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MMFI Research Report

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The Effect of Analysts' Stock Recommendations on Shares' Performance on the JSE Securities Exchange in South Africa

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Abstract

Individual investors often do not have access to share trading information and even if they do, they may not be able to understand or accurately interpret this information. Investors rely on financial analysts' forecasts and stock recommendations in order to make profitable investment decisions. The role of the financial analyst is an important one with two key objectives: earnings forecasts and stock recommendations (Loh and Mian 2006). These financial analysts play a significant role in the efficient functioning of global stock markets.

The aim of the financial analyst is to evaluate shares trading on the stock market and their future price appreciation or depreciation to develop new buy, hold or sell recommendations to maximize shareholder wealth. The extant literature recognizes that new buy, hold and sell recommendations made by financial analysts have a substantial impact on the market (Womack, 1996). Research on financial analysts has become prevalent in financial literature with the promotion of financial analysts to the level of integral economic proxies worthy of individual examination (Bradshaw, 2011).

The aim of this research report is to investigate whether financial analysts' stock recommendations enhance or destruct shareholder wealth. The extant literature on financial analysts' stock recommendations and forecasts suggests that the analysts' recommendations have both a significant and an insignificant effect on stock prices in the market following the months after the change in recommendation is made. The accuracy of the financial analysts' stock recommendations are measured in the months following the change in recommendation through determining if the recommendation outperforms the market benchmark.

This report examines the effects of analysts' recommendations on the performance of stocks on the Johannesburg Stock Exchange and concludes through determining if the share underperforms or

outperforms the market benchmark surmising that to a varying degree there is value to be found in financial analysts' stock recommendations for the individual investor.

Declaration

I, Alessandra Piyackis, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Finance and Investment at the University of the Witwatersrand, Johannesburg. This research report has not been submitted before for any degree or examination in this or any other university.

_____

Alessandra Piyackis

Signed at Parktown on the _____ day of _____ 2015

Dedication

This research report is dedicated to my parents Patricia and Emmanuel Piyackis for affording me the opportunity and privilege of education, as well as their constant unwavering support throughout this challenging process. Without their continuous guidance and encouragement this would not have been possible.

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List of Tables

Table 1: Descriptive Statistics Illustrating Stock Returns and Market Index Returns on the JSE

Table 2: Performance of New Buy Recommendations on the JSE from January 2003 to December 2013

Table 3: Performance of New Hold Recommendations on the JSE from January 2003 to December 2013

Table 4: Performance of New Sell Recommendations on the JSE from January 2003 to December 2013

List of Graphs

Graph 1: Graph Showing the Performance of the Abnormal Returns for New Buy Recommendations

Graph 2: Graph Showing the Performance of the Cumulative Abnormal Returns for New Buy Recommendations

Graph 3: Graph Showing the Performance of the Abnormal Returns for New Hold Recommendations

Graph 4: Graph Showing the Performance of the Cumulative Abnormal Returns for New Hold Recommendations

Graph 5: Graph Showing the Performance of the Abnormal Returns for New Sell Recommendations

Graph 6: Graph Showing the Performance of the Cumulative Abnormal Returns for New Sell Recommendations

Table of Contents

Abstract i

Declaration iii

Dedication iv

Acknowledgements v

List of Tables vi

List of Graphs vii

Chapter 1: Introduction 1

1.1 Introduction 1

1.2 Context of study 1

1.3 Research problem 4

1.4 Research questions 8

1.5 Research objectives 8

1.6 Significance of the study 9

1.7 Organization of thesis 9

Chapter 2: Literature Review 10

2.1 Introduction 10

2.2 The role of the financial analyst 10

2.3 The value of financial analysts' stock recommendations and forecasts 12

2.4 Financial analysts and behavioural finance 13

2.5 Market efficiency 14

2.6 Chapter summary 16

Chapter 3: Research Methodology 17

3.1 Introduction 17

3.2 Data and data sources 17

3.3 Research design 18

3.3.1 Calculating returns 19
3.3.2 The benchmark for expected returns 19
3.3.3 Calculating abnormal returns 19
3.3.4 Calculating cumulative abnormal returns 20
3.4 Chapter summary 21
Chapter 4: Results Discussion 22
4.1 Introduction 22
4.2 Descriptive statistics 22
4.3 Performance of analysts' recommendations 24
4.4 Chapter summary 30
Chapter 5: Discussion and Conclusion 31
5.1 Introduction 31
5.2 Findings 31
5.3 Conclusion 32
5.4 Recommendations for future research 33
Reference List 35

Chapter 1: Introduction

1.1 Introduction

This chapter is organized as follows. Section 1.1 introduces the research problem followed by section 1.2 which examines the context of the study. Section 1.3 discusses the research problem. Section 1.4 defines the research questions and section 1.5 debates the significance of the study. Finally, section 1.6 concludes with the organization of the thesis.

1.2 Context of study

Described as the eyes and ears of the market (Martinez 2008) the role of the financial analyst focusses largely on the production of earnings forecasts and stock recommendations. The value of the financial analyst is derived from their stock picking abilities and aptitude to accurately assess current market trends resulting in favourable returns for the investor based on new buy, sell or hold recommendations (Loh and Mian, 2006). Financial analysts' forecasts and stock recommendations aim to provide investors with significant market information in anticipation of increased future cash flows. The extant literature draws on a number of issues relating to the role of financial analysts in the stock market. These issues relate to: one, the financial analysts ability to predict the future performance of the stock. Two, the analysts' conflict of interest and the role of incentives in financial analysts' work, and three, the stock market's reaction to financial analysts' stock recommendations.

Marsden, Veeraraghavan and Ye (2008) suggest financial analysts typically review all financial and economic information provided by companies and spend a substantial amount of time and effort on forecasting and providing future stock recommendations to individual investors. Despite the effort placed on the assessment of all available market information by the analyst, it is not always possible to obtain

and accurately examine all of the information accessible in the market before proposing new buy, hold or sell recommendations (Marsden, Veeraraghavan & Ye, 2008).

Financial markets are assumed to be information efficient allowing analysts to produce accurate forecasts and recommendations, but not efficient to the extent that all available information is reflected in the stock price refuting the role of the financial analyst in the market. Should prediction error occur and result negatively upon the individual investor, the debate continues whether this inaccuracy is made unintentionally based upon incorrect market information or whether there is an evident conflict of interest impacting the output of the financial analyst in question.

There has been increasing attention from researchers and investors on the possible bias surrounding financial analysts' forecasts and stock recommendations. Schipper (1991) refers to the purposeful sway of market data in the direction of new buy, hold or sell recommendations as positive forecast bias suggesting that financial analysts' forecasts and stock recommendations are influenced heavily by financial incentive. Marsden, Veeraraghavan and Ye (2008) suggest that financial analysts are aware that their forecasts and stock recommendations may be biased upwards in order to issue optimistic results to meet and service the needs of brokerage firms to maintain positive relationships with the firms they report on. It is therefore assumed that financial analysts' provide recommendations to investors in support of a particular stock not because of its potential growth factor, but because they have received financial incentive in favour of a particular recommendation. This type of bias could result negatively upon the reputation and legitimacy of the financial analyst should it be uncovered.

Financial analysts need to maintain their reputation to uphold investor confidence and report truthful results based on all available market information (Cheng, Liu and Qian, 2006). The need for accurate stock recommendations remains as research demonstrates that financial analysts exert a great influence on

stock prices indicating that superior stock recommendations outperform inferior stock recommendations as discussed by Loh and Mian (2006).

The extant literature examines the proficient processing of information by the financial analyst in the market and shows that it facilitates efficient stock price setting as discussed by Mokoaleli-Mokoteli, Taffler and Agarwal (2009) and Beaver (2002). The reaction of the market to financial analysts' stock recommendations suggests that financial analysts are significant in the efficient functioning of stock markets (Mokoleli-Mokoteli, Taffler and Agarwal 2009). The stock recommendations made by financial analysts affect investor sentiment resulting in buy, hold and sell motions by the individual investor dependent on the stock recommendation made by the financial analyst. The assessment of the accuracy and effect of these results is necessary due to the role played by the financial analyst in the market and the impact their recommendations have on investors and stock prices.

