



**MBA 2010/2011**

**Stock Repurchases by Real Estate Investment  
Trusts:**

**Investors' reactions and the impact on share price  
performance**

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## ABSTRACT

This study examined the impact of open-market stock repurchases by Real Estate Investment Trusts (REITs) on the share price of the featured company. Two aspects of investment finance are rational behaviour and efficient markets. Both of these concepts were explored to understand why a share repurchase would have an impact on a company share price.

Causal research was conducted to analyse the correlation between a share repurchase event and the share price of the featured company. The share buyback announcements were collected from the Bloomberg database. The holding period returns were calculated and compared to zero to analyse whether there was any momentum or contrarian signals. The holding period returns were also adjusted for the average of the all REIT index to ascertain whether the returns were abnormal or not.

The results have shown share repurchase transactions to be contrarian indicators of share price performance. Even when the results were adjusted for the REIT index, the negative returns continued.

**Keywords:** Share price, Market signalling, Behavioural finance, Efficient Market

Hypothesis (EMH)

## DECLARATION

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 at any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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# CHAPTER 1 - INTRODUCTION TO THE RESEARCH PROBLEM

## 1.1 Research Title

Stock Repurchases by Real Estate Investment Trusts: Investors' reactions and the impact on share price performance

## 1.2 Research Problem

The scope of this research is to determine whether shares repurchase transactions by Real Estate Investment Trusts (REITs) result in a positive reaction by the market and a higher return to shareholders.

REIT stands for Real Estate Investment Trust and is sometimes called "real estate stock". Essentially, REITs are corporations that own and manage a portfolio of real estate properties and mortgages. Anyone can buy shares in a publicly traded

REIT. They offer the benefits of real estate ownership without the headaches or expense of being a landlord. No academic research has been conducted in South Africa regarding REIT stock repurchase transactions and the effect on shareholder returns. By studying the effect of this occurrence on United States (U.S.) REITs, valuable advice can be formulated to be presented to South African REITs. The REIT structure is still fairly unknown to the South African Real Estate industry, although the number of REITs and interest in the subject are rapidly increasing.

The forecast of stock returns has been an important subject that has attracted researchers' attention for many years (Enke and Thawornwong, 2005). Fundamentally, the forecast of stock returns is based on the assumptions that publicly available information from the past has some predictive relationship to future stock returns (Enke and Thawornwong, 2005). Boswijk, Hommes and Manzan (2007) explain that there are, however, at least two schools of thought with regard to the factors influencing stock price movements, namely those that believe in the market efficiency theory and those that explore the behavioural models to explain share price fluctuations and purported market inefficiency.

Understanding the factors that lead to this phenomenon can be a very powerful business tool for REIT investors, analysts and brokerage houses. A key element of corporate real estate and corporate finance theory is the return of operating profits to stockholders. As such, stock repurchases have been studied extensively. Masulis (1980), Dann (1981), Vermaelen (1981, 1984), Lakonishok and Vermaelen

(1990) and Brau and Holmes (2006) all document positive abnormal stock price performance around the announcement of stock repurchases.

Share repurchases have been an active area of financial research for the last couple of decades. It has also been increasingly significant in global financial markets. For example, in 1999, for the first time in history, the dollar volume of share repurchases exceeded the total amount of dividends paid by U.S. firms. In addition, regulators have been relaxing restrictions on buybacks, leading to the rapid growth of repurchases in the United States (Boudry, Kallberg and Liu, 2009).

The finance literature has documented significantly positive market reactions to stock repurchase transactions. A number of explanations have been proposed for the reasons why a firm would buy back its shares as well as the presence of positive excess returns following the announcement. The most commonly mentioned motives include the free cash flow hypothesis (Jensen, 1986), the signalling (or undervaluation) hypothesis (Dann, 1981; Comment and Jarrell, 1991), the target leverage ratio hypothesis (Bagwell and Shoven, 1988), and the takeover defence hypothesis (Bagwell, 1991), among others. While each of the proposed arguments can possibly explain why a firm initiates a stock repurchase program, they are not necessarily mutually exclusive. Indeed, Dittmar (2000) finds that the repurchasing decision of a firm tends to be influenced by multiple motives.

In this study, we will focus more on the signalling explanation for open-market stock repurchases announced by REITs. The managerial signalling hypothesis is based on asymmetric information between managers and shareholders. If management views the firm's shares as undervalued, the announcement of a repurchase may serve to homogenize the information sets between the two groups (Aharony and Swary, 1980; Vermaelen, 1984; Ofer and Thakor, 1987; Healy and Palepu, 1988; Constantinides and Grundy, 1989).

REITs have several unique attributes and hence some competing theories for stock repurchases are less likely to hold for REITs. For instance, REITs are required to pay out 90% of net income as dividends to shareholders in order to avoid income taxes. Moreover, REITs can distribute free cash flow beyond net income as tax-free return of capital to shareholders. Thus, the free cash flow effect is less important for REIT repurchases.

The most frequent interpretation of the signalling hypothesis is that the announcement of a repurchase program will precipitate a positive stock price reaction (Brau and Holmes, 2006).

## 1.3 Research Objectives

The fundamental question this research aims to answer is: “Are REIT stocks repurchase events effective momentum, neutral or contrarian indicators of a REIT’s share price performance?”

The main objectives of the research are:

- **Objective 1:** to determine whether share buy-back transactions are momentum indicators of REIT share price performance over the short, medium and long term.
- **Objective 2:** to determine whether share buy-back transactions are zero impact indicators of REIT share price performance over the short, medium and long term.
- **Objective 3:** to determine whether share buy-back transactions are contrarian indicators of REIT share price performance over the short, medium and long term.

## 1.4 Research Aim

The aim of this research is to ascertain whether a correlation exists between a share buyback done by a REIT and the performance of the REIT's share price. This could assist investors in making decisions with regard to buying or selling shares in their portfolio.

## CHAPTER 2 - LITERATURE REVIEW

### 2.1 Introduction

The earliest studies on repurchase transactions focused on the short- and long-term price impacts of the decision to repurchase shares. This section reviews some of the most relevant theoretical papers in order to frame an econometric analysis. It may be broken into four distinct sections: the signalling theory, the efficient market hypothesis (EMH), the inefficient market and behavioural finance.

The signalling hypothesis predicts that the market will react positively to a repurchase announcement. Dann (1981), Vermaelen (1981), and Stephens and Weisbach (1998) find results consistent with the signalling theory. Lo (2005) stated that most of modern investment theory was based on the EMH, thus understanding this theory is applicable to understanding how shares are priced.

However, in recent years many economists have started investigating the inefficiencies of the market. These inefficiencies stem from factors such as valuation metrics and behavioural factors. Most of the valuation metrics are retrospective and therefore the forecasting tools that are more forward looking

were also examined. Behavioural finance was examined in detail, as this is the underlying theory that has been explored to understand how investors make decisions.

## **2.2 Signalling Theory**

Dann (1981) finds a significant positive return to the firm upon the announcement of an open-market stock repurchase. Ikenberry, Lakonishok and Vermaelen (1995) find evidence of a long-term positive impact following the announcement. Managerial signalling of private information, the reduction of the agency cost of free cash flow and tax-related reasons have all been offered as theoretical explanations of the observed market reaction to repurchase transactions. The signalling theory argues that a repurchase announcement reveals positive private information that managers feel their shares are undervalued. Managers have an information advantage over the market and would not voluntarily elect to repurchase shares that the market overpriced, so the signalling hypothesis predicts the market will react positively to a share repurchase announcement (Diavatopoulos, Fodor and Howton, 2010).

The signalling hypothesis furthermore suggests that stock buybacks are associated with positive excess returns because managers use stock buybacks to convey favourable private information about their firms' future prospects (Vermaelen, 1981). However, Grullon and Michaely (2004) do not find any evidence that the profitability of repurchasing firms increases in the years after the repurchase. Rather than signalling improved operating performance, Oded (2005) suggests that open-market repurchase programs are a non-dissipative signalling tool. In his model, share repurchases are used by good firms to signal their value.

Giambona, Giaccotto and Sirmans (2005) argue that a compelling explanation of buyback programs is given by the signalling hypothesis, which is based on the notion that not all market participants have the same level of information. It is possible for example, that corporate insiders may have a better estimate of the current and future cash flow stream than outside shareholders; based on this cash flow estimate, management may deem the stock underpriced. Isagawa (2002) shows that firms that signal truthfully will earn a positive return by carrying out the buyback program. Lower-quality firms will not follow through or will buy fewer shares than previously announced.

The information-signalling hypothesis was first introduced in a study of the wealth effects of common stock repurchase activity by Vermaelen (1981). He argued that the willingness of managers to increase their holdings of a company's stock conveyed positive information to the market regarding the future cash flows of the

company. The signalling hypothesis is also supported by the results of Dann (1981), Vermaelen (1981) and Stephens and Weisbach (1998). Ikenberry, Lakonishok and Vermaelen (1995) document that announcing firms continue to experience additional positive abnormal returns during a 4-year window following the buyback announcement. They call this long-run positive performance an “under reaction hypothesis” because in an efficient market prices adjust quickly and correctly to new information

Brau and Holmes (2006) use six-month stock return and four-week stock return to capture management’s private information and find that they are significantly correlated with the three-day abnormal return surrounding the share repurchase announcement. Giambona, Golec and Giaccotto (2006) find that REIT repurchases contain information about the firms’ stock and operating performance in three to nine months. However, Adams, Brau and Holmes (2007) find negative abnormal returns for REITs beginning in the eighth month after the repurchase announcement. They suggest that this result is inconsistent with the signalling hypothesis if the positive news conveyed from the repurchase announcement is incomplete during the announcement period.

