportunities is positive, which suggests that investment opportunities increase as profitability increases. The correlation coefficients of 0.05 and 0.19, respectively, are however, insignificant. The correlation between the two measures of investment opportunities, dA_t/A_t and V_t/A_t, is negative but statistically insignificant. Table 4.5 presents the correlation matrix, which

includes all independent variables except the V_t/A_t investment opportunities measure. The correlation results are the same as those found in table 10. Without the V_t/A_t investment opportunities measure, there are no significant correlations between the variables.

Table 4.4: Pearson Correlations matrix

Correlations					
		$JSEP_t$	dA_t/A_t	E_t/A_t	V_t/A_t
$JSEP_t$	Pearson Correlation	1	-0.05	0.23	0.98*
	Sig. (2-tailed)		0.73	0.11	0.00
	N	50	50	50	50
dA_t/A_t	Pearson Correlation	-0.05	1	0.05	-0.08
	Sig. (2-tailed)	0.73		0.73	0.59
	N	50	51	51	50
E_t/A_t	Pearson Correlation	0.23	0.05	1	0.19
	Sig. (2-tailed)	0.11	0.73		0.18
	N	50	51	51	50
V_t/A_t	Pearson Correlation	0.98*	-0.08	0.19	1
	Sig. (2-tailed)	0.00	0.59	0.18	
	N	50	50	50	50

*Significant at the 0.05 p level. Source: I-Net BFA and Author's own calculations

Table 4.5: Pearson Correlations matrix excluding V_t/A_t

Correlations				
		$JSEP_t$	dA_t/A_t	E_t/A_t
$JSEP_t$	Pearson Correlation	1	-0.05	0.23
	Sig. (2-tailed)		0.73	0.11
	N	50	50	50
dA_t/A_t	Pearson Correlation	-0.05	1	0.05
	Sig. (2-tailed)	0.73		0.73
	N	50	51	51
E_t/A_t	Pearson Correlation	0.23	0.05	1
	Sig. (2-tailed)	0.11	0.73	
	N	50	51	51

Source: I-Net BFA and Author's own calculations

Table 4.6 presents the omnibus tests of model coefficient over the 1990 to 2015 period. The p -value is compared to a critical value of 0.05 to determine if the overall model is statistically significant. The probability of obtaining a chi-square statistic, if there is in fact no effect of

the independent variables taken together on the dependent variable, is 12.68. Furthermore, the chi-square statistic is significant at the 0.05 level, which implies that the model is statistically significant. Table 4.7 indicates that the probability of obtaining a chi-square statistic is 12.09. Furthermore, the chi-square statistic is significant at the 0.05 level, which implies that the model is statistically significant.

Table 4.6: Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients				
		Chi-square	Df	Sig.
Step 1	Step	12.68	4	0.01
	Block	12.68	4	0.01
	Model	12.68	4	0.01

Source: I-Net BFA and Author's own calculations

Table 4.7: Omnibus Tests of Model Coefficients

Omnibus Tests of Model Coefficients				
		Chi-square	Df	Sig.
Step 1	Step	12.09	3	0.00
	Block	12.09	3	0.00
	Model	12.09	3	0.00

Source: I-Net BFA and Author's own calculations

Table 4.8 presents the classification table. The 'Observed' section indicates the number of 0s ('zeros') and 1s ('ones') that are observed in the dependent variable. The 'Predicted' section presents the predicted values of the dependent values based on the full logistic regression model. Table 4.8 indicates that 13 cases are observed to be 0 and are correctly predicted to be 0 (61.9% correct). In addition, 23 cases are observed to be 1 and are correctly predicted to be 1 (79.3% correct). Whereas, 8 cases are observed to be 0 but are predicted to be 1, and 6 cases are observed to be 1 but are predicted to be 0. The overall percentage of cases that are correctly predicted by the model is 72%. Table 4.9 presents the classification table which indicates that 12 cases are observed to be 0 and are correctly predicted to be 0 (57.1% correct). In addition, 23 cases are observed to be 1 and are correctly predicted to be 1 (79.3%

correct). Whereas, 9 cases are observed to be 0 but are predicted to be 1, and 6 cases are observed to be 1 but are predicted to be 0. The overall percentage of cases that are correctly predicted by the model is 70%.

Table 4.8: Classification Table

Observed			Predicted		
			Div		Percentage Correct
			.00	1.00	
Step 1	Div	.00	13	8	61.9
		1.00	6	23	79.3
	Overall Percentage				72.0

Source: I-Net BFA and Author's own calculations

Table 4.9: Classification Table

Observed			Predicted		
			Div		Percentage Correct
			.00	1.00	
Step 1	Div	.00	12	9	57.1
		1.00	6	23	79.3
	Overall Percentage				70.0

Source: I-Net BFA and Author's own calculations

4.4 BINARY LOGISTIC REGRESSIONS

Table 4.10 summarizes annual logistic regressions that document more formally the marginal effect of size, profitability, and investment opportunities on the probability that a firm pays dividends. The interpretation begins with the full sample period of 1990 to 2015. For every one unit increase in firm size ($JSEP_t$), a 0.55 increase in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is not significant as the p -value of 0.63 is above 0.05. This finding, despite the statistical insignificance, is in line with the literature that finds a positive relation between size and dividends (Fama & French, 2001; Ferris et al., 2006; Denis & Osobov, 2008; Bester, 2008; Ranti, 2013; Younis & Javid, 2014). For every one unit increase in investment opportunities, measured by V_t/A_t , a 0.87 decline in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is not significant at the 0.05 significance level as the p -value is 0.44. For every one unit increase in investment opportunities, measured by dA_t/A_t , a 0.02 increase in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is not statistically significant. These findings confirm the mixed findings of the relationship between investment opportunities and dividends in the literature. For every one unit increase in profitability, a 27.40 increase in the log-odds of dividends is

expected, holding all other independent variables constant. This relationship is significant which suggests that profitability is an important factor for dividend paying firms over the 1990 to 2015 period. This finding is in line with the literature that finds a positive relationship between profitability and dividends (Lintner, 1956; Booth & Cleary, 2003; Al-Kuwari, 2010; Ajanthan, 2013), but contrary to the findings of Miller and Modigliani (1961), Mehta (2012), and Abor and Fiador (2013). This finding also implies that dividends may contain information content about earnings (Bhattacharya, 1979; Firer et al., 2008; Mollah, 2011; Younis & Javid, 2014), suggesting that the profile of firms determines the level of profitability (Fama & French, 2001; Ferris, Sen, & Yui, 2006; Denis & Osobov, 2008; Ferris et al., 2009). Additionally, that dividend decisions should be made conservatively in relation to earnings (Lintner, 1956; Brav et al., 2005; Skinner, 2006; Firer, et al. 2008; Lily et al., 2009; Adjaoud & Ben-Amar, 2010; Kiboi, 2015).

The results for the sub-periods, except for the 2006 to 2009 and 2010 to 2012 sub-periods, suggest that neither firm size, investment opportunities and profitability are significant determinants of the probability that a firm will pay dividends. These results are supportive of the literature that does not find a significant relationship between firm size (Booth & Cleary, 2003; Moradi et al., 2010; Trang, 2012), investment opportunities (Ferris et al., 2006; Denis & Osobov, 2008) and profitability (Miller & Modigliani, 1961; Mehta, 2012; Abor & Fiador, 2013). However, the results for the 2006 to 2009 period suggest that for every one unit increase in investment opportunities, measured by IA_t/A_t , a 4.99 decrease in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is statistically significant at the 0.05 significance level (p -value = 0.02). This is in line with the findings of Fama and French (2001), Ferris et al. (2009), Mollah (2011), and Subramaniam et al., (2011). The results also suggest that firm size and profitability were not significant determinants of the probability of firms paying dividends during 2006 to 2009, which could be attributable to the global financial crisis during this period. These results are in line with the findings of Fama and French (2001), Ferris et al. (2006), Denis and Osobov (2008), Bester (2008), Ranti (2013) and Younis and Javid (2014). The results for the 2010 to 2012 period suggest that for every one unit increase in profitability, a 15.04 increase in the log-odds of dividends is expected, holding all other independent variables constant (Lintner, 1956; Booth & Cleary, 2003; Al-Kuwari, 2010; Ajanthan, 2013). This relationship is statistically significant at the 0.05 significance level (p -value = 0.04). The results also suggest that firm size and investment opportunities were not significant determinants in the probability of firms paying dividends during 2010 to 2012.

