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Capital market reaction to changes in the Minister of Finance in South Africa

A Masters research report submitted by

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Abstract

The efficient market hypothesis (EMH) has been a key topic of Finance in developing and developed countries. This study will focus on the application of the EMH on a particular political event in South Africa as developing country. The study investigates the reaction of the Johannesburg Stock Exchange (JSE) equity market returns and JSE government bonds' yield returns due to changes in the National Minister of Finance in South Africa. Several theories were applied to provide perspective on the issue of information flow and market returns volatility. The study adopted the event study methodology to analyse the effect on changes in the Minister of Finance on the JSE capital market and abnormal returns were calculated using the market model approach, with an event window period of 21 trading days and an estimation period of 252 trading days. The study was focused on a period of 10 years, from 2009 until 2018, which is a period after the apartheid era. The research analysed a sample of the Top 100 JSE listed firms in 2018 and all the government bonds listed on the JSE that were trading during the period of this study. The overall results show that JSE equity market returns and JSE government bonds' yield returns react insignificantly negatively or positively depending on the timing and circumstances surrounding the change in the National Minister of Finance. These findings have important implications for the optimal strategies of risk-averse capital market investors.

Keywords: National Minister of Finance, JSE, event study, abnormal return, capital market.

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LIST OF ABBREVIATIONS

AR	**Abnormal return**
AAR	**Average Abnormal return**
ALSI	**Johannesburg Stock Exchange All Share index**
CAR	**Cumulative abnormal return**
CAAR	**Cumulative average abnormal return**
EMH	**Efficient Market Hypothesis**
FTSE	**Financial Times Stock Exchange**
GDP	**Gross domestic product**
GOVI	**Government bonds Index**
JSE	**Johannesburg Stock Exchange**
JET	**Johannesburg Equities Trading**
LSE	**London Stock Exchange**
PBC	**Political Business Cycle**
SENS	**Securities exchange news services**
STRATE	**Share Trading Transactions Totally Electronic**
UIH	**Uncertain Information Hypothesis**
US	**United States**

Chapter 1: Introduction

1.1. Background of the study

The relationship between political events and investors' behaviour in the financial market has attracted a great deal of attention in financial economics literature and it has been studied in numerous countries and in various contexts such as strikes, annual budget presentations, announcements of National election results, etc. Expectedly, the results from these studies showed that the manner and rate at which the market reacts to political events will vary depending on the type of event being investigated and also on the political environment in question (Shahbaz Khan, Nida Baig, Muhammad Usman, Muhammad Shaique, & Ruqia Shaikh, 2017a; Menge, Mwangi, & Kimani, 2013; Osuala & Agbeze, 2016).

However, there is little consensus among previous studies as many of these studies have been concentrated on political events in a single country. Previous research suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status, but conclusions about how market returns are affected by political events vary significantly depending on the type of event and the country investigated. Political risk is one of the crucial factors influencing the operation of capital markets in both developing and developed countries and it comes in many forms such as new legislation, a coup, an election, a National cabinet reshuffle or a change in the country's regime (Chan & Wei, 1996b). For the purposes of this study, political risk will be unpacked in the context of changes in the National Minister of Finance in South Africa and the study will examine how the capital markets in South Africa reacted to this event. Other factors that affect markets' performance include availability of other investment assets, change in composition of investors, and market sentiments among other factors (Shahbaz Khan, Nida Baig, Muhammad Usman, Muhammad Shaique, & Ruqia Shaikh, 2017b; Osuala & Agbeze, 2016).

1.2. Changes in the National Minister of Finance

Changes in the National Minister of Finance have become a regular occurrence in South Africa with the country experiencing 7 changes in this portfolio in the last decade. It is important to determine how the capital market reacted to this since reports have indicated that these changes had an impact on the financial markets and the value of investments and that, in turn, it affects the political risk of the country which consequently affects market volatility (Chan & Wei, 1996a).

Financial markets include the capital market, commodities market, money market, foreign exchange market and derivatives market. These financial markets react to changes in key political portfolios because such changes affect the political stability of a country and political stability is one of the key drivers of the financial markets (Chakrabarti, 2001).

The cabinet Ministers appointed by the president of the country hold key political positions because they are involved in directing government policy and making decisions about National issues including discussing current National problems, how these issues can be solved and presenting proposed laws from their government departments (Laver & Shepsle, 1994). The Minister of Finance is involved in the development and implementation of government policies that have an impact of the economy and it is therefore important to ensure that the right people are appointed to lead these departments (Hensel & Ziemba, 1995).

1.3. JSE equity market and bond market

Government bonds are mostly influenced by per capita income, government income, real exchange rate changes, inflation rate, default history and key political events and therefore changes in key political positions will have an impact on the bond yield returns (Block & Vaaler, 2004). There is a direct positive correlation between the government bond yield returns and the repo rate. If the bond yield is high due to major negative political events, the cost of debt will also increase. The higher the interest rate, the more expensive it will be to access funding and invest and this will negatively affect the wealth of the investors.(Cantor & Packer,1996b).

A major political event is an important factor that affects the yield returns movements of bonds listed on the JSE All Share Index because it will affect the political stability of that country and an unstable political condition makes investors who are risk-averse feel unsafe to invest in the country and therefore have negative impact on economic growth. Contrary to political instability, a stable political environment decreases risks that eventually encourage investors to invest .(Angelovska Bezovska, Bogoev, Mitreska, & Kadievska Vojnovik, 2011).

When it was reported that the Minister of Finance, Nhlanhla Nene, had asked President Cyril Ramaphosa to release him, the Johannesburg Stock Exchange (JSE) All Share Index decreased to its lowest levels in 2018 while the Rand also weakened to R14.84/$. When President Ramaphosa announced in the same year that Tito Mboweni was the Minister of Finance, the Rand gained 30c and this shows that capital markets are affected by political activities. (Lameez Omarjee and Khulekani Magubane, 2018).

1.4. Problem statement

The analysis of political cycles in stock market returns has been mostly conducted in the United States in the context of presidential elections. Herbst and Slinkman in 1984 examined the period from 1926-1977 and found a 48-month cycle during which returns were higher than average, peaking in November during presidential elections (Herbst & Slinkman, 1984). Huang in 1985 used data from 1932-1979 and discovered that stock returns were systematically higher in the last half of a political term than in the first (Huang, 1985).

The opportunistic Political Business Cycle (PBC) implies that policy-makers systematically aim for a rise in stock prices after a major key political event (Vuchelen, 2003), while the Uncertain Information Hypothesis (UIH) proposed by Brown, Harlow and Tinic (1988), assumes that investors set prices before an event takes place. However, it was also noted that there is the greatest degree of uncertainty resolution in the time period immediately preceding the key political event and thus the highest observed returns should be expected during this period as this is when media coverage is high and investors respond to increased uncertainty by setting stock prices below their fundamental values. As the political uncertainty is reduced, the risk-adjusted expected return should fall and stock prices should rise (Mehdian, Nas, & Perry, 2008).

South Africa has been experiencing a lot of political instability over the past decade evidenced by ongoing strikes, political parties' aggressive behaviour in parliament, the ongoing state capture commission and regular cabinet reshuffles. In the past decade, South Africa has experienced seven changes in the National Minister of Finance and the aim of this study is to determine the capital market reaction due to these changes. The firing of Pravin Gordhan as Minister of Finance on 31 March 2017 resulted in the value of the Rand decreasing by almost 10% of its value and foreign investors selling their investments in South Africa due to high risk of low returns in future (Brand, 2017).

South Africa was officially downgraded to junk status by Standard and Poor, and Fitch rating agencies on 7 April 2017 after the change in the National Minister of Finance that saw Finance Minister Pravin Gordhan, and his deputy, Mcebisi Jonas, being fired. The downgrade had a negative impact on the government bond yield returns because the downgrading indicates that the government is not financially stable to pay their sovereign debts and therefore increase financial risk (Block & Vaaler, 2004).

Changes in the National Minister of Finance has an impact on the financial markets but there is no study which was done to determine what drives the relationship between change in key political positions and financial markets in South Africa and what is the direct impact of these events over time. There has also been no previous research on the impact of major political events on the financial markets in South Africa and the objective of this research is to address this gap in the existing research.

1.5. Purpose

The general objective of this paper is to empirically determine the reaction of the JSE equity market returns and JSE government bonds' market yield, due to changes in the National Minister of Finance in South Africa. This will assist investors to make informed investment decisions that will create wealth in the long run.

The specific objectives are:

- To investigate the impact of changes in the National Minister of Finance on the South African government bond yield and equity market returns.
- To compare the impact of changes in the National Minister of Finance on government bonds' yield and equity market return.

1.6. Significance of the study

South Africa is a democratic, emerging economy and the process of predicting and achieving of economic growth and performance is often determined by the political stability of that country. Political stability will affect economic parameters such as inflation rates, interest rates, performance of the money market as well as perceptions of foreign investors and therefore it is important to determine how the changes in key political positions will affect the capital market returns (Alesina, Spolaore, & Wacziarg, 1997).

Previous research that was done on the relationship between political elections and stock market return found that political events have significant impact on the stock market (Chien, Mayer, & Wang, 2016; McMenamin, Breen, & Portillo, 2013; Osuala & Agbeze, 2016) . However, according to the uncertain information hypothesis (UIH) formulated by Brown, market returns react positively to predictable political events. When the political event like a change in the Minister of Finance is not predictable, investors are not able to assess their asset allocations and market returns (Brown et al., 1988).

The findings of this research will be of importance to academics, other researchers, investors, the stakeholders at the JSE and the government as it will emphasise the importance of political stability and the impact of changes in the National Minister of Finance on the capital market. To the investors, the study will enlighten them on the behaviour of securities in anticipation of changes in the National Minister of Finance as well as provide insight into expected behaviour of securities after the change and offer them a springboard against which to plan their strategies. It will assist investors to make decisions whether to buy, hold or sell securities in order to maximise the returns around the time of this event.

More knowledge will be added to the scholars as other interested researchers may refer to this study, probably build new ideas around it and some could even test the consistency in future in order to expand the body of knowledge. Other stakeholders such as firm managers may use the findings of this study as a point of reference for evaluating the impact of the external environment on the smooth running of a company and their investments. The investment advisors will be able to advise their clients to make investment decisions using these findings.

The government, through the Treasury and Capital Markets Authority, could use the findings of this study to guide the formulation of policies regarding the impact of their actions on the securities exchange.

1.7. Research question

The study will empirically examine the impact of changes in the portfolio of the National Minister of Finance on Johannesburg Stock Exchange (JSE) equity market returns and JSE listed government bonds' yield returns and it will address the following question:

What is the JSE equity market returns and JSE government bonds' yield returns reaction to changes in the National Minister of Finance?

The study will address the following sub-research question:

1. Does the JSE government bond yield react in the same way as the JSE equity return to changes in the National Minister of Finance?

1.8. Limitations

The study will only focus on the dismissal and appointment of the National Minister of Finance and it will not look at voluntary resignations. This will limit the quality of the paper because sometimes Ministers resign because of pressure and threats of being dismissed.

1.9. Assumptions

This research study will be performed according to the following assumptions:

1. The markets are efficient, implying that all information available to investors is immediately reflected in the stock price in an unbiased manner (Bhagat & Romano, 2002; McWilliams & Siegel, 1997).

2. The changes in the portfolio of the National Minister of Finance were unanticipated, meaning that investors learned about the change in the portfolio of the National Minister of Finance when the cautionary announcement took place (McWilliams & Siegel, 1997).

3. There are no confounding events during the period under investigation, which means the effects of other events on the share price will be removed (Alesina et al., 1997).

4. The management makes decisions with the intention of maximising shareholder value.

5. The JSE data, JSE SENS data, McGregor data and other data sources referenced are accurate and complete.

This research paper consists of four further chapters. In Chapter 2 literature review conducted in preparation for the research is discussed. In Chapter 3 the methodology and data used in generating the results are discussed. In Chapter 4 the results generated from the data are presented. Chapter 5 is dedicated to a discussion of the results and the researcher's conclusions drawn from the results are provided.

Chapter 2: Literature review

2.1. Introduction

This chapter covers the theoretical literature, empirical literature and a summary of the previous studies undertaken on the relationship between capital markets and significant political events with a view to answer the research question. The literature review section is separated in six main sections. In the first section the theoretical review is provided and in the second section the changes in the Minister of Finance portfolio in South Africa are discussed. The third section is dedicated to a discussion of previous studies on the determinants of the equity market returns. In the fourth section the determinants of the government bonds' yield returns are discussed. In the fifth section the Johannesburg stock exchange efficient market hypothesis is explained followed by the last section which contains the empirical literature review.

2.2. Theoretical review

Research has been done in the past to explain the relationship between information and market performance. This section will therefore review the relationship between information and the market performance based on existing theories and academic arguments.

2.2.1. Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH), introduced by Markowitz (1952) and subsequently named by (Malkiel & Fama, 1970) assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information. Correct information is important in forming expectations and allowing investors to correctly process all available information (Fama, 1965).

The EMH concept of informational efficiency has a Zen-like, counter-intuitive flavour to it. The more efficient the market, the more random the sequence of price changes generated by such a market. The most efficient market of all is one in which price changes are completely random and unpredictable. This is not an accident of nature but is in fact the direct result of many active market participants attempting to profit from their information. Driven by profit opportunities, an army of investors vigorously pursues even the smallest informational advantages at their disposal and in doing so they incorporate their information into market prices and quickly eliminate the profit opportunities that first motivated their trades (Samuelson, 1965).

The basic tenet of the EMH of traditional Finance as propounded by Fama in 1991 is predicted on the supposition that the capital market is perfect and as such able to effectively build in market information into stock prices. This assumption of perfect capital market is hinged on the belief that the investors and other capital market participants are rational in their decision-making process. But still, emerging facts from the field of behavioural Finance have come to cast aspersions on this principle or belief held by EMH theorists (Fama, 1991).

Since Fama propounded his famous EMH for US securities in 1965, a number of empirical studies have been conducted to improve it (French, 1988; Lo & MacKinlay, 1988; Summers, 1986). Fama in 1970 classified the efficiency of the market using three tests. These tests are classified as weak form, semi-strong form or strong form and they are based on the underlying assumptions pertaining to the information set available to the agents in these markets (Malkiel & Fama, 1970).

Markets are said to be weak form efficient if the information set implied by the asset price reflects only historical prices and information. That is, one cannot beat the market by using historical information on prices and volumes. Researchers generally use only limited publicly available information such as financial statements, government reports, industry reports, analysis, and trading volumes on valuing prices of different securities (Mabhunu, 2004).

Semi-strong market efficiency utilises all historical and current prices as well as any publicly available information in pricing financial assets. Event studies that examine how stock prices adjust to specific economic events have been used to directly test semi-strong form efficiency. Events usually tested are stock splits, initial public offerings (IPO), corporate announcements (especially earnings and dividends announcements) and other unexpected economic and world events. Researchers have tested the significance of price to earnings (P/E) and other ratios, the effect of firm size and many other characteristics that can be derived from publicly available information (Mabhunu, 2004).

Strong form market efficiency incorporates both public and private (insider) information into asset prices (Fama, 1991; Malkiel & Fama, 1970). Thus, any significant new public information should be reflected immediately in the stock price. Furthermore, no time lag should exist between the information being available and the stock price adjustment. Tests for the strong form are mainly centered on finding whether any group of investors, especially those who have access to the information otherwise not publicly available, can consistently enjoy abnormal returns. Groups

normally tested are company insiders, stock exchange experts, security analysts and professional asset managers (Mabhunu, 2004). In an efficient market, information gathering and information-based trading is not profitable as all the available information is already known by the market. This may leave investors with no incentive as to the gathering and analysis of information because they begin to realise that market prices are an unbiased estimate of the shares' basic worth (Mabhunu, 2004).

The time for the adjustment for any new information is a critical factor. The market is considered as a more efficient market if the market adjusts more rapidly and accurately immediately after new information has become available (Hadi, 2006). There may be various reasons for the market not being able to adjust quickly and correctly which results in the security market being inefficient and furthermore results in stock prices not accurately reflecting new information. This might result from the following: the investor is unable to interpret the new information correctly; the investors have no access to the new information; the transaction cost in trading security is an obstruction for free trading; the restriction on short sale; and, lastly; the investors might be misled by the change in accounting principles (Hadi, 2006).

2.2.2. Behavioural Finance

The emerging facts from the field of behavioural Finance have come to cast disbelief on this principle held by EMH theorists. Behavioural Finance maintains, contrary to the principle of traditional Finance, that the stock market is not altogether efficient and therefore political events like changes in key political positions will affect market returns. Furthermore, several recent research works have documented evidences of irrationality and deviations from sound investment judgements on the part of capital market participants and have laboriously tried to prove that the stock market is not entirely efficient as claimed by EMH. Behavioural Finance suggests that psychological factors influence investors' decisions and therefore there is a relationship between political events and market returns (Fakhry, 2016).

