UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

GORDON INSTITUTE
OF BUSINESS SCIENCE
University of Pretoria

Research Proposal

A consideration of the retention ratio and the impact on selected management and investment performance metrics

Debbie Law
Student Number: 28580347

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

11 November 2009

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

GORDON INSTITUTE
OF BUSINESS SCIENCE
University of Pretoria

Research Proposal

A consideration of the retention ratio and the impact on selected management and investment performance metrics

Debbie Law
Student Number: 28580347

A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

11 November 2009

gets retained within a business from earnings, and the amount of income which gets distributed to investors, are two contentious issues. They would possibly be less contentious if there was conclusive proof that managers were better allocators of capital generated through income retained than investors. Against this backdrop, this study examines the question of whether correlations exist between the amount of income retained by managers to fund capital and various financial management and investment performance metrics.

The objective of the study is to test various hypotheses for relationships between the retention ratio and various management and investment performance metrics. The hypotheses includes testing whether dividends are a significant contributor to investor returns, whether there is a correlation between the retention ratio and the share price, between the retention ratio and total investor returns and between the retention ratio and return on equity. A last hypothesis is to test whether there is a correlation between total returns to investors and return on equity.

The results of the study did not support any of the hypotheses and the indication is that no firm or clear relationship between the retention ratio and various performance metrics exists for the sample of South African firms over the survey period, namely share price, total investor returns and return on equity. The study could therefore not conclude whether managers were either good or poor allocators of capital generated through income retained. The study could also not determine whether capital retained did impact on future performance measures of a company or not.

This outcome of the study was surprising. It was anticipated that there would be either positive correlations supporting managersôability to allocate retained income or negative correlations refuting managersôability to allocated retained income. This, however, was not evident. The literature reviewed was clear regarding the mystery surrounding dividend distributions and its role within

vided on the drivers of the behaviour. It was ave been able to provide some explanation for dividends in a South African mining industry context.

The reasons for the outcome are varied but include the questionable credibility of the data with regards to the size of the sample and the period of study. Therefore, no certain conclusions could be made about managersô ability to allocate capital generated through retained income and the recommendation is for further research to be conducted with a larger sample over a longer period of study before the results are given undue significance.

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Debbie Law:_____ Date:_____

First and foremost I would like to thank Adrian Saville, my supervisor and true north. Thank you for enabling clarity of thought by asking the right questions at the right times and for steering me through some rough rides. Your support and exceptional response times are sincerely appreciated.

I would also like to thank Merle Werbeloff, my statistician. Thank you for the long, late nights and for not letting go. Thank you for guiding me to look for the needle in the haystack.

I would also like to thank my ñstudy buddyò Michelle, for walking on this road with me and for keeping me sane. You helped keep the pressure on and showed me that a bit of fun while getting the job done never killed anyone.

Thank you to my family and friends for pretending to listen to all my MBA renditions of cases and theories gone by. To my partner Johan, thank you for all the fetching, carrying, dinners, shopping, patience and good old TLC (tender loving care) when I needed it most. There is no doubt in my mind that without your support, the journey would have been a great deal rockier. To my beautiful daughters Hannah and Megan, thank you for hanging in there and for being so generous with your time.

Last, but not least, thank you Daddy. Thank you for all the phone calls, attentive listening, care and support ï you and Mommy were wonderful.

BLE OF CONTENTS

UCTION

1.1 Research Title

A consideration of the retention ratio and its impact on selected management and investment performance metrics.

1.2 Research Problem

A key principle of corporate finance is that managers should maximise investor wealth as reflected in the share price (Baker, Powell and Veit, 2002). There are many forms of investment, and in the case of listed companies, the return on investment or value for the investor manifests as cash flows from the company to the investor in the form of dividends and through the capital gain in the share price (Fama and French, 2007).

Capital is a limited resource and the efficient allocation thereof is arguably the primary concern of investors, as well as company managers. Managers of companies need to ensure that they are able to attract and retain investorsôfunds. If they are unable to give investors what they want and expect, they run the risk of investors withdrawing their funds (selling their shares) and investing with a company which can deliver the returns they seek. But in what form do investors want their returns? Do they want dividends so that they can decide what to do with the income stream? Or do investors want capital gains through share price growth? Why do some companies pay dividends and others not? In short, who makes the best use of the capital produced through income retained - managers or investors? The consideration of quantum around dividend streams and growth in share price delivered through retained income therefore is an important consideration for investors and, by implication, managers.

hat dividends are the primary decision variable s made by a company will consider the impact on dividends. He argued that managers target a long-term pay-out ratio when determining dividend policy and dividends are tied to long-term sustainable growth earnings and are smoothed from year to year ï all other business decisions are secondary. Miller and Modigliani (1961), in their publication dealing with their irrelevance proposition, disagreed with Lintner (1956) and started a debate which continues today. Specifically, Miller and Modigliani (1961) showed that dividends are irrelevant when determining the value of a company and that values are determined by the companyôs earning power and business risk. Therefore, a company is said to have value even if no dividends are paid, and no matter how much care and consideration is taken when deciding on a dividend policy, the dividend policy has no impact on investor wealth (Miller and Modigliani, 1961).

Lintner (1962) and others (DeAngelo and DeAngelo, 2006) argued that dividends do play an important role in the consideration of a companyôs value. Gordon (1962) stated that investors buy future dividend flows and Brav, Graham, Harvey and Michaely (2005) showed that managers are reluctant to cut dividends and would rather increase gearing than not maintain dividends. Lintner (1962) showed that companies which pay a higher dividend have lower discount rates for future cash flows and hence have a higher value. Myers (1984) stated that, while it may not be explicable, investors definitely react to dividend announcements. In his study of companies in the United Kingdom (UK), Rees (1997) determined that earnings distributed as dividends have a bigger impact on company value than earnings retained within a company. By contrast, Omran and Pointon (2003) showed in their study of Egyptian companies that retentions were more significant than dividends when determining the share price of companies whose shares were actively traded. Omran and Pointon (2003) showed that whilst dividends were a positive influence on the share price, the retention coefficient was three times higher than that of the dividend distribution. For shares that

d, the companiesô book values were the main
ice.

Despite the seeming importance of dividends, Blockôs (2008) findings showed that since 1958 the dividend yield on the Standard and Poorôs (S&P) 500 Index has been lower than the yield on government bonds, and in the last decade more significantly so. Block (2008) further showed a dividend yield of the companies listed on the S&P 500 Index of only 1.8 percent in 2007, as opposed to an historical norm of between 3 percent and 4 percent, thereby indicating that the dividend yield is lower than historically and contracting. Asem (2009) also questioned the significance of dividends and showed that companies that do not pay dividends generate higher momentum profits than those who pay dividends. Momentum profits are continued returns which are generated from shares which have performed well in the past (Jegadeesh and Titman, 1993). Abnormal returns which are generated in the first year disappear in the following two years, and therefore Jegadeesh and Titman (1993) suggested that buying winners and selling losers would generate positive returns. Given the above, it appears that the significance of dividends and the role they play as a component of returns is questionable.

There exists another strong perception of dividends and their significance. There are scholars who believe that, due to the asymmetry of information between investors and managers, dividends are used to enable managers to communicate information to investors (John and Williams, 1985; Asem, 2009). Another school of thought holds that dividends are only paid by companies if there is an expectation by investors to receive dividends (Baker and Wurgler, 2004).

Managers of listed companies are faced with two extreme options, namely:

me (100 percent retention ratio) and not pay out
d reinvest the income back into the company as capital to generate a positive return on equity
- Retain any income as capital (0 percent retention ratio), pay all earnings back to investors and allow them to decide what to do with the capital

There is also a third option, which would be any combination of retention and distribution.

Following from the above discussion, it seems that the role dividends play in the creation of wealth for investors remains uncertain. Despite extensive analysis to attempt to explain the pervasive presence of dividends, it remains a key question in corporate finance that demands answering (Baker, Powell and Veit, 2002). Therefore, there is often a battle between management and investors over the distribution of the company's profits: investors often place managers under pressure to distribute more rather than less of the profits (Charles, 2008). The implications of this in the long run is that the debt-to-capital ratio will need to be increased to ensure the company's long-term existence, and the increased ratio will have an impact on future cash flows and dividends (Charles, 2008). The more averse a company is to debt, the more internal funding it will require to sustain the company's existence in the long term, and hence the higher the retention ratio and the lower the dividend payouts will be (Charles, 2008).

Lintner (1956), Brav *et al.,* (2005) and others indicated that maintaining the dividend level is a priority and that managers try to avoid dividend cuts except in extraordinary circumstances. However, increases in payout policy are a second-order concern and are only considered once investment and liquidity needs are met (Brav *et al.*, 2005).

lowing obvious question whether dividends do given this constraint, who is the better allocator of capital generated through retained income, the investor or the manager?

1.3 Research Aim

Miller and Modigliani (1961) question whether companies with high dividend yields consistently sell at a premium. While they never actually answer this question, many others have sought clarity on the matter.

The first objective of this research is to determine what role dividends play and whether there is a relationship between the income that is repaid to investors as dividends and changes in the share price of South African companies and, in particular, those listed under the resources sector of the Johannesburg Stock Exchange (JSE).

The second objective is to determine whether investors or managers are better allocators of capital generated through retained income. In short, is there a relationship between the retention ratio and capital growth in the share price and, if so, is there a relationship between a companyôs retention ratio and the profitability of the companies in the same sector?

To attempt to answer the questions surrounding the role of dividends, the study will aim to measure the total return to investors and whether retentions create or destroy value for investors. To achieve this, the period 2002-2008 will be surveyed. The reason for this is that there is no significant difference between a ten-year forecasting window and a five-year forecasting window (Arnott and Asness, 2003). The five-year window sacrifices some economic relevance but it is more relevant to an investorôs horizon than the ten-year window (Arnott and Asness, 2003). From this period the study will look at retention ratios and then

ution they make to future return on equity (ROE) e study will also consider the trend of dividend contribution for the companies which form part of the study over the five-year period being reviewed. If the dividend contribution is less than the capital growth, or greater than capital growth but declining, it can be inferred that investors seem to be less concerned with dividends as a contributor to total return than capital gains generated through the successful application by managers of retained income.

To attempt to answer the questions surrounding who is the better allocator of capital generated through retained incomes, the study will determine if there is a positive correlation between the retention ratio and the investorôs total return in subsequent years. In this case, one would expect there to be an inverse relationship between the retention ratio and the return on investment if managers are poor allocators of capital generated through retained incomes. The same applies for the relationship between the retention ratio and the profitability of the company as measured by the ROE, as one can then infer that managers are indeed effective allocators of capital generated through retained income and *vice versa*.

This research report will test for the existence of the abovementioned correlations by considering the total returns to investors, retention ratios and return on equity for companies listed under the resource mining sector of the JSE between 2002 and 2007.

Omaran and Pointon (2003) conducted a similar study on Egyptian companies and found that the outcomes around the importance of the retention ratio differed significantly between companies whose shares were actively traded as opposed to those that are less actively traded. The reason why this is significant is because South Africa is also a developing economy and therefore the result of the study may display a similar distinction. As a result, this study will also investigate whether

tween liquid and illiquid companies listed on the JSE.

This study has been arranged starting with a review of relevant literature sources to create a framework for the study in Chapter 2. Chapter 3 considers the hypotheses which the study addresses and Chapter 4 presents the research method used for the study. In Chapter 5 the results of the study are recorded and Chapter 6 presents a discussion of the results. The final chapter, Chapter 7, summarises the study's objectives and conclusions. Chapter 7 also discusses suggestions for further studies.

ANT THEORY BASE

2.1 Introduction

The controversy around dividends was brought to the fore by Miller and Modigliani (1961), who published their suggestions on dividends almost fifty years ago. From this controversial proof they named the dividend irrelevance theorem, which states that whether a company pays dividends or not is irrelevant. Instead, their argument goes, value is created by a companyøs earning power and business risk and that investment policy is the sole determinant of value. This was in direct contrast to the work published by Lintner (1956) who stated that dividend policy was a first order consideration for business and that payout policies matter.

Since 1961, there have been a number of attempts to decide which of the two views are correct, but the question around dividends remains one of the biggest corporate finance mysteries. Against this backdrop, the remainder of this chapter is dedicated to the review of a number of aspects which form part of the so-called ñdividend puzzleò (Black 1976 cited in Mann, 1989) and are pertinent in this study.

2.2 Retention Ratios

The retention ratio of a company is the companyøs propensity to save (Charles, 2008). If earnings are not reinvested back into a company, the capital and earnings potential will remain the same and therefore earning and dividends will not be able to grow over time (Bodie, Kane and Marcus, 2009).

A companyøs asset growth needs to be funded, either through internally generated resources or externally through equity or debt. Internal funding requires that less dividend income be paid to investors and by implication, a need for a higher retention ratio. Myers (1984) referred

order theory and said that companies set s (and by implication retention ratios) so that the company can fund normal rates of equity investments internally. Hence, companies with higher retention ratios are associated with greater growth plans than those with lower retention ratios. Higher retention ratios also are associated with lower gearing (Myers, 1984) and investment (if funded by retained income as opposed to borrowings). The pecking order theory has been supported by Fama and French (2002b). According to Fama and French (2002a) more profitable, mature (DeAngelo, DeAngelo and Stulz, 2006) companies with less investment opportunities have higher payout ratios and lower retention ratios than newer companies with high investment requirements and higher retention ratios. Often these newer companies do not have sufficient equity to raise funds and therefore need to rely on retained earnings to fund their investments (DeAngelo *et al.*, 2006).

Charles (2008) stated that if the debt-to-capital ratio increases, companies need to cut back on dividends, thereby increasing the retention ratio. However, he warned that companies which are already highly indebted and in an environment of increasing interest rates cannot indefinitely counterbalance declining cash flows by increasing the retention ratio, as the ratio has a limit and cannot go greater than 100 percent (Charles, 2008). Once this limit has been achieved, the company will face a funding quandary.

However, Omran and Pointon (2003) suggest that companies with greater financial risk might need to pay out a higher dividend to their investors to compensate for the risk.

2.3 Company Performance

There are a number of measures which can be used to assess a company's performance. For the purpose of this study, return on

ed. This accounting method is widely used as a performances and as an indication as to what managers are able to do for the capital which investors have invested in the company. ROE measures the companyôs performance in terms of its profitability by showing how much profit has been generated from the capital investorsô contributions. A change in ROE will indicate whether the investment decisions made by managers have been a better or worse application of investorsôresources.

The decision surrounding the application of the funds that get reinvested into a company, vests with its managers. Jensen (1986) developed the agency theory which suggests that managers may be driven by alternative motives to those of investors. This potential conflict suggests that there is no guarantee that managers will apply capital to projects that create wealth for investors in stead of building lazy corporate empires (Jensen, 1986). If the retention of earnings and the subsequent increase in assets does not generate increased returns for investors, there would be no motivation for them to leave their capital generated through retained income with the company. Investors would insist that their capital should rather be paid out to them so that they can invest in companies that will generate greater returns for them. As long as the return on equity is greater than the cost of equity, investors will be motivated to leave their capital generated through retained income with the company, but as soon as this changes, the motivation disappears and investors would elect to have earnings paid out to them (Bodie *et al.*, 2009). The cost of equity is a function of the risk free sum, the equity risk premium and the share beta which is the systematic risk of a share (Bodie *et al.*, 2009).

ROE is used to measure the present value of a company from its existing opportunities (Aivazian, Booth and Clearly, 2003). Aivazian *et al.* (2003) show that dividends are positively related to ROE and market-to-book ratios. This study will attempt to determine whether it holds that ROE and market-to-book ratios positively relate to dividends.

that any number of variables impact on a This studyôs objective is to determine whether a companyôs retention ratio is one of them.

Latané and Tuttle (1967) show that there is a positive correlation between earnings, dividends and cash flow from future capital gains in the following period (*t* +1). Latané and Tuttle (1967) also show that capitalisation rates employing reported earnings (retention ratios) are more closely associated with capital gains than cash flows.