Giambona, Giaccotto and Sirmans (2005) found abnormal returns in the 24-month period following REIT stock repurchases. They suggest that the long-run post-repurchase price drift is driven by market undervaluation. The second interpretation is that the stock is fairly priced based on publicly available information, but is

undervalued if private information is considered. In this argument, a share repurchase is a means to convey positive private information on a firm's future operating performance to the market—the information signalling explanation (Vermaelen, 1984) (Miller and Rock, 1985). While both interpretations can explain the positive market reactions to share repurchase transactions, prior studies that analyzed REIT share repurchases tend to focus on the undervaluation explanation rather than on the information signalling explanation. For instance, Giaccotto Giambona, Golec and Giaccotto (2006) show that the size of a REIT repurchase program is positively related to the future (six-to-twelve months) funds from operation of the REIT. Huang, Liano and Pan (2010) find that the post-announcement abnormal return of REIT buybacks and the change in future profitability are positively related.

Jagannathan, Stephens and Weisbach (2000) and Guay and Harford (2000) find that dividends are used to distribute permanent cash flow while repurchases are used to distribute temporary cash flow. Alternatively, firms may prefer repurchasing shares rather than paying dividends because repurchases are associated with a reduced tax burden for shareholders. Only the realized capital gain portion of repurchases is taxed and the capital gains tax rate is less than that of dividends. However, the agency effect of the free cash flow hypothesis is less likely to hold for REITs because they are required to pay out at least 90% of net income as dividends to shareholders.

Share repurchases could also be used as a vehicle to deter takeovers (Bagwell, 1991). Bagwell (1991) argues that takeover-target firms can maintain corporate control by repurchasing stock, particularly when there is an upward-sloping supply curve of stock shares. However, the survey research by Brav, Graham, Harvey and Michaely (2005) reports that repurchase is not being used to deter takeovers. Still, a firm may repurchase shares to increase its leverage ratio. The finance literature suggests that firms may follow a target capital structure to minimize their costs of capital. When a firm has excess cash and its leverage ratio is below the target ratio, the firm may repurchase its shares to increase the leverage ratio (Bagwell and Shoven, 1988). According to this view, repurchase decisions are affected by a firm's capital structure.

## **2.3 Efficient Market Hypothesis**

The efficient market hypothesis (EMH) has enjoyed worldwide support over the last century. The impact of the EMH has been such that Lo (2005) stated that most of modern investment theory was based on the efficient market hypothesis. Fama (1970) explains that the primary role of capital markets is to allocate ownership of the economy's stock. In general terms, the ideal market is one that provides accurate signals for resource allocation; thus a market in which firms can make

production-investment decisions and investors can choose among the securities that represent ownership of firms' activities under the assumption that security prices at any time fully reflect all available information (Fama 1970). Fama (1970) defines a market in which prices always fully reflect available information as "efficient". A more basic definition for EMH is given by Lo (2005) as the notion that "markets fully, accurately and instantaneously incorporate all available information into market prices." The underlying idea is that investors are rational economic beings.

In addition, Fama (1991) stated that the efficient-markets literature was a prime example of where academic research had affected real-world practice. He stated that before theories on efficiency came about, the presumption had been that private information was plentiful among investment managers. The efficiency research, however, posed the challenge that private information was rare and thus one result thereof was passive investment strategies (Fama, 1991).

In the ideal world of Modigliani and Miller, with its perfect information and efficient markets assumptions, a dollar is always worth one dollar (Giambono, Giaccotto and Sirmans, 2005). In such a world share buyback programs have zero value for all stakeholders. But the growing number and size of corporate announcements suggest that these programs have information value or that markets are not 100% efficient and, therefore, firms can buy back their shares for less than true market value (Giambono, Giaccotto and Sirmans, 2005).

Timmermann and Granger (2004) stated that EMH was special because investors' current and future forecasts of payoffs affected their current and future trades which in turn affected returns. Therefore, investors' learning's gave rise to the likely demise of stable forecasting models and this posed a unique challenge both to establishing successful forecasting procedures and to forecast evaluation.

Malkiel (2003) concluded that neither technical analysis nor fundamental analysis would enable an investor to achieve greater returns than those that could be obtained by holding a randomly selected portfolio of individual stocks. Technical analysis is defined as the study of past stock prices in an attempt to predict future prices and fundamental analysis as the analysis of financial information such as company earnings and asset values (Malkiel 2003).

However, there are academics that have tried to prove the inefficiencies of the market. Fama (1991) acknowledged that there was a substantial amount of research on the predictability of stock returns from past returns and other variables and that the controversy about EMH largely centred on this work.

## 2.4 Inefficient Market

In recent years many economists have come to question the EMH, as there seem to be several instances of the failure of market prices to reflect all available information. One such instance was the technology-internet bubble of the late 1990s and the early 2000s that convinced many analysts that the EMH should be rejected (Malkiel, 2005).

The view of a new breed of economists is that stock prices are at least partially predictable. They have emphasised psychological and behavioural elements of stock price determination, and have come to believe that future stock prices are somewhat predictable on the basis of past stock price patterns as well as certain fundamental valuation metrics, such as dividend yields and price-earnings (P/E) ratios (Malkiel, 2003). Shiller (2003) pointed out that even Fama's research, while highly enthusiastic in its conclusions for market efficiency, reported some anomalies such as slight serial dependencies in stock market returns. Therefore the evidence shows that the market has some sources of inefficiencies, mostly stemming from psychological and behavioural elements as well as valuation metrics such as dividend yields and P/E ratios. Because of these inefficiencies a good deal of time and energy has been devoted to identifying and explaining the factors that influence share price performance.

Basu (1977) completed a study to determine whether the investment performance of common stocks was related to their P/E ratios. Proponents of the price ratio hypothesis claimed that low P/E stocks would tend to outperform high P/E stocks. The principle was that stock prices were biased and that the P/E ratio was an indicator of that bias. He further found that low P/E portfolios earned superior returns on a risk-adjusted basis. Basu (1977) stated that contrary to the belief that publicly available information was immediately impounded in security prices, there seemed to be a lag and friction in the adjustment process. Therefore, publicly available P/E ratios seemed to possess informational content. According to O'Hara and Lazdowski (2000) the three financial indicators that have been successful to predict long-term success have been dividends per share, cash flow per share and earnings per share. O'Hara et al. (2000) found in their research that companies who increased their earnings per share on a consistent basis saw a strong positive correlation between the change in earnings per share and the share price of the company. A similar correlation was observed with companies that increased their cash flow per share. The increase in dividend per share was not as predictive of the share price performance of the companies.

The issue with valuation metrics such as P/E ratios and dividend yields is the fact that they are all retrospective while investors are forward looking. There is, however, some evidence supporting the ability to forecast share price performance, but the results are mixed.

The forecast of stock returns is based on the assumption that publicly available information in the past has some predictive relationship to future stock returns (Enke and Thawornwong, 2005). The efficient market hypothesis makes forecasting stock returns even more difficult. EMH states that the market constitutes all available information affecting current stock values before the general public may trade based on it (Jensen, 1978). According to EMH, beating the market is impossible as all information is taken into account. Enke and Thawornwong (2005) concluded that financial forecasting would always remain difficult because the data was greatly influenced by economic, political, international and even natural events.

Lam (2004) investigated the ability of neural networks to integrate fundamental and technical analyses for financial performance. Lam (2004) found that a trained neural network was more efficient, but that macro-economic variables still had to be taken into account. Huang, Nakamori and Wang (2005) even studied whether a support vector machine (SVM) could accurately forecast stock market movements. Huang et al. (2005) concluded that by combining the SVM with other classification methods the forecasting became more accurate. They also acknowledged that each forecasting tool had its strengths and weaknesses, and therefore a combined model was proposed. However, Kim (2003) concluded that SVM provided a promising alternative for financial time series forecasting.

Nutt, Easterwood and Easterwood (1999) addressed the forecasting errors that financial analysts made. The traditional view was that financial analysts were rational experts who forecasted earnings, evaluated risk, identified mispriced securities and provided statistically optimum forecasts. Nutt et al. (1999) further explained that several studies had shown that analysts' forecast earnings were biased and analysts either under reacted or over reacted to new information which caused forecast errors. They further stated that most of these forecast errors showed a positive serial correlation. According to the study this was often interpreted as evidence that analysts failed to incorporate new information into their earnings forecasts immediately and accurately. Such forecast inefficiencies could have serious implications for securities markets where analysts' forecasts were believed to be both rational and optimal (Nutt et al. 1999). Nutt et al. (1999) found that while the analysts' forecasts might not have been statistically optimal, they were not that economically irrational and that the reason for optimistic forecasts was largely due to the analysts' economic incentive.

Forecasting share price performance remains a difficult task, with mixed results. The human factor will always play a big part in making these financial and investment decisions, even with the latest technology creating stronger and faster tools to recognise patterns and evaluate different kinds of variables.

## 2.5 Behavioural finance

Over the past decade the field of behavioural finance has evolved by taking into consideration how personal and social psychology influence financial decisions and the behaviour of financial markets. Behavioural finance challenges the efficient market hypothesis based on certain behavioural biases that are ubiquitous to human decision-making. Ricciardi and Simon (2000) defined behavioural finance as “the attempt to explain and increase the understanding of the reasoning patterns of investors, including the emotional process involved and the degree to which they influence the decision making process”.