Behavioural Finance assumes that people act with emotional and cognitive bias to the arrival of new information and therefore, what is important in terms of market fluctuations in response to political events, is that these fluctuations are not due to the events themselves but human reactions to those events (Fakhry, 2016). Nevertheless, research performed have suggested that in violation of Bayes' rule, most people and investors tend to "overreact" to unexpected and dramatic news events because they overweight recent information and underweight prior data.

The term overreaction carries with it an implicit comparison to some degree of reaction that is appropriate. Therefore, the reaction of the investors is an important variable in explaining stock market returns. Bullish shifts in sentiment are negatively related to the volatility of returns but are positively related to stock market excess returns, vice versa for a bearish shift in sentiment. Furthermore, the magnitude of the change in sentiment has a significant impact on stock market returns as well (De Bondt & Thaler, 1985).

2.2.3. Modern Portfolio Theory

In capital markets, market returns go up or down daily. The market return is a ratio of the closing price to the opening price of the stock daily. When investors buy stocks, they always think about how much profit they will get in return. In general, if the expected return is high, the risk is also high. Modern portfolio theory by Markowitz explains how investors should select a portfolio and make the highest possible return from a certain level of risk or get the lowest possible risk for a certain level of return. There is a positive relationship between the risk and the expected return of a financial asset. When the risk of an asset increases, so does its expected return. What this means is that if an investor is taking on more risk, he is expected to be compensated for doing so with a higher return. Similarly, if the investor wants to boost the expected return of the investment, he needs to be prepared to take on more risk (Markowitz, 1952).

2.2.4. The Random Walk Hypothesis

The importance of the EMH stems primarily from its sharp empirical implications many of which have been tested over the years. Much of the EMH literature before (S. LeRoy, 1973; Lucas Jr, 1978) revolved around the random walk hypothesis (RWH) and the Martingale Model, two statistical descriptions of unforecastable price changes that were initially taken to be implications of the EMH (Fama & Blume, 1966). One of the first tests of the RWH was developed by (Cowles & Jones, 1937), who compared the frequency of sequences and reversals in historical stock returns, where the former are pairs of consecutive returns with the same sign, and the latter are pairs of consecutive returns with opposite signs (K. R. French & Roll, 1986) document a related phenomenon: stock return variances over weekends and exchange holidays are considerably lower than return variances over the same number of days when markets are open. This difference suggests that the very act of trading creates volatility, which may well be a symptom of noise traders (Black, 1986).

2.2.5. Uncertain Information Hypothesis

Brown, Harlow, and Tinic in 1988 and 1993 proposed and tested a theory of stock price behaviour following price shocks - the Uncertain Information Hypothesis (UIH). In essence, the UIH predicts that the arrival of significant uncertain information, as manifested by large single-day stock price changes, affects the risks and expected returns of the impacted securities. Based on an examination of 9 105 security-specific and market wide stock price changes, Brown, Harlow, and Tinic conclude that the data support the UIH (Brown, Harlow, & Tinic, 1993; Brown et al., 1988).

The model, which we refer to as the UIH, begins with the assumption that investors often set stock prices before the full ramifications of an expected financial event are known. The UIH then predicts that in the aftermath of new information, both the risk and the expected return of the affected companies increase in a systematic fashion. More precisely, we demonstrate that in addition to increasing measurable risk, a noisy piece of favourable or unfavourable news immediately causes a market comprising of risk-averse investors to set stock prices significantly below their conditional expected values. As the uncertainty over the eventual outcome is resolved, subsequent price changes tend to be positive on average, regardless of the nature of the catalysing event (Brown et al., 1993).

The issues considered by Brown, Harlow, and Tinic regarding stock market reaction to single-day price shocks are anticipated in Fama's (1965) classic study of EMH on stock market prices. For example, Fama (1965) discusses the effect of uncertain information on stock prices (pp. 38–39):

> Successive price changes may be independent even if there is consistent uncertainty surrounding new information […] if uncertainty concerning the importance of new information consistently causes the market to underestimate the effects of new information, traders should learn it is profitable to take this into account.

2.3. Determinants of equity market returns

Identifying the factors that influence stock returns is a major concern for practice and academic research and it has been a topic of focus in numerous studies in empirical Finance (Johannes, Korteweg, & Polson, 2009). Research work which is aimed at determining the factors influencing stock returns of firms provides a conceptual backdrop necessary to guide the financial manager in financial structure planning and decision-making to increase the shareholders' wealth. There is no previous research performed to test the relationship between changes in the National Minister of Finance and market returns but previous empirical literature does provide numerous papers

that address factors that affect market returns. Previous research done on market returns revealed that there is a positive relationship between market return and predictable volatility and there is also a significant negative relationship between unpredictable volatility and market returns (K. R. French, Schwert, & Stambaugh, 1987). Changes in key political positions usually occur unexpectedly and therefore it is regarded as an unpredictable volatility which has negative impact on market returns (Chan & Wei, 1996b).

The uncertain information hypothesis (UIH) that was aimed to test response of investors to unpredictable events found that unpredictable events, whether favourable or unfavourable, will immediately affect the market returns, but as the uncertainty surrounding the event reduces, the event will positively affect the market returns. However, people do not always act rational and therefore it is impossible to accurately predict the direction and magnitude of market returns. Brown tested the UIH in explaining the response of investors to the arrival of unanticipated information. Their research revealed that when a large sample of favourable and unfavourable events are analysed separately, the immediate price change will be followed by positive returns during the post-event period (Brown et al., 1988).

French in 1987 demonstrated that the ex-ante risk premium on common stocks is positively related to the anticipated volatility of returns (K. R. French et al., 1987). There is also evidence that supports the hypothesis that the arrival of new information increases stock-return variability. In particular, it was documented that the residual variances of stocks around the time of dividend-omission announcements are twice as large as their variances during non-event periods and stock returns are more volatile around regularly scheduled announcements (Beaver, 1968; Christie, 1983; Kalay & Loewenstein, 1985; Patell & Wolfson, 1979).

There is a high level of volatility when there are political events taking place compared to periods when there is no political event. Hence it can be said that political changes amplifies market volatility (Chan & Wei, 1996b). This paper follows research done by Merton (1980) which revealed that fluctuations in market volatility has an impact in market returns (Merton, 1980). Research done by Bechtel and Fuss (2010) in which they analysed the effect of political factors on stock performance across four sectors of the Germany economy between 1991 to 2005. Their analysis revealed that there was higher mean return and volatility in the defence and pharmaceutical sectors with higher tendency towards a more conservative government. However, there was higher mean return and higher volatility in the alternative energy sector and the consumer sector respectively, with higher probability of a left-leaning government (Bechtel & Füss, 2010).

Prior to 1981, much of the Finance literature viewed the present value of dividends issued to be the principal determinant of the level of stock prices. However, it was found that under the assumption of a constant discount factor, stock prices were too volatile to be consistent with movements in future dividends (S. F. LeRoy & Porter, 1981; Shiller, 1986). This conclusion, known as the excess volatility hypothesis argues that stock prices exhibit too much volatility to be justified by fundamental variables. Nonetheless, in the literature reviewed, it was clearly stated that stock price movements could not be explained solely by dividend variability as suggested by the present value model with constant discounting (Campbell & Shiller, 1989).

Shleifer and Vishny (2000) studied the stock return policies of over 4 000 firms from 33 countries and found that stock return policies vary across legal regimes in a way that is consistent with the idea that stock return payment is the outcome of effective pressure by minority shareholders to limit agency behaviour. Firms in countries with good legal protection of investors tended to have a higher pay-out ratio compared to firms in countries with weaker legal protection (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000).

Olowoniyi and Ojenike in their 2012 study had the following findings: expected growth would significantly improve stock return level of firms in developing countries if appropriate attention is focused on it; increasing the assets of firms are also expected to raise the level of returns of listed firms; lower net profit after tax is also expected to reduce level of stock return of listed firms and the leverage of a firm is also expected to lower the level of stock return (Olowoniyi & Ojenike, 2012). These findings suggest that attention needs to be paid to improving growth and size of the firms to benefit from the advantages that could arise from substantial stock return.

2.4. Determinants of yield of government bonds

A sovereign credit rating is an opinion by a recognised rating agency on the creditworthiness of a sovereign government to meet its debt commitments timely and in full (Hooper, Hume, & Kim, 2008). The main three credit rating agencies are Standard and Poor (hereafter S&P), Fitch, and Moody's (White, 2010). South Africa recorded a government debt balance equal to 53.1% of the country's Gross Domestic Product (hereafter GDP) in 2017 which has resulted in the government bonds being more sensitive to credit ratings because of possible interest rate changes (Trading Economics Website, 2017). In November 2017, the South African government's long-term debt was downgraded to junk status by S&P and Fitch after the cabinet reshuffle by former president Jacob Zuma and this increased the risk of South Africa not being able to pay the interest and capital on the government bonds.

Economists cited political instability as a major factor influencing the downgrade in sovereign credit ratings and predicted that interest rates could increase because policy uncertainty caused by cabinet reshuffle, allegations of corruption in state-owned entities, and other factors formed part of considerations in rating the creditworthiness of the South African sovereign government and consequentially the government bonds' yield (Cantor & Packer, 1996b).

A study event analysis was performed in the United States (US) and it shows that the Dollar bond spreads are sensitive to sovereign credit rating announcements (Cantor & Packer, 1996a). However, bond markets tend to react less to upgrade ratings relative to downgrade ratings because downgrade ratings are generally correlated with diminishing returns (Brooks, Faff, Hillier, & Hillier, 2004). The effect of rating announcements on bond yields is much stronger for bonds in which the counterparty is more likely to default compared to that of investment-grade bonds (Cantor & Packer, 1996a).

Research done in 2005 concluded that the credit risk of the country has an impact on the government bonds' yield returns. There are three types of credit risk: (i) default risk, (ii) credit spread risk; and (iii) downgrade risk. The default risk is defined as the probability that the issuer fails to meet the obligations either on coupon payments or repayment of principal at maturity. Credit spread risk is the risk based on the price performance of the bond and is defined by the probability that the market value of the bond will decline more than the value of other comparable quality bonds. Downgrade risk reflects the possibility of a downgrade by the credit rating agency (Fabozzi, 2005).

2.5. Johannesburg Stock Exchange efficient market hypothesis

The Johannesburg Stock Exchange (JSE) is the only main stock exchange currently in operation in South Africa although legislation allows for more than one stock exchange in a country. The JSE was founded in 1887 to mainly provide a facility through which investors could trade in shares after the discovery of the Witwatersrand gold fields and the subsequent formation of the mining and financial investment companies. The JSE is licensed under the Securities Services Act of 2004 and has been trading in financial products for nearly 125 years making it the oldest exchange in Africa (JSE, 2019).

The JSE introduced the order-driven, centralised, automated trading system well known as the Johannesburg Equities Trading (JET) system in 1996 to replace the open trading floor. Since then it has seen significant changes in its trading systems and operations. An example of such changes

was the introduction of the STRATE electronic settlement system in 2002 which helped improve the integrity of the market and its transactions thus winning both local and interNational investor confidence. Since then, the JSE has had a zero failed trade record thereby improving market integrity immeasurably. The JET system was later replaced by the London Stock Exchange (LSE) SETS System hosted by the LSE in London improving the interNational visibility of the JSE. It also launched the new free float indexing system in conjunction with the FTSE, namely the FTSE/JSE African Index Series to replace the then existing indices. This has enhanced the investability of the South African stocks by providing foreign investors with an indexing system with which they are familiar (JSE, 2019).

The JSE launched the SENS (Securities Exchange News Service – known then as Stock Exchange News Service) in 1997, a real time news service for the dissemination of company announcements and price sensitive information. This ensures early and wide distribution of all information that may influence the prices of securities that trade on the exchange (JSE, 2012). In 1999, the Insider Trading Act was introduced based on recommendations made by the King Task Group on Corporate Governance and included representatives from the JSE. A year later the JSE successfully listed Satrix 40, which tracks the top 40 companies listed on the exchange's Main Board (JSE, 2019).

In 2003, the JSE launched the AltX (alternate exchange), developed in partnership with the Department of Trade and Industry and as per the end of 2011, it had a total of 62 registered companies. A year later the JSE launched the Socially Responsible Investment (SRI) Index, which measures compliance by companies with triple bottom line criteria around economic, environmental and social sustainability (JSE, 2012).

In July 2005, the JSE Limited demutualised and was incorporated as a public unlisted company and later in 2006 it listed on the Main Board of the exchange. The JSE has evolved over time and boasts with modern electronic trading, clearing and settlement systems with extensive surveillance capabilities. The South African Institute of Stockbrokers is tasked with training and setting standards for the qualification of stockbrokers. The JSE securities exchange is also a member of the World Federation of Exchanges (JSE, 2019).

The majority of studies relating to market efficiency with respect to African stock markets have been conducted on the Johannesburg Stock Exchange (Magnusson & Wydick, 2002; Smith, Jefferis, & Ryoo, 2002) and found the JSE to be weak-form efficient. However, it was also

concluded on the contrary that the JSE is not weak-form efficient for the period 1990 to 1995, using weekly data (Appiah-Kusi & Menyah, 2003).

Many conflicting results are reported around the globe regarding the concept and theory of efficient capital market hypothesis. Many studies seem to conclude that capital markets follow the weak form of efficient market. These studies include Varamini & Kalash (2008); a Turkish study (Ozdemir, 2008); a Bahrain study (Asiri, 2008; Sharma & Mahendru, 2009); a Hong Kong study =(Jarrett, 2008); a Middle East and African study (Lim, 2009); an Arab markets study (Abdmoulah, 2010); Asian markets studies (J. E. Jarrett & Kyper, 2006; Lim, Brooks, & Hinich, 2008); a French study (Gajewski & Quéré, 2001); a Chinese study (Kong & Taghavi, 2006); a Greek study (Dasilas, Lyroudi, & Ginoglou, 2008a); a UK study (Lonie, Abeyratna, Power, & Sinclair, 1996); a Danish study (Sponholtz, 2008); and South African studies (Bhana, 1995; 2005; & 2007; Nthoesane, 2011).

Some researchers reach different conclusions in terms of efficiency and inefficiency and conclude that the capital market is inefficient. These studies highlight that it is due to this inefficiency that entrepreneurs are able to spot and exploit market opportunities (Kim & Shamsuddin, 2008; Lim & Brooks, 2009; Metghalchi, Chang, & Marcucci, 2008; Sappideen, 2009; Stanley & Samuelson, 2009). Finally, some studies do support the strong form of efficient capital markets because there was no above-average abnormal returns observed (Basistha, Kurov, & Finance, 2008; Laopodis, 2009; Lonie et al., 1996; Louhichi, 2008a; Mallikarjunappa & Manjunatha, 2009; Mittal & Jain, 2009; Simpson, Emery, & Moreno, 2009; Wang & Corbett, 2008).

2.6. Empirical literature review

A cabinet government is a government directed by a cabinet, and not directed by an individual president. This means that the Ministers are involved in general problem-solving processes and policy-making of the country (Hensel & Ziemba, 1995). Secondly, cabinet government is a parliamentary government where Ministers are individually and collectively accountable to a parliament whose confidence they must maintain to ensure that they perform their duties in the best interest of the country (Blondel, 1991).

2.6.1. Political events and capital markets

A government usually attempts to steer its economy, and news about future economic policies can be derived from political events such as elections, the formation of government, changes in

the composition of government, etc. Changes in the outcome of elections and therefore in the composition of the government will most likely result in policy changes in a country. This will affect macro-economic variables such as unemployment, economic growth, and inflation which will not entirely be the consequence of the economy itself but also dependent on the long and short-term policy choices of the government. Therefore, political party differences regarding the economic policy have the potential to move the economy along different time paths which should manifest in different returns to stockholders. This suggests a link between common stock returns and political outcomes (Li & Born, 2006).

Presidential elections and cabinet reshuffles always open a period of political uncertainty, as the winner remains to be determined. In this regard, the impact of political events on the stock market stresses uncertainty over the policies that the next government will pursue. Since stock prices anticipate and capitalise policy changes, the analysis of the effects of the political events on stock market could indicate the economic importance of expected changes in economic policy. Vuchelen (2003) investigated whether Belgian elections and the ideological composition of the government may affect the performance of the Brussels stock market. By using the multiple regressions model, the author reported that elections and new governments are events that supply information on future economic and financial policies. The results indicate that the ideological composition of the government is an important variable of stock market performance. The study suggests that the election and ideological composition of the government partners affect the common stock returns (Vuchelen, 2003).

Martinez and Santiso (2003) provide additional evidence on political events and the impact on financial markets. This article focuses on the interactions between politics and financial markets in emerging economies. More precisely, it examines how Wall Street reacts to major Latin American political events. The case study focuses on the 2002 Brazilian presidential elections. The specific case study of Brazil, analysed through the perceptions of Wall Street analysts and from a historical and quantitative economic perspective, has shown that these ties are strong for emerging markets. In fact, the essential character of emerging markets lies precisely in this intricate link between political uncertainty and financial volatility – what could be called the “economic fog” of democratic uncertainty (Martinez & Santiso, 2003).