2.4 Price-to-Book

The price-to-book (P/B) ratio is commonly used by investors to measure what the equity of a company is worth (Penman, 2007), because the value calculated from the balance sheet is based on book values as opposed to market value or company net worth.

The value of a company is measured in terms of the value of its debt and the value of its equity (Penman, 2007). The difference between the assets and the liabilities is known as the net worth or shareholdersô equity (Bodie *et al.*, 2009). Penman (2007) refers to this difference as the value of the companyôs equity. The measurement of a companyôs debt is easily determined and measured by its balance sheet. The value of the companyôs assets is not as simple however. The balance sheet measures the book value of equity (Penman, 2007) simply because accountants do not or cannot measure the intrinsic value (Penman, 2007).

According to Penman (2007), the difference between the intrinsic value of equity and the book value of equity, is the intrinsic premium and is measured in terms of the difference between the market price of the equity and the book value of the equity (Penman, 2007). This common measurement is referred to as the P/B ratio and shows the value that the market sees in the companyôs assets which are not reflected in the

n, 2007). If a shareôs P/B is negative, then the
count (Penman, 2007).

2.5 Total Returns

Total returns are used by investors to determine how effective their investment choice has been. The total return is calculated by adding capital growth and cash flow from the shares during a particular period. The old adage, high risk high return, applies and higher returns (equity premiums) are expected for holding higher risk shares. The equity premium is the difference between the return on shares and the risk free interest rate (Fama and French, 2002a). As seen above (Myers, 1984), companies with higher retention ratios are expected to be growing and therefore one would expect there to be a significant increase in the capital gain of the share price. The study will determine whether this is indeed the case, and if so, how long it takes for that return to realise. Alternatively it will show that current investors are not prepared to take the risk of possible future capital benefits.

Valuation theory states that share price returns are based on three variables: the book-to-market equity ratio, expected profitability and expected investment return (Fama and French, 2006). But Fama and French (2002a) as well as Vivian (2007) in his study of the UK equity premium, calculated the return on share price by adding the dividend yield and the average rate of capital gain.

Capital gain (or price returns) can be broken up into two components: change in earnings and change in rating (Busetti, 2009). Earnings are the net profit after tax which a company produces and is often expressed in cents per share (Busetti, 2009). A share rating is the ratio of a shareôs price to its earnings per share (Bodie *et al.*, 2009), or a measure of how the companyôs earnings are valued (Busetti, 2009). Share ratings differ from one share to the next based on different market expectations of the future growth, risk, volatility of future

nflation and general sentiment about the share

Fama and French (2007) also differentiated between value stocks (those with a low price-to-book value) and growth stocks (those with a high price-to-book value). According to Fama and French (2007), during the period of 1964-2006 the contribution of dividends to average returns was higher for value stocks than for growth stocks. Prior to 1963, there was no significant difference. Fama and French (2007) also differentiated between growth and value companies. Growth companies tend to be fast growing and highly profitable whilst value companies grow at a slower rate and are not as profitable (Fama and French, 2007). Therefore, growth companies are associated with lower expected returns, whilst value companies are associated with higher expected returns (Fama and French, 2007).

Bodie *et al.* (2009) stated that if a company, and in particular its managers, cannot make effective use of the earnings generated by the existing assets, then the earnings should be paid out to the investors so that they can invest them in other companies whose managers are able to generate the desired returns. In the mid 1950s, Walter (1956) found that retentions influenced share prices through their effect on future dividends, as reinvestment supposedly generated future earnings growth which in turn implied future dividend growth for investors. The payout to shareholders could take the form of dividends or share buybacks which have gained in popularity during the last two decades. Jensen, Solberg and Zorn (1992) found that investment and growth are negatively related to dividends and that greater investment and growth opportunities suggest lower dividends. This may no longer be the case as a result of factors such as the agency theory.

Arnott and Asness (2003) stated that historical evidence suggests that expected future earnings growth is fastest when current payout ratios are high, and are slower when they are low. Therefore, Arnott and

ed that substantial reinvestment of earnings will ure earnings growth and that higher dividends are what drives future earnings growth. Arnott and Asness (2003) attributed this to signalling and claimed that managers who are positive about the future are likely to pay out more dividends than those who are less optimistic. This contradicts the main reason for retentions and questions whether reinvestment is indeed necessary to generate future earnings growth. In fact, Easterbrook (2001) stated that higher dividends help companies in capital markets to raise funds, which results in cost effective monitoring of managers and the application of the borrowed funds.

2.6 The Role of Dividends

ñThe harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just donôt fit togetherò (Black, 1976 cited in Mann, 1989 and Baker *et al.*, 2002, p.242) and despite a great number of studies, researchers still do not have the answer to this dividend puzzle (Baker *et al.*, 2002). Baker *et al.* (2002) stated that we have moved from not having enough suggestions to solving the dividend puzzle to having too many. Why do investors want dividends and why do companies pay them? The rest of this section considers the various suggestions that researchers have offered as possible solutions to the ñdividend puzzleò.

According to Gordon (1962), the value of a company is a function of its expected future income. The future income, in turn, is a function of the companyôs investment to obtain an expression in which a share price is the dependant variable (Gordon, 1962). Gordon (1962) found that an investor buys a dividend expectation when he buys a share.

Omran and Pointon (2003) suggested that a companyôs dividend policy is a significant factor when it comes to corporate financial management as it potentially has implications on share price, the financing of internal

Myers (1984) and Dong, Robinson and Veld that investors are not impartial to dividends. Investors in companies like Anglo American, who have recently for the first time since World War II not paid a dividend and whose share price has reflected the negative feedback from the market, may agree. The passing of dividends by traditional dividend paying companies resulted in major protests from shareholders as managers watched helplessly as their share price plummeted. Many of these companiesô share prices recovered. According to Jegadeesh and Titman (2001), the recovery may be due to a correction of a marketôs over reaction to new information, being the passing of the dividend, but it is clear that investors still have exceptionally strong views about dividends.

Dividend decisions are related to two other major corporate decisions, namely investment decisions and funding decisions (Singhania, 2005). According to Singhania (2005), dividend decisions are made in light of investment opportunities for the company and alternate funding options (such as price and availability) ï she does not list company value amongst dividend decision considerations.

Easterbrook (1984) suggested that companies pay dividends to reduce the agency costs between managers and investors. He argued that by paying dividends, managers are forced to raise funds in the capital markets where they are placed under the scrutiny of investment professionals and lenders, and investors take comfort from the increased monitoring. This closely ties in to Jensenôs (1986) findings which suggest that companies pay dividends to reduce the amount of free cash flow which is available to, and placed at, managersô discretion. Arnott and Asness (2003) also found that low payouts came with inefficient empire building by managers and funding of ñless-than-ideal projects and investmentsò (Arnott and Asness, 2003, p84). Another study which relates to this suggestion was conducted by DeAngelo *et al.* (2006). According to their life-cycle theory, dividend policies are driven by a companyôs need to distribute free cash flow

. Whilst Jensen (1986) may argue in terms of the less surplus free cash flow managers have access to the better, it is debatable whether, in a South African tax environment, dividend distribution is the most tax efficient way for a company to distribute excess cash.

DeAngelo *et al.* (2006) suggested that one of the factors that impacts on dividend payments is the particular life cycle phase a business is in. They suggested that more mature businesses that possibly have fewer attractive investment opportunities are more likely to pay dividends, as opposed to younger companies who possibly have more investment opportunities and limited resources, and hence retention dominates distribution (DeAngelo *et al.*, 2006). The probability of a company paying dividends increases relative to the amount of earned equity, as opposed to contributed equity, in the capital structure (DeAngelo *et al.*, 2006).

Brav *et al.* (2005) showed that managers will pass up a positive net present value investment project before cutting dividends. This implies that dividends are not the residual cash flow consideration suggested by Miller and Modigliani (1961) and (Brav, 2005). Retaining historical dividends is on a par with initiating new investments and repurchases are only considered after exploiting possible investment opportunities (Brav *et al.*, 2005), indicating that repurchases are a residual cash consideration as opposed to dividend maintenance, which seems to be almost untouchable (Brav *et al.*, 2005). Brav *et al.* (2005) further determined that the majority of managers who took part in their study would rather raise funds externally than cut dividends and that the cost of cutting dividends is higher than the cost of raising external funds.

Miller and Modigliani (1961) proposed that a company has value even if it does not pay out any dividends. Black (1976 cited by DeAngelo and DeAngelo, 2006) built on the proposal and suggested that due to the fact that dividends are taxed and capital gains are not taxed until

which does not pay dividends should be more dividual investors than one which does pay dividends. DeAngelo and DeAngelo (2006) passionately disagreed with these findings and stated that payout policies are not irrelevant and that investment policy is not the sole determinant of value. DeAngelo and DeAngelo (2006) suggested that once Miller and Modiglianiôs (1961) unrealistic assumptions are relaxed to allow for retention, a company can reduce its value by paying out less than the full present value of free cash flow and therefore payout policy does matter and does affect investorsôwealth.

DeAngelo and DeAngelo (2006) further proposed that if Blackôs (1976 cited by DeAngelo and DeAngelo, 2006) suggestion to eliminate payouts was actually implemented, they would destroy investorsô wealth. DeAngelo and DeAngelo (2006) stated that equity is only valuable to the extent that it offers a legitimate expectation of future payouts and hence, at some stage, the incentive to pay cash will supercede the need to build financial slack as suggested by Myers (1984) and investment opportunities will not be as abundant as in the early stages of a companyôs cycle (DeAngelo *et al.*, 2006). DeAngelo and DeAngelo (2006) called for the consideration of a trade-off theory, in which the ideal time for and profile of payouts balance, flotation costs and other advantages of internal capital against agency costs, which may creep in as retained earnings accumulate and investment opportunities decrease. This call seems to have been heeded as Denis and Osobov (2008) found that companies trade off flotation cost savings against the agency costs of cash retention.

Denis and Osobov (2008) also found that the extent to which there is a decline in the number of dividend paying companies is driven primarily by the failure of newly listed companies to initiate dividends when expected to do so.

(2004) catering theory suggests another role ccording to this theory, managers pay dividends when the market puts a premium on dividend payers and then *vice versa* (Baker and Wurgler, 2004). But Denis and Osobov (2008) could not find support for this theory outside the United States (US). Rather, they found support for DeAngeloôs *et al.* (2006) life-cycle theory.

According to Mann (1989), prior to Miller and Modigliani (1961) it was believed that companies could affect the market value of their shares by altering their dividend policies. This gave rise to Gordonôs (1959) bird-in-the-hand argument where he suggested that investors prefer to receive dividends today which are certain, rather than wait for future capital gains which are not.

In Omran and Pointonôs (2003) study, they showed that retention ratios are more significant in determining value in actively traded stocks than dividends. However, Rees (1997) stated that in the UK, a developed economy, dividends have a greater impact on value than retained earnings. Aivazian *et al.* (2003) conducted a study on a sample of companies from eight developing countries to determine whether they had different dividend policies to those in the US. The study revealed that although developing marketsôdividend behaviour is similar to those in the US in that they are driven by profitability, debt and market-to-book ratios, they displayed different levels of sensitivity to these drivers (Aivazian *et al.*, 2003).

Following from the discussion above, despite the fact that a significant amount of research has been done on dividends, there is still no agreement of whether they play a role in determining the value of a company and if so, to what extent and under which circumstances. Research done by Rees (1997) showed that dividends play a role in determining the share price, but Omran and Pointon (2003) showed that dividends only play a role when the companyôs shares are not actively traded. Again, there is no conclusive answer.

l Signals

ng theories, managers know more about companies than investors, and they use dividends to convey certain messages to the market (Bhattacharya, 1979, Miller and Rock, 1985; John and Williams, 1985; Dong *et al.*, 2005). These authors suggested that managers know more about the company than the investors do, and as such, use dividends to signal private information to investors. Whilst dividend signalling does not contribute directly to the aim of the study, it is important to keep in mind as potentially one of the major roles of dividends.

Managers will want to signal information when they believe that the share price is an undervalued reflection of the true value of the company (Miller and Rock, 1985; John and Williams, 1985; Dong *et al*, 2005). Thus, companies that increase or decrease dividends should experience positive or negative movements in their share price. These authors (Miller and Rock, 1985; John and Williams, 1985; Dong *et al.*, 2005) reported that an increased dividend can serve as a credible signal when other companies that do not have the same positive internal information, cannot follow suit without increasing the risk of having to reduce dividends in the near future.

According to Baker *et al.* (2002), however, empirical tests involving signalling explanations have offered mixed results. Holder, Langrehr and Hexter (1998) stated that there are companies where non-investor stakeholders, such as customers and employees, have implicit (or explicit in the form of warranties and guarantees) claims on companies, and there is an expectation of companies to deliver continued parts and service in the future (such as a vehicle manufacturer for example). According to Holder *et al.* (1998), companies with lower dividend-payout ratios are better able to meet these claims, and hence companies with high levels of implicit claims should have lower

o send a signal to the market that the company
se claims.

According to Charles (2008), empirical evidence shows that the more debt a company has, the more inclined it is to reduce its dividends. Markets may therefore interpret a reduction in dividend-payout as a signal of cash flow concerns.

Not everyone is convinced of the signalling power of dividends. Findings from Denis and Obsobov (2008) and DeAngelo *et al.* (2006) cast doubts on dividends as a form of communication between the company and the market. DeAngelo, DeAngelo and Skinner (2004) also reported that the number of companies paying dividends is decreasing and that dividend payment is increasingly concentrated among a small number of large companies.

Asem (2009) showed that momentum profits are higher for companies that do not pay dividends than for those that do. This may support the theory that higher retentions and subsequent increased assets generate future growth in profits, but Asem (2009) believes that dividend maintenance conveys different information for winner and loser companies. If winner companies maintain dividend payments, then markets seem to interpret it as an indication that the good times are not going to last and start shorting these companies. Whereas, if loser companies maintain their dividends, markets interpret this as an indication that bad times are not going to last (Asem, 2009). As noted earlier, Arnott and Asness (2003) showed that dividends drive higher earnings growth and suggested that this is due to managers signalling their earnings expectations through dividends. Managers have private information that causes them to pay out a greater share of earnings if they are confident about future earnings and to pay out less when they are less enthusiastic about future earnings (Arnott and Asness, 2003).

nce of information does not appear to be done gers deny that they pay dividends as a costly signal to convey the companyôs true worth or to separate it from its competitors (Brav *et al.*, 2005).

Howat, Zuber, Gandar and Lamb (2009) accepted that dividend changes cause market reactions. They went on to highlight two main theories which explain why companies adopt policies that pay dividends (Howat *et al.*, 2009). The first is that dividends provide a certain current return, while capital gains provide an uncertain future return and therefore some investors prefer the certain current return as opposed to an uncertain future return offered by capital gains (Howat *et al.*, 2009). Dividend and capital gains attract different taxes and investors may then sort themselves amongst companies that do pay dividends and those which do not (Howat *et al.*, 2009). Howat *et al*. (2009) therefore suggested that dividends do not necessarily convey information but rather create a clientele which are drawn to companies which pay dividends to avoid uncertainty.

The second theory which Howat *et al.* (2009) proposed was that dividends contain information, and that managers could use dividends to communicate private information to investors. An increase (decrease) in dividends could signal future increases (decreases) in profits (Howat *et al.*, 2009). Howat *et al.* (2009) found evidence which supported the latter theory.

Once again, other than the fact the investors react to dividends, researchers cannot agree on whether one of the reasons for their reaction is related to private information which may be conveyed through dividends.

006), in their study of the Bank of Montrealôs dividend policy, suggested that investorsôperceptions of dividends has changed over time, seemingly accepting smaller dividend payouts in exchange for the reinvestment of funds into the company. Prior to World War II, dividend changes were highly variable but have since become more stable and have been characterised by gradual increases, with capital gains becoming a greater contributor to investor returns (Foerster and Sapp, 2006). Block (2008) supports these findings, although he focuses on the repurchase of shares as a fair exchange for decreased dividends as opposed to reinvestment.

Denis and Obsobov (2008) conducted a study over a shorter period of time than Block (2008) and included other countries in addition to the US. They found that there have only been slight changes in corporate dividend polices and say that these could be attributed to newly listed companies who were not paying dividends as early as expected. Therefore they (Denis and Obsobov, 2008) maintain that there have not been significant changes in dividend policy outside of the US.

