CORPORATE PAYOUT POLICY IN SOUTH AFRICA: HAVE SHARE REPURCHASES REPLACED CASH DIVIDENDS?

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DECLARATION

I hereby declare that this is my own unaided work, the substance of or any part of which has not been submitted in the past or will be submitted in the future for a degree in to any university and that the information contained herein has not been obtained during my employment or working under the aegis of, any other person or organization other than this university.

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ABSTRACT

A generous amount of research on payout policies has reported that the trends of payout policies have changed overtime. The common pattern in most of these studies is that fifty years ago cash dividend was the most dominant and favourable form of payout, but this pattern was not maintained and saw some changes in the 1980s. The 1980s was a period where the use of repurchases increased significantly in both the US and the UK and this increment was paired with a declining propensity to pay dividends. It is this observation that impelled researchers to suggest that share repurchases were substitutes for cash dividends as they were being finance with reductions in cash dividends.

Share repurchases are a new concept in South Africa compared to other international capital markets. The implementation of the Companies Amendment Act 37 of 1999 has made it possible for companies to carry out open market stock repurchase programmes in South Africa and since then, share repurchases have become an intricate part of payout policy for South African firms.

This study tests whether indeed the declining propensity to pay dividends and the increasing propensity to repurchase patternsare observable in South Africa and whether share repurchases are indeed substitutes for cash dividends in today's markets. This study examines the payout policies of 116 companies listed on the Johannesburg Stock Exchange (JSE henceforth) between 2002 and 2009.

Overall, this study finds that the use of share repurchases has increased substantially in South Africa during the sample period. Dividends have also increased significantly and the total payout ratio exhibited an upward trend between 2002 and 2009. This implies that the increase in repurchase activity was not financed by the decrease in dividends, as dividends had also followed an upward trend. There is sufficient evidence that repurchases and dividends are certainly not substitutes in South Africa.In addition to the observation thatdividend and repurchase payout ratios moved in the same direction for most parts of the sample period, a

positive relationship between the dividend forecasting error and repurchase activity was realized, thus, dividends and repurchases weredeclared complements.

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"We are built to conquer, solve problems, achieve goals, and we find no real satisfaction or happiness in life without obstacles to conquer and goals to achieve."-Maxwell Maltz

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CHAPTER I

1. Introduction

The decision to distribute cash through dividends and share repurchases is motivated by various factors. However, the puzzle of optimal payout policy and the choice of wealth distribution to shareholders remains widely debated and controversial in finance literature, and even with the generous amount of research in this field, the puzzle has not yet been resolved.

Firm managers may choose to distribute funds in the form of dividends, share repurchases or simply repayment of company debt. Any rational investor lays out money with intentions or at least anticipation that it would generate higher returns for him in the future. Conventionally, paying out dividends was a means to provide investors with some of the growth obtained from their investment.

Since the 1980s, the convention of paying out dividends has become less favourable and share repurchases have shown to be a much more popular corporate finance tool. In South Africa, open-market share repurchases were only allowed after 1999 when the Companies Amendment Act 37 of 1999 was enforced and since then an increasing amount of firms are adopting this form of payout(Linde, 1999).

The shift from dividends to repurchases has been distinct in the US and the UKand was reported in DeAngelo, DeAngeloand Skinner(2004). This begs the question *'are dividends also disappearing in South Africa and have repurchases stepped in to replace them?'*

1.1. Objectives of the Study

The objective of this study is to examine whether repurchase activity on the JSE is increasing and making a mark as a relevant form of cash disbursement to shareholders. More importantly,

this study examines whether South African firms are shying away from the traditional cash dividend payments to their valued shareholders as seems to be the pattern in markets abroad. If so, another aim of this study is to assess whether this declining propensity to pay dividends is explained by the increasing propensity to repurchase shares, ultimately testing if cash dividends and share repurchases are viewed as substitutes in the South African context.

To arrive to a conclusion, a sample of 116 firms listed on the JSE is analyzed over a period of eight years, from 2002 to 2009. The next step is to observe whether the trends of payout methods have changed over the sample period. The four payout policies that are analyzed in this study are dividends-only, repurchase-only, no payout and both-dividend-and-repurchase policies. Since open-market repurchase activity is relatively new in South Africa, it is investigated whether it is becoming dominant as payout method. Finally, tests are carried out to check for the substitution effect and to see whether the changes in payout policies had anything to do with firm-specific attributes.

1.2. Justification of the Study

The issues discussed in this study are valuable to both firms following a specific payout policy and the recipient of the payout in question. Issuers need to be proficient in recognizing conditions in which dividend payments and share buybacks would be most optimal and follow the optimal payout policy.It also necessary for firms to be able to determine their ultimate payout policy well in advance based on their characteristics because changing dividend policy overtime bears implications on both the firm and the shareholder.

At the same token, investors who desire dividend income in today's market that is infamous for a decreasing proportion of dividend-paying firms, need to be able to recognize firms with a promised longevity to pay dividends just by looking at the firm-specific characteristics of the issuing firm. With this quality, investors may avoid the blunder of investing in dividend-paying firms mistaken for cash cows that would later convert to dividend-non-paying firms.

This study contributes to the expansion of dividend policy literature, tackling the issue of repurchases as a substitute for dividends, an area that is still underdeveloped in the South African payout policy literature. Even though this specific study is still at its infancy in South Africa, in terms of literature coverage, it neatly ties together other prevalent aspects of payout literature such as the introduction of open-market repurchases in South Africa, the evolving payout trends since repurchases and the implications.

1.3. Structure of Paper

This paper is structured as follows. ChapterII provides an outline of the literature review on the forms of payout policy, the motivations of payout forms and the shift from dividends to repurchases. Chapter III describes the data, sample collection and the methodology adopted. ChapterIV provides the empirical results and discusses the findings. Chapter V concludes, highlights the main findings of this study, discusses the limitations and suggest future areas of study.

CHAPTER II

2. Review of Related Literature

The key responsibility for firm managers is to create wealth for their shareholders. Once wealth has been created, managers need to decide on how to allocate the funds that they have. Firms can either plowback resources to further their growth or they can payout these funds to their shareholders(Bhana, 2007). This study focuses only on two forms of wealth distribution to shareholders: cash dividends and share repurchases.

2.1. Does Payout Policy Matter?

The decision to distribute cash to shareholders can be recognized as a firm's financing decision since it is the same retains earnings that the firm may use to reinvest in growth opportunities that it uses to payout to its shareholders (Aliahmed, 2008). Whether distributing cash through dividends or repurchases creates wealth for shareholders or not still remains debatable after many years of research. There are two main schools of thought that have surfaced to argue for the relevance of payout policy in determining the value of a firm. There is a school of thought that maintains that payout policy does not impact the value of a firm in any way (Modigliani and Miller, 1961)andthere is an arm that believes that payout policy affects the firm value, either negatively or positively(Lintner, 1956).

2.2. Payout Policy is Irrelevant

Basic valuation models posit that the present value of a firm is the future cash flows (earnings or dividends) of the firm discounted back, implying that the greater these expected cash flows are, the higher the present value of the firm(Williams, 1938) and (Gordon, 1959). It was from this line of thinking that the prediction thathigher dividend payout increased firm value emerged.One of the earlier offerings to argue against this beliefwas provided by Modigliani and Miller(1961).

The authors established the Modigliani and Miller (MM)'s*dividend irrelevance theorem*which contended that dividend policy or whichever payout policy a firm went by, was of little importance as it had no impact on the value of the firm.

Modigliani and Miller(1961)built the dividends irrelevance argument on several assumptions. The first assumption was that capital markets were perfect, implying that traders faced no transactional cost, traders had costless access to the same information, there were no tax discrepancies between capital gains and dividends. Secondly, investors were rational and they preferred more wealth to less and lastly, investors knew with certainty the future earnings of every firm and the investment opportunities that firms would take in the future.

The main argument under Modigliani and Miller(1961)'s framework was that a firm's investment decisions were the sole determinant of its value and not its payout policy decisions nor its capital structure decisions.The framework contended that investors were indifferent between high or low dividends as they could buy shares at anytime to get the desired dividend or sell their shares at anytime and receive fair value of their shares. To be more precise, the authors indicated that if a firm offered high dividends then investors couldpurchase more shares in anticipation of these lucrative dividends, and if the firm paid low dividends then shareholders could sell their shares to mimic their anticipated cash flows. This framework also purported that if investors were indifferent between capital gains and dividends, they would be indifferent between dividends and repurchases thus suggesting that the two forms of payout were perfect substitutes.

Many others have since subscribed to MM's irrelevance theorem(Black and Scholes, 1974) and (Miller and Scholes, 1978). Others have publicly disapproved of this irrelevance argument but have given it credit for being the cornerstone in explaining dividend policies once the stringent and unrealistic assumptions have been relaxed.Lintner(1956)'s seminal work has shown that firms choose their dividends policy deliberately to affect their values.DeAngelo and DeAngelo(2006)have recently attacked MM's irrelevance theorem calling the theorem irrelevant, and confirming that a firm's payout policy indeed affects its value.

2.3. Payout Policy is Relevant

Inreaction to the payout irrelevance proposition,Black(1976)raised a very important point probing why firms paid dividends to shareholders and why shareholders accepted dividend payments if they did not matter. There is another school of thought that argues that the value of the firm is affected by its payout policy.It is this group that attempts to give explanations as to why firms distribute cash to shareholders.

Only in a perfect frictionless world with rational investors, no taxes, no information asymmetry and no transactional costs would the dividend irrelevance theory hold. Theories competing with the dividend irrelevance argumentare based on relaxingthese assumptions. Thethree main theories that have been proposed to motivate why firms pay either dividends or repurchases are based on market imperfections and thesetheories are; agency costs, signalling and tax-preference theories.

2.3.1. Agency Costs

Although Modigliani and Miller(1961)'spayout irrelevance proposition maintained that dividends did not affect the value of the firm in any way, the agency costs models of payout posited that payout policies affected the value firm by controlling agency problems[1] and aligningthe interests of management with those of shareholder.Some of the agency costs models of dividends involve modelling free cash flow[2], capital structure, shareholder protection laws, management stock incentives and takeover threats to mitigate agency costs.

[1] Agency problems refer to the problems that might arise between shareholders and management when the interests of the two are not aligned and agency costs refers to costs that have to be incurred to insure that the two parties have common interests, (Kim & Nofsinger, 2007).

[2]Jensen (1986)defined free cash flow as cash flow that a firm has left over after funding all projects that have a positive net present value when discounted back.

The basic intuition behind all of the agency cost models of dividends is that by distributing retained cash to shareholders as dividends or repurchases, this will lessen the amount of free cash flow available that managers would otherwise use on projects that do not have the shareholders' interests at heart(Dewenter and Warther, 1998).

2.3.1.1. Agency Costs of Free Cash Flow

Managers often want to show power by building empires and having a lot of resources under their control as a positive association has been discovered between large firms and management compensation packages, (Murphy, 1985)[3]. For a firm to achieve such growth it must use its free cash flow and invest it in projects that will increase the size of the firm, some of these projects may not necessarily be value enhancing as they have negative net present value (NPV).

Easterbrook(1984)made a commendable attempt to find out whether dividends could serve as a tool to mitigate agency costs by aligning managerial and shareholder interests. Assuming that managers were not perfect agents and that they could use company funds to pursue their desired interests, the author offered two forms of agency costs of which dividends could be used to align shareholders' interests with managers. The author argued that when a firm increases its dividend payout, it can fund the new investment projects by pursuing capital markets either by debt or equity subjecting itself to closer monitoring by the capital markets. In a sense dividends are some form of commitment as the firm undertakes to pay its shareholders cash at regular intervals in the future and it is this bond that reduces the firm's free cash flow.

Jensen (1986)explained how debt could be used in place of dividends to reduce the agency costs of free cash flow. Debt can be viewed as a disciplinary device as it prompts the issuing firm to bond its future cash flows by honouring interest rate payments to the debtholders.Since the firm's future cash flows are committed to honour interest rate payments, this essentially reduces

[3]As cited in Jensen (1986)

the amount of free cash flow that would be available in the future and effectively reducing the agency costs that come with it.

From Jensen (1986)'s discussion of the agency costs that come with free cash flow emerged*the overinvestment hypothesis* provided byLang and Litzenberger(1989). This hypothesispredicted that an increase in the payout would reduce the overinvestment of managers in negative net present value (NPV) projects and consequently increase the value of the firm. The authors also proved that dividend changes for over-invested firmscould be used to convey information about the firm's investment policies. The authors showed that paying out too much dividends may also conveya negative signal, specificallya firm paying out excessive dividends may signal that it hasno investment opportunities available and thus its expected cash flows are lower. This model is not unique to dividends only. Firms can also use repurchases to reduce the free cash flow available and prevent managers from taking on bad investment projects.

Some authors have argued against the role of repurchases in aligning the shareholders and management interests.Sui and Weston(2003)and Nohel and Tarhan(1998)pointed that if minority shareholders sold their shares to the remaining majority shareholders, then the majority shareholders will have absolute power to control and misuse funds as they wish. The authors suggested that majority shareholders should also sell so as to reduce the possibility of them being blockholders that misuse funds.

2.3.1.2. Agency Costs and Shareholder Protection Laws

Shareholder protection laws are codes that are set to regulate firms and ensure that they act in ways that are beneficial to their shareholders and help to align the interest of managers with those of shareholders even if it means forcing managers to act in accordance with them (Kim and Nofsinger, 2007). Examples of such laws include shareholders having voting rights to elect directors, rights to receive the same amount of dividends as managers, rights to sue company for damages and general voting rights on corporate matters of the firm (La Porta, Lopez-de-Silanes, Shleiferand Vishny, 2000).

The extent to which shareholder protection laws mitigate agency costs depends on the sternness of such laws, and this may vary from country to country.La Portaet al.(2000)conducted a study to determine whether dividend policies could mitigate agency costs in countries with different shareholder protection laws. The authors used shareholder protection as a proxy for agency costs and showed that firms in common law countries have good protection laws and those in civil law countries do not offer the best legal protection for their minority shareholders.

La Portaet al.(2000)further explained how shareholder protection laws encourage firms' dividend policies. The authors proposed two alternative models to explain dividend policy and agency costs in countries with different shareholder protection; the *outcomemodel* and the *substitute model*. The outcome model posited that shareholder protection legal systems that are effective give minority shareholders power to force managers to pay high dividends and restrict them from undertaking negative NPV projects. Thus, this model predicted a positive relationship between the dividend payout and shareholder protection, implying that firms in countries with good shareholder protection laws have high dividend payout ratios. On the contrary, the substitute modelpurported that that in countries where the shareholder protection legal system was effective, firms tend to pay dividends to build a reputation that would render them better terms when seeking external funding from capital markets. This model is an extensionEasterbrook(1984)'s model that where debt was used as a substitute for dividends. Thesubstitute model predicted that firms in countries with ineffective shareholder protection have high dividends payout ratios.

La Portaet al.(2000)authors found strong evidence supporting the outcome model that firms in countries with strict shareholder protection laws paid higher levels of dividends compared to their civil law counterparts. These results show that aggressive shareholder protection laws can prohibit managers from investing in poor projects by issuing dividends. In addition to this it was found thatfast growth firms tend to pay lower dividends and pursue investment opportunities as shareholders are willing to wait for the firm to reach optimum growth and then increase dividends. The authors found that mixed evidence of the level of dividends paid by firms in countries with weak shareholder protection laws.

