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The impact of company credit rating change on equity prices on the Johannesburg Stock Exchange

Thipana Benedict Mongalo

A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

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ABSTRACT

The role of credit rating agencies on capital markets and their perceived effectiveness or ineffectiveness thereof continues to be a debated topic in various quarters of the society. In South Africa this debate is often elevated when there are impending sovereign rating downgrades.

Against this backdrop, this study sought to establish whether credit rating change announcements impact stock prices of firms listed on the Johannesburg Stock Exchange. South Africa as a sovereign country has been enduring adverse credit ratings, whilst on the contrary the domestic stock market has been rising and in the first half of the 2015 fiscal year, the stock market reached unprecedented levels, despite the country's credit downgrades and negative economic outlook.

This study investigated the impact of credit rating change on equity prices of firms listed on the Johannesburg Stock Exchange using the event study methodology. Examining the rating data from Fitch; Moody's; Standard & Poors; and Global Credit Ratings and using the market model to compute the abnormal stock returns over a 10-day event window period, the Johannesburg Stock Exchange All Share Index returns was used as a performance benchmark and accordingly the significance test was applied.

The study found insignificant evidence on the impact of credit rating upgrades on equity prices which suggest that rating upgrades are largely anticipated by the market. On the contrary, the study found significant evidence that rating downgrades, result in significant negative abnormal returns from three days prior to the rating downgrade announcement.

The findings of this study therefore reaffirms the information hypotheses of the credit rating announcements that suggest that, credit rating change announcements disseminated by the credit rating agencies contains pricing relevant information. This pricing relevant information is more pronounced for rating downgrades than when it is upgrades.

DECLARATION

I, Thipana Benedict Mongalo, 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 Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Thipana Benedict Mongalo

Signed at ……

On the …….. day of …… 20…..

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The issue of country's rating downgrade by international rating agencies is a big concern, not only for the governments but for the private sector as well. South Africa (SA) is sitting on the cusp of rating downgrade because of the sluggish economy and political tensions. If the downgrade does happen, it is expected that it will have far reaching consequences, as was observed in other emerging market peers such as Brazil and Russia. For instance, Russia stock market as exhibited by the Market Vector Russia ETF fell by 7.4% on the 26th January 2015 when S&P downgraded Russia's sovereign rating to junk while Brazil's MSCI Capped ETF fell by 0.34% on 9th September 2015 due to sovereign downgrade. The reaction of the stock market to the sovereign downgrade seems to imply that bond ratings affect the share prices and not the other way round.

The purpose of this research is to establish the impact of firm's credit rating change (downgrade or upgrade) on equity prices of firms listed on the Johannesburg Stock Exchange (JSE). The specific objective is to establish whether firm's bond ratings have a direct impact on the share prices.

The chapter is organised as follows: Section 1.2 presents the context of the study. Section 1.3 discusses the research problem. Section1.4 presents the research objectives. Section 1.5 highlights the significance of the study. Section 1.6 indicates the organization of the study. Section 1.7 highlights the delimitations of the study. Section 1.8 provides definitions of the terms featuring prominently in the study; Section 1.9 highlights the key assumptions made and lastly the summary concludes the chapter.

1.2 Context of the study

In recent years, South Africa as a sovereign country has endured numerous credit rating downgrades and various negative credit opinion reports from the main global credit rating agencies, namely Fitch Ratings, Moody's Investor Services

and Standard & Poor's. In September, 2016, SA is in a precarious situation with a pending downgrade from Moody's by December 2016 when the annual review of the credit rating is due.