Fama and French (2001) determined that the number of companies that pay dividends decreased from 1978 to 1998 as a result of the change in characteristics of new listed companies and that companies are paying dividends less often.

Also, DeAngelo *et al.* (2004) are careful to note that Fama and French (2001) refer to a reduction in the number of dividend paying companies and not to the disappearance of dividends. DeAngelo *et al.* (2004) acknowledged that there have been changes in dividend practices, but showed that dividends paid between 1978 and 2000 had actually increased. They find that the main reasons for this are that the reduction in dividend payers is happening amongst companies that paid very small dividends, and that increased real dividends from top

anies more than make up for the loss of aller dividend paying companies who appear to be dropping off (DeAngelo *et al.*, 2004). DeAngelo *et al.* (2004) found that this increase in aggregate dividend payments can be attributed to the increase in real earnings, which seems to be consistent with Lintnerôs (1956) findings, suggesting that dividend decisions are a function of earnings.

DeAngelo *et al.* (2004) also showed that in 1978, only 306 companies had negative earnings and in 2000, 2 144 companies had negative earnings, which in line with Lintnerôs (1956) findings, further explains the reduction in the number of dividend paying companies.

Even though the aggregate dividend payment has increased, DeAngelo *et al.* (2004) do acknowledge that, as suggested by Fama and French (2001a), there has been radical transformation in corporate dividend practices ï dividends do not seem to be at the centre stage of newer companies. According to Brav *et al.* (2005), if managers had a choice they would not pay as many dividends as they currently do. It appears as if dividend payments hold historical dividend paying companiesô share price and managers at ransom. Like Fama and French (2001a), DeAngelo *et al.* (2004) found that 100 percent of companies with earnings in excess of $1 billion paid dividends in 1978, but in 2000, only 85.7 percent of these companies paid dividends.

Another trend is the shrinking of dividend yields (Baker *et al.*, 2002). Between 1980 and 2000 the dividend yield of the S&P 500 companies dropped from 5.4 percent to 1.1 percent (Baker *et al.*, 2002). Block (2008) showed similar results where dividend yields shrank to 1.8 percent in 2007 compared to the 5.3 percent achieved much earlier from 1949 to 1951.

Are dividends still relevant? Baker and Wurgler (2004) suggested that dividends are highly relevant to share prices, but in different directions

) Asem, 2009). Block (2008) suggested that ...re here to stay and that investors are getting used to the concept of total returns.

Brav *et al.* (2005) found that, as per Lintner's (1956) findings, companies still make dividend decisions conservatively, but that the importance of targeting the payout ratio has declined. Non dividend-payers are reluctant to start paying dividends because once they do, they would need to continue operating in the inflexible world of dividend-payers (Brav *et al.*, 2005). In fact, Brav *et al.* (2005) also showed that dividend paying companies would prefer to, if they could start again, to not pay as many dividends as they currently do.

Change has not only impacted on dividends, but also on special dividends. In a study done by DeAngelo and DeAngelo (2000), it was determined that where companies used to pay special dividends almost as predictably as they used to pay dividends, this has changed over the past four decades. It would seem plausible to think that special dividends have been replaced by share repurchases, but DeAngelo and DeAngelo (2000) find little support for this. They suggest that due to the regularity with which special dividends were being paid, there was little reason to differentiate between specials and regulars, and that specials became absorbed into regulars that then paid out more often (DeAngelo and DeAngelo, 2000).

Many empirical studies have shown that there are certainly marked changes in corporate payout practices such the decline in dividend yield, the disappearance of special dividends, the reduction in the propensity of non-dividend companies to start paying dividends and the emergence of the share repurchase programmes as a payout method. This study will attempted to determine whether the payout policies of the resource mining companies display similar or different trends to those recently identified by researchers.

The emergence of share repurchases was briefly referred to in the previous section. This section will focus in a little more detail on share repurchases in an attempt to understand what role they play and whether or not they are significant.

Grullon and Michaely (2002) suggested that in the case of share repurchases, companies are using funds which would usually be made available to investors in the form of dividends to repurchase its shares. Consequently, share repurchases have gradually become a substitute for dividends. Blockôs (2008) finding supports this view. Block (2008) showed that if cash dividends are combined with net share repurchases, the traditional 4.0 percent dividend yield is still maintained ï a clear indication that share repurchases have become more dominant than cash dividends (Block, 2008).

Share repurchases have also been referred to as a tool to help relieve agency costs of free cash flow (Oswald and Young, 2008). Oswald and Young (2008) found that repurchases have become an important technique to help reduce agency costs because they are flexible and allow managers to pay out unexpected cash surpluses without creating an expectation of future, similar cash flows.

Share repurchases have a number of other benefits for a company such as increasing returns and reducing the supply of shares, thereby increasing the price if demand for the shares remains constant. Share repurchases can also be used as a way of smoothing dividend reductions. Grullon and Michaely (2002) found that when investors perceive that dividends are being replaced by repurchases, the reduction of dividends has a less negative impact on the share price. Grullon and Michaely (2002) suggested that a more accurate tool of valuation should include total payout as opposed to just relying on dividend payout.

(2002) found that dividend payout and titutes. However, according to Shefrin and Statman (1984 cited in Baker *et al.* (2002)), receiving cash from dividends and generating cash from selling shares is not the same thing and they are therefore not perfect substitutes ï investors who prefer low and high dividend-paying shares and those who prefer share repurchase programmes have different attributes, and hence different objectives are achieved through the two methods of distribution. They cannot therefore be said to be interchangeable (Shefrin and Statman, 1984 cited in Baker *et al.*, 2002).

For example, pensioners may rely more on dividends to fund their daily consumption and may prefer shares which pay more dividends, to those which are pro share repurchase schemes (Shefrin and Statman, 1984 cited in Baker *et al.*, 2002). Some investors prefer cash dividends for self control reasons and see dividends as money that can be spent without impacting on the principal amount (Shefrin and Statman, 1984 cited in Baker *et al.*, 2002). Others prefer cash dividends to avoid regret from having sold shares as a way of generating disposable income (Shefrin and Statman, 1984 cited in Baker *et al*. 2002).

Baker *et al.* (2002) also found that although dividends and share repurchases are similar, they are not perfect substitutes (Baker *et al.*, 2002). In a survey done by Block (2008), 51.2 percent of financial analysts surveyed felt that share repurchases were an alternative to cash dividends. Blockôs (2008) survey also showed that analysts and corporations may prefer share repurchases because of the positive impact on earnings per share, the improved balance between supply and demand, and because they are not viewed as a permanent commitment.

Share repurchases can also be used to effect a desired change in capital structure through debt-finance share repurchases (Baker *et al.*, 2002). A share repurchase conducted through tender offers can

drastic change in capital structure, whilst open-
nerally occur over a number of years (Baker *et al.*, 2002).

Another explanation for share repurchases is signalling - executives believe that repurchase decisions also convey information (Baker *et al.*, 2002, Brav *et al*, 2005). The assumption is that the company's management is better informed of the value of the company than investors are. Managers repurchase shares to signal to the market that they think the company is being undervalued and that they (the managers) believe the shares are cheap (Baker *et al.*, 2002, Brav *et al.*, 2005). In a survey conducted by Baker *et al.* (2002), the most cited reason amongst top financial managers for share repurchases is consistent with the signalling hypothesis, specifically the undervaluation of shares.

Baker *et al.* (2002) also suggested that investors benefit from share repurchase programmes in terms of the capital market allocation hypothesis, which states that investors can allocate capital generated through retained income in the market better than managers can, and investors can then allocate capital generated through retained income from companies with limited investment opportunities to those with greater perceived opportunities.

Why do companies prefer dividend distribution over share repurchases and *vice versa* as a method to return cash to investors? According to Baker *et al.* (2002), each method has different tax implications. Share repurchases provide investors with an option which dividend distributions do not allow ï cash from share repurchases only goes to investors who prefer cash to ownership, whereas cash from dividends go to all investors. This freedom of choice also providers investors with superior information with the opportunity to sell over-valued shares and hold under-valued shares: with dividends informed investors do not have this advantage as they do not have a choice as to whether they

ds or not (Baker *et al.*, 2002). As a result, share
l as more flexible than cash dividends (Baker *et al.*, 2002; Brav *et al.*, 2005).

Dividend increase and share repurchase announcements both have an impact on share returns (Baker *et al.*, 2002). Companies prefer to smooth dividends and are therefore reluctant to announce an increase in dividends unless they are confident that the increase can be maintained (Baker *et al.*, 2002). Therefore companies with temporary excess cash may prefer to repurchase shares instead of increasing the dividend (Baker *et al.*, 2002; Block, 2008).

Brav *et al.* (2005) asked managers what they would do with excess cash if they could cut dividends, and they responded that they would first repay debt, then repurchase shares and then increase investments. According to Brav *et al.* (2005) this indicates that managers, too, do not see cash dividends and repurchases as one-for-one substitutes.

Baker *et al.* (2002) also stated that share repurchases could impact the ownership structure of a company because the cash distribution to investors is usually disproportionate.

Share repurchases have certainly gained prominence over the past few years and while researchers cannot agree on the role and purpose of share repurchases, there is no doubt that they need to be considered. However, as the focus of this study is retentions, it will not consider share repurchases in an attempt to avoid the dilution of the impact of retentions.

levance and impact of dividends is real and extensive. However, it appears that there is little consensus on the drivers behind the prominent role which dividends play in corporate finance. This study hopes to determine whether any drivers can be identified in a South African mining context.

RCH HYPOTHESIS

3.1 Introduction

As discussed in Chapter 2, it appears that dividends are not irrelevant to investors or companies and that investors react to the payment and non-payment thereof, thereby providing managers with feedback. It also appears that the role of dividends has changed over the past four decades and there are suggestions that investors are now getting used to considering total returns (which would include dividends as well as capital gains), instead of only looking at dividends.

3.2 Problem statement

As discussed earlier, it is the responsibility of managers to create wealth for investors. If they are not able to do so, investors should be empowered to create their own wealth. It therefore follows that companies with high retention ratios should have a ROE which is higher than the investorsô cost of equity, which demonstrates managersôabilities to apply capital generated through retained income effectively. From the theory of corporate finance, it also follows that companies with higher retentions should have higher price-earnings (PE) ratios on the back of credible promises of future cash flows delivered to the investor in the form of dividends.

3.3 Research questions

Against this backdrop, the objective of this study is to determine who the better allocators of capital generated through retained income are: managers or investors. To answer this question, the study will attempt to determine whether there is a relationship between a companyôs retention ratio and total investor returns, and to determine whether there is a relationship between a companyôs retention ratio and the firmôs ROE to determine whether managers or investors are able to

s. In support of this, the following hypotheses

Hypothesis 1 Dividends make a significant contribution to total returns to investors.

Hypothesis 2 Retention ratios have a positive impact on the real share price.

Hypothesis 3 Retention ratios have a lagged positive impact on the total returns to investors.

Hypothesis 4 There is a relationship between retention ratios and ROE.

Hypothesis 5 Total returns to investors are greater than ROE when retention ratios are low and ROE is less than the cost of equity.

As discussed earlier, Omran and Pointon (2003) discovered that the outcome of their results differed significantly depending on the share trade activity of companiesôshares. As a result, data with regards to share trade activity will also be included in the study to control for the effect of liquidity.

RCH METHOD

4.1 Introduction

In support of the hypotheses stated in Chapter 3, the research method was designed to measure the impact of retention ratios on managersô performances as measured by ROE and on total returns to investors as measured by capital gains and dividend yields. As a result, causal type research was conducted to attempt to find support for the hypotheses stated in Chapter 3 and to determine whether there are cause-and-effect relationships between retentions (independent variable) and the various dependent variables (Zikmund, 2003).

4.2 Population and Sampling

The maximum possible population for the study was all private and public companies in South Africa incorporated in terms of the Republic of South Africa Companies Act, 1973. However, due to the lack of availability of data on private companies, the study focused on companies listed on the JSE, the only equity market in South Africa, as the sampling frame. Companies listed on the JSE are required to make their financial information public which facilitates access to data.

The study has been narrowed further to focus on the resources sector and in particular, the mining sector. The reason for selecting a set of companies belonging to a particular industry index as opposed to a diverse set of companies, such as those making up the FTSE/JSE Top 40 Index, was to avoid the dilution of results based on possible different industry trends regarding payout ratios. The reason for focusing on resource mining was that the sector plays a material role in the growth and development of the South African economy, and for this reason the sector tends to be populated by companies with long histories, many of which have paid dividends regularly and are expected to continue doing so. Apart from this historical component, the sector is also made

entrants, thereby offering a mix of historical and well as non-payers.

A further reason for having focused on the resource mining sector is the nature of the business. Mining companies have high capital expenditure requirements and as a result, there is pressure on continued investment in the companies with this investment being sourced from retentions and external funding alike. Mining companies also need to continuously explore new reserves to ensure sustainability of the business, again placing pressure on the balance between retention and payout.

With a minimum of 60 shares included in the index, the resource mining index was sufficiently large that reliable statistical methods could be used. The results of this study were not intended for extrapolation to all companies listed on the JSE, but rather to give an indication of whether further studies of other indices should be contemplated.

4.2.1 Period of Study

The period of study was seven years from 1 January 2002 to 31 December 2008. This period was chosen for four main reasons.

First, a sufficiently long period was required to conduct the tests identified. In this vein, Arnott and Asness used a 10-year span which they felt was long enough to be economically significant, short enough to have a number of independent periods, and relevant to an investor's career horizon. The study was repeated using a five-year span and the results were not significantly different. Seven years was deemed to be a reasonable observation period between five and ten years.

Second, 2008 saw the start of a global financial crisis and its impact, which is evident in 2009 results, on South African markets has been

ason it was decided that this year should be dy to avoid the impact of an abnormal macro economic impact possibly skewing the results. Thus, 2008 marked the end of the survey period.

Third, there are a number of factors that impact on the performance metrics of a company. The further removed the observations are from the particular source of the performance metric, the greater the number of other variables that could be attributed to the outcome. A period of seven years was thought to be long enough to be an acceptable investment horizon, as well as short enough to be able to attribute certain subsequent outcomes to a particular retention rate.

Last, the commodity industry and in particular mining, is highly cyclical. A period of seven years was chosen to balance a significant investment horizon with the need to minimise the studyôs exposure to the impact of macroeconomic factors

4.2.2 Index Constituents

As constituents of the index do not necessarily remain constant, it was necessary to account for the addition and removal of companies from the sample framework. The following rules were applied:

Rule 1: Shares had to form part of the JSE resource mining index.

Rule 2: Shares for which prices were not available for the full period of the sample (due to mergers, listing or delisting) were excluded from the study to avoid problems relating to insufficient data.

4.3 Unit of Analysis

The study used multiple research tests and units of analysis. The units of analysis used in the tests were as follows:

al annual return per companyôs share included
he JSE resource mining index.

Share price gain: The real difference between opening (1 January) and closing (31 December) share price per company included in the JSE resource mining index.

ROE: The annual ROE per company included in the JSE resource mining index.

Trade activity: The number of shares traded per annum per company included in the JSE resource mining index.

4.4 Data Sourcing

All data were sourced from public sources. Financial and share price information on these companies were sourced from the JSE and from the McGregorôs BFANet database. Share trade activity data were sourced from the McGregorôs BFANet database. Annual inflation data as measured by the consumer price index (CPI) was sourced online, from Statistics South Africa (Stats SA).

4.5 Research Tests

4.5.1 Dividends make a significant contribution to total returns to investors

Fama and French (2007) pointed out that returns are broken down into dividends and capital gains. Fama and French (2007) identified three sources of capital gains, namely growth in book equity primarily from retained earnings, convergence in price-to-book (P/B) ratios and the upward drift in P/B. The one period simple return on stock from t to t+1 (R_{t+1}) is commonly broken down into dividend return (D_{t+1}/P_t) and capital gain in share price (P_{t+1}/P_t) (Fama and French 2007). Therefore:

$_1/P_t + P_{t+1}/P_t$ (Fama and French 2007)

This simple one period return was used to calculate the annual returns of companies which form part of the study. These returns were then split to see whether there was a relationship between the total return and the dividend contribution to total return, to determine the role that dividends played.