Ricciardi and Simon (2000) argued that to comprehend fully the theory of behavioural finance it was important to understand the foundations of this field. The underlying foundation of behavioural finance is grounded in the concepts of finance, psychology and sociology. Behavioural finance offers new and useful perspectives on the ways markets actually work and help us to understand why many individual investors actually lose money in the stock market. Bloomfield (2006) further explained that behavioural finance began as an attempt to understand why financial markets reacted inefficiently to public information.

Baker, Ruback and Wurgler (2004) concluded that behavioural approaches to investment finance offered a useful complement to other paradigms in the field.

The research stated that these approaches delivered intuitive and sometimes quite compelling explanations for important financing and investing patterns. Shefrin (2001) stated that behavioural finance held important implications for the practice of investment finance. The traditional approach to corporate finance was based on three concepts: rational behaviour, the capital asset pricing model (“CAPM”) and efficient markets. The proponents of behavioural finance argued that psychological forces had an impact on all three of these concepts (Shefrin, 2001).

Shefrin (2001) recognised that there were two behavioural impediments to the process of value maximisation in a firm, one internal and the other external to the firm. The internal impediment was defined as behavioural costs, which were defined as costs that stemmed from psychologically induced errors made by managers and employees. The external impediment stemmed from psychologically induced errors made by analysts and investors.

Attention-buying behaviour is another aspect of behavioural finance. Barber and Odean (2006) stated that human beings had restricted rationality, which meant there were cognitive limits to how much information an individual could process. Therefore individuals were not able to make a decision easily based on thousands or even hundreds of alternatives. Barber and Odean (2006) argued that investors were more likely to purchase attention-grabbing stocks. An example of this kind of behaviour was encountered when contrarian investors tended to buy out-of-favour

stocks, whereas momentum investors would tend to buy stocks that had recently performed well.

Economists have been battling for years to make sense of the question of why stock prices fluctuate so much compared to economic fundamentals. Markets have always been volatile with stock price fluctuations significantly larger than movements in the underlying economic fundamentals (Boswijk et al. 2007). Boswijk et al. (2007) explained that there were two schools of thought on this subject, namely those that believed in the market efficiency theory and those that explored the behavioural models to explain the fluctuations. Boswijk et al. (2007) found that their model was consistent with the view of the fundamentalists in that mean-reverting expectations had limited capital to arbitrage the mispricing and this forced stock prices back to their fundamental values. Boswijk et al.'s (2007) behavioural model suggested that in the mid-1990s optimistic investors, motivated by short-run profitability, reinforced the rise in stock prices triggered by higher expected cash flows from the internet sector.

Vega (2006) explained that instead of adjusting immediately to news surprises, such as share buyback announcements, stock prices tend to drift in the same direction as the initial surprise over time. The study gave three explanations for the existence of post-announcement drift or earnings momentum. Transactions with unexpectedly high/low earnings made investing in these firms more/less risky. This anomaly might then have been linked to high transaction costs. Lastly, the drift

could have been a function of the type of information that agents received. Vega (2006) concluded that, whether information was public or private, was irrelevant and stated that what mattered more was that information was associated with the arrival rate of informed or uninformed traders. Thus the phenomenon of post-announcement drift and certain behavioural models seem to indicate why share prices move, but there are also indicators in the market that may guide investors to identify the direction in which a share might move next.

For the purpose of this research it was important to understand what the terms contrarian and momentum investor constitute. Goetzmann and Massa (2000) categorised investors in terms of momentum and contrarian investment patterns by using individual account activity to classify investors according to their conditional pattern of share purchases and redemptions. They indicated that momentum investors reacted on a daily, rather than on a weekly, monthly or annual basis. Momentum investors purchased when the market rose and sold when the market fell. According to Goetzmann and Massa (2000), contrarian investors were characterised in exactly the opposite fashion. Thus, contrarian investors bought after a drop in the market and sold after a rise in the market.

Drehmann, Oechssler and Roider (2005) concluded that the contrarian behaviour of investors could sometimes have a stabilising effect on the market, as these investors tend to differentiate their investments from those of the rest of the market.

## 2.5 Conclusion

This study focussed on the impact that share buyback transactions had on the share price of a REIT. Such a study has not been completed in South Africa before. The goal was to measure specifically something more indicative of the future, in allowing a specific trading strategy to succeed, rather than just a quick adjustment by the market. That means that this study attempted to identify more examples of inefficiency in the market that could be exploited by investors.

## CHAPTER 3 - RESEARCH HYPOTHESES

In order to explore whether share repurchase transactions were momentum, neutral or contrarian indicators of REIT's future performance, the research objectives were combined with the literature reviewed and the following hypotheses were proposed:

### 3.1 Objective 1

#### Hypothesis 1

Share buybacks are momentum indicators of a REIT's holding period return.

Formally this is stated as:

Null hypothesis:  $HPR_p > 0$

Alternative hypothesis:  $HPR_p = 0$

where  $HPR_p$  is the Holding Period Return before and after the share buyback transaction.

## Hypothesis 2

Share buybacks are momentum indicators of a REIT's adjusted return. The adjusted return is the REIT's average holding period return minus the equivalent holding period return for the index. This determines whether there were any abnormal returns over and above the industry average. Formally this is stated as:

Null hypothesis:  $AR_p > 0$

Alternative hypothesis:  $AR_p = 0$

where  $AR_p$  is the Adjusted Return before and after the share buyback transaction.

## 3.2 Objective 2

### Hypothesis 3

Share buybacks have no impact on a REIT's holding period return. Formally this is stated as:

Null hypothesis:  $HPR_n = 0$

Alternative hypothesis:  $HPR_n \neq 0$

where  $HPR_n$  is the Holding Period Return before and after the share buyback transaction.

## Hypothesis 4

Share buybacks have no impact on the industry-adjusted return of a company. The adjusted return is the REIT's average holding period return minus the equivalent holding period return for the index. This determines whether there were any abnormal returns over and above the industry average. Formally this is stated as:

Null hypothesis:  $AR_n = 0$

Alternative hypothesis:  $AR_n \neq 0$

where  $AR_n$  is the Adjusted Return before and after the share buyback transaction.

### 3.3 Objective 3

#### Hypothesis 5

Share buybacks are contrarian indicators of a REIT's holding period return.

Formally this is stated as:

Null hypothesis:  $HPR_n > 0$

Alternative hypothesis:  $HPR_n = 0$

where  $HPR_n$  is the Holding Period Return before and after the share buyback transaction.

## Hypothesis 6

Share buybacks are contrarian indicators of a REIT's industry-adjusted return. The adjusted return is the company's average holding period return minus the equivalent holding period return for the index. This determines whether there were any abnormal returns over and above the industry average. Formally this is stated as:

Null hypothesis:  $AR_n > 0$

Alternative hypothesis:  $AR_n = 0$

where  $AR_n$  is the Adjusted Return before and after the share buyback transaction.

The above-mentioned hypotheses were tested over different time horizons that were defined under the research design section. These time horizons covered the short, medium and long-term impact that the share buyback announcement had on a REIT's share price performance.

## CHAPTER 4 - RESEARCH METHOD

### 4.1 Introduction

Investors make investment decisions every day based on assumed causal relationships. Blumberg (2008) defines causal research as research concerned with learning why – that is, how one variable produces change in another. The impact of share repurchase transactions on share prices cannot be assumed or justified, thus formal causal research is needed to examine the causal relationship between these variables.

### 4.2 Research design

Blumberg (2008) defines a research design as “the blueprint for fulfilling objectives and answering questions”. The objective of this research was to determine whether REIT stock repurchases were indicators of REITs’ share price performance (momentum, neutral or contrarian).

According to Blumberg (2008) secondary data is information or data that has already been collected and recorded by someone else, usually for other purposes. Therefore this research was based on secondary data. The secondary data needed to do the research consisted of the share prices of companies as well as share buyback transactions over a certain period.

The study was therefore quantitative by nature and not qualitative as no exploratory research was needed. The quantitative research design was of a causal nature and not descriptive. This research took the form of a standard event study methodology to compute the return for an equally-balanced portfolio of the sample events.

For the purpose of this research, to qualify as a Real Estate Investment Trust (REIT) a firm should earn at least 75 percent of its income from real estate related investments and 95 percent of its income from these sources as well as dividends, interest and gains from securities sales. In addition, at least 75 percent of its assets should be invested in real estate, mortgages, REIT shares, government securities, or cash. In addition to the asset and income tests, tax law requires REITs to pay out a minimum percentage of their taxable income as dividends each year. The minimum percentage used to be 95 percent, but tax changes reduced it to 90 percent in 2000.

All companies classified as publicly traded United States REITs were examined for the purposes of this study. The performances of these companies' share prices were also benchmarked against the Dow Jones Composite All REIT Index, which contains all the publicly traded U.S. REITs in the Dow Jones U.S. stock universe. This assisted in identifying any abnormal returns that may have been caused by the transactions.

All REIT stock repurchase transactions between 1997 and 2011 were retrieved from the Bloomberg database. The criteria for inclusion were: (1) the transaction was classified as an open market share repurchase, and (2) the firm was a REIT (SIC Code 6798). The stock price performance was measured for 24 months prior to and 24 months after the date of the share buy-back transaction. The impact of these transactions on the stock prices of a REIT was tested over a 1,000-day horizon. This constituted 500 days prior to and 500 days following the transaction.