Investors rely on market information provided by financial analysts' in the form of forecasts and stock recommendations to make their investment decisions. It is therefore imperative that these forecasts and stock recommendations are accurate. Given the amount of compensation received by financial analysts, one could safely assume that their outputs are considered accurate and beneficial to investors, but are they? Mokoaleli-Mokoteli, Taffler and Agarwal (2009) discuss the possibility that there is a loss of neutrality by the analyst in stock coverage decisions and forecasts based upon salary structure and incentives.

Financial analysts are rewarded handsomely for profitable stock recommendations by firms. The typical remuneration package received by a financial analyst is defined by Mokoaleli-Mokoteli, Taffler and Agarwal (2009) and includes a base salary, a percentage of the investment deals processed and the trading volume generated. This inflated compensation structure may result in bias driven by self-gain and a lack of objectivity by the financial analyst. Hong and Kubik (2003) found that financial analysts are judged less

on the accuracy of their forecasts and stock recommendations suggesting that the compensation received by the financial analyst is therefore not necessarily based on the quality and legitimacy of their research but rather the preferred impact their results have on the market.

Mokoaleli-Mokoteli, Taffler and Agarwal (2009) address concerns surrounding the accuracy of financial analyst's earnings forecasts and stock recommendations appearing overly optimistic and not reflective of the factual performance of the stock's value. Mokoaleli-Mokoteli, Taffler and Agarwal (2009) elaborate the claims that financial analysts' forecasts and stock coverage results are predetermined recommendations driven by incentives. Bradshaw (2011) adds to this through his research suggesting that financial analysts' behaviour in the market is dominated by conflicts of interest such as monetary remuneration and not the accurateness of their results.

There are a number of predefined factors that affect the accuracy of financial analysts' stock recommendations and forecasts. The aim of this report is to investigate whether financial analysts' recommendations in emerging markets like South Africa create value for investors. Thus, do buy recommendations outperform the benchmark in the foreseeable future, and do sell recommendations underperform the benchmark in the foreseeable future?

1.3 Research problem

The most precise way in which to understand the role of financial analysts in the market is to examine the outputs provided by these analysts to the market and investors. Financial analysts examine market trends to provide investors with accurate stock recommendations and forecasts. Loh and Mian (2006) found that the financial analysts that issue the most accurate forecasts deliver more profitable stock recommendations. Financial analysts gather and evaluate large amounts of economic and financial data based on a number of stocks by examining their inherent values relative to their current market price. These results are then used to rate the investment probability of each stock to produce accurate stock

recommendations by financial analysts to benefit the individual investor (Jegadeesh, Kim, Krische & Lee, 2001).

Investors are defined in nature by their investment objectives and strategies which are determined by risk adversity, time period, liquidity needs as well as tax implications. Investors make use of available market information and financial analysts' forecasts and stock recommendations to plot profitable investment strategies in anticipation excess returns. Investors often do not have access to stock related information, and even if they do, they may not be able to understand or accurately interpret this information. These investors may also not have access to the monetary outlay required to acquire necessary market information and therefore follow the stock recommendations of financial analysts with reputational confidence. The dependence of the investor on financial analysts' forecasts and recommendations means that they should be as accurate as possible.

Stock recommendations and forecasts by financial analysts are said to be efficient if they include all information available to the analyst in the market (Bradshaw 2011). However, in the recent past, research has observed that both financial analysts' recommendations and forecasts are not always accurate and tend to be misleading to shareholders. Brown (1993) discusses the importance of better understanding the decision processes of financial analysts and the role of analysts' forecasts and information processing in formulating stock recommendations. It is debatable whether analysts' recommendations and forecasts are misleading because analysts are unethical or because predicting the future is difficult and no one can do it accurately.

The problem is that although there is a lot of research carried out on financial analyst's recommendations, there is a dearth of literature in emerging markets such as South Africa and we still do not know how the Johannesburg Stock Exchange (JSE) responds to financial analysts' stock recommendations. It is important to understand the effect financial analysts' new stock recommendations have on stock exchanges as

Barber *et al.* (2001) argue that investors can yield favourable returns from publicly available stock recommendations made by financial analysts. It is worth investigating whether investors in South African stocks listed on the JSE do actually benefit from analysts' stock recommendations and yield more profitable returns based on analysts' stock picking abilities as the literature may suggest.

One of the biggest difficulties facing the investor as defined by Morgen and Stocken (2003) makes reference to the motives of the financial analyst issuing stock recommendations and the transparency of information provided. Research has continued to provide evidence that there is a positive correlation between analysts' stock recommendations and stock price in the long-term, but there has been no certainty provided that it is profitable to act upon financial analysts' forecasts and stock recommendations as defined by Womack (1996).

The accuracy of financial analysts' earnings forecasts and the efficacy of their stock recommendations continues to be questioned as Altinkilic, Balashov and Hansen (2013) claim that the announcement of analysts' forecasts in the market results in little new information being introduced. These assumptions debunk the common belief that financial analysts are important market intermediaries (Loh and Mian, 2006). Most of the research conducted on the role of financial analysts' and their ability to provide investors with accurate forecasts and stock recommendations has focused on an American, Asian or European environment (Womack, 1996; Loh and Mian, 2006; Cheng, Liu and Qian, 2006; and Schipper, 1991) with very little research focussing on the emerging African markets. Would events in emerging market economies be considered similar to market trends in developed markets or would they be considered separate due to the perception of isolated behaviour in these emerging market economies. It makes one wonder whether financial analyst's behaviour is the same all over the world, and if their output in terms of earnings forecasts and stock recommendations should be taken with a pinch of salt.

The recent bankruptcy of African Bank Investments Limited (Abil) in South Africa is a case in point. South Africa's largest unsecured lender's share price plummeted in March 2014 when it announced interim financial losses of between R3.1bn and R3.3bn on the back of a rights issue it held in December 2013 raising approximately R5.5bn from shareholders which many believed would save African Bank Investments Limited from the possibility of bankruptcy. (http://www.bdlive.co.za/business/financial/2014/05/06/how-capitec-finbond-pulled-away-from-abil accessed 24th October, 2014).

Strangely, early in 2014, some financial analysts perceived Abil shares as a 'strong buy' implying that there was strong potential value seen for future stock returns. Although there had been a downward pressure on the shares of African Bank, not a single financial analyst rating the stock in Bloomberg had a 'sell' recommendation on the share. In fact, about three financial analysts rated African Bank 'overweight', another three 'outperform', one had a 'neutral' and three financial analysts recommended a new 'buy' position (http://africanbank.investorreports.com/abil-capitec-shares-remain-attractive-says-analysts/ accessed 28th October, 2014). Despite the glaring financial problems encountered by Abil the overwhelming majority of financial analysts were recommending that investors should buy African Bank shares. As the Abil share price nosedived, one of these analysts, Peter Mushangwe commented 'I think it's just sentiments around the unsecured lending'. An Imara SP Reid analyst Steve Meintjies, said that 'the prices right now are very attractive' referring to both Abil and Capitec's share price in June 2014 (http://africanbank.investorreports.com/abil-capitec-shares-remain-attractive-says-analysts/ accessed 28th October, 2014).

The issue that has arisen on the back of the African Bank catastrophe is with the 'expertise' and resources that financial analysts have, why are they not able to accurately predict future share performances of stocks? We expect that financial analysts are privy to all available market information and through the examination of this information would be able to make accurate stock recommendations that would

benefit investors. It therefore appears that financial analysts are not able to continuously predict the future performance of stocks and are prone to the same heuristics and biases as the individual investor resulting in decreased profit as discussed by Jegadeesh (2004).

