Gordon Institute of Business Science
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# Share repurchases announcement and the signaling effect in South Africa

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# ABSTRACTS

This research sought to test whether the observed evidence and documented academic thinking on share repurchases around the signaling hypothesis could be applied in a country like South Africa among the firms listed on the Johannesburg Stock Exchange (JSE). The study also sought to ascertain whether there is a statistically meaningful outperformance of a portfolio composed of shares mimicking firms that announced share repurchases against the Equal Weighted All-Share Index (J203) over the research period. 209 share buyback announcement conducted by 82 JSE listed companies from January 2003 to December 2016 were analysed for the study. The study concluded that the South African repurchase activity largely reflects the global observed evidence and the modern academic thinking around buybacks. The regulatory climate was found to be having components which contributed to South Africa not fully reflecting the observed evidence and the modern academic thinking around buybacks. The study found that the share repurchases announcement portfolio relative to the Equal Weighted All-Share Index (J203) benchmark shows a 2.7% outperformance. The results reveal that share buyback announcements convey important information to investors.

KEYWORDS:

Repurchases, Signaling, Buyback, Event Study

# DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfillment 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.

Signature

**Sibonginkosi Nyanga**

**On 06 November 2017**

# LIST OF ABBREVIATIONS AND ACRONYMS

| | | |
|---|---|---|
| AAR | - | Average abnormal return |
| ALSI | - | All-Share Index |
| AR | - | Abnormal return |
| CAAR | - | Cumulative average abnormal return |
| CAGR | - | Compound annual growth rate |
| CAPM | - | Capital asset pricing model |
| CAR | - | Cumulative abnormal return |
| CEO | - | Chief executive officer |
| CFO | - | Chief financial officer |
| $H_0$ | - | Null hypothesis |
| $H_1$ | - | Alternate hypothesis |
| ICB | - | Industry Classification Benchmark |
| J203 | - | Johannesburg Stock Exchange All-Share Index |
| JSE | - | Johannesburg Stock Exchange |
| OMSR | - | Open market stock repurchasing |
| SENS | - | Johannesburg Stock Exchange News Service |
| SPSS | - | Statistical Package for the Social Sciences |
| U.S. | - | United States of America |
| UK | - | United Kingdom |

# 1 TABLE OF CONTENTS

## List of figures



## List of tables

# 1 CHAPTER 1: INTRODUCTION

## 1.1 INTRODUCTION

The share buyback sensation has been extensively investigated in the finance literature. Many arguments are used to justify the motivation and share price performance of repurchasing companies. Prior studies (De Cesari, Espenlaub, Khurshed & Simkovic, 2012; Ikenberry, Lakonishok and Vermaelen, 2012, Niu, 2015) tested the share repurchase event for the signaling theory, the leverage theory (Dittmar, 2000), the wealth transfer theory (Sloan and You, 2015), the personal taxation theory (Jacob and Jacob, 2013; Cusatis, 2017), the free cash flow hypothesis (Lee and Suh, 2011; Zhuang, 2013), the anti-takeover theory (Billett and Xue, 2007) and earnings per share growth theory (Almeida, Fos and Kronlund, 2016).

Amid the many arguments (De Cesari et al, 2012; Sloan and You, 2015; Jacob and Jacob, 2013; and Almeida et al., 2016) explaining the reasons and share price action for companies buying back their share, agency and signaling theory are among the main reasons (Bansal, 2013; de Ridder, 2015; Huang, 2015; Farrella, Unlua & Yub, 2014; Liang, 2016). However, the signaling theory takes center stage in explaining share repurchase activities. The information signaling theory contends that a buyback is precipitated by the variations in information regarding the real price of the company's shares between the investors and the company insiders (Haung, 2015). Due to informational misalignment, insiders possess more nonpublic information about the mispricing of the firm's shares and prospects of their company's shares when compared to non-insiders. Bonaimé (2015) argues that companies and their insiders are more inclined to buy back their shares when they sense that the market is undervaluing them. The buyback action consequently serves as a signal for market undervaluation. A number of prior research (Bansal, 2013; de Ridder, 2015; Huang, 2015; Farrell et al., 2014; Liang, 2016; Ikenberry et al., 2012) examine the stock price response to buyback announcements and concluded that there are positive returns associated with share repurchases.

As mentioned before, signaling undervaluation is frequently deliberated as the main reason for share repurchasing (Grullon & Michaely, 2002; Bonaimé, 2015; Manconi, Peyer, & Vermaelen, 2014). However, Bonaimé, Hankins & Jordan (2016) concluded that the undervaluation validity signal is problematic when company insiders are concurrently disposing substantial quantities of shares. Their research noted that net insider purchasing strengthens the undervaluation signal and net insider sales strengthens the over valuation signal. Cziraki, Lyandres and Michaely (2017) proposed that the degree of insiders' net purchasing before share repurchases strongly forecasts share repurchase returns. Cziraki et al., (2017) argue that how the market reacts to share buyback announcement is dependent on pre-announcement insider trading (legal). In their study, Gao, Ma, and Ng (2015) concluded that insider silence is bad news. Their study also contends that insider silence is linked with negative stock returns over a period of 12 months. Andriosopoulos and Hoque (2013) argue that dividends paid in cash, firm size, and ownership structure has a consistently meaningful influence on share repurchase announcements.

While many justifications have been offered for the popularity of share buybacks and the most of the justifications have stressed the possible benefits of such repurchases for shareholders, it remains unclear whether managers act with honest intentions. Share repurchases have been criticised as a 'wealth extraction' exercise by insiders with ownership interest in the shares of the firms they manage under the pretense of 'maximizing shareholder wealth' (Lazonick, 2014). Chan, Ikenberry, Lee and Wang (2010) intimate that insiders may launch a share buyback program to manipulate or hoodwink investors. The enormous amounts of cash used on share repurchases in recent years leave less money spent on reinvestment and research and development (Lazonick, 2014). Defenders of share repurchases allege that returning money to shareholders allows the money to be employed on investments with higher returns and restrains empire building by corporate insiders (Eisdorfer, Giaccotto and White, 2015). Share repurchases have a positive influence on executive compensation, which means managers can also use them unscrupulously to accumulate personal wealth at the detriment of shareholders (Chan et al., 2010). Thus, share repurchase announcements can be either agency or value signaling driven. Since these two theories (agency versus signaling) can occur simultaneously, it is unknown if the market can distinguish value signaling announcements from false-signs (Fried, 2010).

While market-timing and leverage-rebalancing considerations are experientially significant, employee stock options and free cash flow considerations have much stronger influences on share buyback resolutions (Zhuang, 2013). Insiders either have bad timing abilities or do not ordinarily time the market as many companies do not utilise good timing moments through buybacks. Besides, company's resolutions to repurchase its shares generally tend to be weak in a market-timing judgment as companies are more inclined to show negative abnormal stock price returns after buybacks (Zhuang, 2013). Prior research on share buybacks (Ikenberry et al., 2012), states that the share buyback completion rate may indicate the reasons for buyback as well as the stock price response to share buybacks. The study, which employs the real buyback action as the event day, infers that the market plays down the message in share buyback announcements.

## 1.2 AIMS AND OBJECTIVES

The main aim of this research is to test whether documented academic findings on share buybacks are likewise applicable in the South African context among the Johannesburg Stock Exchange (JSE) listed companies. According to Wesson, Bruwer and Hamman (2015), less researched small capitalised shares dominate the repurchase activity in South Africa and is an unexplored opportunity for distinguishing between the agency and signaling effect, but in this current study, all JSE listed stocks that repurchased shares are considered regardless of whether they are large or small capitalisation stocks, value stocks or growth stocks. The study also seeks to ascertain whether there is a statistically meaningful outperformance of a portfolio composed of shares mimicking firms that announced share repurchases against the Equal Weighted All-Share Index (J203) over the research period.

The ubiquity of information skewness in financial markets has contributed to the rise in abundant studies that examine various signaling methods convoyed by insiders. The question which this research will answer is whether management uses its informational edge to time its dealing in their company's stock and to signal under or overvaluation. Prior studies show that buybacks and management dealings are linked to and most

probably driven by information misalignment among companies, their insiders and the external shareholders.

This research explores trading action around the share buyback period and utilise the concurrent signal of share buyback to examine if the signaling theory is a primary driver of share buybacks. This research also aims to survey the reaction by the market around the pronouncements of share buybacks and to determine if there is a pronouncement effect considering that they are characterised by an elevated level of information asymmetries. A strong market response preceding the announcement date may be a sign that there is information leakage, which might be due to contravention of the prohibition on disclosure and a violation of regulations on insider trading.

The scope of this research is confined to ordinary share repurchases and excludes repurchases done on preference shares and other forms of shares (e.g. N-class shares). It will focus on the JSE only. The study will focus on the general repurchases which are repurchase approved by shareholder giving management "a renewable mandate which shall be valid until the company's next annual general meeting or for 15 months from the date of the resolution, whichever period is shorter" (JSE listing requirements, 2010). It will only examine general repurchase announcements, and excludes specific repurchases, because of the differing behaviour of returns for both general, and specific, repurchases around the announcement date. In general share repurchases, the form buys back its shares from the 'general market' and this form of repurchase is almost similar to the open market share repurchase program in developed countries like the U.S.

In spite of a rising interest and widespread global research in share repurchases, from a South African perspective, research on this topic has been limited or none existent (Bester, Wesson, & Hamman, 2010; Chivaka, Siddle, Bayne, Cairney & Shev, 2009; Vermeulen, 2014). There are a few empirical studies that have expansively explored the signalling effect of share repurchases and the payout policy of South African firms (De Vries, Erasmus, Hamman & Wesson, 2012). The signaling theory, timing ability, and market reaction have been named as the most common reasons for share buybacks. An attempt to distinguish between the well-researched large caps and the

less researched small cap stocks has also not been made. This is despite the fact that Wesson et al., (2015) noted that with regards to share repurchase volumes, small caps dominated the repurchase activity in South Africa. However, Wesson et al., (2015) state that the large caps dominate in terms of the value of share buybacks. This research adds to the collection of studies on share buybacks/ repurchases, as there are limited studies on the impact of pre insider trades before a share repurchase announcement.

Share buyback action in South Africa is not a one-day event. In some cases, companies repurchase their stock over a period of time (so long as the cumulative amount of stock bought back does not surpass the 10 percent dictate which is the uppermost boundary on the amount of buybacks in the annual mandate) (Wesson et al.,, 2015). Wesson et al., (2015) note that the reasons for the buyback action and the features of repurchasing companies may drive variations in dealing incidence. These trading variations, notification and disclosure obligations and the frequency of share buyback activities may prompt the market to behave differently. In South Africa, repurchasing companies are required to make buyback announcements only if the cumulative total has reached 3% of the total share in issue, and they are also supposed to notify the market of the quantity of shares bought back and the purchase price for the shares (JSE listing requirements, 2010).

The aim of this research is to test whether the observed evidence and documented academic findings on share buybacks could be employed in a country like South Africa. Accordingly, for this study, the research problem was: Does the South African share repurchase activity exhibit the observed evidence and modern academic thinking? Proving four hypotheses will solve the research problem. Hypotheses are outlined in chapter 3 of this study.

## 1.3 SUMMARY

This chapter briefly described the study problem and the need for the research. As a developing economy, South Africa does not fundamentally imitate the share repurchase system of advanced countries. It has its own rules and regulations on share buybacks. The purpose of this study was to test whether documented academic findings on share buybacks are likewise applicable in the South African context. 14 years of data will be analysed in the study. In the next chapter, the share repurchase literature review was done to set the scene for the study.

# 2 CHAPTER 2: THEORY AND LITERATURE REVIEW

## 2.1 INTRODUCTION

This section builds on the thrust from the introduction section. A fusion and examination of current knowledge, essential findings and theoretical input to the signaling effect will be provided. The focus on literature review will be segmented into various sections. The economic and theoretical background of share repurchases, which encompasses corporate payout policies as well reasons why firms embark on share repurchases will be discussed in this section. A critical review of global academic literature that deliberates on motives for share repurchases will be done. It will then be narrowed down to the share repurchase academic literature relevant to the South African context.

## 2.2 METHODS OF SHARE REPURCHASE/ BUYBACK

In this section, a summary of the three common approaches that firms use to buy back shares (Grullon & Ikenberry, 2000) namely, the open market share repurchases program, the Dutch-auction tender offers and the fixed-price tender offers is given. The most popular form of repurchase is the open market share repurchase (OMSR) programs which are normally understood as positive news by the marketplace and consequently, they associated with positive abnormal returns (Bonaimé, 2015; Huang, 2015; Laing, 2016).

There are three share buyback techniques available to firms listed on the JSE namely: pro rata offers, general share repurchases and specific offers (Wesson et al., 2015). According to Daly (2002), the US has four modes namely: the open market share buy backs, the Dutch auction tender offer, the fixed price tender offer and private offers. A South African buyback classified under the general authority category is similar in technique to the open market share repurchase in the US while specific offer is

comparable to a private offer in the US and the pro rata offer is commensurate to US fixed price tender (Daly, 2002).

### 2.2.1 FIXED-PRICE TENDER OFFERS

In the fixed-price tender offer, a single price is offered to every stockholder for a certain amount of shares. The offer is normally for a defined period and it is sometimes subject to a certain number of company shares being tendered (de Ridder, 2015). Directors have the choice to raise the size of the buyback if there are many shareholders willing to participate. In cases where management decided to keep the size of the repurchase constant, all shareholder gets a pro-rated cash amount and the remainder in stock. Comment and Jarrell (1991) postulates that the signaling motive is important in the fixed-price offers because a 'significant' premium is offered to investors.

### 2.2.2 DUTCH-AUCTION TENDER OFFERS

The Dutch-auction share buybacks is also a fixed price offer (Grullon & Ikenberry, 2000). In Dutch auction, information that allows managers to come up with a final price is request from shareholders. The Dutch-auction repurchases have a fixed price as which is revealed at the end of the process. Grullon and Ikenberry (2000) state that the process begins with the announcement of a spectrum of prices management is prepared to purchase the shares at. Stockholders electing to partake in the offer advise the company the value they attach to their shares and the quantity of stock they are offering. The procurement figure is the smallest amount that affords the company to acquire the portion of stock requested in the deal. All stockholders who put forward a price at or below the stipulated price are involved in the share buyback program, and all accepted bids receive the similar price for the shares (de Ridder, 2015). All stockholders who offered at prices greater than the auction price are not considered, their shares are returned back. The Dutch-auction programs' signal is weaker (Grullon & Ikenberry, 2000).

### 2.2.3 OPEN MARKET PROGRAMS

Grullon and Michaely (2002) concluded that open market stock repurchasing (OMSR) is the most popular modus operandi for companies to repurchase their shares. Fried (2001) state that between 90 to 95 percent of stock repurchases takes this form. In this mechanism, a corporation repurchases its stock in the open market, usually done by a stockbroker in stages. A firm typically proclaims that it will buy back a specific quantity of its stock in the open market as market conditions dictate. In this auction, the firm maintains the choice of determining whether, when, and how much to repurchase (Fried, 2001).

The tender-offer and OMSR have been accessible to U.S. firms for a number of years even though the use of share buybacks turns out to be popular merely after the mid-1980s (Fried, 2001). The Dutch-auction method, by contrast, is a relatively new mechanism (Fried, 2001). Previous studies show that both OMSR and tender offer share repurchases are signals of managers' private information (Li, & McNally, 2007). Comment and Jarrell (1991) conclude that OMSR plans have weaker signals of share undervaluation compared to other tender offers. However, Stephens & Weisbach (1998) noted that notwithstanding their weaker signals, they represent almost 90% of the value of buyback programs declared in the U.S.

## 2.3 WHY DO COMPANIES REPURCHASE THEIR SHARES?

Literature has presented some arguments to explain the remarkable surge in share buybacks. The famous of arguments were advanced and bundled around Signalling Theory, Agency Theory, Price Support Hypothesis, Financial Flexibility Hypothesis and Dividend Substitution Hypothesis (Bhana, 2007). Because signaling is by far the main thrust of this study, the study will focus mainly on several traits of this theory.