Li and Born (2006) analysed the relationship between the presidential election uncertainty and common stock returns in the United States, showing the stock returns on the pre- and post-election. They report that the mean daily common stock return rises in the roughly three-month period before a US presidential election when the outcome of the election is uncertain. Similarly, the study provides weak evidence that the presidential election cycle is associated with higher return variability when the outcome is uncertain. However, volatility is virtually identical to non-election periods when the outcome is not in doubt. This evidence is consistent with the hypothesis that investors see a causal link between political uncertainty and common stock returns generation. It indicates that political uncertainty is observed by and priced in the equity market. This link between politics and stock markets is found in an unbiased framework consistent with the market efficiency hypothesis (Li & Born, 2006).

Beaulieu (2006) examined the short run effect of the 30 October 1995 Quebec referendum on the common stock returns of 102 firms in Quebec in Canada. The study used the GARCH model to measure the stock price volatility. The study found that the referendum outcome did affect portfolio returns of firms in Quebec. The effect of the referendum results on these stock returns is positive and statistically significant. The study revealed that political uncertainty could affect short-run stock returns of Quebec and Canadian firms when the uncertainty cannot be anticipated by financial markets because the reaction of stock market is larger for domestic firms than multi-National firms (Beaulieu, Cosset, & Essaddam, 2006).

In another study, Kramer and Hyclak in 2002 examined the impact of strikes on capital market from 1982 to 1999 with 256 firms' strikes (pair sample struck firms and non-struck firms). The study revealed the statistically significant negative effects of the announcement of a strike on the cumulative average stock market returns of struck firms. Concurrently, in the case of non-struck firms, the announcement of a strike had significant positive effects on the cumulative abnormal returns (CAR) in the same industry and therefore it can be said that stock market does not predict strikes very well. (Kramer & Hyclak, 2002).

Bittlingmayer in 1998 investigated stock volatility and output in a case marked by a clear exogenous political shock in Germany. The study was focused on the connection between political events and stock prices during and after the First World War and they employed multiple regressions to analyse data. The study found that the increase in German volatility in the late

1800s and early and mid-1920s seems closely linked to the shift from an ascendant empire to a beleaguered republic. Thus, political uncertainties simultaneously affected stock prices and output. In other words, political outcomes influenced the business cycle and stock market (Bittlingmayer, 1998).

2.6.2. The relationship between changes in the National Minister of Finance and equity market returns

Politics have a significant influence on financial markets and stock markets respond to new information regarding political decision that may affect domestic and foreign policy. As such, market efficiency requires that stock markets absorb news and political uncertainty. Positive stock returns are expected following the resolution of political uncertainty. In contrast, if the outcome of political uncertainty does not allow investors to immediately measure the negative impact on the stock market, then the political outcome constitutes an uncertainty inducing surprise (Gemmill, 1992).

Governments have the ability to affect stock returns through the use of both monetary and fiscal policy (Booth & Booth, 2003; Jensen, Mercer, & Johnson, 1996). However, the debate continues as to whether such moves produce more predictable markets or whether this tends to lead to inefficiencies within the market. Jacobsen (1999) found that around 50% of traders tended to act irrationally in 10% of the trades they make, causing stock prices to exceed their fundamental values around 10% of the time. (Jacobsen, 1999).

The political economy theoretical framework provides a basis for understanding the relationship between politics and the stock market and this relationship is described as “interactive” (Gilpin & Gilpin, 2001). As a result of this development, more recent studies are focused on examining other factors that potentially influence stock price movements that were omitted from previous research works. Some of these recent studies turned the search light on the political arena in search of the missing variation, and claimed that there is a high level of correlation between political events and economic events (Khan et al., 2017a; Osuala & Agbeze, 2016).

The investment-to-sensitivity ratio was found to be 40% lower during a period of political uncertainty because according to information view of investments political uncertainty is associated with uncertainty in government policies which result in low quality information about the stock prices. This may lower the information quality of stock prices and have implications for policymakers. In markets with high political uncertainty, the stock market is less able to guide

capital to its best uses and lowers stock market performance. This suggests that it is important for the government to find mechanisms to reduce unnecessary political uncertainty.(Durnev,2011).

2.6.3. The relationship between changes in the National Minister of Finance and government bonds' yield returns

In any democratic economy like South Africa, the process of achieving and predicting the level of economic growth and performance is often determined by the political environment stability of that country because the political environment stability will affect economic parameters such as inflation rates, interest rates, performance of the money market as well as perception on foreign investment (Alesina et al., 1997).

The contemporary bond market is sensitive to political events and this poses a challenge for an economy because political decisions will have an impact on the economic growth, interest rates, and credit ratings which subsequently affect the government bonds' yield returns (Block & Vaaler, 2004). It has been argued by Bernhard and Leblang in (2006) that capital markets monitor the uncertainty generated by political change and adjust their investments accordingly because the political change will affect the value of the investments in the financial markets (Bernhard & Leblang, 2006). Further research on interest rate revealed that the bond market charges a higher interest rate when there is government changes which are expected to have a negative impact on the economy (Vaaler, Schrage, & Block, 2005).

Financial market constraints in the bond markets are supposed to be strong but narrow. Sovereign creditors essentially need not to have real concern about the willingness of the developed countries' governments to pay interest and the principal amount because such economies are stable and creditworthy. The principal risk is rather a matter of inflation reducing the value of bonds (McMenamin et al., 2013). By contrast, in the emerging markets like South Africa, investors must watch a much wider set of indicators, including politics and elections. This is due to the much greater instability of such countries and the perception that default is a real and substantial risk which varies over time and is impacted by political events such as the change in the National Minister of Finance (McMenamin et al., 2013).

2.6.4. JSE Efficiency Market Hypothesis implications

There are several implications associated with market efficiency. The EMH theory states that the market is efficient with respect to certain particular information if the information is not useful in earning a positive excess return from it. Asset allocation remains a key element as it strongly influences an investor's overall risk return even if markets were efficient (Jordan et al., 2012).

Market efficiency makes security selection less important in terms of whether it is overvalued or undervalued, and it would be a good idea to buy a large number of stocks with reduced costs whilst maintaining a passive diversified investment portfolio. Market efficiency leaves little role for professional money managers, full service brokers and purchasing mutual funds in the market and shares would cost less (Jordan et al., 2012).

The EMH also have implications for the setting of accounting standards and they no longer specifically protect the naïve investors only. Sophisticated analysts and investors, who ensure that prices correctly and instantaneously reflect available information, protect the naïve investors by ensuring that any trading made by such investors is made at fair prices (White et al., 2012).

Another implication is that if markets are efficient, then there is no need to time the market. Market timing involves moving money in and out of the market based on your expectations of future market trends caused by internal and external events. By trying to time the market on average may lead to underperforming the market. Historically, most of the gains earned in the stock market tended to occur over relatively short periods of time (Jordan et al., 2012) but one implications of an efficient market are that no abnormal returns can be made from this information because current prices already reflect the information (Adelegan, 2009).

2.7. Summary

Whilst it is clear based on the existing literature that there is a relationship between political events such as presidential elections and market returns, there has been no investigation on how changes in the National Minister of Finance portfolio affect capital markets in South Africa. Since the majority of the research was done on presidential elections, this question will be of special significance to investors and researchers. Summarily, it can be said that the existing literature on the impact of political events on stock returns have mixed conclusions, which therefore warrants further research into the capital market reaction to changes in the portfolio of the National Minister of Finance. This study will add to the literature on the valuation effects of changes in the National Minister of Finance portfolio.

Chapter 3: Data and methodology

3.1. Introduction

The aim of this study was to examine the reaction of JSE listed stock market returns and JSE listed government bonds' yield to changes in the National Minister of Finance in South Africa. In this chapter the research methodology is discussed in terms of the chosen research method and associated research design.

3.2. Quantitative event study methodology

Research designs and methods are the blueprint used to guide a research study to ensure that it addresses the research problem. Research design refers to both the structure of the research problem, the framework, organisation or configuration of the relationships among variables of a study and the plan of investigation used to obtain the empirical evidence on those relationships (Cooper, Schindler, & Sun, 2006; Warfield, 2010). The study adopted an event study methodology because the basic concept is to find the abnormal return attributable to the event being studied by adjusting for the return that stems from the securities price fluctuation of the market as a whole (Gilson & Black, 1995).

For this study a quantitative research method was used to answer the research question and examine research hypotheses. The efficient market hypothesis was applied for the purpose of this study because this hypothesis suggests that market prices reflect all the available information that affects the market. The standard event study methodology based on King (2009) was used because the paper determines the significance of the change in the National Minister of Finance on the stock market returns and government bonds' yield**.**

According to the efficient market hypothesis, stock prices reflect all available information and using this hypothesis, an event study can be used to calculate how an event changes securities prospects by quantifying its impact on the securities' prices.

3.3. Data and sampling

Pantzalis, Stangeland and Turtle (2000) argue that political events exert significant influence on the financial markets. Particularly, investors are curious about political decisions that may impact monetary and fiscal policies. Therefore, investors are closely following political events and their

outcomes. Asset allocations are revised as investors' expectations are impacted by these political decisions and changes in the National Minister

of Finance are amongst the most important and influential political events. It is important to note that cabinet Ministers are chosen by the president and the public do not have the opportunity to exert their voting power. Furthermore, the information coverage by the media, pollsters and analysts is tremendous. The process of filtering this information between politicians and the public has an indirect effect on the financial markets as it adjusts the thoughts of investors. Lastly, when a change in the National Minister of Finance is unanticipated, it becomes more uncertain and financial market participants usually revise their asset allocations. The study only include changes in the Minister of Finance at a National level for the purposes of this research as they exert the most power on the medium- and long-term course of a country and consequently perform the most influence on the financial markets (Pantzalis,Stangeland, & Turtle, 2000).

The study focuses on the changes in the National Minister of Finance that took place over a 10-year period from 2009 to 2018 because that is when most of the changes in the National Minister of Finance occured. This is the period after the end of the Apartheid era in 1994. Therefore, the impact of the change in the government regime was not considered in this study. The 2018 Top 100 JSE listed firms were used to examine the effect of changes in the Minister of Finance on the performance of the JSE all share index stock market. All government bonds that were listed on the JSE during the selected period were included.

3.4. Primary data: The event

This study is focused on the changes in the National Minister of Finance because the Minister of Finance is involved in the development and implementation of government policies that have an impact on the economy and it is therefore important to ensure that the right people are appointed to lead this portfolio.

The event dates were adjusted to remove changes in the National Minister of Finance that occurred at the same time with other events that had more significant influence on the government bonds and stock market returns by removing those event dates from the study. This was done to ensure that the results of this study are not skewed and influenced by other events. The study did not look at the impact of National elections results because this can be predicted by the investors because the African National Congress has been in power since 1994.

The changes in the National Minister of Finance are publicly announced by the government and reported by the media and therefore the dates and other information of the events was collected from business articles.

3.5. Secondary data: Market returns and government bonds

The secondary data used for the analysis of this study comprised of market share prices of the Johannesburg Stock Exchange All Share Index (ALSI) and the government bonds' Index (GOVI) issued by the Republic of South Africa sourced from JSE bond market. The corporate bonds' yields are driven by government bonds because the corporate bonds' returns are significantly exposed to the liquidity of treasury bond liquidity (De Jong & Driessen, 2006). As a result, only the GOVI index was used to measure the market portfolio of government bonds. The ALSI and GOVI Index were obtained from the JSE website in conjunction with the McGregor BFA database (IRESS). The data was computed and managed using Microsoft Excel.

The judgemental sampling approach was used for the purpose of this study. The JSE ALSI was selected for the stock market return and the GOVI Index was selected for the government bonds market. These companies and government bonds were expected to meet the following criteria:

1. It must have been listed on the JSE market six months before the date of the change in the National Minister of Finance and
2. It must be companies and government bonds that do not have a constant current market price or highly volatile prices because that will not reflect the true impact of the change in the National Minister of Finance.

3.6. Research design

The study used the MacKinlay (1997) market model event study methodology which states that any excess returns from the normal returns of the market portfolio in equal to the abnormal returns caused by the specific event. The normal returns are returns which were expected if the event didn't take place and the abnormal returns are returns caused by the event. Previous studies have used the event study model to determine the impact of political elections on market returns (Osuala & Agbeze, 2016) and therefore it is an appropriate method for this study. This study used the same event study model managed by Excel because the method is valid and particularly suitable for this study since changes in key political positions dates differs in samples.

The study follows the market return event study approach steps according to (Osuala & Agbeze, 2016). The impact of changes in the National Minister of Finance on government bonds, and the impact of changes in key political positions on stock market return were calculated on a mutually exclusive basis and independent from each other using the same formula of the market return event study method.

The event date is the date on which the change in the National Minister of Finance event occurred, that is, when the market first learnt of this event. The study used a 21-days event window consisting of 10 trading days before the event and 10 trading days after the change in key political positions because this is considered the necessary time to capture both the leakage of information, if any, and the time needed for the information about the change in key political positions to effectively reach the marketplace. For each change in the National Minister of Finance event, a period of 252 trading days prior to the event window was used as the estimation window to establish how the returns should behave normally in the absence of this event.

Normal returns will be the returns that would have occurred in the absence of the change in the National Minister of Finance. Abnormal returns (ARs) are the excess returns arising from the occurrence of the change in the National Minister of Finance and it was calculated by taking the actual return for the JSE All Share Index and government bonds' yield for each day in the event window and subtract the estimated normal return for each day in the event window. The cumulation of the ARs yields the cumulative abnormal returns (CARs). The statistical significance of the Average Abnormal Returns and Cumulative Abnormal Returns was evaluated by determining the significance of the change in the National Minister of Finance which is the key objective of an event study.

The market return approach was used to characterize the daily market returns for stock and government bonds, and it is given as follows:

$$R_{it} = \alpha_i + \beta_1 R_{mt} + \epsilon_{it} \quad (1)$$

Where:

R_{it} : are the daily returns of stock and bonds.

R_{mt} : is the market portfolio.

ϵ_{it}: the error-term.

α_i, β_1: is the ordinary least squares (OLS) market model parameters.

The daily market returns were calculated as $\frac{R_{it}}{R_{it-1}}$-1. The market portfolio for government bonds was measured by the GOVI Index and the market portfolio for stock market return was measured by the ALSI.

The reaction of the government bond and stock market return due to changes in the National Minister of Finance was measured as the abnormal return and it was calculated as the difference between the actual return over the event window minus the normal return over the same event window:

$$AR_{it} = R_{it} - (\hat{a}_i + \hat{\beta}_i R_{mt}) \quad (2)$$

Where:

AR_{it}: is the abnormal return.

R_{it}: is the actual return.

$\hat{a}_i + \hat{\beta}_i R_{mt}$: expected normal return without effects of the change in the National Minister of Finance event taking place, hence the market return. The market model assumes a stable linear relationship between the market return and the security return (MacKinlay, 1997).

The Abnormal return was aggregated and averaged across all the observations as shown below:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \quad (3)$$

The total impact of the event over the period, also known as the “event window” was measured. The event window is defined by [T_1, T_2] and can be measured by adding up individual abnormal returns. This gives Cumulative Abnormal Return (CAR), as shown in the formula below:

$$CAR_{(t_{1,t2})} = \sum_{t_1}^{t_2} AR_{it} \quad (4)$$

After calculating the AR and the CAR, the Cumulative Average Abnormal Return (CAAR) was calculated since we have an event study that holds multiple observations of individual events.

Calculating AAR and CAAR is done to give a good indication of the market reaction to the change in key political positions (King, 2009). It represents the mean values of identical events:

$$CAAR_{t1,t2)}=\frac{1}{n}\sum_{i=1}^{n} CAR_{(t1,t2)} \quad (5)$$

3.7. T-Statistics

T-statistics was calculated on each day in the event window period to test whether the stock market and government bonds market are significant to the changes in the National Minister of Finance and measures internal validity.

The T-statistics for ARR was calculated using the following method:
A simple test for testing $H_0 : AAR = 0$ is given by:

$$t_{AAR_t}=\sqrt{N}\ \frac{AARt}{\sigma AARt} \quad (6)$$

Where σAAR_t is the standard deviation of AAR at t and was calculated as follows:

$$\sigma^2 AAR_t=\frac{1}{(N-1)}\sum_{i=1}^{N}\ [AR_{i,t} - AAR_t]^2 \quad (7)$$

The T-statistics for CAR was calculated using the following method:

A simple test for testing $H_0 : CAAR = 0$ is given by:

$$t_{CAAR}=\sqrt{N}\ \frac{CAAR(t1,t2)}{\sigma CAAR(t1,t2)} \quad (8)$$

Where $\sigma CAAR_{t1,t2)}$ is the standard deviation of the CAAR across the sample size and was calculated as follows:

$$\sigma^2 CAAR_{t1,t2)}=\frac{1}{(N-1)}\sum_{i=1}^{N}\ [CAR_{t1,t2)} - CAAR_{t1,t2)}]^2 \quad (9)$$

The test statistics was done for each day on the event window period at a 95% confidence level to test the significance of the results and ensure that strong results are produced. The t-statistics value was retrieved from the t-table.