The effect of a share repurchase transaction on a REIT's share price was analysed based on the calculation of the holding period return (HPR) over different timeframes pre- and post-announcement. HPR is the percentage by which the value of a share has grown or decreased for a particular period. Thus, HPR is calculated by taking the share price at the beginning of the period, then adding any returns, i.e. dividends received during the period, and then subtracting those from the share price at the end of the period. This value is then divided by the share price value at the beginning of the period to provide the HPR percentage of the

specific share. For the purposes of this study, only capital returns were measured, thus any dividends received were excluded from the HPR calculation.

The paper studied the performance of U.S. REITs which purchased their own shares over both short and long term periods prior to and after the events. As per a study done by Arnold, Earl and North (2007) the HPR was calculated for one month (-21 to -1 trading days), six months (-125 to -1 trading days), 12 months (-250 to -1 trading days) and 24 months (-500 to -1 trading days) prior to the share buy-back announcement. The same HPR was also calculated after the repurchase date, as well as an additional 1 to 5 day period to examine the short-term effects. The date of the repurchase was excluded from the calculation of the HPR to allow for testing whether the repurchase was a momentum or contrarian indicator. The HPRs for all the REITs within a category for various time horizons before and after the buy-back announcement dates were then compared to zero. Thus, an attempt was made to analyse whether there was any statistically significant return caused by the announcement.

The HPRs of the selected REITs affected by stock repurchase transactions were further compared to the Dow Jones Composite All REIT Index. The calculation of the adjusted return (AR) and comparing it to zero were used to determine the incidence of any abnormal returns.

The AR is the average of the holding-period returns minus the equivalent holding period returns for the value-weighted industry stock index, in this case the Dow Jones Composite All REIT Index.

### **4.3 Unit of analysis**

In order to answer the hypotheses stated earlier the unit of analysis for the research was the REIT which announced a share repurchase event.

### **4.4 Population**

The population of relevance will consist of all the REITs listed in the United States which entered into stock repurchase transactions from 1997 to 2011.

## **4.5 Sampling method and size**

The method of sampling that was used was a quota non-probability sample. Zikmund (2003) defined quota sampling as a non-probability sampling procedure that ensured that certain characteristics of a population sample would be represented to the exact extent that the investigator desired. As the sample included only REITs, the sampling technique falls in this categorization.

The sample of 202 REIT open market repurchase transactions was taken from the Bloomberg database for the years 1997 through 2011.

## **4.6 Data gathering**

The share prices as well as the open market repurchase dates of the relevant REITs were obtained from the Bloomberg database.

## 4.7 Data analysis

The share prices of the REITs that were featured in share repurchase transactions were used to calculate the HPR for the specific period that was tested. A t-test is a statistical test used to evaluate the hypothesis that the mean scores on some interval-scaled variable are significantly different for two independent samples or groups (Zikmund, 2003). It is used when the sample size is small and when the population standard deviation is unknown.

## 4.8 Research limitations

This research had the following limitations:

- The research was done only on REITs in the United States, thus the results for other parts of the world could be very different.
- The researcher could have misinterpreted the effect of the transaction and therefore categorised it incorrectly.

- The study only included listed REITs that did share buy-backs between 1997 and 2011. Thus any transactions outside these dates were excluded.
- The research was done only on REITs, thus the results for other industries and stocks could be very different.
- The research looked only at capital return on stock and excluded any dividends received in the relevant periods.
- The research did not take into account any events, other than stock repurchases, that might have an effect on share price performance.

## **CHAPTER 5 - RESULTS**

### **5.1 Introduction**

The following section presents the research findings from the analysis conducted in Chapter Four that either supports or contradicts the research hypotheses. The results are presented with each hypothesis used as a sub-heading. A conclusion is drawn at the end of the chapter as to whether the evidence supports the various null or alternative hypotheses.

### **5.2 Discussion of the secondary data**

All companies that were classified as U.S.-listed REITs were selected for this research. The performance of these REITs was also benchmarked against the Dow Jones Composite All REIT index. The REIT industry was selected because REITs provide novel insights into the information conveyed about rivals through open market repurchase announcements in several ways. Firstly, the motivation for

REITs to repurchase is limited when compared to broader samples due to their regulatory requirement to pay out cash in the form of dividends and the fact that they do not pay corporate taxes. Secondly, REITs compete in different real estate segments and can be matched by their property focus to allow for a more homogeneous set of rival firms than studies focusing on industrial enterprises. However, the most prominent feature that makes the REIT segment interesting in the context of repurchases is the regulatory requirement that REITs have to pay out at least 90 percent of their net income to maintain their advantageous tax status. REITs do not pay income taxes at the corporate level as long as they meet this and other operational requirements.

The stock buyback transaction dates were collected from the Bloomberg database. In total 202 buybacks were done by all REITs currently listed in the United States. These transactions spanned a fourteen-year period, from 1997 to 2011.

The descriptive statistics in the next section were used in the analysis. The mean is calculated by adding together the values of a variable for all observations and then dividing it by the number of observations (Norusis, 2005). This describes the central tendency of the data. The standard deviation is calculated as the square root of the variance (Norusis, 2005). This describes the dispersion of the data. Since standard deviation is a direct form of variance, it will be used instead of the latter when reporting. The median is considered another measure of central tendency. It is the middle value when observations are arranged from the smallest

to the largest (Norusis, 2005). Skewness is a measure of symmetry of a distribution; in most instances the comparison is made to a normal distribution (Hair, Black, Babin, Anderson and Tatham, 2006). Schepers (undated) emphasises that those variables with a skewness higher than two should be avoided. Kurtosis is a measure of the peakedness or flatness of a distribution when compared with the normal distribution (Hair et al. 2006). Leptokurtosis is normally associated with low reliabilities and should be avoided at all costs. Indices as high as seven are rather extreme and signify very low reliabilities (Schepers, undated).

Table 1 below summarizes the descriptive statistics which were used in the analysis of the stock price returns over the various time horizons and for the variables.

Table 1 Descriptive Statistics for U.S.-listed REITS

	n VALID	n MISSING	MEAN	MEDIAN	STD. DEVIATION	SKEWNESS	STD. ERROR OF SKEWNESS	KURTOSIS	STD. ERROR OF KURTOSIS
-500 SP	186	16	31.216	22.880	34.290	3.473	0.178	14.391	0.355
-500 INDEX	200	2	213.245	195.185	66.106	0.433	0.172	-1.017	0.342
-500 HPR SP	186	16	-0.040	-0.096	0.684	8.574	0.178	98.415	0.355
-500 HPR INDEX	200	2	-0.021	-0.026	0.288	0.344	0.172	1.132	0.342
-250 SP	197	5	29.732	22.082	31.415	3.122	0.173	12.846	0.345
-250 INDEX	202	0	213.334	210.635	67.548	0.352	0.171	-1.153	0.341
-250HPR SP	197	5	-0.012	-0.100	1.313	13.222	0.173	181.882	0.345
-250 HPR INDEX	202	0	-0.041	-0.041	0.195	-0.479	0.171	0.781	0.341
-125 SP	201	1	30.416	21.600	36.930	4.182	0.172	25.240	0.341
-125 INDEX	202	0	213.617	219.245	67.435	0.349	0.171	-0.990	0.341
-125HPR SP	201	1	-0.084	-0.076	0.317	6.400	0.172	70.966	0.341
-125 HPR INDEX	202	0	-0.050	-0.047	0.153	-0.906	0.171	1.712	0.341
-21 SP	202	0	26.267	18.571	25.542	2.225	0.171	5.513	0.341
-21 INDEX	202	0	204.985	188.040	67.145	0.320	0.171	-1.267	0.341
-21 HPR SP	202	0	-0.023	-0.011	0.118	0.089	0.171	4.093	0.341
-21 HPR INDEX	202	0	-0.019	-0.008	0.074	-1.119	0.171	3.901	0.341
-5 SP	202	0	25.662	17.979	24.977	2.218	0.171	5.570	0.341
-5 INDEX	202	0	201.927	188.540	66.188	0.331	0.171	-1.262	0.341
-5 HPR SP	202	0	0.004	0.001	0.081	0.938	0.171	6.144	0.341
-5 HPR INDEX	202	0	-0.006	-0.002	0.036	-2.463	0.171	11.971	0.341
+5 SP	202	0	25.231	17.814	24.262	2.184	0.171	5.349	0.341
+5 INDEX	202	0	200.559	186.200	65.829	0.344	0.171	-1.219	0.341
+5 HPR SP	186	16	-0.039	-0.094	0.718	8.853	0.178	102.833	0.355
+5 HPR INDEX	202	0	0.002	0.000	0.032	0.974	0.171	6.417	0.341
+21 SP	201	1	25.274	17.875	24.249	2.168	0.172	5.265	0.341
+21 INDEX	201	1	199.675	178.710	66.445	0.404	0.172	-1.175	0.341