Busetti (2009) split capital gains up into change in earnings and change in rating. Therefore total returns are calculated as follows:

Total return = change in PE (æP/E per share) + change in earnings (æE/P per share) +dividend yield (Busetti, 2009).

Hypothesis 1

H_0: $D_{t+1}/P_t \geq (P_{t+1}/P_t)/E_{t+1}/E_t)$

H_1: $D_{t+1}/P_t < (P_{t+1}/P_t)/E_{t+1}/E_t)$

4.5.2 Retention ratios have a positive impact on the real share price

The second objective of the study was to determine the impact the retention (R), the dividend (D) and the book value per share (BV) had on the share price (Omran and Pointon, 2003). The results would indicate whether retentions were more significant than dividends in determining the prices of shares (Omran and Pointon, 2003) of companies. If the impact of retention was positive, the percentage change between the share price and book value would move in the same direction. However, if the retention had no impact or had a negative impact, then the change in the share price and book value would converge.

H_0: $P_{t+1}/P_t < BV_{t+1}/BV_t$

H_1: $P_{t+1}/P_t < BV_{t+1}/BV_t$

4.5.3 Retention ratio is a predictor of future earnings

Retentions (R) are earnings (E) which are reinvested in a company to grow future earnings (Bodie, 2009). The assumption was therefore that the greater the retention, the greater future earnings would be.

H_0: $R_{t+1}/E_t \leq EPS_{t+1}/EPS_t$

H1: $R_{t+1}/E_t > EPS_{t+1}/EPS_t$

4.5.4 There is a relationship between retention ratios and ROE

The fourth objective was to determine whether there was a relationship between R and ROE. The assumption was that managers invested more capital generated through retained income into the company so that they could generate greater returns. Therefore, the implication was that the greater the retention, the greater the ROE should be.

H_0: $R_{t+1}/ R_t \leq ROE_{t+1}/ROE_t$

H_1: $R_{t+1}/ R_t > ROE_{t+1}/ROE_t$

4.5.5 There is a relationship between ROE and Total Returns

There is a relationship between ROE and total returns. The final stage of the study was to compare the total returns (TR) generated by dividends and capital gains to ROE, thereby attempting to determine who was able to generate the greatest returns, managers or investors. The assumption is that a high retention rate would lead to high returns if the ROE is high and that a high retention rate with a lower ROE would lead to lower returns.

ROE_t

ROE_t

The companiesôresults were considered and various regressions were performed to determine whether there was any relationship between the various metrics as outlined above.

Following from the discussion above, it is clear that share repurchases may play a roll in returning capital generated through retained income to investors. However, the objective of this study was limited to the dividend payout and retention ratio and therefore share repurchases were not considered as part of returns. This could be considered a shortcoming in the study. However, constraints of time and the scope of the study meant that this topic would have to be reserved for future research. That aside, the retention ratio was calculated as the retained income as a percentage of net profit after tax, and dividend distributed was calculated as a percentage of net profit after tax.

As discussed earlier, Omran and Pointon (2003) discovered that the outcome of their results differed significantly depending on the share trade activity of the companyôs shares. As a result, data with regards to share trade activity was also included in the study. The study examined whether there was a change in the above relations with changes in various activity levels, graphically and through regression analysis.

4.6 Limitations

A number of limitations of this study have been identified. These are briefly discussed below.

The aim of the study was to determine whether managers are better allocators of capital generated through retained income than investors, and whilst the study may have been able to identify certain

challenge to, with certainty, attribute changes in other performance metrics to a single factor such as the retention ratio.

Another limitation was the sample size. There were only 26 observations which may not have been sufficient to be able to make conclusive deductions, but it was sufficient to determine whether there were indications of existing relationships which could be further explored in an extension of this study.

Changes in accounting practices may also have compromised the assumption that comparing financial data from one year to that of the previous year would be comparing like with like and hence impact on the quality of the information. Linked to this limitation was the manipulability of accounting data. Often accounting rules allow for multiple interpretations which then determine the consistency of the underlying data and ultimate value allocated to a specific variable.

Although the period of the study was deemed to be of sufficient short-term duration, it may be insufficient to extrapolate long-term share performance trends.

The industry selected is highly cyclical and may not be a proxy for all industries.

Constraints of time and the scope of the study meant that share repurchases were not considered as part of returns. This topic should be reserved for future research.

CHAPTER 5: RESULTS

5.1 Introduction

In the previous chapter the research methodology that was followed in this study was covered. This chapter will discuss the results of the study as well as highlight the challenges that were experienced when the data was collected and analysed.

5.2 Characteristics of the demographic information

The sample size proved to be more complex than initially anticipated and did not allow for the parametric analysis. The reason for this is that parametric analysis assumes an underlying normal distribution. However, with a sample size of only 26 observations and the large number of outliers which skewed the results, this assumption could not be supported. Thus the small sample severely limited options for analysis. Non-parametric analyses were therefore used as a substitute for the Pearson correlation technique. This is not an ideal method of analysis as the ranks reduce the variance in the data but, as noted, the number of outliers restricted options.

Given the above constraints, Spearmanôs rank-order rho correlation was used as a method of correlation. This correlation deals with rank-order of the data.

In a further attempt to control for outliers, a bi-variate split of the data was considered. The two moderating variables selected were share trade activity and revenue growth. The two moderating variables were tested for correlations between them. A moderating variable has a contingent effect on the independent variable and dependant variable relationship, and the presence of this variable changes the relationship between the aforementioned (Zikmund, 2003). The two moderating variables were therefore tested for correlations between them to ensure that they are independent of each other and do not skew the results due to the two moderating variables impacting on each other. This was

moderating variables were independent of each
elations. As can be gleaned from Table 1, these
variables were weakly correlated to each other.

Table 1. Bi-variate split of data between two moderating variables: share trade activity and percentage revenue growth

Row Labels	High Trade Activity; High Revenue Growth	High Trade Activity; Low Revenue Growth	Low Revenue Growth; Low Trade Activity	Low Trade Activity ; High Revenue Growth
AngloGold Ashanti	1			
Anglo American		1		
Anglo Platinum			1	
African Rainbow Minerals	1			
Assore				1
BHP Billiton				1
DRDGold		1		
Exxaro Resources	1			
Goldfields			1	
GoldOne International		1		
Harmony Gold Mining Company			1	
Hwange Colliery Company	1			
Impala Platinum		1		
Lonmin		1		
Merafe Resources	1			
Metorex				1
Mvelaphanda Resources		1		
Northam Platinum			1	
Petmin	1			
Sallies				1
Sentula Mining	1			
Simmer and Jack Mines				1
Thabex				1
Trans Hex Group			1	
Village Main Reef Gold Mining Company			1	
White Water Resources			1	
Total	7	6	7	6

The resulting sample sizes of the bi-variate split did not allow for meaningful analysis and therefore only one moderating variable was selected, namely share trade activity. The observations were grouped into two equal groups with one group containing the thirteen most actively traded shares and the second group containing the least actively traded shares.

ection of share trade activity as the controlling by Omran and Pointon (2003), who showed different results based on the share trade activity of the companies.

The analysis investigated causal relationships between the variables, but when no clear patterns emerged, the analysis became exploratory through a step-by-step sequential process which searched for correlations between lags and lags, absolute values and lags and absolute and absolute values.

5.3 Sample Group

The sample group consisted of 26 resource mining companies. There are 57 companies listed under this sector on the JSE main board but only 26 companies were trading and had data for the full period of the study.

The sample group is made up of a combination of gold, platinum, diamond, coal and mineral sand operations.

5.4 Data Quality

As discussed earlier, the sample size presented many challenges. The results were further compromised by the large number of outliers contained in the sample. These outliers were not consistently from the same companies and were difficult to isolate. The asymmetrical data skewed the results thereby complicating the analyses. Scatter plots of all the data were done to determine whether any patterns could be picked up by eyeballing the data. In Figures 5.1 and 5.2 below, are the scatter plots of 2006 return on equity figures plotted against 2005 retention rate percentages for the low share trade activity group. These scatter plots have been included for illustrative value to demonstrate the impact of the outliers on the data. Figure 5.1 shows the data including the outlier and Figure 5.2 shows the data after the

ed. The impact of the outlier on the trend line is 5.1 the trend line is relatively flat with only the slightest decline. In Figure 5.2, when the White Water resources is removed, the correlation between the rest of the observations is much stronger and the trend line slants significantly to the right, amplifying the negative correlation of which there was only a hint in Figure 5.1.

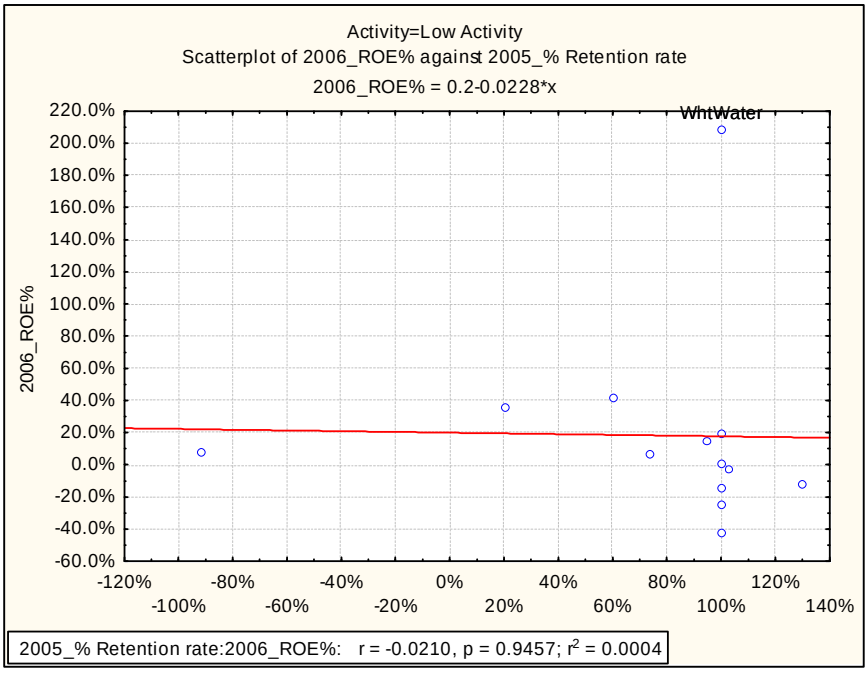

Figure 5.1 Scatter plot of 2006 ROE percent against retention rate including outliers

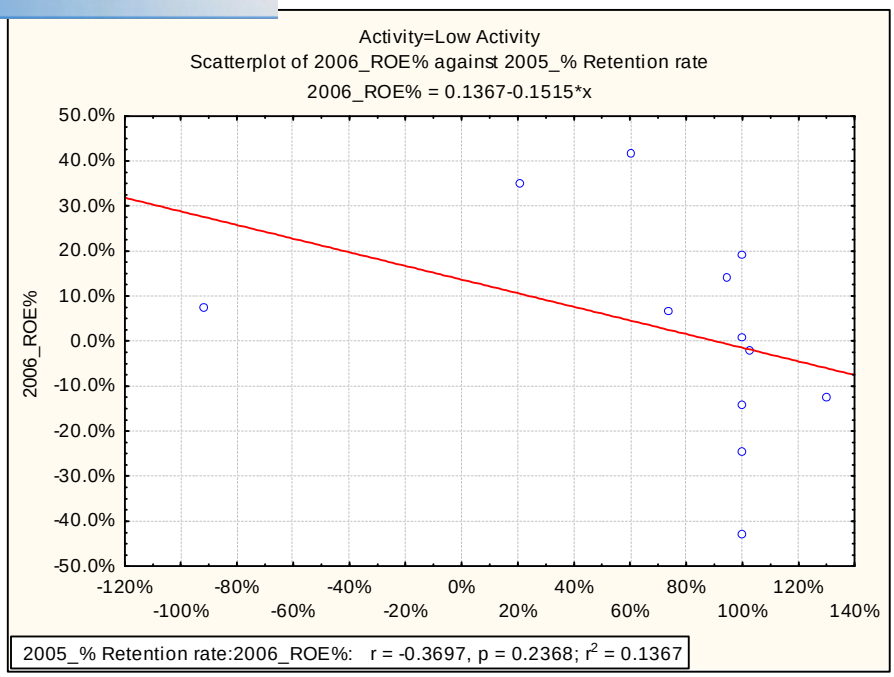

Figure 5.2 Scatter plot of 2006 ROE percent against retention rate excluding outliers

The above figures are representative of most of the data. Outliers could be an indication of a technical error or an error in measurement within the data, which could result in the incorrect interpretation of the data (Burke, 1998). However, outliers could also be indicators of valid extreme behaviour by certain companies within the sample. Therefore, each outlier was checked and validated and found to be correct. The presence of the number of outliers complicated the analysis and interpretation of the data. Had the sample size been bigger, these outliers could have been smoothed over with greater ease. A possible solution would have been to remove the outliers but this was not possible for the following reasons:

As discussed above, the outliers were different observations for different measurements and therefore could not be restricted to a single company;

ize limited the flexibility around the removal of cluding the outliers. The sample size presented a number of analytical challenges which would have been further amplified by the removal of more observations; and

The outliers were not technical or measurements but valid observations, and therefore it would have been misleading to remove them.

Upon further investigation of the outliers, it was determined that the outliers were valid results. A further example of outliers is the percentage change in earnings per share (EPS) for Mvelaphanda Resources Limited (Mvela) and Hwange Colliery Company Limited (Hwange) which were -172.1 percent and 38 996.9 percent respectively in 2007. Mvelaôs EPS was driven by a significant loss in the Gold Fields share price in which Mvela had invested, as well as the International Financial Reporting Standards (IFRS) treatment of their Afripalm transaction (http://www.mvelares.co.za/mvela_prelim_07/index.php).

Hwange is a Zimbabwean company listed on the JSE. Zimbabwe has been experiencing hyper inflation for a number of years and this has resulted in exceptionally high trading results for the company. The results for Mvela as well as Hwange, whilst valid, skewed the results of the parametric analysis. In many instances, the outliers caused the correlation, destroyed the correlation or enhanced the results, thereby impacting on the creditability of the underlying data.

As discussed earlier, in an attempt to overcome the challenges presented by the asymmetrical data, non-parametric analysis was performed and the Spearmanôs rank-order rho analysis was used.

26 observations. The sample size was smaller than anticipated and made the analytical process challenging. Multiple regression models or partial correlation coefficients could not be considered for the analysis due to the small sample.

Once the raw data had been collected and cleaned, correlations were run between the retention rate and variables which were used to test the hypotheses. These correlations were run across multiple years with special attention to the one-year lags. The results are shown in Appendix 1. The correlations did not highlight any consistently significant relationships other than between retention rate and percentage change in dividend yield, and even this relationship was not statistically significant.

In an attempt to identify patterns in the data, further correlations were run using compounded annual growth rates (CAGR) for the retention rates as well as the variables which were used to test the hypotheses. The CAGRs were run across multiple years within the study period to determine whether there were any relationships between the dependant and independent variables which extended beyond a one year lag. The results are shown in Appendix 2. Again these correlations did not highlight any consistently significant relationships.

The analysis was then refined and data were analysed using the moderating variable: share trade activity. Raw data were split into two groups, namely high trade activity and low trade activity, and lagged by one year. The data were also lagged by another year using CAGRs. The results are shown in Appendix 3.

Two relationships were identified. One relationship was between the retention rate and the dividend yield. This relationship was strong and consistent but irrelevant as dividends are inversely related to retention rates and therefore this relationship was to be expected.

ɔ identified was between the retention rate and is only present when the raw data is correlated with the raw data with a one-year lag. The correlation is not consistently significant, but is relevant and in the same direction. It is interesting to note that the correlations in the low share trade activity group are more significant than those in the high trade activity group. Table 2 provides a summary of the results.