The second set of results excludes the V_t/A_t investment opportunities measure for the full sample period of 1990 to 2015. The results are not much different from the first set of results. For every one unit increase in profitability, a 26.83 increase in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is statistically significant at the 0.05 significance level (p -value = 0.00). This finding is supportive of the literature that finds a positive and significant relationship between profitability and the probability of dividend payments (Fama & French, 2001; Ferris, Sen, & Yui, 2006; Denis & Osobov, 2008). The results also suggest that firm size and investment opportunities, measured by dA_t/A_t , were not significant factors in the likelihood of firms paying dividends during the full sample period (Booth & Cleary, 2003; Moradi et al., 2010; Trang, 2012; Ferris et al., 2006; Denis & Osobov, 2008). The results for the 1990 to 1993, 1994 to 1997, 1998 to 2001, and 2013 to 2015 sub-periods suggest that neither firm size, investment opportunities and profitability were significant determinants of the likelihood of dividend payments. Yet again, these results are supportive of the literature that finds no relation between these variables and dividends as mentioned in the first set of results.

The results for the 2006 to 2009 period suggest that for every one unit increase in investment opportunities, a 5.21 decrease in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is statistically significant at the 0.05 significance level (p -value = 0.01). This finding is supportive of the literature that finds a positive relationship between investment opportunities and the probability of dividend payments as mentioned in the first set of results (Fama & French, 2001; Amidu & Abor, 2006; Brown et al., 2009). The results also suggest that firm size and profitability were not significant determinants in the probability of firms paying dividends during 2006 to 2009. The results for the 2010 to 2012 period suggest that for every one unit increase in profitability, a 15.31 increase in the log-odds of dividends is expected, holding all other independent variables constant. This relationship is statistically significant at the 0.05 significance level (p -value = 0.03), in line with the literature supporting a positive relationship between profitability and the probability of dividend payments. The results also suggest that firm size and investment opportunities were not significant determinants in the likelihood of firms paying dividends during 2010 to 2012. These results are in line with the literature that finds no significant relation between these two variables and dividends.

Table 4.10: Logit regressions to explain which firms pay dividends

	<u>Average coefficient</u>						<u>p-value</u>				
	Int	JSEP _t	V _t /A _t	dA _t /A _t	E _t /A _t		Int	JSEP _t	V _t /A _t	dA _t /A _t	E _t /A _t
1990 – 15	-1.34	0.55	-0.87	0.02	27.40*		0.24	0.63	0.44	0.99	0.00
1990 – 93	0.69	-1.35	-2.50	-2.81	57.62		0.76	0.80	0.25	0.25	0.35
1994 – 97	-0.87	0.38	-0.54	1.04	25.22		0.64	0.77	0.55	0.48	0.10
1998 – 01	-0.13	-0.10	0.09	5.92	-0.39		0.92	0.95	0.95	0.16	0.91
2002 – 05	-0.45	2.04	-0.10	-7.93	8.57		0.77	0.25	0.91	0.16	0.41
2006 – 09	-0.73	0.91	0.40	-4.99	10.81		0.59	0.40	0.61	0.02	0.16
2010 – 12	-0.63	-0.25	-0.16	0.77	15.04*		0.45	0.78	0.83	0.78	0.04
2013 – 15	0.69	1.25	-1.61	1.38	8.38		0.47	0.34	0.23	0.54	0.16
1990 – 15	-1.84	-0.30		0.30	26.83*		0.06	0.20		0.88	0.00
1990 – 93	-0.12	1.59		-2.10	13.81		0.95	0.72		0.38	0.68
1994 – 97	-1.46	-0.06		1.07	26.15		0.35	0.95		0.46	0.09
1998 – 01	-0.06	-0.03		5.81	-0.39		0.94	0.98		0.13	0.91
2002 – 05	-0.55	1.98		-7.79	8.40		0.68	0.24		0.15	0.42
2006 – 09	-0.32	1.19		-5.21*	10.58		0.76	0.17		0.01	0.16
2010 – 12	-0.74	-0.41		0.69	15.31*		0.25	0.41		0.80	0.03
2013 – 15	-0.29	-0.33		1.86	9.55		0.58	0.21		0.41	0.10

*Significant at the 0.05 p-level. Source: I-Net BFA and Author's own calculations

4.4.1 The propensity to pay dividends

Fama and French (2001) found that the surge in new lists in the 1980s and 1990s, and the changing nature of these new lists, cause the population of publicly traded firms to tilt toward the characteristics of firms that have never paid dividends. They additionally find that given these characteristics, firms have become less likely to pay dividends. The following section presents the quantified effects of changing characteristics and propensity to pay on the percent of dividend payers. The probabilities of firms with given characteristics that pay dividends during the 1990 to 1993 period are estimated in this study. The probabilities from this period are applied to the regression estimates as the base period probabilities. The 1990 to 1993 period is chosen as the base period as it precedes the beginning of democratic South Africa from 1994 onwards. Fama and French (2001) chose 1963 to 1977 as their base period as it precedes the 1978 peak in the percent of dividend payers from their sample.⁶² Fama and French (2001) use the same base period average regression function to estimate the expected percent of payers in each of the following years because of changes in the expected percent after 1977.

⁶² Fama and French (2001, p. 23).

Logistic regressions are used to estimate the probability function for the base period. Table 4.11 presents the estimates from logistic regressions of the effect of changing characteristics and declining propensity to pay on the percent of firms paying dividends. Two sets of results are shown, the first includes both measures of investment opportunities, and the second excludes the V_t/A_t investment opportunities measure. Fama and French (2001) found that this measure tends to drift upwards, which therefore results in an overestimation of the decline in the percent of payers due to changing characteristics, and an understatement of the decline due to propensity to pay. The first set of regressions includes size, earnings and both measures for investment opportunities. When the average regression function for 1990 to 1993 is applied to the sample of firm characteristics for 1994 to 1997, the expected proportion of payers is approximately 41%. The proportion of dividend payers for 1990 to 1993 (base period) is approximately 94%. This suggests that firm characteristics were quite different to those in the base period during 1994 to 1997. This is because the probabilities associated with characteristics are fixed at their base period values, and therefore variation in the expected percent of payers after 1993 is due to the changing characteristics of sample firms. This finding is different to that of Fama and French (2001) who found that the characteristics of firms in the subsequent 1978 year were similar to those of the base period. The expected proportion of payers decreased to approximately 29% during 1998 to 2001. From 2002 to 2005, the expected percent of payers increased to 39%. However, a declining trend in the expected proportion of payers is evident from 2006 to 2015.