Regardless of the new buy, hold or sell recommendations made by financial analysts, the worth and the determination of the need for financial analysts is determined by their ability to assist investors in earning excess market returns based on their forecasts and recommendations in the financial market place.

1.4 Research questions

In order to assess the accuracy of financial analysts' stock recommendations, this study focuses on three primary research questions in order to determine the accuracy of these stock recommendations issued by financial analysts and how these stocks perform on the back of financial analysts' recommendations. The following questions are derived from the research problem previously discussed.

- Do financial analysts new buy recommendations outperform the benchmark in the subsequent period after the change is made?
- Do analysts new sell recommendations underperform the benchmark in the subsequent period after the change is made?
- Do analysts buy and sell recommendations destruct or create value for investors?

1.5 Research objectives

The objective of this study is to determine if new buy recommendations from financial analysts outperform the industry benchmark in the period following the change, do these new sell recommendations underperform the benchmark in the period subsequent to the change and finally, do financial analysts buy and sell recommendations destruct or create value for individual investors resulting in wealth creation for shareholders.

1.6 Significance of the study

This study aims to add value to the extant literature available regarding the accuracy of financial analysts' forecasts and stock recommendations from a South African perspective. South Africa is considered the economic capital of Africa and offers investors a multitude of investment incentives and opportunities. This study is relevant for a number of reasons: firstly, most research on the accuracy of financial analysts' forecasts and stock recommendations relates to the United States, Asian and European markets with little research produced from markets outside of these regions and two, there has been and remains little research applied to the effects of financial analysts' stock recommendations in emerging market economies such as South Africa.

The Johannesburg Stock Exchange (JSE) - the largest traded exchange in Africa formed in 1887 and ranks 19th globally as one of the largest stock exchanges based on market capitalization and is the largest securities exchange in Africa. The Johannesburg Stock Exchange offers investors access to efficient primary and secondary capital markets across an assorted range of financial securities and is regulated accordingly by post-trade and supervisory services (http://jse.co.za accessed 5th November, 2014).

This report will benefit individual investors trading stocks in the South African market to better understand the value of financial analysts' forecasts and stock recommendations and to determine whether there is value found in adhering to these recommendations and developing investment strategies.

1.7 Organization of thesis

The remainder of this paper is organized as follows: Chapter 2 presents the extant literature on financial analysts and their role within capital markets. Chapter 3 discusses the research methodology used in this report. Chapter 4 presents the results. Chapter 5 concludes the report with a discussion of the results and the paper.

Chapter 2: Literature Review

2.1 Introduction

This chapter discusses the extant literature on stock recommendations and forecasts made by financial analysts. The chapter is organized as follows: section 2.2 discusses the role of the financial analyst. Section 2.3 presents the performance of analysts' stock recommendations and forecasts. Section 2.4 illustrates the accuracy of financial analysts' stock recommendations and forecasts. Section 2.5 discusses financial analysts and behavioural finance. Section 2.6 presents the idea of market efficiency and chapter summary concludes.

2.2 The role of the financial analyst

The increasing popularity of stock markets in emerging market economies together with increased participation in these markets by individual investors has seen an increase in the production and consumption of financial information and literature. Share trading information is presented to investors by financial analysts in the form of earnings forecasts and new buy, hold and sell stock recommendations.

The role of the financial analyst is to gather data focused on a company or industry and analyse market trends to provide investors with accurate earnings forecasts resulting in profitable stock recommendations (Loh & Mian, 2006). Financial analysts make use of all available information referencing quantitative behavioural trends as well as internal and external factors that may influence a stock in order to provide sound investment forecasts and asset allocation recommendations. Schipper (1991) defines the role of the financial analyst by stating the purpose of the financial analyst is to provide investors with new buy, hold or sell recommendations and generate accurate reports to support these new stock recommendations. Financial analysts use their forecasts in addition to available market information to approximate the value of a security in the market. The financial analyst then compares the price at which

the security is currently trading with their forecast and provides investors with a new buy, hold or sell stock recommendation (Bradshaw 2004).

Trueman (1994) examines the purpose of the financial analyst and proposes that financial analysts dependent on their financial reporting abilities such as stock recommendations and forecasts are driven to foster reputations built on recommendation accuracy. Trueman (1994) proposes that financial analysts with sound abilities continuously reveal all available market information candidly whilst weaker financial analysts attempt to mimic the recommendations and forecasts of others and past performances. The role of the financial analyst is defended by Martinez (2011) who emphasizes the role played by the financial analyst as a gatekeeper set to reduce information asymmetry between financial firms and individual investors in the market.

There are two types of financial analysts found in the market namely sell-side analysts and buy-side analysts. This research report will focus on sell-side analysts. Sell-side analysts often work for a brokerage firm providing research, earnings forecasts and stock recommendations to brokers, client's and the public. The findings produced by these analysts are recognized as having investment value to the individual investor as discussed by Cheng, Liu and Qian (2006).

A buy-side analyst is employed by a financial management firm primarily mutual funds, hedge funds and investment advisory firms to make recommendations and forecasts exclusively for internal use. The financial information provided by the buy-side analyst is not for use by the public and is often proprietary possession of the financial firm or employer and therefore is of no use in this report. If the accuracy of the sell-side analysts' stock recommendations and the value relevance of the stock are considered to be related, the identification of expert financial analysts' producing accurate investment strategies will prove to be a fruitful investigation as discussed by Ramnath, Rock and Shane (2008) leading to increased investor wealth based on new buy, hold and sell recommendations issued by the financial analysts.

The extant literature demonstrates the importance of the financial analyst and the service provided to market investors. Sell-side analysts continuously collect, monitor and examine all information available in the market such as financial statements, annual reports, stock reports and estimates as well as past behaviour and trends in order to present individual investors with a comprehensive and informed stock recommendation as defined by Mokoaleli-Mokoteli, Taffler and Agarwal (2009).

2.3 The value of financial analysts' stock recommendations and forecasts

Loh and Mian (2006) determined that financial analysts that produce accurate forecasts resulting in increased market return are considered to have superior inputs and yield preferable recommendations resulting in enhanced levels of investor confidence in the abilities of the financial analyst. Bradshaw (2004) surmises that the intrinsic worth of the financial analyst is determined by their ability to accurately direct investors towards stocks that will result in excess market returns. Ultimately the value proposition of the financial analyst is held in the eye of the investor.

Often investors track the investment performance of stock recommendations made by financial analysts in an effort to earn abnormal market returns as the financial analyst is believed to have access to market information that the individual investor does not as discussed by Cliff (2007). Investors often do not have the knowledge or realise the consequences of investing in a particular stock in the market and rely heavily on the recommendations made by a trusted financial analyst for guidance. In many situations the economic environment which the investor hopes to penetrate is complex and investors are not certain on the impact of their decisions. Investors seek advice from financial experts such as analysts to yield excess returns proving profitable for the individual investor (Morgan & Stocken, 2003). Research supports both the value proposition offered through the stock recommendations made by financial analysts as well as the opinion held by many such as Cliff (2007); Womack (1996); Easterwood & Nutt (1999); and Mokoaleli-Mokoteli, Taffler & Argawal (2009) who question if there is any value to be extracted from the predictions

made by financial analysts in the market. Easterwood and Nutt (1999) propose that stock recommendations made by financial analysts are considered irrational and insufficient, and fail to take into account new information available to analysts in the market timeously. This results in the possibility that financial analysts are subject to the misinterpretation of earnings information which in turn affect their forecasts and stock recommendations. The literature suggests that there is inefficiency within financial analysts' earnings forecasts resulting in an upward bias and a misrepresentation of available market information (Easterwood & Nutt, 1999).

2.4 Financial analysts and behavioural finance

Financial analysts make use of heuristics also referred to as rules of thumb to guide them in determining which action has the highest probability of being the correct choice in a particular situation. Mokoaleli-Mokoteli, Taffler and Agarwal (2009) found that financial analysts that produced non-conforming forecasts and stock recommendations were often identified as being associated with overconfidence bias and representativeness bias.