Liu(2002)studied the outcome and substitute models across countries. Unlike La Portaet al.(2000), theauthor studied the impact of external corporate governance (such as capital market monitoring and accounting disclosures) on dividend policies, without limiting the argument to shareholder protection only. Another difference between the two studies is that Liu(2002)did not assume that the relationship between dividend policies and external corporate governance was constant and used panel data to capture the dynamic settings. To be more precise, the author observed the changes in dividend policies that were as a result of the changes in stock market monitoring, accounting standards and disclosure and shareholder rights. The author found results that were in support of both models, but found that the substitute model dominated the outcome model, and that the improvements in external corporate governance had reduced the role of dividends in mitigating agency costs.

Finally, Bartman, Brown, Howand Verhoeven(2009)also studied the impact that firm-level and country-level agency costs had on dividend policies. The authors also tested the validity of the outcome and substitute models and in turn found evidence in favour of the outcome model. The authors found that shareholders of firms in countries with sound shareholder protection legal systems were able to dictate high dividend payout ratiosbuttheir capability to demand high dividends was weakened in firms with high agency conflicts.

2.3.1.3. Agency Costs and Managerial Incentives

Managerial stock options can be used todiscipline managers who do not act in the best interest of the shareholders and use the firms' retained earnings to undertake value destroying investments.These stock options give managers the choice to buy company shares at a predetermined priced (exercise price), so they are a form of compensation to the managers. Because the option contract fixes the price at which managers can purchases shares, managers would benefit if the price of the shares increases, in that case the managers can make profit by exercising their option to buy the shares for the exercise and sell them at higher value(Kim and Nofsinger, 2007).

Lambert, Lanen, and Larcker(1989)examined whether there was a relationship between executive stock options and the firm's payout policy. The authors assumed that paying dividends reduced the share price, therefore managers would rather reduce dividends so that prices can adjust upwards, consequently increasing the value of their stock options[4].This does not imply that managers would completely do away with dividends as there are costs associated with dividend cuts. It is from this assumption that the authors predicted a negative relationship between a firm's dividend payout ratio and executive stock options. The authors' results confirmed that the decreases in dividends were associated with the increases in value of managerial stock options.

Fenn and Liang(2001)discussed two ways in which executive stock options were likely to affect a firm's payout policy. Firstly, the stock options could result in higher payout ratios. Managerial stock options instil discipline in managers and upon exercising their options, managers would own shares in the company, making them part of the ownership structure of the firm. In this case, like most shareholders, managers would benefit if theymade enough profit to distribute to shareholders (themselves included) as dividends or repurchases. Thus, an increase in the value of the executive stock options would entice managers to exercise the options and in turn owning the company shares and once they own the shares they would desire high payout ratios like any other shareholder. Secondly, managerial stock options could result in reduced payout ratios, as predicted by Lambert et al. (1989).

Fenn and Liang (2001)conducted a study to examine how payout policy was affected by managerial stock options.The authors found that in firms with high potential agency conflicts, (i.e. firms where with low investment opportunities, high free cash flows and where managers had low stock ownership) were likely to have high payout ratios to rid their excess cash flows. This implies a positive relationship between managerial stock ownership andpayout ratios.

[4]Lambert et al.(1989) made the analogy between executive stock option and call option and noted the value of the two was positively related to price of the shares.

Fenn and Liang (2001)also found evidence to support the negative relationship between dividend levels and the value of the management options. Supplementary to that,a strongly significant positive relationship between management options and repurchases was observed.Unlike dividends, repurchases were assumed to increase share prices. This may imply that managers were reducing dividends and increasinsg repurchases instead because the price increases that came with repurchases enhanced that value of the executive stock options.

Weisbenner(2000)alsoshowed how the increasing use of management stock options had affected payout policies of firms. The author used Earnings per Share[5] (EPS henceforth) to explain how the increasing use of stock options could be linked to the increasing use of repurchases.By exercising their share options, the number of shares outstanding in that company increases therefore increasing the denominator of the EPS ratio and effectively diluting EPS.The author explained that since the cost of granting stock options was a diluted EPS, managers would then resort to repurchases to reduce the number of shares outstanding. The authorhadtwo main findings that validatedthe hypotheses; firstly,that managerial stock options certainly affected the firm's payout policy and secondly, a positive relationship between repurchases and the granting of stock optionssuggested thatmanagers used repurchases in an attempt to reverse the EPS dilution caused by the granting of the options.

2.3.1.4. Repurchases and Takeover Threats

Payout policies can be used to deter takeover threats.If upon repurchase the price of the stock increases,implying that the acquiring firm would have to buy the target at an additional premium, then repurchasescan be used to deflect the possibility of a takeover as they effectively increase the acquisition price of the firm(Bagwell and Shoven, 1989) and(Dittmar, 2000). To endorse this statement, Dittmar(2000)studied the sample period 1977-1996 and noted that the mid-1980s, a

[5]Earnings per Share (EPS) is defined as a firm's earnings scaled down by the sum of common shares outstanding and common share equivalents, (Weisbenner, 2000).

period which was marked with very high takeovers, also registered relatively high repurchase activity to dissuade the takeover threats.

Lücke and Pindur (2002) explained how ownership restructuring couldbe achieved by repurchasing shares. The authors elaborated that if the shares that were being bought back were destroyed, the remaining shareholders would have stronger control as the voting power per share increase and this would augment their chance of deflecting any possibility of a takeover. Deflecting takeover by means of repurchases is only possible if the selling shareholders are offered a price higher than what they had originally bought the shares for, if not the shareholders will not be willing to budge and would be more than happy to welcome a takeover. Thus, the cost of deflecting a corporate takeover by the repurchasing firm is the pricethat the firm pays its selling shareholders, and this price is higher than what the firm had initially issued the shares for, (Dittmar, 2000).

2.3.1.5. Agency Costs and Capital Structure

Modigliani and Miller (1961) posited that a firm's capital structure and investment decisionswere irrelevant in determining the value of the firm. Financing dividends with debt can transfer the wealth from creditors to shareholders if the firm has risky debt, thus the ability to adjust the leverageby the use of dividends can be used as a signalling mechanism andcan mitigate agency problems in a firm(Kalay, 1980).

By repurchasing shares, firms are reducing the number of shares outstanding and ultimately increasing their debt-to-equity ratio.If repurchases are financed by debt then firms are effectively changing their capital structure by transferring value from shareholders to debtholders, (Renneboog and Trojanowski, 2005).This transfer of wealth from shareholders to debtholders leaves debtholders in a much better position to monitor the firm effectively and mitigate agency costs, (Renneboog and Trojanowski, 2007)

2.3.2. Information Asymmetry and Signalling

There has been extensive theoretical and empirical work that confirms the information role inherent in payout policies. A lot of studies illustrate how firms can alter their policies in order to transmit certain information to the market and trigger a reaction that would consequently affect firm value.

2.3.2.1. Signalling Using Dividends

Using dividends as away to distribute cash to shareholders has tax implications as dividends are usually taxed higher than repurchases, nevertheless firms continue to use it(Bhattacharya, 1979). Kalay(1980)explained that if the benefits of paying dividends exceeded the tax costs on dividends then firms will pay dividends. Ambarish, Johnand Williams(1987)furtherexplained that for insiders to even consider signallingby way of dividends, this costly signal should produce a positive announcement effect. In fact, this is true for any signalling model to be efficient.

Most signalling models of dividends are based on the premise that there is information asymmetry between managers (insiders) and outside investors.These signalling models of dividends posit that management possesses superior, insider information about the firm's economic prospects and that they sometimes employ dividends to signal the firm's current financial health and future prospects, (Miller & Rock, 1985).

Asquith and Mullins (1986)explained that firms pay dividends to demonstrate that they would be able to generate income in the future and thus dividendsmay be used to assess managements' competence.Denis, Denis and Sarin(1994)summarized past literature and gave three main explanations of the positive relationship between dividend change announcements and changes in stock prices. Firstly, an increase in dividends signals information about a firm's current and future cash flows, and the magnitude of the change in prices is positively related to the magnitude of the change in dividends. Secondly, dividend changes signals the firms future

investment opportunities. A dividend decrease would signal that the firm may undertake negative NPV projects in the future which may reduce firm value and similarly a dividend increase would increase firm value as the market perceives it that the firm is not wastefully using its free cash flow overinvesting in negative NPV projects. Thirdly, the changes in dividend can signal a clientele effect, implying that the price changes as a result of dividend change announcement are influenced by the dividend yields of the marginal investor in the firm's shares. The authors argued that the signalling, overinvestment and dividend clientele hypotheses are not mutually exclusive and examined these three explanations jointly by observing the change in abnormal stock prices as a result of the dividend change announcement. The study revealed strong evidence in support of the signalling and clientele predictions and very little evidence to favour the overinvestment hypothesis, implying that the overinvestment hypothesis has smaller explanatory power than theother two hypotheses.

Brook, Charltonand Hendershott(1998)contributed to testing the signalling hypothesis. The authors selected a sample of firms that had stable cash flow over four years but were in a position to experience large cash flow increases. The authors studied the firms' dividend policies before the cash flow increase and observed the degree to which firms use dividends to signal the awaited cash flow increase. The model used in the study enabled the authors to compare the dividend policies of firms with an increased cash flow against those that had a constant cash flow and to evaluate the impact that temporary cash flow increases had on dividend policies compared to permanent cash flow increases.

Brook et al.(1998)found that firms that were expecting a large cash flow increment, had an opportunity to signal their expectations and tend to increase dividends before the rise in cash flow compared to firms that were not expecting any cash flow changes. It was shown that the increase in dividends was accompanied by high abnormal returns and these abnormal returns remain observed when the firm achieved higher cash flow. Lastly, the authors found that firms that had permanent cash flow increases were more apt to increasing their dividend payout ratio, and overall the results proved that dividend changes conveyed information about the firm's permanent increase in future cash flows.

Hitherto, most of the models discussed above imply that the changes in dividend policies convey information about the firm's future cash flow.Bernartzi, Michaelyand Thaler(1997)did not dispute the information content of dividend changes, but questioned whether the changes in dividends revealed any information about future cash flows. The authors tested whether firms that increased dividends experienced positive unexpected earnings in the subsequent years, whether the size of the dividend increase affected the size of the unexpected earnings' increase and whether changes in dividends conveyed information about future earnings' growth.

Bernartzi et al.(1997)found little evidence of dividend changes carrying information about future earnings' changes but strong evidence that supports the relationship between past earnings, current earnings changes and dividend changes.The authors also found that changes in earnings had minimal predictive power on dividend changes, but found that dividend cuts reliably signalled an increase in future earnings. The authors reported that firms that increased dividends signalled a permanent increase in current earnings and not on future earnings. Overall, the results imply that dividends lag earnings and they do not lead them as there is weak evidence that the change in dividends predicts the future earnings of the firm.

2.3.2.2. Initiations and Omissions of Dividends

The extreme cases in dividend changes are dividend initiations and omissions. These imply that the firm in question did not have a dividend payout policy in the past, in the case of dividend initiation, or it will cease to have one, in the case of omissions. The decision to initiate or omit, has information content just like the decision to increase or decrease.

Lintner (1956) conducted a survey on managers and discovered that most of them were conservative when it came to changing their dividend policy. The survey indicated that managers only increase dividends if they were absolutely certain that they would be able to maintain the increase permanently.

Asquith and Mullins(1983)studied the impact that dividends had on shareholder wealth if it was being paid out for the first time from four different angles. Firstly, the authors evaluated the impact dividend initiation announcements had on shareholder wealth, and compared it to the impact that subsequent dividend payout announcementshad on shareholders. Secondly, it was examined whether the size of the dividend initiated would have an impact on the changes in shareholder wealth. Thirdly, the impact of initiations was compared to that of subsequent dividends and finally, the authors observed whether the anticipation (or lack thereof) of dividend initiation or subsequent dividends affected shareholder wealth.

Asquith and Mullins (1983)'s results showed that initiating dividends had a positive impact on shareholder wealth, and so did subsequent dividend increase. The authors reported that the impact that subsequent dividends had on shareholder wealth was larger if not equal to the impact of initial dividend. These findings support the information role of dividends and establish that initiating dividends also conveys the information and has a positive impact on firm value.

Ghosh and Woolridge (1991)examined the information content of dividends on firm value following dividend omissions. The authors used the size of the change in shareholder wealth as a result of the magnitude of the change in dividend as a proxy for the information content of dividend changes, as did Asquith and Mullins (1983). Ghosh and Woolridge (1991)found that markets react more to dividend omissions and decreases than they do to initiations and increases. The authorsexplained that this was because investors deemed dividend decreases to be more informative and more important than dividend increases. Dividend omissions usually follow poor earnings' announcement and dividend reductions,and they are usually taken to signal poor expected earnings.

Ghosh and Woolridge (1991)found evidence that firms that omit dividends did not expect their earnings to recover any time soon, so successive omissions were expected from such firms. The results revealed that a firm's first unexpected dividend omission was usually followed by capital loss, but losses on subsequent omissionswere not as severe because investors only react to the information content of dividend announcements if it is unanticipated.

Michaely, ThalerandWomack(1995)investigated the impact of dividend initiations and omissions on price performance over the short-term and long-term period. The authors examined whether the market's response to dividend omissions and initiationswas the same. The results showed that dividend omissions had a negative impact whilst dividend initiations had a positive impact on the value of the firm in the short run. The authors found that the market reaction to dividend initiations was half the size of the market reaction to dividend omissions, implying that the market reacted more to omissions. These results are parallel to those of Ghosh and Woolridge (1991).

Dyl and Weigand(1998) examined whether there was an association between the initiation of cash dividends and the volatility of cash flow and earnings. The authors predicted that dividend initiations were usually followed by a decline in earnings volatilitybecause the initiating firm would have fewer earnings surprises and thus less news is anticipated after the initiation.It is from this explanation that the authors developed the risk-information hypothesis that suggested that dividend initiations conveyed information that the firm's risk had reduced. The authors found evidence to support this hypothesis.

2.3.2.3. Signalling Using Repurchases

Share repurchases can be used to convey information about the firm's prospects. Firms that use repurchases to convey any information, mainly do so to signal that their shares are currently undervalued and thus by buying back their undervalued stock,they are transferring thevalue of shares to themselves at the expense of the uninformed investors(Vermaelen, 1981) and(Barclay and Smith, 1988).

Dittmar (2000)also discussed the undervaluation hypothesis of repurchases.This hypothesis assumes that there is information asymmetry between managers and shareholders that managers have better information about the firm's worth than shareholders. The hypothesis suggests the market acknowledges share repurchases as a sign that the firm is undervalued. The author used firm size as a proxy for information asymmetry and explained that smaller firms usually report

the highest level of information asymmetry because they are often not scrutinized by analysts and invited little media attention. The author found that smaller firms repurchased more than larger firms and there was evidence to support the hypothesis and indeed confirmed that firms repurchase shares to signal that they are undervalued.

Gryglewicz(2004)analyzed a sample of dividend and repurchase announcements of firms listed on the Warsaw Stock Exchange (Poland) between 1997 and 2000 and observed that firms mainly used repurchases to signal. The study also revealed that firms that tend to repurchase shares were smaller and undervalued whilst those that pay dividends were larger and had permanent operating cash flow from which they honoured their dividend commitment. For this reason, managers may prefer repurchases for their financial flexibility as opposed to dividends which are more of a commitment of the firm to its shareholders(Jagannathan, Stephensand Weisbach, 2000).

Signalling by repurchasing has a two-fold message; firstly, it can be indicative of the fact that management has optimistic expectations about future earnings and cash flows and secondly, that managers repurchase shares if they disagree with the market's perception about the value of the shares(Grullon, 2000)[6]. Bhana(2007)investigated 117 share repurchase announcements between 2000-2003 on the JSE and reported abnormal returns of 4.38% at the time of the announcement of the repurchase and 14.35% three years after the announcement. This evidence supported the signalling theory that the shares wereundervalued upon announcement and this is confirmed by long term prices that were relatively higher than the prices at announcement.