Table 2. Correlation between retention rate and real ROE percentage

Spearman correlations ï ranks	2002 % Retention rate Total Group	2002 % Retention rate High Activity	2002 % Retention rate Low Activity
2003 Real ROE %	-0.32	0	-0.61
	2003 % Retention rate Total Group	2003 % Retention rate High Activity	2003 % Retention rate Low Activity
2004 Real ROE %	-0.35	-0.16	-0.54
	2004 % Retention rate Total Group	2004 % Retention rate High Activity	2004 % Retention rate Low Activity
2005 Real ROE %	-0.16	0.01	-0.27
	2005 % Retention rate Total Group	2005 % Retention rate High Activity	2005 % Retention rate Low Activity
2006 Real ROE %	-0.43	-0.24	-0.51
	2006 % Retention rate Total Group	2006 % Retention rate High Activity	2006 % Retention rate Low Activity
2007 Real ROE %	-0.52	-0.44	-0.75
	2007 % Retention rate Total Group	2007 % Retention rate High Activity	2007 % Retention rate Low Activity
2008 Real ROE %	-0.37	0.03	-0.7

The search for correlations was further refined to ensure that all the hypotheses listed in Chapter 3 could be tested. The results are listed in the sections below.

5.6 Results of study

The results of the study have been grouped around the five hypotheses set out in Chapters 3 and 4. These findings are detailed below.

ignificant contribution to total returns to

Shareholder value is measured by the total returns to shareholders. The total returns to shareholders are made of three components namely: dividend yield, the change in the PE ratio and the change in earnings per share (EPS). The contribution made by dividends to total returns in the period of study is shown in Table 3 below.

Table 3. Dividend yield contribution to total returns: Total Sample Group

	% Dividend Yield	% Change in PE	% Change in EPS	Total Returns
2002	66.70%	387.80%	1 390.4%	1 844.9%
2003	49.10%	-207.00%	-1 188.6%	-1 346.5%
2004	43.70%	3 423.6%	-4 596.7%	-1 129.4%
2005	24.70%	1 213.3%	-2 445.5%	-1 207.5%
2006	22.30%	4 818.7%	2 699.7%	7 540.7%
2007	37.80%	-683.40%	892.20%	246.60%
2008	67.00%	-2 584.2%	1 664.2%	-853.00%
Total	311.30%	6 368.8%	-1 584.3%	5 095.8%
% Contribution	6.10%	125.00%	-31.10%	

Total cumulative returns for the period of study were 5 095.8 percent. These returns are made up of the dividend yield percentage, the change in PE percentage and the change in EPS percentage. Dividend yield contributed 6.1 percent to total returns, whilst the change in PE contributed 125.0 percent and the change in EPS contributed -31.1 percent. Hwange was an outlier. The company's change in EPS percentage was 38 996.9 in 2007. This result skewed the data and was normalised by using the 2006 percentage for change in EPS of -30.0 percent. Hwange is a Zimbabwean company and its exceptionally high results were driven by the hyper-inflation the country had been experiencing.

The data grouped according to trade activity levels yielded the results in Table 4 for the high share trade activity group. For the high share trade activity group, total cumulative returns were 6 284.8 percent. Dividend yield percent contributed 2.1 percent, and percentage change

uted 23.3 percent and 74.6 percent respectively ge formed part of the high share trade activity group and again its 2007 percentage change in EPS value was adjusted with the 2006 value of -30.0 percent to limit is skewing impact on the data.

Table 4. Dividend yield contribution to total returns: High Trade Activity

	% Dividend Yield	% Change in PE	% Change in EPS	Total Returns
2002	30.00%	2 143.6%	1 123.8%	3 297.4%
2003	21.20%	770.70%	436.80%	1 228.7%
2004	18.80%	171.90%	-66.50%	124.20%
2005	12.90%	18.30%	20.80%	52.00%
2006	8.70%	1 276.1%	1 856.3%	3 141.1%
2007	11.60%	-335.30%	536.00%	212.30%
2008	30.60%	-2 583.5%	782.00%	-1 770.9%
Total	133.80%	1 461.8%	4 689.2%	6 284.8%
% Contribution	2.10%	23.30%	74.60%	

The results for the data grouped in the low share trade activity group are shown in Table 5. Total cumulative returns for the low share trade activity group was -1 030.5 percent. The dividend yield percentage and percentage change in the PE ratio contributed 17.2 percent and 476.2 percent respectively, whilst the percentage change in EPS made a negative contribution of -593.4 percent.

Table 5. Dividend yield contribution to total returns: Low Trade Activity

	% Dividend Yield	% Change in PE	% Change in EPS	Total Returns
2002	36.70%	-1 755.8%	266.60%	-1 452.5%
2003	27.90%	-977.70%	-1 625.4%	-2 575.2%
2004	24.90%	3 251.7%	-4 530.1%	-1 253.5%
2005	11.80%	1 195.0%	-2 466.3%	-1 259.5%
2006	13.60%	3 542.6%	843.40%	4 399.6%
2007	26.20%	-348.10%	514.60%	192.70%
2008	36.40%	-0.70%	882.20%	917.90%
Total	177.50%	4 907.0%	-6 115.0%	-1 030.5%
% Contribution	17.20%	476.20%	-593.40%	

a positive impact on the real share price

lationships between the retention rates and the real changes in the companiesôshare prices. The data were split into the two groups, namely high trade activity and low trade activity and lagged by one year. The data were also lagged by one year. The results are presented in Table 6 below.

Table 6. Correlation between retention rate and percentage real change in share price with a one year lag

Spearman correlations - ranks	2002 % Retention rate Total Group	2002 % Retention rate High Activity	2002 % Retention rate Low Activity
2003 % Real Change in Share Price	0.07	-0.01	0.24
	2003 % Retention rate Total Group	2003 % Retention rate High Activity	2003 % Retention rate Low Activity
2004 % Real Change in Share Price	0.32	0.02	0.5
	2004 % Retention rate Total Group	2004 % Retention rate High Activity	2004 % Retention rate Low Activity
2005 % Real Change in Share Price	0.01	-0.21	0.15
	2005 % Retention rate Total Group	2005 % Retention rate High Activity	2005 % Retention rate Low Activity
2006 % Real Change in Share Price	-0.23	-0.38	-0.16
	2006 % Retention rate Total Group	2006 % Retention rate High Activity	2006 % Retention rate Low Activity
2007 % Real Change in Share Price	-0.19	-0.12	-0.22
	2007 % Retention rate Total Group	2007 % Retention rate High Activity	2007 % Retention rate Low Activity
2008 % Real Change in Share Price	-0.12	0.28	-0.66

A significant correlation was identified in the low share trade activity group when the 2007 retention rate was correlated against the percentage change in share price in 2008. The coefficient of determination (R^2) for this result is 0.438. However, this was the only

and there is no consistently significant y of the groups.

The study was further extended to determine whether correlations between the percentage changes in book value predicted percentage changes in the real share price. The results of this refinement are displayed in Table 7. Again, the data were split in terms of share trade activity to determine whether there were any changes in the outcomes. The data were also lagged by one year.

Table 7. Correlation between percentage change in book value and percentage change in share price with a one year lag

	2002 % Change in book value	2002 % Change in book value	2002 % Change in book value
2003 % Change in Share Price	0	-0.08	0.13
	2003 % Change in book value	2003 % Change in book value	2003 % Change in book value
2004 % Change in Share Price	0.05	0.19	0.06
	2004 % Change in book value	2004 % Change in book value	2004 % Change in book value
2005 % Change in Share Price	-0.32	-0.23	-0.4
	2005 % Change in book value	2005 % Change in book value	2005 % Change in book value
2006 % Change in Share Price	-0.19	-0.08	-0.2
	2006 % Change in book value	2006 % Change in book value	2006 % Change in book value
2007 % Change in Share Price	0.25	0.19	0.08
	2007 % Change in book value	2007 % Change in book value	2007 % Change in book value
2008 % Change in Share Price	-0.03	0.07	-0.03

correlation did not identify any significant the two groups. Not only were the correlations not significant, but the direction of the movement was shown not to be consistently the same for the period of the study.

5.6.3 Retention ratio as a predictor for future earnings

Retained capital should be used to increase future earnings, therefore the study looked to see whether retention ratios could be used as a predictor of future EPS. The study initially looked for correlations with one year lags but there were no significant patterns. The study then looked at whether there were any correlations in lags of various durations. The results did not show any significant correlations between the retention rates, and lagged percentage changes in EPS as shown in Table 8 below.

Table 8. Correlation between retention rate and the percentage change in EPS over multiple periods of the study

	2002% Retention rate	2003% Retention rate	2004% Retention rate	2005% Retention rate	2006% Retention rate	2007% Retention rate
2003% Change in EPS	-0.36					
2004% Change in EPS	-0.19	0.10				
2005% Change in EPS	0.16	0.14	0.20			
2006% Change in EPS	-0.21	-0.46	-0.19	-0.47		
2007% Change in EPS	0.17	0.14	-0.01	0.03	0.30	
2008% Change in EPS	0.17	0.01	0.23	-0.09	0.10	-0.04

The search for correlations was further refined and the data were split into two groups: high and low share trade activity. The data were lagged by one year. The results are shown in Table 9 below. Again there are a few significant results, but none of which are consistently significant.

...en retention rate and percentage change in EPS for the ...l low share trade activity

	2002 % Retention rate Total	2002 % Retention rate High Activity	2002 % Retention rate Low Activity
2003 % Change in EPS	-0.36	0.03	-0.74
	2003 % Retention rate	2003 % Retention rate	2003 % Retention rate
2004 % Change in EPS	0.10	0.11	0.12
	2004 % Retention rate	2004 % Retention rate	2004 % Retention rate
2005 % Change in EPS	0.20	0.13	0.33
	2005 % Retention rate	2005 % Retention rate	2005 % Retention rate
2006 % Change in EPS	-0.47	-0.21	-0.64
	2006 % Retention rate	2006 % Retention rate	2006 % Retention rate
2007 % Change in EPS	0.30	0.56	0.03
	2007 % Retention rate	2007 % Retention rate	2007 % Retention rate
2008 % Change in EPS	-0.04	0.22	-0.12

5.6.4 There is a relationship between retention ratios and ROE

Retained capital should increase shareholder value. ROE is a measure of how effectively managers are utilising shareholdersôfunds. The retained funds should enable managers to generate greater returns and therefore greater ROE.

The retention rates were correlated against the ROE to determine which changes in the retention rate predicted changes in ROE. As discussed earlier in the chapter and shown in Table 5.2, the results did not show consistently significant relationships but did highlight relevant relationships in the same direction.

5.6.5 There is a relationship between ROE and Total Returns

ROE is a measure of managersôperformances. The better managers are at allocating capital generated through retained income and

eholders, the higher the ROE will be and the to shareholders will be.

In order to determine whether there was any support in the data for the hypothesis which stated that greater returns on equity should result in greater total returns; correlations were run to determine whether ROE could be a reliable predictor of total returns. The results are shown in Table 10 below.

Table 10. Correlation between Real ROE percentage and percentage total return with a one year lag

	2002 Real ROE %	**2002 Real ROE % High Activity**	**2002 Real ROE % Low Activity**
2003 % Total Return	0.17	0.04	0.71
	2003 Real ROE %	**2003 Real ROE %**	**2003 Real ROE %**
2004 % Total Return	-0.25	-0.16	-0.39
	2004 Real ROE %	**2004 Real ROE %**	**2004 Real ROE %**
2005 % Total Return	0.11	0.36	-0.05
	2005 Real ROE %	**2005 Real ROE %**	**2005 Real ROE %**
2006 % Total Return	-0.41	-0.25	-0.53
	2006 Real ROE %	**2006 Real ROE %**	**2006 Real ROE %**
2007 % Total Return	0.05	-0.08	0.15
	2007 Real ROE %	**2007 Real ROE %**	**2007 Real ROE %**
2008 % Total Return	0.21	0.23	0.02

Two statistically significant correlations were identified, but there were no consistently statistically significant correlations which could be identified between the ROE percentage and the percentage total returns.

The results will be discussed and interpretations offered in the following chapter.

two small thereby restricting the analysis and type of testing which could be done on the data. The period of the study was too short and did not allow for the effect of outliers to be smoothed out across the data. The data did not support any of the five hypotheses which the study tested for.

In Chapter 6, these results are interpreted and the possible implications thereof are discussed.

SION OF RESULTS

6.1 Introduction

In the previous chapter the research data was presented and this chapter will discuss the outcome of the data.

Retention rates have been and continue to be the subject of many financial discussions and deliberations. The reasons why companies pay dividends and the reasons why investors want dividends are as varied as the number of leading financial minds who have contemplated these questions.

The reason for this study in particular was to see whether various management financial performance metrics could be linked to or explained in terms of retention rates.

6.2 Dividends make a significant contribution to total returns to investors

According to Miller and Modigliani (1961), the rate of return is made up of dividends plus the capital gains per monetary unit invested. Fama and French (2007) explained that returns are broken down into dividends and capital gains and Busetti (2009) split capital gains into change in earnings and change in PE rating. Therefore dividends play a role when calculating the total returns to investors. The question however, was to determine whether the role that dividends played was significant or not.

The results of the study showed that over the period of the study, dividend yield contributed, cumulatively, 6.1 percent to the total returns to shareholders. The change in the percentage change in the PE ratio contributed 125.0 percent, while the percentage change in EPS contributed negatively to the extent of negative 31.09 percent.

change in dividend yield was not the lowest ns, it cannot be considered as significant.

Dividend yield is driven by two factors, namely dividend payouts and share price. The low change in dividend yield could mean that either the dividend payouts decreased or that the share prices increased disproportionately to the dividend payouts. Shareholders earned a greater return from EPS than they did from dividends. The hypothesis could therefore not be supported.

When the results were split between high and low share trade activity companies, the results for the low share trade activity group mirrored those of the whole group in that the percentage change in dividend yield only contributed 17.2 percent total returns, whilst the percentage change in PE ratio contributed 476.2 percent. However, when considering the results for the high share trade activity group, the contribution made by the percentage change in dividend yield was only 2.1 percent which is also low, but the contribution made by the change in the PE ratio was only 23.3 percent and the contribution made by the percentage change in EPS was 74.6 percent. The percentage change in EPS contribution was different to that of the low share trade activity group and the total group in that it is not negative and it is the greatest, as opposed to smallest, contributor to total returns.

Shares with higher percentage change in EPS are easier to trade than those with lower EPS. Where the percentage change in EPS is low, the percentage change in the dividend yield as well as the percentage change in PE ratio becomes more significant. The PE ratio is driven by the price per share and the earnings per share. As discussed, the EPS of the low share trade activity group was low and therefore the high PE ratio is driven by a high percentage change in the price of these shares. A possible explanation for this could be the anticipated future value that the investor anticipates the share to generate (Gordon,

to Shillerôs (1981) view that the current share ue of expected future dividends.

The low EPS is a possible explanation for the low share trade activity because future value is not certain and therefore the share is less attractive to the market.

A possible explanation for the lack of significant contributions made by dividends is the industry which was selected for the study. Mining is a particularly capital intensive industry which requires constant reinvestment in capital equipment, the development of mines and the exploration of new reefs. As a result, mining companies have a high capital requirement and investors need to rely on capital growth in the share price for returns on their investments. The challenge for investors is the fact that capital growth in the share price can only be realised when the share is sold and until then, their gains are subject to change from one minute to the next. These gains cannot be captured and accumulated and can be lost in an instant. Dividends on the other hand, are realised returns which cannot be lost and become more attractive to investors.

6.3 Retention ratios have a positive impact on the real share price

A managerôs function is to maximise profits for shareholders on a sustainable basis. In order to achieve their objectives, managers need capital to invest in the company. The capital retained after profits is a source of capital used to invest back into the company. Shareholders who sacrifice dividends today therefore expect to be rewarded in the future with higher earnings and higher share prices.

Walter (1956) stated that whilst share prices vary directly with dividend payouts, their degree of appreciation over time is associated with the proportion on earnings which are retained. Rees (1997) however found that earnings distributed as dividends had a bigger impact on value

within the organisation. The study therefore set her there was a relationship between retention ratios and the future share price with a one year lag.