Overconfidence bias suggests that the analyst has become too confident in their stock picking abilities and their capability to produce accurate forecast earnings and stock recommendations. This results in irrational behaviour by the financial analysts. The effect of overconfidence bias results in an analysts' subjective confidence in his or her judgement becoming consistently greater than the objective accuracy of those judgements. Overconfidence bias may result in a delayed response to the market by analysts causing investors to adjust to new market information at a delayed rate and subject to stock price fluctuations. This would be evident in a post event drift in stock prices in the market. Overconfidence may provide a plausible explanation as to why financial analysts believe that they have superior stock picking abilities compared to individual investors when their stock recommendations often result in limited investment value (Mokoaleli-Mokoteli, Taffler & Agarwal, 2009).

Behavioural finance is replete with a number of biases that affect investment decisions that one should be aware of. Representativeness bias from a financial perspective refers to judgements made by the analyst that take into account the classification or categorization of a person, place or thing. This psychological bias is manifested when a limited number of traits or characteristics of an individual, object or situation are measured and immediately classified based upon predefined stereotypes often causing financial analysts to see patterns in data that is strictly random and develop assumptions based on inconclusive information (Mokoaleli-Mokoteli, Taffler & Agarwal, 2009).

The literature further discusses key behavioural finance concept that affects financial experts referred to as prospect theory. Prospect theory suggests that analysts value gains and losses on a varying degree, and as such base their investment decisions on perceived gains and not on potential losses (Scott, Stumpp and Zu, 1999). It is therefore unanimously concluded that financial analysts are inclined to be optimistic and subject to a number of cognitive biases that need to be taken into account when assessing the accuracy of analysts' forecasts and stock recommendations. Financial analysts' forecasted earnings and stock recommendations are often higher than the actual market results obtained by investors in the market (Martinez 2011).

Brown (1993) proposes that the combined efforts of financial market researchers and behaviourists in examining available market information will augment our understanding of the role of the financial analyst in the price formation process and evaluate the accuracy of these results.

2.5 Market efficiency

Fama (1998) defines an efficient market as a market in which a large number of rational profit-maximizers actively compete with one another in order to predict future market values of stocks. He concludes that it would be impossible for financial analysts to continuously beat the market and earn excess returns based upon current information available to market participants. The Efficient Market Hypothesis (EMH)

theory states that when markets are considered efficient, stock prices will fully reflect all publicly available information challenging the role of the financial analyst in the stock market and the accuracy of their recommendations allowing investors to exploit the predictability of the market. If capital markets are seen to be efficient, market prices and financial analysts' forecasts and recommendations are believed to reflect all available market information which would result in arbitrage (Ramnath, Rock and Shane, 2008).

Loh and Mian (2006) suggest that imperfectly efficient markets reward financial analysts for their costly activities like information gathering in an effort to generate superior stock recommendations. The efficient market hypothesis (EMH) theory states that stock market prices are determined by a discounting process that results in stock prices equalling the present value of the expected future cash flows and that all available information is priced into the market and fully reflected as weak form, semi-strong form or strong form. Financial analysts' stock recommendations deliver information surrounding future cash flows to the market and are often the primary determinants of stock valuations.

In an attempt to identify high-performance assets that will most likely lead to increased returns; analysts evaluate stock prices and then turn a profit by selling stock that appears to be overvalued, whilst buying stock that seems undervalued. Hens (2002) observed that stock prices cannot reflect all available information in its entirety all the time. If all factors were priced into the share price, there would be no need for financial analysts and the information provided by these analysts.

Financial analysts recognise that in order to provide a service warranting compensation within the financial sector; markets have to be considered inefficient to a degree (Hens, 2002). The concept of market inefficiency concludes that the market price of stocks is not always completely accurately priced; with all factors affecting the price both internally and externally accounted for within the current stock price (Loh and Mian, 2006).

2.6 Chapter summary

In order to fully understand the role of financial analysts in the stock market and the accuracy of their stock recommendations an understanding of the literature surrounding analysts as well as financial theory is necessary. The role of the financial analyst, the accuracy of financial analysts' stock recommendations and forecasts, behavioural finance conditions and market efficiency was discussed in this chapter in order to examine the data collected and presented in Chapter 4 through statistical analysis.

Chapter 3: Research Methodology

3.1 Introduction

The aim of this study is to establish if financial analysts' new buy, hold or sell recommendations outperform the benchmark in the subsequent period after the change is made and whether these recommendations create or destruct value for individual investors.

This chapter seeks to provide an overview of the research methodology used in the collection and organisation of the data needed to address the research problems identified in this study and is organized as follows: section 3.2 presents the data required and the data sources. Section 3.3 discusses the research design and section 3.4 concludes the chapter with a chapter summary.

3.2 Data and data sources

This study examines data extracted from the Johannesburg Stock Exchange (JSE) and the FTSE/JSE All Share Index using Bloomberg Professional - an investment-based software programme providing real-time financial data. The JSE lists approximately 400 companies dependent on listings. The data is examined over a 10 year period from 2003 to 2013 to determine a suitable sample of firms, their share price and the financial analysts' new buy, hold or sell recommendation made on the firm's stock. The sample group will include data during and post the fall of the global markets in 2008 referred to as the credit crisis in order to yield conclusive results from periods of market volatility as well as maintain consistency. The data looks to establish if the cross-sectional distribution of abnormal returns and cumulative abnormal returns at the time of the event are systematically different from the predicted returns. The long-term assessment of market data will provide a full valuation of the accuracy and effects of financial analyst's stock recommendations on the JSE.

The data presented will assess the markets' reaction to stocks listed on the JSE based on the new buy, hold and sell position recommended by financial analysts and the effect that the change in recommendation had on the JSE. The stock recommendations will be obtained from Bloomberg and will be coded as follows: 1 is a new sell recommendation, 2 is a new hold recommendation and 3 is a new buy recommendation. A sample of 29 listed firms was used based on the period from 2003 to 2013. This sample was determined by date of listing, closing price data, availability of financial analysts' stock recommendations and the consistency of available data within a 6 month event period.

A benchmark is necessary as an industry standard against which the stock data will be compared. The FTSE/JSE All Share Index also referred to as the JALSH is a market capitalization-weighted index which tracks the performance of all companies listed on the Johannesburg Stock Exchange in South Africa. The FTSE/JSE Index is representative of the performance of all listed South African firms providing investors with an overview of the South African market and its historical and current temperament.

3.3 Research design

The aim of this research report is to assess the effect of financial analysts' stock recommendations on the JSE. Event study methodology is used to evaluate the impact of an event on the share price of a listed security. An event study typically examines return behaviour for a sample of firms experiencing a collective event. Event study methodology makes the assumption that the stock market is efficient and that the price of listed stocks are inclusive of all the relevant information available (McWilliams and Siegel, 1997) and as a result has become a popular research paradigm in both economic and financial literature (Henderson 1990).

Event study methodology is used in this study as the primary quantitative practice to measure the accuracy and effective of financial analysts' new buy, hold and sell recommendations. The methods used during an event study are well-suited to measuring the impact of market-wide events such as financial

analysts' new stock recommendations and the effect they have on stock prices to determine whether or not there is an abnormal return caused by the financial analysts' stock recommendation. The return on a stock reflects ups and downs experienced in the market.

The return of each listed stock on the Johannesburg Stock Exchange will be calculated to examine the initial value of the stock compared to the final value of the stock to determine if the financial analysts' recommendation was accurate and had an effect on the stock in the market. The return of the stock is calculated by subtracting the initial value of the stock from the final value of the stock and then dividing it by the initial value of the given stock.