### 2.3.1 SIGNALING THEORY APPROACH

This signaling theory is grounded on the proposition that insiders of the company can determine the real price of their firm's shares and when they feel that their shares are mispriced (undervalued), they buy back some of the shares from the market (Huang, 2015). This is the most commonly accepted explanation to companies choosing OMSR (Bonaimé, 2015; Manconi et al., 2014; Grullon & Michaely, 2004). Various managers assert that share repurchases signal that their stock prices are undervalued, and thus they are a good investment choice (Babenko, Tserlukevich and Vedrashko, 2012; De Cesari et al., 2012). The signaling theory states that investors attach a higher premium to dividend payers when the need to signal future profitability is higher (Huang, 2015). The signaling theory hypothesizes that the repurchase is seen as a disclosure by the management of new information that will improve the value of the company's prospects, signaling that the shares are not reflecting their intrinsic value (Niu, 2015). When a company repurchases its own shares, its earnings per share are expected to improve due to the decrease in the amount of shares. Along those lines, by repurchasing its shares, the firm is providing a positive flag indicating that the valuation of its stock is much higher than the current price in the market.

Babenko et al., (2012) argue that insider stock purchases can be used as a bellwether by external investors in order to evaluate the integrity of the undervaluation signal conveyed by OMSR pronouncements. In line with the signaling theory, share repurchase announcements exhibit positive abnormal returns, hence the rise in their use (Niu, 2015). Consistent with the signaling theory, Firth, Leungb and Ruic (2010) found substantial insider trading actions prior to the share buyback period. Firth et al., (2010, p. 2) claim that "double signals of share repurchase and directors' purchases create a stronger signal in conveying undervaluation, while insider sales around share repurchase reduce the undervaluation signal." Insider stock ownership offers credibility to the signaling theory, as insiders, who have superior information about the company, would incur a loss on their stocks if the shares buyback is completed at a premium. However, Fried (2010; 2001) adds ambiguity to the buyback signal theory by proposing that insider opportunism is a more reasonable reason for the OMSR than is signaling. He raises the idea that OMSR can be employed to convey a deceitful signal to

investors. The ambiguity was also noted by Huang, (2015), who postulate that managerial opportunism was a more realistic purpose for the buybacks.

Babenko et al., (2012) found that although the OMSR announcements are normally linked to equity undervaluation, the market treats them with scepticism. Even though supporting the signaling hypothesis, the intention to mislead investors was also hypothesised by Chan et al., (2010). However, Grullon and Michaely (2002) claim that regulation in the US makes the stock buyback alerts a 'safe harbor' from stock price manipulation. Harmonious with the signaling justification (Chan et al., 2010; Chan, Ikenberry, and Lee, 2004; Jagannathan and Stephens, 2003), buybacks are usually associated with higher abnormal returns when the information is released into the market. Insider trading cannot inform the market on whether buybacks are driven by undervaluation (Bonaime and Ryngaert, 2013).

Leng and Zhao (2014) examined insider dealing during the period around open-market share buybacks and established that directors trade inactively in three months before buyback pronouncements and up to twelve months after the pronouncements. Moreover, their findings point out that directors trade quietly during the period around buyback pronouncements as per their deemed undervaluation to take advantage of the abnormal stock returns associated with the buybacks. However, Qing (2016) studied stock options trading before share buyback announcements employing a sample of over 2,000 announcements and found that the average volatility spreads are abnormally high shortly before buyback announcements. Moreover, the pre-announcement spreads are positively linked to buyback announcement returns. These conclusions imply that some option holders are notified about the expected buyback announcements, promoted by information leaks.

Cziraki et al., (2017) state that the degree of insiders' net purchasing before share repurchases strongly forecasts share repurchase returns. However, their results reveal that the stock exchange occasionally underreacts to the message contained in insider dealing before the announcements. They concluded that a one-standard-deviation surge in the directors' net purchasing prior to repurchases is linked to a 9 percent rise in one-year post-event abnormal returns. Cziraki et al., (2017: 6) contends that, "if there

are complementaries between the information in insider trades and that in corporate actions then the market reaction to event announcement will depend on pre-announcement insider trading." This evidence is supported by Babenko et al., (2012), who confirmed this complementarity. In their study, Gao et al., (2015) show that insider silence is bad news and the opposite is also true. Their study also contends that expected stock yields are meaningfully poorer after management quietness than after their net selling. They also documented that insider silence is linked with negative stock returns over a period of 12 months.

According to Dittmar (2000), the analysis of share buybacks, and insiders' dealings presents proof on their corresponding pricing consequences and the reliability of the mispricing communication. However, Chan et al., (2010) conclude that there are disagreements as to the extent to which these announcements relate to undervaluation and also whether share buybacks have a long-term benefit for shareholders. Furthermore, they infer that some share repurchases are not driven by undervaluation as they identify repurchase evidence that does not show a post-announcement yield benefit.

Comment and Jarrell (1991) investigated the signaling influence of the most popular methods of buybacks and concluded that the average daily abnormal share gain for a period of three days close to the announcement day was 7.9% for Dutch auction tender offers, 11% for fixed-price tender offers and 2.3% open market share buybacks. Ikenberry et al. (1995), in their validation of the signaling theory, developed the under-reaction theory. They hypothesized that open market repurchase programmes are treated with suspicion and that share prices corrected gradually over time. Ikenberry et al. (1995) found that from day $t_{-2}$ to day $t_0$ abnormal returns were 3.54% while day $t_3$ to day $t_{10}$ had a return comparable to the market. Using a buy-and-hold strategy, they discovered that in the long-term, the cumulative abnormal returns rose to 12.14% after 4 years from 2.04% after a year.

Bradford (2008) studied long-run post-event returns for announcements of buybacks by US firms from 1993 to 1999 and concluded that the buy-and-hold method confirmed the presence of meaningful abnormal gains in the initial 2 years subsequent to the

event of 23% and 14% sequentially. This is supported by Chan et al., (2007), who also examined announcements from 1980 to 1996 and also concluded that significant abnormal returns did occur. Stonehage (2011) studied US firms that bought back more than 5% of their stock in a year between 2000 and 2011 and found that firms which bought back their shares outperformed the Standard and Poors 500 market index by more than two times. Lee, Ejara and Gleason (2010) studied share repurchases done in Europe between 1990 and 2005 and found that abnormal returns ranged between 2.76% and 3.58% in Germany, 0.97% to 1.93% in Italy, 0.82% in the UK and French buybacks showed no positive response. Using data from Germany, Hackethal and Zdantchouk (2006) concluded that the market reacted positively to the actual share repurchase and that cumulative abnormal returns influences from share repurchases are usually higher for firms with a high book to market ratio.

A large number of prior studies on share buybacks over the last few years have concluded that there long-term abnormal gains following stock buyback announcements (Ikenberry et al., 1995; Peyer and Vermaelen, 2009; Bolton, Chen, and Wang, 2013). In their recent article, Fu and Huang (2016) affirm that positive abnormal gains tracked repurchase announcements into 2002, however, they observe that these abnormal gains appear to have disappeared of late. They argue that the fading of the abnormal gains is linked to the dynamic market conditions as companies become less opportunistic in share buybacks. They added that current developments are driven more by company operational goals than to take advantage of stock price mispricing. Their findings contradict findings by prior literature.

### 2.3.2 AGENCY THEORY APPROACH

With the signaling theory in mind, we must be mindful of the agency theory. The agency theory is a thesis that illustrates the association between principals and representatives in an organisation. The theory's main aim is the resolution of dilemmas that can happen in agency relationships owing to unaligned goals or divergent risk aversion levels. Distributing cash as dividends can mitigate the likely cash motivated agency conflict between insiders and shareholders (Fama & French, 2005). According to Bansal (2013) and, Fama and Jensen (1983a), the agency theory states that

shareholders must observer and regulate insiders to protect their residual claims from the extremes of self-interested executives, the so-called ‘free-rider problem’. The issue occurs as a result of information asymmetries between the parties and their different incentives (Bansal, 2013). In many instances, managers who act as an agent for shareholders, have superior information about the company compared to shareholders (Jensen and Meckling, 1976). Jensen & Meckling (1976) also states that the manager may be motivated to act in a manner that is not aligned to shareholders if they are presented with an incentive to act in this way.

Zhuang (2013) posits that a large jump in employee stock options drives to a higher possibility of carrying a share buyback, irrespective of whether market timing opportunities are positive or negative. However, Cesaria and Ozkanb (2015) concluded that employee stock ownership and share-based rewards might alleviate agency frictions by raising the quantum of total pay-out. Easterbrook (1984) asserts that corporate pay-outs alleviate agency dilemmas among insiders and stockholders by decreasing money accessible to directors. Fama and French (2005) also support the proposition that investors value dividend payers with a higher premium to moderate the potential agency problem. However, observed evidence (Lie, 2000: Yoon and Starks, 1995) has mixed findings.

In their study of 450 Australian firms, Aspris, Foley and Frino (2014) concluded that prior conclusions connecting pre-bid stock price run-up to unlawful insider dealing may over-emphasize the presence of such behaviour. However, legal insider trading is given as an interpretation for unusual price moves. This theory is backed by research of administered insider trading incidents done by prior studies (Meulbroek, 1992; Cornell and Sirri, 1992). Meulbroek (1992) used information taken from prohibited insiders' deals to conclude that roughly half of the detected price run-up occurred on periods where insiders were active in the market trading. A convincing and meaningful connection between management's trades and price run-up, which backs the insider trading theory was identified by Chakravarty and McConnell (1997). However, Aspris et al., (2014) looked at the consequence of variations in substantial shareholdings and concluded that early findings associating stock price run-up to prohibited insider dealing might exaggerate the presence of such conduct. Their conclusions revealed no notable pre-bid run-up.

### 2.3.3 OTHER SELECTED SHARE REPURCHASE THEORIES

Vermaelen (1981) suggested that a number of share repurchase reasons were not mutually exclusive. Below are some of the theories that are used to explain the motives of share repurchases.

*Financial flexibility*: Zhuang (2013) argues that high levels of free cash flow hugely enhance the likelihood of administering a buyback, and this effect dominates the market-timing consideration. Denis (2011) debated that share buyback embodied a suitable flexible form of payout as they could be modified subject to earnings and cash flows when juxtaposes to 'sticky' dividends. Rapp, Schmid, and Urban, (2014) noted that companies with shareholders who focus on financial flexibility preferred to have higher cash holdings and exhibit lower dividend payout and favoured share repurchases to dividends.

Prior literature (Dittmar, 2000; Lee and Suh, 2011) surmises that share buybacks are launched to disburse company cash flows, thereby lessening agency intricacies associated with free cash flows. Jagannathan et al. (2000) and Guay and Harford (2000) provide support for this view. Turner, Ye and Zhan (2013) provide evidence against the free cash flow hypothesis. They document that from 1825 - 1870 companies studied did not distribute cash flows to shareholders by repurchasing shares. All in all, current studies both quantitative and qualitative present a mixed view on the validness of common theoretical reasons for share buybacks as these findings may be prone to selection bias (Bonaime, 2015).

*Leverage hypothesis*: A company's capital structure can be streamlined by share buybacks as it raises the debt component and decreases the equity portion. Increasing the company's leverage results in increased volatility in the share price, making it more attractive (Dittmar, 2000; Mitchell & Dharmawan, 2007). External sources of funding are usually used when firms are buying back shares and accordingly, share buybacks are a way to obtain debt funding (Dittmar, 2000). Share buybacks substitute comparatively costly equity with cheaper cash or debt (Stonham, 2002).

*Substitution effect*: Share repurchases are commonly regarded as an alternative to dividends because dividend tax is much higher than capital gains tax (Jiang et al., 2013). This assumption is used in instances where a firm is confronted with the choice to either declare and pay dividends or buy back its stock.

*Price support theory:* Repurchasing of shares can sustain the share price by concurrently growing demand whilst decreasing supply. Prior research (DeAngelo et al., 2012) shows that firms buy back their shares in quarters with weak returns, probably due to the fact that the shares are undervalued. In their study, Liu and Swanson (2016) conclude that price support is effective as abnormal gains after the support period are positive. Harmonious with the price support hypothesis, investment bankers claim that most firms are strategic with share buyback, as they repurchase when stock prices collapse, in the process, restricting stock-price deteriorations (Sturmpf, 2014). Dittmar and Field (2015) and De Cesari et al., 2012 argue that price support as a motivation does not fundamentally contrast with the academic conclusions that companies buy back their shares at lower prices than those in the following periods.

*Fending off hostile takeover* threat and making the company less vulnerable to take overs. It also provides an exit route to the shareholders in case of illiquid shares (Lin et al., 2014). Bargeron, Bonaime, and Thomas (2014) and Lin, Stephens and Wu, (2014) claim that long-term excess returns offset takeover risk and that the anomaly vanishes once this risk is managed. According to Lin et al., (2014), smaller firms that embark on share repurchases tend to face higher takeover probability. According to Huang (2015), takeover anxieties before a share buyback advisory can be used as a reliable flag of misvaluation.

*Wealth transfer:* The wealth transfer motive is associated with under- or overvaluation of a repurchasing firm. The magnitude of the wealth shift is determined by how the repurchase is funded and the similar yields on other asset classes (Stonham, 2002). The announcement of a buyback is commonly seen as a share price kicker and will

guide to an improvement in the valuation of the company. According to Stowe, McLeavey & Pinto (2009), the wealth transfer influence tends to benefit long-term investors of the firm if its shares are undervalued. Jun, Jung and Walkling (2009) concluded that untangling the wealth transfer and signaling theories is problematic due to the fact that they are not mutually exclusive.

Yook (2010) provides another reason for other motives than signaling. He contends that it is not possible for companies that regularly launch buybacks to successfully warn that they are undervalued because the unpledged nature of OMSR "makes the announcements a costless signal for managers." Jagannathan and Stephens (2003) back this proposition by asserting that "wealth effects are higher for occasional repurchasers." Companies with weak investment options repurchase large amounts of shares and have greater announcement effects (Kang, Kim, Kitsabunnarat-Chatjuthamard and Nishikawa, 2011; Chen and Wang, 2012; and Boudry, Kallberg and Liu, 2013).

### 2.3.4 OVER CONFIDENT MANAGERS AND REPURCHASES

Banerjee, Humphery-Jenner and Nanda (2015) find that overconfident managers react more to stock-price declines and buy back their stock at depressed levels of cash holdings. Prior studies (Patel and Cooper, 2014: Hiller and Hambrick, 2005) posit that CEOs' thoughts of their aptitude can warp their judgment. Prior literature, (Kim, 2013; Deshmukh, Goel and Howe, 2013; Simon and Shrader, 2012), intimates that a number of Chief Executive Officers (CEOs) overrate their capacity and their firms' prospects, while under-estimating risks. Simon and Shrader (2012) concluded that overconfidence raises the probability of venturing into highly competitive environments.

Considering that CEOs usually intend to repurchase shares when their companies are 'undervalued' (Bonaimé, Öztekin and Warr, 2014; Babenko et al., 2012), this is in line with the notion that overconfident CEOs typically regard their companies as 'undervalued' by the market. Deshmukh et al., (2013) intimates that because overconfident executives think their companies to be undervalued by the market, they

are not worried about the amount of cash their companies hold and tend to repurchase shares at lower levels of cash holdings. According to (Kolasinski and Li, 2013; Kim, 2013), such managers normally over-invest and engage in value destroying acquisitions. Li and Tang (2010) argue that improved governance should mitigate the impact of CEO overconfidence as CEO hubris and risk-taking increases with managerial discretion.