Sometimes the market does not take the news of repurchase announcements too well. This is because it is sometimes difficult for outside investors to tell the difference between an announcement with bad intentions from one with good intentions.Babenko, Tserlukevich and Vedrashko(2010)found that the announcement of repurchases is not always credible and shares are not always undervalued at the announcement. Since managers are not obliged to repurchase

[6] As cited in Bhana(2007).

shares after the announcement some make such announcements to experience temporary increases in their share price. The authors put forward that managers could add credibility about their shares being genuinely undervalued by buying their shares before announcing their plans to repurchase. The authors found evidence of a positive relationship between pre-announcement purchases by insiders and announcement returns.

2.3.2.4. Timing of Repurchases

Brockman and Chung (2001)investigated whether managers used the information that is known to them to time their repurchases. The authors explained that firms would time their repurchases to a period when the costs of repurchasing will be the lowest and pointed out the variables that may affect the firm's decision to time repurchases as overall market conditions, industry-specific conditions and firm-specific variables. To be more specific, the authors predicted that timing opportunities would be greater if interest rates were low, thus firms would rather use the cash to buy back shares than to hold cash at low rates.Repurchases may be specific to certain industries because firms in specific industries may be undervalued at the same time and this may present a great timing opportunity for managers. On a firm-specific scale managers time repurchases when firms have large cash reserves, thus excess cash flows. The authors found that the timing of repurchases was significantly related to general market and firm-specific conditions but were not related to the type of industry thatthe firms belonged to.

Ginglinger and Hamona (2007)alsoinvestigated whether managers had superior information on which they timed their repurchases on, and whether these repurchases had an impact on corporate liquidity. The authors also found that if outside investors suspected that the insiders possessed superior information during the repurchase period then they would withdraw from the market, thereby decreasing liquidity.

2.3.2.5. The Magnitude of Abnormal Returns and the Type of Repurchases

The effect to which repurchases affect the value of the firms depends on the type of repurchase programmes adopted.Comment and Jarrell(1991)described the three common types of repurchase programmes; open-market, fixed-price tender offers and dutch-auction self tenders repurchases. Open-market repurchase programme involves the firm buying back its common shares at the current market price. Fixed-price tender offeris a once-off offer where a firm offers to buy a predetermined number of shares at a fixed price at a predetermined time. Dutch-auction self tender offer involves the firm repurchasing a predetermined number of shares at a specified range of prices instead of one fixed price as in the case of the fixed-price tender offer.

Comment and Jarrell(1991)explained that in dutch-auction self tenders, a firm will always buy back shares at the lowest priced asked by the shareholders. This minimum price is almost always above the market price and the maximum price is almost always equal to the price set by the fixed-tender offer. The authors pointed out that because dutch-auction self tenders give managers the opportunity to choose a lower price they are deemed less credible than the fixed-price tender offers and they are also considered to be less informative as signals of undervaluation.The authors further offered that the signalling power of repurchases can also be affected by the managers' participation in the repurchase. On the announcement day, managers maypledge to *not* tender their shares regardless of direction of the price changes after the announcement. This sends out a strong signal about the risk that they are willing to take. If after the repurchase announcement the share price falls below the offered price, the wealth is transferred from the non-trading shareholders to trading shareholders. In the case of dutch-auction tenders, the non-trading managers can lower the repurchase share to a level that minimizes the risk of wealth transfer to the trading shareholders. This is not the case for fixed-price tenders since managers do not have a range of prices to pick from to minimize their risk, thus their personal wealth is exposed to higher risk. This risk symbolises the cost of repurchasingand if managers choose the fixed-price tender, with a higher cost of repurchasing, then this sends a stronger signal of the undervaluation of the shares.

Comment and Jarrell(1991)'sstudies revealed that the magnitude of abnormal returns was related to the type of common stock repurchase engaged by the firm. The authors found that fixed-price tender offers, dutch-auctions and open-market repurchase programs had average excess returns of 11%, 8% and 2% respectively on announcement.These results imply that dutch-auctions and open-market programs are less effective as signalling mechanisms because the managerial wealthis not as exposed to as much risk as they would in the case of tender offers.

Even though the signalling powers are strongest for fixed-price tenders and offer the highest premium on share prices, majority of share repurchases are through open-market programmes (Baker, Powelland Veit, 2003). Hong and Zhong-guo(2007)reported similar findings andexplained that open-market programmes are more flexible and less costly than the other two methods hence firms prefer to use them more than the other programs.

2.3.2.6. Repurchases and Regulatory Laws

The impact of repurchase announcements on the value of the firm can be affected by the regulatory systemof repurchases in a country.Hackethal and Zdantchouk(2006) investigated how the laws that govern repurchases could affect the signalling power of repurchases and consequently affect abnormal returns. The authors compared and contrasted share buyback laws and regulation in Germany to the US regulations. The authors elucidated that German laws required the repurchasing firm to disclose full information of the repurchase and obtain the permission to do so at their annual shareholder meeting before announcing their plans of repurchasing, whereas in the US the permission to announce the repurchase is granted by the firm's board of directors.In addition to that, misleading repurchase announcements are punishable in Germany, thus making the costs of using repurchases to fool the market high.

The stringent regulations in Germany suggest that the signalling powers of repurchases are stronger and more credible in Germany than in the US. Overall, Hackethal and Zdantchouk(2006)found that the abnormal returns on the announcement of repurchases were higher in Germany than they were in the US because the strict German laws assigned credible

signal of the undervaluation of the German firms compared to the permissive US repurchases laws. Although there are laws governing the share repurchase and resale agreements to ensure that managers do not take advantage of selling shareholders, Ginglinger and Hamona(2008) studied 352 French companies between 2000 and 2002 and discovered that a disappointingly small fraction of these firms comply within repurchase regulations.

2.3.2.7. Dividends versus Repurchase: Which one is better at Signalling?

Firmscan use either dividends or repurchases to convey information about their misvaluation to the market. The extent to which a firm is misvalued can determine which payout method it adopts. According toOfer and Thakor(1987)a firm is more likely to use dividends if the undervaluation is by a small margin and repurchase their shares if the undervaluation is large.Choi and Chen(1997)tested this hypothesis and found that the price responses to repurchases were higher than the price responses to dividend changes. This implied that the signals sent by dividends and repurchases were different. The authors explained that dividends were more cost effective when the undervaluation was small and repurchases were more costly as they increased the risk exposure of managers. Thus, firms should repurchase its shares if they are deeply undervalued, even though repurchases are more costly, they would get higher responses than they would with dividends.

The type of payout method adopted by a firm can also signal the volatility of the firm's future cash flow. Guay and Harford (2000)hypothesized that repurchases are made when the firm is expecting a temporary increase in cash flow and dividends are paid when permanent cash flows are expected.Jagannathan et al(2000)alsoshowedfirms employ payout method to signal expectations about the firms' cash flows, specifically firms that have less volatile future cash flows will pay out dividends and those that are uncertain about their expected cash flows will buyback. These findings are consistent with those Dyl and Weigand (1998) and confirm the negative relationship between risk (cash flow uncertainty) and dividend payout, and the positive relationship between risk and repurchases.

It has been proposed that firmsmay use one payout policy in order to improve another payout policy. More precisely, firms can use repurchases to remove thevolatile, undervalued shares from the market only to re-issue these shares at a higher priceand these highly priced shares may come with high dividends(Wruck, 1989)and(Kim, 2007).

2.3.3. Tax and Payout Policy

There has been a handsome amount of work done to show the effect of tax on stock prices. More so, a generous amount of studies have been conducted to observe the impact that tax on ordinary dividends and tax on capital gains has on payout decisions of a firm and consequently the value of a firm.

2.3.3.1. Dividend Tax Clientele Models

Tax clientele models have been looked at to explain why certain groups of shareholders prefer particular sets of dividend policies. Elton and Gruber (1970) explained the dividend tax clientele hypothesis using two variables; dividend yields and earnings. The authors showed that as the dividend yield decreased, the tax bracket increased and the preference for capital gains increased and additionally that firms that paid most of their retained earnings as dividends grew at a slower rate and attracted shareholders in lower tax brackets.

The main argument behind the dividend tax clientele hypothesis is that investors' decision to hold any portfolio is made on a tax-adjusted rates of return basis(Kalay, 1982).Theauthorelaborated that investors belonging in lower tax brackets preferred high dividend yields whilst those in higher tax brackets preferred low dividend yields.

Since tax is a fiscal matter, the preference of dividends over capital gains from repurchases will be determined by tax codes. Even though in most countries repurchases enjoy a better tax treatment than dividends, this has not stopped firms in those countries from paying dividends. A possible explanation for this may be dividend clientele effect, where most of the investors are tax-exempt or pay relatively lower tax on dividends as in the case of retirees and charity

institutions(Borges, 2002).Sometimes clientele effect may be less favourablewhen investors are required to pay a higher tax on dividends as in case of large corporations.

There is mixed evidence that the clientele effect of dividends exists and that indeed firms consider the consequences of the tax on their investors when drawing up their payout policies. Korkeamäki, Liljeblom andPasternack(2010) confirmed undeniably that dividend clientele affected the payout policy and additionally Desai and Jin(2010)found that managers took into consideration the implication that the payout policy had on investors and adopted a policy that was in the interest of their investors.

Researchers have turned to signalling theories and differential tax codes to explain the dividend tax clientele hypothesis and the overall impact of tax on payout policies.

2.3.3.2. The Signalling Effect of Tax

An extensive coverage has been made on how changes in the dividend policy affect firm value through signalling information about the firm's profitability. Dividend tax models can be used to convey information about the firm.

Bernheim and Wantz (1995) studied the impact of dividend tax on the value of company shares. The authors introduced the *bang-for-the-buck* notionto the dividend signalling model context and defined it as the change in the share price with regards to a one rand change in dividends. The authors derived two contradictory hypotheses from the *bang-for-the-buck* notion; firstly, that dividend tax should increase the *bang-for-the-buck*and secondly, that dividend tax should decrease the*bang-for-the-buck*.The first contention put forth was that when tax on dividends was high, good quality firms would not have to signal the authenticity of their quality from poor quality firms by paying high dividends, thus they would be able to pay low levels of dividends. This implies that the *bang-for-the-buck* increases with any variable (including tax) that increases the marginal cost of dividends. The second argument was that if tax on dividends was high then issuing dividends would be very costly and a good quality firms may lose their value if they

continue to issue such expensive dividends, thus the *bang-for-the-buck* decreases with an increase in the marginal cost of dividends.

Empirical results of Bernheim and Wantz (1995)strongly support the first effect that there is a positive relationship between the *bang-for-the-buck* and dividend tax rates. This implies that the magnitude of the change in share prices is more sensitive to the announcement of dividend change, when the marginal costs (tax) of dividends are high. This is consistent with dividend signalling theories that contend that using payout as a signalling mechanism is more credible if the cost of signalling is high, and higher costs of signalling deter low quality firms from sending false signals about their value.

Amihud and Maurizio(1997)tested whether high tax on dividends was a necessary condition to make tax-based signalling models of dividends more informative about a firm's value. The authors studied dividend payout in Germany where dividends did not have a tax disadvantage compared to capital gains. This was different since in most countries dividends faced higher tax rates than capital gains. The authors' intentions were to see if lower taxes on dividends affected the information content of dividend changes and if they induced Germany firms to have higher dividend payout ratios. The authors predicted that since the tax on dividends was lower, then dividend signalling was not credible and that if indeed changes in dividends triggered share prices to change, then this change was explained by factors other than tax. The results revealed that dividend changes cause prices to change, but the information content of dividend changes could not be explained by taxes.

Even though management may use dividends as a signalling mechanism, such means of conveying information may be costly. Such costs can come from the fact that in most country, dividends are more adversely taxed than other alternative payout policies. The cost of tax is not entirely a bad thing. (Bernhardt, Douglas and Robertson(2005) contend that tax helps to discriminate the bad quality firms from the good ones. The authors explained that if high dividends are accompanied by high tax rates, meaning that the firm's tax cost will increase for every rand amount paid out to shareholders. Just as in Bernheim (1991)and Bernheim and

Wantz(1995), high quality firms would not need to pay high dividends in order to stop the lower quality firms from imitating them because the marginal costs for signalling would be higher for lower quality firms.The authors predicted a positive relationship between the value of the firm and the dividend tax rate and found sufficient evidence to support this prediction.

2.3.3.3. Tax Regime Changes and Payout Policy

Payout tax rates and regulatory laws vary from country to country and the effect dividend changes have on share prices may vary across tax regimes.Although tax codes vary from country to country, in many countries dividend income is subject to two types of tax; corporate income taxes and personal income taxes,(Bagwell and Shoven, 1989).

According to Stiglitz(1983)shareholders will consistently change their investment portfolios to incorporate the changes in tax laws and to have the most tax efficient portfolios. In order to avoid the double taxation of dividends, it would appear lucid if firms opted for repurchases since tax on the capital gains may be deferred until they are realized. Despite the comparative disadvantage of dividends, some empirical studies have confirmed that dividends have remained a dominant form of payout over repurchases[7], (Amihud and Maurizio, 1997). Several tax models have been developed in an attempt to explain the choice in payout policy.

Benito and Young (2003) reported that the proportion of firms in the UKthat were omitting dividend payments had increased from 17.9% in the year 1992 to 25.2% in 1999. The authors attribute these findings to the change in the UK tax system in 1997 which did away with the refund on dividend income payable tax-exempt institutional investors. This evidence supports the notion that tax reforms can change payout policies of firms.

[7] Some studies have shown that dividends have become less popular as a form of payout and have reported significant growth repurchase activity, (Fama & French, 2001), (Grullon & Michaely, 2002), (DeAngelo, DeAngelo, & Skinner, 2004) and (Skinner, 2008).

Chetty and Saez(2004)studied the impact of the 2003 Tax Reform in theUS on payout policies. The tax reform reduced the tax on dividend income. Following the tax reform, the authors reported that there was an increase in the total dividends paid, and moreover there was an increase in the number of dividend initiation following the reform. Another clear-cut finding was that firms with large institutional owners responded well to the dividend tax, suggesting that agency issues play an important role in dividend policy's response to tax changes.

Dai(2007)studied dividend policies of firms in Norway between 1989 and 1998, a period that underwent two different tax regimes. The author's sample period was able to capture the impact of the Norwegian Tax Reform of 1992 on dividend policies. Before the introduction of the tax reform, corporate income faced both corporate and personal taxes, and after the implementation of the reform dividends became tax exempt. The authors found that dividend payout increased in the tax regime where dividends were tax exempt. These results imply a negative relationship between tax rates and the level of payout policy, contradicting Bernheim and Wantz (1995)'s results a positive relationship between the *bang-for-the-buck* and dividend tax rates.

Korkeamäki et al.(2010) observed whether changes in Finnish tax regimes altered dividend policies of firms.The authors studied the period between 2003 and 2006, a period where dividends in Finland ceased to be tax-free at personal level and now faced double taxation at corporate and personal levels.The main purpose of the study was to examine whether investor clientele and payout policies in Finland adjusted to the tax reform of 2004.

Korkeamäki et al.(2010)found results confirming that firms adjusted their dividend and repurchase payout ratios to the tax reform. The authors reported an increasing level of payout a year before the reform for firms whose owners would be adversely affected by the tax increase, but a declining dividend payout level and an increasing repurchase payout level post the reform. These results complement those by Chetty and Saez(2004)and show that ownership structures and tax changes affect firms' payout policies.

2.3.3.4. Payout Policy and Tax in South Africa

Although dividend tax in South Africa has been non-existent since 1990, companies declaring dividends are not that fortunate to escape the tax burden, and in fact they face Secondary Tax on Companies(STC henceforth) over and above the corporate income as required by the Income Tax Act (Act 58 of 1962),(deGoede, 2007).