3.3.1 Calculating returns

The price data for all the shares is converted into returns data using the following formula. The formula is used to calculate monthly returns.

$$r = \frac{P_1 - P_0}{P_0}$$

P_1 = final value of the stock

P_0= initial value of the stock

3.3.2 The benchmark for expected returns

The FTSE/JSE All Share Index is the chosen benchmark as it does not exclude any particular sector of the market and provides a standard to which the sample stock data can be comparatively assessed. This market index represents 99% of the full market capital value of all main board stocks listed on the Johannesburg Stock Exchange.

3.3.3 Calculating abnormal returns

The abnormal return of a stock is then determined based on the expected return of the stock and is calculated as the difference between the expected return (market benchmark) of a stock and the actual

return to determine the general movement of the sample firms' stock returns from the market benchmark stock returns as per the equation below. The abnormal return is examined in order to compare the distributions of the actual returns with that of the predicted returns and whether the returns are the same (Khotari and Warner 2006). This event study will see the focus placed on the mean and median of the distribution of abnormal returns and cumulative abnormal returns.

$$Abnormal\ Return(r_{Ab}) = Actual\ Return\ (r_A) - \ Estimated\ Return\ (r_E)$$

3.3.4 Calculating cumulative abnormal returns

The cumulative abnormal return (CAR) is derived to determine the value of the investment and the effect of the event on stock prices in the market. CAR uses the sum of the differences between the estimated return on a stock and the actual return of the stock to evaluate the impact of new market information or the event on the stock price resulting in a new buy, hold or sell recommendation by financial analysts.

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it}$$

The sum of the abnormal returns on security i from period t1 to period t2, where $T_1 \leq t_1 \leq t_2 \leq T_2$.

The t-statistic and p-values are used to assess the performance and significance of the abnormal returns and cumulative abnormal returns during a 6 month period following the change in recommendation. The t-test was used to test the CAR mean returns of the sample firms against the FTSE/JSE All Share Index as the selected benchmark to determine if new buy recommendations lead to the outperformance of the market benchmark in the period following the recommendation or if the new sell recommendations lead to underperformance in the period following the recommendation. Significance testing was done at a 10% level of significance.

3.4 Chapter summary

Descriptive and quantitative research methods are used in this study. Descriptive statistics will be used to provide a report of the population and the final sample of selected stocks. A quantitative approach is then used to determine the stock returns and benchmark returns. Event study methodology is the primary quantitative methodology used in this report to assess the financial effect of the selected events.

This chapter sought to describe the data, data sources, research design and methodology used in this report. Chapter 3 provides an understanding of the analysis used to generate the results examined and discussed in Chapter 4 of this study. Chapter 4 will evaluate the data obtained in this study and provide an in-depth examination of the data through statistical analysis.

Chapter 4: Results Discussion

4.1 Introduction

The objective of this chapter is to provide the results of the analysis of the accuracy of financial analysts' stock recommendations and on stocks listed on the Johannesburg Stock Exchange (JSE). This chapter is organized as follows: Section 4.2 presents the descriptive statistics: Section 4.3 discusses the findings: Finally section 4.4 concludes the discussion of the results.

4.2 Descriptive statistics

Table 1: Descriptive Statistics Illustrating Stock Returns and Market Index Returns on the JSE

Panel 1: Stock Performance								
Recommendation	Variables	Mean	Median	Min	Max	Std Deviation	Skewness	Kurtosis
Sell	SR	0.002	-0.001	-0.431	0.291	0.105	-0.211	1.367
	AR	-0.014	-0.008	-0.351	0.277	0.095	-0.245	1.206
	CAR	-0.063	-0.054	-0.815	0.503	0.193	-0.362	1.655
Hold	SR	0.012	0.01	-0.401	0.676	0.108	0.481	4.03
	AR	-0.001	-0.006	-0.399	0.733	0.102	0.851	6.848
	CAR	-0.006	-0.019	-1.19	0.948	0.228	-0.117	4.803
Buy	SR	0.006	0	-0.319	0.535	0.097	0.636	2.89
	AR	-0.005	-0.015	-0.287	0.509	0.084	0.702	3.791
	CAR	-0.014	-0.012	-0.821	0.636	0.176	-0.041	2.872
Panel 2: Index Performance								
	IR	0.013	0.014	-0.14	0.14	0.05	-0.077	0.174

**SR = stock return; AR = abnormal returns; CAR = cumulative abnormal return and IR = benchmark index return*

Table 1 presents the descriptive statistics derived from the abnormal returns for new buy, hold and sell recommendations made by financial analysts. Panel 1 in Table 1 shows the stock returns for the new sell

recommendations issued by financial analysts. The mean of the new sell recommendations is 0.002 whilst the mean for the index return in Table 1 Panel 2 is 0.013. The median of the new sell recommendation stock return is -0.001 in Panel 1 Table 1 and the median for the index return in Table 1 Panel 2 is 0.014. The minimum return for the new sell recommendation is -0.431 as seen in Panel 1 Table 2. The minimum for the index return is -0.14. The maximum observed value for the new sell recommendation is 0.291 whilst the maximum for the index return is -0.14. The standard deviation of the stock return for the new sell recommendation is 0.105 and 0.05 for the index return indicating that the stock return is more volatile than the index return. The skewness of the stock return is -0.211 with a kurtosis of 1.367. The index return skewness is -0.077 with a kurtosis of 0.174 in Table 1 Panel 2 indicating that the market was skewed to the left.

The new buy recommendation in Table 1 Panel 1 made by financial analysts has a stock return mean of 0.006 compared to an index return mean of 0.013. The minimum for the stock return is -0.319 with a maximum of 0.535. The stock return has a standard deviation of 0.097. The index return has a lower standard deviation at 0.05 compared to that of the stock return 0.097 resulting in higher volatility of the stock return. The skewness of the stock return in Table 1 Panel 1 is 0.636 showing the stock return is skewed to the right.

The new hold recommendation issued by financial analysts has a mean of 0.012 shown in Table 1 Panel 1 compared to the mean of the index return of 0.013 in Table 1 Panel 2. The median of the new hold recommendation is 0.01 whilst the median for index return is 0.014. The standard deviation for the new hold recommendation is 0.0108 and 0.05 for the index return. The skewness for the stock return for the new hold recommendations is 0.481 with an excess kurtosis of 4.03. The index return is near to a normal distribution with a skewness of -0.117 and an excess kurtosis of 4.238.

4.3 Performance of analysts' recommendations

This section examines the performance of new buy, hold and sell recommendations made by financial analysts through the analysis of the abnormal returns and cumulative abnormal returns subsequent to the change in recommendation.

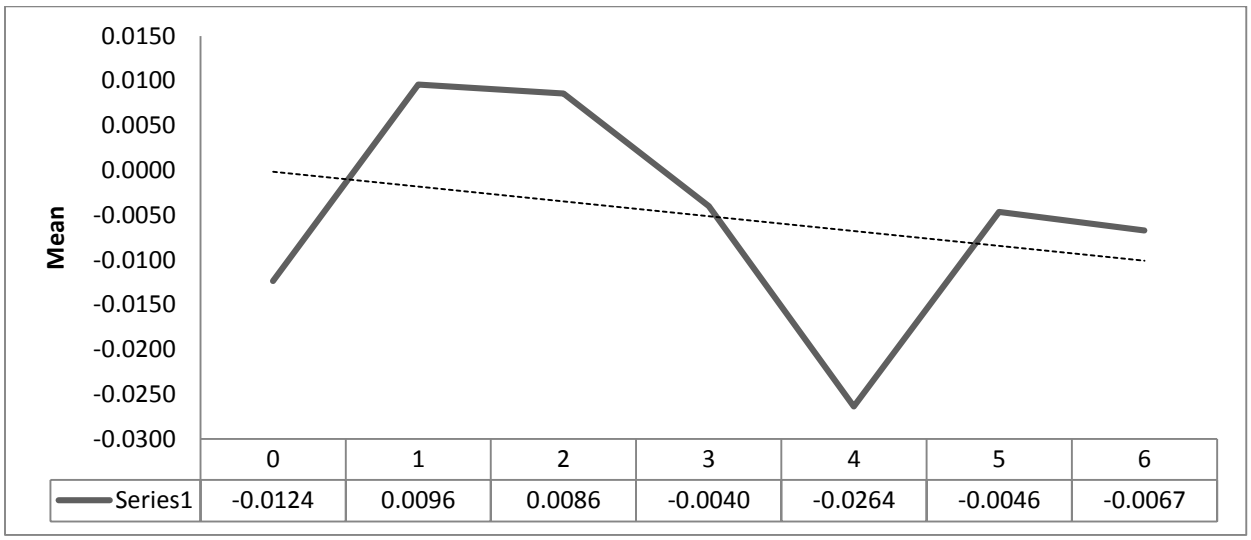
Table 2: Performance of New Buy Recommendations on the JSE from January 2003 to December 2013