Banerjee et al., (2015) argue that institutional investors, bothered by overconfident managers, might fancy these companies to give back cash to shareholders through repurchases which could also enable institutional investors to exit these companies at buyback prices. Their argument is backed by prior literature (Edmans, Fang and Lewellen, 2017; Edmans, Goncalves-Pinto, Wang and Xu, 2014). Banerjee et al., (2015) observed that the market to respond negatively to share repurchases announcements from overconfident CEOs which is consonant with the market noticing that these buybacks may be driven by biased judgments of company value. In connection with management hubris, Bonaimé et al., 2014 notes that worse-performing repurchases tend to involve worse governed firms. Another point of bother is that overconfident CEOs might simply buy back shares to increase the value of their share options before exercising (Banerjee et al., 2015). Huang and Thakor (2013) argue that share repurchase action is elevated when the level of compromise between investors and management is at its worst as dissenting shareholders will be more than ready to offer their stocks.

According to Banerjee et al., (2015), there is a concern in that the relationship between overconfidence and share repurchases arises solely because CEOs with options engage in share buybacks to prop up the value of those options. This concern follows from prior literature (Minnick and Rosenthal, 2014; Farrell et al., 2014) that CEOs might influence share buyback activity for selfish reasons, including earnings management, and compensation-related reasons.

Recognition of a manager's ability to buy back misvalued shares is vital to reconcile the share repurchase studies with the findings that Chief Finance Officers (CFOs) list misvaluation as one of the principal determinant inspiring the motivation to repurchase

shares. Brav, Graham, Harvey, and Michaely (2005)'s poll of CFOs found that 86.4 percent of all finance officers concur or concurred that companies buy back their stock when they are 'undervalued'. They also observe that about 50% of the surveyed CFOs claim that they can beat the market which can be taken as ability by insiders to time the market.

### 2.3.5 MARKET TIMING

Can insiders time the market in embarking on share repurchasing decisions? This puzzle has encouraged many research papers in the repurchases literature. Notwithstanding infinite investigations, it is still debatable if the evidence agrees or disagrees with the market timing theory. Dittmar and Field (2015) find that a company's capacity to time the market declines with the frequency of repurchase action. Their findings propose that regular repurchasers are most likely buying back shares for motives other than 'undervaluation.'

The proof on post- share buyback abnormal returns is mixed. Ginglinger and Hamon, (2007) and Cook, Krigman and Leach (2004) did not find the abnormal returns, but De Cesari et al., (2012) record price jumps after share buyback action. According to De Cesari et al. (2012), a moderate degree of management and institutional dominance is associated with a discount in share repurchase prices comparable to market valuation, while at elevated levels of management and institutional shareholding the circumstances are reversed. In their research, Ben-Rephael, Oded and Wohl (2014) observe that companies buy back their stock at valuations which are relatively cheaper when compared to average market values. They ascertained that the valuation discount is inversely associated to the size of the firm and moves in tandem with its market-to-book ratio.

After surveying CEOs and CFOs, Brav et al., (2005) view share repurchases as being adaptable when compared to dividends and insiders utilise this adaptability to time the market by expediting share buybacks in instances where they think their shares are 'undervalued'. Ben-Rephael et al., (2014) established that the actual share buyback

action is subsequently ensued by a favourable and notable abnormal gain which is associated with the acknowledgment of concrete share repurchase exercise. They, however, declare that their conclusions do not fundamentally signify that companies repurchase to profit from under-pricing, but solely due to the awareness of useful information on the firm's free cash availability. The market only gets the relevant knowledge when the concrete share buyback information is published, and hence the positive correlation linking real share buyback action and expected abnormal returns.

Baker and Wurgler (2004), and Peyer and Vermaelen (2009) put forward proof harmonious with market timing. However, Dittmar and Dittmar (2008) and Butler, Grullon, and Weston (2005) contradict the analysis of these conclusions as confirmation of market timing. Most of the literature (Peyer and Vermaelen, 2009: Ikenberry et al., 2000) use long-run returns after the event announcement which makes it complicated to conclude whether insiders can time the market in share buybacks. According to Stephens and Weisbach (1998), the fact that many companies announce a share buyback and never actually repurchase any shares makes it expressly challenging to back the market timing thesis. Moreover, some studies (Massa, Rehman, and Vermaelen, 2007; Grullon and Michaely, 2002; Dittmar, 2000) provide evidence that companies buy back their shares for purposes other than undervaluation.

Bonaimé et al., (2014) reviewed the average share price of companies in the period they embark on buybacks and contrast this with the period they did not, and they found that stock prices are elevated in the period of the buybacks. Chen, Yu and Kao (2016) find that although the good news is thought to be implicit in repurchase announcements, not all companies experience increases in share price after the announcements. Su and Lin (2012) discover that the long-term abnormal returns after share buyback announcements are negative. Lie (2005) finds a substantial relationship between the expected company operating performance and the real buyback action by the firm.

## 2.4 SOUTH AFRICAN CONTEXT

In South Africa, share buybacks were only permitted on an unofficial basis from July 1999 and only formalised from October 2000 after the JSE amended its Listing Requirements. They have gained popularity among listed firms that use them as an alternative to traditional dividends (Jiang, Kim, lie & Yang, 2013). Bhana (2007) lists some possible reasons why reasons why companies potentially buyback their stock. These includes signaling, tax benefits when compared to dividends, takeover defense, distributing temporary excess cash and capital structure adjustment to evade a decrease in earnings initiated by issuing employee share options are among some of the reasons.

As indicated above, there are basically three methods followed to execute a share repurchase in South Africa, namely: open market share buybacks, pro rata offers which is also known as general offers and specific offers. For the objective of this research, the general share buyback method was the main source of information because the information was readily available from data vendors as compared to open market share repurchases. In many countries, firms are obliged to declare share buybacks immediately after repurchases have been executed, however, on the JSE, communication of share buybacks is executed via SENS under a dictate which mandates buybacks to be declared only in cases where the aggregate three percent boundary has been touched. The JSE allows firms to buy back shares of their subsidiaries, the holding company and share trusts while in other countries, holdings companies can only repurchase share (Bhana, 2006). Certain restrictions are imposed on US subsidiaries that want to buy back shares in the parent company (Cassim, 2003).

In South African, the stated motives for share repurchases are related to those used in the UK and the US. Vermeulen, (2014) studied share repurchases within the South African mining sector and noted that a substantial quota of share buybacks were not declared on SENS. The study noted that 59 percent of share repurchases (and 49.3 percent of the total value) done by companies with their main listing on the Johannesburg Stock Exchange were not published on SENS. In contrast to Chivaka et

al., (2009), Vermeulen (2014) contended that any research on share repurchases only based SENS announcements or circulars would be flawed as it does not utilise the total universe of actual shares repurchased. The study argues that by only looking SENS announcements and circulars any research was likely to understate the level and value of share buybacks in South Africa (Bester, Wesson and Hamman, 2010). The study notes that South African share buybacks environment has deficiencies due to the lack of comprehensive and precise share repurchase statistics. Subsidiaries and share incentive trusts complicate research on share buybacks in South Africa because they are also allowed to buy back shares (Vermeulen, 2014). Hamman and Wesson (2011) established that the understanding by listed JSE firms on the share repurchase disclosure requirements was drastically different. They (Hamman & Wesson, 2011) raised concern about how group shares were treated by different companies, as there are discrepancies due to the ambiguity surrounding the requirements of International Accounting Standard 1. JSE requirements states that firms should publicise repurchases above 3 percent, this according to Crotty, (2012) has been normally understood by some companies as 3 percent per year, which means that firms could buyback slightly under 3 percent each year and there will not be any need to publicise the repurchases. The information on the entire amount of share buybacks actions is easily accessible and well known in most developed bourses, while announcements on the JSE share buybacks do not portray the entire scope of the buyback actions due to the 3 percent disclosure dictate.

## 2.5 SUMMARY

Chapter 2 reviewed the international and South African research on share buyback activity. It looked at the current academic studies on motives for share buybacks. Recognised observational evidence and prevailing thinking around share buybacks were used to form the hypotheses used answer the research problem at hand.

From the articles reviewed, it is evident that announcements of share buybacks conducted on the JSE do not portray the entire scope of the buyback actions due to the three percent disclosure dictate. Given such irregularities it is necessary to examine whether the three percent disclosure rule has an influence on the reaction of the

market to share repurchases. Literature has put forward various arguments to explain the notable increase in buy backs in the global markets. The majority of cases developed were clustered around the signaling theory, the leverage theory, the personal taxation theory, the free cash flow hypothesis, the anti-takeover theory and earnings per share growth theory. Amid the many arguments explaining the reasons and share price action for companies buying back their share, agency and signaling theory are among the main reasons However, the signaling theory takes centre stage. The JSE does not fundamentally follow the share repurchase custom of bourses in the developed nations. It has its own rules and regulations on share repurchases. The project seeks to test whether documented academic findings on share buybacks are likewise applicable in the South African context.

# 3 CHAPTER 3: RESEARCH HYPOTHESES

Chapter 3 builds on the theory outlined in Chapter 2. In alignment with the review of literature in the previous chapter, this study investigates the response by the market to the pronouncement of buybacks conducted by JSE listed companies in conjunction with insider trades before the announcement. Analysing the market reaction places us in a position to determine whether trading by insiders before a share repurchase announcement has an 'announcement effect.' This Chapter will outline a summary of the research hypotheses developed to solve the research problem.

## 3.1 HYPOTHESIS 1

Literature suggests that signaling that the market is undervaluing the firm's shares is the most regularly attributed reason for share repurchases (Huang, 2015). Bonaimé (2015) argues that companies are more inclined to repurchase their shares when they sense that the market undervalues their shares. Hypothesis 1 thus proposes:

$H_0$: No meaningful variation exists between pre-announcement and post-announcement average abnormal return means.

$H_1$: A meaningful variation exists between pre-announcement and post-announcement average abnormal return means.

## 3.2 HYPOTHESIS 2

Ikenberry et al. (2012), in their validation of the signaling theory, found that in the short-term, abnormal returns were comparable to the market at around 3.54%. However, when they used a buy-and-hold strategy, they discovered that in the long-term, the

CARs rose from 2.04 percent after a year to 12.14 percent after 4 years. Hypothesis 2 thus proposes:

$H_0$: Share price performance do not decreases before a share repurchase

$H_1$: Share price performance decreases before a share repurchase

## 3.3 HYPOTHESIS 3

The evaluation of long-run abnormal returns has been contentious as several appraisal techniques have been suggested and each has its advantages and disadvantages (Fu & Huang, 2015). Studying U.S. market using data from 1980 to 1997, (Grullon and Michaely, 2004) found that three-year post-announcement abnormal return is linked to the prevailing and expected profitability. Bhana (2007)'s findings support the signalling theory that managers use buybacks to signal that their stock is undervalued. Bhana (2007) observed a positive abnormal gain of 4.38% in the short-term in South Africa. Hypothesis 4 thus proposes:

$H_0$: After a share repurchase, share price movement is not different from zero

$H_1$: After a share repurchase, share price performance is different from zero

## 3.4 HYPOTHESIS 4

Peyer and Vermaelen (2008) examined the overreaction theory, which posits that long-run excess returns are simply an emendation of the exaggerate response to negative information about a stock preceding a buyback. They found that share prices endured their most meaningful positive long-term surplus gains if the buyback was prompted by sharp share price deterioration in the preceding 6 months, and earlier achievement is a

reliable forecaster of undervaluation than anything else used to predict undervaluation. Hypothesis 4 thus proposes:

$H_0$: Share repurchase portfolio value ≤ Equal Weighted All Share Index (J203) over the relevant period

$H_1$: Share repurchase portfolio value > Equal Weighted All Share Index (J203) over the relevant period.

## 3.5 SUMMARY

The research questions and hypothesis outlined in this Chapter are underpinned by the findings outlined in Chapter 2 and are formed to satisfy the aims and objectives of this research. Furthermore, the hypothesis will test the significance of insider trading relative to share repurchase announcements in the South African context. A consistency matrix in Table 1 below has been included to summarises the framework for this study. For this study, the research problem was: Does the South African share repurchase activity exhibit the observed evidence and current academic thinking?

## Table 1: Consistency matrix

| HYPOTHESES | LITERATURE REVIEW | DATA COLLECTION TOOL | ANALYSIS |
|---|---|---|---|
| 1. No meaningful variation exists between pre-announcement and post-announcement average abnormal return means. | (Bonaimé, Hankins & Jordan, 2016; Cziraki, Lyandres & Michaely, 2017; Gao, Ma, & Ng, 2015) | JSE SENS, McGregor BFA | Hypothesis testing |
| 2. Share price performance do not decreases before a share repurchase. | (Bonaimé, Hankins & Jordan, 2016; Cziraki, Lyandres & Michaely, 2017) | JSE SENS, McGregor BFA | Hypothesis testing |
| 3. After a share repurchase, share price movement is not different from zero. | (Huang, 2015; Chan et al., 201; Yung, Li & Jian, 2015; Bonaimé, Hankins & Jordan, 2016; Cziraki, Lyandres & Michaely, 2017) | JSE SENS, McGregor BFA | Hypothesis testing |
| 4. Share repurchase portfolio value ≤ Equal Weighted All Share Index (J203) over the relevant period | (Huang, 2015; Chan et al., 201; Yung, Li & Jian, 2015; Bonaimé, Hankins & Jordan, 2016; Cziraki, Lyandres & Michaely, 2017) | JSE SENS, McGregor BFA | Hypothesis testing |

# 4 CHAPTER 4: RESEARCH DESIGN AND METHODOLOGY

## 4.1 INTRODUCTION

Chapter 4 reviews the research design and methodology selected for this research project. The main aim of this chapter is to explain the methodology and research design adopted. A comprehensive framework model of the Research Onion Process (Saunders & Lewis, 2012) was chosen as it specifies all steps that are followed in the research process. The study adopted an explanatory research design centered on how to adequately clarify the properties of a population (Saunders & Lewis, 2012). According to De Vos, Strydom, Schulze & Patel (2011) it is possible to establish the influence of one variable on another by using a quantitative framework. A deductive approach was also adopted as it starts by reviewing the theoretical background, present hypothesis from the reviewed theory, which links to the focal point of research, and then progresses to test the theory (De Vos et al., 2011). A quantitative approach to research is mostly linked with a deductive technique to testing the theory, usually utilising numbers or facts and as a result a positivist model and an objectivist view of objects studied (Curtner-Smith, 2002). This study was quantitative in characteristics and causal in design. Analysis of the results was used to accept or reject the hypotheses in Chapter 3.

An event study methodology (Isa, Ghani & Lee, 2011; Lin, Lin & Liu, 2011; Ward & Muller, 2010; Mordant & Muller, 2003) was employed to examine the short and long-term response from the market after share buyback announcements. The research leaned heavily on the event study methodology, which has become a yardstick when investigating market reaction to any announcements (MacKinlay, 1997). The investigation of event studies performed for a number of years exposes that the basic statistical format of event studies still uses the event study of Fama, Fisher, Jensen, and Roll (1969). A standard event study methodology which has been developed over time (Madura & Akhigbe, 1995: Bhana, 1998) was used. A 12-parameter style model (Ward & Muller, 2010; Mutooni & Muller, 2007; and Mordant & Muller, 2003) was used to estimate benchmark returns.

Abnormal purchases, abnormal sales, and abnormal net sales were used as other measures. Two elements are employed to define abnormal trades (purchases, sales, and net sales). Like in the methodology employed by Kahle (200), normal trades are determined as the average monthly trades in the three years before the buyback announcement starting six months before the announcement. Abnormal trades are the variation within the actual insider trades and the average insider trades over the last three year period for the same time window. According to Agrawal and Nasser (2012) argue that a time series control serves as a good control.

## 4.2 RESEARCH PHILOSOPHY

In this study, the positivism philosophy was adopted as it upholds the sense of investigation and experimentation to validate or invalidate hypotheses and then creates new theory by placing facts together to create principles (Coolican, 2004). The philosophy of positivism states that logical approach is the reliable way of collecting the required information (Coolican, 2004). It is about the objective rather than subjective statements. Hypotheses were developed from the research problem mention in Chapter 3.