During the 1994 to 1997 period, the actual percent of payers is approximately 44% above the expected percent. This suggests that more firms paid dividends than expected during this period, which therefore suggests an increasing propensity to pay dividends. This finding may be explained by the literature in support of the relation between dividends and catering (Baker & Wurgler, 2004; Ferris et al., 2006; Mollah, 2011), agency costs (Easterbrook, 1984; Officer, 2006; Amidu & Abor, 2006; Mollah, 2007; Abor & Fiador, 2013), and life-cycle theory (DeAngelo et al., 2006; Von Eije & Megginson, 2007; Denis & Osobov, 2008), respectively. In addition, the spread (49.1%) between the expected and actual percent widens during the 1998 to 2001 period. The spread, however, narrows during the 2002 to 2009 period. This suggests that there was a decline in the actual proportion of dividend payers and increase in the expected payers, and therefore a lower propensity to pay dividends. This finding may be explained by the literature supporting lower propensity to pay dividends in relation to capital structure and share repurchases (Miller & Modigliani, 1961; Fama & French, 2001; Booth & Cleary, 2003; Grullon & Michaely, 2002; Ferris et al., 2006; Von Eije

& Megginson, 2007; Dennis & Osobov, 2008), agency costs theory (Brav et al., 2005; Filer et al., 2008), and catering theory (Julio & Ikenberry, 2004; Ejie & Megginson, 2007; Denis & Osobov, 2008). The spread between the expected and actual proportion of payers increases during the 2010 to 2015 period, indicating an increasing propensity to pay dividends. In addition, both the actual and expected proportions of dividend payers declined during this period. This suggests that the decline in the propensity to pay dividends is much more evident as both the actual and expected proportions of payers indicate a declining trend.

The characteristics of dividend payers during the 1994 to 1997 seem to be significantly more different to those in the base period as the expected percent has decreased to approximately 26% compared to 41% from the first set of regressions. The decline in the expected proportion of payers is evident throughout the sample period. As a result, the spreads between the expected and actual payers are much wider. This suggests that there is an increasing propensity to pay dividends during the period. This finding is supportive of the literature that has documented a relationship between catering, agency costs, and life-cycle theories, respectively, and dividends. However, the 2006 to 2009 period indicates a lower propensity to pay dividends as the spread between expected and actual payers narrowed. This finding may be explained by the literature supporting lower propensity to pay dividends as mentioned in the first set of results. The expected percentage of payers is lower during the 2010 to 2012 and 2013 to 2015 periods, which suggests that a lower proportion of payers were expected to pay dividends. Given that the actual proportion of payers is greater than the expected proportion of payers, the propensity to pay dividends is higher during these periods. This finding is supportive of the literature that documents a higher propensity to pay dividends.

Table 4.11: Estimates from logistic regressions of the effect of changing characteristics and declining propensity to pay on the percent of firms paying dividends

				V_t/A_t and dA_t/A_t			dA_t/A_t	
				Expected Percentage	Expected minus Actual		Expected Percentage	Expected minus Actual
	Firms	Payers	Actual Percentage					
1990 – 93	18	17	94.4					
1994 – 97	21	18	84.5	41.0	-43.5		25.8	-58.8
1998 – 01	26	21	78.1	29.0	-49.1		17.1	-61.0
2002 – 05	28	22	78.6	39.0	-39.6		24.0	-54.5
2006 – 09	40	27	67.1	38.9	-28.2		25.3	-41.8
2010 – 12	48	28	58.3	20.1	-38.2		10.2	-48.2
2013 – 15	50	28	55.6	15.6	-40.0		5.1	-50.5

Source: I-Net BFA and Author's own calculations

4.5 REGRESSIONS FOR DIFFERENT DIVIDEND GROUPS

Table 4.12 presents the Pearson correlation coefficients which were used to examine the strength and direction of the linear relationship between independent variables within the dividend paying group. The relationship between firm size and investment opportunities is mixed. The correlation coefficient between firm size and investment opportunities, measured by dA_t/A_t is positive but statistically insignificant. However, the relationship between firm size and investment opportunities, measured by V_t/A_t , is positive and statistically significant. This suggests that investment opportunities, measured by V_t/A_t , increase as firm size increase. Furthermore, the correlation coefficient of 0.96 is high and close to 1, suggesting a strong positive relationship between firm size and investment opportunities. The high correlation may also be due to the presence of multicollinearity between the variables. The correlation coefficient between firm size and profitability is positive and statistically significant. This suggests that profitability increases as firm size increases. The correlation coefficient is 0.68, suggesting a moderate positive relationship between firm size and profitability. The correlation coefficients between investment opportunities, measured by dA_t/A_t and both profitability and V_t/A_t , are positive but statistically insignificant. This suggests that there is no relationship between these variables. The correlation between profitability and investment opportunities, measured by V_t/A_t , is positive and statistically significant. This suggests that investment opportunities increase as profitability increases. The correlation coefficient is 0.69, suggesting a moderate positive relationship between profitability and investment opportunities. Table 4.13 presents the model summary. The R-square coefficient indicates that 47% of the variance in dividend payments (DIV) can be explained by the independent variables. Table 4.14 presents the Analysis of Variation model with a null hypothesis stating that all model coefficients are 0. The p -value of 0.03 indicates that the model is statistically significant suggesting that the null hypothesis can be rejected.

Table 4.12: Pearson Correlations matrix

		$JSEP_t$	dA_t/A_t	E_t/A_t	V_t/A_t
$JSEP_t$	Pearson Correlation	1	0.37	0.68**	0.96**
	Sig. (2-tailed)		0.05	0.00	0.00
	N	29	29	29	29
dA_t/A_t	Pearson Correlation	0.37	1	0.19	0.33
	Sig. (2-tailed)	0.05		0.32	0.08
	N	29	29	29	29
E_t/A_t	Pearson Correlation	0.68**	0.19	1	0.69**
	Sig. (2-tailed)	0.00	0.32		0.00
	N	29	29	29	29
V_t/A_t	Pearson Correlation	0.96**	0.33	0.69**	1
	Sig. (2-tailed)	0.00	0.08	0.00	
	N	29	29	29	29
**Correlation is significant at the 0.01 level (2-tailed).					

Source: I-Net BFA and Author's own calculations

Table 4.13: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.686 ^a	0.470	0.382	0.14601

Source: I-Net BFA and Author's own calculations

Table 4.14: Analysis of Variation (ANOVA) model

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.454	4	0.113	5.322	.003 ^b
	Residual	0.512	24	0.021		
	Total	0.966	28			

Source: I-Net BFA and Author's own calculations

Table 4.21 provides annual multiple linear regressions estimated separately for firms classified as payers, former payers, and firms that have never paid as of the previous year. The regressions for the three dividend groups provide results on how the effects of changing characteristics and propensity to pay differ across the groups. The multiple linear regression analysis was applied for the dividend and non-dividend paying groups.

4.5.1 Dividend payers

The full sample period regression average slopes suggest that dividend payers are small, profitable, and pursue investment opportunities. These results are however only significant for the size and investment opportunities (V_t/A_t) coefficients. This is the case for the 1994 - 1997, 2006 - 2009, 2010 - 2012, and 2013 - 2015 sub-periods. This finding is supportive of the literature relating to investment opportunities (Abor & Fiador, 2013; Ardestani et al., 2013; Younis & Javid, 2014) and firm size (Ahmed & Javid, 2008; Denis & Osobov, 2008; Ferris et al., 2009). During 1990 - 1993, the coefficient results suggest that firms are more likely to pay dividends if they are small in size, pursue investment opportunities (V_t/A_t) and are profitable. The p -values of these coefficients are significant at the 0.05 significance level. This result is contrary to the finding of Fama and French (2001) in terms of size and investment opportunities. In addition, the investment opportunities coefficients are negative (dA_t) and positive (V_t/A_t) suggesting a mixed or inconclusive relationship with the likelihood of dividend payments.

During the 1998 - 2001 period, the results suggest that dividend payers are small in size and pursue investment opportunities. Both measures of investment opportunities have a positive relationship with the likelihood of dividend payments and are significant. This finding is in line with the findings of Abor and Fiador (2013), Ardestani et al. (2013), and Younis and Javid (2014).