	Period	Mean	Median	t Value	Pr > |t|
Panel 1: Abnormal Returns	0	-0.0124	-0.0146	-1.0900	0.2796
	1	0.0096	0.0087	0.9400	0.3510
	2	0.0086	-0.0023	0.7100	0.4815
	3	-0.0040	-0.0195	-0.3600	0.7208
	4	-0.0264	-0.0212	-2.8000	0.0072
	5	-0.0046	-0.0194	-0.3100	0.7589
	6	-0.0067	-0.0134	-0.6100	0.5455
Panel 2: Cumulative Abnormal Returns	0	-0.0124	-0.0146	-1.0900	0.2796
	1	-0.0028	-0.0043	-0.1800	0.8554
	2	0.0058	0.0028	0.3100	0.7606
	3	0.0018	0.0238	0.0900	0.9322
	4	-0.0246	-0.0120	-1.0100	0.3181
	5	-0.0292	-0.0361	-0.9200	0.3626
	6	-0.0359	-0.0444	-0.9700	0.3379

Table 2 presents the performance of new buy recommendations made by financial analysts on the month that the recommendation changed and in the subsequent 6 months following the change in recommendation. Panel 1 in Table 2 illustrates that the new buy recommendations were largely negative (mean -0.0124) albeit not significant on the recommendation month (month 0). This implies that the market did not see financial analysts' buy recommendations in a positive manner. In the 6 months

following the new buy recommendation, the results are largely negative and significantly so in month 4 (mean -0.0264) further indicating that the market did not believe in the financial analysts buy recommendations. Panel 2 in Table 2 presents the cumulative abnormal returns which are not too different from those found in Panel 1. The results discussed in Table 2 are graphically represented in Graph 1 and Graph 2 below.

Graph 1: Graph Showing the Performance of the Abnormal Returns for New Buy Recommendations



Graph 2: Graph Showing the Performance of the Cumulative Abnormal Returns for New Buy Recommendations

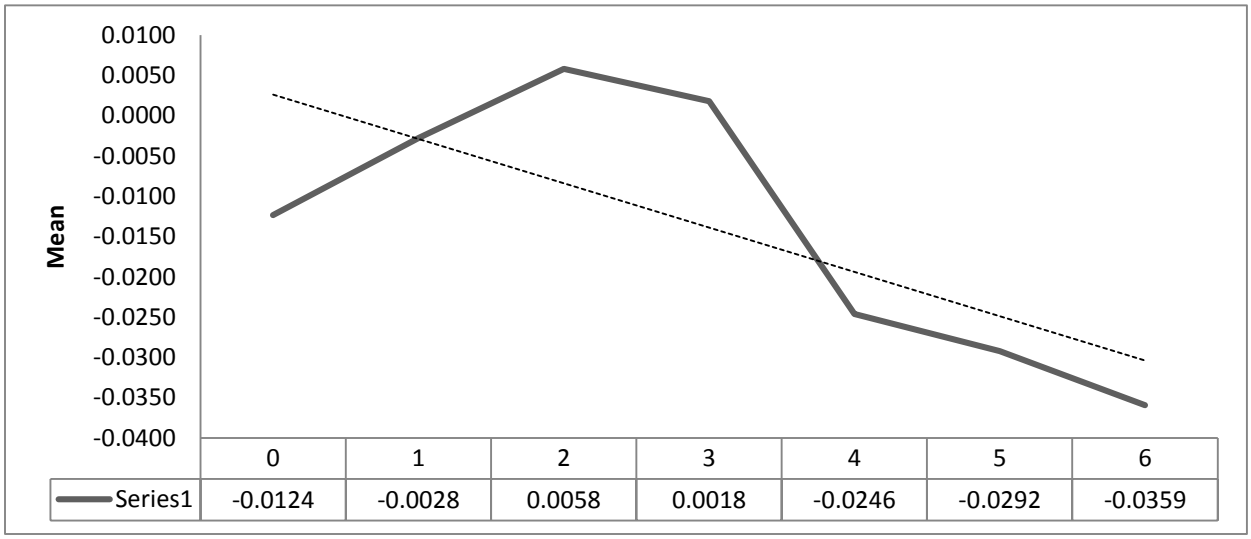


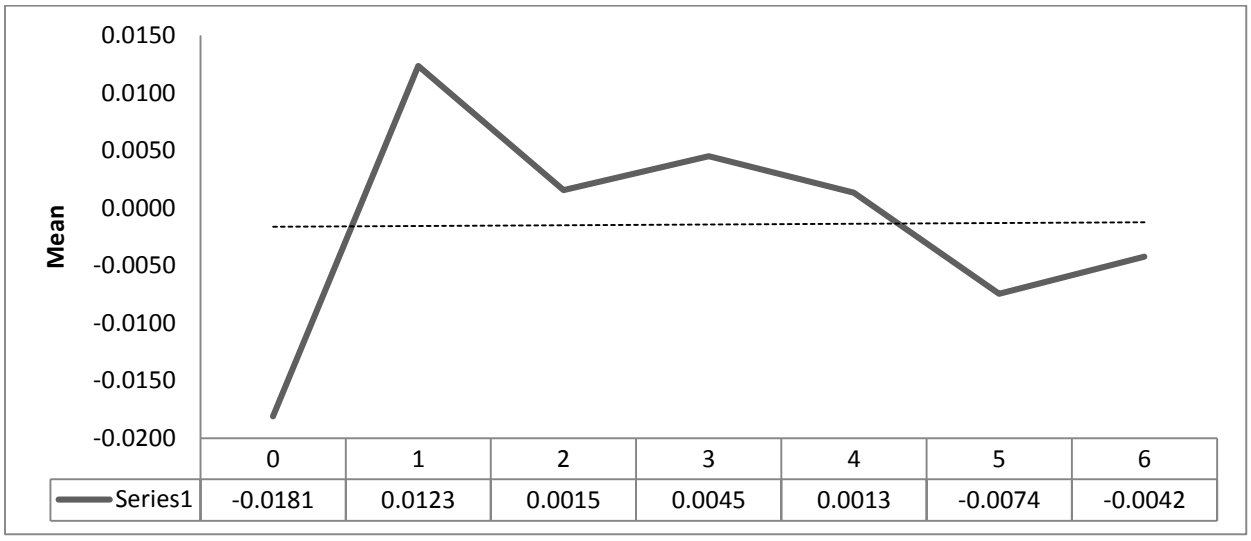
Table 3: Performance of New Hold Recommendations on the JSE from January 2003 to December 2013

	Period	Mean	Median	t Value	Pr > |t|
Panel 1: Abnormal Returns	0	-0.0181	-0.0211	-2.1000	0.0388
	1	0.0123	0.0006	1.3400	0.1848
	2	0.0015	-0.0124	0.1500	0.8844
	3	0.0045	-0.0237	0.3100	0.7579
	4	0.0013	0.0139	0.1300	0.8977
	5	-0.0074	-0.0050	-0.7300	0.4667
	6	-0.0042	0.0047	-0.3500	0.7244
Panel 2: Cumulative Abnormal Returns	0	-0.0181	-0.0211	-2.1000	0.0388
	1	-0.0057	-0.0190	-0.4200	0.6780
	2	-0.0042	-0.0190	-0.2300	0.8207
	3	0.0003	-0.0145	0.0100	0.9909
	4	0.0016	-0.0149	0.0600	0.9543
	5	-0.0058	0.0124	-0.1800	0.8555
	6	-0.0100	-0.0167	-0.3000	0.7664