## 4.3 RESEARCH APPROACH

The deductive approach was applied in this study because the researcher is concerned with deducting conclusions from the hypotheses formulated from the problem statement. The deductive procedure advances the hypothesis or hypotheses on the current theory and then designs the research methodology for testing it (Silverman, 2013). In this study, as alluded to in the literature review section, the signaling theory and the agency theories were the cornerstones of the arguments presented. Snieder & Larner (2009) argues that the deductive method might be deemed suitable to the positivist strategy, which allows the construction of assumptions and the statistical examination of probable outcomes to a certain level of probability which is accepted.

## 4.4 RESEARCH STRATEGY

The research strategy, is outlined by Saunders and Lewis (2012) as how the researcher aims to accomplish the research. In this project, the researcher used experimental research, which signifies the approach of generating a study procedure that tests the outcomes of an experiment alongside the anticipated results (Saunders & Lewis, 2012). The strategy can be employed in all facets of research, and normally includes the study of a reasonably restricted number of determinants. The correlation between the factors was evaluated and adjudicated versus the expectation of the research results. The rationality behind event study methodology is empirically instinctive. According to MacKinlay (1997), the researcher examines a period before the event to better appreciate the performance of the market under presumed normal market conditions. Then, using an estimation model, the researcher predicts what would transpire, in normal market conditions (MacKinlay, 1997).

## 4.5 CHOICES

Of the choices outlined in Saunders and Lewis (2012) the researcher used the mono-method that uses a single research method for the research. The quantitative methodology was the method of choice, as the analysis was based on regression techniques. Flick (2011) notes that the quantitative approach is based on the application of quantitative data. The quantitative approach can be most effective wherever the data can be estimated by numerical techniques, and where numerical techniques of analysis can be employed (May, 2011).

## 4.6 TIME HORIZONS

For data gathering, a longitudinal time horizon was adopted. According to Goddard & Melville (2004), this relates to the gathering of data frequently across a long period. It is employed where a vital portion of the study is probing change over time. The adoption

of the longitudinal time horizon has the advantage of being employed to examine change and evolution. Moreover, it enables the researcher to have influence over the variables being analysed. The longitudinal time horizon is best suited for this study as it probes change over time.

## 4.7 POPULATION OF RELEVANCE

As articulated in Chapter 1, the population of importance is composed of all companies listed on the JSE bought back their shares from 1 January 2003 until 31 December 2016 (test period).

The period was selected primarily for two reasons namely:

1. In South Africa, share repurchases were formalised from October 2000 after the JSE amended its Listing Requirements. The period from 2003 should cater for a reasonable period for companies to adjust to the new listing requirements.
2. The starting date was selected for convenience as McGregor BFA only has share repurchase information from 2003 onwards.

This study will be prone to survivorship bias as companies de-listed from the Johannesburg Stock Exchange during the study period were eliminated from the research. Firms without enough data were automatically eliminated as well. The research only examine general repurchase announcements, as defined by the JSE Listing Requirements, and excludes specific repurchases, because of the differing behaviour of returns for both general, and specific, repurchases around the announcement date.

## 4.8 UNIT OF ANALYSIS

Wegner (2012) defines the unit of analysis as encompassing the major entity being analysed in a study. For the objectives of this research, the unit of analysis is the share

price of JSE listed firms which sent out a general share buyback announcement between 1 January 2003 and 31 December 2016.

## 4.9 SAMPLING METHOD AND SIZE

A non-probability sampling technique was employed because only firms listed on the JSE were examined. According to Ramloutan (2008), this approach excludes any random sampling errors. Zhang (2005) intimates that a similar sample will be clear from selection prejudices linked with other sampling techniques as it will contain all OMSR in the sample period. Data for the test period was extracted from McGregor BFA financial database. There are two types of share repurchases as per the JSE listing requirement, that is, specific repurchases and general repurchase. Specific repurchases are repurchases approved by shareholders for a particular share repurchase and is valid until it is amended through a special resolution. While general repurchases are repurchase approved by shareholder giving management "a renewable mandate which shall be valid until the firm's next annual general meeting or for 15 months from the date of the resolution, whichever period is shorter" (JSE listing requirements, 2010) The study will only examine general repurchase announcements, and excludes specific repurchases, because of the differing behaviour of returns for both general, and specific, repurchases around the announcement date.

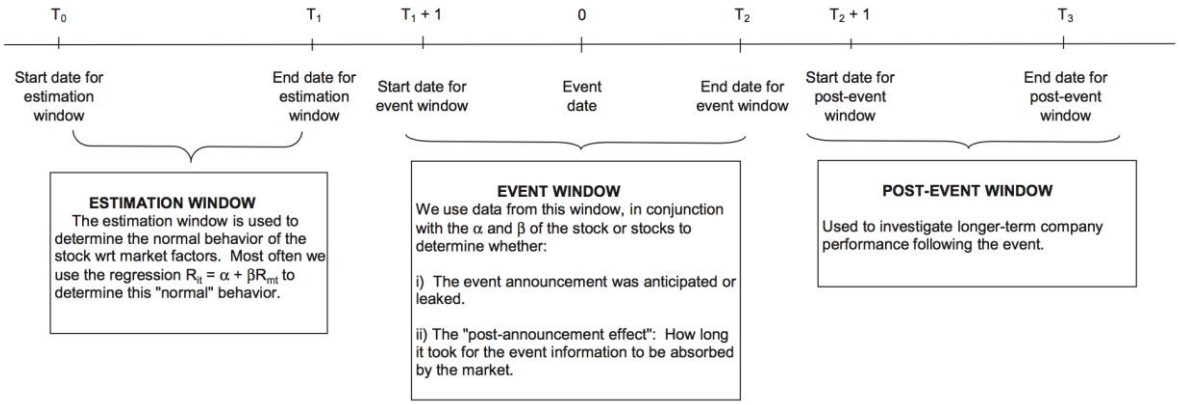
## 4.10 MEASUREMENT INSTRUMENT

To investigate the short and long-term response by the market after the buyback announcements, an event study methodology was employed. Over time, a conventional method for event studies (Madura & Akhigbe, 1995; Bhana, 1998; Brown and Warner, 1980) has been created, and it was employed in this study. An identical methodology was employed for the both the long and short-term event studies.

### 4.10.1 EVENT WINDOW

There are three time frames in an event namely: the control period sometimes called the pre-announcement stage, the event window, and the post-announcement stage (sometimes called post-event window). The chart below extracted from Benninga (2014) illustrates these time frames.

**Figure 1: The event study time line**




Source: Beninga (2014)

According to Beninga (2014), the event window as depicted in Figure 1 shows pre and post the announcement number of days used for gathering abnormal returns. Prior studies (Lin et al., 2011; Isa et al., 2011; Zhang (2005) applied the market model employing an event window period of 41 trading days from 20 days earlier to 20 days subsequent with day 0 representing the event date. According to Lin et al. (2011), the variation in the event windows influences the results of the study. They postulate that a too long event window may produce an unstable model while a too short event window may impair the predictive power of the model. The event window must capture the total share price reaction whilst excluding price fluctuations from other announcements (Lin et al., 2011). In this study, three event windows were used to calculate short-term CARs and long-term CARs. Short-term calculations used a 41 trading days event window starting from 20 days prior to the event to 20 days subsequent to the event while long-term used an event window of up to 248 days.

**Table 2: Pre and post event-windows used in previous studies**

| Research paper | Pre-announcement window |
|---|---|
| Lakinishok and Vermaelen (1990) | -40 to -1 |
| Lin et al., (2011) | -20 to -1 |
| Zhang (2005) | -20 to -1 |
| Lakinshok and Vermaelen (1995) | -20 to -3 |
| Akyol and Foo (2013) | -11 to - 1 |
| Bhana (2007) | -20 to -3 |
| Tserlukevich, & Vedrashko (2012) | -43 to -4 |

| Research Paper | Post-announcement window |
|---|---|
| Lakinishok and Vermaelen (1990) | +3 to +24 |
| Lin et al., (2011) | +1 to +20 |
| Zhang (2005) | +1 to +20 |
| Ikenberry, Lakinshok and Vermaele | +3 to +10 |
| Akyol and Foo (2013) | +2 to +11 |
| Bhana (2007) | +3 to +20 |

### 4.10.2 BENCHMARK

An essential factor for event studies is the type of yardstick for estimating abnormal returns are (Lyon, Barber and Tsai, 1999). Cable and Holland (1999) found that market model usually outperforms CAPM on reliability for event studies. According to Fama and French, (1998) the CAPM neglects to consider expected returns due to firm size, and growth versus value. The CAPM model also ignores factors affecting the non-resource versus resource stocks (Van Rensburg & Robertson 2003). Cable and Holland (1999) found that market model is an acceptable simplification of the general model. The market model is used to find the expected rates of return (Fama et al., 1969) (MacKinlay, 1997). MacKinlay (1997) claims that the market model is mostly preferred because it does not impose any restrictions. MacKinlay (1997) states that the influence of a particular event on company valuation is estimated in an event study. MacKinlay (1997) claims that the market model embodies a possible refinement over the constant mean return model. On the market model, the exclusion of the portion of the return associated with variation in market returns increased the ability to detect event effects.

### 4.10.3 CONFOUNDING EVENTS

As per McWilliams and Siegel (1997)'s event study framework, the event under study must be detached from confounding effects. Confounding is a circumstance where the influence or connection between an exposure and outcome is misrepresented by the proximity of a different variable. They can also be defined as independent events which transpired in the event window that has potential to materially influence the stock price of a firm. JSE SENS announcements accessed via https://mstrade.momentum.co.za/msprs/ was used to recognise confounding events. The study adjusted for confounding events in the window period for the event as suggested by McWilliams and Siegel (1997) and van der Plas (2007). The method of eliminating confounding events was subjective and this might determine the size of type I and type II errors. The abnormal returns used in the study were cropped in order to eliminate daily abnormal returns higher than 20 percent or smaller than -20 percent in order to guarantee that the conclusions were not influenced by deceptive outliers.

### 4.10.4 EQUATION USED

A 12-parameter style model was employed in this study to calculate benchmark returns in line with prior studies (Mordant & Muller, 2003; Ward & Muller, 2010; Mutooni & Muller, 2007).

Following prior research (Ward & Muller, 2010; Mordant & Muller, 2003), the regression of every stock's monthly logistic function stock price return for the previous forty eight-month term versus the similar period logistic returns the twelve control portfolios for a similar term was used to compute the twelve beta coefficients for every stock in the sample. An alpha coefficient was computed for every stock on the regression equation and incorporated in the calculation of predicted returns, after modifying for daily intervals. Beta and alpha parameters for every stock in the study specimen were recomputed on a rolling monthly basis utilising past data.

The portfolio model used as a control predicted the anticipated return from share *i* for the period *t* as the aggregation of the responsiveness of share *i* to the gains and losses on the 15 dummy portfolios used as controls and the anticipated daily alpha applying out-of-sample data. 15 concurrent portfolios were used with one portfolio opened every month. Shares were held for 15 months.

The equation below was extracted from work done by Ward & Muller (2010).

$$E(\hat{R})_{it} = \alpha_{it} + \beta_{i,1}SGN_t + \beta_{i,2}SGN_t + \beta_{i,3}SGR_t + \beta_{i,4}SGN_t + \beta_{i,5}SGR_t + \beta_{i,6}MNG_t + \beta_{i,7}MVN_t + \beta_{i,8}MVR_t + \beta_{i,9}LGN_t + \beta_{i,10}LGR_t + \beta_{i,11}LVN_t + \beta_{i,12}LVR_t$$

$$\alpha_{it} + \beta_{i,1}SGN_t + \beta_{i,2}SGR_t + \beta_{i,3}SGN_t + \beta_{i,4}SGR_t + \beta_{i,5}MGN_t + \beta_{i,6}MGR_t + \beta_{i,7}MVN_t + \beta_{i,8}MVR_t + \beta_{i,9}LGN_t + \beta_{i,10}LGR_t + \beta_{i,11}LVN_t + \beta_{i,12}LVR_t \quad (1)$$

Variables defined below:

$E(\hat{R})_{it}$ equates to the anticipated return of share *i* at day *t*;

$\alpha_{it}$ representing the Alpha intercept of share *i* at day *t*;

$\beta_{i,1}$ ..... $\beta_{i,12}$ represents the beta coefficients for individual control portfolio return; and

$SGN_t - LVR_t$ = logistic-function stock price returns on respective control portfolios at day t.

The daily abnormal returns were computed by means of Equation 2, and later averaged across the sample for examination.

$$A\hat{R}_{it} = \hat{R}_{it} - E(\hat{R}_{it}) \quad (2)$$

Variables defined below:

$A\hat{R}_{it}$ is the abnormal return of share *i* for period *t*;

$E(\hat{R}_{it})$ is the anticipated return of share *i* for period *t* defined in terms of Equation 1; and

$\hat{R}$ is the actual return of share i for period *t*.

The portfolio performance was measured by adding the summed ARs to compute the CARs for every stock, covering the event window period. The date of the event in this study is the initial notification date of the share buyback, and this was indicated as $t_0$. For the long-term analysis, a one-year window period for the event was established as sixty trading days prior to the event day to 252 trading days following the event date and expressed as $t_{-60}$ to $t_{+252}$. The cumulative abnormal returns (CARs) for firms in the sample were sketched over the event window. The CARs begin at $t_0$ (i.e. they were selected from the notification day and the cumulative abnormal returns from $t_0$ backward to $t_{-60}$ were deducted).

### 4.10.5 BUY-AND-HOLD METHODOLOGY

A cumulative abnormal returns strategy is not a practical investment strategy. This study consequently implemented a buy and hold investment approach in order to examine the outperformance on a portfolio basis. Muller and Ward (2013)'s style-based methodology was employed to assemble the portfolios. One portfolio was opened every month as per Fama (1998)'s monthly calendar-period portfolio approach. A uniformly-weighted buy-and-hold approach in all firms repurchasing their stock commencing one month after the pronouncement was simulated. The return for each and every share in the buyback portfolio was computed on a monthly basis. The last day of the month value of the portfolio was retained. At the commencement of every month, the portfolio was rebalanced to retain the equal weighting of the portfolio. A 15 month holding period was employed. This method was replicated each month, accumulating the value of the portfolio until 31 October 2017.

### 4.10.6 TESTING THE HYPOTHESIS

The regularly used parametric tests to estimate significance on abnormal returns from event studies was exhibited by Brown and Warner (1985). McWilliams and McWilliams (2000) exhibited a comprehensive z-test for cumulative abnormal returns, granted they are normally distributed. Cowan and Sergeant (1996), Sanger and McConnell (1986) suggested relevant non-parametric tests. In this research study, a bootstrapping method (Noreen, 1989) was employed to examine abnormal returns and cumulative abnormal returns for significance. Applying the daily abnormal returns on every share in the study sample, Monte Carlo-type bootstrap distributions of cumulative abnormal returns were created. To construct the Monte Carlo-type bootstrap distributions, random dates from the days prior and post the exact event day were selected for each company and cumulative abnormal returns were computed respectively. The process to generate random dates was replicated 100 times to create a series of patterns for the event window. Significance levels were determined from the data that was generated using the Monte Carlo-type bootstrap method. The abnormal returns covering the event window could also be examined for significance. This technique of significance analysis is deemed to be superior to the t-test in that no assumptions are made of normality.

## 4.11 DATA GATHERING PROCESS

It is one of the JSE listing requirements for listed companies to alert the market and its shareholders about any material matters that may influence the firm's share price. According to JSE listing requirements (2010), these notifications should be released via the Stock Exchange News Service (SENS) which is a web-based notification board aimed at ensuring that price-sensitive notices are received timeously by anyone with interest in the JSE listed companies. All historical information (secondary) on corporate actions and closing prices was sourced from existing providers of financial information and analysis tools such as Thompson Reuters, Bloomberg, McGregor BFA (iress) databases and other financial information databases. However, McGregor BFA was the main source for share announcement information.