There are various reasons put forward for the negative view of SA by the international rating agencies and this include the fact that GDP growth performance has weakened and various government policies have weakened business confidence (Luus, 2016). Other reasons cited included increased political risk and larger fiscal deficit Fitch Ratings (2016)

The negative rating actions and the adverse credit opinions issued by the credit rating agencies signals the deterioration in the credit quality of South Africa as a sovereign. Luus (2016) posits that SA downgrade will increase the real bond yields to 3.3% while the nominal yields will increase to between 10.5% and 11% which inevitably will increase the government cost of borrowing while at the same time bond return will decline. The increase in bond yield will results in higher inflation, higher interest which will in turn stifle the country's economic growth even further. SA's BRICS counterparts Brazil and Russia have recently been downgrades and their downgrades let to the fall in their stock markets in varying degrees. While, it is conceivable that the market has already discounted the eminent downgrade for SA, it is possible that the market will experience massive losses. This will be even worse if the foreign investors sell off their financial assets as this will put pressure on the already volatile rand.

Ferreira and Gama (2007) observed that a sovereign credit rating upgrade has no significant impact on the stock market returns. However, rating downgrades result in economically and statistically significant negative stock market return spread. Ferreira and Gama (2007) argue that the possible explanation for the lack of response to credit rating upgrades is the general anticipation by market participants whilst for downgrades, rating agencies try hard to conceal information.

The relationship between bond yields and stock returns is difficult to understand with certainty (Baker and Wurgler (2012) and warrants further investigation especially in emerging markets like SA. Baker and Wurgler (2012) found that

government bonds covary with bond-like stocks. Bond-like stocks are stocks that exhibits fixed-income like instruments and are defined as stocks of large, low volatility, profitable, dividend-paying firms which are not distressed and have modest growth rates.

On the other hand, Maslov and Roehner (2004) observe that whilst stock and bond prices are not generally strongly correlated, they tend to have a close correlation during the economic crashes and subsequent recoveries. This observations is driven by investor sentiment as immediately after the crash, investors would typically sell risky bonds and after the recovery, they would typically sell bonds and buy the stocks.

The aim of the current study is to investigate is to whether specific company rating change (upgrade or downgrade) would have any impact on the stock returns. The idea is to establish the extent to which bond yield impact on stock returns in African emerging market characterised by high liquidity and volatile currency and further to establish there is a relationship between bond yields and stock returns at company level as apposed to soverign level.

1.3 Problem statement

Numerous studies (Abad-Romero & Robles-Fernandez, 2006; Dichev & Piotroski, 2001; Hand, Holthausen, & Leftwich, 1992; Micu, Remolona, & Wooldridge, 2006) sought to establish the relationship between credit ratings and the equity markets in various countries. The results of these studies vary significantly, based on a country researched. The differences in the results is also noted by Abdeldayem and Nekhili (2016) who asserts that research efforts directed at this relationship in specific countries would be ideal. Luo and Hao (2015) also observed that there are various studies relating to credit ratings impact on bond prices in the United States but literature on this subject is dearth in emerging economies like SA where the institutional frameworks tend to differ from mature economies.

Understanding the impact of credit rating on share prices as well as the factors that influence the direction of the credit rating is important to various parties. For

example, the equity market participants, specifically asset managers and other investment professionals would be able to know if and how they should factor in the credit rating variable in their share valuation models.

1.4 Objectives of the study

The objectives of this study are stated as follows:

- To establish how the market reacts to rating upgrades by international rating agencies.
- To establish how the market reacts to rating downgrades by the international rating agencies.
- To investigate whether JSE is weak, semi strong or strong form in terms of how it processes the information related to ratings.

1.5 Significance of the study

Numerous studies (Abad-Romero & Robles-Fernandez, 2006; Dichev & Piotroski, 2001; Hand et al., 1992; Micu et al., 2006) sought to establish the relationship between credit ratings and the equity markets in various countries. The results of these studies vary significantly, based on each country researched. The diversity in the results is also noted by Abdeldayem and Nekhili (2016), who asserts that research efforts directed at this relationship in specific countries would be ideal. Luo and Hao (2015) also observed that there are various studies relating to credit ratings impact on bond prices in the United States market but there have been very few efforts on examining this aspect in other economies, specifically in the emerging economies where it is argued that institutional frameworks tend to differ from mature economies.