Table 3 presents the performance of new hold recommendations made by financial analysts on the month that the recommendation changed and in the subsequent 6 months following the change in recommendation. Panel 1 in Table 3 shows that the new hold recommendations' abnormal returns are predominately positive (mean 0.0123) for periods 1 to 4 illustrating that the new hold recommendations made by financial analysts' over performed during this period following the change in recommendation (month 0) albeit statistically insignificant from Period 1 to 6. This implies that the market did see value in the new hold recommendations made by financial analysts' and that the abnormal returns outperformed the market. In the subsequent 6 months following the change in recommendation, the results are mostly positive and only statistically significant for Period 0 (mean -0.0181) at the 5% level of significance (p-value 0.0388). Panel 2 in Table 3 presents the cumulative abnormal returns which are mainly negative (-0.0181)

and statistically insignificant aside from Period 0 (-0.0181) in comparison to the largely positive abnormal returns found in Panel 1. This suggests that the cumulative abnormal returns of the new hold recommendations underperformed the market. The results discussed in Table 3 are graphically represented in Graph 3 and Graph 4 below.

Graph 3: Graph Showing the Performance of the Abnormal Returns for New Hold Recommendations



Graph 4: Graph Showing the Performance of the Cumulative Abnormal Returns for New Hold Recommendations

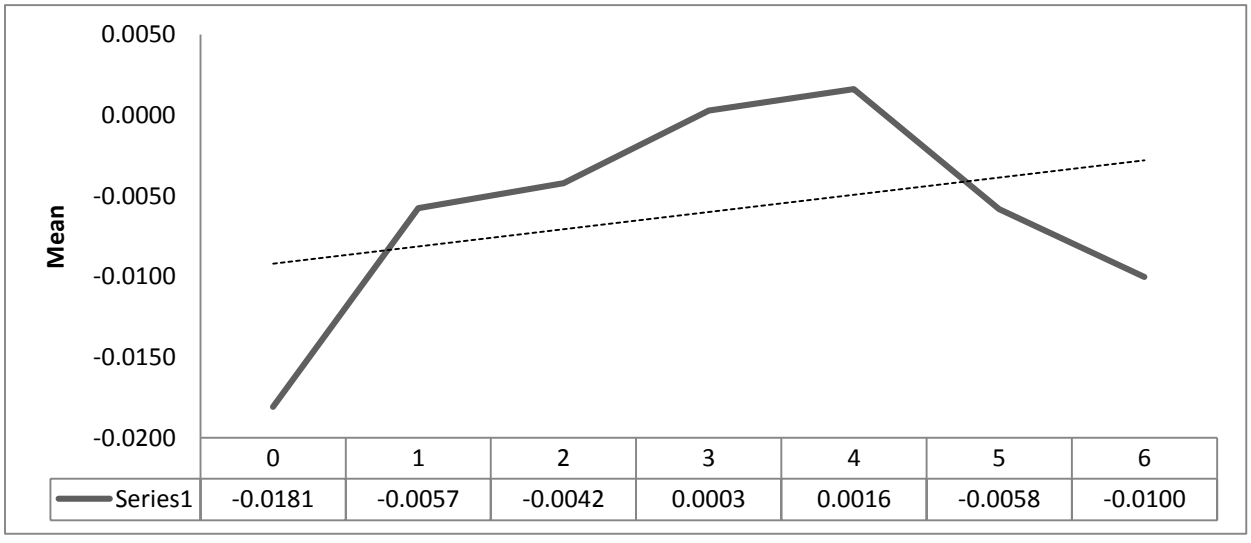


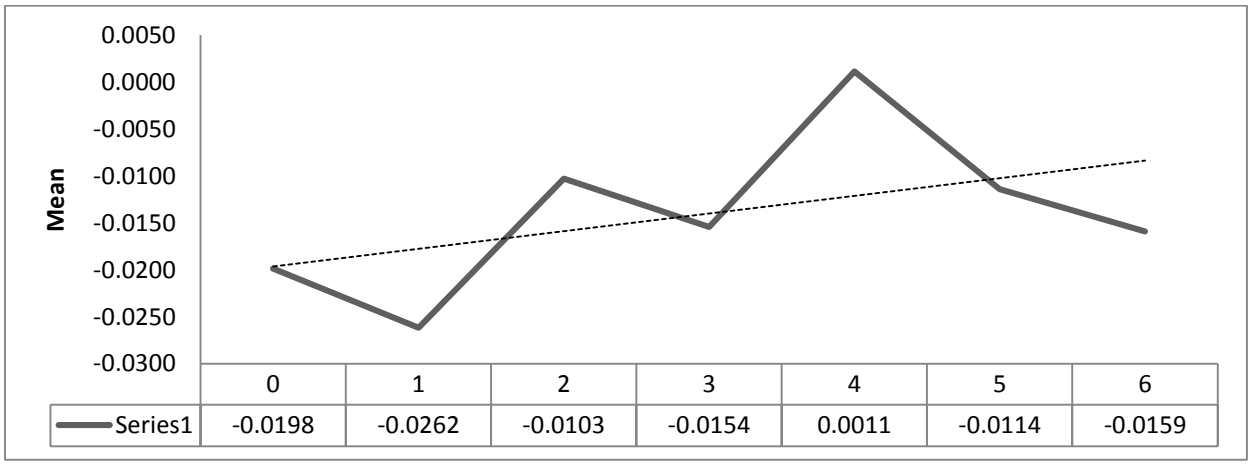
Table 4: Performance of New Sell Recommendations on the JSE from January 2003 to December 2013

	Period	Mean	Median	t Value	Pr > |t|
Panel 1: Abnormal Returns	0	-0.0198	0.0046	-1.0400	0.3031
	1	-0.0262	-0.0129	-1.6400	0.1082
	2	-0.0103	-0.0159	-0.6600	0.5135
	3	-0.0154	-0.0123	-1.1400	0.2598
	4	0.0011	0.0011	0.0800	0.9378
	5	-0.0114	0.0074	-0.9400	0.3506
	6	-0.0159	-0.0083	-1.0800	0.2849
Panel 2: Cumulative Abnormal Return	0	-0.0198	0.0046	-1.0400	0.3031
	1	-0.0460	-0.0326	-1.8800	0.0678
	2	-0.0563	-0.0387	-2.3200	0.0255
	3	-0.0717	-0.0661	-2.5100	0.0164
	4	-0.0706	-0.0902	-2.0100	0.0509
	5	-0.0820	-0.1058	-2.3000	0.0268
	6	-0.0979	-0.0817	-2.3600	0.0236

Table 4 presents the performance of new sell recommendations made by financial analysts on the month that the recommendation changed and in the subsequent 6 months following the change in recommendation. Panel 1 in Table 4 illustrates that the abnormal returns for the new sell recommendations made by analysts were largely negative for both abnormal returns and cumulative abnormal returns and statistically insignificant at the 10% level of significance. The new sell recommendations made by financial analysts allows for the assumption that the stock will underperform the market benchmark resulting in negative abnormal returns and cumulative abnormal returns. This is in line with the expectation that the negative abnormal returns would indicate a new sell recommendation. Although Table 4 Panel 1 yielded negative abnormal returns, the p-values indicate that the new sell recommendations are statistically insignificant. This implies that the market did not see value in the new