## 4.12 ANALYSIS APPROACH

A content search on secondary information databases was carried out for share buybacks over the period under study (January 2003 – June 2017). The study only focused on OMSR. Each announcement was investigated for independent events, such as other corporate action or trading results that could have been released during the event window and announcements with such events were excluded from the study. The researcher created hypotheses outlined in Chapter 3 and will subject them to an empirical test using the market model. The Statistical Package for the Social Sciences (SPSS) version 24, and Microsoft Excel were used to analyse the data in this study. The researcher will use data to support the conclusion.

## 4.13 RESEARCH LIMITATIONS

The JSE listing requirements were amended to allow share buybacks from October 2000. Andriosopoulos and Hoque (2013) argue that ownership concentration, company size, and cash dividends consistently have a meaningful influence on share buyback announcements. Studies (Lou and Schinckus, 2015: Arjoon & Bhatnagar, 2017) discover an asymmetric impact of small and large stocks intimating that the herding behaviour exists for small stocks in bullish times, while in bearish periods crowds go for large shares. This study used a total of fourteen and a half years of data. There was be some survivorship bias in the population as companies that announced share buybacks and but were later de-listed within the study period for whatever reason were eliminated. The exclusion reduced the sample findings and only applies to the JSE listed companies to the exclusion of private companies. As indicated in Chapter 2, Vermeulen, (2014) noted that a significant portion of repurchases are not published on the Stock Exchange News Service (SENS). The study pointed out that 59% of buybacks done by companies with a main listing on the Johannesburg Stock Exchange were not published on SENS which might have had an impact on the study. The other limitation was that firms registered on the JSE understand the disclosure requirements differently (Hamman & Wesson, 2011).

Data on share repurchases in South Africa is not as readily available as in countries like the United Kingdom, United States of America, Australia and Canada. The JSE does not keep such information in excel format, it has the information in PDF format which is not very useful for an MBA study as it is cumbersome and time consuming to go through all announcements in PDF. The financial data providers in South Africa also do not have detailed records on share repurchase activities let alone director trades. The lack of data from service providers makes it difficult to embark on a conclusive research on share buyback by the JSE listed companies. The study relied on McGregor BFA as the main source of information as SENS had incomplete information mainly due to inconsistent use of terminology as 'buy-back', 'repurchase', 'buy back', 'buyback', and 'treasury' were used to refer to the similar transactions.

## 4.14 CONCLUSION

An event study methodology will be used to test the AARs and CAARs for JSE listed firms' share buyback announcements. The unit of analysis has been defined as the share price of firms listed on the JSE that sent out a general share buyback announcement between 2003 and July 2017. A non-probability sampling technique was chosen because only firms listed on the JSE were investigated. McGregor BFA was the origin of the data employed in the research. Limitations of the study were discussed in section 4.12 above. The following chapter (Chapter 5) will present the results of the research.

The data gathering processes that were ensued to gather a share buyback announcement dataset were presented in this chapter. Financial data agencies do not have comprehensive records on JSE share repurchase activities. The difficulties that were confronted when gathering the data were discussed. The South African regulatory environment makes it difficult to collect data due to the 3 percent rule and SENS terminology. In the next chapter, the share repurchase announcement analysis was performed and results will be discussed.

# 5 CHAPTER 5: RESEARCH RESULTS

This chapter looks at the results of the research on the basis of the methodology adopted in Chapter 4. The chapter flows from what was discussed in Chapter 4 on how the data will be analysed. The first section presents the initial sample that was extracted from McGregor BFA. Descriptive statistics will be detailed in the second section of the chapter. The last section outline will present results structured around the hypothesis detailed in Chapter 3 of the study.

## 5.1 POPULATION DESCRIPTION

In the McGregor BFA database where the data was obtained from, there are two classes of share buybacks namely general and specific repurchases announcements. As indicated in Chapter 1 (section 1.1) the focus of the study was on general repurchase announcements, hence only general repurchase announcement data was collected.

The raw data had 346 share buyback announcements made by 100 companies for the period covering 1 January 2003 to 31 December 2016. Table 3 exhibits the page outline of the McGregor BFA database where the dataset under study was extracted. Each announcement contained the date stamp, company ticker, the company's long name, instrument that identifies the type of instrument being withdrawn or added. The JSE board where the share is listed on is also included. Companies in the dataset were from the main board of the JSE. Event type that started the type of share repurchase being processed. As mentioned previously, there are only two main types of repurchase that can be extracted from the McGregor BFA database. The quantity of the instrument being withdrawn is also included.

### Table 3: Sample of extracted information from McGregor BFA

| Date Stamp | Ticker | Source Long Name | Instrument1 | Board | Event Type | Instrument Withdrawn |
|---|---|---|---|---|---|---|
| 12-Feb-14 | CAT | Caxton CTP Publish Print | Ordinary | Main | Share Buybacks - General | 208865 |
| 12-Feb-14 | CLS | Clicks Group Ltd | Ordinary | Main | Share Buybacks - General | 22185735 |
| 8-Jan-14 | TRU | Truworths Int Ltd | Ordinary | Main | Share Buybacks - General | 43853997 |
| 27-Dec-13 | COM | Comair Limited | Ordinary | Main | Share Buybacks - General | 17914905 |
| 12-Dec-13 | COM | Comair Limited | Ordinary | Main | Share Buybacks - General | 30998467 |
| 10-Dec-13 | TFG | The Foschini Group Limited | Ordinary | Main | Share Buybacks - General | 3157786 |
| 9-Dec-13 | SBK | Standard Bank Group Ltd | Ordinary | Main | Share Buybacks - General | 787835 |
| 7-Nov-13 | EMI | Emira Property Fund | PL | Main | Share Buybacks - General | 4876300 |
| 6-Nov-13 | SBK | Standard Bank Group Ltd | Ordinary | Main | Share Buybacks - General | 347842 |
| 31-Jul-13 | TFG | The Foschini Group Limited | Ordinary | Main | Share Buybacks - General | 3335401 |
| 1-Jul-13 | SOV | Sovereign Food Inv Ltd | Ordinary | Main | Share Buybacks - General | 150000 |
| 1-Jul-13 | CAT | Caxton CTP Publish Print | Ordinary | Main | Share Buybacks - General | 75000 |
| 19-Jun-13 | SBK | Standard Bank Group Ltd | Ordinary | Main | Share Buybacks - General | 189369 |
| 14-Jun-13 | PSG | PSG Group Ltd | Ordinary | Main | Share Buybacks - General | 492471 |
| 11-Jun-13 | SOV | Sovereign Food Inv Ltd | Ordinary | Main | Share Buybacks - General | 1000 |
| 22-May-13 | EQS | Eqstra Holdings Ltd | Ordinary | Main | Share Buybacks - General | 7985504 |
| 10-May-13 | SBK | Standard Bank Group Ltd | Ordinary | Main | Share Buybacks - General | 726721 |

To compile the final sample, some announcements were deleted to carter for confounding events. Because of confounding events in the period used to detect abnormal returns, and insufficient data, only 209 announcements eventually met the qualifying criteria and were finally analysed. As argued in section 4.9.3, every announcement in the study period was picked and tested for pertinence and confounding events. Due to the examination, the sample was reduced from 346 share repurchase announcement to 209 announcements. Situations where there was inadequate information, announcements were eliminated. An ultimate sample of 209 buyback announcements performed by 82 firms, free from independent and confounding events, was adopted in the final examination.

The following are some of the examples of announcements that were deleted as some of the companies were delisted and there was no share price information on them. Some of the announcements were deleted because they relate to N-class shares and the study is on ordinary shares: Metropolitan Holdings Ltd, Seardel Invest Corp Ltd, Seardel Invest Corp -n-, Austro Group Limited, Quyn Holdings Ltd, Monteagle Societe Anonyme, Liberty International Plc, Grindrod Ltd -n. Companies that were adjusted to reflect the new company names include: Pinnacle Holdings to Alviva Holdings, New Clicks Holdings to Clicks, Infowave Holdings to AdaptIT Holdings, John Daniel Holdings to Ecsponent, IMR Investments to Conduit Capital.

## Table 4: All share buyback announcements per calendar year per sector

| Sector | Year | Number of announcements | Instruments withdrawn |
|---|---|---|---|
| Basic Materials | 2003 | 1 | 2,269,984 |
| Consumer Services | 2003 | 3 | 2,889,345 |
| Financials | 2003 | 1 | 963,569 |
| Industrials | 2003 | 7 | 22,703,515 |
| Technology | 2003 | 2 | 2,786,422 |
| Financials | 2004 | 3 | 10,376,661 |
| Industrials | 2004 | 3 | 13,193,894 |
| Technology | 2004 | 1 | 1,280,500 |
| Basic Materials | 2005 | 2 | 1,000,174 |
| Consumer Services | 2005 | 3 | 98,508,384 |
| Financials | 2005 | 11 | 378,252,305 |
| Industrials | 2005 | 4 | 42,753,897 |
| Telecommunications | 2005 | 2 | 12,086,920 |
| Basic Materials | 2006 | 2 | 26,027,214 |
| Consumer Goods | 2006 | 3 | 1,971,298 |
| Consumer Services | 2006 | 4 | 39,082,255 |
| Financials | 2006 | 8 | 116,890,892 |
| Health Care | 2006 | 3 | 130,312,734 |
| Industrials | 2006 | 3 | 29,236,735 |
| Telecommunications | 2006 | 1 | 3,506,619 |
| Basic Materials | 2007 | 3 | 72,870,529 |
| Consumer Goods | 2007 | 2 | 5,575,513 |
| Consumer Services | 2007 | 4 | 21,639,193 |
| Financials | 2007 | 2 | 20,247,681 |
| Industrials | 2007 | 2 | 25,636 |
| Telecommunications | 2007 | 1 | 75,472 |
| Basic Materials | 2008 | 2 | 213,406,042 |
| Consumer Services | 2008 | 1 | 10,000,000 |
| Financials | 2008 | 5 | 10,860,901 |
| Industrials | 2008 | 3 | 145,360,362 |
| Technology | 2008 | 2 | 593,461 |
| Telecommunications | 2008 | 1 | 7,627,206 |
| Consumer Services | 2009 | 2 | 23,326,705 |
| Financials | 2009 | 3 | 36,442,944 |
| Industrials | 2009 | 3 | 44,262,193 |
| Consumer Services | 2010 | 2 | 46,079,832 |
| Financials | 2010 | 2 | 3,287,171 |
| Industrials | 2010 | 3 | 2,593,793 |

| Sector | Year | Number of announcements | Instruments withdrawn |
|---|---|---|---|
| Technology | 2010 | 1 | 902,639 |
| Basic Materials | 2011 | 1 | 1,290,331 |
| Consumer Goods | 2011 | 1 | 8,984,469 |
| Consumer Services | 2011 | 3 | 15,994,335 |
| Industrials | 2011 | 3 | 4,821,440 |
| Technology | 2011 | 1 | 682,000 |
| Telecommunications | 2011 | 1 | 6,212,105 |
| Consumer Goods | 2012 | 3 | 178,564 |
| Consumer Services | 2012 | 2 | 1,220,305 |
| Financials | 2012 | 6 | 42,403,753 |
| Industrials | 2012 | 12 | 40,212,567 |
| Technology | 2012 | 2 | 432,000 |
| Consumer Goods | 2013 | 5 | 179,093 |
| Consumer Services | 2013 | 5 | 45,366,654 |
| Financials | 2013 | 11 | 22,061,544 |
| Industrials | 2013 | 1 | 7,985,504 |
| Consumer Goods | 2014 | 1 | 100,000 |
| Consumer Services | 2014 | 3 | 66,248,597 |
| Financials | 2014 | 7 | 10,941,696 |
| Industrials | 2014 | 1 | 2,971,808 |
| Technology | 2014 | 1 | 2,112,000 |
| Telecommunications | 2014 | 1 | 1,551,052 |
| Basic Materials | 2015 | 4 | 29,113,658 |
| Consumer Services | 2015 | 5 | 1,837,200 |
| Financials | 2015 | 12 | 22,037,471 |
| Industrials | 2015 | 5 | 11,868,765 |
| Technology | 2015 | 2 | 8,078,849 |
| Basic Materials | 2016 | 2 | 1,412,057 |
| Consumer Goods | 2016 | 1 | 1,445,274 |
| Consumer Services | 2016 | 3 | 483,455 |
| Financials | 2016 | 8 | 5,269,840 |
| Industrials | 2016 | 5 | 22,878,209 |
| Technology | 2016 | 4 | 14,337,403 |
| Basic Materials | 2017 | 3 | 105,843,013 |
| Consumer Goods | 2017 | 2 | 3,780,659 |
| Consumer Services | 2017 | 5 | 2,658,124 |
| Financials | 2017 | 11 | 35,154,783 |
| Industrials | 2017 | 3 | 6,019,618 |
| Technology | 2017 | 2 | 11,540,000 |
| **Total** | | **209** | **2,166,978,785** |

Table 4 exhibits the number of repurchase announcement that were done by JSE listed companies per sector and per calendar year. The amount of share repurchased is also included.

Figure 2 below exhibits the total number of firms that announced share repurchases during the study period per annum. Year 2003 had the largest number of companies that announced a share repurchases during the study period at 18 announcements followed by year 2014 with 16 announcements. 2016 had the least number of announcements followed by 2010 and 2005.

**Figure 2: All share buyback announcements per sector per calendar year**

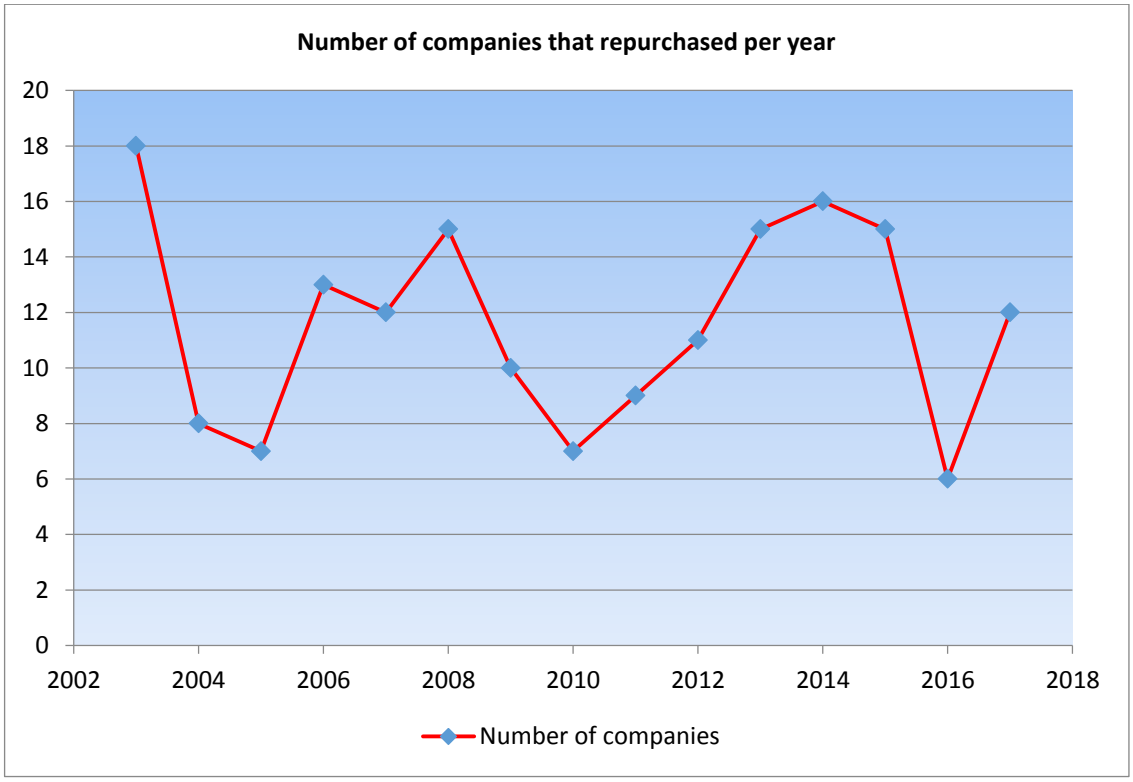



Table 5 below gives context to the sectors and the total amount of shares bought back during the period under review. The sectors are arranged according the JSE's Industry Classification Benchmark (ICB) industry classification taxonomy. The ICB has ten (10) broad industries, divided into nineteen (19) super sectors, which are further partitioned into forty one (41) sectors, which have one hundred and fourteen (114) subsectors.