3.8. Validity.

3.8.1. Internal validity

The information about the changes in the National Minister of Finance is broadly published by media and it is widely available on the internet. This information was therefore valid and readily available. The sample size was sufficiently large to draw inferences on the population of the companies listed on the JSE. Companies and government bonds which had constant prices or highly volatile prices were removed in order to remove confounding variables. The AARs and CAARs will be tested for normality to comply with the requirements of the t-tests. Should the test for normality fail, the non-parametric event studies alternatives would have been explored. The event dates were adjusted for changes in the National Minister of Finance that occurred at the same time with other events that had a more significant influence on the government bonds' yield returns and stock market returns to ensure that the results of this study are not skewed and influenced by other events.

3.8.2. External Validity

Changes in the National Minister of Finance has become a regular occurrence in South Africa with the country experiencing seven changes in the last decade and reportedly it had an impact on the financial markets and the value of investments because it affects the political risk of the country which consequently affects market volatility (Chan & Wei, 1996a). The firing of Pravin Gordhan as Minister of Finance on 31 March 2017 resulted in the value of the Rand decreasing by almost 10% of its value and foreign investors selling their investments in South Africa due to high risk of low returns in future (Brand, 2017). South Africa was officially downgraded to junk status by S&P and Fitch rating agencies on 7 April 2017 after the change in the National Minister of Finance portfolio that saw Finance Minister Pravin Gordhan, and his deputy, Mcebisi Jonas, being fired. The downgrade had a negative impact on the government bond yield returns because it is showing that the government is not financially stable to pay their sovereign debts and therefore financial risk increases (Block & Vaaler, 2004).

3.9. Reliability

Event study methodology is regarded as a powerful tool in efficient market hypothesis research, and many researchers (Aharony & Swary, 1980; Bowman, 1983; Cox & Weirich, 2002; Dasilas, Lyroudi, & Ginoglou, 2008b; Dey & Radhakrishna, 2008; Gajewski & Quéré, 2001; Kiger, 1972; Kong & Taghavi, 2006; Laidroo, 2008; Louhichi, 2008b) have successfully utilised the tool where security prices respond to new information. Mushidzi and Ward (2004) assert that event study methodology is frequently used to determine whether there is a statistical difference between actual stock returns and required returns surrounding an event.

Chapter 4: Results analysis

1. Introduction

The objective of this study was to establish the reaction of the JSE capital market to changes in the National Minister of Finance in South Africa. To achieve this objective, event study methodology was used for seven changes that occurred in the National Minister of Finance over a period of 10 years from 2008 to 2018. The reaction and performance of the equity returns and government bond yield returns before, during and after the change in the National Minister of Finance were analysed.

2. 11 May 2009: Trevor Manuel to Pravin Gordhan

In this section the reaction of the JSE equity market returns, and the JSE government bond yield returns, to the changes in the National Minister of Finance portfolio is analysed. This event occurred on the 11th of May 2009 when former President Jacob Zuma changed the Minister of Finance from Trevor Manuel to Pravin Gordhan. The impact of the event on the JSE stock market can be seen in Table 1 and Figure 1 and the impact on the JSE government bond market can be seen in Table 2 and Figure 2

Table 1 and Table 2 represent the AR and the CAR for the 21 days event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 1. JSE Equity Market Analysis

Event Window	AR	T-STAT	AR significant	CAR	T-STAT	CAR significant
-10	-0,09%	-0,30	no	-0,09%	-0,18	no
-9	-0,45%	-1,46	no	-0,54%	-1,08	no
-8	-0,20%	-0,64	no	-0,74%	-1,47	no
-7	0,08%	0,27	no	-0,66%	-1,31	no
-6	-0,55%	-1,78	no	-1,21%	-2,40	yes
-5	-0,12%	-0,40	no	-1,33%	-2,65	yes

-4	-0,06%	-0,18	no	-1,39%	-2,76	yes
-3	-0,10%	-0,31	no	-1,49%	-2,95	yes
-2	-0,29%	-0,93	no	-1,77%	-3,52	yes
-1	0,05%	0,15	no	-1,73%	-3,43	yes
0	-0,09%	-0,29	no	-1,82%	-3,60	yes
1	0,50%	1,61	no	-1,32%	-2,62	yes
2	0,09%	0,29	no	-1,23%	-2,44	yes
3	-0,53%	-1,73	no	-1,76%	-3,50	yes
4	0,41%	1,33	no	-1,35%	-2,68	yes
5	-0,40%	-1,30	no	-1,75%	-3,48	yes
6	-0,20%	-0,65	no	-1,95%	-3,87	yes
7	0,39%	1,26	no	-1,56%	-3,10	yes
8	-0,40%	-1,30	no	-1,97%	-3,90	yes
9	0,09%	0,30	no	-1,87%	-3,72	yes
10	0,33%	1,08	no	-1,54%	-3,06	yes

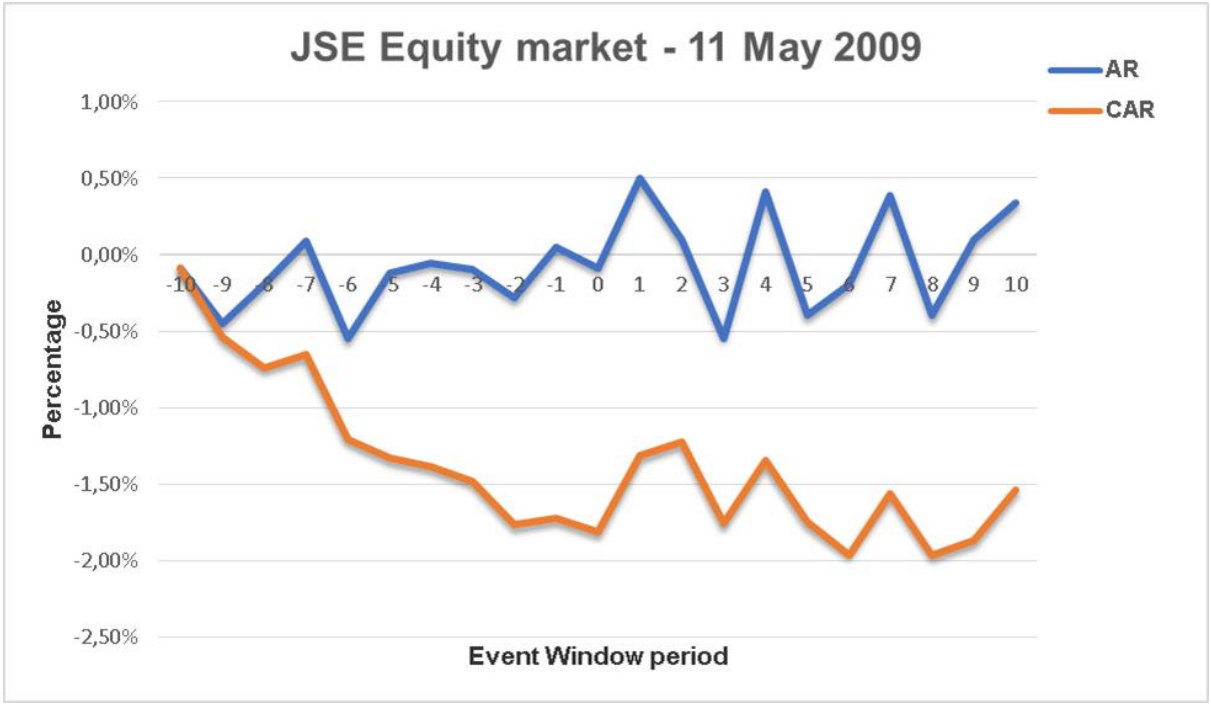


Figure 1. JSE equity market analysis graph

The results above indicate that, generally, the change of the National Minister of Finance from Trevor Manuel to Pravin Gordhan had a significant negative effect on the performance of the equity market returns during the event window period at a 95% confidence level. The results are consistent with previous research that suggests that political uncertainty creates economic uncertainty, which increases investors' risk status and results in a high level of volatility (Chan & Wei, 1996b). The results support research done by Merton in (1980) which revealed that market volatility have an impact on market returns (Merton, 1980). The results in Figure 1 are also consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results show that there was an insignificant negative abnormal return of -0.09% and a significant CAR of 1.82% on the event day which is not consistent with EMH that assumes that capital markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). This equity market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE by Smith et al. (2002) and Magnusson & Wydick (2002) and found the JSE to be weak-form efficient, but inconsistent with studies done by Appiah-Kusi & Menyah (2003) which concluded that the JSE is not weak-form efficient.

It is evident that the equity market responded negatively to the anticipated event and the actual event because the CAR had a downward trend throughout the event window period which is an indication that this change in the National Minister of Finance was not welcomed by the people and more specifically the investors. The market reaction in Figure 1 during the period after the event day is consistent with previous literature on behavioural Finance which suggest that stock markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to "overreact" to unexpected dramatic news because they overweight recent information and underweight prior data. The downward trend in CAR is consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

Table 2. Government bonds analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?

-10	-0,02%	-0,11	no	-0,02%	-0,06	no
-9	-0,02%	-0,11	no	-0,03%	-0,11	no
-8	0,05%	0,31	no	0,01%	0,05	no
-7	0,09%	0,64	no	0,11%	0,38	no
-6	0,01%	0,06	no	0,12%	0,41	no
-5	0,02%	0,14	no	0,14%	0,48	no
-4	0,37%	2,53	yes	0,51%	1,80	no
-3	0,17%	1,14	no	0,68%	2,40	yes
-2	0,08%	0,52	no	0,76%	2,67	yes
-1	-0,10%	-0,64	no	0,66%	2,33	yes
0	0,07%	0,45	no	0,73%	2,57	yes
1	0,00%	-0,03	no	0,72%	2,55	yes
2	-0,36%	-2,40	yes	0,37%	1,30	no
3	0,05%	0,31	no	0,41%	1,46	no
4	0,03%	0,22	no	0,45%	1,57	no
5	-0,31%	-2,09	yes	0,14%	0,49	no
6	-0,11%	-0,73	no	0,03%	0,11	no
7	0,03%	0,19	no	0,06%	0,20	no
8	0,02%	0,12	no	0,08%	0,27	no
9	0,01%	0,08	no	0,09%	0,31	no
10	0,02%	0,16	no	0,11%	0,39	no

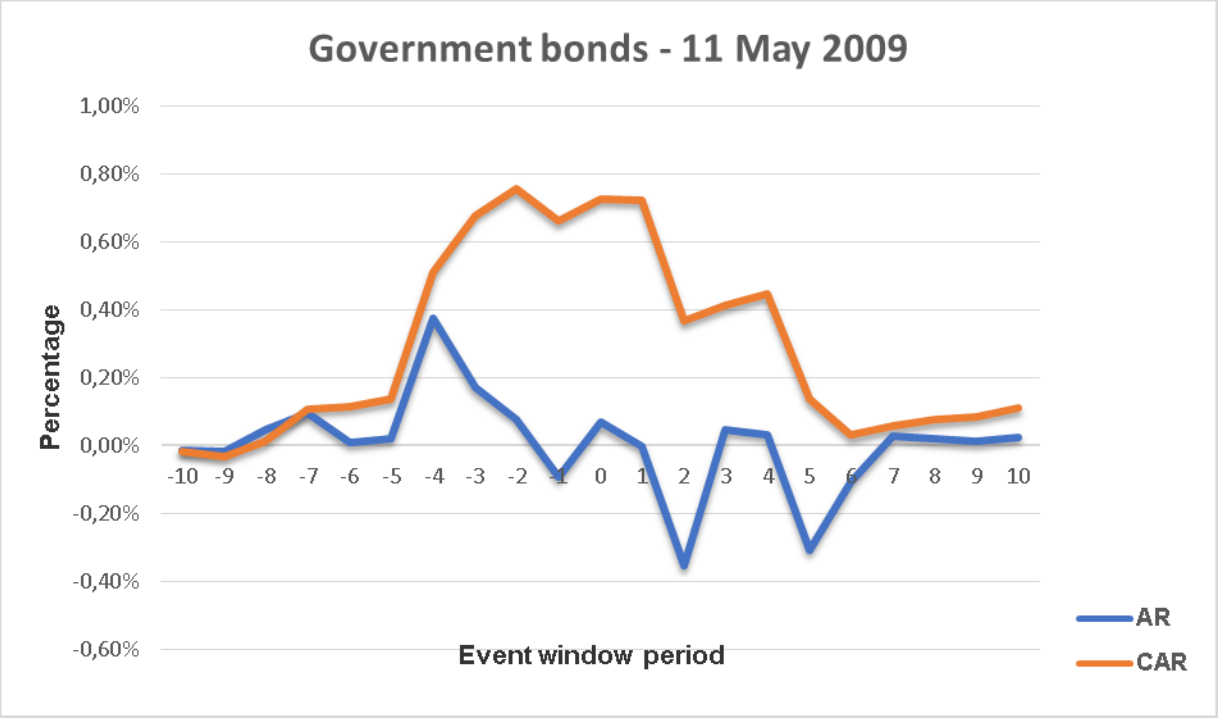


Figure 2. Government bonds market analysis graph

The results in Table 2 and Figure 2 above indicate that, generally, the change of the National Minister of Finance from Trevor Manuel to Pravin Gordhan had an insignificant positive effect on the performance of the government bond yield returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and results in a high level of volatility (Chan & Wei, 1996b). The results do not support research done by Merton in 1980 which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results in Figure 2 are also not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results show that the government bond yield returns had a positive significant abnormal return at t=-4 before the event in anticipation of the change in the Minister of Finance. There was an insignificant positive AR of 0,07% and a significant positive CAR of 0,57% on the event day which is not consistent with EMH which assumes that capital markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The bond market experienced significant negative AR at t=2 and t=5. The JSE market

reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE by Smith et al. (2002) and found the JSE to be weak-form efficient, but inconsistent with studies done by Appiah-Kusi and Menyah (2003), which concluded that the JSE is not weak-form efficient for the period 1990 to 1995, using weekly data.

The CAR had an upward trend before the event day and a downward trend after the event day. This could be as a result of the information having been leaked prior to the event and the market reacting positive to the information. It is evident that the bond market responded insignificantly positive and overreacted to the anticipatory change in the National Minister of Finance portfolio. However, a downward trend of the CAR after the event is an indication that this change in the National Minister of Finance was not welcomed by the bond market. The market reaction in Figure 2 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to overreact to unexpected dramatic news because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

3. 25 May 2014: Pravin Gordhan to Nhlanhla Nene

In this section the reaction of the stock market returns, and the government bond yield returns to the change in the National Minister of Finance is analysed. On the 25th of May 2014 former President Jacob Zuma changed the Minister of Finance from Pravin Gordhan to Nhlanhla Nene. The results of the JSE stock market analysis can be seen in Table 3 and Figure 3 and the results of the JSE government bond yield returns can be seen in Table 4 and Figure 4

Table 3 and Table 4 represent the AR and the CAR for the 21-day event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 3. JSE equity market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,20%	-1,04	No	-0,20%	-1,09	No
-9	0,03%	0,14	No	-0,18%	-0,94	No
-8	0,02%	0,09	No	-0,16%	-0,85	No
-7	-0,02%	-0,13	No	-0,18%	-0,98	No
-6	-0,17%	-0,87	No	-0,35%	-1,89	No
-5	-0,23%	-1,20	No	-0,58%	-3,14	Yes
-4	0,48%	2,50	Yes	-0,10%	-0,54	No
-3	-0,05%	-0,24	No	-0,15%	-0,79	No
-2	0,09%	0,47	No	-0,06%	-0,30	No
-1	0,09%	0,47	No	0,03%	0,19	No
0	0,14%	0,73	No	0,18%	0,94	no
1	-0,13%	-0,68	No	0,04%	0,24	no
2	-0,37%	-1,92	No	-0,33%	-1,75	no
3	0,29%	1,49	No	-0,04%	-0,21	no
4	0,14%	0,73	No	0,10%	0,55	no
5	0,04%	0,23	No	0,15%	0,79	no
6	-0,08%	-0,42	No	0,07%	0,36	no
7	-0,30%	-1,54	No	-0,23%	-1,24	no
8	0,01%	0,03	No	-0,23%	-1,21	no
9	-0,03%	-0,16	No	-0,26%	-1,38	no
10	-0,01%	-0,04	No	-0,26%	-1,42	no

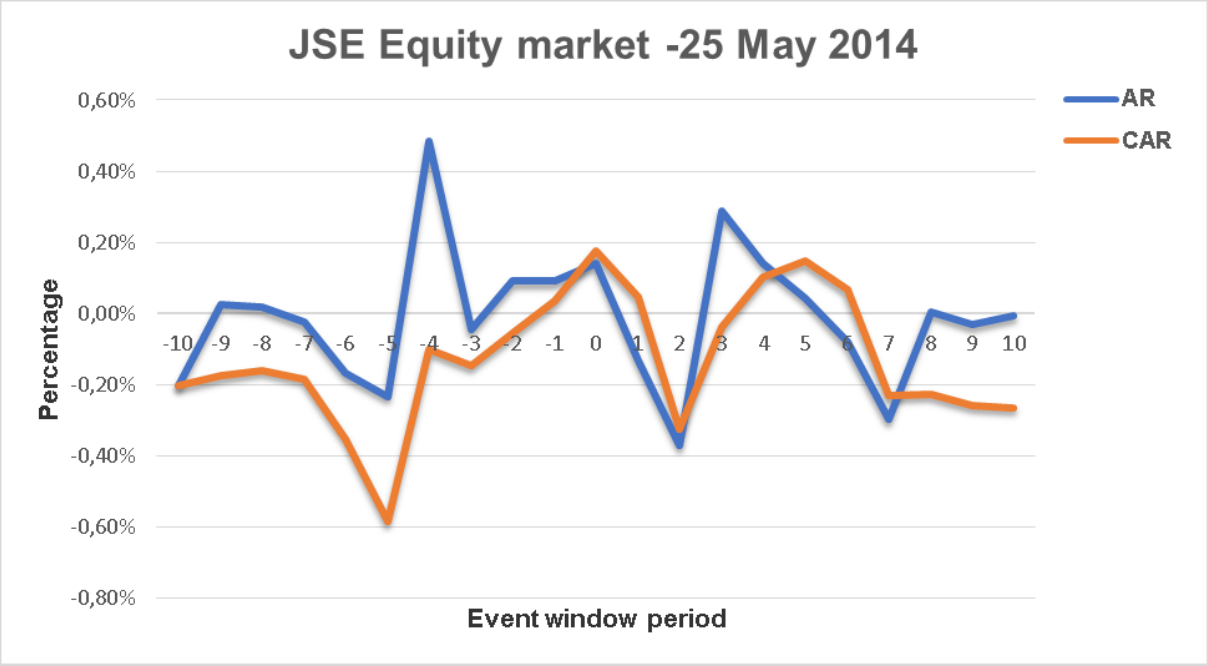


Figure 3. JSE equity market analysis graph.