**Table 1 Descriptive Statistics for U.S.-listed REITS**

<b>+21 HPR SP</b>	185	17	-0.039	-0.104	0.634	7.147	0.179	75.815	0.355
<b>+21 HPR INDEX</b>	201	1	-0.002	0.002	0.058	-0.642	0.172	4.426	0.341
<b>+125 SP</b>	192	10	25.259	19.734	23.516	1.953	0.175	4.340	0.349
<b>+125 INDEX</b>	192	10	197.653	166.440	68.539	0.464	0.175	-1.182	0.349
<b>+125 HPR SP</b>	177	25	-0.049	-0.081	0.674	6.659	0.183	68.189	0.363
<b>+125 HPR INDEX</b>	192	10	0.001	0.029	0.144	-1.349	0.175	2.747	0.349
<b>+250 SP</b>	192	10	25.583	20.344	26.068	2.969	0.175	13.625	0.349
<b>+250 INDEX</b>	192	10	196.323	166.810	66.106	0.650	0.175	-0.856	0.349
<b>+250 HPR SP</b>	177	25	-0.028	-0.056	0.738	6.663	0.183	68.594	0.363
<b>+250 HPR INDEX</b>	192	10	0.018	0.068	0.222	-0.869	0.175	1.193	0.349
<b>+500 SP</b>	173	29	24.695	19.610	22.458	2.871	0.185	13.642	0.367
<b>+500 INDEX</b>	185	17	190.127	165.350	64.157	1.066	0.179	0.170	0.355
<b>+500 HPR SP</b>	167	35	-0.063	-0.069	0.553	1.405	0.188	5.084	0.374
<b>+500 HPR INDEX</b>	185	17	0.028	0.081	0.344	-0.147	0.179	-0.650	0.355
<b>-500 AR</b>	184	18	-0.015	-0.042	0.596	9.573	0.179	115.624	0.356
<b>-250 AR</b>	197	5	0.027	-0.064	1.271	13.568	0.173	188.261	0.345
<b>-125 AR</b>	201	1	-0.034	-0.041	0.276	8.253	0.172	98.625	0.341
<b>-21 AR</b>	202	0	-0.004	-0.009	0.105	0.693	0.171	6.548	0.341
<b>-5 AR</b>	202	0	0.010	0.004	0.083	0.886	0.171	5.801	0.341
<b>5 AR</b>	186	16	-0.041	-0.096	0.721	8.792	0.178	101.891	0.355
<b>21 AR</b>	185	17	-0.038	-0.101	0.626	7.265	0.179	77.427	0.355
<b>125 AR</b>	177	25	-0.047	-0.100	0.643	7.156	0.183	74.930	0.363
<b>250 AR</b>	177	25	-0.046	-0.103	0.704	6.999	0.183	73.536	0.363
<b>500 AR</b>	167	35	-0.090	-0.103	0.499	0.988	0.188	4.904	0.374

The effect of a stock buyback announcement on the holding period return (HPR) of a REIT was investigated for ten different time horizons ranging from 24 months before the date of the share buyback (-500 days), to 24 months after the date of the event (+500 days). Table 2 below shows the average HPR for all the transactions at the different time horizons. These seem not be consistent with what we would believe the performance trend to be for REITs that enter into open market share repurchase transactions, that is positive post-transaction period returns.

During the time horizon -125 to -1 days prior to the share buyback transaction, the average HPR of all the REITs was the lowest across all time horizons. In the time horizon -5 to -1 days prior to the share buyback transaction, the average HPR was the highest across all time horizons - the only case of a positive average HPR. After the date of the transaction the negative average HPR of the REITs continued. This suggests that a share buyback had a contrarian effect on the HPR of a REIT before and after the date of the transaction. The intuitive trend in the HPR was never restored in the long term 24 month phase after the date of the transaction.

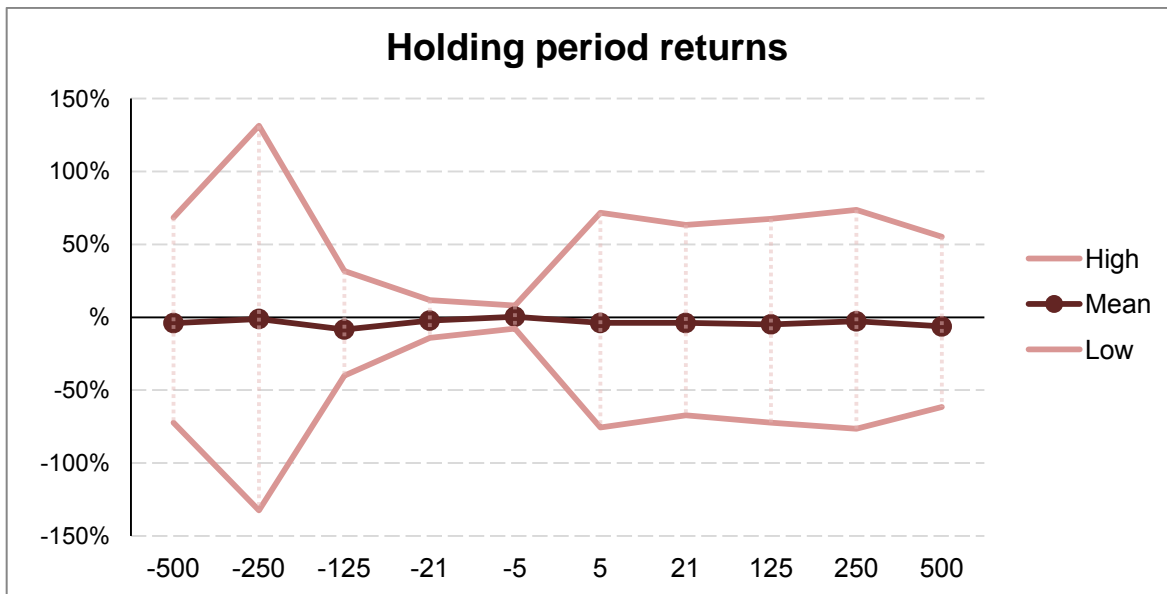
Figure 1 graphs the mean holding period returns for the REITs whereas Table 2 shows the high and low values which were calculated from the mean and standard deviation.

**Table 2 Average Holding Period Returns for U.S. Listed REITs**

<b>Holding Period Return</b>	<b>High (%)</b>	<b>Mean (%)</b>	<b>Low (%)</b>	<b>Std Deviation</b>	<b>Std Error Mean</b>
<b>-500 to -1 days</b>	68.4%	-3.99%	-72.4%	0.68	0.05
<b>-250 to -1 days</b>	131.3%	-1.18%	-132.5%	1.31	0.09
<b>-125 to -1 days</b>	31.7%	-8.41%	-40.07%	0.31	0.022
<b>-21 to -1 days</b>	11.8%	-2.29%	-14.12%	0.11	0.008
<b>-5 to -1 days</b>	8.06%	0.36%	-7.7%	0.80	0.005
<b>1 to 5 days</b>	71.7%	-3.92%	-75.7%	0.71	0.05
<b>1 to 21 days</b>	63.3%	-3.95%	-67.32%	0.63	0.04
<b>1 to 125 days</b>	67.4%	-4.86%	-72.27%	0.67	0.05
<b>1 to 250 days</b>	73.75%	-2.78%	-76.5%	0.73	0.05

<b>1 to 500 days</b>	55.3%	-6.33%	-61.6%	0.55	0.04
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**Figure 1 Average Holding Period Returns for U.S.-listed REITs**



The effect of a stock buyback announcement on the adjusted return (AR) of a REIT was investigated for ten different time horizons ranging from 24 months before the date of the share buyback (-500 days), to 24 months after the date of the event (+500 days). Table 3 below shows the average AR for all the transactions at the different time horizons. These seem not be consistent with what we would believe the performance trend to be for REITs that enter into open market share repurchase transactions and that have positive post-transaction period returns.

During the time horizon -250 to -1 days prior to the share buyback transaction, the average AR of all the REITs was the highest across all time horizons. After the date of the transaction the negative average AR of the REITs continued. This suggests that a share buyback had a contrarian effect on the AR of a REIT after the date of the transaction. The intuitive trend in the HPR was never restored in the long term 24 month phase after the date of the buyback.

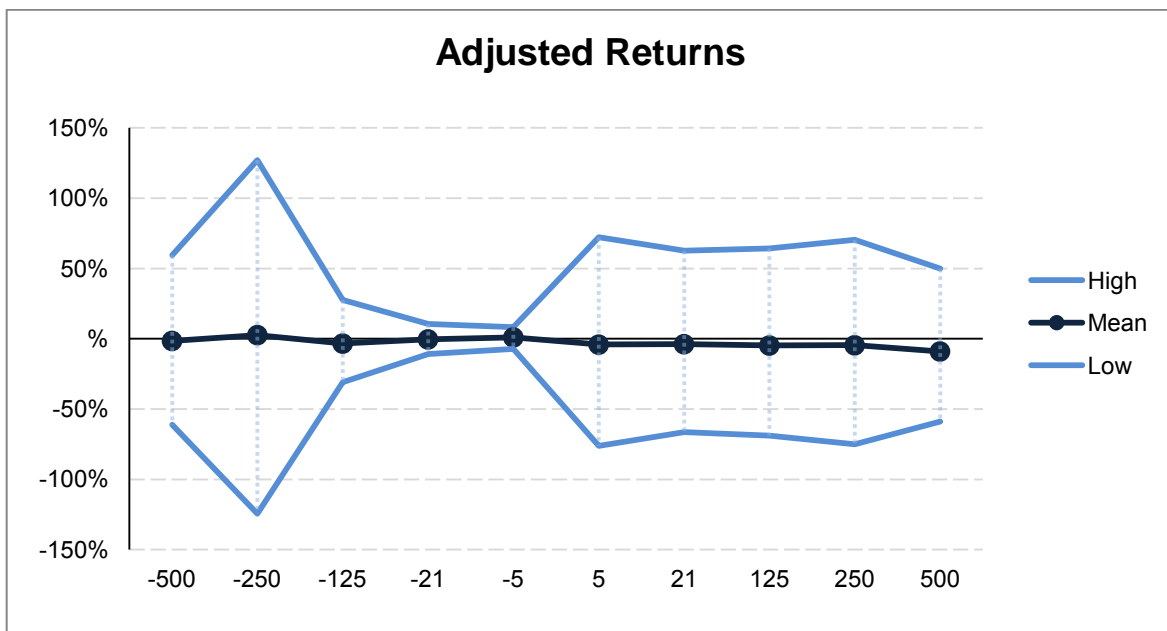
Figure 2 graphs the mean adjusted returns for the REITs whereas Table 3 shows the high and low values which were calculated from the mean and standard deviation.