The ten recognised sectors are Consumer Services, Basic Materials, Financials, Consumer Goods, Industrials, Technology, Utilities, Telecommunications, Health Care and Oil & Gas.

There were 90 announcements in the sector, which resulted in just over 715 million shares being repurchased. Table 5 shows that the financial services sector had the biggest number of announcements during the period under review. The industrials sector was also active, issuing 58 announcements and repurchasing over 396 million shares during the study period. The Consumer Services sector repurchased over 375 million shares after issuing 45 announcements. Table 5 below also shows that of the ten (10) recognised ICB sectors, only two (2) sectors namely Utilities sector which has one company (IPSA Group plc) and the Oil & Gas sector with four companies (Oando plc, Montauk Holding, Erin Energy Corporation, Sacoil Holding) did not announce any share repurchases during the study period.

**Table 5: JSE sectors that repurchased share in the study period**

| Sector | Number of announcements | Instrument withdrawn |
|---|---|---|
| Basic Materials | 20 | 453,233,002.00 |
| Consumer Goods | 18 | 22,214,870.00 |
| Consumer Services | 45 | 375,334,384.00 |
| Financials | 90 | 715,191,211.00 |
| Health Care | 3 | 130,312,734.00 |
| Industrials | 58 | 396,887,936.00 |
| Technology | 18 | 42,745,274.00 |
| Telecommunications | 7 | 31,059,374.00 |
| **Total** | **209** | **2,166,978,785.00** |

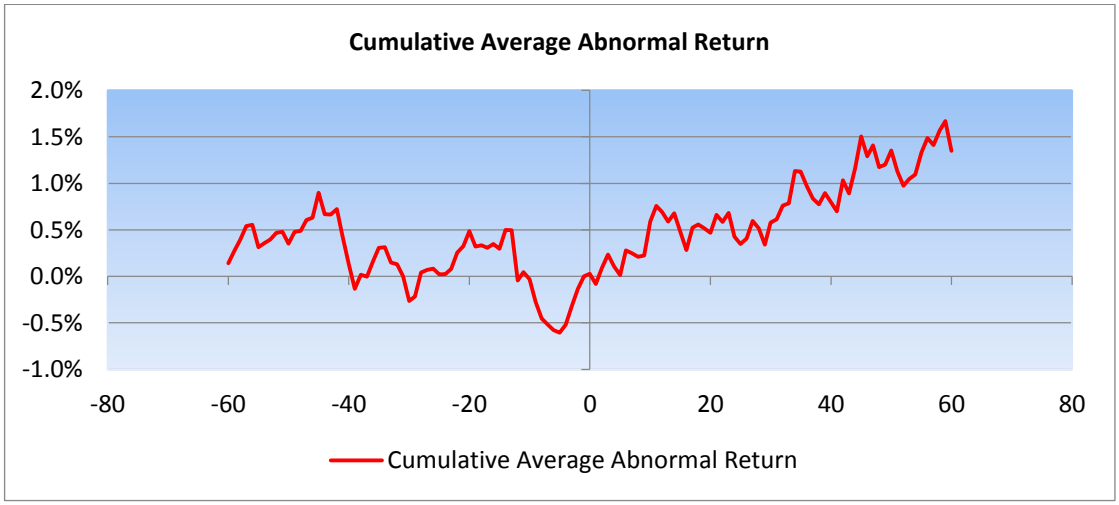
Table 6 shows that the year 2015 had the highest number of share buyback announcements (28) and they are 10.8% of the study's final sample. The year 2005 had the largest number of shares bought back (532 million) accounting for 8.5% of total share. The year 2008 and 2006 had the second and third highest number of shares repurchased at 387 million and 347 million shares respectively.

**Table 6: Sample of extracted information from McGregor BFA database**

| Year | Number of announcements | % of total | Instrument withdrawn | % of total |
|---|---|---|---|---|
| 2003 | 14 | 5.4% | 31,612,835 | 1.5% |
| 2004 | 7 | 2.7% | 24,851,055 | 1.1% |
| 2005 | 22 | 8.5% | 532,601,680 | 24.6% |
| 2006 | 24 | 9.3% | 347,027,747 | 16.0% |
| 2007 | 14 | 5.4% | 120,434,024 | 5.6% |
| 2008 | 14 | 5.4% | 387,847,972 | 17.9% |
| 2009 | 8 | 3.1% | 104,031,842 | 4.8% |
| 2010 | 8 | 3.1% | 52,863,435 | 2.4% |
| 2011 | 10 | 3.9% | 37,984,680 | 1.8% |
| 2012 | 25 | 9.7% | 84,447,189 | 3.9% |
| 2013 | 22 | 8.5% | 75,592,795 | 3.5% |
| 2014 | 14 | 5.4% | 83,925,153 | 3.9% |
| 2015 | 28 | 10.8% | 72,935,943 | 3.4% |
| 2016 | 23 | 8.9% | 45,826,238 | 2.1% |
| 2017 | 26 | 10.0% | 164,996,197 | 7.6% |
| **Total** | **209** | **100.0%** | **2,166,978,785** | **100.0%** |
| **Average** | **14** | | **144,465,252** | |

The signaling theory posits that there is a positive short-term market response to share buyback announcements. Figure 3, exhibits how CARs behaved during a sixty-day window period for the companies that announced a share repurchase. A shorter event window of, day $t_{-60}$ until day $t_{+60}$, was created in order to have a closer and detailed observation of the movement nearby the event date $t_0$. This mirrors the event window used by Vermaelen (1981). It was observed that the CARs for most of the stocks in the study were range-bound between 0 and 0.5% and they moved to 0 on day $t_0$. Subsequent to the event, for the initial sixty days, the cumulative abnormal returns moved from 0 to 1.5%. Figure 3 indicates that the JSE was not efficient as the share repurchase announcement communicated information, which was not earlier considered in the pricing of the stocks listed on the JSE. The share repurchase CARs exhibited an increase in the short term, spiking between day $t_0$ to about day $t_{+12}$ and gradually rising from 0.691% in day $t_{+3}$ to 1.568% day $t_{+58}$. Before $t_0$, CARs were hovering around 0% and after repurchase announcements there was a positive initial market reaction.

**Figure 3: 60 day CARs**




Long-term cumulative abnormal returns of the buyback firms are depicted in Figure 4. It conveys the same message communicated by Figure 3 that the JSE is not efficient. The bulk of the returns occurred after $t_0$. The share repurchase CARs exhibited an increase in the short term, spiking between day $t_0$ to about day $t_{+12}$ and gradually rising from 0.691% in day $t_{+3}$ to 2.123% day $t_{+75}$. CARs stabilised between day $t_{+75}$ and day $t_{+221}$ before another spike. The CARs by the share buy backs in the study breached 3.5 percent after about $t_{+240}$. It could, accordingly, be inferred that share buybacks exhibited higher returns when using the under-reaction hypothesis as CARs rose more in the short-term than the medium to long-term.

**Figure 4: Long-term cumulative average abnormal return**

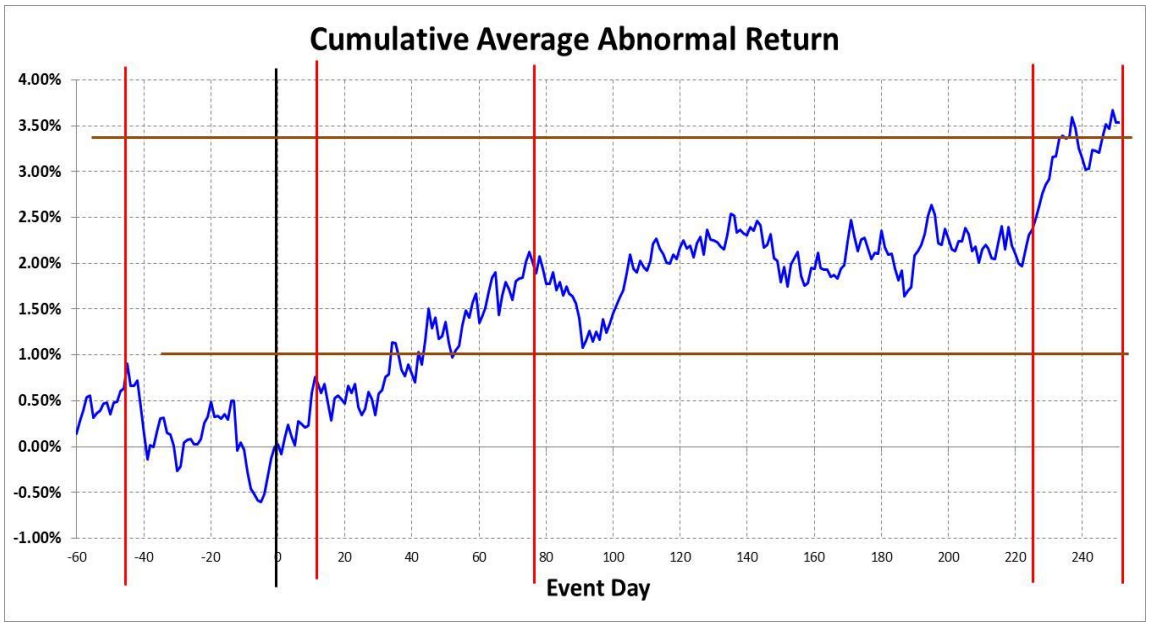


Figure 5 depicts the maximum compound annual growth rate (CAGR) returns of the share repurchase announcement portfolio of 19.7% while the Equal Weighted All-Share Index (J203) benchmark achieved a CAGR of 16.6% over the study period. These returns are on the basis of the optimal investment style parameters. The share repurchases announcement portfolio relative to the Equal Weighted All-Share Index (J203) benchmark shows a 2.7% outperformance. The upward slope of the price relative shows that during the study period, there were three distinct periods that contributed to the outperformance namely: from 2003 to mid-2004, mid-2007 to the beginning of 2008 and the period between mid-2010 until the third quarter of 2014. The period between the beginning of 2008 until the beginning of 2010 showed a strong recovery from the Equal Weighted All-Share Index (J203) benchmark portfolio.

**Figure 5: Share repurchases announcement portfolio performance**

## 5.2 HYPOTHESIS TESTING

The prior literature on event studies has exhibited a range of significance tests which can be done to the data. The statistical tests can be classified into 2 categories namely, parametric and nonparametric tests. Parametric tests infer that each company's abnormal returns are normally distributed, whilst nonparametric tests do not make any inferences on normality. In research, academics usually supplement a parametric test with a nonparametric test to prove that the study findings are not influenced by outliers (Schipper and Smith, 1983). The Statistical Package for the Social Sciences (SPSS) version 24, was employed to analyse the data in this study.

The hypotheses to be tested were:

| | |
|---|---|
| **Hypothesis 1:**<br>Testing for significance for meaningful variation between pre-announcement and post-announcement average abnormal return means. | ▪ $H_0$: $\mu_{\text{pre-post}} = 0$<br>▪ $H_1$: $\mu_{\text{pre-post}} \neq 0$ |
| **Hypothesis 2:**<br>Testing for significance in the share price movement before share repurchase. | ▪ $H_0$:$p_{pre\text{-}buyback} = 0$<br>▪ $H_1$:$p_{pre\text{-}buyback} \neq 0$ |
| **Hypothesis 3:**<br>Testing for significance in the share price response to share repurchases. | ▪ $H_0$:$p_{post\text{-}buyback} = 0$<br>▪ $H_1$:$p_{post\text{-}buyback} \neq 0$ |
| **Hypothesis 4:**<br>Testing for significance for share repurchase portfolio returns against the Equal Weighted All-Share Index (J203) over the relevant period. | ▪ $H_0$:$\mu_{respurchase} \leq \mu_{J203}$<br>▪ $H_1$:$\mu_{respurchase} > \mu_{J203}$ |

### 5.2.1 HYPOTHESIS 1: VARIATION BETWEEN PRE AND POST ANNOUNCEMENT

$H_0$: There is no meaningful variation between pre-announcement and post-announcement average abnormal returns.

$H_1$: There is a meaningful variation between pre-announcement and post-announcement average abnormal returns.

The results for the statistical analysis are highlighted below.

**Table 7: Wilcoxon test statistics**

| | Pre-event - Post-event |
|---|---|
| Z | -.710[b] |
| Asymp. Sig. (2-tailed) | 0.478 |
| a. Wilcoxon Signed Ranks Test | |
| b. Based on positive ranks. | |

**Table 8: Paired samples test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | Post-event - Pre-event | .0004 | .0027 | .0006 | -.0008 | .0017 | 0.7368 | 19 | .4702 |

Step 1: Outline the null and alternative hypothesis

$H_0$: $\mu_{pre\text{-}post} = 0$

$H_1$: $\mu_{pre\text{-}post} \neq 0$

Step 2: Calculate the p-value and define the significance level

Parametric and nonparametric tests were done to test for significance at 5% confidence interval. The significance test level is 5%, and the p-value is 0.47 as shown in Table 7and Table 8 **Error! Reference source not found.** above. A non-parametric test was done to confirm results from a parametric test. **Error! Reference source not found.** was computed to confirm results in **Error! Reference source not found.**.

Step 3: Draw statistical conclusion

The p-value is greater than 0.05, thus we fail to reject the null hypothesis ($H_0$) at the 5% significant level of significance. The p-value of 0.47 indicates that the sample evidence is statistically not significant at the 5% level.

Step 4: Draw management conclusion

We fail to reject the null hypothesis at 95% confidence level. It can be concluded that there is no meaningful variation between pre-announcement and post-announcement average abnormal return means.

### 5.2.2 HYPOTHESIS 2: SHARE PRICE PERFORMANCE BEFORE REPURCHASE

$H_0$: Share price performance do not decreases before a share repurchase

$H_1$: Share price performance decreases before a share repurchase

**Table 9: t-statistic for ARs surrounding the repurchase event**

| Full sample (N = 202) | | Event window in days | | | |
|---|---|---|---|---|---|
| | | (-20, -1) | (0, 2) | (0, 10) | (0, 20) |
| CAR | 202 | -0.0889 | -0.2062 | 0.4276 | 0.4241 |
| *p*-value | | (0.004) | (0.000) | (0.000) | (0.011) |

Table 9 above tabulates the t-statistic test outcomes of the ARs around share repurchase event windows of (-20, -1), (0, 2), (0, 10) and (0, 20) applying the total sample size.

Table 11 shows the parallel comparison of the daily ARs and CARs close to the event window, with $t_0$ as the day of the event and $t_n$ as the number of days prior of post the event window.

**Table 10: AAR and CAAR over different intervals**

| AAR and CAAR over different intervals | | |
|---|---|---|
| Event period | AAR | CAAR |
| (t -20, t -1) | 0.23% | -7.58% |
| (t 0, t +2) | -0.21% | -0.64% |
| (t 0, t 10) | 0.43% | -0.16% |
| (t 0, t 20) | 0.60% | 3.86% |
| (t -20, t +20) | 0.65% | 1.44% |

Table 10 shows AARs and CAARs at different intervals.