There were no significant correlations evident in the data and the hypothesis could not be supported. Even when the data were split into high share trade and low share trade activity, there were no significant correlations that emerged in support of the hypothesis. The data were also lagged over a number of years to determine whether there were any correlations when the lag was increased to two or more years. Unfortunately no support for the hypothesis emerged from the data.

The outcome was surprising and can be attributed to the small size of the sample. Shareholder value is created by either returning cash flow to shareholders in the form of dividends and share buybacks, or by the capital growth in the share price. According to Gordon (1959) the share price is the present value of future revenue streams ï either by way of dividends or capital growth in the share price. If managers are not returning capital generated through retained income to the shareholders, their ability to reinvest it successfully should be rewarded by a higher share price in the future.

If managers are not able to fulfil their task of creating shareholder value, then an inverse relationship can be expected as shareholders signal their disapproval at the amount of money which is being withheld. Therefore, it is reasonable to expect a relationship one way or the other.

The capital retained in the company increases the company's book value. Therefore, if the impact of the retention rate is positive, then the share price and the book value of the company should move in the same direction, as shareholders are expected to pay more for greater assets. Conversely, if the book value and share price move together, then it may be an indication that the capital generated through retained

impact or a negative one on the value of the

The data did not offer any significant correlations. There were also no significant correlations when the data were split into high and low share trade activity groups. Again, this outcome is surprising. A possible reason for this is the size of the sample which was not large enough to run multiple regression analyses.

Another possible reason for the lack of results is the period of the study. The mining industry is highly cyclical and commodity prices are determined internationally. Commodity prices are sensitive to economic changes. The impact of these changes on the companiesô share price is difficult to isolate over a short period. These cyclical changes could be smoothed out over a longer period of study.

6.4 Retention ratio is a predictor of future earnings

Earnings are retained to enable managers to generate future earnings. However, as pointed out by Oswald and Young (2008), managers tend to invest capital generated through retained income ineffectively if left on their own. Arnott and Asness (2003) also did not find that reinvestment of earnings necessarily generated faster future earnings. The third hypothesis assumed that the more capital that was retained the more earnings could be generated, and was constructed to test whether managers are indeed able to generate more earnings with the capital generated through the retained income they elect to keep in the business.

Earnings were measured in terms of EPS. When the results for the sample as a whole were considered, the only significant correlation was between the retention rate of 2005 and the one year lagged percentage change in EPS of 2006. This result indicated that 21 percent of the percentage change in EPS in 2006 could be

percentage change in retention rate. However, other years of the study period did not offer the same results for one year lags or across multiple lagged periods.

When the data were split into the two groups, high and low share trade activity, two significant correlations were identified in the low share trade activity group and one in the high share trade activity group. It was interesting to note that the correlations in the low share trade activity group were negative and the one correlation in the high share trade activity group was positive.

The significant negative correlation suggests that the managers were not able to generated increased EPS with the capital generated through income that had been retained the previous year, whilst the significant positive correlation suggests that managers were able to generate greater EPS.

The companies in the low share trade activity group could possibly still be in development phase and an early part of their life cycle where the requirement for investment is high but the revenue generating ability has not matured yet and those in the high share trade activity group could already be in a mature business cycle where managers are able to focus more on efficiencies than on growth. According to DeAngelo *et al* (2006), more mature companies have fewer opportunities and therefore a reduced need for capital which enables them to distribute capital generated through retained income to their shareholders. However, those companies at an early stage in their life cycles need the capital generated through retained income for investment purposes, which surpasses the need to pay out dividends in the short term.

Alternatively, a negative correlation could also indicate that despite the additional capital generated through retained income that managers had at their disposal, they were still not able to generate additional EPS for their shareholders. This would indicate that managers are not

apital generated through retained income, and uestion why capital should be retained in future instead of being returned to the shareholders for better, alternate, investment options.

Despite the above discussion, the data analysis did not offer consistently significant results and therefore there was insufficient support for the hypothesis. The inconsistency in the results is an indication of the impact the small sample had on the outcome. It also indicated the challenges caused by the outliers as well as the impact of cyclical changes on the industry, which could not be smoothed over the short period of the study.

6.5 There is a relationship between retention ratios and ROE

The fourth objective of the study was to investigate whether there was a relationship between the retention rate and the ROE. This hypothesis is related to the previous one as ROE is also a measure of the effectiveness of managersô abilities to apply shareholdersô funds. Retained capital should enable managers to generate greater returns and therefore greater ROE.

A correlation between the retention rate and the ROE was identified by looking at the sample as a whole with a one year lag, and then specifically at the low share trade activity group. The correlations identified in the group as a whole were further amplified in the low share trade activity group when the sample was split and the high share trade activity data was extracted.

The correlations identified were not significant, but they were relevant and in the same direction for the both the whole group and the low share trade activity group. The high share trade activity groupôs correlations were neither significant nor relevant in the same direction.

etermination for the whole sample groups ranging between 2.6 percent and 27.3 percent. However, when the low share trade activity group was isolated, the coefficients of determination went as high as 56.6 percent, indicating that 56.6 percent of the changes in the ROE can be explained by changes in the retention ratio (this was for the 2006 retention rate).

The relationship between the retention ratio and the ROE is negative, which indicates that the more capital generated through retained income is retained by managers, the more the ROE drops, suggesting that managers are ineffective in their allocation of capital generated through retained income. As discussed earlier, this relationship only exists for the low share trade activity group. The results for the high share trade activity group were neither significant nor relevant in the same direction.

On the face of it, it seems that managers of low share trade activity companies are less effective allocators of capital generated through retained income than those of high share trade activity companies.

This finding also seems to tie in with the results from the previous section. Although the results were not significant, there seemed to be more negative relationships between the percentage change in the retention rate and the percentage change of EPS for the low share trade activity group, than the high share trade activity group.

As discussed in the previous section, this apparent differentiation between the high and low share trade activity groups could relate to the quality of the management, or it could relate to the companiesôgrowth phase. Those on the low share trade activity group were possibly still in a high development phase, whereas those in the high share trade activity group were in a more mature phase.

he case, then there would be an expectation of ould be reflected in the share price. If investors were comfortable with what management were doing, despite the lack of dividend payouts and the negative relationship between the retention rate and the percentage change in ROE, then the returns to the shareholders should materialise in a high share price. As shown in Sections 6.2 and 6.3, there was no significant or relevant relationship between the retention rate and the percentage change in the share price of the percentage change in future EPS. Therefore, it seems that possibly the managers are just not making good use of the capital generated by the business through retained income.

A last possible factor which could impact on the outcome of the results for this section which needs to be considered is the impact of the business and economic cycle. As previously discussed, commodities are particularly vulnerable to fluctuations in the economy, internal trading prices and the exchange rate, which impact on the business and are beyond managersôcontrol. However, if the poor performance as measured by the percentage change in ROE was as a result of economic factors beyond the control of managers, then one would expect to see similar patterns for the low as well as high share trade activity companies which is not the case. It is however possible that the lack of similar findings between the low and high share trade activity groups could be attributed to the fact that, when economic pressures present themselves in the industry, the high share trade activity companies, which may be more mature companies, are better able to weather the storm than the low share trade activity companies which are still developing.

Despite the discussion above, the findings do not support the hypothesis and therefore it has to be rejected. This hypothesis considered the relationship between retention ratio being the independent variable and the percentage change in ROE being the dependant ratio. Aivazian, Booth and Clearly (2003) found that the

ship existed and that a high ROE gave rise to It is suggested that this finding be tested on South African markets in a future study.

6.6 There is a relationship between ROE and Total Returns

The last section of the study looked at the relationship between the ROE and total returns. Total returns to shareholders are made up of capital growth as well as dividend payments, and according to Shiller (1981), investors are concerned with returns, irrespective of the form they take. The assumption supporting this hypothesis was that more effective managers, as measured by the change in ROE, generated higher returns which comprised of capital growth as well as dividend yields.

There were two statistically significant findings. The first was for the low share trade activity group, where 51.0 percent of the change in total returns in 2003 could be explained by the percentage change in ROE for 2002. The second significant finding was for the group as a whole, where 16.8 percent of the changes in total returns for 2006 can be explained by the movement on ROE for 2006. There were no other significant findings ï even the direction of the relationships were not consistently the same.

Investors are in the game to be able to generate more money coming out of a transaction than going into one. As simple as that sounds, the challenge lies in finding the right transaction which will enable the investor to meet his objectives. ROE is an indication of managersô abilities to make good use of investorsôcapital, therefore the results, or lack thereof, for this hypothesis are both surprising and disappointing. Managers who are able to achieve high levels of ROE should be rewarded with greater returns for their shareholders.

e unexpected results are once again related to he length of the study period and the number of outliers in the data. These factors limited the number and type of statistical analysis and tests which could be performed to identify the patterns which are reasonably expected to exist in the data.

Another possible reason for the lack of patterns in the data with regard to this hypothesis may be that the study did not include share repurchases as part of the total returns. As indicated by Block (2008), there is an increasing trend to use share repurchases and both a supplement to dividend payouts, as well as a substitute for dividend payouts.

Whilst there was insufficient data to support the hypothesis, it is recommended that a similar study be conducted on a larger sample size over a longer study period and possibly with the inclusion of share repurchases as part of total returns, before the hypothesis is rejected outright.

6.7 Summary

The study found that dividends were not a significant contributor to total investor returns and that retention ratios were not able to predict future movements in companiesô share price or earnings. A negative correlation between retention ratios and ROE was identified. This correlation was not significant, but it was relevant in the same direction. The negative relationship suggested the more capital retained from income generated, the less effective managers were in their allocation of the capital. There was no correlation between ROE and total investor returns. There was no significant difference in the outcome for companies with high share trade activity and those with low share trade activity. However caution must be applied when considering the outcomes. The sample size was too small to allow for the use of parametric testing and the analysis was restricted to limited non-

e period of the study was too short to allow for mpact of industry and economic cycles on the data. Further studies should be conducted before any final conclusions can be made as to whether managers or investors are better allocators of capital.

The final chapter will summarise the study and draw together the results in a conclusion.

USION AND RECOMMENDATIONS

7.1 Introduction

In Chapter 6, the outcomes of the study were discussed and various interpretations were considered. No final conclusions could be drawn regarding managersô ability, or lack thereof, to effectively allocate capital retained from earnings generated without conducting further studies.

The discussion regarding dividends and why companies pay them has been the subject of deliberation within the finance world for a number of years, but remains a mystery. This discussion is also linked to a number of other discussions in the fields of corporate and investment finance, including those around investment decisions, funding decisions and what shareholders expect from their investments. Despite the fact that executives have acknowledged a reluctance to decrease dividends (Brav *et al.*, 2003), the available evidence from the worldôs largest equity market, the US, suggests that dividends have become increasingly less important (Block, 2008).

A review of a number of journals which have focused on payout ratios offered strong support for the need and apparent importance of dividend payouts. There was also strong evidence in the literature that is it necessary to retain earnings and reinvest them into the organisation to generate future earnings. Some concern seemed to exist and questions emerged around the role that managers fulfilled in the application of these funds.

The objective of the study was to determine whether managers were effective allocators of retained capital. The question was whether capital generated through retained income is better utilised by managers, or returned into the hands of the investors. To answer the question, the study attempted to find correlations between the amount

hrough income which managers retained and ompany, and certain management financial performance metrics.

The study focused on a specific industry in an attempt to minimise the impact of industry specific influences on the data. The fact that the mining industry was used presented a number of complications, as there were a number of new companies within the sample that had yet to generate sufficient earnings to justify paying dividends.

7.2 Recommendations

Based on the findings and limitations of the study, a number of areas are proposed for further research. These are suggested below.

Share repurchases have become a popular, alternative means of returning cash to shareholders. Constraints of time and the scope of the study meant that share repurchases were not considered as part of returns. This topic should be reserved for future research.

As discussed the sample was too small and was specific to one industry. It is recommended that a similar study be conducted on a larger sample across different industries before any final conclusions can be drawn.

Whilst there is support for the five year period of the study, it is recommended that the study be repeated over a longer period to allow for the smoothing of outliers and the impact of external economic factors on the data.

The data were split into two groups by a moderating variable which was the share trade activity level of the various companies. A recommendation for further study is that the moderating variable be the life cycle stage of the various companies which may have a major

ome, as companies in different stages of rent investment needs and different distribution patterns.

7.3 Conclusion

Unfortunately, the study was not able to support any of the hypotheses which were formulated in an attempt to get resolution to the question posed. The main reasons for this outcome rest with the data. The sample size was too small and was plagued by a number of outliers. The period of the study also was not long enough to smooth over external economic factors which could have impacted on the data and this added to complications around the integrity of the data.

The results from the study have not been able to offer guidance on whether managers are better allocators of capital generated through retained income than investors. At a first glance, it appears that managers are not effective allocators of capital generated through retained income and that capital would be better utilised in the hands of the investors. Despite the fact that the data did not support any of the hypotheses, it does not seem correct to dismiss them without a further expansion of the study or repeating the study within another industry over a longer period.

In conclusion, the study has not brought the research closer to resolving one of the greatest mysteries of the corporate finance world. The answers to the questions why companies pay dividends and why investors want dividends have yet to be answered with certainty. Therefore the dividend mystery remains and Black's (Black 1976 cited in Mann, 1989) dividend puzzle has yet to be solved.

Aivazian, V., Booth, L. and Clearly, S. (2003) Do emerging market companies follow different dividend policies from US companies? *Journal of Financial Research*, 26(3), 371-387

Arnott, R.D. and Asness, C. S. (2003) Surprise! Higher dividends = higher earnings growth. *Financial Analysts Journal*, 59(1), 70-87

Asem, E. (2009) Dividends and price momentum. *Journal of Banking and Finance*, 33 (2009), 486-494

Baker, H. K., Powell, G. E., Veit, E. T. (2002) Revisiting the dividend puzzle. Do all of the pieces now fit? *Review of Financial Economics*, 11, 241-261

Baker, M. and Wurgler, J. (2004) A catering theory of dividends. *The Journal of Finance*, 59(3), 1125-1165

Bhattacharya, S. (1979) Imperfect information, dividend policy and ñthe bird in the handòfallacy. *The Bell Journal of Economics,* 10(1), 259-270

Block, S. (2008) The changing nature of dividend policy and its implications for the investor. *The Journal of Investing*, Winter 2008, 21-28.

Bodie, Z., Kane, A., and Marcus, A. J. (2009) *Investments*. New York: McGraw-Hill Companies, Inc

Brav, A., Graham, J. R., Harvey, C. R., and Michaely, R. (2005) Payout policy in the 21st century. *Journal of Financial Economics*, 77, 483-527

Burke, S. (1998) Missing values, outliers, robust statistics, and non-parametric methods [Internet]. Statistical and Data Analysis: LCGC Europe Online Supplement. Available from

ceurope/data/articlestandard/lcgceurope/50200
3/10/09).

Charles, S. (2008) Corporate debt, variable retention rate and the appearance of financial fragility. *Cambridge Journal of Economics*, 2008 (32), 781-795

DeAngelo, H., and DeAngelo, L. (2006) The irrelevance of the MM dividend irrelevance theorem. *Journal of Financial Economics*, 79, 293-315

DeAngelo, H., DeAngelo, L., and Skinner, D.J. (2000) Special dividends and the evolution of dividend signalling. *Journal of Financial Economics*, 57, 309-354

DeAngelo, H., DeAngelo, L., and Skinner, D.J. (2004) Are dividends disappearing? Dividend concentration and the consolidation of earnings. *Journal of Financial Economics*, 72, 425-456

DeAngelo, H., DeAngelo, L., and Stultz, R. (2006) Dividend policy and earned/contributed capital mix: A test of the life-cycle theory. *Journal of Financial Economics*, 81, 227-254

Denis, D.J., and Osobov, I. (2008) Why do companies pay dividends? International evidence on the determinants of dividend policy. *Journal of Financial Economics*, 89, 62-82

Dong, M., Robinson, C., and Veld, C. (2005) Why individual investors want dividends. *Journal of Corporate Finance*, 12, 121-158

Easterbrook, F.H. (2001) Two agency-cost explanations of dividends. *The American Economic Review,* 74 (4), 650-659

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

R.[a] (2002) The equity premium. *Journal of*

Fama, E.F., and French, K.R.[b] (2002) Testing trade-off and pecking order predictions about dividends and debt. *The Review of Financial Studies*, 15(1), 1-33.