The results in Table 3 and Figure 3 indicate that, generally, the change in the National Minister of Finance from Pravin Gordhan to Nhlanhla Nene had an insignificant negative effect on the performance of the equity market returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore results in a high level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton in (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results in Figure 3 are not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results show that the JSE equity market returns were highly volatile prior to the event with the CAR going to its lowest point at t=-5 and AR going to its highest point at t=-4. This is an indication that the market was overreacting due to the political instability caused by the anticipation of a change in the National Minister of Finance. The bond market continued to be

volatile even after the event day. The market reaction in Figure 3 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that stock markets are not altogether efficient markets, and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

There was an insignificant positive abnormal return of 0,14% and insignificant positive CAR of 0,18% on the event day which is not consistent with EMH which assumes that financial markets incorporate all public information, and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but is inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

Table 4. Government bonds market analysis table.

	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	0,14%	0,92	No	0,14%	1,04	no
-9	-0,01%	-0,14	No	0,12%	0,94	no
-8	-0,01%	-0,12	No	0,11%	0,86	no
-7	-0,07%	-0,71	No	0,05%	0,36	no
-6	0,07%	0,76	No	0,12%	0,89	no
-5	-0,15%	-1,61	No	-0,03%	-0,23	no
-4	0,08%	0,84	No	0,05%	0,35	no
-3	-0,03%	-0,30	No	0,02%	0,14	no
-2	-0,02%	-0,19	No	0,00%	0,00	no
-1	-0,09%	-0,95	No	-0,09%	-0,66	no
0	0,00%	0,04	No	-0,08%	-0,63	no
1	-0,05%	-0,54	No	-0,13%	-1,01	no
2	0,13%	1,38	No	-0,01%	-0,05	no
3	-0,05%	-0,59	No	-0,06%	-0,46	no

4	-0,02%	-0,22	No	-0,08%	-0,61	no
5	0,05%	0,49	No	-0,04%	-0,27	no
6	0,07%	0,72	No	0,03%	0,23	no
7	0,09%	1,01	No	0,12%	0,94	no
8	0,18%	1,97	Yes	0,30%	2,31	yes
9	0,08%	0,86	No	0,38%	2,91	yes
10	-0,17%	-1,90	No	0,21%	1,58	no

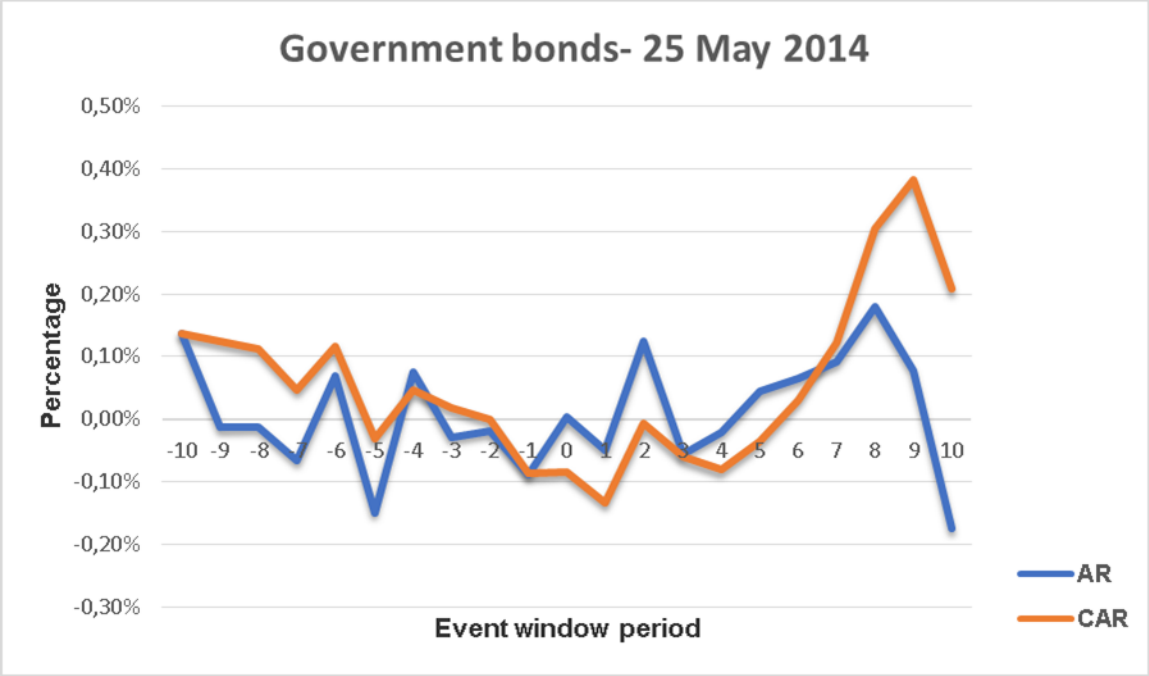


Figure 4. Government bonds market analysis graph.

The results in Table 4 and Figure 4 indicate that, generally, the change of the National Minister of Finance from Pravin Gordhan to Nhlanhla Nene had an insignificant positive effect on the performance of the government bonds' yield returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton in (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results in Figure 4 are not consistent with research done on uncertain information hypothesis

(UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results show that the equity market started to experience negative insignificant abnormal returns before the event in anticipation of the change in the Minister of Finance. There was an insignificant positive abnormal return of 0,00% and insignificant negative CAR of -0,08% on the event day which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003), which concluded that the JSE is not weak-form efficient.

The CAR had a downward trend before the event day, however, the government bonds started to experience positive insignificant abnormal returns after the event and the CAR started to have an upward trend. It is evident that the government bonds market generally responded insignificantly positively to the change in the National Minister of Finance with only few negative abnormal returns after the event day. This is an indication that the change in the National Minister of Finance was welcomed by the people and more specifically the investor. This could probably be as result of confidence in the new National Minister of Finance by the market to drive the needed change in the country. The market reaction in Figure 4 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable since most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

4. 09 December 2015: Nhlanhla Nene to Des Van Rooyen

In this section the reaction of the stock market returns and the government bonds’ yield returns to the change in the National Minister of Finance is analysed. On the 09th of December 2015 former President Jacob Zuma changed the Minister of Finance from Nhlanhla Nene to Des Van

Rooyen. The results of the JSE stock market analysis can be seen in Table 5 and Figure 5 and the results of the JSE government bonds' yield returns can be seen in Table 6 and Figure 6.

Table 5 and Table 6 represent the AR and the CAR for the 21-day event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 5. JSE Equity market analysis table

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,17%	-0,32	no	-0,17%	-0,21	no
-9	0,03%	0,05	no	-0,14%	-0,18	no
-8	-0,16%	-0,31	no	-0,30%	-0,39	no
-7	0,14%	0,28	no	-0,16%	-0,20	no
-6	0,18%	0,34	no	0,02%	0,02	no
-5	0,02%	0,04	no	0,04%	0,05	no
-4	1,25%	2,39	yes	1,28%	1,65	no
-3	-0,30%	-0,57	no	0,99%	1,27	no
-2	-0,13%	-0,26	no	0,85%	1,10	no
-1	-0,15%	-0,29	no	0,70%	0,90	no
0	0,69%	1,32	no	1,39%	1,79	no
1	1,16%	2,22	yes	2,55%	3,27	yes
2	-0,90%	-1,73	no	1,64%	2,11	yes
3	-0,37%	-0,71	no	1,27%	1,64	no
4	-0,50%	-0,96	no	0,77%	1,00	no
5	0,25%	0,48	no	1,02%	1,32	no
6	-0,15%	-0,30	no	0,87%	1,12	no
7	-0,47%	-0,90	no	0,40%	0,51	no
8	-0,52%	-1,00	no	-0,12%	-0,16	no
9	0,01%	0,02	no	-0,11%	-0,14	no
10	-0,25%	-0,48	no	-0,36%	-0,47	no

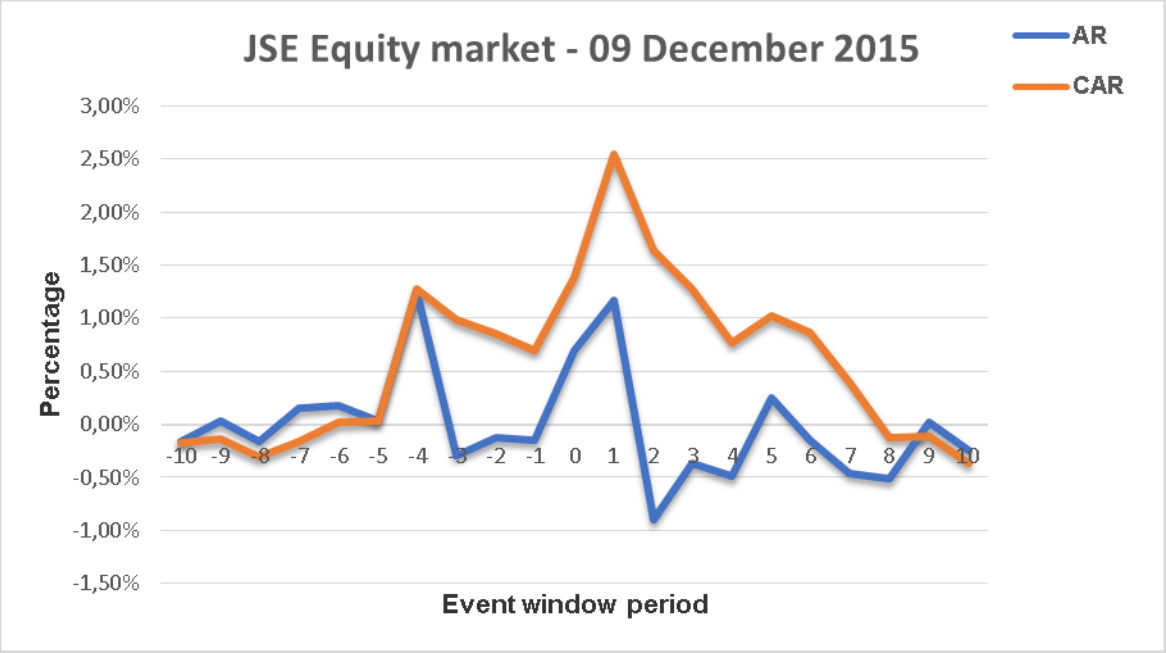


Figure 5. JSE equity market analysis graph

The results in Table 5 and Figure 5 indicate that, generally, the change in the National Minister of Finance from Nhlanhla Nene to Des Van Rooyen had an insignificant negative effect on the performance of the equity market during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton in (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results in Figure 5 are not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

There was an insignificant positive abnormal return of 0,69% and insignificant positive CAR of 1,39% on the event day which is the day after the event which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE equity market experienced the highest significant AR of 1,16% and the highest significant CAR at 2,55% at t=1. The JSE market reaction is consistent with the majority of studies relating to market efficiency

with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

The results show that the CAR had an upward trend before the event day, however, the JSE equity market started to experience negative insignificant abnormal returns after t=1 and the CAR started to have a downward trend. The market reaction depicted in Figure 5 during the period after the event day is consistent with previous literature on behavioural Finance which suggest that capital markets are not altogether efficient market and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

Table 6. Government bonds market analysis table

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,06%	-0,04	no	-0,06%	-0,02	No
-9	-0,06%	-0,04	no	-0,12%	-0,04	No
-8	-0,01%	-0,01	no	-0,13%	-0,04	No
-7	-0,01%	0,00	no	-0,14%	-0,05	No
-6	0,05%	0,04	no	-0,08%	-0,03	No
-5	0,09%	0,06	no	0,01%	0,00	No
-4	0,05%	0,03	no	0,06%	0,02	No
-3	-0,01%	-0,01	no	0,05%	0,02	No
-2	-0,04%	-0,03	no	0,01%	0,00	No
-1	-0,10%	-0,07	no	-0,09%	-0,03	No
0	-2,42%	-1,60	no	-2,52%	-0,86	No
1	-5,53%	-3,65	yes	-8,05%	-2,76	Yes
2	1,34%	0,89	no	-6,70%	-2,30	Yes
3	0,05%	0,03	no	-6,65%	-2,28	Yes
4	0,04%	0,03	no	-6,61%	-2,27	Yes
5	0,80%	0,53	no	-5,81%	-1,99	Yes

6	0,00%	0,00	no	-5,81%	-1,99	Yes
7	1,03%	0,68	no	-4,78%	-1,64	No
8	2,50%	1,65	no	-2,28%	-0,78	No
9	0,00%	0,00	no	-2,28%	-0,78	No
10	-0,01%	-0,01	no	-2,29%	-0,79	No

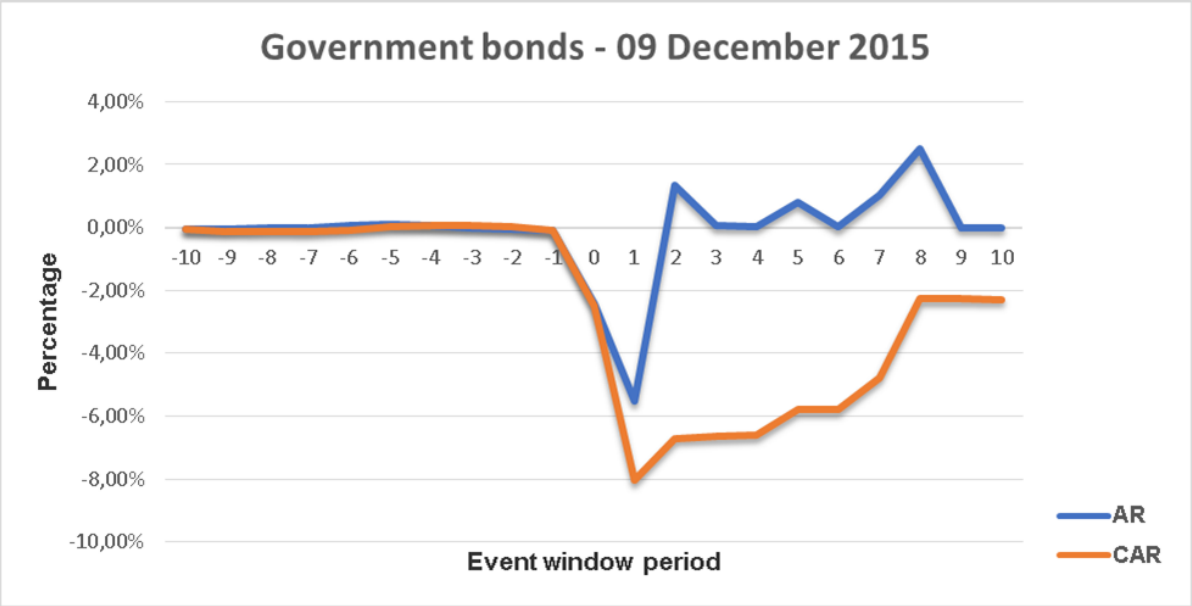


Figure 6. Government bonds market analysis graph.