**Table 11: Daily ARs and CARs between $t_{-20}$ and $t_{+20}$**

| Pre-announcement Period | | | Post-announcement Period | | |
|---|---|---|---|---|---|
| Day | AR | CAR | Day | AR | CAR |
| t-20 | 0.14% | -0.09% | t+1 | -0.08% | -0.26% |
| t-19 | -0.13% | -0.22% | t+2 | 0.05% | -0.21% |
| t-18 | -0.11% | -0.33% | t+3 | 0.11% | -0.10% |
| t-17 | -0.05% | -0.39% | t+4 | 0.16% | 0.06% |
| t-16 | 0.13% | -0.26% | t+5 | -0.21% | -0.15% |
| t-15 | -0.03% | -0.29% | t+6 | 0.19% | 0.04% |
| t-14 | 0.18% | -0.12% | t+7 | 0.02% | 0.06% |
| t-13 | 0.07% | -0.05% | t+8 | 0.00% | 0.06% |
| t-12 | -0.37% | -0.41% | t+9 | 0.01% | 0.07% |
| t-11 | 0.04% | -0.37% | t+10 | 0.35% | 0.43% |
| t-10 | 0.00% | -0.37% | t+11 | 0.15% | 0.57% |
| t-9 | -0.09% | -0.46% | t+12 | -0.12% | 0.45% |
| t-8 | -0.19% | -0.65% | t+13 | -0.05% | 0.40% |
| t-7 | 0.02% | -0.64% | t+14 | 0.12% | 0.51% |
| t-6 | -0.18% | -0.82% | t+15 | -0.19% | 0.32% |
| t-5 | -0.04% | -0.85% | t+16 | -0.28% | 0.03% |
| t-4 | 0.22% | -0.63% | t+17 | 0.24% | 0.27% |
| t-3 | 0.18% | -0.46% | t+18 | 0.12% | 0.39% |
| t-2 | 0.30% | -0.16% | t+19 | 0.08% | 0.47% |
| t-1 | 0.16% | 0.00% | t+20 | -0.05% | 0.42% |
| t0 | -0.18% | -0.18% | | | |

Table 10 shows the abnormal average returns and cumulative average abnormal returns over different intervals.

**Table 12 t-test: $T_{-20}$ pre –announcement ARs**

| | *Variable 1* | *Variable 2* |
|---|---|---|
| Mean | 0.00011436 | 0.001247239 |
| Variance | 2.7282E-06 | 4.94945E-38 |
| Observations | 20 | 20 |
| Pooled Variance | 1.3641E-06 | |
| Hypothesized Mean Difference | 0 | |
| df | 38 | |
| t Stat | -3.067331421 | |
| P(T<=t) one-tail | 0.001984036 | |
| t Critical one-tail | 1.68595446 | |
| P(T<=t) two-tail | 0.003968072 | |
| t Critical two-tail | 2.024394164 | |

Step 1: Outline the null and alternative hypothesis

$H_0$: $p_{pre\text{-}buyback} = 0$

$H_1$: $p_{pre\text{-}buyback} \neq 0$

Step 2: Calculate the p-value and define the significance level

Parametric tests were done to test for significance at 5% confidence interval. For the 20 days before share repurchase event day, the mean CAR is -0.09% and is not the same as 0 with p-value of 0.002 as shown in Table 12 above.

Step 3: Draw statistical conclusion

The p-value is less than 0.05, thus we reject the null hypothesis ($H_0$) at the 5% significant level of significance. The mean CAR of -0.09% is different from 0 and negative which means that share price performance decreased prior to the repurchase event. The negative p-value of 0.002 indicates substantial sample evidence to reject the null hypothesis and there is a relatively low probability that the null is true.

Step 4: Draw management conclusion

We reject the null hypothesis that at 95% confidence level. It can be concluded that the share prices decrease before a share repurchase announced.

### 5.2.3 HYPOTHESIS 3: SHARE PRICE PERFORMANCE AFTER REPURCHASE

The hypothesis was stated in Chapter 3 as follows:

$H_0$: After a share repurchase, share price movement is not different from zero

$H_1$: After a share repurchase, share price performance is different from zero

**Table 13 t-Test: $T_{+20}$ post-announcement**

| | *Variable 1* | *Variable 2* |
|---|---|---|
| Mean | 0.000301021 | 0.00124724 |
| Variance | 2.53011E-06 | 4.9494E-38 |
| Observations | 20 | 20 |
| Pooled Variance | 1.26506E-06 | |
| Hypothesized Mean Difference | 0 | |
| df | 38 | |
| t Stat | -2.660334027 | |
| P(T<=t) one-tail | 0.005684937 | |
| t Critical one-tail | 1.68595446 | |
| P(T<=t) two-tail | 0.011369875 | |
| t Critical two-tail | 2.024394164 | |

Step 1: Outline the null and alternative hypothesis

$H_0$: $p_{ost\text{-}buyback} = 0$

$H_1$: $p_{post\text{-}buyback} \neq 0$

Step 2: Calculate the p-value and define the significance level

Parametric tests were done to test for significance at 5% confidence interval. For the 20 days before share repurchase event day, the mean CAR is 0.42% and is not the same as 0 with p-value of 0.0006 as shown in Table 13 above.

Step 3: Draw statistical conclusion

The p-value is less than 0.05, thus we reject the null hypothesis ($H_0$) at the 5% significant level of significance. The p-value of 0.0006 indicates substantial sample evidence to reject the null hypothesis and there is a relatively low probability that the null is true.

The p-value is less than 0.05, thus we reject the null hypothesis ($H_0$) at the 5% significant level of significance. The mean CAR of 0.42% is different from 0 and positive which means that share price performance improved after the repurchase event. The negative p-value of 0.001 indicates substantial sample evidence to reject the null hypothesis and there is a relatively low probability that the null is true.

Step 4: Draw management conclusion

We reject the null hypothesis that at 95% confidence level. It can be concluded that the share prices increase after a share repurchase announced.

### 5.2.4 HYPOTHESIS 4: SHARE REPURCHASE PORTFOLIO VALUE VS J203

The hypothesis was stated in Chapter 3 as follows:

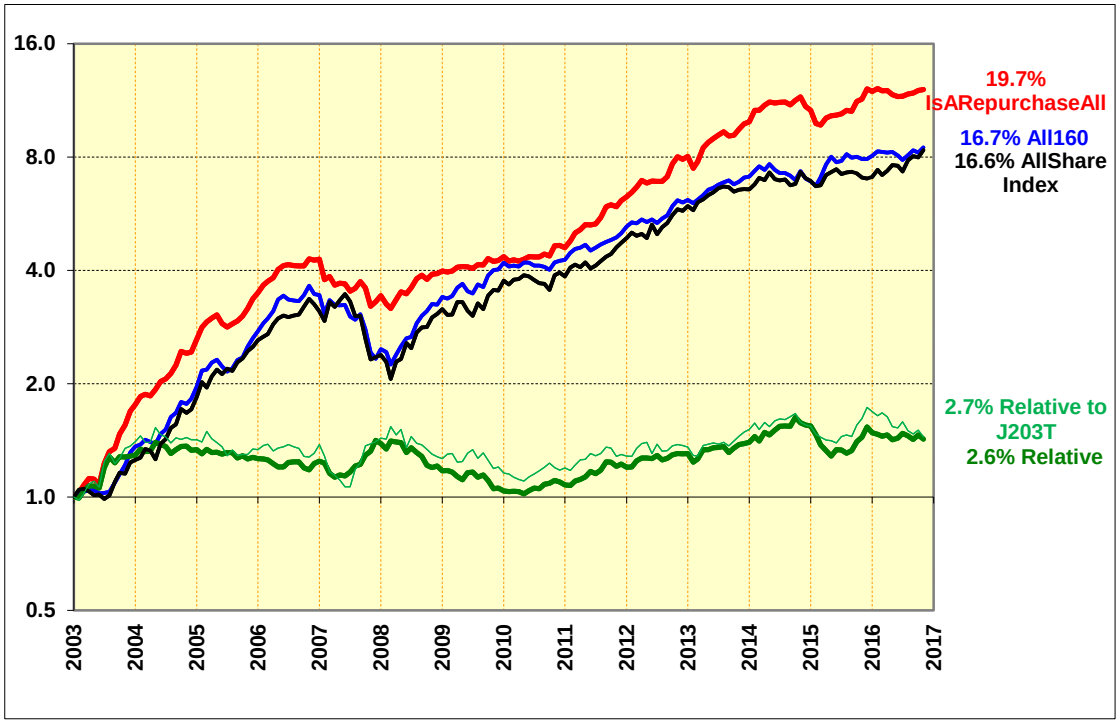
$H_0$: Share repurchase portfolio value ≤ Equal Weighted All-Share Index (J203) over the relevant period

$H_1$: Share repurchase portfolio value > Equal Weighted All-Share Index (J203) over the relevant period.

Figure 6: Share repurchases announcement portfolio performancedepicts the maximum compound annual growth rate (CAGR) returns of the share repurchase

announcement portfolio of 19.7% while the Equal Weighted All-Share Index (J203) benchmark achieved a CAGR of 16.6% over the study period. These returns are on the basis of the optimal investment style parameters. The share repurchases announcement portfolio relative to the Equal Weighted All-Share Index (J203) benchmark shows a 2.7% outperformance. The upward slope of the price relative shows that during the study period, there were three distinct periods that contributed to the outperformance namely: from 2003 to mid-2004, mid-2007 to the beginning of 2008 and the period between mid-2010 until the third quarter of 2014. The period between the beginning of 2008 until the beginning of 2010 showed a strong recovery from the Equal Weighted All-Share Index (J203) benchmark portfolio.

**Figure 6: Share repurchases announcement portfolio performance**



## 5.3 SUMMARY OF RESULTS

**Table 14: Summary of hypothesis results**

| Hypothesis | | Outcome | Conclusion |
|---|---|---|---|
| **Hypothesis 1:** Testing for significance for meaningful variation between pre-announcement and post-announcement average abnormal return means. | $H_0$: $\mu_{\text{pre-post}} = 0$<br>$H_1$: $\mu_{\text{pre-post}} \neq 0$ | p-value > 0.05 | Fail to reject Null hypothesis |
| **Hypothesis 2:** Testing for significance in the share price response before a share repurchases | $H_0$:$p_{\text{pre-buyback}} = 0$<br>$H_1$:$p_{\text{pre-buyback}} \neq 0$ | p-value < 0.05 | Null hypothesis rejected |
| **Hypothesis 3:** Testing for significance in the share price response after a share repurchases. | $H_0$:$p_{\text{post-buyback}} = 0$<br>$H_1$:$p_{\text{post-buyback}} \neq 0$ | p-value < 0.05 | Null hypothesis rejected |
| **Hypothesis 4:** Testing for significance for share repurchase portfolio returns against the Equal Weighted All-Share Index (J203) over the relevant period. | $H_0$:$\mu_{\text{respurchase}} \leq \mu_{\text{J203}}$<br>$H_1$:$\mu_{\text{respurchase}} > \mu_{\text{J203}}$ | p-value < 0.05 | Null hypothesis rejected |

## 5.4 CONCLUSION

The population used in this study was described in this chapter. The chapter highlighted the characteristics of the data and how it was compiled. The criterion used to compile the final sample was discussed. The final sample descriptive statistics were presented to give context in appreciating the data that was used in the study. The hypotheses were discussed independently with highlights of the findings being presented in relevant tables and figures. Key findings summary per hypothesis was also presented. The next chapter will discuss the results of the analysis.

# 6 CHAPTER 6: DISCUSSION OF RESEARCH RESULTS

## 6.1 INTRODUCTION

The overall aim of this research was to test whether the observed evidence and documented academic findings on share buybacks could be employed in a country like South Africa. Accordingly, for this study, the research problem was: Does the South African share repurchase activity exhibit the observed evidence and modern academic thinking? The results from the study were presented in Chapter 5.

The following hypotheses were tested:

**Table 15: Tested hypotheses**

| | |
|---|---|
| **Hypothesis 1:**<br>Testing for significance for meaningful variation between pre-announcement and post-announcement average abnormal return means. | ▪ $H_0$: $\mu_{\text{pre-post}} = 0$<br>▪ $H_1$: $\mu_{\text{pre-post}} \neq 0$ |
| **Hypothesis 2:**<br>Testing for significance in the share price movement before share repurchase. | ▪ $H_0$:$p_{pre\text{-}buyback} = 0$<br>▪ $H_1$:$p_{pre\text{-}buyback} \neq 0$ |
| **Hypothesis 3:**<br>Testing for significance in the share price response to share repurchases. | ▪ $H_0$:$p_{post\text{-}buyback} = 0$<br>▪ $H_1$:$p_{post\text{-}buyback} \neq 0$ |
| **Hypothesis 4:**<br>Testing for significance for share repurchase portfolio returns against the Equal Weighted All-Share Index (J203) over the relevant period. | ▪ $H_0$:$\mu_{respurchase} \leq \mu_{J203}$<br>▪ $H_1$:$\mu_{respurchase} > \mu_{J203}$ |

The research findings will be analysed and reviewed by evaluating data from Chapter 5 applying literature review in Chapter 2. The chapter is similar to chapter 5 in terms of the structure as individual hypothesis formulated in Chapter 5 will be discussed.

## 6.2 DESCRIPTIVE STATISTICS

In Chapter 5 it was reported that 100 companies out of a total of the 376 firms listed on the JSE repurchased shares during the study period from 01 January 2003 to July 2017. The data collected consisted of 346 share buyback announcements which were conducted by 100 firms. Each and every announcement in the study sample was picked and tested for pertinence and confounding events. The study sample comprised 82 firms which sent out 209 share buyback announcements during the study period. Figure 3 exhibits the total number of firms that announced share repurchases during the study period per annum. Table 5 exhibits that the financial services sector had the highest number of announcements during the period under review. Table 6 exhibits that the year 2015 had the largest number of share buyback announcements (28) and constituting 10.8% of the study's final sample. The year 2005 had the highest number of shares repurchased (532 million) representing 8.5% of total share. It was observed that the short-term CARs for most of the stocks in the study were range-bound between 0 and 0.5% and they moved to 0 on day $t_0$. Subsequent the event, concerning the initial sixty days, the CARs moved from 0 to 1.5%. Figure 3 indicates that the JSE was not efficient as the share repurchase announcement communicated which was not earlier considered in the pricing of the stocks listed on the JSE. The long-term CARs of firms that announced a share buy backs during the study breached 3.5 percent after about $t_{+240}$ as exhibited by Figure 4.

Figure 5 depicts the maximum compound annual growth rate (CAGR) returns of the share repurchase announcement portfolio of 19.7% while the Equal Weighted All-Share Index (J203) benchmark achieved a CAGR of 16.6% over the study period. The upward slope of the price relative shows that during the study period, there were three distinct periods that contributed to the outperformance namely: from 2003 to mid-2004, mid-2007 to the beginning of 2008 and the period between mid-2010 until the third quarter of 2014. The period between the beginning of 2008 until the beginning of 2010

showed a strong recovery from the Equal Weighted All-Share Index (J203) benchmark portfolio.

## 6.3 HYPOTHESIS 1: VARIATION BETWEEN PRE AND POST ANNOUNCEMENT

Results show that the null hypothesis 1, which states that “There is no meaningful variation between pre-announcement and post-announcement average abnormal return mean” is not supported. Parametric and nonparametric tests were done to test for significance at 5% confidence interval. The significance test level is 5%, and the p-value is 0.4702 as shown in Table 7 and Table 8. The p-value is greater than 0.005, thus the study failed to reject the null hypothesis at the 5% significant level of significance. This advances the argument by Lin et al. (2011) which affirmed support for the "announcement effect" asserting that buyback announcements generate a notably favourable reaction from the market. Ikenberry et al. (1995)'s finding of positive abnormal returns subsequent to repurchase announcements is among the most established findings in the buyback literature. Many follow up articles on share repurchases have supported the conclusion of the post-announcement abnormal performance.

Figure 3 and Figure 4 support the findings above as they convey the same message that the JSE is not efficient and a share buyback announcement generate a positive and notable positive response from the market.