Fama, E.F., and French, K.R. (2006) Profitability, investment and average returns. *Journal of Financial Economics*, 82, 491-518

Fama, E.F., and French, K.R. (2007) The anatomy of value and growth stock returns. *Financial Analyst Journal*, 63(3), 44-54

Foerster, S. R., and Sapp, S.G. (2006) The changing role of dividends: A company-level study from the nineteenth to the twenty-first century. *Canadian Journal of Economics*, 39(4), 1316-1344

Gordon, M.J. (1959) Dividend, earnings and stock prices. *The Review of Economics and Statistics*, 41(2), 99-105

Gordon, M. J. (1962) The savings investment and valuation of a corporation. *The Review of Economics and Statistics*, 44(1), 37-51

Grullon, G., and Michaely, R. (2002) Dividends, share repurchases, and the substitution hypothesis. *The Journal of Finance*, 57(4), 1649-1684

Holder, M. E., Langrehr, F.W., and Hexter, J.L. (1998) Dividend policy determinants: An investigation of the influences of stakeholder theory. *Journal of Financial Management*, 27(3), 73-82

Howatt, B., Zuber, R. A., Gandar, J. M., and Lamb, R. P. (2009) Dividends, earnings volatility and information. *Applied Financial Economics*, 19, 551-562

Jensen, M.C. (1986) Agency cost of free cash flow, corporate finance and takeovers. *American Economic Review*, 76(2), 323-329

P., and Zorn, T.S. (1992) Simultaneous ship, debt and dividend policies. *The Journal of Financial and Quantitative Analysis*, 27(2), 247-263

John, K., and Williams, J. (1985) Dividends, dilution, and taxes: A signalling equilibrium. *Journal of Finance*, 40(4), 1053-1070

Latané, H.A., and Tuttle, D. L. (1967) An analysis of common stock price ratios. *Southern Economic Journal*, 33(3), 343-354

Lintner, J. (1956) Distribution on incomes or corporations among dividends, retained earning and taxes. *The American Economic Review*, 46(2), 97-113

Lintner, J. (1962) Dividends, earnings, leverage, stock price, and the supply of capital to corporations. *Review of Economics and Statistics*, 34(2), 305-319

Mann, S. V. (1989) The dividend puzzle: a progress report. *Quarterly Journal of Business and Economics*, 28(3), 3-33

Miller, M.H., and Modigliani, F. (1961) Dividend policy, growth, and the valuation of shares. *Journal of Business*, 34(4), 411-433

Miller, M., and Rock, K. (1985) Dividend policy under asymmetric information. *Journal of Finance*, 40(4),1031-1051

Mvelaphanda Resources Limited: Reviewed results for the year ended 30 June 2007 [Internet]. Available from http://www.mvelares.co.za/mvela_prelim_07/index.php (accessed 04/10/09).

Myers, S.C. (1984) The capital structure puzzle. *The Journal of Finance*, 39(3), 575-592

003) Dividend policy, trading characteristics and
ence from Egyptian companies. *International Journal of Theoretical and Applied Finance*, 7(2), 121-133

Oswald, D., and Young, S. (2008) Share reacquisitions, surplus cash and agency problems. *Journal of Banking and Finance*, 32, 795-806

Penman, S.H. (2007) *Financial statement analysis and security evaluation, 3rd edition*. New York: McGraw-Hill Companies Inc.

Singhania, M. (2005) Trends in dividend payout: A study of select Indian companies. *Journal of Management Research*, 5(3), 129 ï 142

StatsOnline (2009) Annual inflation on a monthly basis: Consumer price index (p0141) [Online]. Available from http://www.statssa.gov.za/keyindicators/cpi.asp (accessed 25/08/09).

Vivian, A. (2007) The UK equity premium: 1901 ï 2004. *Journal of Finance and Accounting*, 34(9) and (10), 1496-1527

Walter, J.E. (1956) Dividend policies and common stock prices. *The Journal of Finance*, 11(1), 29-41

Zikmund, W.G. (2003) *Business research methods, 7th edition.* United States of America: Thomson South Western.

APPENDICES

Appendix 1 Correlations between retention rate and percentage change in PE, percentage change in EPS, percentage change in dividend yield, percentage change in share price, percentage change in book value, percentage change in total return, percentage change in share trade activity and real percentage ROE

Spearman correlations - ranks	2002_% Retention rate	2003_% Retention rate	2004_% Retention rate	2005_% Retention rate	2006_% Retention rate	2007_% Retention rate	2008_% Retention rate
2002_% Change in PE	-0.455	-0.220	-0.332	-0.255	-0.167	-0.308	-0.361
2002_% Change in EPS	-0.110	-0.303	-0.073	-0.022	-0.078	-0.024	0.052
2002_% Dividend yield	-0.837	-0.798	-0.615	-0.493	-0.499	-0.664	-0.542
2002_% Real Change in Share Price	-0.150	-0.181	-0.144	0.116	-0.028	0.051	0.241
2002_% Change in book value	-0.045	0.016	-0.063	-0.124	-0.141	-0.134	-0.023
2002_% Total Return	-0.259	-0.360	-0.084	-0.109	0.060	-0.149	-0.099
2002_% Change in share trade activity	0.097	-0.346	0.123	0.101	-0.066	0.162	0.171
2002_Real ROE %	-0.590	-0.407	-0.543	-0.271	-0.320	-0.300	-0.227
2003_% Change in PE	-0.522	-0.311	-0.441	-0.202	-0.174	-0.253	-0.181
2003_% Change in EPS	-0.362	-0.105	-0.329	-0.152	-0.188	-0.190	-0.214
2003_% Dividend yield	-0.842	-0.801	-0.662	-0.526	-0.491	-0.654	-0.566
2003_% Real Change in Share Price	0.066	0.411	-0.028	0.264	0.019	0.203	0.186
2003_% Change in book value	-0.428	-0.194	-0.428	-0.204	-0.351	-0.272	-0.272
2003_% Total Return	-0.320	-0.073	-0.238	-0.046	-0.038	-0.111	-0.050

2003_Number of shares traded	-0.497	-0.475	-0.367	-0.296	-0.248	-0.420	-0.259
2003_% Change in share trade activity	-0.416	-0.216	-0.228	-0.038	0.022	-0.235	-0.169
2003_Real ROE %	-0.321	-0.331	-0.306	-0.071	-0.184	-0.074	-0.026
2004_% Change in PE	0.177	0.394	0.037	0.237	0.126	0.117	0.299
2004_% Change in EPS	-0.186	0.096	-0.245	-0.338	-0.215	-0.289	-0.356
2004_% Dividend yield	-0.926	-0.647	-0.777	-0.512	-0.612	-0.607	-0.557
2004_% Real Change in Share Price	0.133	0.322	0.027	-0.047	0.042	0.045	-0.074
2004_% Change in book value	-0.384	-0.203	-0.281	-0.012	-0.035	-0.147	-0.094
2004_% Total Return	-0.048	0.256	-0.124	-0.087	-0.024	-0.126	-0.100
2004_% Change in share trade activity	0.177	0.394	0.037	0.237	0.126	0.117	0.299
2004_Real ROE %	-0.593	-0.345	-0.570	-0.405	-0.585	-0.321	-0.493
2005_% Change in PE	-0.551	-0.322	-0.588	-0.229	-0.221	-0.270	-0.209
2005_% Change in EPS	0.163	0.136	0.202	-0.151	0.023	-0.131	-0.219
2005_% Dividend yield	-0.879	-0.534	-0.837	-0.624	-0.763	-0.574	-0.639
2005_% Real Change in Share Price	0.030	-0.050	0.009	-0.366	-0.325	-0.202	-0.371
2005_% Change in book value	-0.133	-0.168	-0.151	-0.279	-0.192	-0.187	-0.280
2005_% Total Return	0.116	0.085	0.026	-0.157	0.085	-0.053	-0.146
2005_% Change in share trade activity	0.460	0.322	0.421	0.114	0.144	0.315	0.043
2005_Real ROE %	-0.177	-0.081	-0.163	-0.244	-0.446	-0.100	-0.307
2006_% Change in PE	0.278	0.302	0.400	0.037	0.042	-0.024	-0.010
2006_% Change in EPS	-0.209	-0.461	-0.191	-0.467	-0.133	-0.431	-0.450
2006_% Dividend yield	-0.875	-0.521	-0.826	-0.682	-0.754	-0.667	-0.687
2006_% Real Change in Share Price	0.092	-0.112	0.206	-0.231	0.077	-0.235	-0.233
2006_% Change in book value	0.069	0.070	0.073	-0.054	0.299	0.012	-0.127

2006_% Total Return	0.222	0.005	0.349	-0.048	0.105	-0.168	0.005
2006_% Change in share trade activity	0.248	0.099	0.171	0.186	0.326	0.143	0.299
2006_Real ROE %	-0.248	-0.298	-0.128	-0.427	-0.467	-0.370	-0.441
2007_% Change in PE	-0.135	-0.149	-0.151	-0.041	0.070	0.057	-0.014
2007_% Change in EPS	0.172	0.138	-0.009	0.033	0.303	0.192	-0.012
2007_% Dividend yield	-0.861	-0.526	-0.868	-0.587	-0.668	-0.548	-0.667
2007_% Real Change in Share Price	-0.206	-0.102	-0.210	0.026	-0.188	-0.019	0.172
2007_% Change in book value	0.097	-0.085	0.012	-0.255	0.023	-0.108	-0.188
2007_% Total Return	0.117	0.034	-0.026	-0.016	0.243	0.241	-0.039
2007_% Change in share trade activity	-0.123	-0.278	-0.059	-0.163	-0.127	-0.021	-0.247
2007_Real ROE %	-0.218	-0.310	-0.158	-0.413	-0.523	-0.289	-0.443
2008_% Change in PE	-0.209	0.007	-0.363	-0.356	-0.546	-0.226	-0.302
2008_% Change in EPS	0.165	0.006	0.229	-0.094	0.101	-0.036	-0.059
2008_% Dividend yield	-0.754	-0.408	-0.710	-0.719	-0.709	-0.640	-0.798
2008_% Real Change in Share Price	-0.012	-0.004	0.095	-0.189	-0.073	-0.115	-0.202
2008_% Change in book value	0.229	0.046	0.195	-0.105	0.142	0.039	-0.128
2008_% Total Return	0.214	0.191	0.208	-0.047	-0.083	0.070	-0.001
2008_% Change in share trade activity	0.025	0.000	0.077	-0.084	0.147	-0.012	-0.168
2008_Real ROE %	-0.186	-0.273	-0.119	-0.482	-0.318	-0.371	-0.519

Appendix 2 Correlations between retention rate CAGR and percentage change in PE CAGR, percentage change in EPS CAGR, percentage change in dividend yield CAGR, percentage change in share price CAGR, percentage change in book value CAGR, percentage change in total return CAGR, percentage change in share trade activity CAGR and real percentage ROE CAGR.

Spearman correlations - ranks	2002_% Retention rate	2003_% Retention rate	2004_% Retention rate	2005_% Retention rate	2006_% Retention rate	2007_% Retention rate
CAGR % Change in PE 02-08	0.29					
CAGR % Change in PE 03-08	0.38	0.25				
CAGR % Change in PE 04-08	0.07	0.13	-0.06			
CAGR % Change in PE 05-08	0.45	0.29	0.29	0.19		
CAGR % Change in PE 06-08	0.22	0.21	-0.02	0.41	0.22	
CAGR % Change in PE 07-8	0.20	0.19	0.04	-0.06	-0.19	0.05
CAGR % Change in EPS 02-08	-0.18					
CAGR % Change in EPS 03-08	-0.13	-0.32				
CAGR % Change in EPS 04-08	0.04	-0.21	0.13			
CAGR % Change in EPS 05-08	-0.22	-0.24	-0.18	-0.04		
CAGR % Change in EPS 06-08	0.20	0.13	0.28	0.14	0.00	
CAGR % Change in EPS 07-8	0.00	-0.12	0.13	-0.18	-0.09	-0.16
CAGR % Change in Real Share Price 02-08	0.45					
CAGR % Change in Real Share Price 03-08	-0.13	-0.09				
CAGR % Change in Real Share Price 04-08	0.07	-0.07	0.23			
CAGR % Change in Real Share Price 05-08	0.18	0.17	0.33	0.34		
CAGR % Change in Real Share Price 06-08	0.03	0.10	0.03	-0.02	-0.09	
CAGR % Change in Real Share Price 07-8	0.05	0.03	0.08	-0.21	-0.11	-0.11
CAGR % Change in book value 02-08	0.09					
CAGR % Change in book value 03-08	0.31	0.06				
CAGR % Change in book value 04-08	0.41	0.21	0.33			
CAGR % Change in book value 05-08	0.13	0.09	0.19	0.07		
CAGR % Change in book value 06-08	0.16	0.01	0.21	-0.02	-0.18	

CAGR % Change in book value 07-8	0.01	0.02	0.11	0.04	0.07	-0.03
CAGR % Change in share trade activity 02-08	-0.09					
CAGR % Change in share trade activity 03-08	0.35	0.09				
CAGR % Change in share trade activity 04-08	0.00	-0.28	0.13			
CAGR % Change in share trade activity 05-08	-0.61	-0.50	-0.41	-0.25		
CAGR % Change in share trade activity 06-08	0.05	0.11	0.10	-0.11	-0.05	
CAGR % Change in share trade activity 07-8	0.10	0.11	0.17	0.20	0.26	0.07
CAGR % Change in Real ROE % 02-08	0.25					
CAGR % Change in Real ROE % 03-08	0.03	-0.06				
CAGR % Change in Real ROE % 04-08	0.43	0.03	0.47			
CAGR % Change in Real ROE % 05-08	0.45	0.09	0.43	0.10		
CAGR % Change in Real ROE % 06-08	0.24	0.20	0.21	0.15	0.04	
CAGR % Change in Real ROE % 07-8	0.23	0.21	0.18	0.07	0.28	0.08
CAGR % Change in PE 02-07	-0.06					
CAGR % Change in PE 03-07	0.32	0.10				
CAGR % Change in PE 04-07	-0.03	-0.17	0.06			
CAGR % Change in PE 05-07	0.26	0.15	0.24	0.11		
CAGR % Change in PE 06-07	-0.06	-0.19	-0.21	0.08	0.14	
CAGR % Change in EPS 02-07	0.15					
CAGR % Change in EPS 03-07	0.02	-0.07				
CAGR % Change in EPS 04-07	0.27	-0.01	0.25			
CAGR % Change in EPS 05-07	0.15	0.18	-0.04	0.19		
CAGR % Change in EPS 06-07	0.18	0.36	0.07	0.37	0.28	
CAGR % Change in Real Share Price 02-07	0.39					
CAGR % Change in Real Share Price 03-07	0.02	-0.22				
CAGR % Change in Real Share Price 04-07	-0.17	0.02	-0.06			
CAGR % Change in Real Share Price 05-07	-0.05	-0.07	-0.04	0.29		
CAGR % Change in Real Share Price 06-07	-0.15	-0.04	-0.17	0.14	-0.11	
CAGR % Change in book value 02-07	0.01					
CAGR % Change in book value 03-07	0.33	-0.04				
CAGR % Change in book value 04-07	0.30	0.02	0.19			