During the 2002 - 2005 period, the results suggest that dividend payers are small, profitable, and pursue investment opportunities. These results are, however, only significant for investment opportunities, as measured by V_t/A_t . Interestingly, the size coefficient is insignificant during this period, which is in line with the findings of Aivazian et al. (2003), Moradi et al. (2010), and Trang (2012).

4.5.2 Former payers

Table 4.15 presents the Pearson correlation coefficients, which were used to examine the strength and direction of the linear relationship between independent variables within the former dividend paying group. The correlation coefficient between firm size and investment opportunities, measured by dA_t/A_t , is positive but statistically insignificant. However, the relationship between firm size and investment opportunities, measured by V_t/A_t , is positive and statistically significant. This suggests that investment opportunities, measured by V_t/A_t , increase as firm size increase. The correlation coefficient of 0.90 is high and close to 1, suggesting a strong positive relationship between firm size and investment opportunities. The

high correlation may also be due to the presence of multicollinearity between the variables. The correlation coefficient between firm size and profitability is positive but statistically insignificant. The correlation between investment opportunities, measured by dA_t/A_t and profitability is positive but statistically insignificant. Interestingly, the correlation between investment opportunities, measured by dA_t/A_t and the VA investment opportunities measure is positive and statistically significant. The correlation between profitability and investment opportunities, measured by V_t/A_t , is positive but statistically insignificant. Table 4.16 presents the model summary. The R-square coefficient indicates that 67% of the variance in dividend payments (DIV) can be explained by the independent variables. Table 4.17 presents the ANOVA model with a null hypothesis stating that all model coefficients are 0. The p -value of 0.06 suggests that the model is not statistically significant suggesting a failure to reject the null hypothesis.

The full sample period regression average slopes suggest that former payers are likely to pay dividends if they are large, less profitable, and do not pursue investment opportunities. These results are however only significant for the investment opportunities, as measured by the V_t/A_t coefficient. This finding suggests that former payers are likely to pay dividends if they do not pursue much investment (Fama & French, 2001; Amidu & Abor, 2006; Ferris et al., 2006). Due to the sample size, there was not enough data on former payers to run regressions for some of the sub-periods, particularly the 1990 to 2005 sub-periods. The results for the 2006 to 2009 period also suggest that former payers are likely to pay dividends if they are large, not profitable, and do not pursue investment opportunities. However, none of these coefficients are significant. The 2010 to 2012 results suggest that former payers are likely to pay dividends if they are large and profitable (Fama & French, 2001; Ferris et al., 2006; Denis & Osobov, 2008; Ferris et al., 2009; Ouma, 2012; Al-Kuwari, 2010). The investment opportunities coefficients are both negative and positive, which suggests a mixed or inconclusive relationship, in line with the findings of Julio and Ikenberry (2004). These findings are insignificant except for investment opportunities as measured by V_t/A_t . The results for the 2013 to 2015 period suggest that former payers are likely to pay dividends if they are large, do not pursue investment opportunities and are profitable. This finding is only significant for the size and investment opportunities, measured by V_t/A_t , coefficients.

Table 4.15: Pearson Correlations Matrix

Correlations					
		JSEP _t	dA _t /A _t	E _t /A _t	V _t /A _t
JSEP _t	Pearson Correlation	1	0.56	0.45	0.90 ^{**}
	Sig. (2-tailed)		0.06	0.15	0.00
	N	12	12	12	12
dA _t /A _t	Pearson Correlation	0.56	1	0.46	0.61 [*]
	Sig. (2-tailed)	0.06		0.13	0.03
	N	12	12	12	12
E _t /A _t	Pearson Correlation	0.45	0.46	1	0.50
	Sig. (2-tailed)	0.15	0.13		0.09
	N	12	12	12	12
V _t /A _t	Pearson Correlation	0.90 ^{**}	0.61 [*]	0.50	1
	Sig. (2-tailed)	0.00	0.03	0.09	
	N	12	12	12	12
**Correlation is significant at the 0.01 level (2-tailed).					
* Correlation is significant at the 0.05 level (2-tailed).					

Source: I-Net BFA and Author's own calculations

Table 4.16: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.821 ^a	0.67	0.49	0.21

Source: I-Net BFA and Author's own calculations

Table 4.17: Analysis of Variation (ANOVA) model

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.62	4	0.15	3.62	.06 ^b
	Residual	0.30	7	0.04		
	Total	0.92	11			

Source: I-Net BFA and Author's own calculations

4.5.3 Never paid

Table 4.18 presents the Pearson correlation coefficients which were used to examine the strength and direction of the linear relationship between independent variables within the

group of firms that have never paid dividends. The relationship between firm size and investment opportunities is the same as that found for former payers. The correlation coefficient of 0.997 is high and close to 1, suggesting a much stronger and positive relationship between firm size and investment opportunities than that found for former payers. The high correlation may however also be due to the presence of multicollinearity between the variables. The correlation coefficient between firm size and profitability is positive but statistically insignificant. The correlation between investment opportunities, measured by dA_t/A_t and profitability is positive and statistically significant. This suggests that investment opportunities increase as profitability increases. Furthermore, the correlation coefficient of 0.817 is high and close to 1, suggesting a strong and positive relationship between firm size and investment opportunities. The correlation between both measures of investment is positive but statistically insignificant. The correlation between profitability and investment opportunities, measured by V_t/A_t , is positive but statistically insignificant. Table 4.19 presents the model summary. The R-square coefficient indicates that 83% of the variance in dividend payments (DIV) can be explained by the independent variables. Table 4.20 presents the ANOVA model with a null hypothesis stating that all model coefficients are 0. The p -value of 0.31 suggests that the model is not statistically significant suggesting a failure to reject the null hypothesis. The full sample period regression average slopes suggest that firms that have never paid dividends are likely to pay dividends if they are large, profitable and do not pursue investment opportunities. This finding is, however, statistically insignificant. This is the same case for the 2006 - 2009 period. The 2010 - 2012 results suggest that former payers are likely to pay dividends if they are large and less profitable. Similar to the former payers, the investment opportunities coefficients are both negative and positive, which suggests a mixed or inconclusive relationship. The findings for the 2010 - 2012 period are insignificant. The results for the 2013 - 2015 period suggest that firms that have never paid dividends are likely to pay dividends if they are large, less profitable, and do not pursue investment opportunities. These results are, however, statistically insignificant.

Table 4.18: Pearson Correlations Matrix

Correlations					
		JSEP _t	dA _t /A _t	E _t /A _t	V _t /A _t
JSEP _t	Pearson Correlation	1	0.36	0.59	0.997**
	Sig. (2-tailed)		0.43	0.17	0.00
	N	7.00	7.00	7.00	7.00
dA _t /A _t	Pearson Correlation	0.36	1	0.817*	0.38
	Sig. (2-tailed)	0.43		0.02	0.40
	N	7.00	7.00	7.00	7.00
E _t /A _t	Pearson Correlation	0.59	0.817*	1	0.63
	Sig. (2-tailed)	0.17	0.02		0.13
	N	7.00	7.00	7.00	7.00
V _t /A _t	Pearson Correlation	0.997**	0.38	0.63	1
	Sig. (2-tailed)	0.00	0.40	0.13	
	N	7.00	7.00	7.00	7.00
** Correlation is significant at the 0.01 level (2-tailed).					
*Correlation is significant at the 0.05 level (2-tailed).					