In 1993 when STC was introduced, it was set at 15% and has since fluctuated. It was set at 25% in 1994, 12.5% in 1996 and is currently 10%, (Firer, Gilbert, & Maytham, 2008). The income tax is currently 28%. Although there were talks of replacing the STC with dividend tax in 2010(Vanek, 2009), this study assumes that individual investors are tax exempt as the introduction of dividends tax in South Africa falls outside the sample period of this study.

2.3.4. Other Determinants of Payout Policies

Fama and French(2001) and Renneboog and Trojanowski(2005)found an association between firm characteristics and the likelihood of paying dividends, and the authors specifically noted that firms that pay dividends were usually mature, larger firms that were profitable and had fewer investment opportunities, whilst those that repurchase were smaller, youngerand less profitable. Benito and Young(2003) concurred that firm size played a major role in a firm's decision to pay out. Because of the signalling ability inherent in dividend models, larger firms refrain from omitting or decreasing dividends whilst smaller have lesser costs of signalling, thus they may adjust their payouts as desired.

Fargher and Weigand(2006)observedthe impact that various firm characteristics had on payoutpolicies. The authors looked at *life-cycle theories* to explain the relationship between firm characteristic and payout policies.The authors distinguished that lower market-to-book ratio, young firms with slower growth and investment opportunities were at a different stage in their life-cycle than mature firms with higher market-to-book ratios and poor investment opportunities. The authors further unravelled that larger firms had the highest response to

dividend initiation, implying that these firms gain more from initiations as the market rarely expects them to initiate dividends at that stage. Overall, the results confirmed that dividend paying firms were larger, mature and had very few growth opportunities.

Behavioural finance has also been used to explain the changing pattern of dividend policies.Baker and Wurgler(2004)explained that investors had time-varying demand for dividends and managers paid dividends to cater to investors' demand for dividends. The authors' *catering theory of dividends*predicted that when investors demand dividends and put a high price on dividend-paying firms, managers will cater to this demand by paying dividends, but if investors prefer non-paying firms, then managers will not pay dividends. The authors turned to this hypothesis to explain the changing trend of dividend payout. The authors examined the propensity to pay dividend trends over four sub-periods and reported that periods with high dividend payout were matched with high investor demand for dividends and premium on paying firms whilst periods with dividend omissions coincided with negative premium on paying firms.

Ferris, Jayaraman and Sabherwal(2009)examined whether the *catering theory of dividends* could explain global payout policies, looking at both common and civil law countries to incorporate the level of shareholder protection in the demand for dividends by investors. The authors found that common law countries offered shareholders more protection and that the shareholders were at liberty to demand higher dividends to ensure that their interests were in line with those of managers, thus in such countries managers catered more to investors demand for dividends and payout out higher dividends.

Hoberg(2009)looked at thecatering hypothesis to explain the pattern of declining dividends over the years. The author examined the role of firm-specific risk in explaining the declining propensity to pay dividends. The author explained that firms increased their payout policy when they were certain about expected cash flow, thus suggesting a negative relationship between dividend payout ratio and the perceived risk. The author concurred with Fama and French(2004) thatlisting firms have become more risky and have lower survival rates and this perhaps explains why dividends have declined. Hoberg(2009)'s results confirmed that firm-specific risk was the

most powerful explanatory variable of dividend policy and that the increase in firm-specific risk was responsible for most of the declining propensity to pay dividends. The author further showed that catering explained dividend initiations when risk was not controlled for, but once risk was controlled for, the author found that managers used dividends to cater to temporary investor fads.

2.4. The Shift from Dividends to Repurchases: Are Repurchases Replacing Dividends?

Barclay and Smith(1988) reported that cash dividends was by far the most common type of distribution followed by open-market repurchases between the years 1983 and 1986. However during this period, repurchases became increasingly popular and the total expenditure on repurchases had increased.

Bagwell and Shoven(1989)explained that even with dividend income facing corporate-level and personal-level taxes, firms continued to pay dividends when there were other ways of distributing cash such as repurchases and merger and acquisitions with lesser tax implications. The Tax Reform of 1986 in the US that increased the tax on capital gains implied that the tax advantage of repurchases over dividend would be reduced. The authors found that the aggregate expenditure on both dividends and repurchases continued to rise after the reform. These results do not suggest that dividends replaced repurchases after the reform since both forms of payout continued to increase.

Fama and French(2001) studied the occurrence of dividends between 1926 and 1999 and reported a 46.7% fall in the proportion of firms paying dividends between 1978 and 1999. The authors explained that the characteristics of firms that used to pay dividends had changed over the years. The authors noted that firms that paid dividends were usually mature, larger firms that were profitable and had fewer investment opportunities, whilst those that repurchase were smaller, younger, less profitable and had greater investment opportunities.

Fama and French(2001)point out that the listing requirements of exchanges have evolved over the years, and that the nature of listing firms has tilted towards smaller, less profitable firms with great investment opportunities. This change in characteristics of listing firms is said to be responsible for the drop in firms paying dividends. These characteristics resemble those of repurchasing firms, and suggest that firms paying out for the first time are more likely to adopt repurchases as their form of payout.

Stock exchanges with lower listing requirements such as the Nasdaq in US and the Altex in South Africa have made it easier for many firms to be eligible to list and because most of these firms were poor performers before listing they are not only less likely to pay dividends, but to fail and delist,(Fama & French, 2004) and (Peristiani & Hong, 2004).

Fama and French(2001)found that although the number of dividend payers declined over the sample period,repurchases had a very small role in explaining this reduction. The authors showed that firms that were likely to start repurchasing shares had a dividend policy already in place, thus implying that firms were not reducing their dividends to fund repurchases. These results do not suggest that firms considered dividends and repurchases as substitutes, but rather as complements since they were paired up to increase distribution to shareholders.

DeAngelo et al.(2004)found that the aggregate expenditure on dividends had increased overtime although Fama and French(2001)provided evidence that the number of dividend payers were reduced over the same period. DeAngelo et al.(2004)explained that firms that had small dividend payout ratios had were likely to stop paying out dividends completely whilst those that had very high dividend payout ratios continued to pay. The reductions on total expenditure on dividends as a result of the small payers dropping their dividend policies was exceeded by the increases in total expenditure on dividends from top-paying firms. The results posed that even if the number of firms paying dividends had declined, the total rand amount spent on dividends had not, and thus there was insufficient evidence that firms reduced their dividends and used the funds to repurchase shares.

On the contrary, Grullon and Michaely(2002)showed that the total expenditure on dividends had decline over time whilst the total expenditure on repurchases had increased. The authors argued that the increase in repurchases was financed by the reduction in dividend spending. The authors alsoinvestigated whether dividends and repurchases were substitutes by estimating the correlation between dividend forecasting errors and repurchase activity, and revealed a negative correlation implying that the greater the repurchase activity, the smaller the divergence between the predicted and the actual dividend payment, thus the two forms of payout are substitutes.

Grullon and Michaely(2002)did not stop there and further conducted a test to examine whether tax played any role in inducing the substitution between dividends and repurchases. The authors observed how the tax reform of 1986 affected payout policies in the US. The reform resulted in an increase in capital gains tax and the authors showed that this tax burden caused dividends and repurchases to be substitutes. These results are inconsistent with Chetty and Saez(2004)'s findings who found that after the Tax Reform of 2003, the reduction of dividend tax was followed by an increase in the aggregate spending of both dividends and repurchases, suggesting that the two were complements rather than substitutes.

Julio and Ikenberry(2004)concurred that there was a decline in the propensity to pay dividends from the 1980s until the 1990s and this period was accompanied with a surge in the propensity to repurchase shares. The authors make an interesting finding that the decline in dividends was reversed post-millennium and provide several explanations for switch. The authors found that the tax cuts as a result of the tax reform of 2003 caused dividends to increase. Secondly, it was found that many of the listed firms were at a stage in their life cycle where they had fewer investment opportunities and thus chose to distribute cash in the form of dividends. The authors found that some of the investors' demand for dividends was unexplained by tax, signalling and agency theories of dividends. Overall, firms found that payout levels increased after 2000, as a result of an increase in both dividend and repurchase payout levels, thus implying that the two former substitute methods were no longer substitutes post-millennium.

Renneboog and Trojanowski(2005)studied the trends of payout policies in the UK. Similar to Barclay and Smith(1988), Fama and French(2001)and Grullon and Michaely (2002),the authors found sufficient evidence to support the swelling use of repurchases over the years, but reported that the vast majority of firms in UK still used dividends as their choice of payout form. Renneboog and Trojanowski(2005)'s study revealed that the propensity to pay dividends was not declining in the UK as it was in US. The authors showed that dividends had remained the most dominant form of payout and showed that firms that initiated repurchases were most likely to have a dividend policy in place. These results suggest that dividends and repurchases were not substitutes in the UK.

Brav, Graham, Harvey and Michaely (2005) conducted a survey on executives of firms and asked them whether they considered dividends to be substitutes, complements or neither. The executives only considered the two payout methods substitutes if repurchases were funded by the foregone increases in dividends, but even with that in mind, the executives made it clear that the first thing they would do with the funds from dividend reduction is to settle their debt. The managers' next popular answer was to repurchase shares with the funds from dividend reductions. The authors noted that because of the stickiness of dividends, this was probably a one-way substitution as none of the executives were willing to use the reduction on repurchases to fund an increase in dividends. This is because repurchases are usually funded from temporary cash flows and dividends are paid off from permanent cash flows because of their stickiness.

Blouin, Raedy and Shackelford(2007)predicted that there would be a shiftfrom repurchases to dividends after the implementation of the tax reform of 2003resulted in a cut in dividend tax that exceeded the cut in capital gains tax. The authors found that firms increased both dividend and repurchases during the two years after the tax reform but the shift toward dividends began in the second quarter following the tax reform, implying that firms needed time to adjust their payout policies.

Although there is overwhelming evidence of increasing repurchase activity on an international scale, not everyone agrees that repurchases have become substitutes for dividends, in fact there is

another independent school of thought that argues that dividends and repurchases are complements,(Firer, Gilbert and Maytham(2008).The authors conducted a survey to see whether management regarded dividends and repurchases as substitutes and most of the respondents in the survey said that they would rather participate in mergers and acquisitions than repurchases if they had to reduce their spending on dividends. Overall the survey indicated little evidence that South African managers regarded repurchases as a substitute for dividends as did their American and European counterparts.

Overall, this literature review points outthere is no single theory that can explain the dividend puzzle but rather there are numerous competing theories attempting to explain why firms payout dividends. Perhaps the best way to unravel this puzzle is to invent firm-specific models that are able to incorporate firm-specific variables to explain dividend policies of individual firms as suggested by Baker et al.(2003).

CHAPTER III

3. Sample Selection and Definitions

This study uses a sample of 116 firms that are listed on the Johannesburg Securities Exchange (JSE). The sample period is from 2002 to 2009 and it is chosen for two reasons. Firstly, the period post-1994 when trading information of firms listed on the JSE is easily obtainable than pre-1994 information. Secondly it covers a period where firms were allowed to purchase their shares back (repurchases were only allowed after June 1999).Blouin, Raedy and Shackelford(2007)showed that firms needed time to adjust their payout policies following adjustments to fiscal regulations and tax reforms, thus this study choose 2002 instead of 1999 as the start of the sample period to allow for adjustments in payout policies.

Banks, insurance and utilities firms are not included in the sample because firstly, some financial items listed below were not available for them and secondly, the dividend decisions by utility firms are often regarded as a consequence of regulation, (Fama and French, 2001).

Data items of the sampled firms were retrieved from financial statements retracted from I-Net Bridge. An initial sample of 200 firms listed on theJSE is collected. In order to remain in the final sample each firm-year observation must have information available on the following variables during the sample period 2002 to 2009:

1. Market Value (*MV*) – Defined as the market value of common stock at the end of the year, measured as the product of the number of common shares outstanding and the closing price at the end of the calendar year.

2. Repurchases (*REPO*)– Defined as the decrease in the number of common stock outstanding times the closing price at the end of the calendar year, as used in Stephens and Weisbach(1998).

Jagannathan et al.(2000) discuss several flaws of using the decrease in the number of common stock outstanding as a proxy for the rand value of repurchases. Amongst other reasons the authors argued that this proxy did not adjust for the number of shares re-issued.

The authors also discuss the estimated amount of repurchases from repurchase announcement as an alternative measure of repurchases. The disappointing fact about the value predicted in the announcement is that it is merely a figure indicating a firm's intentions and they are not obliged to do so. In fact the authors report that usually most firms repurchase fewer shares than stated in the announcement.

Despite the disadvantages of using the decline in the number of shares outstanding, this study adopts it as a measure for repurchases because of the difficulty of finding the accurate measure of actual repurchases and I-Net Bridge does not provide actual share purchases in their database.

3. Earnings (*EARN*) – Defined as headline earnings before extraordinary items.

4. Dividends (*DIV*) – Defined as total rand amount of dividends declared on the common stock of the firm during the year.

The following variables are also created:

5. *MB (Market-to-Book ratio)*– Defined as the book value of the total assets plus the market value of equity minus the book value of equity divided by the book value of the total assets. [(Book value of total assets + market value equity – book value of equity)/ book value of total assets].

6. *CASH* – Defined as the book value of cash and short term investments, divided by the book value of the total assets.

7. *ROA* – Defined as the operating income before depreciation, divided by the book value of the total assets.

8. *σ(ROA)* – Defined as the standard deviation of *ROA.*

9. *NOPER* – defined as the non-operating income before depreciation, divided by the book value of the total assets.

10. *DEBT* – Defined as the book value of total long term debt plus short term debt, scaled by the book value of the total assets.

11. *ASSET*- Defined as the book value of the total assets.

3.1. Testable Implications

PROPOSITION I

Over the last decade, an increasing number of firms have been distributing cash payouts to their shareholders as share repurchases instead of dividends.

PROPOSITION II

Over the last decade, firms have been using repurchases as a substitute for dividends. Particularly, the increase in the number and rand amount of repurchases has been used as a substitute for dividends.

3.2. Research Methodology

The methodology used in this study was adopted from Grullon and Michaely (2002).

3.2.1. Testing Proposition I

Proposition I foreshadows that an increasing proportion of firms distribute cash to shareholders in the form of repurchases as opposed to dividends. In order to test Proposition I the trends of payout policy between 2002 and 2009 are examined. Financial statements of firms within the sample are gathered from I-Net Bridge and the following yearly data is compiled; the book value of total assets, the book value of total debt, operating income before depreciation, income before extraordinary items, dividends expenditure on common shares, repurchase expenditure, total book value of equity and market value of equity.

In order to see the payout trends, both dividend and payout ratios are measured and the behaviour of these ratios is observed over the sample period. Dividend payout ratio in this context is defined as the aggregate rand amount of dividends expressed as a fraction of aggregate earnings for every firm on yearly observation points. Similarly, the repurchase payout ratio is calculated by the aggregate rand amount spent on repurchases expressed as a fraction of value of aggregate earnings. Another way of observing the trends is by measuring aggregate repurchases or dividends as a fraction of the total market value of equity. In order to be included in this analysis the firm must have positive earnings at that year observation, as it is assumed that firms will only distribute cash to their shareholders if they have sufficient earnings to do so. In order to avoid spurious results the outlier effect is removed by excluding observations with payout ratios higher than 1.

An extension of this test is to observe whether the change in the proportion of firms paying dividends, if any, is attributed to by various firm characteristics and to see if there is any relation between payout ratio and firm characteristics. The firm characteristics in question are the firm's market value, book value of assets, cash, return-on-assets, age and non-operating income.