CAGR % Change in book value 05-07	0.11	-0.12	0.10	-0.12	
CAGR % Change in book value 06-07	0.03	-0.15	-0.04	-0.17	-0.27
CAGR % Change in Total Return 02-07	0.24				
CAGR % Change in Total Return 03-07	0.23	0.17			
CAGR % Change in Total Return 04-07	0.21	-0.07	0.16		
CAGR % Change in Total Return 05-07	0.28	0.24	0.20	0.17	
CAGR % Change in Total Return 06-07	0.06	0.15	-0.11	0.18	0.20
CAGR % Change in share trade activity 02-07	0.00				
CAGR % Change in share trade activity 03-07	0.06	-0.11			
CAGR % Change in share trade activity 04-07	-0.20	-0.48	0.00		
CAGR % Change in share trade activity 05-07	-0.50	-0.43	-0.39	-0.20	
CAGR % Change in share trade activity 06-07	-0.22	-0.32	-0.14	-0.34	-0.27
CAGR % Change in Real ROE % 02-07	0.26				
CAGR % Change in Real ROE % 03-07	0.14	0.10			
CAGR % Change in Real ROE % 04-07	0.49	0.16	0.50		
CAGR % Change in Real ROE % 05-07	0.34	0.09	0.34	0.10	
CAGR % Change in Real ROE % 06-07	0.26	-0.02	0.32	0.31	0.00
CAGR % Change in PE 02-06	0.17				
CAGR % Change in PE 03-06	0.47	0.24			
CAGR % Change in PE 04-06	0.20	0.07	0.36		
CAGR % Change in PE 05-06	0.50	0.35	0.55	0.13	
CAGR % Change in EPS 02-06	-0.23				
CAGR % Change in EPS 03-06	-0.21	-0.40			
CAGR % Change in EPS 04-06	-0.09	-0.39	-0.03		
CAGR % Change in EPS 05-06	-0.21	-0.22	-0.31	-0.21	
CAGR % Change in Real Share Price 02-06	0.11				
CAGR % Change in Real Share Price 03-06	-0.02	-0.17			
CAGR % Change in Real Share Price 04-06	-0.12	-0.47	0.01		
CAGR % Change in Real Share Price 05-06	0.07	0.01	0.05	0.11	
CAGR % Change in book value 02-06	0.01				
CAGR % Change in book value 03-06	0.16	0.03			

CAGR % Change in book value 04-06	0.46	0.23	0.36		
CAGR % Change in book value 05-06	0.15	0.11	0.25	0.14	
CAGR % Change in Total Return 02-06	-0.08				
CAGR % Change in Total Return 03-06	0.08	0.07			
CAGR % Change in Total Return 04-06	-0.13	-0.45	0.06		
CAGR % Change in Total Return 05-06	0.11	-0.02	0.23	-0.18	
CAGR % Change in share trade activity 02-06	0.18				
CAGR % Change in share trade activity 03-06	0.36	0.12			
CAGR % Change in share trade activity 04-06	0.10	-0.27	0.19		
CAGR % Change in share trade activity 05-06	-0.44	-0.38	-0.32	-0.11	
CAGR % Change in Real ROE % 02-06	0.29				
CAGR % Change in Real ROE % 03-06	0.10	0.10			
CAGR % Change in Real ROE % 04-06	0.37	0.10	0.46		
CAGR % Change in Real ROE % 05-06	0.11	-0.14	0.17	-0.06	
CAGR % Change in PE 02-05	-0.51				
CAGR % Change in PE 03-05	-0.07	-0.01			
CAGR % Change in PE 04-05	-0.49	-0.45	-0.37		
CAGR % Change in EPS 02-05	0.05				
CAGR % Change in EPS 03-05	0.07	0.09			
CAGR % Change in EPS 04-05	0.02	-0.09	0.17		
CAGR % Change in Real Share Price 02-05	0.14				
CAGR % Change in Real Share Price 03-05	-0.22	-0.40			
CAGR % Change in Real Share Price 04-05	-0.20	-0.48	-0.15		
CAGR % Change in book value 02-05	-0.23				
CAGR % Change in book value 03-05	0.02	-0.10			
CAGR % Change in book value 04-05	0.11	-0.05	0.03		
CAGR % Change in Total Return 02-05	-0.25				
CAGR % Change in Total Return 03-05	0.01	0.09			
CAGR % Change in Total Return 04-05	-0.40	-0.47	-0.35		
CAGR % Change in share trade activity 02-05	0.44				
CAGR % Change in share trade activity 03-05	0.53	0.33			

CAGR % Change in share trade activity 04-05	0.49	0.27	0.50		
CAGR % Change in Real ROE % 02-05	0.17				
CAGR % Change in Real ROE % 03-05	0.10	0.10			
CAGR % Change in Real ROE % 04-05	0.37	0.10	0.42		
CAGR % Change in PE 02-04	0.06				
CAGR % Change in PE 03-04	0.27	0.40			
CAGR % Change in EPS 02-04	-0.31				
CAGR % Change in EPS 03-04	-0.16	-0.10			
CAGR % Change in Real Share Price 02-04	0.35				
CAGR % Change in Real Share Price 03-04	0.01	-0.03			
CAGR % Change in book value 02-04	-0.26				
CAGR % Change in book value 03-04	-0.06	-0.22			
CAGR % Change in Total Return 02-04	0.03				
CAGR % Change in Total Return 03-04	0.11	0.13			
CAGR % Change in share trade activity 02-04	0.18				
CAGR % Change in share trade activity 03-04	0.41	0.37			
CAGR % Change in Real ROE % 02-04	-0.02				
CAGR % Change in Real ROE % 03-04	-0.16	0.08			
CAGR % Change in PE 02-03	-0.45				
CAGR % Change in EPS 02-03	0.03				
CAGR % Change in Share Price 02-03	-0.08				
CAGR % Change in Real Share Price 02-03	0.03				
CAGR % Change in book value 02-03	-0.25				
CAGR % Change in ROE% 02-03	-0.26				
CAGR % Change in Total Return 02-03	-0.15				
CAGR % Change in Number of shares traded 02-03	-0.43				
CAGR % Change in share trade activity 02-03	-0.39				
CAGR % Change in Real ROE % 02-03	-0.24				

Appendix 3 Correlations of raw data and CAGRs between retention rate CAGR for the following variables: percentage change in PE, percentage change in EPS, percentage change in dividend yield, percentage change in share price, percentage change in book value, percentage change in total return, percentage change in share trade activity and real percentage ROE.

Spearman correlations - ranks	2002_% Retention rate Total Group	2002_% Retention rate High Activity	2002_% Retention rate Low Activity
2003_% Change in PE	-0.522	-0.292	-0.695
2003_% Change in EPS	-0.362	0.032	-0.740
2003_% Dividend yield	-0.842	-0.939	-0.721
2003_% Real Change in Share Price	0.066	-0.014	0.243
2003_% Change in book value	-0.428	-0.457	-0.362
2003_% Total Return	-0.320	-0.058	-0.701
2003_% Change in share trade activity	-0.416	-0.428	-0.458
2003_Real ROE %	-0.321	0.000	-0.610
CAGR % Change in PE 03-04	0.270	-0.098	0.616
CAGR % Change in EPS 03-04	-0.161	-0.318	-0.048
CAGR % Change in Dividend yield 03-04	-0.312	-0.090	-0.381
CAGR % Change in Real Share Price 03-04	0.010	-0.243	0.192
CAGR % Change in book value 03-04	-0.059	0.094	-0.243
CAGR % Change in Total Return 03-04	0.111	0.225	0.045
CAGR % Change in share trade activity 03-04	0.408	0.662	0.283
CAGR % Change in Real ROE % 03-04	-0.158	-0.046	-0.212
CAGR % Change in PE 02-03	-0.446	-0.495	-0.362
CAGR % Change in EPS 02-03	0.030	0.538	-0.401
CAGR % Change in Dividend yield 02-03	-0.266	-0.222	0.072
CAGR % Change in Real Share Price 02-03	0.025	-0.051	0.286

CAGR % Change in book value 02-03	-0.254	0.075	-0.514
CAGR % Change in Total Return 02-03	-0.148	-0.185	-0.062
CAGR % Change in share trade activity 02-03	-0.393	-0.276	-0.416
CAGR % Change in Real ROE % 02-03	-0.238	0.046	-0.530

	2003_% Retention rate Total Group	2003_% Retention rate High Activity	2003_% Retention rate Low Activity
2004_% Change in PE	0.394	0.130	0.757
2004_% Change in EPS	0.096	0.107	0.124
2004_% Dividend yield	-0.647	-0.608	-0.618
2004_% Real Change in Share Price	0.322	0.023	0.497
2004_% Change in book value	-0.203	0.141	-0.497
2004_% Total Return	0.256	0.232	0.317
2004_% Change in share trade activity	0.394	0.130	0.757
2004_Real ROE %	-0.345	-0.158	-0.537
CAGR % Change in PE 04-05	-0.451	-0.384	-0.548
CAGR % Change in EPS 04-05	-0.088	0.237	-0.345
CAGR % Change in Dividend yield 04-05	0.674	0.203	0.955
CAGR % Change in Real Share Price 04-05	-0.479	-0.413	-0.492
CAGR % Change in book value 04-05	-0.046	0.034	-0.150
CAGR % Change in Total Return 04-05	-0.469	-0.090	-0.729
CAGR % Change in share trade activity 04-05	0.266	0.373	0.181
CAGR % Change in Real ROE % 04-05	0.095	0.034	0.181
CAGR % Change in PE 03-04	0.398	0.241	0.701
CAGR % Change in EPS 03-04	-0.097	-0.226	0.147
CAGR % Change in Dividend yield 03-04	0.300	-0.036	0.571
CAGR % Change in Real Share Price 03-04	-0.025	-0.424	0.283
CAGR % Change in book value 03-04	-0.220	0.062	-0.463
CAGR % Change in Total Return 03-04	0.129	0.153	0.220
CAGR % Change in share trade activity 03-04	0.366	0.401	0.526
CAGR % Change in Real ROE % 03-04	0.080	0.136	-0.017

	2004_% Retention rate Total Group	2004_% Retention rate High Activity	2004_% Retention rate Low Activity
2005_% Change in PE	-0.588	-0.717	-0.486
2005_% Change in EPS	0.202	0.125	0.328
2005_% Dividend yield	-0.837	-0.883	-0.817
2005_% Real Change in Share Price	0.009	-0.209	0.147
2005_% Change in book value	-0.151	0.125	-0.339
2005_% Total Return	0.026	0.084	-0.057
2005_% Change in share trade activity	0.421	0.418	0.441
2005_Real ROE %	-0.163	0.006	-0.271
CAGR % Change in PE 05-06	0.559	0.400	0.678
CAGR % Change in EPS 05-06	-0.316	-0.143	-0.441
CAGR % Change in Dividend yield 05-06	0.217	0.086	0.657
CAGR % Change in Real Share Price 05-06	0.050	-0.137	0.192
CAGR % Change in book value 05-06	0.251	0.215	0.486
CAGR % Change in Total Return 05-06	0.225	0.155	0.271
CAGR % Change in share trade activity 05-06	-0.316	-0.389	-0.237
CAGR % Change in Real ROE % 05-06	0.166	-0.036	0.356
CAGR % Change in PE 04-05	-0.372	-0.550	-0.130
CAGR % Change in EPS 04-05	0.166	-0.066	0.379
CAGR % Change in Dividend yield 04-05	0.092	0.348	-0.252
CAGR % Change in Real Share Price 04-05	-0.149	-0.251	-0.017
CAGR % Change in book value 04-05	0.028	0.191	-0.139
CAGR % Change in Total Return 04-05	-0.354	-0.502	-0.220
CAGR % Change in share trade activity 04-05	0.505	0.460	0.667
CAGR % Change in Real ROE % 04-05	0.421	0.526	0.384

	2005_% Retention rate Total Group	2005_% Retention rate High Activity	2005_% Retention rate Low Activity
2006_% Change in PE	0.037	-0.317	0.321
2006_% Change in EPS	-0.467	-0.209	-0.642
2006_% Dividend yield	-0.682	-0.669	-0.653
2006_% Real Change in Share Price	-0.231	-0.376	-0.162
2006_% Change in book value	-0.054	0.424	-0.598
2006_% Total Return	-0.048	-0.281	0.144
2006_% Change in share trade activity	0.186	0.006	0.263
2006_Real ROE %	-0.427	-0.239	-0.511
CAGR % Change in PE 06-07	0.076	0.012	-0.035
CAGR % Change in EPS 06-07	0.372	0.370	0.402
CAGR % Change in Dividend yield 06-07	-0.119	0.143	-0.314
CAGR % Change in Real Share Price 06-07	0.146	-0.155	0.390
CAGR % Change in book value 06-07	-0.172	-0.406	0.133
CAGR % Change in Total Return 06-07	0.176	0.442	-0.095
CAGR % Change in share trade activity 06-07	-0.335	0.030	-0.679
CAGR % Change in Real ROE % 06-07	0.307	0.119	0.561
CAGR % Change in PE 05-06	0.141	-0.024	0.286
CAGR % Change in EPS 05-06	-0.195	0.113	-0.442
CAGR % Change in Dividend yield 05-06	-0.154	0.086	0.086
CAGR % Change in Real Share Price 05-06	0.111	0.263	0.026
CAGR % Change in book value 05-06	0.141	0.281	-0.006
CAGR % Change in Total Return 05-06	-0.176	-0.251	-0.104
CAGR % Change in share trade activity 05-06	-0.110	-0.009	-0.199
CAGR % Change in Real ROE % 05-06	-0.064	0.018	-0.116

	2006_% Retention rate Total Group	2006_% Retention rate High Activity	2006_% Retention rate Low Activity
2007_% Change in PE	0.070	-0.006	0.396
2007_% Change in EPS	0.303	0.561	0.034

2007_% Dividend yield	-0.668	-0.559	-0.707
2007_% Real Change in Share Price	-0.188	-0.119	-0.220
2007_% Change in book value	0.023	-0.042	0.164
2007_% Total Return	0.243	0.430	0.141
2007_% Change in share trade activity	-0.127	-0.119	-0.497
2007_Real ROE %	-0.523	-0.442	-0.752
CAGR % Change in PE 07-8	-0.186	0.030	-0.463
CAGR % Change in EPS 07-8	-0.086	-0.293	0.271
CAGR % Change in Dividend yield 07-8	-0.291	-0.571	0.314
CAGR % Change in Real Share Price 07-8	-0.113	0.024	-0.209
CAGR % Change in book value 07-8	0.069	0.215	-0.102
CAGR % Change in Total Return 07-8	-0.042	-0.185	0.113
CAGR % Change in share trade activity 07-8	0.259	0.090	0.452
CAGR % Change in Real ROE % 07-8	0.280	0.472	0.130
CAGR % Change in PE 06-07	0.142	0.191	-0.045
CAGR % Change in EPS 06-07	0.277	0.424	0.192
CAGR % Change in Dividend yield 06-07	-0.133	0.314	-0.943
CAGR % Change in Real Share Price 06-07	-0.099	-0.137	-0.187
CAGR % Change in book value 06-07	-0.274	-0.227	-0.170
CAGR % Change in Total Return 06-07	0.204	0.496	-0.141
CAGR % Change in share trade activity 06-07	-0.269	-0.078	-0.633
CAGR % Change in Real ROE % 06-07	0.001	-0.006	-0.085

	2007_% Retention rate Total Group	2007_% Retention rate High Activity	2007_% Retention rate Low Activity
2008_% Change in PE	-0.226	-0.276	-0.066
2008_% Change in EPS	-0.036	0.217	-0.124
2008_% Dividend yield	-0.640	-0.587	-0.767
2008_% Real Change in Share Price	-0.115	0.276	-0.662
2008_% Change in book value	0.039	0.215	-0.217
2008_% Total Return	0.070	0.254	-0.084

2008_% Change in share trade activity	-0.012	-0.003	-0.393
2008_Real ROE %	-0.371	0.033	-0.696
CAGR % Change in PE 07-8	0.055	0.022	0.052
CAGR % Change in EPS 07-8	-0.155	-0.081	-0.208
CAGR % Change in Dividend yield 07-8	-0.159	-0.107	-0.200
CAGR % Change in Real Share Price 07-8	-0.114	0.092	-0.350
CAGR % Change in book value 07-8	-0.038	0.223	-0.468
CAGR % Change in Total Return 07-8	0.094	-0.098	0.257
CAGR % Change in share trade activity 07-8	0.065	-0.184	0.020
CAGR % Change in Real ROE % 07-8	0.076	0.474	-0.353