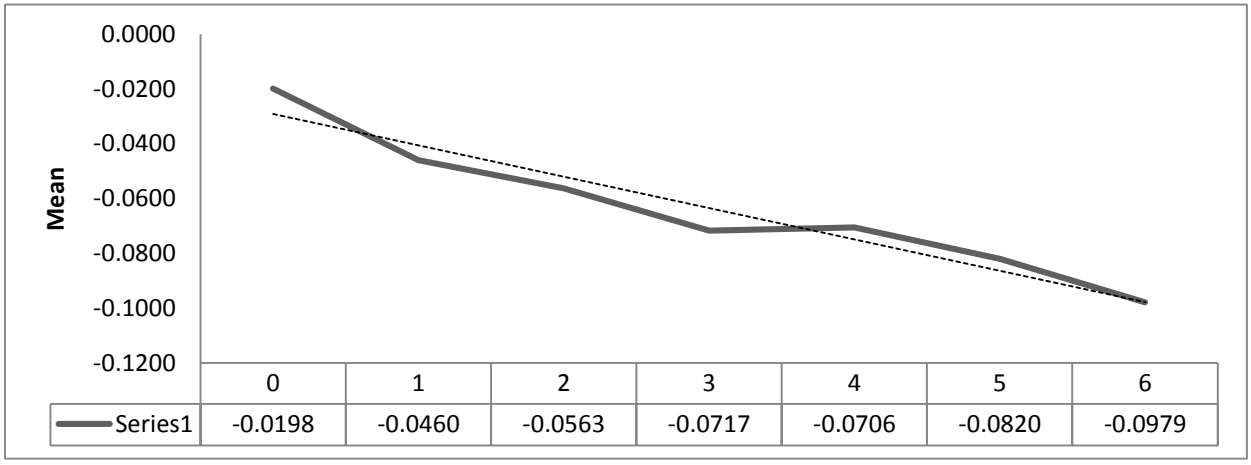
sell recommendations issued by the financial analysts. In the 6 months following the new sell recommendation, the results are all negative with the exception of Period 4 (mean 0.0011), showing that the results underperformed the market benchmark overall. Panel 2 in Table 4 presents the cumulative abnormal returns which are not too different from those discussed in Panel 1 albeit statistically significant from Period 1 to 6. This infers that the market, based on the cumulative abnormal returns, did see analysts new sell recommendations in a positive manner. The results discussed in Table 4 are graphically represented in Graph 5 and Graph 6 below.

Graph 5: Graph Showing the Performance of the Abnormal Returns for New Sell Recommendations



	0	1	2	3	4	5	6
Series1	-0.0198	-0.0262	-0.0103	-0.0154	0.0011	-0.0114	-0.0159

Graph 6: Graph Showing the Performance of the Cumulative Abnormal Returns for New Sell Recommendations



	0	1	2	3	4	5	6
Series1	-0.0198	-0.0460	-0.0563	-0.0717	-0.0706	-0.0820	-0.0979

4.4 Chapter summary

The results based on the new buy recommendations issued by financial analysts' were mainly insignificant and underperformed compared to the market benchmark suggesting the market did not react positively to new buy recommendations. The results for the new hold recommendations made by financial analysts largely outperformed the market benchmark albeit mainly insignificant. The new sell recommendations issued by analysts continuously underperformed the market benchmark and were significant only in relation to abnormal returns.

The results in this chapter determined whether the new buy, hold or sell recommendation issued by financial analysts underperformed or outperformed the market benchmark. Based upon this performance and the level of significance it was concluded that the market responded positively or negatively to the new recommendation made by financial analysts. This is to be expected based on the extant literature that suggests that financial analysts cannot continuously beat the market by predicting excess returns enhancing investor wealth (Fama, 1988).

Chapter 5: Discussion and Conclusion

5.1 Introduction

The aim of this study was to determine if new buy, hold and sell recommendation made by financial analysts underperformed or outperformed the market benchmark in the period following the change in recommendation. The new recommendation was identified and the abnormal returns and the cumulative abnormal returns examined to identify if financial analysts' stock recommendations create or destruct wealth for the individual investor.

The objective of this chapter is to discuss and compare the results of this study with the findings made in related research. This chapter concludes the study and proposes recommendations for future research. This chapter is organized as follows: Section 5.2 examines the findings, section 5.3 concludes the study and finally, section 5.4 presents recommendations for future research.

5.2 Findings

If markets are seen to be efficient then share prices and financial analysts' stock recommendations are believed to reflect all available market information which would result in arbitrage as discussed by Ramnath, Rock and Shane (2008). The extant literature by Womack (1996), Cliff (2004) and Loh and Mian (2006) proposed that new buy recommendations issued by financial analysts will outperform the market benchmark and create value for investors. The results of this study found that this was not the case for stocks listed on the Johannesburg Stock Exchange. The new buy recommendations issued by financial analysts from January 2003 to December 2013 on stocks listed on the Johannesburg Stock Exchange were largely negative (in relation to the mean of the abnormal returns) and insignificant (p-values). The new buy recommendations underperformed the market benchmark (FTSE/JSE All Share Index) in the subsequent period following the change in recommendation. Only month four was significant thereby

demonstrating value creation from analyst recommendations (p-value is significant). The new buy recommendations issued by financial analysts largely did not create value for the individual investor suggesting that financial analysts cannot continue to beat the market as discussed by Easterwood and Nutt (1999) and Fama (1988) who recognized that financial analysts fail to take into account available information in the market timeously.

The abnormal returns for the new hold recommendations outperformed the market benchmark whilst the cumulative abnormal returns did not. The abnormal returns and cumulative abnormal returns were both found to be not significant for the most part as was the case with the new buy recommendations (p-values). This brings to light that there is the chance that financial analysts can create shareholder wealth as discussed in contention by Cheng, Liu and Qian (2006) and Barber *et al.* (2001).

Financial analysts issue new sell recommendations when shares are believed to lose future value. This study shows that new sell recommendations issued by financial analysts underperform the market benchmark illustrated by the means of the abnormal returns but are not significant (p-values). In the financial literature Loh and Mian (2006), Bradshaw (2011) and Womack (2006) provide evidence that there is a positive relationship between the accuracy of financial analysts' stock recommendations and stock prices. The results of this study further suggest that there is no certainty provided that it is continuously profitable to act on financial analysts' stock recommendations as discussed by Womack (1996).

5.3 Conclusion

In issuing new buy, hold and sell recommendations financial analysts clearly define their expectations around the future stock performance of a given firm. This report finds that financial analysts cannot continuously exploit market inefficiencies significantly through new stock recommendations and active investment strategies. According to the results of this study, it cannot be explicity accepted that new buy,

hold or sell recommendations made by financial analysts outperform the market based on the level of significance of the results.

5.4 Recommendations for future research

There is a dearth of literature surrounding financial analysts' stock recommendations and the effect these stock recommendations have on emerging economies. It is recommended that in order to further understand the role of the financial analyst in emerging market economies this study be applied to other African countries with active investment opportunity and a listed securities exchange.

Further research incorporating financial regulations surrounding the recommendations made by financial analysts would add further value to this study as this study made evident that financial analysts do not consistently beat the market. Closely related to this notion, Bradshaw (2011) suggests that financial analysts' behaviour in the market is dominated by conflicts of interest such as financial incentives and not the accurateness of their results thereby suggesting that financial analysts do not always report candidly on shares in the market due to financial reward or incentive. It would be interesting to examine the regulation and restraints applied to financial analysts as this study has shown that financial analysts cannot continuously outperform the market. The literature exhaustively discussed whether financial analysts are biased upwards for personal gain or pure prediction error has occurred negatively affecting new buy, hold and sell recommendations issued by the financial analysts.

The sample size was a challenge as it was difficult to find listed shares trading on the Johannesburg Stock Exchange from January 2003 to December 2013 consistent with the parameters set in this study; namely the trading period and the frequency of the financial analysts' recommendations. Analysts are employed to follow predefined stocks and produce reports on these shares. If there is little interest in the share trading on the exchange there is likely to be no consistent financial analysts' ratings or recommendations within a 6 month period applied to such shares. It may be beneficial to include additional traded

exchanges from other African countries to draw a comparison against, increase the sample size and further the research found in this report.

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