The relationship between the abovementioned characteristics and the disbursement of cash by firms through either dividends or repurchases or both is scrutinized over the following eight cohort periods: 2002-2003, 2004-2005, 2006-2007 and 2008-2009. There are four distinct payout policies that are considered;a dividend paying firm and a repurchasing firm is classified are then classified as (*DIV*> 0) and (*REPO*> 0), respectively and a non-dividend paying and a non-repurchasing firms are defined as (*DIV* = 0) and (*REPO* =0), respectively.

The following conditions are set up: *DIV*= 0, *REPO*= 0 (for firms paying neither dividends nor repurchases in that specified period), *DIV*> 0, *REPO*= 0 (for firms paying dividends but not repurchasing their shares in that specified period), *DIV*= 0, *REPO*> 0 (for firms not paying dividends but repurchasing their shares in that specified period, *DIV*> 0, *REPO*> 0 (for firms paying dividends and repurchasing their shares at that specific period).

Once theabovementioned conditions are set upand the summary statistics are drawn in order to reveal the relationship between payout policy and firm characteristics: *MV*, *ASSET* (the book value of assets), *MB* (the market-to-book ratio), *CASH*, *ROA*, *σ(ROA)*, *NOPER*, *AGE* > 8 (the proportion of firms that have been traded on the JSE for more than eight years), *DIV/TOTAL* (the total amount of dividends in each cohort scaled by the aggregate amount of dividends) and *REPO/TOTAL* (the total amount of share repurchases in each cohort scaled by the aggregate amount of share repurchases).

If there is indeed a relationship between the proportion of firms paying dividends and those paying dividends, a supplementary test is run to examine whether this relationship is influenced by the variability in earnings. This is done as several findings have shown that mature and profitable firms prefer dividends whilst smaller and less profitable firms fancy repurchases Fama and French (2001), Baker et al. (2003), Benito and Young (2003) ,(Renneboog and Trojanowski, 2005) and Fargher and Weigand (2006).Sinceage affects firms' choice of payout form, the age differences between dividend paying firms and repurchasing firms are controlled for and the liaison of changes in earnings and the propensity to pay dividends is observed.This is done by computing the following variables *σ(ROA)*, *NOPER*, *DIV/EARN* and *REPO/EARN* for the sub-

periods. In addition to this, a cross-section regression on the change in payout ratio against the change in $\sigma(ROA)$ over the sub-periods is estimated.

A more formal and inclusiveanalysis is performed to evaluate the evolving nature of payout policies over the sample period and to confirm if Proposition I is valid.This is done by determining the transition probabilities of changing from payout policy *i* at time *T* to payout policy *j* at time *T*+1 for each of the sub-periods. Four payout policies are considered: a) no dividends payments and repurchases, b) dividends payment as the only form of cash redistribution, c) repurchases only and d) both dividends and repurchases. For the purpose of this study the probability of transition is defined as the number of firms changing their payout policy from payout policy *i* to *j* divided by by the total number of firms with payout policy *i* at time *T*.

3.2.2. Testing Proposition II

In order to test Proposition II of whether firms are using share repurchases as a substitute for dividends it is observed whether firms are diverging away from their past dividend policy and using thereduction in the rand amount spent on dividend to finance repurchase activity. This is done by calculating expected dividend payment for each firm based on its dividend data and evaluating the forecasting error (the difference between actual dividend payment and expected dividend payment. The intuition is that if indeed repurchases are substitutes for dividends then the correlation between the forecasting error and share repurchase activity is negative, implying that repurchases are financed with the potential decrease in dividends.

The following equation is used to find the impact of repurchases on the dividend forecasting error:

$$\boldsymbol{ERROR_{t,i}} = [\boldsymbol{\Delta DIV_{t,i}} - (\boldsymbol{\beta_{1,i}} + \boldsymbol{\beta_{2,i}EARN_{t,i}} + \boldsymbol{\beta_{3,i}DIV_{t-1,i}})]/\boldsymbol{MV_{t-1,i}} \quad (1)$$

where $\Delta DIV_{t,i}$ is the actual dividend change in year *t*, $EARN_{t,i}$ is the earnings in year *t*, $DIV_{t-1,i}$ is dividend level at year $t - 1$, and $MV_{t-1,i}$ is the market value of equity in year $t - 1$. The forecasting error is divided by the market value of equity to enable the comparison to dividend yield and repurchase yield.

The coefficients $\beta_{1,i}$ and $\beta_{2,i}$ are parameters of earnings and lagged dividends and they are estimates from Lintner(1956)'s traditional dividends model. Lintner's traditional model is expressed by the following equation:

$$\Delta Div_{t,i} = \beta_{0,i} + \beta_{1,i} EARN_{t,i} + \beta_{2,i} Div_{t-1,i} + \mu_{t,I} \qquad (2)$$

Grullon and Michaely(2002) explain that Lintner(1956)'s model assumes that a firm's dividend policy is a function their targeted payout policy and the speed of adjustment of the current dividends.The coefficients $\beta_{0,i}$,$\beta_{1,i}$ and $\beta_{2,i}$are derived using Linter's regression model as stated by *Equation (2)* and are then substituted into *Equation (1)* to calculate the dividend forecasting error term.

Additionally, the relation between the dividend forecasting error and *RYIELD (*repurchase yield defined as the total expenditure on share repurchases at time *t* divided by the market value of equity at time *t* –1) and *DYIELD (*dividend yield defined as the total expenditure on dividends at time *t* divided by the market value of equity at time *t* –1) respectively, is determined. If the substitution effect is evident in this sample, there will be negative correlation between dividend forecasting error and *RYIELD*, implying that as firms repurchase more, and hence a high repurchase yield, the actual dividend is lower than the expected dividend.

To control for certain factors that may influence a firm's payout decision (in other words to control for different firm characteristics that can influence the substitution effect) a cross-sectional regression of dividend forecasting error on the *RYIELD*, *LogMV*, *ROA*, *σ(ROA)*, *NOPER*, and the debt-to-total assets ratio is performed. Multiple regressions are also used to estimate the coefficients and standard errors and to reduce the effect of cross-correlated residuals.

CHAPTER IV

4. Empirical Results

This chapter reveals the results of the hypotheses discussed in the previous chapter[8]. The first sub-section introduces the measures of payout forms and the trends across time. It offers descriptive statistics and regression analysis of the variables. The second sub-section discusses whether dividends have been gradually replaced by repurchases and it also provides descriptive statistics and regression analysis to back up the findings.

4.1. Results for Proposition I

In order to determine the above proposition, the trend of payout policies of firms between 2002 and 2009 is observed. This is achieved by aggregating the calendar year data on the rand amount of dividends paid out $(\Sigma_t DIV)$, repurchases $(\Sigma_t REPO)$, total earnings $(\Sigma_t EARN)$ and the total market value of equity $(\Sigma_t MV)$, where t is the year observation per variable. Aggregate payout ratio is calculated for each payout form for every year observation.

Firstly Table I confirms that South African firms payout a substantial amount of their earnings, whether it be by dividends or repurchases. It can be calculated that the firms paid an average of 33.24% of their earnings in 2002 and 37.82% in 2009, this increment implies that the rand amount expenditure on both dividends and repurchases has grown by roughly 5% in that period.

Table I also illustrates that dividends was the most dominant form of payout in all years in the sample period excluding 2002, 2003 and 2009. In 2004 the aggregate rand amount spent on paying dividends was approximately 2.3 times greater than the aggregate rand amount spent on repurchases that year. The average dividend payout ratio (aggregate dividend expenditure

[8]The statistical component of this section was generated by SAS Enterprise Guide and Microsoft Excel. The figures were specifically plotted using Microsoft Excel.

divided by aggregate earnings) for 2004 was 17.71% whilst the average repurchases payout ratio was 7.66%.Barclay and Smith(1988), Allen and Michaely(2002) and Grullon and Michaely(2002) were able to show that dividends was a dominant form of payout at least for the first half of the authors' sample period. Dividends is not the only increasing payout method in the sample period 2002-2009.

Table I also shows that the aggregate rand amount expenditure on repurchases increases alongside dividends, although this figure drops in 2003 and 2007 it can be seen that the rand

Table I

Aggregate Distributions to Shareholders

The table below provides annual information on aggregate cash payouts to shareholders for a sample of 116 firms listed on the JSE. The data consists of firm observations retrieved from I-Net Bridge and covers the sample period 2002 to 2009. The variables used are: $EARN_t$defined as earnings before extraordinary items, DIV_tdefined as the total rand amount of dividends declared on common stock, $REPO_t$defined as the decrease in the number of common stock outstanding times the closing price at the end of the calendar yearand MV_tdefined as the market value of common stock calculated as the product of the market price of the common stock and the number of shares outstanding at a particular point in time. The sample contains 9000 firm year observations and excludes banks and insurance companies. $\Sigma_t$represents the aggregation of data by calendar year. $\Sigma_t DIV$, $\Sigma_t REPO$, $\Sigma_t EARN$ and $\Sigma_t MV$ are expressed in millions of rands.

Year	$\Sigma_t EARN$	$\Sigma_t DIV$	$\Sigma_t REPO$	$\Sigma_t DIV / \Sigma_t EARN$	$\Sigma_t REPO / \Sigma_t EARN$	$\Sigma_t DIV / \Sigma_t MV$	$\Sigma_t REPO / \Sigma_t EARN$	$\Sigma_t REPO / \Sigma_t DIV$
	Rand(million)	*Rand(million)*	*R(million)*	*(%)*	*(%)*	*(%)*	*(%)*	*(%)*
2002	84 922	12 135	16 188	14.28	18.96	2.91	3.86	132.82

Table I continued....

Year	$\Sigma_t EARN$	$\Sigma_t DIV$	$\Sigma_t REPO$	$\Sigma_t DIV/\Sigma_t EARN$	$\Sigma_t REPO/\Sigma_t EARN$	$\Sigma_t DIV/\Sigma_t MV$	$\Sigma_t REPO/\Sigma_t EARN$	$\Sigma_t REPO/\Sigma_t DIV$
	Rand(million)	***Rand(million)***	***R(million)***	***(%)***	***(%)***	***(%)***	***(%)***	***(%)***
2003	105 351	16 372	34 178	15.54	32.44	4.20	8.76	208.76
2004	105 147	18 621	8 055	17.71	7.66	3.40	1.47	43.26
2005	130 480	24 352	23 594	18.66	18.08	2.92	2.83	96.89
2006	163 716	33 483	65 894	20.45	40.25	2.91	5.72	196.80
2007	178 697	37 368	31 183	20.91	17.45	2.44	2.4	83.45
2008	243 483	42 699	42 161	17.54	17.32	2.58	2.55	98.74
2009	270 295	44 320	57 897	16.40	21.42	3.29	4.29	130.63

amount on repurchases was increasing on average throughout the period. This is not out of the ordinary as Allen and Michaely(2002)andGrullon and Michaely(2002) report that the second half of their sample periodswere characterized with increasing repurchases. This finding is the first step to proving Proposition I. Although it does not prove that firms were repurchasing instead of paying dividends, it does show that during the sample period, more firms were increasing their repurchase activity.

Figure 1 demonstrates the time-series pattern in payout ratios for the sample firms between 2002 and 2009.These ratios are calculated by finding the payout ratios for each firm at each yearly observation and then finding the average yearly payout ratios for the firms. A dividend payout ratio for a firm at a particular point in time is defined as the rand amount expenditureon dividends, scaled down by total earnings and the repurchase payout ratio is the rand amount expenditure on repurchases divided by total earnings. The total payout ratio is the sum of rand amount of dividends and repurchases, scaled down by the total earnings. The sample only includes observations with positive earnings.

Figure 1 plots increasing trends in both payout forms, confirming the results on Table I. It can be seen from Figure 1 that the dividend payout ratio was constant between the year 2002 and 2003 and increased smoothly until to reach its peak in 2006 and then declined gradually thereafter until the end of the sample period. But the general idea is that the dividend payout ratio curve exhibits an upward trend during the sample period. This finding is similar to Renneboog and Trojanowski(2007) who found an increasing trend in the dividend payout ratio in the UK between 1992-1998, contrary to Allen and Michaely(2002)andGrullon and Michaely(2002) who reported a decline in the number of dividend-paying firms in theUS around the same period.

In 2006 the dividend payout ratio declined from approximately 21% to 18% in 2009. This decline in the dividend payout ratio from 2006 to 2009 period is consistent with the findings by Fama and French(2001)Allen and Michaely (2002), and Grullon and Michaely (2002).Perhaps the decline in payout ratio was sparked by the reduced earnings during the 2008 financial crisis. Reddemann, Riegler and von der Schulenburg(2010)reported dividend cuts by Italian insurance firms as they tried to preserve their cash during the recession. The same reason might apply for the low payout ratios at the beginning of the sample period as there was a global recession in the early 2000.

Although the repurchase payout ratio curve in Figure I exhibits an increasing trend over the sample period, it takes a much steeper knock between the period 2008 and 2009.The repurchase

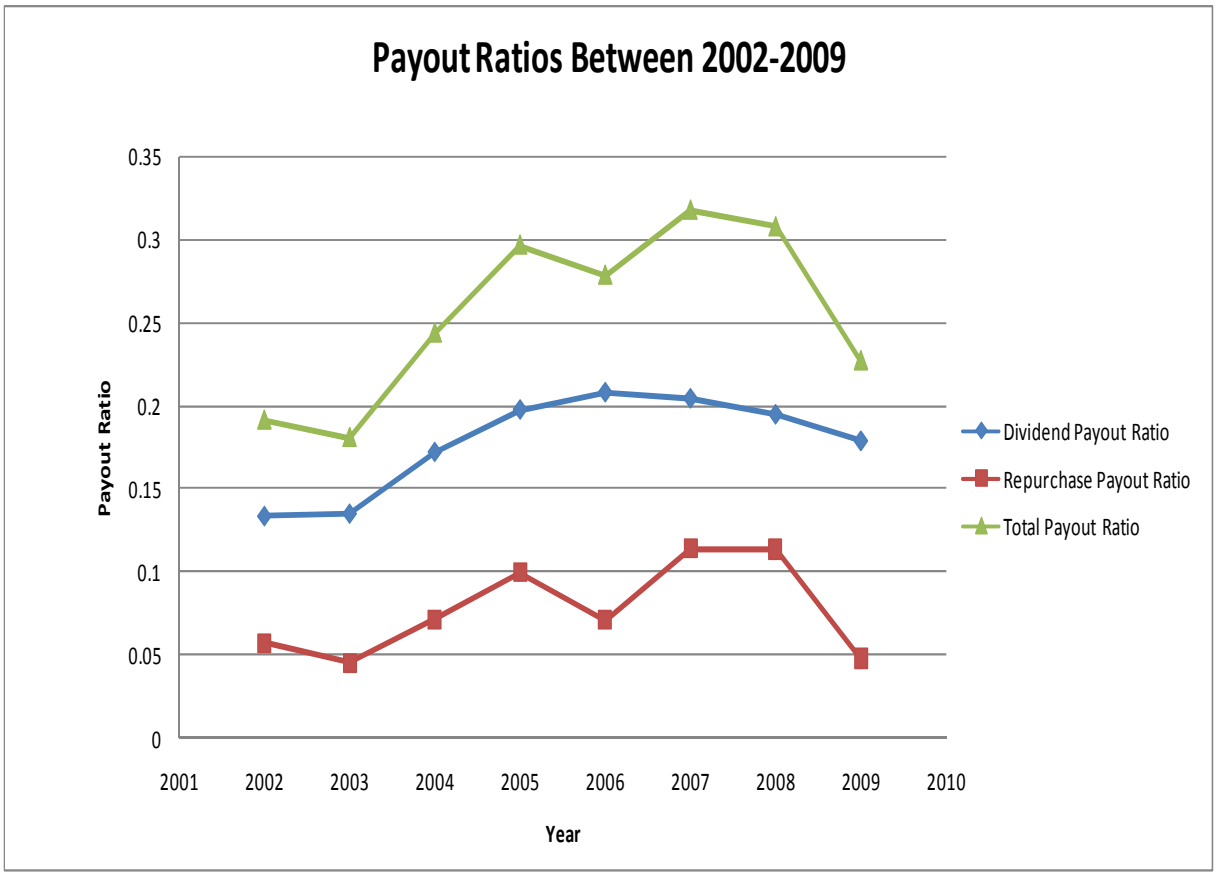

Figure I: Cash Distributions to Shareholder

The figure above shows the average dividend payoutratio, repurchase payout ratio and total payout ratio for a sample of 116 firms listed on the JSE.These ratios are calculated by finding the payout ratios for each firm at each yearly observation and then finding the average yearly payout ratios for the firms. The sample only includes observations with positive earnings.The data consists of firm observations retrieved from I-Net Bridge and covers the sample period 2002 to 2009. The variables used are: $EARN_t$defined as earnings before extraordinary items, DIV_tdefined as the total rand amount of dividends declared on common stock and $REPO_t$defined as the decrease in the number of common stock outstanding times the closing price at the end of the calendar year. The sample contains 8763 firm year observations and excludes banks and insurance companies. To remain in the sample the firm observation must have positive earnings as it is assumed that firms only distribute cash to shareholders if they have sufficient cash to do so. Banks, insurance companies and utilities were eliminated from the sample as some of the financial items were not reported on their financial statements.

payout ratio curve shows that the repurchase ratio had doubled from 5.1% in 2002 to 10.2% in 2007 but falling back to the 5% margin at the end of the period. 2008 and 2009 was harsh both the level of dividend payout and repurchase payout ratios, once again this pattern may have been influence by the financial recession.