Source: I-Net BFA and Author's own calculations

Table 4.19: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.910 ^a	0.83	0.49	0.27

Source: I-Net BFA and Author's own calculations

Table 4.20: Analysis of Variation (ANOVA) model

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.71	4	0.18	2.42	.314 ^b
	Residual	0.15	2	0.07		
	Total	0.86	6			

Source: I-Net BFA and Author's own calculations

Table 4.21: Multiple Linear Regressions to explain which firms pay dividends

Average coefficient						p-value					
	Int	JSEP _t	V _t /A _t	dA _t /A _t	Et/A _t		Int	JSEP _t	V _t /A _t	dA _t /A _t	Et/A _t
Dividend payers											
1990 – 15	0.57*	-0.48*	0.51*	0.22	0.65		0	0	0	0.12	0.28
1990 – 93	0.12	-0.96*	0.98*	-0.02	2.18*		0.21	0	0	0.92	0.01
1994 – 97	0.25*	-1.07*	1.09*	-0.08	1.01		0.05	0	0	0.72	0.14
1998 – 01	0.33*	-0.86*	0.96*	0.37*	-0.1		0.01	0	0	0.02	0.77
2002 – 05	0.64*	-0.3	0.38*	0.1	0.35		0	0.07	0.02	0.59	0.65
2006 – 09	0.64*	-0.44*	0.42*	0.25	0.48		0	0.01	0.01	0.19	0.33
2010 – 12	0.70*	-0.41*	0.42*	0	0.52		0	0.03	0.02	1	0.53
2013 – 15	0.60*	-0.53*	0.59*	0.08	0.22		0	0	0	0.52	0.69
Former payers											
1990 – 15	0.70*	0.53	-0.69	-0.56	-1.36		0	0.14	0.05	0.59	0.47
1990 – 93	-	-	-	-	-		-	-	-	-	-
1994 – 97	-	-	-	-	-		-	-	-	-	-
1998 – 01	-	-	-	-	-		-	-	-	-	-
2002 – 05	-	-	-	-	-		-	-	-	-	-
2006 – 09	0.74*	0.51	-0.55	-0.23	-2.41		0	0.27	0.07	0.35	0.23
2010 – 12	0.67*	0.5	-1.07*	0.34	2.85		0.01	0.22	0.02	0.81	0.26
2013 – 15	0.78*	0.91*	-1.23*	-0.3	1.48		0	0.01	0	0.73	0.23

Table 4.21 (Continued)

Never paid											
1990 – 15	0.85	1.84	-1.84	-3.3	10.15		0.08	0.3	0.3	0.36	0.59
1990 – 93	0	0	0	0	0		0	0	0	0	0
1994 – 97	0	0	0	0	0		0	0	0	0	0
1998 – 01	0	0	0	0	0		0	0	0	0	0
2002 – 05	0	0	0	0	0		0	0	0	0	0
2006 – 09	0.89	1.38	-1.41	-0.66	2.23		0.05	0.09	0.09	0.13	0.24
2010 – 12	0.81	0.83	-0.86	1.93	-6.34		0.1	0.52	0.44	0.81	0.41
2013 – 15	0.88	0.84	-0.86	-1.87	-0.55		0.06	0.79	0.77	0.57	0.94

**Significant at the 0.05 p- level. Source: I-Net BFA and Author's own calculations*

Table 4.22: Estimates from multiple linear regressions of the effect of changing characteristics and propensity to pay on the percent of firms paying dividends

	<u>Payers</u>				<u>Never Paid</u>				<u>Former Payers</u>				<u>Payers + Never Paid + Former</u>		
	Act	Exp	Exp – Act		Act	Exp	Exp – Act		Act	Exp	Exp – Act		Act	Exp	Exp - Act
1990 – 93	0.94				0										
1994 – 97	0.85	0.70	-0.14		0	0	0		0.15	-1.34	-1.50		1.00	-0.64	-1.64
1998 – 01	0.78	0.55	-0.23		0	0	0		0.19	0.05	-0.14		0.97	0.60	-0.37
2002 – 05	0.79	1.77	0.98		0	0	0		0.18	0.40	0.22		0.96	2.17	1.20
2006 – 09	0.67	1.30	0.63		0.09	-0.64	-0.73		0.22	0.60	0.39		0.98	1.26	0.28
2010 – 12	0.58	1.31	0.73		0.13	-0.51	-0.63		0.23	0.39	0.16		0.94	1.19	0.25
2013 – 15	0.56	1.25	0.69		0.12	-0.51	-0.63		0.22	0.10	-0.11		0.89	0.84	-0.06

Source: I-Net BFA and Author's own calculations

The base period (1990 – 1993) coefficients were applied in Table 4.22 to estimate the expected percentage of payers for each group from 1994 onwards.

4.5.4 The dividend decisions of dividend payers

Fama and French (2001) find that the proportion of year $t - 1$ dividend payers expected to continue paying in year t fell from 1978 to 1998, and that the characteristics of dividend payers did not change much through their sample period. Table 4.22 indicates that the proportion of dividend payers expected to continue paying dividends falls during the 1994 - to - 2001 periods. During these periods, the actual proportion of firms that paid dividends is higher than the expected proportions. This finding suggests that there is an increasing propensity to pay dividends during these periods, despite the decline in the actual proportion during 1998 - 2001. This finding is supportive of the literature that has documented a positive relationship between dividends and catering, agency costs, and life-cycle theories, respectively. Lower propensity to pay dividends is evident from 2002 onwards to 2015. The proportion of payers expected to continue paying dividends is consistently higher than the actual proportions. The spread is the widest during 2002 - 2005, narrows during 2006 - 2009, widens during 2010 - 2012, and slightly narrows during 2013 - 2015. This finding suggests that there is decreasing propensity to pay dividends during these periods, and is supportive of the literature that has documented lower propensity to pay dividends (Miller & Modigliani, 1961; Fama & French, 2001; Booth & Cleary, 2003; Grullon & Michaely, 2002; Ferris et al., 2006; Von Eije & Megginson, 2007; Dennis & Osobov, 2008; Brav et al., 2005; Firer et al., 2008; Julio & Ikenberry, 2004).

4.5.5 The dividend decisions of former payers

Table 4.22 indicates that the proportion of firms expected to pay dividends increases during the 1994 to 2001 period. This finding suggests that there is an increasing propensity to pay dividends during these periods. Similar to the dividend paying group, this finding is in line with the literature that finds increasing propensity to pay dividends. Lower propensity to pay dividends is, however, evident from 2002 until 2012 as the proportion of payers expected to continue paying dividends is consistently higher than the actual proportions. The spread between the expected and actual proportions widens from 2002 - 2009, but narrows during 2010 - 2012. Increasing propensity to pay dividends is evident during the 2013 - 2015 period as the actual proportion of payers is higher than the expected proportion of payers.

4.5.6 The dividend decisions of firms that have never paid

Due to the sample size and total proportion of firms that have never paid dividends, there is not sufficient data to analyse during the 1994 - 2005 period. Table 4.22 indicates that the expected proportion of payers is consistently lower than the actual proportion of payers despite the increase in the expected proportion of payers during the period. This suggests that there is an increasing propensity to pay dividends throughout the 2006 - 2015 period. As mentioned in the summary statistics results, the South African economy was characterised by a strong bull-market, booming commodities markets, and strong growth in the manufacturing sector. In addition, the Dividend Withholding Tax (DWT) was introduced during this period. In terms of the literature, this finding is supportive of catering (Baker & Wurgler, 2004; Ferris et al., 2006; Mollah, 2011), agency costs theory (Easterbrook, 1984; Officer, 2006; Amidu & Abor, 2006; Mollah, 2007; Abor & Fiador, 2013), and the Life-cycle theory (DeAngelo et al., 2006; Von Eije & Megginson, 2007; Denis & Osobov, 2008), respectively.