The Johannesburg Stock Exchange is currently the largest stock exchange and the most liquid exchange on the African continent. With Luo and Hao (2015) arguing that institutional frameworks of emerging economies such as South Africa differ from developed markets, it was expected that this study might provide guidance on whether the changes in credit ratings have any impact on the pricing

of the equity market in South Africa and this might possibly serve as guidance to the general investment community when making equity investment decisions in the country.

Whilst we have not located any extensive study on whether equity market participants consider credit rating agencies' views or how much reliance they place on rating agencies when making investment decisions, there has been criticism of the credit rating agencies for being reactive and highly conflicted. In view of this, other regulatory and multilateral bodies, such as the International Monetary Fund, have been calling for the regulation of credit rating agencies. Sy (2009), in a working paper written for the International Monetary Fund, concluded that regulation of credit rating agencies is necessary.

The equity market participants, specifically asset managers and other investment professionals, perform their own fundamental or technical analysis on specific companies to decide whether to buy or sell the equity instruments. It is not clear how much weight they place on credit rating agencies' reports in their analysis, so this study may be of benefit to asset managers, investment professionals and other equity market participants in deciding whether to include credit ratings considerations as part of their investment appraisal process.

In view of this study being specifically focused on the South African market, it might possibly be beneficial to the investors in the South African equity market and other emerging economies that have similar institutional frameworks to South Africa.

In the banking sector the regulatory requirement endorsed by the Basel Committee and consequently numerous central banks around the world, requires that credit ratings are used to calculate and regulate concentration risks on exposures. A study which seeks to establish the relationship between credit ratings and capital markets behaviour may possibly be used as a tool by the non-banking financial regulators such as the Financial Services Board to understand the reaction of the stock markets following a rating action.

1.6 Organization of the thesis

The thesis is organised as follows. Chapter 2 presents the relevant literature review including the literature on the role of credit rating agencies and the reaction of the stock market on the change in firms' credit rating. Chapter 3 discuss the methodology employed to test the research hypothesis to be tested. Chapter 4 presents the results and Chapter 5 discusses and concludes the study.

1.7 Delimitations of the study

The study focused on firms listed on the Johannesburg Stock Exchange that are rated by the main external credit rating agencies. The study therefore disregarded internal or implied credit ratings often conducted by firms and investment analysts.

In addition to the three main rating agencies, South Africa has a locally based credit rating agency, Global Credit Ratings Company, which is accredited by the regulator, the Financial Services Board. The study therefore focused on credit ratings issued by the following credit rating agencies:

- Fitch Ratings;
- Global Credit Ratings Co ("GCR");
- Moody's Investor Services; and
- Standard & Poor's

It should however be noted that Fitch Ratings has since been deregistered by the Financial Services Board in South Africa with effect from 04 September 2015, which means they are not permitted to provide credit ratings for regulatory purposes in the country.

The study focused on companies meeting the primary criteria of being listed on the Johannesburg Stock Exchange whilst also being rated or having instruments rated by the above-mentioned credit rating agencies.

Whereas there are numerous debt issuers rated by the credit rating agencies, the study did not seek to determine the impact of credit ratings on the unlisted companies' prices and/or valuations.

The study also did not focus on the sovereign rating of the country, but rather on firms listed on the JSE.

1.8 Definition of terms

Credit Rating Agencies (CRA) – the purpose of credit rating agencies is to help pierce the fog of asymmetric information by offering judgments—they prefer the word "opinions" about the credit quality of bonds that are issued by companies and/or governments (White, 2010). In this particular study, credit rating agencies shall refer to Fitch, GCR, Moody's and Standard and Poor's.

Credit Rating – refers to the opinion issued by the credit rating agencies on the credit quality of the issuer.

Issuer – the issuer refers to the Company issuing a financial instrument in the market.

1.9 Assumptions

The following assumptions have been made regarding the study:

- The dataset used to calculate the returns which was obtained from the financial databases Bloomberg and INet BFA was without error;

- The share price was not subject to manipulation and it reflected the correct value of firms in line with the efficient market hypotheses;

- In calculating the equity returns of the respective counterparties, closing prices at the end of the market day were the same as opening prices on the next trading day.