The increasing trend in repurchase payout ratio is similar to that of Barclay and Smith(1988). The authors studied the payout ratios to shareholders by firms listed on the New York Stock Exchange (NYSE) and reported that open-market repurchase payout ratio had increased from 4.65% in 1983 to 29.85% in 1986.Ikenberry, Lakonishok and Vermaelen (2000)andKooli and L'her(2010) also report evidence of increasing repurchase payout ratio trend in Canadian firms over the sample period.

Another pattern standing out in Figure 1 is that the repurchase payout ratio pattern has influenced the total payout ratio a great deal. Figure 1 exhibits an increasing trend in the total payout ratio during the sample period. This is contrary to Grullon and Michaely (2002)'s observation of constant total payout ratio throughout the sample period.The authors' total payout ratio was maintained at a constant level because as the repurchase payout ratio was increasing, the dividend payout ratio was decreasing during the sample period, therefore the two ratios were cancelling each other's effect on the total payout ratio. The total payout ratio was not constant in Figure 1 as dividend and repurchase payout ratios were moving together in the same direction for most parts of the sample period.

Finally, using Table I and Figure 1 jointly, one can conclude that the increase in the total payout ratio was contributed to by both the increase in the numerator (an increase in the aggregate rand expenditure on both repurchases and dividends) and an increase in the denominator (an increase in the total earnings). Table I shows that aggregate earnings have increased by approximately 3.18 times, whilst the aggregate dividend expenditure has increased by approximately 3.65 times and aggregate repurchase expenditure has increased approximately 3.58 times from 2002 and 2009. Unlike Grullon and Michaely (2002)'s finding of a constant total payout policy ranging

between 23% and 26% between the sample period, Figure 1 exhibits an upward trend between 2002 and 2009, with a trough in the region of 18% and a peak of roughly 32%.

Table II illustrates the impact of firm characteristics on the choice of payout policy. The relationship between payout policy and firm characteristics is observed over the eight cohort periods; 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009. The table gives a combination of payout forms that make up four types of payout policies. The first payout policy is for firms that neither pay dividends nor repurchase their shares *(DIV=0, REPO=0)*, the second policy is for firms that pay dividends but do not buy back their shares *(DIV>0, REPO=0)*, the third policy is for firms that do not pay dividends but buy back their shares *(DIV=0, REPO>0)* and the fourth and last policy is for firms that pays dividends and repurchase their shares *(DIV>0,REPO>0)*.

Table II looks at the relationship between the abovementioned payout policies and the following characteristics: *MV* (market value of the common stock), *MB* (the market-to-book ratio), *CASH* (the book value of cash and short term investments divided by the book value of the total assets), *ROA*(operating income before depreciationdivided by the book value of the total assets)*σ(ROA)* (the standard deviation of *ROA), NOPER*,(the non-operating income before depreciation divided by the book value of the total assets) and *AGE*>8 (the proportion of firms that have been traded on the JSE for more than eight years). *DIV*/*TOTAL* is the total amount of dividends in each group divided by the aggregate amount of dividends. *REPO*/*TOTAL* is the total amount of share repurchases in each group divided by the aggregate amount of share repurchases.

Table II brings to light that firms that pay dividends, that is firms with either one of these payoutpolicies;*(DIV>0, REPO>0)* or*(DIV>0, REPO=0)*, tend to be relatively larger and more profitable than those that pay no dividends *(DIV=0, REPO=0)* and *(DIV=0, REPO>0)*. The average market value for firms that pay dividend and no repurchases is R2260 million and for firms that pay both dividends and repurchase is R2350 million, whilst the median market value for firms that pay dividends only is R3311million and for firms paying both dividends and repurchases is R379 million during the sample period 2002-2009. The mean market value of firms not paying dividends is roughly half the mean market value of firms that pay dividends.

More specifically, the mean market value of firms not paying dividends nor repurchases is R1140 million and the mean market value of firms repurchasing shares but not paying out dividends is R1390 million.This finding is in line with that of Kooli and L'her(2010). The authors find that dividend-paying Canadian firms tend to be larger, well established with more stable earnings compared to their repurchasing counterparts. On a broader international scale, Osobov and Denis(2006)find evidence that the propensity to pay dividends is higher among larger firms in the US, Canada, UK, German, France and Japan.

In addition to the comparison between the mean market values of dividend payers and non-payers, it can be learned from Table II that firms that pay dividends have higher book value of total assets compared to those that do not distribute cash to shareholders in the form of dividends. The table shows that the average book value of total asset for firms that paid dividends alone is R4370 million and R5395 million for firms that repurchase and pay dividends. For firms that repurchased shares only, the mean of the book value of the total assets is R1610 million and R1262 million for firms that neither pay dividends nor repurchase shares. These results are consistent with Grullon and Michaely (2002).

It also appears that firms that pay dividends have higher cash reserves compared to those that do not disgorge cash through dividends and those that use repurchases as the only form of payout. Table II shows that on average firms that pay dividends only hold 18.92% of cash (as a fraction of their total assets) whilst those that pay dividends and repurchase hold 15.81%. Firms that do not pay dividends or repurchases hold 14.65% cash and those that repurchase only hold 15.38%.

The level of cash flow or liquidity as it is sometimes referred to, is an important determinant of payout policy.Kanwal and Kapoor(2008) explained that liquidity was important because a firm would only commit to payout its cash only if it had any. The authors studied large information technology firms in India between 2000 and 2006, and when the dividend payout ratio was regressed against cash flow (amongst other independent variables) a positive and significant correlation was reported, verifying that cash flow was indeed a determinant of the dividend payout policy. On the contrary Brockman, Howe and Mortal(2008) found that for firms that are

initiating a payout policy for the first time, those that choose a repurchasing policy have higher cash flows than those that adopt a dividend policy.

Thus, it may not be surprising that firms that pay both dividends and repurchase shares have the highest non-operating income figure (expressed as a fraction of the book value of total assets) and firms with no payout policy have the lowest.Li and Lie(2006)show a strong positive affiliation between operating income and the level of payout ratio, and find that firms were most likely to cut down their payout ratios if their income had been reduced.

Jagannathan et al.(2000)use non-operating income as a gauge for temporary income, and discover that when a large proportion of total income is made up of non-operating income a firm is likely to repurchase and when a large proportion of total income is made up of operating income then it is most likely to pay dividends. The results on Table II show that firms using a repurchase-only payout policy have a higher non-operating income scaled down by the book value of assets *(NOPER)*, averaging 1.51, whilst those using a dividends-only policy have a slightly lower *NOPER*.Liljeblom and Pasternack(2002)found that repurchases were paid out from permanent operating income and not from non-operating income.

Other interesting revelation by Table II is that firms that do not have any payout in place seem to be younger firms. It appears that 47.67% of firms without payout policy have been listed on the JSE for a minimum of eight years. 79.9% of firms that pay dividends and repurchase have been listed on the JSE for over eight years. Over 50% of the firms that repurchase only are mature and have been listed on JSE for longer than eight years.

Agyei and Marfo-Yiadom(2011)explained that older firms used dividends for the sake of reputation building and that older firms often do not have as much growth opportunities, thus they do not have as many investment opportunities as they used to. The authors tested age as determinant of dividend payout on a sample of Ghanaian firms and found a negative relationship between the firm's age and dividends because older firms in Ghana were still pursuing growth opportunities.

Table II

Firm Characteristics by Payout Policy

The table below provides descriptive statistics for a sample of 116 firms listed on the JSE and the relationship between payoutpolicy and firm characteristics is observed. The sample period is divided into 8 cohort periods: 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009. The data consists of firm observations retrieved from I-Net Bridge and covers the sample period 2002 to 2009. The variables used are:DIV_t, $REPO_t$,MV_t,$ASSETS_t$,*MB*, defined as the book value of the total assets plus the market value of equity minus the book value of equity, scaled by the book value of the total assets, *CASH*, defined as the book value of cash and short term investments, scaled by the book value of the total assets, *ROA*, defined as the operating income before depreciation, scaled by the book value of the total assets, *σ(ROA)*, defined as the standard deviation of *ROA*, *NOPER*, defined as the non-operating income before depreciation, scaled by the book value of the total assets and*AGE*>8 defined as the proportion of firms that have been traded on the JSE for more than eight years. *DIV*/*TOTAL* is the total amount of dividends in each group divided by the aggregate amount of dividends. *REPO*/*TOTAL* is the total amount of share repurchases in each group divided by the aggregate amount of share repurchases.

	DIV=0,REPO=0		***DIV>0,REPO=0***		***DIV=0,REPO>0***		***DIV>0,REPO>0***	
	N= 67		***N= 56***		***N=367***		***N=403***	
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
MV	1104	121	2260	331	1390	222	2350	379
ASSETS	1262	312	4370	1110	1610	656	5395	1266
MB	0.55	0.57	0.63	0.65	0.56	0.53	0.62	0.59
CASH (%)	14.65	10.28	18.92	14.67	15.38	12.54	15.81	12.85
ROA (%)	-16.88	18.04	14.40	12.60	19.94	19.86	23.14	22.04
σ(ROA) (%)	10.12	9.11	9.13	7.51	9.90	7.63	9.21	7.88
NOPER (%)	1.30	0.65	1.51	0.65	1.35	0.72	2.15	0.85
AGE>8 (%)	47.76	-	55.36	-	52.11	-	79.90	-
DIV/TOTAL (%)	0	-	35.91	-	0	-	64.09	-
REPO/TOTAL (%)	0	-	0	-	5.90	-	93.63	-

However the authors found that this negative relationship was reversible once these older firms ran out investment opportunities.

The results that repurchasing firms are usually younger than dividend-paying firms are in line with Pacheco(2009), who find a negative and significant relationship between firms that are repurchasing their shares for the first time and age, implying that firms that repurchase for the first time tend to be younger ones.Grullon and Michaely (2002) also find that repurchasing firms are younger than firms paying dividends.

Another alarming recovery from Table II is that firms that pay dividends have lower earnings volatility, measured by *σ(ROA)*, compared to those that repurchase their shares. The average *σ(ROA)*for firms that pay dividends and repurchase is 9.21% and 9.13% for firms that pay dividends only. The mean *σ(ROA)*for firms that do not have a payout policy 10.12% and 9.90% for firms that use repurchases only. Although the difference between the earnings volatility between the firms that pay dividends and those that do not is not huge, it is however statistically significant.

Jagannathan et al. (2000)and Grullon and Michaely (2002) find a positive relation between earnings volatility and repurchase, implying that firms with higher earnings volatility have tendencies of buying back their shares than those with lower earnings volatility, and in fact those with lower earnings volatilities had tendencies of paying dividends.Similarly, Skinner(2008)foundsmall positive relationship between earnings volatility and dividends and reported a larger positive relationship between earnings volatility and repurchases. The authors point out at the changing nature of accounting standards, changing nature of listing firms and changing economic variables over time as possible explanations for firms' uncertain earnings for the past fifty years.

On the other hand, the difference between the earnings volatility of firms that pay dividends is a negligible 3%, implying that there is no evidence that firms that pay both repurchases and

dividends have more volatile earnings than those that pay dividends alone. This is consistent with Grullon and Michaely (2002)'s findings.

Lastly, Table II shows that firms that pay both dividends and repurchases*(DIV>0, REPO>0)* account for 64.09% of the total aggregate expenditure on dividends and 93.63% of the total aggregate expenditure on repurchases.Firms that pay dividends only account for 35.91% of the dividend activity and firms that repurchase only account for 5.90% of repurchase activity. These results imply that firms that use pay dividends and repurchases simultaneously are responsible for most of the dividends paid and those that use a dividend-only policy contribute a lesser amount to the total amount of dividends paid. Similarly, firms that use a dividend-and-repurchase policy contribute a significantly larger amount to the total amount of repurchases compared to those that adopt a repurchase-only policy.

In summary, it appears (from Table II) that firms that use repurchases as their only form of payout seem to resemble firms that do not redistribute cash to their shareholders. Table II reduces that both groups have are smaller (almost half the size of their dividend-paying counterparts), less profitable and have higher earnings volatility than their dividend-paying counterparts.

Based on the above findings about the type of payout policy and earnings volatility, it may be complicated to observe the pattern and true relation between each of the payout policy and earnings volatility. As Grullon and Michaely (2002) explained, the maturity of a firm plays a major role in its preference for repurchases over dividends and hence the high variability of earnings attached to repurchases. In order to control for the age effect, policies are reviewed over the entire sample period, and it is observed whether the variability of earnings had any play in the inclination to repurchase.

In order to obtain unbiased results by controlling for the age effect in finding the relationship between earnings volatility and the propensity to repurchase, the sample period is divided into four cohort periods: 2002-2003, 2004-2005, 2005-2006 and 2007-2008. For each of the cohort

periods, the standard deviation of the return on assets ($\sigma(ROA)$), the non-operating income before depreciation expressed as a fraction of the book value of total assets (*NOPER*), the dividend payout ratio and repurchase payout ratio are calculated. The locations are then recorded on Table III.

Table III supports Table I in its finding that dividend payout ratio and repurchase payout ratio have increased throughout the sample period, even after controlling for the size effect. Table III exhibits the impact that cash flow volatility has on the choice of payout policy after controlling for firm maturity. It can be noted that the average earnings volatility increased by a statistically significant 5.5% from 10.96% to 16.48% between the sample period.Skinner(2008)was also able to show that earnings volatility has increased significantly over a fifty-year sample period. This increase in the earnings volatility was coupled by 3% jump from 5.15%(in Panel A) to 8.08% (in Panel D) in the repurchase ratio between the sample period.

The results above imply that mature firms demonstrate a positive relationship between share repurchases and earnings volatility. This contradicts findings by Grullon and Michaely (2002) and Brockman, Howe and Mortal(2008) that it was the younger firms that had a positive relationship between earnings volatility and repurchases. The latter authors examined the impact of liquidity on payout decisions and that firms that repurchase for the first time condition their decision to do so on the historical earnings volatility.