4.6 DIVIDENDS AND EARNINGS CONCENTRATION

The following section presents the results relating to the dividend and earnings concentration of the sampled JSE listed industrial firms. DeAngelo et al. (2004) found that aggregate dividends increased steadily over the full sample period, that the long-term growth in aggregate dividends reflects the underlying growth in earnings, and that dividends grew more smoothly than earnings. In addition, they found that dividend payers account for the vast bulk of industrial earnings over the period, and that aggregate losses increased markedly from 1978 to the early 1990s, reaching massive levels in the late 1990s.

Table 4.23 and Figure 4.3 present the aggregate earnings, dividends, and losses, respectively, and the total earnings of dividend payers over the 1990 - 2015 period. Table 4.23 and Figure 4.3 indicate that aggregate earnings decreased from R4.65 billion to R4.05 billion over 1990 - 1997. Aggregate earnings do, however, increase gradually over 1998 - 2005. Aggregate earnings increased significantly from R32.02 billion to R36.88 billion over 2006 - 2015. Figure 4.3 also shows that dividend payers account for a majority of the share of industrial earnings, approximately 99.6% and 86.5% during 1990 - 1993 and 2010 - 2015, respectively. The earnings of dividend payers are cyclical over the sample period. Earnings decreased from R4.63 billion to R4.04 billion over 1990 - 1997. During 1998 - 2009 earnings rebounded from R7.53 billion to R29.62 billion. However, another earnings decline of -1% was evident over the 2009 - 2012 period, followed by an increase of 9% during 2012 - 2015. Similar to DeAngelo, et al. (2004) aggregate dividends grew relatively smoother than earnings over the

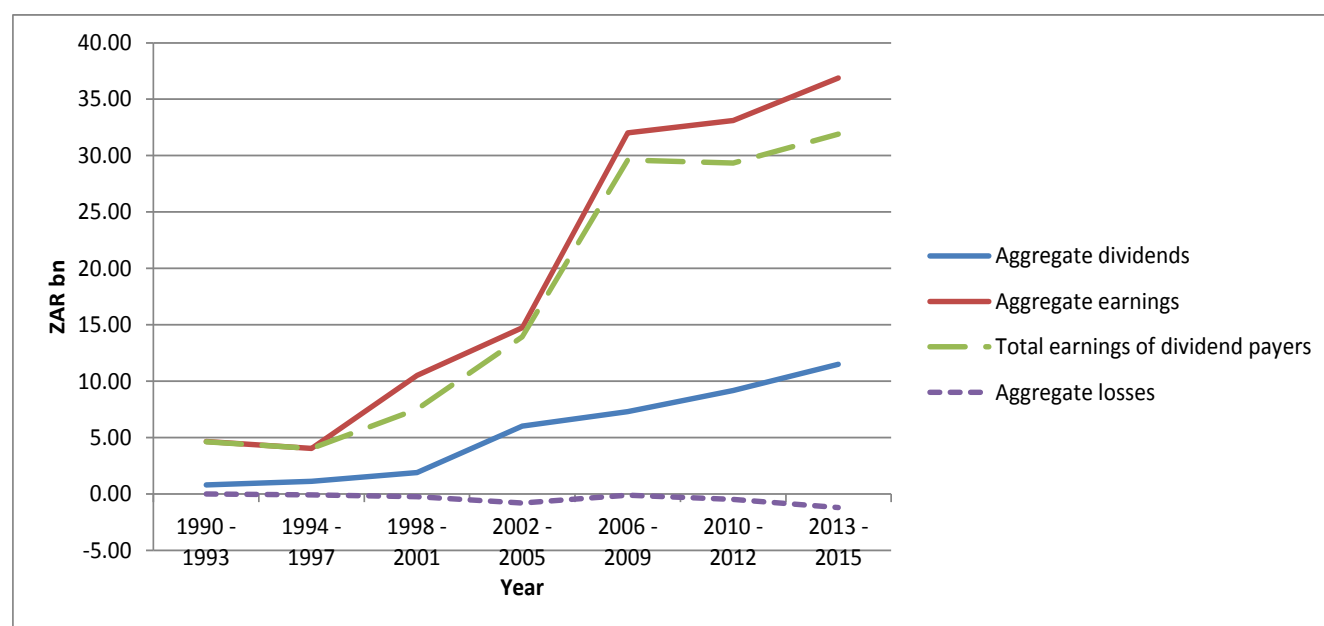
sample period. Aggregate dividends increased significantly over the sample period, more so during 2002 - 2005. In addition, aggregate losses are recorded for industrial firms over the period. These losses are much higher during 2002 - 2005, and 2013 - 2015.

Table 4.23: Aggregate earnings, dividends, and losses

Year	Aggregate dividends	Aggregate earnings	Total earnings of dividend payers	Aggregate losses
ZAR (bn)				
1990 – 1993	0.81	4.65	4.63	0.00
1994 – 1997	1.12	4.05	4.04	-0.07
1998 – 2001	1.89	10.52	7.53	-0.24
2002 – 2005	6.02	14.74	13.94	-0.80
2006 – 2009	7.31	32.02	29.62	-0.10
2010 – 2012	9.18	33.11	29.35	-0.48
2013 – 2015	11.50	36.88	31.91	-1.19

Source: I-Net BFA and Author's own calculations

Figure 4.3: Aggregate earnings, dividends, and losses



Source: I-Net BFA and Author's own calculations

Table 4.24 ranks dividend-paying industrial firms by cash dividends paid in 1990 and 2015, in groups of 5 firms. For each ranked group in 1990 and 2015, columns 1 and 2 present the percent of dividends paid, columns 3 and 4 report the cumulative percent, columns 5 and 6 report total real dividends. Similar to DeAngelo et al. (2004), a relatively small number of firms pay the overwhelming majority of aggregate industrial dividends. For example, 89% and 74% of dividends were paid by the top 5 dividend payers in 1990 and 2015, respectively.

This finding is, however, contrary to DeAngelo et al. (2004) who found that dividend concentration increased substantially over their sample period. This study finds that dividend concentration has decreased over the period.

Table 4.24: Dividend-paying industrial firms by cash dividends paid in 1990 and 2015

Dividend Ranking	Percentage of total dividends (%)		Cumulative percentage of total dividends (%)		Real dividends (ZAR mn, 1990 base)	
	(1)	(2)	(3)	(4)	(5)	(6)
	1990	2015	1990	2015	1990	2015
Top 5	89	74	89	74	55.95	161.16
(6 - 10)	9	18	98	92	5.78	39.67
(11 - 15)	2	5	100	97	1.07	12.00
(16 - 20)	0	3	100	100	0.00	3.78
(21 -25)	0	0	100	100	0.00	0.63
Total for all dividend paying firms	100	100			62.80	217.24
Number of dividend paying firms	17	28				

Source: I-Net BFA and Author's own calculations

Table 4.25 summarizes the cross-sectional distribution of dividends in 1990 and in 2015, with dividend-paying firms categorized by real dividends paid. DeAngelo et al. (2004) find that the top categories of dividend payers pay substantially higher total dividends, while the bottom categories contain fewer firms which pay modestly lower total dividends. They find that the net result is a large decrease in the number of payers accompanied by an increase in aggregate dividends, indicating that the top-end firms dominate, while the bottom-end firms have little impact on the aggregate dividend supply. Table 4.25 presents dividend payments that range from greater than R1.5 million per year to less than R0.2 million (R200 thousand) per year. Table 4.25 shows that during 1990, there were seven industrial firms that paid annual dividends greater than R1.5 million. The number of firms increased during 2015 as there are 16 industrial firms that paid annual dividends greater than R1.5 million. Columns 5 and 6 indicate that the aggregate amount of dividends paid during 1990 and 2015 was R58.28 million and R211.45 million, respectively. Table 4.25 also indicates that the top categories of dividend payers (real dividend payments greater than R1.5 million) during 2015 contain just over twice as many firms that pay substantially high total dividends compared to 1990. Similar to DeAngelo et al. (2004), Table 4.25 indicates that the top categories of dividend

payers contain more firms that paid substantially higher dividends, whilst the bottom categories contain fewer firms which paid lower total dividends.