**Table 3 Average Adjusted Returns for U.S.-listed REITs**

<b>Holding Period Return</b>	<b>High (%)</b>	<b>Mean (%)</b>	<b>Low (%)</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
<b>-500 to -1 days</b>	59.5%	-1.50%	-61.06%	0.59	0.04
<b>-250 to -1 days</b>	127.1%	2.65%	-124.45%	1.27	0.09
<b>-125 to -1 days</b>	27.5%	-3.36%	-30.94%	0.27	0.01

<b>-21 to -1 days</b>	10.5%	0.41%	-10.92%	0.105	0.007
<b>-5 to -1 days</b>	8.3%	1%	-7.3%	0.08	0.005
<b>1 to 5 days</b>	72.14%	-4.13%	-76.26%	0.72	0.05
<b>1 to 21 days</b>	62.6%	-3.81%	-66.4%	0.62	0.04
<b>1 to 125 days</b>	64.26%	-4.75%	-69.01%	0.64	0.04
<b>1 to 250 days</b>	70.44%	-4.58%	-75.03%	0.70	0.05
<b>1 to 500 days</b>	49.8%	-8.99%	-58.8%	0.49	0.03

**Figure 2 Average Adjusted Returns for U.S.-listed REITs**



In order to test the effect of the share buyback transactions at the different time periods, statistical tests were carried out. The one-sample t-test procedure tests whether the mean of a single variable differs from a specified constant. For example, a researcher might want to test whether the average IQ score for a group of students differs from 100. Or a cereal manufacturer could take a sample of boxes from the production line and check whether the mean weight of the samples differs from 1.3 pounds at the 95% confidence level.

In statistical significance testing, the p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that

the null hypothesis is true. One often rejects the null hypothesis when the p-value is less than the significance level  $\alpha$  (Greek alpha), which is often 0.05 or 0.01. When the null hypothesis is rejected, the result is said to be statistically significant. The t-test was used to test whether the means of two groups were significantly different from each other. If the value of the t- statistic was statistically significant this provided evidence of a real difference in mean between a single variable and a specified constant – as opposed to a difference which was only due to random chance.

Table 4 below expresses the values of the t-statistic for a difference in mean and median returns between an assumed zero return and the returns obtained by the REITs. When the statistics were significant it meant that significant returns (positive or negative) occurred for the given REIT. Two types of returns were tested. The holding period return (HPR) of the REIT and the industry adjusted return (AR) of the REIT. The industry adjusted return was simply the return obtained by the particular REIT less the average return in the industry for the same period of time. It represented any abnormal returns obtained by the REIT over and above what was happening in the industry in general. The returns were tested for statistical significance at the 5% level of significance. If the p-value is smaller than 0.05 then we have a significant difference on our hands. Few values are at this level. The only differences seem inconsistent and no real trend emerges from the data.

**Table 4 Returns for all REIT stocks, Data 1997 – 2011 (measured in percentages)**

PERIOD FROM TRANSACTION (IN TRADING DAYS)										
Category/Measure	-500 to -1	-250 to -1	-125 to -1	-21 to -1	-5 to 1	1 to 5	1 to 21	1 to 125	1 to 250	1 to 500
<b>Holding Period Return (%)</b>	<b>-3.99%</b>	<b>-1.18%</b>	<b>-8.41%</b>	<b>-2.29%</b>	<b>0.36%</b>	<b>-3.92%</b>	<b>-3.95%</b>	<b>-4.86%</b>	<b>-2.78%</b>	<b>-6.33%</b>
t – Statistic	-0.796	-0.126	-3.768	-2.754	-0.637	-0.745	-0.847	-0.959	-0.502	-1.479
p – value	0.427	0.90	0*	0.006*	0.525	0.457	0.398	0.339	0.616	0.141
mean difference	-0.03	-0.01	-0.084	-0.02	0.003	-0.03	-0.03	-0.04	-0.027	-0.06
95% lower confidence level	-0.13	-0.19	-0.12	-0.03	-0.007	-0.14	-0.13	-0.14	-0.13	-0.14
95% upper confidence level	0.05	0.17	-0.04	-0.006	0.014	0.06	0.05	0.05	0.08	0.02
<b>Industry Adjusted Return (%)</b>	<b>-1.50%</b>	<b>2.65%</b>	<b>-3.36%</b>	<b>-0.41%</b>	<b>1.00%</b>	<b>-4.13%</b>	<b>-3.81%</b>	<b>-4.75%</b>	<b>-4.58%</b>	<b>-8.99%</b>
t – Statistic	-0.341	0.293	-1.729	-0.551	1.711	-0.78	-0.828	-0.983	-0.866	-2.33
p – value	0.734	0.77	0.085	0.582	0.089	0.436	0.409	0.327	0.388	0.021*
mean difference	-0.014	0.02	-0.03	-0.004	0.01	-0.04	-0.03	-0.04	-0.04	-0.08
95% lower confidence level	-0.10	-0.15	-0.07	-0.01	-0.001	-0.14	-0.12	-0.14	-0.15	-0.16
95% upper confidence level	0.07	0.2	0.004	0.010	0.021	0.06	0.05	0.04	0.05	-0.013

\* Significant at the 5% level

### 5.3 Hypothesis 1

The null hypothesis states that a share buyback is a momentum indicator of a REIT's holding period return. The alternative hypothesis states that a share buyback has no impact on a REIT's holding period return.

Null hypothesis:  $HPR_p > 0$

Alternative hypothesis:  $HPR_p = 0$

where  $HPR_p$  is the Holding Period Return before and after the share buyback transaction.

Table 2 above indicates that for REITs that implemented share buybacks, negative holding period returns generally existed before the buyback date and that these returns were not statistically significant. This is proven by the t-test. Thus the null hypothesis cannot be rejected for the time horizons prior to the repurchase dates. The holding period return five days before the date of the transaction was almost zero but was not statistically significant. Table 2 above also shows that no

statistically significant positive returns were received as a result of share buyback transactions 5 days, 21 days, 125 days, 250 days and 500 days after the date of the transaction. The mean return after 5 days was 3.92%, after 21 days -3.95%, after 125 days -4.86%, -2.78% after 250 days and 6.33% after 500 days. The statistical tests indicate that the null hypothesis cannot be rejected for the 5, 21, 125, 250 and 500 day time horizons.

## 5.4 Hypothesis 2

The null hypothesis states that share buybacks are momentum indicators of a REIT's industry-adjusted return. The adjusted return is the REIT's average holding period return minus the equivalent holding period return for the index. This determines whether there were any abnormal returns over and above the industry average. The alternative hypothesis states that a share buyback has no impact on a REIT's industry adjusted return.

Null hypothesis:  $AR_p > 0$

Alternative hypothesis:  $AR_p = 0$

where  $AR_p$  is the Adjusted Return before and after the share buyback transaction.

Table 3 above shows that when the holding period return was adjusted by that of the all REIT index the negative returns continued to exist. There were no statistically significant findings. The t-test had a positive abnormal return 250 days and 5 days prior to the share buyback date but with no statistical significance. Therefore for all the time horizons the null hypothesis cannot be rejected. After the transaction date the t-test had no abnormal positive returns of statistical significance. Therefore the null hypothesis cannot be rejected for all time horizons after the transaction date.

### 5.5 Hypothesis 3

The null hypothesis states that a share buyback has no impact on a REIT's holding period return. The alternative hypothesis states that a share buyback does have an impact on a REIT's holding period return, positive or negative.

Null hypothesis:  $HPR_n = 0$

Alternative hypothesis:  $HPR_n \neq 0$

where  $HPR_n$  is the Holding Period Return before and after the share buyback transaction.

As may be seen from Table 2 above, the share buybacks had no statistical significant impact on a company's share price prior to the transaction date. The only positive return occurred at the -5 day time horizon. Therefore the null hypothesis was not rejected for all the time horizons. Furthermore, after the transaction date the null hypothesis cannot be rejected for all the time horizons either. The t-test returned no statistically significant positive or negative returns for all the time horizons and therefore the null hypothesis cannot be rejected.

## 5.6 Hypothesis 4

The null hypothesis states that share buybacks have no impact on a REIT's industry-adjusted return. The adjusted return is the REIT's average holding period return minus the equivalent holding period return for the index. This determines whether there were any abnormal returns over and above the industry average.

The alternative hypothesis states that a share buyback does have an impact on a REIT's industry adjusted return.

Null hypothesis:  $AR_n = 0$

Alternative hypothesis:  $AR_n \neq 0$

where  $AR_n$  is the Adjusted Return before and after the share buyback transaction.