The results in Table 6 and Figure 6 above indicate that, generally, the change in the National Minister of Finance from Nhlanhla Nene to Des Van Rooyen had an insignificant negative effect on the performance of the government bonds' yield returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton in (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results in Figure 6 are not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant

uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results depicted in the graph show that there were no bond price movements before the event and the slope was close to zero. There was an insignificant negative abnormal return of -2.42% and insignificant negative CAR of -2,52% on the event day t=0 which is the day after the event. This is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE bond market experienced the highest significant negative AR of -5,53% and the highest significant negative CAR at -8,05% at t=1 which is the day after the event. However, the bond market started to experience insignificant positive abnormal returns after t=1. This could be as a result of the information not having been leaked prior to the event announcement. The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003), which concluded on that the JSE is not weak-form efficient.

The results depicted in Figure 6 show that the CAR had a slope of almost zero before the event day. However, the JSE bond market started to experience negative significant abnormal returns at t=0 and t=1 and the CAR started to have a downward trend. The slope of the CAR then started to have an upward trend after t=1 because the market started to experience positive abnormal returns. This is an indication that the anticipated change in the National Minister of Finance was not welcomed by the market at the beginning, but the market started to accept it after the actual event day. The market reaction depicted in Figure 6 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

5. 13 December 2015: Des Van Rooyen to Pravin Gordhan

In this section the reaction of the stock market returns and the government bonds’ yield returns to the change in the National Minister of Finance is analysed. On the 13th of December 2015 former President Jacob Zuma changed the Minister of Finance from Des Van Rooyen to Pravin

Gordhan. The results of the JSE stock market analysis can be seen in Table 7 and Figure 7 and the results of the JSE government bonds' yield returns can be seen in Table 8 and Figure 8.

Table 7 and Table 8 represent the AR and the CAR for the 21-day event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 7. JSE equity market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	0,14%	0,27	No	0,14%	0,17	no
-9	0,17%	0,32	No	0,31%	0,38	No
-8	0,02%	0,04	No	0,33%	0,40	No
-7	1,26%	2,40	Yes	1,60%	1,94	No
-6	-0,30%	-0,57	No	1,30%	1,58	no
-5	-0,13%	-0,25	No	1,17%	1,42	no
-4	-0,15%	-0,29	No	1,02%	1,24	no
-3	0,70%	1,33	No	1,71%	2,09	yes
-2	1,17%	2,22	Yes	2,88%	3,51	yes
-1	-0,92%	-1,75	No	1,96%	2,38	yes
0	-0,37%	-0,71	No	1,59%	1,93	no
1	-0,50%	-0,94	No	1,09%	1,33	no
2	0,25%	0,48	No	1,34%	1,64	no
3	-0,15%	-0,28	no	1,20%	1,46	no
4	-0,47%	-0,89	no	0,73%	0,89	no
5	-0,52%	-0,98	no	0,21%	0,26	no
6	0,02%	0,03	no	0,23%	0,28	no
7	-0,26%	-0,49	no	-0,03%	-0,04	no
8	-0,14%	-0,27	no	-0,17%	-0,21	no
9	0,09%	0,17	no	-0,09%	-0,11	no
10	-0,06%	-0,12	no	-0,15%	-0,18	no

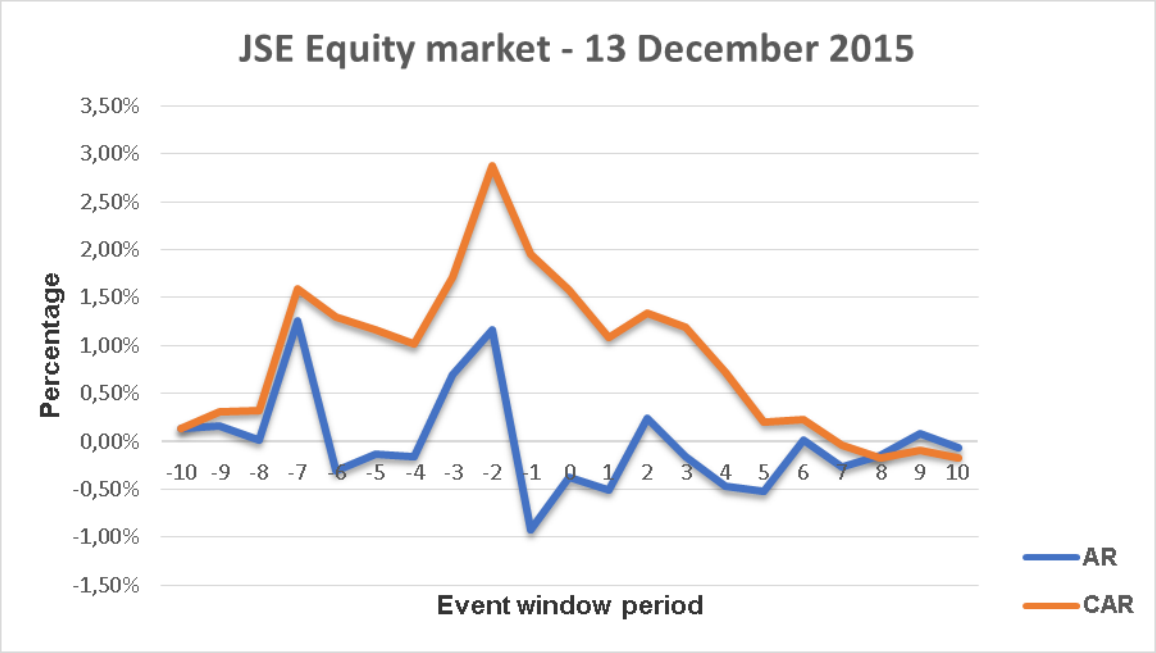


Figure 7. JSE equity market analysis graph.

The results in Table 7 and Figure 7 indicate that, generally, the change in the National Minister of Finance from Des Van Rooyen to Pravin Gordhan had an insignificant negative effect on the performance of the equity market returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results in Figure 7 are not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

There was an insignificant negative abnormal return of -0.37% and insignificant positive CAR of 1,59% on the event day t=0 which is the day after the event which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to

African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

The JSE equity market experienced the highest significant positive AR of 1.26% at t=-7 and the highest significant positive CAR at 2.88% at t=-2 which are days before the event. However, the bond market started to experience insignificant negative abnormal returns after t=-1 which is a day before the event. This volatility before the event day could be as a result of information that was leaked prior to the event announcement. The results depicted in Figure 7 show that the CAR had an upward trend until time t=-2. The JSE equity market started to experience negative significant abnormal returns from t=-1 and the CAR started to have a downward trend. This is an indication that the anticipated change in the National Minister of Finance was not welcomed by the market. The market reaction in Figure 7 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

Table 8. Government bonds market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,01%	0,00	no	-0,01%	0,00	no
-9	0,06%	0,04	no	0,05%	0,02	no
-8	0,10%	0,06	no	0,14%	0,05	no
-7	0,05%	0,03	no	0,19%	0,07	no
-6	-0,01%	-0,01	no	0,18%	0,07	no
-5	-0,04%	-0,02	no	0,14%	0,05	no
-4	-0,10%	-0,07	no	0,04%	0,01	no
-3	-2,42%	-1,59	no	-2,38%	-0,87	no
-2	-5,52%	-3,63	yes	-7,90%	-2,89	yes
-1	1,34%	0,88	no	-6,55%	-2,40	yes
0	0,05%	0,03	no	-6,50%	-2,38	yes

1	0,04%	0,03	no	-6,46%	-2,36	yes
2	0,80%	0,53	no	-5,66%	-2,07	yes
3	0,00%	0,00	no	-5,65%	-2,07	yes
4	1,03%	0,67	no	-4,63%	-1,69	no
5	2,50%	1,64	no	-2,13%	-0,78	no
6	0,00%	0,00	no	-2,13%	-0,78	no
7	-0,01%	-0,01	no	-2,14%	-0,78	no
8	0,01%	0,00	no	-2,14%	-0,78	no
9	-0,01%	0,00	no	-2,15%	-0,78	no
10	0,47%	0,31	no	-1,68%	-0,61	no

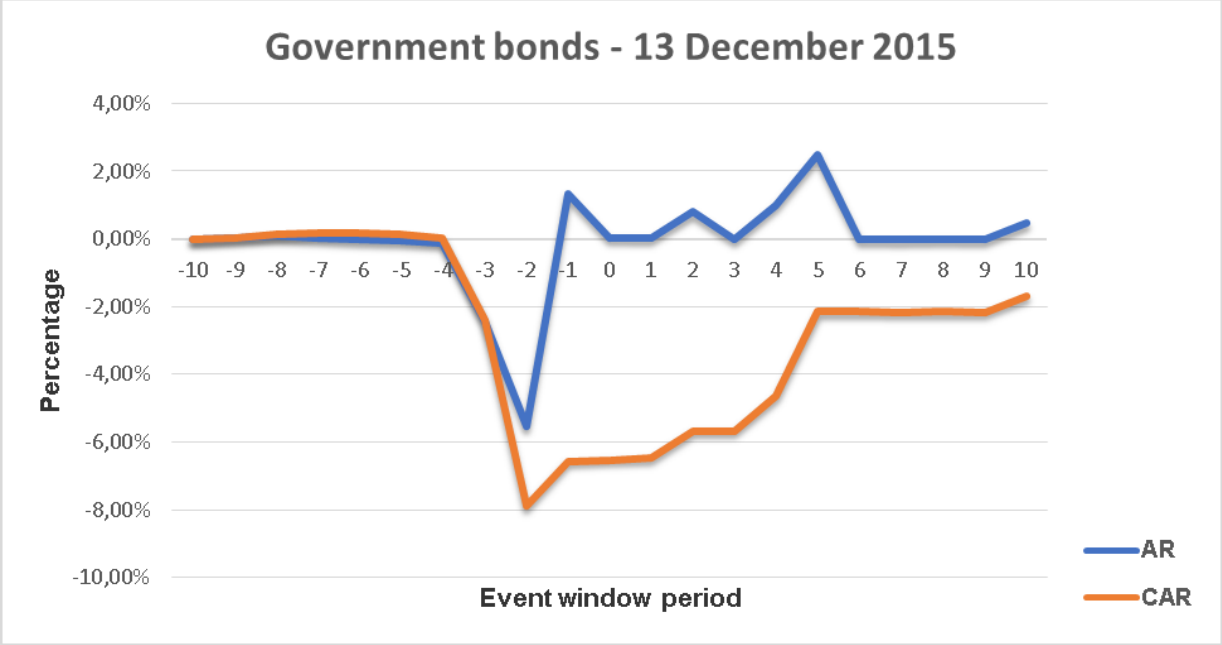


Figure 8. Government bonds market analysis graph.

The results in Table 8 and Figure 8 indicate that, generally, the change of the National Minister of Finance from Des Van Rooyen to Pravin Gordhan had an insignificant negative effect on the performance of the government bonds' yield returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton (1980) which revealed that

fluctuations in market volatility have an impact in market returns (Merton, 1980). The results in Figure 8 are not in consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results depicted in the graph show that there were no bond price movements from t=-10 to t=-3 and the slope was close to zero. The government bonds' yield returns had a negative abnormal return from t=-3 to t=-2. The market started to recover with positive abnormal returns from the day before the event t=-1. There was an insignificant positive abnormal return of 0.05% and a significant negative CAR of -6.5% on the event date which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003), which concluded that the JSE is not weak-form efficient.

The JSE bond market experienced the lowest significant negative AR of -5.52% and the lowest significant negative CAR at -7,9% at t=-2, which is two days before the event. This could be as a result of the information not being leaked prior to the event announcement. The results depicted in Figure 8 shows that the CAR had a slope of almost zero before the event day from t=-10 to t=-4, however, the JSE bond market experienced negative abnormal returns at t=-3 and t=-2 and the CAR started to have a downward trend. The slope of the CAR then started to have an upward trend after t=-1 because the market started to experience positive abnormal returns. This is an indication that the anticipated change in the National Minister of Finance was not welcomed by the market at the beginning, but the market started to accept it after the actual event day.

The market reaction depicted in Figure 8 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to "overreact" to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in

CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

6. 31 March 2017: Pravin Gordhan to Malusi Gigaba.

In this section the reaction of the stock market returns and the government bonds' yield returns to the change in the National Minister of Finance on the 31st of March 2017 former President Jacob Zuma changed the Minister of Finance from Pravin Gordhan to Malusi Gigaba. The results of the JSE stock market analysis can be seen in Table 9 and Figure 9 and the results of the JSE government bonds' yield returns can be seen in Table 10 and Figure 10.

Table 9 and Table 10 represent the AR and the CAR for the 21 days event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 9. JSE equity market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,04%	-0,27	no	-0,04%	-0,12	no
-9	0,07%	0,42	no	0,03%	0,07	no
-8	-0,12%	-0,75	no	-0,09%	-0,26	no
-7	0,03%	0,16	no	-0,07%	-0,19	no
-6	0,01%	0,06	no	-0,06%	-0,16	no
-5	-0,15%	-0,95	no	-0,21%	-0,58	no
-4	0,11%	0,67	no	-0,10%	-0,28	no
-3	0,13%	0,81	no	0,03%	0,08	no
-2	0,21%	1,31	no	0,24%	0,66	no
-1	0,01%	0,08	no	0,25%	0,69	no
0	0,03%	0,20	no	0,28%	0,78	no
1	0,05%	0,30	no	0,33%	0,91	no
2	0,39%	2,47	yes	0,73%	2,01	yes
3	0,20%	1,23	no	0,92%	2,55	yes
4	-0,16%	-1,02	no	0,76%	2,10	yes
5	0,17%	1,04	no	0,92%	2,56	yes

6	-0,17%	-1,08	no	0,75%	2,08	yes
7	-0,16%	-0,97	no	0,60%	1,65	no
8	-0,19%	-1,20	no	0,40%	1,12	no
9	-0,14%	-0,88	no	0,26%	0,73	no
10	0,21%	1,31	no	0,47%	1,31	no

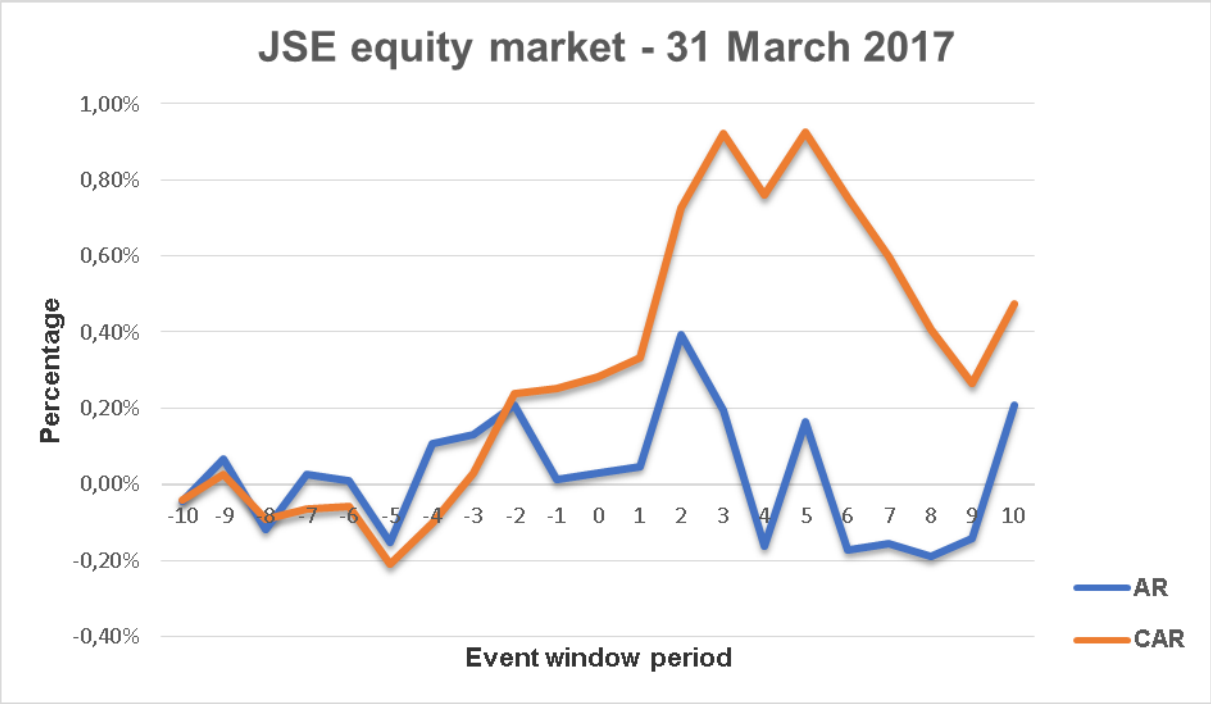


Figure 9. JSE equity market analysis graph.