The results are in line with Zhuang (2013)’s findings. Zhuang (2013) argued that while market-timing and leverage-rebalancing considerations are experientially significant, employee stock options and free cash flow considerations have much stronger influences on share buyback resolutions. Zhuang (2013) also contended that insiders either have bad timing abilities or do not ordinarily time the market as many companies do not utilise good timing moments through buybacks. Besides, company's resolutions to repurchase its shares generally tend to be weak in a market-timing judgment as firms are more inclined to have negative abnormal stock price returns after buybacks.

Harmonious with these results on variation between pre-announcement and post-announcement average abnormal return means, Yook (2010) established that firms that repurchased their shares experienced a -0.71% and a 1.12% average monthly abnormal return in the 6 month period before the repurchase announcement and in the announcement month respectively.

## 6.4 HYPOTHESIS 2: SHARE PRICE PERFORMANCE BEFORE A SHARE REPURCHASE

Results show that the null hypothesis 2, which states that “After a share repurchase, share price performance is not different from zero” is not supported. The study results can also be used to explain the market timing hypothesis. The mean CAR (-20, -1) is -0.889 and less than 0 and negative with a p-value of 0.058. The negative sign means that the pre-share repurchase CAR has decreased and underperformed the market expectation. This proves that share repurchases are conducted when the share price is lower than the fair value. This implies that insiders can recognise when their firm's stock price is not trading at its intrinsic value and they are able to time the share repurchase. This finding is in line with research done by Chan et al (2007), Zhang (2005) and Brockman and Chung (2001).

The proof on post- share buyback abnormal returns is mixed. Ginglinger and Hamon, (2007) and Cook, Krigman and Leach (2004) do not find the abnormal returns, but De Cesari et al., (2012) record price jumps after share buyback action. According to De Cesari et al. (2012), a moderate degree of management and institutional dominance is associated with a discount in share repurchase prices comparable to market valuation, while at elevated levels of management and institutional share ownership the circumstances are reversed. In their research, Ben-Rephael, Oded and Wohl (2014) find that companies repurchase their stock at valuations which are relatively cheaper when compared to average market values.

Table 16 below shows prior research results from global studies while Table 9 in Chapter 5 show results from this study.

**Table 16: Results from global studies**

| Country | Study | Abnormal Return | Dataset |
|---|---|---|---|
| USA | Grullon and Michaley (2002) | CAR [-1; +1]: 2.7% | 4,443 (1980-1997) |
| | McNally (1999) | CAR [-1; +1]: 2.5% | 702 (1984-1988) |
| | Stephens & Weisbach (1998) | CAR [-1; +2]: 2.7% | 591 (1981-1990) |
| | Ikenberry et al. (1995) | CAR [-2; +2]: 3.5% | 1,239 (1980-1990) |
| | Comment and Jarrell (1991) | CAR [-1; +1]: 2.3% | 1,197 (1984-1988) |
| | Vermaelen (1981) | CAR [-1; +1]: 3.7% | 243 (1970-1978) |
| Australia | Lamba and Ramsay (2000) | CAR [-1; +1]: 3.3% | 103 (1989-1998) |
| Canada | Li and McNally (1999) | CAR [-2; +2]: 3.6% | 183 (1989-1992) |
| | Ikenberry et al. (2000) | CAR [-15; +15]: 0.9% | 1,060 (1989-1997) |
| France | Ginglinger and L'Her (2006) | CAR [0; +1]: 0.6% | 363 (1998-1999) |
| Germany | Hackethal & Zdantchouk (2006) | CAR [-1; +1]: 11.6% | 224 (1998-2003) |
| | Gerke et al. (2003) | CAR [-1; +1]: 6.1% | 120 (1998-2000) |
| | Seifert and Stchle (2003) | CAR [-1; +1]: 5.9% | 192 (1998-2003) |
| | Schremper (2002) | CAR [-1; +1]: 4.1% | 112 (1998-2000) |
| Japan | Zhang (2002) | CAR [-1; +2]: 6.0% | 39 (1995-1999) |
| Korea | Jung and Lee (2003) | CAR [0; +5]: 2.8% | 382 (1994-1998) |
| Switzerland | Dumont et al. (2004) | CAR [-2; +2]: 1.8% | 10 (1999-2003) |
| UK | Rau and Vermaelen (2002) | CAR [-2; +2]: 1.1% | 126 (1985-1998) |
| | Oswald and Young (2002) | CAR [-1; +1]: 1.4% | 266 (1995-2000) |
| | Rees (1996) | CAR [-2; +2]: 0.3% | 882 (1981-1990) |

Source: Hackethal and Zdantchouk, 2006

For the two days after the share repurchase event day (0, 2), the mean CAR is -0.206 and it is not equal to 0 with a p-value of 0.007. This infers that the null hypothesis can be rejected at a 95% confidence level as stock price action is different from 0 even if it did not show any increase shortly after the share repurchase. For the two days, the market reacted negatively to the share repurchase. This outcome did not match with the findings from Grullon and Michaley (2002) and Hackethal and Zdantchouk (2006) but corroborate Bhana (2007) findings that market tends to underreact initially. Although the price response is negative, it is statistically significant. For the medium period, this study included CAR (0, 20). The mean CAR for the period is 0.4241 with a

p-value of 0.031. The conclusion is that the share price performance is significantly different from 0 and positive. Therefore, the null hypothesis was rejected at 95% confidence level. A comparison between the medium and the immediate term CAR shows that the medium term CAR was higher. This study supports findings by Zhang (2005). Akyol & Foo (2013) examined the effect of different repurchase motives on the reaction of the market in Australia and concluded that the market reacts most positively to the repurchase announcement when the motivation is undervaluation.

## 6.5 HYPOTHESIS 3: SHARE PRICE PERFORMACE AFTER A SHARE REPURCHASE

Results show that the null hypothesis 3, which states that "After a share repurchase, share price movement is not different from zero", is not supported. Post share repurchase share price performance is higher than before the repurchase. Liang (2016) also supports the notion of higher post-buyback share performance. However, Liang (2016)'s conclusion was that the movement cannot be explained by other undervaluation factors. Bhana (2007) examined the reaction of the South African market to buyback announcements and concluded that a positive abnormal return of 4.38% in the short-term. Bhana (2007)'s findings support the signalling theory that managers use buybacks to signal that their stock is undervalued.

However, the evaluation of long-run abnormal returns has been contentious as several appraisal techniques have been suggested and each has its advantages and disadvantages (Fu & Huang, 2015). Fu and Huang (2015) apply 3 distinct techniques to determine long-run abnormal returns and all the 3 evaluation techniques generate similar results. Ordinarily, in the 3 years subsequent to the repurchase announcement, buyback companies earn between 5% - 10% returns on average. Studying U.S. market using data from 1980 to 1997, (Grullon and Michaely, 2004) found that three-year post-announcement abnormal return is linked to the prevailing and expected profitability.

## 6.6 HYPOTHESIS 4: SHARE REPURCHASE PORTFOLIO VALUE VS J203

Results show that the null hypothesis 3, which states that “Share repurchase portfolio value is equal or less than the Equal Weighted All-Share Index (J203) over the relevant period is not supported.

The maximum compound annual growth rate (CAGR) returns of the share repurchase announcement portfolio of 19.7% while the Equal Weighted All-Share Index (J203) benchmark achieved a CAGR of 16.6% over the study period. These returns are on the basis of the optimal investment style parameters. The share repurchases announcement portfolio relative to the Equal Weighted All-Share Index (J203) benchmark shows a 2.7% outperformance. The upward slope of the price relative shows that during the study period, there were three distinct periods that contributed to the outperformance namely: from 2003 to mid-2004, mid-2007 to the beginning of 2008 and the period between mid-2010 until the third quarter of 2014. The period between the beginning of 2008 until the beginning of 2010 showed a strong recovery from the Equal Weighted All-Share Index (J203) benchmark portfolio.

The share repurchase CARs exhibited an increase in the short term, spiking between day $t_0$ to about day $t_{+12}$ and gradually rising from 0.691% in day $t_{+3}$ to 2.123% day $t_{+75}$. CARs stabilised between day $t_{+75}$ and day $t_{+221}$ before another spike. It could, therefore, be concluded that share repurchases showed greater returns based on the under-reaction theory as CARs rose more in the short-term than the medium to long-term. De Ridder, A. (2015) found that firms with multiple repurchase programs have returns that exceed the return of the market.

## 6.7 CONCLUSION

In this chapter, the results of the analysis were discussed and linked to academic background. The hypotheses were presented and mapped to chapter 2 and three. The results of this chapter indicated that share buybacks were motivated by the signalling theory. These results also highlight the benefit of investing in firms that repurchased shares. The results of this chapter indicated that the South African share repurchase experience did mirror most aspects of the current theoretical thinking on the signalling motivation for share repurchases.

# 7 CHAPTER 7: CONCLUSION

The aim of this study was to test whether the observed evidence and documented academic thinking on share repurchases could be applied in a country like South Africa. The research problem was: Does the South African share repurchase activity exhibit the observed evidence and current academic thinking? The limitation were highlighted and taken into consideration. This chapter is organized as follows, Section 7.1 recaps the major findings of the study, Section 7.2 discusses the implication for stakeholders, Section 7.3 looks at the limitation of the study, Section 7.4 suggests areas for future research and Section 7.5 concludes the chapter

## 7.1 PRINCIPAL FINDINGS

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The main purpose of this study was to test whether the observed evidence and documented academic thinking on share repurchases around the signaling hypothesis could be applied in a country like South Africa among the firms listed on the Johannesburg Stock Exchange (JSE). The study also sought to ascertain whether there is a statistically meaningful outperformance of a portfolio composed of shares mimicking firms that announced share repurchases against the Equal Weighted All-Share Index (J203). The research problem was: Does the South African share repurchase activity exhibit the observed evidence and current academic thinking? The research findings were broadly consistent with prior literature.

The study tested whether the observed evidence and documented academic thinking on share repurchases around the signaling hypothesis could be applied in a country like South Africa. The study found that the South African repurchase activity largely reflects the global observed evidence and the modern academic thinking around buybacks. The regulatory climate was found to be having components which contributed to South Africa not fully reflecting the observed evidence and the modern academic thinking around buybacks. The South African regulatory environment differs from most developed countries. The different regulatory environment, variable and

sketchy announcement on share repurchases impacted the comparison between JSE results to those of developed economies. Andriosopoulos and Lasfer (2015) who examined share buybacks in European firms noticed that, in the case of UK firms, the announcement reaction is influenced by the regulatory changes. They concluded that local institutional characteristics and regulatory changes play important roles in the valuation and popularity of buybacks. The results were broadly consistent with the empirical evidence for the signaling hypothesis (Huang, 2015: De Cesari, 2012; Ikenberry et al., 2012; and Niu, 2015). The study also concluded that regulatory reforms are required to improve and align the JSE share buyback conditions to the global context.

Empirical study results support academic research findings that the announcement of a share buyback provides a compelling signal for short-term post-announcement excess returns.

## 7.2 IMPLICATION FOR STAKEHOLDERS

The findings of this study will provide anyone with a vested interest in the South African share buyback scene with valuable knowledge on the benefits of share buyback activity and the motives for share buybacks. Almost 17 years have lapsed since share buybacks were allowed on the JSE, however, only a limited number studies have been done on buybacks by JSE listed firms. This study concluded that the principal cause for the low studies on the JSE share buybacks is the absence of a readily available and detailed database on share buybacks by companies listed on the JSE. There is also no detailed database on dealing in securities by insiders. Consequently, the research on share buybacks on JSE-listed firms is still to be comprehensively done in any South African study. The major South African financial data vendors (iress, McGregor BFA, Factset and Thomson Reuters) do not register detailed share buyback data on a uniform basis. Share buybacks that were published on the JSE SENS also did not embody the full amount of buybacks due to the current Listings Requirements that govern share repurchases performed on the JSE which does not require all general share buybacks to be published on SENS. JSE Listings Requirements mandates

companies to publish their repurchase activity on SENS only when a three percent boundary is reached.

A detailed share buyback database is needed in South Africa for it to be easy to collect all the share repurchase information. It will make it easier to make comparisons between the South African context and the international context. Before a comprehensive database has been set up, it will be difficult to determine the South African share buyback activity and to duplicate the academic research of developed economies in the South African context.

This study shows that fund managers can adopt an investment portfolio of companies that would have announced share repurchases. Given the share repurchase strategy's weak correlation to the overall equity markets; it can be a worthy tool in constructing a diversified portfolio with above-average returns.

## 7.3 RECOMMENDATIONS TO STAKEHOLDERS

The subsequent suggestions were proposed to enhance studies and analysis on share buyback actions of companies listed on the JSE:

- To improve analysis of share buyback actions of firms listed on the JSE, the bourse should standardised SENS terminology.
- The JSE should scrap the three percent rule and allow for a daily basis announcement like other global stock exchanges.
- A summary of all shares repurchased must be published in the company's annual reports.

## 7.4 LIMITATIONS OF THE STUDY

A major downside of this research was the availability of data. Data on share repurchases in South Africa is not as readily available as in countries such as the UK, US, Australia and Canada. The JSE does not keep such information in excel format, it has the information in PDF format which is not very useful for an MBA study as it is cumbersome to go through all announcements in PDF. The providers of financial data in South Africa also do not have detailed records on share repurchase activities let alone director trades. The lack of data from service providers makes it difficult to embark on a conclusive research on share buybacks by the JSE listed firms. The study relied on McGregor BFA as the main source of information as SENS had incomplete information mainly due to inconsistent use of terminology as 'buy-back', 'repurchase', 'buy back', 'buyback', and 'treasury' were used to refer to the similar transactions.

## 7.5 RECOMMENDATION FOR FUTURE RESEARCH

Share buyback action on the Johannesburg Stock Exchange is still a comparatively new idea which has gained popularity with firms listed on the bourse as a way to distribute excess cash to shareholders. The South African share buyback environment which is unique because of its regulations presents future study opportunities on share buyback actions important to equip all shareholders to make knowledgeable judgments.

The influence of employee stock options as a likely motive for share buybacks requires to be examined in forthcoming studies. This will be possible if reliable data can be collected. There has not been a study on the free cash flow motive for share buybacks, it is also another area that must be investigated. Insider share trading around share repurchase announcements requires to be examined as share trading by insiders before a share repurchase announcement can be used as a signal for undervaluation.

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# 9 APPENDICES

## APPENDIX 1

Gordon Institute of Business Science
University of Pretoria

03 August 2017

Sibonginkosi Nyanga

Dear Sibonginkosi,

*Please be advised that your application for Ethical Clearance has been approved.*

*You are therefore allowed to continue collecting your data.*

*We wish you everything of the best for the rest of the project.*

*Kind Regards*

GIBS MBA Research Ethical Clearance Committee

## CERTIFICATION OF DATA ANALYSIS

(Additional assistance retained or not - to be completed by students who used Quantitative or Mixed methodology)

***Please note that failure to comply and report on this honestly will result in disciplinary action***

I hereby certify that (please indicate which statement applies):

- *I **did not receive** any additional statistical assistance (i.e. did not retain the services of a statistician) to run the data analysis for my research report:* .....
- *I **retained the services of a statistician** in running the data analysis for my research report:* STYLES ENGINE USE

If a statistician was retained – ***please supply contact name and details of said statistician:***

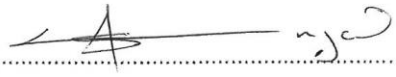
NAME: CHRIS MULLER [LECTURER AT GIBS]

EMAIL ADDRESS: chrismd@iafrica.com

CONTACT NUMBER: .....

**I hereby declare that all** *statistical interpretations/ analysis and write-up of the results for* **my study was completed by myself without outside assistance**

Name of student: NJANGA SIBONGINKOSI

Signature: 

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## COPYRIGHT DECLARATION FORM

| **Student details** | | | |
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