When the returns for REITs were adjusted for the average of the industry, the share buyback transactions had no statistically significant impact on the returns of the REITs, whether negative or positive. Therefore the null hypothesis cannot be rejected for all time horizons prior to and after the repurchase date.

## 5.7 Hypothesis 5

The null hypothesis states that share buybacks are contrarian indicators of a REIT's holding period return. The alternative hypothesis states that share buybacks have no impact on a REIT's holding period return.

Null hypothesis:  $HPR_n > 0$

Alternative hypothesis:  $HPR_n = 0$

where  $HPR_n$  is the Holding Period Return before and after the share buyback transaction.

Prior to the share buyback dates of the REITs there were no statistically significant negative returns. The t-test showed that none of the returns were statistically significant. Therefore the null hypothesis was not rejected for holding period returns before the share buyback date. Table 2 above shows that no statistically significant negative returns were obtained 5, 21, 125, 250 and 500 days after the share buyback date. The average return after 5 days was -3.92%, 21 days was -

3.95%, -4.86% after 125 days, -2.78% after 250 days and -6.33% after 500 days. These returns were not statistically significant when tested with the t-test; therefore the null hypothesis cannot be rejected for these time horizons.

## 5.8 Hypothesis 6

The null hypothesis states that share buybacks are contrarian indicators of a REIT's industry-adjusted return. The adjusted return is the REIT's average holding period return minus the equivalent holding period return for the index. This determines whether there were any abnormal returns over and above the industry average. The alternative hypothesis states that share buybacks have no impact on a REIT's industry adjusted return.

Null hypothesis:  $AR_n > 0$

Alternative hypothesis:  $AR_n = 0$

where  $AR_n$  is the Adjusted Return before and after the share buyback transaction.

Table 3 shows that prior to the share buyback dates there were no statistically significant abnormal negative returns. The t-test showed no statistically significant abnormal negative returns prior to the transaction at all five time horizons. Therefore the null hypothesis is not rejected for the time horizons prior to the buyback date. After the buyback date there were no negative abnormal returns in the short or long term. The time horizons after the transaction date all show negative returns, but none were statistically significant. Thus the null hypothesis cannot be rejected.

## 5.9 Conclusion

Across the REITs, no statistically significant positive returns were observed in the holding period returns over the entire measured period before the share buybacks. After the date of the event there were no statistically significant positive returns in either the short term or the long term. None of the positive returns ceased to be insignificant after the adjustment for the average of the resource industry was made. All of the returns were negative after the repurchase date.

No statistically significant negative holding period returns and industry-adjusted returns were observed 500, 250, 125, 21 and 5 days before the repurchase date. After the date of the event there were no positive returns shown by the REITs,

which illustrates that the share buybacks had some contrarian effect on the REIT's return. Even when these returns were adjusted for that of the industry the negative returns continued. Table 5 below shows a summary of all the hypotheses and their results.

**Table 5 Summary of the Hypothesis Testing Results**

HYPOTHESIS	BEFORE SHARE BUYBACK	AFTER SHARE BUYBACK
Hypothesis 1 – Positive HPR	Cannot reject	Cannot reject
Hypothesis 2 – Positive AR	Cannot reject	Cannot reject
Hypothesis 3 – Neutral HPR	Cannot reject	Cannot reject
Hypothesis 4 – Neutral AR	Cannot reject	Cannot reject
Hypothesis 5 – Negative HPR	Cannot reject	Cannot reject
Hypothesis 6 – Negative AR	Cannot reject	Cannot reject

## CHAPTER 6 – DISCUSSION OF RESULTS

### 6.1 Introduction

The following section analyses the results of the research in Chapter Five in conjunction with the literature review in Chapter Two. This research aims to answer the question whether stock repurchase transactions are effective momentum, neutral or contrarian indicators of a REIT's share price performance. Chapter Six is constructed in accordance with the research objectives:

- **Objective 1:** to determine whether share buy-back transactions are momentum indicators of REIT share price performance over the short, medium and long term.
- **Objective 2:** to determine whether share buy-back transactions are zero impact indicators of REIT share price performance over the short, medium and long term.
- **Objective 3:** to determine whether share buy-back transactions are contrarian indicators of REIT share price performance over the short, medium and long term.

Each of the objectives has two hypotheses that will be discussed under a subheading to answer the research questions. This is done because each hypothesis was not just tested for the performance of the individual REIT share price, but was also adjusted for the average of the REIT all share index to ascertain whether there were any abnormal returns.

## **6.2 Objective 1: Share repurchases as momentum indicators**

The aim of Objective One was to ascertain whether share buybacks were momentum indicators of a REIT's share price. With Hypothesis One the HPR of a company was compared to a zero return to ascertain whether there was any positive return. In Hypothesis Two the HPR of a company was adjusted for the REIT index to see if there were any abnormal returns due to the share repurchase event.

### **6.2.1 Hypothesis 1**

The results of Hypothesis One showed that REITs who did share buybacks had negative HPR's before and after the event date that were generally statistically not

significant. Therefore the hypothesis was not rejected. These results are contradictory to the findings of Dann (1981), Vermaelen (1981) and Stephens and Weisbach (1998) which determined that the market would react positively to share buyback transactions. Dann (1981) also found a significant positive return to the firm upon the announcement of an open-market repurchase.

These results were in contrast to the evidence produced by Ikenberry, Lakonishok and Vermaelen (1995) of a long-term positive impact following the announcement. Basu's theory that markets are inefficient is supported by the research findings. Basu (1977) stated that markets were not efficient and that there seemed to be a lag and some friction in the adjustment process of security prices. This seems to be the case as the HPR of a REIT does not react immediately to a share buyback event, but takes some time before impact is seen in the REIT share price. The results of Hypothesis One support the basic theory of the EMH as presented by Fama (1970) and Lo (2005), which stated that markets accurately and instantaneously incorporate all available information into market prices. This is the case with the results as the share buyback events proved not to be momentum indicators of the REIT's share price performance. In a fully efficient market there would be minimal impact on the pricing of the REIT's share price after the repurchase date.

Across all the time horizons of the study, the HPRs of the REITs were minimally positive with the majority of the returns being negative. These results were,

however, not statistically significant, but seemed to be supportive of Vega's phenomenon called post announcement drift. Vega (2006) explained this occurrence by stating that stock prices did not adjust immediately to news surprises, but that stock prices tended to drift over time in the same direction as the initial surprise. This is supportive of the findings that the HPR of the REIT never returned statistically significant positive or negative returns, even within 500 days after the repurchase date.

Barber and Odean (2006) are proponents of the aspect of behavioural finance called attention buying behaviour. According to Barber and Odean (2006) investors are more likely to purchase attention-grabbing stock. This phenomenon is in contradiction with the results of the study as no significant positive returns were found on REITs doing share buybacks.

The results of the study were different from what Giambona, Giaccotto and Sirmans (2005) concluded in their study. Giambona, Giaccotto and Sirmans (2005) found abnormal returns in the 24-month period following REIT stock repurchases. They suggest that the long-run post repurchase drift is driven by market undervaluation. It is clear from the results of the study that no positive returns were measured across the 24-month horizon following the share repurchase transaction.

## 6.2.2 Hypothesis 2

For Hypothesis Two the HPR of the REIT was adjusted for the equivalent HPR of the composite all REIT index to analyse whether there were any abnormal returns. The results showed that when the HPR of a REIT was adjusted by that of the REIT index, the negative returns still continued. These results contradict the findings of Brau and Holmes (2006) which found that six-month stock returns and four-week stock returns were significantly correlated with the three-day abnormal returns surrounding the share repurchase event.

The negative returns prior to the repurchase followed by the negative stock price reaction following the event date are not consistent with the undervaluation signals offered by Comment and Jarrell (1991) and Stephens and Weisbach (1998). In fact, the poor stock price performance prior to the repurchase may lead management to signal that the stock is undervalued. This also seems to indicate that there is some efficiency in the market, as the returns for the REITs were positive immediately prior to the repurchase date. The result seems to support Fama's (1970) EMH theory that by the time the repurchase was done the market had already priced in the abnormal return caused by the event.

## **6.3 Objective 2: Share repurchases as zero impact indicators**

The aim of Objective Two was to determine whether share buybacks had any impact on a REIT's share price. The HPR of a REIT was compared to zero to see whether there was any statistically significant return, be it positive or negative. The HPR of the REIT was also adjusted for the all REIT index to ascertain whether any of the returns were abnormal.

### **6.3.1 Hypothesis 3**

The results of Hypothesis Three indicated that prior to the buyback of shares by a REIT no statistically significant returns were recorded. These returns were measured both over long and short term periods. The return at the -5 day horizon was positive, although statistically insignificant. Therefore the hypothesis was not rejected for HPRs prior to the transaction date. After the repurchase date there were no statistically significant returns either. Therefore the hypothesis for returns after the repurchase date could not be rejected.

The results prior to the share repurchase event seem to support the theory of the EMH as defined by Fama (1970). The HPR fluctuated from positive to negative which is consistent with the peaks and valleys that any stock market experiences.

Diavatopolous, Fodor and Howton (2010) concluded that managers who had an information advantage over the market would not voluntarily elect to repurchase shares that the market had overpriced, so the signalling hypothesis which predicts that the market will react positively to a repurchase announcement is a theory that is clearly not supported by this study.