Table 4.25: Cross-sectional distribution of dividends in 1990 and in 2015, with dividend-paying firms categorized by real dividends paid

Real dividend payment (1990 ZAR mn)	Number of firms		Change from 1990 to 2015	Percentage change from 1990 to 2015 (%)	Real dividends 1990 (ZAR mn)	Real dividends 2015 (ZAR mn)	Change from 1990 to 2015	Percentage change from 1990 to 2015 (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1990	2015			1990	2015		
>1.5	7	16	9	1.29	58.28	211.45	153.17	2.63
1 - 1.5	1	3	2	2	1.14	3.92	2.78	2.44
0.8 – 1	1	0	-1	-1	0.92	0	-0.92	-1
0.6 - 0.8	2	4	2	1	1.39	2.6	1.21	0.87
0.4 - 0.6	1	1	0	1	0.55	0.45	-0.11	-0.19
0.2 - 0.4	1	1	0	0	0.26	0.36	0.1	0.39
< 0.2	4	3	-1	-0.25	0.26	0.27	0.01	0.03
Total	17	28	11		62.8	219.04	156.24	

Source: I-Net BFA and Author's own calculations

Table 4.26 ranks dividend-paying firms by their earnings in 1990 and 2015. Similar to dividends, earnings are highly concentrated in 1990, but contrary to DeAngelo et al. (2004), earnings concentration has decreased among dividend payers during 2015. The top 10 dividend payers account for approximately 88% and 75% of earnings during 1990 and 2015, respectively. This is contrary to the findings of DeAngelo et al. (2004) who found evidence of earnings concentration due to the top 100 dividend payers that account for approximately 57.5% and 74.0% during 1978 and 2000, respectively. Cumulatively, the rest of the dividend ranking groups during 1990 account for 12% of earnings. During 2015, the remaining dividend ranking groups account for 27% of earnings. In addition, DeAngelo et al. (2004) found that cumulatively, the remaining dividend groups account for 42.4% and 26% during 1978 and 2000, respectively. From 1990 to 2015, the total real earnings of the top 10 dividend paying firms increased, from R3.75 billion to R3.87 billion. The remaining dividend groups show significant increases in real earnings from 1990 to 2015. The remaining 1990 dividend groups contributed approximately R0.49 billion, excluding losses, in aggregate real earnings, compared to the remaining 2015 dividend groups that contributed approximately R1

billion in aggregate real earnings, excluding losses. Losses were recorded in some instances for payers within the top 26 – 30 group during 2015.

Table 4.26: Dividend-paying firms by their earnings in 1990 and 2015

Dividend Ranking	Percentage of total earnings (%)		Cumulative percentage of total earnings (%)		Real earnings (ZAR bn, 1990 base)	
	(2)	(3)	(4)	(5)	(4)	(5)
	1990	2015	1990	2015	1990	2015
Top 5	88	75	88	75	3.75	3.87
(6 - 10)	9	20	97	94	0.40	1.02
(11 - 15)	2	8	99	102	0.09	0.40
(16 - 20)	1	3	100	104	0.00	0.14
(21 -25)	0	1	100	105	0.00	0.04
(26 -30)	0	-5	100	100	0.00	-0.27
Total for all firms	100	100			4.24	5.19
Number of firms	17	28				

Source: I-Net BFA and Author's own calculations

Table 4.27 summarizes the cross-sectional earnings distribution of dividend-paying and non-dividend paying firms. DeAngelo et al. (2004) found that earnings in both 1978 and 2000 are concentrated among the top few firms at the top end of the distribution, and that concentration is greater in 2000. They particularly found that 9 firms in 1978 and 28 firms in 2000 account for the earnings concentration. Table 4.27 indicates that earnings in both 1990 and 2015 are concentrated among relatively few firms at the top end (Top 5 dividend paying firms) of the distribution, however, earnings are relatively lower in 2015. Table 4.27 shows that the aggregate real earnings of payers and non-payers combined decreased from approximately R2.59 billion in 1990 to approximately R1.67 in 2015. The number of industrial firms that made losses or negative earnings increased from approximately 0 in 1990, to 4 in 2015, with losses amounting to approximately R0.28 billion in 2015. The increase in losses is consistent with the findings of Fama and French (2001) and DeAngelo et al. (2004) who document a substantial increased loss incidence in the most recent years of their sample periods.

Table 4.27: Cross-sectional earnings distribution of dividend-paying and non-dividend paying firms.

Real earnings (1990 ZAR bn)	Number of firms		Real earnings (ZAR bn)		Real earnings as a % of total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1990	2015	1990	2015	1990	2015
>1.5	1	1	2.59	1.67	0.61	0.32
1 - 1.5	0	0	0.00	0.00	0.00	0.00
0.8 – 1	0	1	0.00	0.90	0.00	0.17
0.6 - 0.8	0	1	0.00	0.63	0.00	0.12
0.4 - 0.6	1	0	0.41	0.00	0.10	0.00
0.2 - 0.4	2	6	0.58	1.56	0.14	0.30
< 0.2	13	15	0.66	0.69	0.16	0.13
Negative earnings	0	4	0.00	-0.28	0.00	-0.05
Total	17	28	4.24	5.19	1.00	1.00
Total positive only	17	24	4.24	5.46		

Source: I-Net BFA and Author's own calculations

Table 4.28: Pooled distributions of real earnings for dividend payers and non-payers

Real earnings (1990 ZAR bn)	1990 Number of firms			2015 Number of firms		1990 earnings (ZAR bn)			2015 earnings (ZAR bn)			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Payers	Non- payers	Percentage from payers (%)	Payers	Non- payers	Percentage from payers (%)	Payers	Non- payers	Percentage from payers (%)	Payers	Non- payers	Percentage from payers (%)
>1.5	1	0	100	1	0	100	2.59	0	100	1.67	0	100
1 - 1.5	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1	0	0	0	1	0	100	0	0	0	0.9	0	100
0.6 - 0.8	0	0	0	1	0	100	0	0	0	0.63	0	100
0.4 - 0.6	1	0	100	0	0	0	0.41	0	100	0	0	0
0.2 - 0.4	2	0	100	6	0	100	0.58	0	100	1.56	0	100
< 0.2	13	2	87	15	16	48	0.66	53.73	1	0.69	0.56	55
Negative earnings	0	0	0	4	1	80	0	0	0	-0.28	-0.05	85
Total	17	2	89	28	17	62	4.24	53.73	7	5.19	0.51	91

Source: I-Net BFA and Author's own calculations

Table 4.28 presents the portioned pooled distributions of real earnings from Table 4.27 as separate distributions for dividend payers and for non-payers. DeAngelo et al. (2004) found a strong link between losses and the failure to pay dividends. Their results indicate that a significant number of firms that reported losses failed to pay a dividend in 2000. Table 4.28 shows that dividend payers tend to be more profitable than non-payers in 1990 as 100% of the payers account for earnings in the greater than R1.5 billion earnings categories. The majority of payers (87%) account for earnings less than R200 million in 1990. This finding is similar for firms in 2015 where 100% of payers account for earnings greater than R1.5 billion. The majority of both payers and non-payers account for earnings less than R200 million, with 48% of payers accounting for these earnings in 2015. Contrary to the findings of DeAngelo et al. (2004), 80% of payers account for losses in 2015, compared to only 20% of non-payers. This finding suggests that losses have not driven many firms to forego dividends. DeAngelo et al. (2004) also document a strong positive relation between the level of earnings and the proportion of firms paying dividends, and how this relation weakened in 2000 compared to 1978. Interestingly, Table 4.28 indicates that there is a strong positive relation between the level of earnings and the proportion of firms paying dividends on the JSE. For example, 13% of firms with earnings of R200 million and less failed to pay dividends in 1990, compared to 52% in 2015. Similar to DeAngelo et al. (2004), a smaller proportion of firms with a given level of real earnings paid dividends in 2015. This finding suggests that, in line with Fama and French (2001), industrial firms exhibit a lower propensity to pay dividends over time.