Bradley, Capozza and Seguin(1998) examined the relationship between dividend payout ratios and the cash flow of real estate investment trusts between 1985 and 1992 and the authors also found a negative relationship between dividend payout ratios and cash flow volatility, specifically that firms with uncertain cash flows would not tamper with their dividend payout ratios because of the signalling ability inherent in dividend policies.

All of these findings follow the normal suggestion that firms that repurchase are those that are usually smaller, younger with higher earnings volatility and those that pay dividends are bigger, older with stable earnings because dividend policies are very often conservative because of their

Table III

The Relationship between Cash Flow Volatility and Payout Policy

The table below provides information on the effect cash flow volatility has on the payout policies for sample of 116 firms listed on the JSE. The data consists of firm observations retrieved from I-Net Bridge and covers the sample period 2002 to 2009. The variables used are: $EARN_t$, $REPO_t$, MV_t.The other variables that are used are *ROA*, defined as the operating income before depreciation, scaled by the book value of the total assets, *σ(ROA)*, defined as the standard deviation of *ROA*. *σ(ROA)* is calculated over the cohort periods 2002-2003, 2004-2005, 2006- 2007 and 2008-2009. *NOPER*, defined as the non-operating income before depreciation, scaled by the book value of the total assets. *DIV/EARN* is the dividend payout ratio. *REPO/EARN* is the repurchase payout ratio. *DIV/EARN*, *REPO/EARN*, and *NOPER* have been condensed at the 99th percentile. *ROA* has been shortened at the 1st and 99th percentiles.

	σ(ROA) (%)	***NOPER (%)***	***DIV/EARN (%)***	***REPO/EARN (%)***
Panel A: Period 2002-2003				
Mean	10.96%	16.73	13.46	5.15
Median		0.87	10.82	0
Panel B: Period 2004-2005				
Mean	14.71%	17.93	18.47	8.55
Median		0.93	15.50	0
Panel C: Period 2006-2007				
Mean	15.82%	17.07	20.58	9.23
Median		0.90	17.49	0
Panel D: Period 2008-2009				
Mean	16.48%	22.22	18.65	8.08
Median		0.97	14.75	0

signalling ability. It is worthwhile to note the irregular finding in Table III that older firms have higher earnings volatility and repurchase activity.

To supplement the findings in Table III, a graphical analysis of the distribution of firms by their choice of payout policy is also provided. Figure II illustrates the method which firms use to pay cash to its shareholders over the sample period 2002 to 2009, and shows trends of the proportion of firms pursuing a certain type of payout out policy during the period. The proportion of firms employing a particular policy (it could be paying dividends alone, paying repurchases alone or using both forms of payout) is calculated by dividing the total number of firms pursuing a certain payout policy in a specific year by the total number of firms within the sample.

Figure II exhibits a declining trend in the proportion of firms paying dividends for the first six years of the eight year sample period, and an increasing trend in the last two years. Prior to 1999 South African firms relied solely on dividends as the only form of cash distribution to its equity-holders. Perhaps the reason for the downward trend in the proportion of the firms paying dividends from 2002 to 2007 was that firms were newly introduced to repurchases as an alternative payout method and some abandoned their long adopted payout form for newer options.

The proportion of firms repurchasing depicts a rather constant trend throughout the sample period. However, it is clear that the proportion of firms that payout with both dividends and repurchases parade an increasing trend from 2002 to 2007 and this trends takes a dip from 2007 onwards when the proportion of firms using dividends alone increases. Although Figure II does not support the notion that share repurchases are more preferred than dividends during the period as the repurchase-only trend is constant, it does prove that for most parts of the sample period dividends as the sole form of payout had become less popular amongst firms.

Fama and French (2001) and Grullon and Michaely (2002)also showed that the proportion of firms paying dividends was decreasing but the latter authors were able to attribute their findings to a substitution of dividends by repurchases by showing that whilst there was a declining

proportion of dividend paying firms, there was an increasing proportion of firms repurchasing during the same period. Figure II shows that not only were dividends becoming less popular but that the preference for a payout policy that repurchased shares and paid dividends simultaneously grew throughout the years.

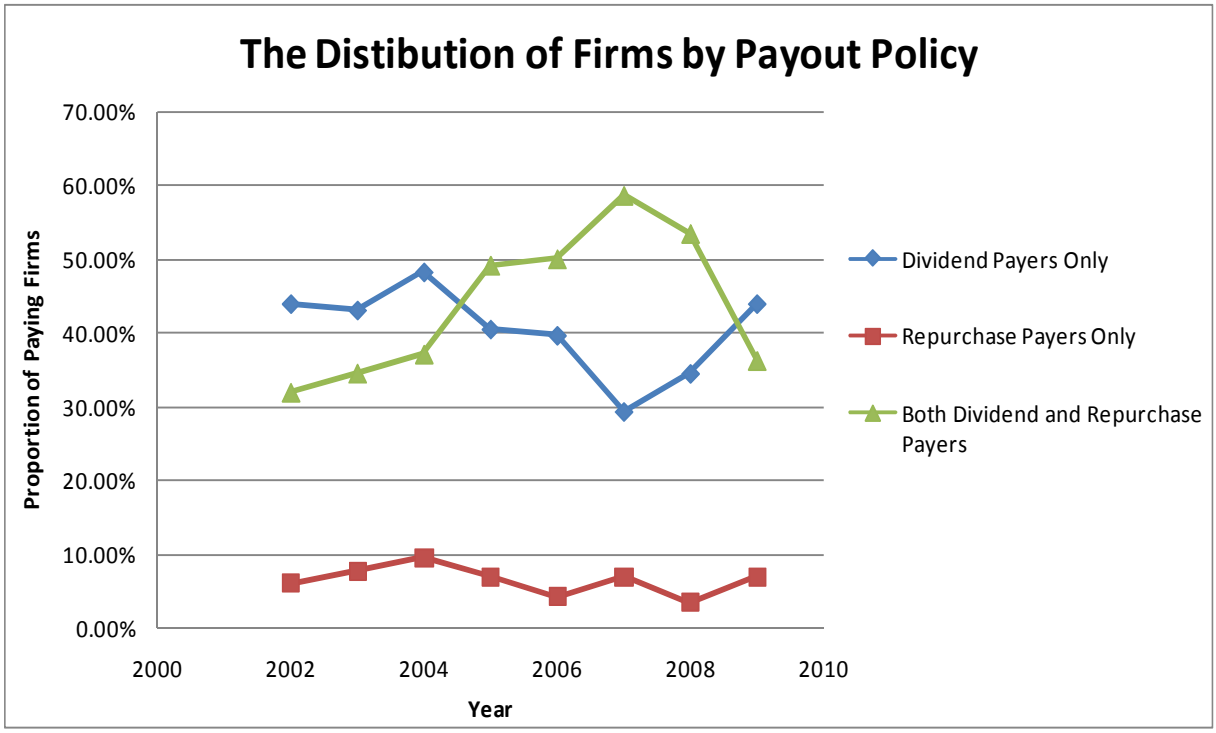

Figure II: The Proportion of Firms Adopting Various Payout Policies

The figure above illustrates the distribution of firms by the different types of payout policy adopted for a sample of 116 firms listed on the JSE. The data consists of firm observations retrieved from I-Net Bridge and covers the sample period 2002 to 2009. The variables used are: $EARN_t$defined as earnings before extraordinary items, DIV_tdefined as the total rand amount of dividends declared on common stock, $REPO_t$defined as the total rand spent on purchases of common stock and preferred stock less any reduction in the value of the net number of preferred stock. The proportion of firms employing a particular policy (it could be paying dividends alone, paying repurchases alone or using both forms of payout) is calculated by dividing the total number of firms pursuing a certain payout policy in a specific by the total number of firms within the sample.

A more solid and wholesome study of the dynamics of the payout policies for the 116 JSE firms between 2002 and 2009 is given in Table IV. Table IV provides information about the probability of firms changing from one payout policy to another. This is achieved by determining the transition probabilities of changing from payout policy *i* at time *T* to payout policy *j* at time *T*+1 for each of the sub-periods: 2002- 2003, 2004- 2005, 2006- 2007 and 2008- 2009. Four payout policies are considered: a) no dividends payments and repurchases, b) dividends payment as the only form of cash redistribution, c) repurchases only and d) both dividends and repurchases. The probabilities of transition are defined as the number of firms changing their payout policy from payout policy *i* to *j* divided by by the total number of firms with payout policy *i* at time *T*. The results on the four panels of Table IV show the mean transition probabilities for the sub-periods.

Panel A of Table IV illustrates that57.89% of the firms that did not have a payout at time 2002 continued to not have a payout policy in 2003, 44.44% of firms that only repurchased 2002 continued to repurchase in 2003, 64.71% of firms that pay dividends in 2002 stuck with same policy in 2003 and finally 64.86% of the firms that paid both dividends and repurchases in 2002 sustained their policy in 2003.

Panel B of Table IV shows that 50.00% of the firms that did not distribute cash to shareholders in 2004 did not pay cash to their shareholders in 2005, whilst 63.64% of those that repurchased only maintained their repurchase-only policy. 44.64% of firms that paid dividends and 74.42% that paid both dividends and repurchases in 2004 continued to do so 2005.

Panel C of Table IV shows that 14.29% of firms that had no payout policy in place in 2006 did not have a payout policy in place in 2007. It is also shown that 40% of the firms that used repurchases as its only form of disbursing cash to its shareholders in 2006 continued to do so in 2007. 50% of the firms that paid dividends only in 2006 continued to do so in 2007 whilst

82.76% of the firms that used both dividends and repurchases in 2006 remained loyal to that payout policy in 2007.

Table IV

The Probability of Changing from One Payout Method to Another

The table below provides information about the probability of firms changing from one payout policy to another for a sample of 116 firms listed on the JSE. The data consists of firm observations retrieved from I-Net Bridge and covers the sample period 2002 to 2009.This is achieved by determining the transition probabilities of changing from payout policy *i* at time *T* to payout policy *j* at time *T*+1 for each of the sub-periods: 2002- 2003, 2004- 2005, 2006- 2007 and 2008- 2009. Four payout policies are considered: a) no dividends payments and repurchases, b) dividends payment as the only form of cash redistribution, c) repurchases only and d) both dividends and repurchases. The probabilities of transition are defined as the number of firms changing their payout policy from payout policy *i* to *j* divided by by the total number of firms with payout policy *i* at time *T*.

	T			
	DIV=0, REPO=0	***DIV=0, REPO>0***	***DIV>0, REPO=0***	***DIV>0, REPO>0***
T-1	***Panel A: Period 2002-2003***			
DIV =0, REPO = 0	57.89%	5.26%	31.58%	5.26%
DIV = 0, REPO > 0	22.22%	44.44%	11.11%	22.22%
DIV > 0, REPO = 0	1.96%	5.88%	64.71%	27.45%
DIV > 0, DIV > 0	8.11%	2.70%	24.32%	64.86%
Panel B: Period 2004-2005				
DIV =0, REPO = 0	50.00%	16.67%	33.33%	0.00%
DIV = 0, REPO > 0	9.09%	63.64%	9.09%	18.18%
DIV > 0, REPO = 0	0.00%	0.00%	44.64%	55.36%
DIV > 0, DIV > 0	0.00%	0.00%	25.58%	74.42%

Table IV continued....

	T			
	DIV=0, REPO=0	***DIV=0, REPO>0***	***DIV>0, REPO=0***	***DIV>0, REPO>0***
T-1	***Panel C: Period 2006-2007***			
DIV =0, REPO = 0	14.29%	28.57%	14.29%	42.86%
DIV = 0, REPO > 0	0.00%	0.00%	40.00%	60.00%
DIV > 0, REPO = 0	6.52%	4.35%	50.00%	39.13%
DIV > 0, DIV > 0	1.72%	1.72%	13.79%	82.76%
	Panel D: Period 2008-2009			
DIV =0, REPO = 0	50.00%	20.00%	20.00%	10.00%
DIV = 0, REPO > 0	75.00%	25.00%	0.00%	0.00%
DIV > 0, REPO = 0	7.50%	0.00%	65.00%	27.50%
DIV > 0, DIV > 0	4.84%	8.06%	46.77%	40.32%

Panel D of Table IV depicts that 50% of firms without a payout policy, 25% of the firms that repurchased shares only, 65% firms that paid dividends only and 40.32% of the firms that paid both dividends and repurchases in 2008 sustained their payout policies in 2009.

Table IV shows that the proportion of firms initiating dividends alone was higher in the beginning of the sample than it was at the end. It reports that 31.58% (Panel A) of the firms initiated dividends between 2002 and 2003 and only a disappointing 20% (Panel D) between 2008 and 2009. Table also shows that 5.26% (Panel A) of the firms that had no payout policy in place initiate repurchases between 2002 and 2003and this figure increase to 20% (Panel D) between 2008 and 2009.

Table IV shows that 64.71%(Panel A) of the firms that previously used a repurchase-only policy changed their policy to a dividend-only policy. This figure is 44.64% in 2004-2005, 50% in 2006-2007 and 65% in 2008-2009. These findings imply that roughly over half of the firms that repurchased only in the previous period abandoned their policy for a dividends-only policy each year.

Of the firms that previously used a payout policy that paid dividends and repurchases, 8.11% (Panel A), 0% (Panel B), 1.72% (Panel C) and 4.84% (Panel D) shifted to not distributing cash at all. 2.7% (Panel A), 0% (Panel B), 1.72% (Panel C) and 8.06% (Panel D) of the firms that previously paid both dividends and repurchases now switched a repurchases-only policy. This implies that it was very unlikely for a firm with a payout policy that paid dividends and repurchased simultaneously to change to a repurchase-only policy and even more unlikely to change to a policy that did not payout in the following year.

Still on the firms that paid both dividends and repurchased, 24.32% (Panel A), 25.58% (Panel B), 13.79% (Panel C) and 46.77% (Panel D) shifted to a dividends-only policy. Finally, of the firms that paid both dividends and repurchases, 64.86% remained loyal to their policy in 2002-2003. This number changed to 74.42% in 2004-2005, 82.76% in 2006-2007 and 40.32% in 2008-2009. These results indicate that firms that paid both dividends and repurchases simultaneously were

less likely to dump this policy for a repurchase-only policy and were slightly less likely to give up distributing to shareholders. In fact, these results strongly imply that such firms are more likely to remain using that payout policy and those firms that do change from this policy will change to a dividends-only policy.

The most striking finding of Table IV is thatin the first four years of the sample period most firms initiating payout would pay dividends and in the latter four years firms that were initiating payout had a higher probability of doing so with repurchases rather than dividends.This finding is analogous to Grullon and Michaely (2002). Although the probability of initiating payout through repurchases is higher than the probability of initiating through dividends, the probability of initiating via dividends is not declining as shown in Grullon and Michaely (2002). In fact, Table IV shows that the probability of firms initiating via dividends is increasing for most parts of the sample period, although at a lower magnitude than repurchases.

Another finding that is not extraordinary is the fact that most companies paying dividends, whether using a dividend-only policy or repurchase-and-dividend policy will continue using those policies. Once again this finding confirms that managers are reluctantto change their dividend polices because of signalling effects inherent in them,(Bhattacharya, 1979), (Miller & Rock, 1985), (Asquith & Mullins, 1986), (Michaely, Thaler, & Womack, 1995) and (Bernartzi, Michaely, & Thaler, 1997).Firer et al.(2008) conducted a survey on a sample of South African directors and found that many of them initiating payout for the first time preferred doing so by using dividends and repurchases simultaneously.