Very few statistically significant returns were found over the 1 000 day period of the study, which confirms Ikenberry, Lakonishok and Vermaelen's (1994) argument that information conveyed by open market share repurchases is largely ignored. Ikenberry, Lakonishok and Vermaelen's (1994) further stated that the market reaction to news was not always completed over short term periods, an assumption made in many event studies. The full impact of corporate announcements could extend over several years.

### **6.3.2 Hypothesis 4**

The results of Hypothesis Four proved that this hypothesis was not rejected for ARs prior to a share repurchase and after a share repurchase transaction. Once the HPRs of the REITs were adjusted for the average of the index it basically had no impact on the returns of the specific REITs.

Fama (1991) argued that a passive investment strategy would be more efficient than trying to exploit the proposed inefficiencies in the market, an argument supported by the study.

These results strengthen the undervaluation argument as proposed by academics such as Ikenberry, Lakonishok and Vermaelen (1994). Their findings propose that the market under reacts to open market share repurchases. The share repurchase transactions had no statistically significant impact on the returns of the REITs that were analyzed. The movement in the return was more likely to be based on returns of the all REIT index and therefore there were no abnormal returns.

#### **6.4 Objective 3: Share repurchases as contrarian indicators**

The aim of Objective Three was to ascertain whether share repurchases were contrarian indicators of a REITs share price performance. The HPR of a REIT was compared to zero to see if there was a positive return. The HPR of the REIT was also adjusted for the HPR of the all REIT index to ascertain whether the return was abnormal or not.

### 6.4.1 Hypothesis 5

Prior to the share buyback transactions mostly negative returns were found, however none of these negative returns were statistically significant. Therefore the hypothesis was not rejected for share buyback transactions prior to the event date. The results after the event date were fairly similar. After the announcement of a share buyback the HPRs of the REITs remained negative. For all of the time horizons there were minimal statistically significant positive or negative returns. These results were in accordance with the findings of Huang, Liano and Pan (2010), where no evidence was found that repurchasing REITs exhibited an improvement in future operating performance relative to their peers.

The long term results after the repurchase date also differed from some literature. Ikenberry, Lakonishok and Vermaelen (1995) concluded in their study that announcing firms continued to experience additional positive abnormal returns during a 4-year window following the buyback announcement.

Across the time horizons the above mentioned results were contrary to the findings of Comment and Jarrell (1991) that on average three kinds of stock buybacks are associated with significant, positive excess stock returns on their announcement. Fixed-price self-tender offers result in an average excess return of about 11%, compared with below 8% for Dutch auctions, while open-market repurchase

programs induce an average excess return of about 2%. Therefore the hypothesis was not rejected for HPRs after the share buyback date.

#### **6.4.2 Hypothesis 6**

After the HPRs of the REITs were adjusted for the REIT industry average, the results showed that there were no statistically significant negative returns prior to the date of the share repurchase. This indicates that on average the REITs that made share repurchase announcements were not doing worse than the index prior to the transaction dates. The result is intuitively not what would be expected, as a share buyback would have been because of a company's share price underperforming or being undervalued by the market. Therefore the hypothesis was not rejected for ARs prior to the event.

In the short term after the repurchase event, the results were different from those of Ikenberry, Lakonishok and Vermaelen (1995) who reported a five-day cumulative abnormal return of 3.54%. The biggest impact on the AR was observed in the long term 500 day period after the transaction date with an adjusted return of -8%. Once the HPR had been adjusted for the index average the negative returns remained. Therefore the hypothesis was not rejected for ARs after the transaction date, as all the returns were not statistically significant.

It may still be argued that the share repurchase transactions had a contrarian impact on the returns of the REITs. This is because the expected result would be that the AR after the repurchase date would continue to be measured negatively as the case had been prior to the repurchase date. There has been very little turnaround in the REITs' performances when compared to the index average. This supports the view by Ikenberry, Lakonishok and Vermaelen (1995) who argue that the market errs in its initial response and appears to ignore much of the information conveyed through repurchase announcements.

## **6.5 Conclusion**

In his study, Shefrin (2001) concluded that proponents of behavioural finance argue that psychological forces interfere with all the components of the traditional paradigm. They maintain that psychological phenomena prevent decision makers from acting in a rational manner, that security risk premiums are not fully determined by security betas and that market prices are regularly at odds with fundamental values. The results above show that this is the case, and that in certain instances investors are not just driven to make decisions based on technical and fundamental analysis, but that sometimes there are behavioural aspects that drive these decisions.

The fundamental question this research aimed to answer was whether REIT stock repurchases were effective momentum, neutral or contrarian indicators of a REIT's share price performance. The study found that share buybacks were not momentum indicators of a REIT's share price performance. Stock repurchases had a minimal influence on REIT share prices even when these returns were adjusted for the index average. The HPRs showed insignificant negative returns after the buybacks, which indicated a contrarian effect on those REITs share price performances. Even after the returns had been adjusted for the average of the resource index there was still a contrarian effect, which shows that there are inefficiencies in the market that can be exploited to the benefit of investors.

## **CHAPTER 7 - CONCLUSION**

### **7.1 Introduction**

This chapter concludes the study and will highlight the main findings of the research, summarising them with a main set of results. Some recommendations will be provided for the relevant stakeholders as well as for future research.

### **7.2 Findings**

Literature abounds with reasons why companies repurchase their own stock, ranging from signalling to being a substitute for cash dividends. Yet managers rarely mention these reasons. Instead, they frequently claim that they are repurchasing shares because prevailing market prices undervalue the stock and that it is a good investment. Despite this public endorsement, the average market response to the news of an open market repurchase is only 3.5% (Ikenberry, Lakonishok and Vermaelen, 1995). Such a small reaction seems inconsistent with the undervaluation theme managers tend to voice. Either the market ignores a

substantial portion of this undervaluation signal or managers have overly optimistic expectations of their firm's value.

It has been established that on average the REIT market under reacts to open market share repurchase announcements. Our study of REIT repurchases produced results which show that stock prices do not fully react at the repurchase announcements. The results support this notion when reviewing the findings of the returns prior to the share repurchase event. Prior to the event the REITs displayed a negative HPR, as would be expected, and even when the HPR was adjusted for the REIT index average, the returns were still negative and continued to be statistically insignificant.

After the share buybacks the HPRs of the REITs became increasingly negative, indicating that the share repurchases were a contrarian indicator. Once the HPR had been adjusted for the index average the negative returns were similar in form but remained statistically insignificant. Thus there was still a contrarian effect on the returns of these REITs. The results build on the argument made by Bradford (2008) whose study failed to support the existence of long-term abnormal performance after stock repurchase announcements.

There were, however, other subtle findings. Fama (1991) stated that before the work on efficiency came about, the presumption had been that private information was plentiful among investment managers. Although the truth of this cannot be proven there is still some evidence that prior to a share buyback there was

abnormal movement in the market. An example of this was before the share buyback date where a negative return of -8.41% was measured from 125 days prior to the event. This gives some evidence that there was some private information in the market.

Ikenberry, Lakonishok and Vermaelen (1995) argued that the full impact of corporate announcements could extend over several years. This is supported by this study which shows that the market reaction to news is not always completed over short time periods, an assumption made in many event studies.

### **7.3 Recommendations for managers and investors**

This study adds to a growing body of literature which finds that the market under-reacts to share repurchases and that in many cases, these events produce negative stock price performances. It provides potential managers and investors of South African REITs with valuable insights.

The REIT structure, which originated in the US in the 1960s, has been adopted in Canada, Singapore, France, Australia and The Netherlands. Currently we have only five listed REITs in South Africa. If adopted more extensively in South Africa, foreign investment in listed properties, which is currently minimal, is expected to

increase as a result of its standardised structure which global players and offshore investors find easy to understand.

The results of this study have shown that REIT share buybacks have no significant impact on the decisions made by investors and that markets are not always efficient. This study shows that, albeit not statistically significant, share repurchases of REITs do have a contrarian impact on company share price. The results have added to the existing literature on contrarian indicators. Understanding market efficiency is crucial to REIT investors to attempt to exploit better the inefficiencies of the market.

Ricciardi and Simon (2000) defined behavioural finance as the attempt to increase the understanding of the reasoning patterns of investors, to understand better the emotional process involved in the decision making process. The recommendation to investors in South African REITs is to ensure that when creating any investment strategy it would be foolish not to take the behavioural aspects into account. Shefrin (1999) stated that behavioural finance held important implications for the practice of investment finance. Shefrin (1999) argued that the traditional approach to corporate finance was based on three concepts. These concepts were rational behaviour, the capital asset pricing model (“CAPM”) and efficient markets.

## 7.4 Recommendations for future research

The following recommendations are made for future research in order to gain a deeper understanding of the relationship that exists between share repurchases and share prices:

- Other sectors on the relevant stock exchange, which often enter into share buyback transactions, such as the financial and industrial sectors, could also be analysed individually.
- Companies from all the sectors on a stock exchange could be selected and not only companies that fall within the REIT sector.
- The long term impact of share buybacks could be examined over an extended time-horizon, i.e. 10 years and not merely 4 years as this study has done.
- REITS from other countries should also be analysed to provide a wider, more general insight.
- The impact of the general media on such share repurchase announcements may also be examined.
- Analysing the impact of share repurchases on a specific index, i.e. financial or industrial, could be interesting, as there is a growing number of exchange traded funds that specifically track an index.

- Other events that influence REIT stock performance such as equity offerings, mergers, spinoffs and proxy contests could be analyzed.

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