Despite the reduced propensity to pay, aggregate real dividends increased from 1990 to 2015 by approximately R153.17 billion. This increase is, however, evident in the greater than R1.5 million group. This finding is interesting because it suggests that aggregate real dividends increased despite the decrease in aggregate earnings and lower earnings concentration in 2015. The remaining groups indicate small increases and decreases in some groups (R0.4 – 0.6 million, and R0.8 – R1 million) in real dividend payments from 1990 to 2015. In addition, there are hardly any payers in the top category of earning over the 1990 and 2015 period. Instead, the number of payers in the R200 million and less category increase from 13 to 15, while non-payers increase substantially from 2 to 16 in 1990 and 2015, respectively. This finding is similar to the findings of DeAngelo et al. (2004) who found that the number of dividend-paying firms with earnings in the top category had decreased but still accounted for a higher proportion of payers. This study, however, finds that dividend payers do not necessarily account for a higher proportion of earnings.

4.7 CONCLUSION

Chapter 4 began with providing a view on the trend of dividend and non-dividend paying firms over the sample period. The results suggest that the number of dividend paying firms on the JSE Limited increases over the period but decreases over the 2010 - 2015 sub-period. The full period summary statistics suggest that dividend payers are much larger than non-payers, that former payers are less profitable than dividend payers, that former payers generally have the most liabilities, followed by dividend payers and firms that have never paid. The full sample logistic regression results suggest that profitability is the only factor that has a statistically significant relationship with dividends. The Multiple Linear regressions results suggest that size and investment opportunities are the only significant factors in the probability of dividend payouts over the sample period. In addition, the results suggest that dividend payers account for a majority of the share of industrial earnings during 1990 – 1993 and 2010 – 2015, and that aggregate dividends increased significantly over the sample period. Similar to DeAngelo, et al. (2004) aggregate dividends grew relatively smoother than earnings over the sample period. The results also suggest that earnings and dividend concentration have decreased over the sample period.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. CONCLUSION

The objective of this study was to investigate whether there have been changes in the patterns of dividend paying industrial firms on the JSE Limited. This study finds that the number of dividend paying firms on the JSE Limited increases over the period but decreases over 2010 to 2015. Similarly, the number of former payers decrease over 2010 to 2015. An increase in the number of firms that have never paid dividends and new lists, has been consistent over the period. From 2006 onwards, the proportion of dividend payers decreases significantly, whilst the proportions of firms increases over the sample period across the other groups. Unlike Fama and French (2001), new lists do not seem to contribute to the declining proportion of payers over the period. Similar to Fama and French (2001), dividend payers are much larger than non-payers. Similarly, amongst the new lists, the average firm size of dividend payers is higher than those for non-payers over the sample period. The results also indicate that dividend payers have higher measured profitability than non-payers over the full 1990 to 2015 period. The results show that despite former payers being less profitable than dividend payers, they have better growth opportunities when measured by dA_t/A_t . Fama and French (2001) found that former payers were victims of both low profitability and poor investment opportunities. In addition, new firms that pay dividends are more profitable than non-paying new lists. This study finds that non-dividend paying firms, particularly former payers, generally have the best growth opportunities. However, dividend payers are found to have the best growth opportunities when an alternative measure is used for investment opportunities. The results also suggest that former payers generally have the most liabilities, followed by dividend payers and firms that have never paid.

Similar to the summary statistics results, the full period (1990 – 2015) sample logistic regressions suggest that profitability is the only factor that has a statistically significant relationship with dividends in line with the literature that finds a positive relationship between profitability and dividends. The sub-period results, except for the 2006 – 2009 and 2010 – 2012 sub-periods, suggest that neither firm size, investment opportunities nor profitability are significant determinants of the probability that a firm will pay dividends. Furthermore, the multiple linear regression results suggest that size and investment opportunities are the only significant factors in the probability of dividend payouts over the sample period. In addition, the multiple linear regression results are mixed over the identified

sub-periods. In addition, the results suggest that there is an increasing propensity to pay dividends during 1994 – 2001, and 2010 – 2015, which is in support of catering, agency costs, and the life-cycle theory. The results however also suggest that there was a declining propensity to pay dividends during 2002 – 2009, which is supportive of the irrelevance theorem (Miller & Modigliani, 1961), agency costs, and catering theory.

This study finds that dividend payers account for a majority of the share of industrial earnings during 1990 – 1993 and 2010 – 2015. Aggregate nominal and real dividends increased by 17.67% and 2.36% over the sample period. Aggregate real dividends increased by 2.36%, from R632 thousand in 1990 to R2.12 million in 2015. Aggregate dividends increased significantly over the sample period, more so during 2002 – 2005. Similar to DeAngelo, et al. (2004) aggregate dividends grew relatively smoother than earnings over the sample period. Similar to DeAngelo et al. (2004), a relatively small number of firms pay the overwhelming majority of aggregate industrial dividends. Approximately 89% and 74% of dividends were paid by 5 firms during 1990 and 2015, respectively. This finding is contrary to the findings of DeAngelo et al. (2004) as dividend concentration has decreased over the period. Dividend payers are found to account for a majority of the share of industrial earnings, during 1990 to 1993 (99.6%) and 2010 to 2015 (86.5%), respectively. In addition, these earnings were found to be cyclical over the sample period. Similar to dividends, earnings are highly concentrated in 1990, but contrary to DeAngelo et al. (2004), earnings concentration has decreased among dividend payers during 2015. The top 10 dividend payers account for approximately 88% and 75% of earnings during 1990 and 2015, respectively.

5.2. RECOMMENDATIONS

The study at hand indicated that given the changes in the relationship between firm characteristics and the probability of dividend payments and the changing propensity to pay dividends over the sub-periods, dividends are not disappearing. Therefore, the changing patterns of dividend paying firms have not resulted in a disappearance of dividends over the 1990 to 2015 period. This finding implies that managers of JSE listed industrial companies consider a vast range factors which may change from time to time when considering dividend payments. Therefore, it is imperative for investors to understand that the relevant factors to be identified and examined vary over time when analysing dividend paying industrial firms. More research is required to understand and quantify the factors that may be relevant when considering investing in dividend paying industrial firms. A few recommendations are proposed post the findings of the study. The first recommendation is to consider a wider set

of firm characteristics in addition the characteristics identified by Fama and French (2001). The mixed findings throughout the sub-periods suggest that alternative firm characteristics may need to be considered each year or sub-period as opposed to just considering size, profitability, and investment opportunities. In addition, a larger sample size, including other JSE Limited classified sectors and extending the time frame, might provide more insight into the changing patterns of dividend paying firms.

The study at hand has identified economic events during the sample period, however the impact of these events on the changing patterns of dividend paying firms has been assumed. Therefore, a second recommendation is to consider and quantify specific macro-economic variables, such as indicators for GDP, foreign exchange investment, Consumer Price Inflation (CPI), and Producer Price Inflation (PPI). These variables are considered as coincident indicators which show the current state of economic activity.

The third recommendation is to consider the capital structure decisions that may affect dividend paying firms, such as debt facilities that may restrict dividend payments. These capital decisions are more strategic as firms have differing optimal capital structures. In addition, tax variables, such as the corporate and the dividend withholding taxes, should be considered when examining capital structure variables that may impact the decisions of dividend paying firms.

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