4.2. Results for Proposition II

In order to determine the above proposition, this sub-section investigates whether the South African firms view share repurchases as substitutes for dividends. This investigation involves using (Lintner, 1956)'s traditionaldividend policy to determine the firm's expected dividend payment and comparing it to the actual dividend and to observe whether firms are diverging from their past dividend policies. This deviation is referred to as the dividend forecasting error. A negative correlation between the dividend forecasting error and repurchase activity implies that firms can be financing their repurchases with the reduction in dividend payment, confirming the substitution effect. A positive relationship would imply that dividends and repurchases complement each other.

Table V exhibits the relationship between the dividend forecasting error (*ERROR)*and the share repurchase yield*RYIELD,* defined as the total expenditure on share repurchases at time *t* scaled by the market value of equity at time $t - 1$.

Table V illustrates that there is a positive correlation between the dividend forecasting error and the share repurchase yield for the entire period, implying that as firms repurchase more (hence the higher *RYIELD)* the actual dividend payment is higher than the forecasted one (hence a higher *ERROR)*. The relationship between repurchase yield and dividend forecasting error is scrutinized more closely when the repurchase activity is divided into five groups, ranging from the lowest repurchase activity (Group1) to the highest repurchase activity (Group 5). The average forecasting error when the repurchase activity is at its lowest (Group 1) is 0.2989%, when the pre-forecasting period is 2002-2009, and it is not statistically significantly different from zero at a 1% significance level. The average forecasting error when repurchase activity is high (Group 5) is 0.2047% and is statisticallysignificantly different from zero at a 5% significance level. The difference in the forecasting errors between Group 1 and Group 5 are negative but statistically insignificant.

Table V

The Relationship between Dividend Forecasting Errors and Share Repurchase Yields

The table below provides information about the empirical relationship between dividend forecasting errors and repurchase yield for a sample of firms on the JSE. The following equation is used to define the dividend forecasting error:

$$\boldsymbol{ERROR_{t,i}} = [\boldsymbol{\Delta DIV_{t,i}} - (\boldsymbol{\beta_{1,i}} + \boldsymbol{\beta_{2,i}EARN_{t,i}} + \boldsymbol{\beta_{3,i}DIV_{t-1,i}})] / \boldsymbol{MV_{t-1,i}}$$

where $\Delta DIV_{t,i}$ is the actual dividend change in year *t*, $EARN_{t,i}$ is the earnings in year *t*, $DIV_{t-1,i}$ is dividend level at year $t-1$, and $MV_{t-1,i}$ is the market value of equity in year $t-1$. The coefficients $\beta_{1,i}$ and $\beta_{2,i}$ are parameters of earnings and lagged dividends and they are estimates from (Lintner, 1956)'s traditional dividends model. In order to be included in the sample, each firm must have paid dividends continuously over the entire pre-forecasting period. In order to reduce the effect of extreme values, an observation is eliminated if the absolute value of the forecasting error is greater than five percent. *RYIELD* is the total expenditure on share repurchases at time *t* scaled by the market value of equity at time $t-1$. *DYIELD* is the total expenditure on dividends at time *t* scaled by the market value of equity at time $t-1$.

		Rankings by Share Repurchase Yield					
Pre-forecasting Period 2002-2009	**Entire Sample**	**1 (low)**	**2**	**3**	**4**	**5 (high)**	**5-1**
ERROR							
Mean	0.2117%	0.2989%	0.1258%	0.1904%	0.2388%	0.2047%*	-0.007%
Median	0.1445%	0.2219%	0.1048%	0.1429%	0.1491%	0.1446%	-
N	427	85	85	85	85	87	-
RYIELD							
Mean	0.0531%	0%	0%	0.0013%	0.0162%	0.6763%*	0.6232%
Median	0.0470%	0%	0%	0.0006%	0.0133%	0.1357%*	-
N	427	85	85	85	85	87	-

Table V continued....

Pre-forecasting	Entire Sample	Rankings by Share Repurchase Yield					
		1 (low)	2	3	4	5 (high)	5-1
Period 2002-2009							
DYIELD							
Mean	0.1413%	0.0682%	0.0426%	0.0462%	0.0556%	0.0530%	-0.0883%
Median	0.0006%	0.0579%	0.0414%	0.0436%	0.0503%	0.0440%	-
N	427	85	85	85	85	87	-

These results only confirm a positive relationship between dividend forecasting error and high repurchase activity, but there is insufficient evidence to assume that this relationship holds at lower repurchase activity. Nonetheless, this finding goes against that of Grullon and Michaely (2002)which reported a negative relationship between forecasting errors and repurchase yields. Firer et al. (2008)'s survey on dividend policies in South Africa found that South African directors did not deem dividends and repurchases substitutes. The authors reveal that in fact the directors found mergers and acquisitions as the closest substitute to dividends.

Therefore the results above imply that at repurchases are not substitutes but rather compliments. Firms that pay high cash dividends are most likely to repurchase their shares. Von Eije and Megginson (2010)also showed that repurchases and dividends in Europe were complements rather than substitutes between the sample period 2000 and 2005.Lee and Rui(2004)found that dividends and repurchases were both substitutes and complements.Billet and Xue(2007)found that dividends and repurchases were neither complements nor substitutes and that they were merely correlated.

Grullon and Michaely (2002) noted that the relationship between dividend forecasting error and repurchases can well be influenced by firm characteristics, for instance the decision to repurchase shares can be determined by the firm's earning volatility. Thus, it may be possible for firm characteristics to drive the substitution effect of repurchases and dividends. The next test involves controlling for firm characteristics that may influence the choice of payout policy.

Table VI reports the cross-sectional regressions of dividend forecasting error on the repurchase yield *(RYIELD),* the logarithm of size (*Log(MV)),* the return on assets *(ROA),* the standard deviation on return on assets *(σ(ROA)),* non-operating income *(NOPER)* and total debt scaled down by total assets *(DEBT).*

The results on Table VI confirm the results reported on Table V that indeed there is a positive relationship between the dividend forecasting errors and repurchase activity even when firm characteristics have been controlled for. The average regression coefficient of *RYIELD* is 0.0035 and is statistically significant at 1% significance level. This implies that the forecasting error increases by 0.0035 for every marginal increase in repurchase activity thus confirming that indeed repurchases and dividends are complimentary payout forms.

Table VI shows that the average regression coefficient of *Log(MV)* is -0.0929 and it is statistically significant at a 5% significance level, suggesting that larger firms have smaller dividend forecasting errors. This finding is parallel to the observation that larger firms tend to have a more conservative dividend policy and are more likely to have stable payout ratios through the years.

Table VI exhibits that the average regression coefficient of *σ(ROA)* is 0.9169 and is statistically significant at a 1% significance level. This implies that firms with higher earnings volatility tend to deviate from their dividend payment target, more so that the more volatile the firm's earnings the more dividend activity that firm would indulge in.

Table VI

Cross-Sectional Regressions of Dividend Forecasting Error on Several Factors

The table below provides information about the empirical relationship between dividend forecasting errors and repurchase yield for a sample of firms on the JSE. The following equation is used to define the dividend forecasting error:

$$\boldsymbol{ERROR_{t,i}} = [\boldsymbol{\Delta DIV_{t,i}} - (\boldsymbol{\beta_{1,i}} + \boldsymbol{\beta_{2,i}EARN_{t,i}} + \boldsymbol{\beta_{3,i}DIV_{t-1,i}})]/\boldsymbol{MV_{t-1,i}}$$

where $\Delta DIV_{t,i}$ is the actual dividend change in year *t*, $EARN_{t,i}$ is the earnings in year *t*, $DIV_{t-1,i}$ is dividend level at year $t-1$, and $MV_{t-1,i}$ is the market value of equity in year $t-1$. The coefficients $\beta_{1,i}$ and $\beta_{2,i}$ are parameters of earnings and lagged dividends and they are estimates from (Lintner, 1956)'s traditional dividends model. In order to be included in the sample, each firm must have paid dividends continuously over the entire pre-forecasting period. In order to reduce the effect of extreme values, an observation is eliminated if the absolute value of the forecasting error is greater than five percent. *RYIELD* is the total expenditure on share repurchases at time *t* scaled by the market value of equity at time $t-1$. *DYIELD* is the total expenditure on dividends at time *t* scaled by the market value of equity at time $t-1$. *Log (M)* is the logarithm of the market value of equity. *ROA* is the operating income before depreciation scaled by the book value of the total assets. *σ(ROA)* is the standard deviation of *ROA* over the three years surrounding the firm-year observation. *NOPER* is the non-operating income before depreciation scaled by the book value of the total assets. *DEBT* is the book value of total long-term debt plus the book value of total short-term debt scaled by the book value of the total assets. Multiple regressions are used to estimate the coefficients and standard errors. First, year-by-year annual average coefficients are estimated, followed by estimate of time-series averages for each coefficient.

*significant at a 5% significance level
*significant at 1% significance level

	Dependent Variable: *ERROR*
	Pre-forecasting Period
	2002-2009
Intercept	0.3647
RYIELD	0.0035**
Log(MV)	-0.0929*
ROA	1.0818*
σ(ROA)	0.9169**
NOPER	-0.7557*
DEBT	0.2640*

Another interesting finding revealed in Table VI is that the average regression coefficient of *DEBT* is equal to 0.2640 and is statistically significant at a 5% significant level. This positive coefficient signifies that the firm's debt-to-total-asset ratio increases as the firm diverges from its dividend policy. This may suggest that the increase in dividend activity is financed by debt. This finding disputes the negative relationship between debt-asset ratio and dividend forecasting error that was discovered by Grullon and Michaely (2002). An earlier study by Jensen, Solberg and Zorn(1992) also found a negative relation between dividend payout and debt ratio.

CHAPTER V

5. Limitations, Summary and Conclusion

5.1. Limitations

This study only concentrates on cash dividends paid by firms and does not account for other possible forms of dividend payment such as stock dividend, special dividends, extra dividends, bond dividends and property dividends, if any, and thus the amount dividends is this study may be understated and may not be a true representative of total dividends paid in South Africa.

A second limitation of this paper is the difficulty of measuring repurchases. The original paper on which this study was based upon, Grullon and Michaely (2002), defines repurchases as the total expenditure on common and preferred shares less any reduction in the value of the net number of preferred shares outstanding. The data items on which repurchases are calculated from are readily available on the database from whichGrullon and Michaely (2002)sourced their data.SInce these items are not availableon I-Net Bridge, this study adoptsStephens and Weisbach(1998)'smethod of calculating repurchases, which is simply estimated by the decrease in the number of common shares outstanding times the closing price at the end of the calendar year. Jagannathan et al. (2000) do not favour this measure as it does not represent the true amount of repurchases because the declining amount of common shares outstanding is not offset by the increasing amount of common shares outstanding, even more so when the increase of common shares outstanding is as a result of exercise managerial stock options. The number shares reissued upon exercising stock options in hard to estimated, thus repurchases are always underestimated by this figure.

Although other studies measure repurchases by the number that was announced by the firms, this estimate has proven to be unreliable asthe figure that is announced by the firmis merely intentions on the firm's part and it are not obliged to abide by it, thus that figure could overestimate the measure of repurchases, Jagannathan et al. (2000).

The third limitation is that a few firms were omitted from the sample due to fact that some financial data itemswerenot available for them. Banks, insurance companies and utilities were removed from the sample for this reason and perhaps this possibly led to a sampling bias, thus the results in this research may not truly represent other sectors or industries.

Lastly the increase in the number proportion of firms repurchasing is South African was influenced by the fact that share repurchases were only introduced two years before the start of sample period. The sample period in this study is 2002-2009 and other studies that examine payout trends do so over longer periods. For example, Grullon and Michaely (2002)had a sample period of twenty-eight years (between 1972 and 2000). The short period studied in this paper obviously reduces the number of observations and perhaps subjecting this research to a small sample bias.

5.2. Areas of Future Research

The impact of tax on payout policies remains an interesting and fruitful area to study, more especially after the implementation of the anticipated tax reform where dividends would be taxable in South Africa. It would be interesting to observe if the tax reform will cause dividend payout to decline and whether this would cause repurchases to have a comparative advantage over dividends and if repurchases would become substitutes for dividends in the South African context.

5.3. Summary and Conclusion

The implementation of the Companies Amendment Act 37 of 1999 has made it possible for companies to implement open market stock repurchase programmes in South Africa, and since then, share repurchases have become an intricate part of payout policy for South African firms. The decision to distribute cash through dividends and share repurchases is motivated by various factors. This study observes the trends of payout polices in South Africa and the factors driving these trends. Even with the generous amount of research in this field, optimal payout policy and choice of wealth distribution to shareholders remainsa puzzle and is still controversial in finance literature.

This study uses a sample of 116 firms that are listed on the Johannesburg Securities Exchangefor the sample period 2002-2009. Unlike Barclay and Smith(1988), Allen and Michaely (2002) and Grullon and Michaely (2002) who confirmed that dividends was the most dominant form of payout for the first half of the authors sample period, this study finds dividend more dominant than repurchase for the entire sample period.

As in previous studies, it was found that the aggregate rand expenditure on repurchases had increased and so had the aggregate rand expenditure on dividends, implying that total payout ratio also exhibited an increasing trend throughout the sample period. These results still stand even after controlling for the size effect. Unlike Allen and Michaely (2002)andGrullon and Michaely (2002), who found that the reduction in the aggregate dollar expenditure on dividends financed the increasing aggregate dollar expenditures on repurchase, this study finds that both dividends and repurchase aggregate rand expenditure increase during the sample period.Renneboog and Trojanowski(2007)also found an increasing trend in the dividend payout ratio in the UK between 1992 and 1998.

The paper further studies whether firm characteristics had any play in the observed payout trends. It is revealed that firms that pay dividends are bigger, older with stable earnings because dividend policies are often conservative because of their signalling ability. It is also found that

majority of the firms that did not have a payout policy in place were younger and majority of the paid dividends or used a policy that paid both dividends and repurchased where older. After controlling for the size effect, it is found that mature firms demonstrated a positive relationship between share repurchases and earnings volatility, dissimilar to Grullon and Michaely (2002)and Brockman et al.(2008)'s findings who found that it was the younger firms that had a positive relationship between earnings volatility and repurchases.

It is shown that the probability of initiating payout through repurchases is higher than the probability of initiating through dividends, the probability of initiating via dividends in not declining as shown in Grullon and Michaely (2002). In fact, the probability of firms initiating via dividends is increasing for most parts of the sample period, although at a lower magnitude than repurchases. Most companies paying dividends, whether using a dividend-only policy or repurchase-and-dividend policy will continue using those policies.

The study finds a positive relationship between the dividend forecastingerrors and repurchase activity even when firm characteristics have been controlled for. The average regression coefficient of *RYIELD* is 0.0035 and is significant at 1% significance level. This implies that the forecasting error increases by 0.0035 for every marginal increase repurchase activity thus confirming that indeed repurchases and dividends are complimentary payout forms.

There is evidence suggesting that larger firms have smaller dividend forecasting errors and this finding is parallel to the observation that larger firms tend to have a more conservative dividend policy and are more likely to have stable payout ratios through the years. This positive relationship between dividend forecasting error and the debt-to-total asset ratioimplying that the firm's debt-to-total asset ratio increases as the firm diverges from its dividend policy. This may suggest that the increase in dividend activity is financed by debt.

Overall this study tests the two Propositions put forth. Proposition I is confirmed and it is revealed that use of share repurchases has increased substantially in South Africa, although this increase was not financed by the decrease in dividends. Proposition II is rejected, and there is

sufficient evidence that repurchases and dividends are certainly not substitutes in South Africa, in fact the use of dividends and repurchases have increased and most firms have changed their payout out policies to one that pays both repurchases and dividends, thus making the two complements.

6. References

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