The results in Table 9 and Figure 9 indicate that, generally, the change of the National Minister of Finance from Pravin Gordhan to Malusi Gigaba had an insignificant positive effect on the performance of the equity market returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact in market returns (Merton, 1980). The results

depicted in Figure 9 are not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

There was a low volatility of equity returns before the event date with the lowest point at t=-5 and highest point at t=-2. There was an insignificant positive abnormal return of 0,03% and insignificant positive CAR of 0.28% on the event day which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE equity market experienced the highest significant AR of 0.39% and the highest significant CAR of 0,73% at t=2 which is two days after the event. The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

The market reaction depicted in Figure 9 during the period after the event day is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR which shows market volatility are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

Table 10. Government bonds market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,01%	-0,01	no	-0,01%	-0,01	no
-9	0,01%	0,02	no	0,00%	0,00	no
-8	0,01%	0,03	no	0,02%	0,01	no
-7	0,10%	0,19	no	0,12%	0,10	no
-6	0,03%	0,05	no	0,15%	0,12	no
-5	-0,19%	-0,35	no	-0,04%	-0,03	no

-4	-0,65%	-1,20	no	-0,69%	-0,55	no
-3	0,00%	0,00	no	-0,69%	-0,55	no
-2	0,02%	0,04	no	-0,66%	-0,53	no
-1	-2,31%	-4,28	yes	-2,98%	-2,38	yes
0	0,00%	0,00	no	-2,98%	-2,37	yes
1	0,00%	0,00	no	-2,98%	-2,37	yes
2	0,20%	0,38	no	-2,77%	-2,21	yes
3	0,01%	0,02	no	-2,76%	-2,20	yes
4	0,12%	0,22	no	-2,64%	-2,11	yes
5	0,00%	0,01	no	-2,64%	-2,11	yes
6	0,01%	0,03	no	-2,62%	-2,09	yes
7	0,34%	0,63	no	-2,29%	-1,82	no
8	0,19%	0,35	no	-2,10%	-1,67	no
9	0,01%	0,01	no	-2,09%	-1,67	no
10	0,10%	0,19	no	-1,99%	-1,58	no

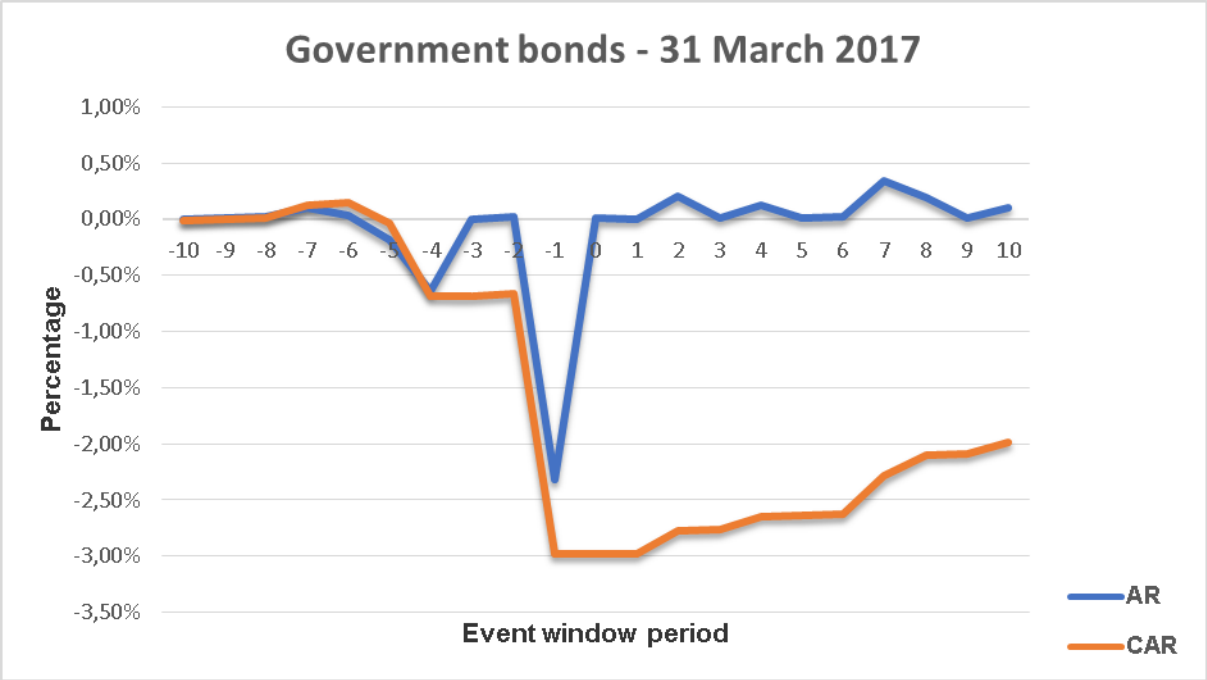


Figure 10. Government bonds market analysis graph.

The results in Table 10 and Figure 10 indicate that, generally, the change in the National Minister of Finance from Pravin Gordhan to Malusi Gigaba had an insignificant negative effect on the performance of the government bonds' yield returns during the event window period at a 95% confidence level. The results are not consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results do not support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact on market returns. The results depicted in Figure 10 are not consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results depicted in the graph show that there was low volatility of the bond price movements from t=-10 to t=-2 and the slope was horizontal. The JSE bond market experienced the lowest significant negative AR of -2,31% and the lowest significant negative CAR at -2,98% at t=-1, which is a day before the event date. This could be as a result of the information not being leaked prior to the event announcement. There was an insignificant positive abnormal return of 0.00% and a significant negative CAR of -2.98% on the event date which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE equity market experienced the highest significant AR of 0.39% and the highest significant CAR of 0,73% at t=2 which is two days after the event. The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

The results depicted in Figure 10 show that the CAR had a slope of almost zero before the event day from t=-10 to t=-2, however, the JSE bond market experienced negative abnormal returns at t=-1 and the CAR started to have a downward trend. The slope of the CAR then started to have an upward trend after t=-1 because the market started to experience positive abnormal returns throughout the remaining event window period days. This is an indication that the anticipated

change in the National Minister of Finance was not welcomed by the market at the beginning but the market started to accept it after the actual event day. The market reaction depicted in Figure 10 is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors act with emotional and cognitive bias and tend to "overreact" to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

7. 27 February 2018: Malusi Gigaba to Nhlanhla Nene

In this section the reaction of the stock market returns and the government bonds' yield returns to the change in the National Minister of Finance is analysed. On the 27th of February 2018 former President Jacob Zuma changed the Minister of Finance from Malusi Gigaba to Nhlanhla Nene. The result of the JSE stock market analysis can be seen in Table 11 and Figure 11 and the results of the JSE bond market can be seen in Table 12 and Figure 12.

Table 11 and Table 12 represent the AR and the CAR for the 21 days event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 11. JSE equity market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,34%	-1,27	no	-0,34%	-0,46	no
-9	-0,34%	-1,27	no	-0,68%	-0,93	no
-8	-0,28%	-1,05	no	-0,96%	-1,31	no
-7	-0,15%	-0,55	no	-1,11%	-1,51	no
-6	0,07%	0,26	no	-1,04%	-1,42	no
-5	-0,20%	-0,74	no	-1,24%	-1,69	no
-4	-0,06%	-0,24	no	-1,30%	-1,77	no
-3	-0,02%	-0,08	no	-1,32%	-1,80	no
-2	0,24%	0,90	no	-1,08%	-1,47	no

-1	-0,09%	-0,34	no	-1,17%	-1,60	no
0	0,09%	0,34	no	-1,08%	-1,47	no
1	-0,29%	-1,07	no	-1,37%	-1,86	no
2	-0,78%	-2,92	yes	-2,15%	-2,93	yes
3	0,24%	0,89	no	-1,92%	-2,61	yes
4	-0,13%	-0,47	no	-2,04%	-2,78	yes
5	-0,40%	-1,49	no	-2,44%	-3,32	yes
6	0,03%	0,12	no	-2,41%	-3,28	yes
7	-0,40%	-1,48	no	-2,80%	-3,82	yes
8	0,13%	0,50	no	-2,67%	-3,63	yes
9	-0,05%	-0,18	no	-2,72%	-3,70	yes
10	0,37%	1,39	no	-2,35%	-3,19	yes

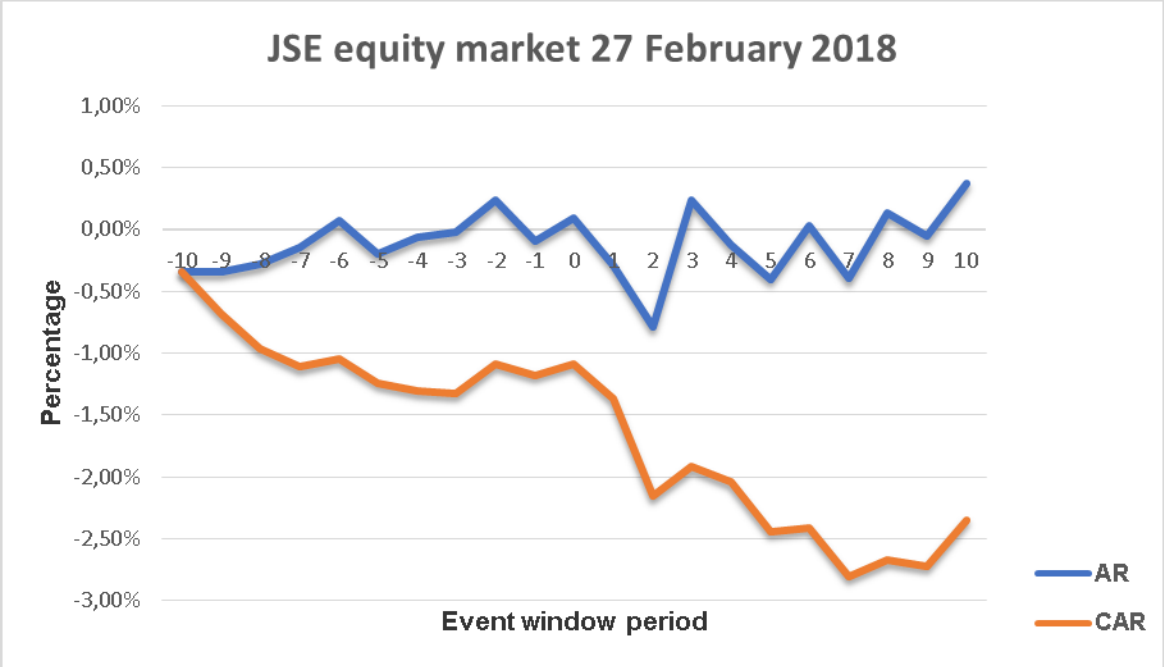


Figure 11. JSE equity market analysis graph.

The results in Table 11 and Figure 11 indicate that, generally, the change in the National Minister of Finance from Malusi Gigaba to Nhlanhla Nene had a significant positive effect on the performance of the equity market returns during the event window period at a 95% confidence

level. The results are consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results depicted in Figure 11 are consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

There was a low volatility of equity returns before the event date but the CAR started to have a downward trend from t=-10. There was an insignificant positive abnormal return of 0,09% and insignificant negative CAR of -1,08% on the event day which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE equity market experienced the highest significant AR of 0.39% and the highest significant CAR of 0,73% at t=2 which is two days after the event. The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Magnusson & Wydick, 2002; Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

The market reaction in Figure 11 is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to "overreact" to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

Table 12. Government bonds market analysis table.

Event window	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	0,03%	0,11	no	0,03%	0,05	no
-9	0,42%	1,79	no	0,45%	0,81	no
-8	0,44%	1,89	no	0,89%	1,61	no
-7	0,11%	0,48	no	1,00%	1,81	no
-6	0,32%	1,38	no	1,32%	2,40	yes
-5	0,68%	2,88	yes	2,00%	3,62	yes
-4	0,15%	0,62	no	2,14%	3,88	yes
-3	-0,27%	-1,14	no	1,88%	3,40	yes
-2	0,06%	0,25	no	1,94%	3,51	yes
-1	-0,05%	-0,21	no	1,89%	3,42	yes
0	0,12%	0,53	no	2,01%	3,64	yes
1	0,10%	0,41	no	2,11%	3,81	yes
2	-0,41%	-1,74	no	1,70%	3,08	yes
3	-0,03%	-0,14	no	1,67%	3,02	yes
4	0,06%	0,27	no	1,73%	3,13	yes
5	-0,01%	-0,05	no	1,72%	3,11	yes
6	0,02%	0,10	no	1,74%	3,15	yes
7	-0,02%	-0,08	no	1,72%	3,12	yes
8	0,07%	0,32	no	1,80%	3,25	yes
9	0,01%	0,06	no	1,81%	3,28	yes
10	-0,04%	-0,15	no	1,78%	3,22	yes

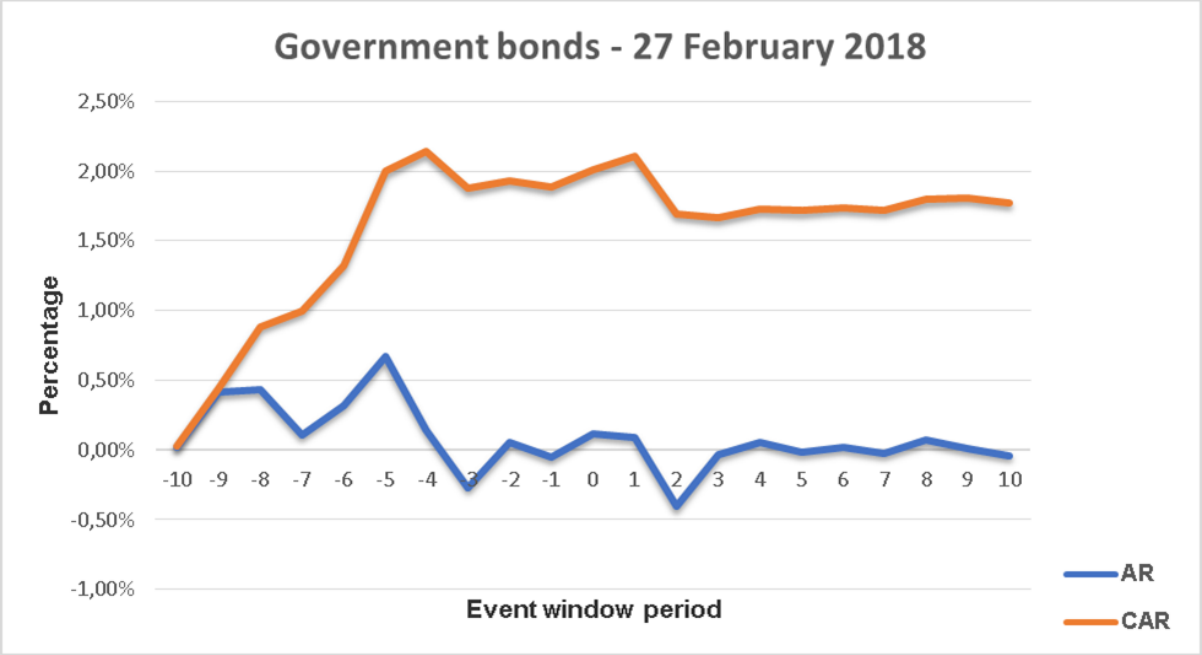


Figure 12. Government bonds market analysis graph.

The results in Table 12 and Figure 12 indicate that, generally, the change in the National Minister of Finance from Malusi Gigaba to Nhlanhla Nene had a significant positive effect on the performance of the government bonds' yield returns during the event window period at a 95% confidence level. The results are consistent with previous research that suggests that the political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact in market returns (Merton, 1980). The results in figure 12 are consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results depicted in the graph show that there was relatively low volatility of the bond price movements throughout the event window period. The JSE bond market experienced the highest significant negative AR of 0,68% at t=-5, which is 5 days before the event date. This could be as a result of the information not being leaked prior to the event announcement. There was insignificant positive abnormal return of 0,12% and a significant positive CAR of 2,01% on the

event date which is not consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952). The JSE equity market experienced the highest significant AR of 0.39% and the highest significant CAR of 0,73% at t=2 which is two days after the event. The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Magnusson & Wydick, 2002; Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by (Appiah-Kusi & Menyah, 2003) which concluded that the JSE is not weak-form efficient.

The results depicted in Figure 12 shows that the CAR had an upward slope before the event day from t=-10 to t=-5. From t=-6 until the end of the event window period, the AR and CAR had a slope of almost zero The market reaction depicted in Figure 12 is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

8. 09 October 2018: Nhlanhla Nene to Tito Mboweni

In this section the reaction of the stock market returns and the government bonds’ yield returns to the change in the National Minister of Finance is analysed. On the 09th of October 2018 the then newly elected president, Cyril Ramaphosa, changed the Minister of Finance from Nhlanhla Nene to Tito Mboweni as part of his announcement of cabinet members after the elections. The results of the JSE stock market analysis can be seen in Table 13 and Figure 13 and the results of the JSE bond market can be seen in Table 14 and Figure 14.

Table 13 and Table 14 represent the AR and the CAR for the 21 days event window period from t=-10 to t=10, relative to the cautionary announcement date t=0. The pre-cautionary announcement period is t=-10 to t=-1, while t=1 to t=10 is the post-cautionary announcement period. The day before the cautionary announcement is t=-1, while the day after the cautionary announcement is t=1.

Table 13. JSE equity market analysis table.

	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	-0,58%	-3,65	yes	-0,58%	-2,06	yes
-9	0,09%	0,27	no	-0,50%	-1,75	no
-8	0,00%	0,01	no	-0,49%	-1,74	no
-7	-0,17%	-0,55	no	-0,67%	-2,35	yes
-6	0,18%	0,55	no	-0,49%	-1,74	no
-5	0,20%	0,62	no	-0,30%	-1,05	no
-4	-0,16%	-0,49	no	-0,45%	-1,60	no
-3	-0,27%	-0,84	no	-0,72%	-2,54	yes
-2	-0,08%	-0,26	no	-0,80%	-2,83	yes
-1	0,33%	1,03	no	-0,48%	-1,68	no
0	0,64%	2,00	yes	0,16%	0,56	no
1	-0,81%	-2,55	yes	-0,65%	-2,30	yes
2	-0,03%	-0,09	no	-0,68%	-2,39	yes
3	0,24%	0,75	no	-0,44%	-1,56	no
4	-0,30%	-0,95	no	-0,74%	-2,62	yes
5	-0,03%	-0,09	no	-0,77%	-2,72	yes
6	0,14%	0,45	no	-0,63%	-2,21	yes
7	-0,20%	-0,63	no	-0,83%	-2,92	yes
8	0,04%	0,12	no	-0,79%	-2,79	yes
9	-0,16%	-0,50	no	-0,95%	-3,34	yes
10	-0,38%	-1,20	no	-1,33%	-4,68	yes

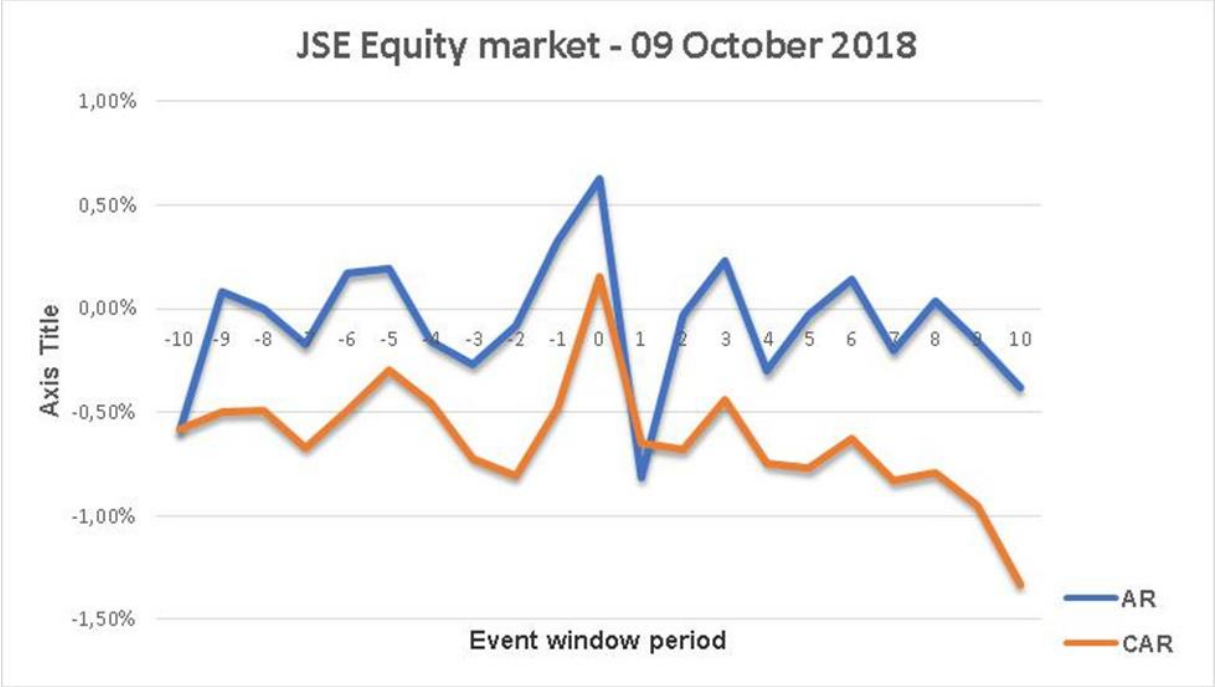


Figure 13. JSE equity market analysis graph.

The result in Table 13 and Figure 13 above indicate that, generally, the change in the National Minister of Finance from Nhlanhla Nene to Tito Mboweni had a significant negative effect on the performance of the equity market during the event window period at a 95% confidence level. The results are consistent with previous research that suggests that political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is no political event. Hence it can be said that political changes do amplify market volatility (Chan & Wei, 1996b). The results support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact in market returns (Merton, 1980). The results depicted in Figure 13 are consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

There was a low insignificant volatility of equity returns before the event date. There was a significant positive abnormal return of 0,64% on the event day which is the highest positive AR in the event window period and it is consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information

(Malkiel & Fama, 1970; Markowitz, 1952). There was a significant negative abnormal return of -0.81% after the event date which is the lowest abnormal return in the event window period. The JSE market reaction is not consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Magnusson & Wydick, 2002; Smith et al., 2002) and found the JSE to be weak-form efficient but consistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

This can be interpreted as an indication that the market was confused by this change in the National Minister of Finance because it was less than a year since president Cyril Ramaphosa had a cabinet reshuffle that resulted in Nhlanhla Nene being appointed as the Minister of Finance. Tito Mboweni came highly recommended because he was the former governor of the South African Reserve bank (SARB) but the equity market was not stable because this change was not expected. The market reaction depicted in Figure 13 is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to "overreact" to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

Table 14. Government bonds market analysis table.

	AAR	T-STAT	AR significant?	CAAR	T-STAT	CAR significant?
-10	0,00%	0,00	no	0,00%	0,00	no
-9	0,01%	0,20	no	0,01%	0,08	no
-8	-0,02%	-0,39	no	-0,01%	-0,08	no
-7	-0,01%	-0,33	no	-0,02%	-0,22	no
-6	0,02%	0,48	no	0,00%	-0,02	no
-5	0,04%	0,88	no	0,04%	0,36	no
-4	-0,03%	-0,67	no	0,01%	0,07	no
-3	-0,04%	-1,03	no	-0,04%	-0,37	no
-2	0,00%	0,05	no	-0,03%	-0,35	no
-1	0,06%	1,52	no	0,03%	0,30	no
0	0,01%	0,21	no	0,04%	0,40	no

1	0,03%	0,79	no	0,07%	0,73	no
2	0,02%	0,42	no	0,09%	0,91	no
3	0,03%	0,73	no	0,12%	1,23	no
4	0,10%	2,38	yes	0,22%	2,24	yes
5	-0,01%	-0,14	no	0,21%	2,19	yes
6	-0,02%	-0,48	no	0,19%	1,98	yes
7	-0,04%	-0,99	no	0,15%	1,56	no
8	0,04%	0,88	no	0,19%	1,94	no
9	0,08%	1,87	no	0,27%	2,74	yes
10	-0,08%	-1,82	no	0,19%	1,96	yes

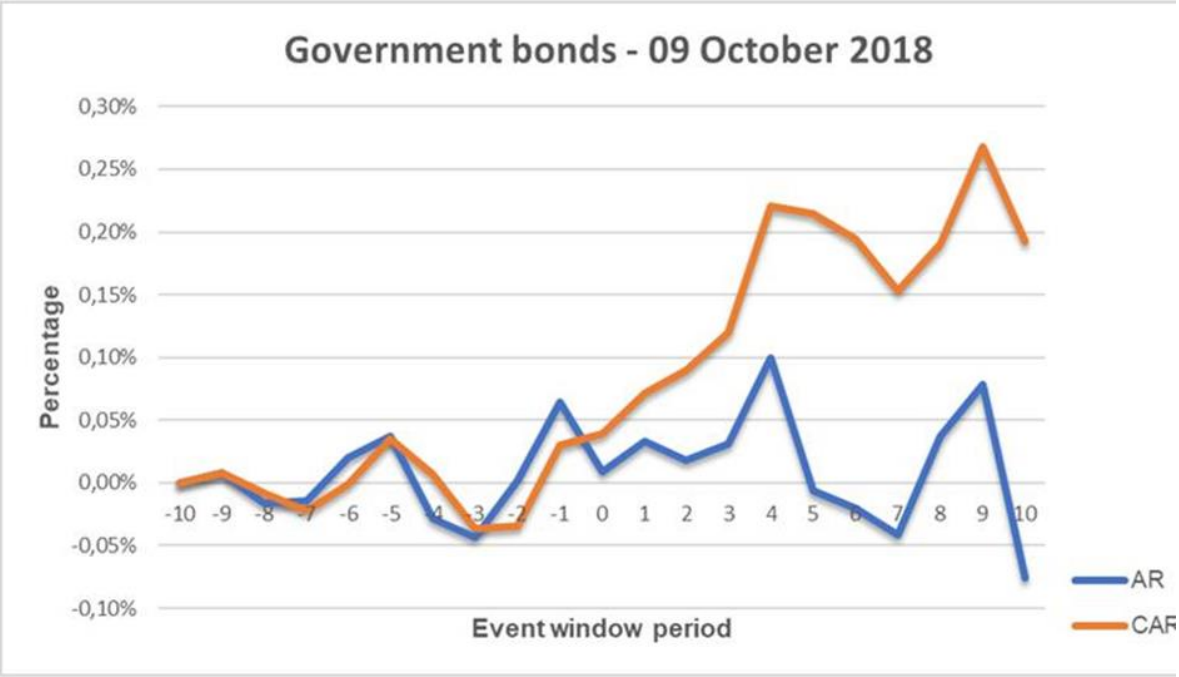


Figure 14. Government bonds market analysis graph.

The results in Table 14 and Figure 14 indicate that, generally, the change in the National Minister of Finance from Nhlanhla Nene to Tito Mboweni had a significant positive effect on the performance of the government bonds' yield returns during the event window period at a 95% confidence level. The results are consistent with previous research that suggests that political uncertainty creates economic uncertainty, which increases investors' risk status and therefore there is a higher level of volatility when there are political events taking place than when there is

no political event. Hence it can be said that political changes do amplify market volatility Chan & Wei, 1996b). The results support research done by Merton (1980) which revealed that fluctuations in market volatility have an impact on market returns (Merton, 1980). The results depicted in Figure 14 are consistent with research done on uncertain information hypothesis (UIH) by Brown, Harlow, and Tinic (1988; 1993) which predicts that the arrival of significant uncertain information affects the risks and expected returns of the impacted securities (Brown et al., 1993; Brown et al., 1988).

The results depicted in the graph show that there was low volatility of the bond price movements from t=-10 to t=-2. This could be as a result of the information not being leaked prior to the event announcement. There was insignificant positive abnormal return of 0.01% and an insignificant positive CAR of 0.04% on the event date which is consistent with EMH which assumes that financial markets incorporate all public information and asserts that share prices reflect all relevant information (Malkiel & Fama, 1970; Markowitz, 1952)1970. The JSE market reaction is consistent with the majority of studies relating to market efficiency with respect to African stock markets that have been conducted on the JSE (Magnusson & Wydick, 2002; Smith et al., 2002) and found the JSE to be weak-form efficient but inconsistent with studies done by Appiah-Kusi and Menyah (2003) which concluded that the JSE is not weak-form efficient.

The results depicted in Figure 14 show that the CAR had a horizontal slope before the event day from t=-10 to t=-2, however, the JSE bond market experienced positive abnormal returns from t=-1 and the CAR started to have an upward trend. This is an indication that the anticipated change in the National Minister of Finance was not welcomed by the market at the beginning but the market started to accept it after the actual event day. This could probably be as result of the ability of the new National Minister of Finance to drive the needed change in the country because he has experience from being the governor of the SARB. The market reaction depicted in Figure 14 is consistent with previous literature on behavioural Finance which suggests that capital markets are not altogether efficient markets and price changes are completely random and unpredictable because most people and investors tend to “overreact” to unexpected and dramatic news events because they overweight recent information and underweight prior data. The upward and downward trends in CAR are consistent with behavioural Finance which assumes that people act with emotional and cognitive bias to the arrival of new information (Fakhry, 2016).

9. Summary of the results

The objective of this study was to investigate capital market reaction to changes in the National Minister of Finance in South Africa. The t-statistic test shows that for all seven events, six abnormal returns of the JSE equity market returns were statistically insignificant and 100% abnormal returns of the JSE government bonds' yield returns were statistically insignificant on the event date. The t-statistics also shows that four cumulative abnormal returns of the JSE equity market returns were statistically insignificant and five cumulative abnormal returns of the JSE government bonds' yield returns were statistically insignificant. This finding implies that the JSE market views the changes in the National Minister of Finance as inconsequential, since the market rebounded and stabilised immediately. There is an immediate significant market reaction, but the market stabilizes within few days after the event.

Chapter 5: Conclusion

In this chapter a summary of key data findings is provided, as well as conclusions drawn from the findings and recommendations based on the findings. The conclusions and recommendations drawn were in quest of addressing research objectives of establishing the capital market reaction to changes in the National Minister of Finance in South Africa. The chapter concludes with a discussion of the limitations of this study and suggestions for further research are made.

5.1 Summary of the findings

The main goal of this research study was to investigate the capital market reaction to changes in the National Minister of Finance in South Africa over a selected ten-year period, namely from 2009 to 2018. The t-statistic test shows that the equity market returns, and the government bonds' yield returns can react insignificantly or significantly to changes in the National Minister of Finance on the event day and cumulatively during the event window period. From the results, it can be concluded that the overall capital market reaction to changes in the National Minister of Finance can be negative or positive depending on the time and circumstances surrounding the event and the information made by these changes is useful for valuing the securities in the markets. It can be observed from all the results that the capital market does react to changes in the National Minister of Finance before the event, during the event or post the event and it affects the performance of the securities. Therefore, investors should not overlook these events although the capital market does not price the information contained in some of the changes in the National Minister of Finance.

The JSE equity market is highly volatile before the event in anticipation of the change in the National Minister of Finance compared to the government bonds' yield returns which are relatively constant before the event. Volatility negatively affects the processing of transactions in the market place and impedes the buying and selling of securities by instilling fear in investors as well as destroying infrastructural facilities. This is depicted in the sharp decline of the abnormal returns during the post event period in the event window period of the study. The cumulative abnormal returns exhibited an increasing or decreasing trend in the periods prior to the announcement and a sharp increase after the announcement and vice versa. This shows that the market absorption of the information sometimes happens before the event when the market is anticipating the change and sometimes it happens in the long run period after the announcement.

5.2 Recommendations

The government through the Capital Markets Authority should enact policies aimed at cushioning the market from political interferences. The policies should be aimed at encouraging more local investors into the securities exchange. The investors should carefully analyse whether to hold or sell stocks and government bonds after the changes in the National Minister of Finance.

A portfolio held during the period need to be carefully considered in order to save the investors from losses culminating from herd behaviour in the securities market when there is a change in the Minister of Finance. Investors should carefully plan and carry out investments during and after the periods of a change in the National Minister of Finance as the returns could be affected either positively or negatively during that period. Investors can devote a certain portion of money to invest in stocks and government bonds before and another in stocks and government bonds after the change. Many investors simply invest or sell stocks and government bonds after a change in the National Minister of Finance based on what the media is saying about the event. However, this is not the best option as expanding one's mindset about what will happen in the future may lead to discovery of high returns or excessive losses in the long run.

Firms planning to raise capital from the securities exchange should similarly carefully analyse the market to ensure that the timing is right. Otherwise it may coincide with a bearish market trend at the JSE.

5.3 Limitations of the study.

The results of this study may be limited due the following factors:

1. The share price movement may reflect responses to information beyond a change in the National Minister of Finance. Other factors that ought to have been considered in the study are cash flows, gearing ratio, asset base, growth opportunities, liquidity and dividend pay-outs which were not considered when estimating the returns. These factors account for the unexplained element in the regression model. These factors were not isolated during the research and could have moderated the results of this study.

2. The sample of companies and government bonds used may not be representative of the population in the market.

3. Macroeconomic performance such as inflation, shilling depreciation and global financial crisis might have also moderated the effect of these returns. Unfortunately, these moderating factors could not be isolated in the study owing to difficulty in doing so.
4. Investor behavioural biases may also have come into effect during the study period. These include issues of capital flights by investors unsure of the policies to be implemented by the new Minister of Finance. These behavioural biases however were not considered during the study and may also have a moderating effect on the results of these findings.

5.4 Suggestion for further research

The researcher suggests that further studies could be done to analyse the capital market reaction to changes in the National Minister of Finance in a longer event window to identify how favourable a certain government's economic and financial policies were to investors.

The study put more emphasis on the effects of changes in the National Minister of Finance on the capital market, thus further studies should examine how other political events such as National presidential elections affect the performance of the JSE equity market and JSE government bonds' yield returns. Further research could be done to analyse the performance of corporate bonds to changes in the National Minister of Finance.

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