Chapter Summary

This chapter provided an introduction to the current study by providing the context to the study the research problems and research objectives as well as the significance of the study. The next chapter delves into the literature review.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter presents various strands of literature review related to the research topic. The chapter is organised as follows: Section 2.2 highlights the theoretical framework underpinning this study; Section 2.3 discusses the role of rating agencies and the impact of their decisions. Section 2.4 presents the literature on the stock market reaction to a change in company's credit rating. Section 2.5 present the chapter summary which concludes the chapter.

2.2 Theoretical underpinning

Abad-Romero and Robles-Fernandez (2006) show that there are two main theories underlying the rating change announcements which are information asymmetry and signalling (IASH) and wealth distribution hypothesis (WDH).

IASH states that, because rating agencies possess private information, their rating classification may provide additional information to the market about firm total value. In addition, the credit rating change can be viewed as a signal to the market about future earnings and cash flow of the issuer. This view is supported by Ederington, Yawitz, and Roberts (1987) as well. However, Wakeman (1981) argue that the nature of the information being released by agencies is generally a summary of public information and as a consequence, in an efficient market they should have no impact on asset prices

Abad-Romero and Robles-Fernandez (2006) further state that, WDH focuses on the conflict of interest between bondholders and stockholders in that, the existence of limited liabilities may encourage stockholders to increase their expected return by taking riskier investments. This strategy increases the default risk of outstanding bonds which can be a reason for the rating downgrade. This reduces the bond value and investors will then seek value in shares and thus cause the share prices to increase. It would be interesting to ascertain which of

these two theories underlie the relationship between bonds and shares on the JSE.

Goh and Ederington (1993) sought to understand whether bond rating downgrade presents positive, negative or no news on the share prices and concluded that bond ratings impact on share prices depends on the reasons that led to the downgrade. If a downgrade is due to the general deterioration of the firm's prospects, this may result in negative abnormal returns. However, if the downgrade is due to the increased leverage in the company, this may result in shareholders benefitting due to the wealth transfer effect.

Maxwell and Stephens (2003) observed the impact of share repurchases on the bond returns in the US market and concluded that share repurchases result in wealth distribution from bondholders to shareholders. Maxwell and Stephens (2003) makes an observation that share repurchases distributes residual cash to shareholders and this reduces the cash that would otherwise be available for debt service obligations and that result in increases in the default probabilities of firms and consequently the likelihood of a rating downgrade is higher subsequent to a share repurchase.

2.3 The role of credit rating agencies

De Haan and Amtenbrink (2011) summarise the role of credit rating agencies as twofold. One, they provide an independent assessment of the debt issuer's ability to meet their debt obligations and Two, they offer monitoring services through which they influence issuers to take corrective actions to avert downgrades via issuing of "watch" procedure alerts. The watch procedure alert is information messages released by credit rating agencies after their ongoing monitoring reviews of counterparties. These reviews are conducted frequently and are aimed at giving an indication of potential future changes in the credit ratings (Bannier & Hirsch, 2010).

Keenan, Fons, and Carty (1998) posit that credit rating outlooks provide the indications of the likely developments in the credit quality of the issuer over a medium term period, while rating watchlists are predominantly focused on a

shorter time horizon averaging three months. Keenan et al. (1998) also indicate that, historically, credit rating reviews were not viewed as formal rating actions but now they are and at Moody's, these reviews are sanctioned by a rating committee. Effectively, if an issuer is placed on a positive or negative watch by a credit rating agency, it is highly likely that there will be a rating action, either an upgrade or downgrade within a three month period. If an issuer is placed on a negative outlook, it simply means the credit ratings agency views the firm's credit quality as trending negatively which warrants attention or corrective measures from management.

Boot, Milbourn, and Schmeits (2006) observed that these supplementary services of rating watchlist and rating outlook result in implicit contracts between the credit rating agencies and the respective firms. Typically, the placement of an issuer on a rating watchlist or pronouncement of a specific outlook could be triggered by a myriad reasons observed by the agency. In a negative watch scenario which is likely to lead to a downgrade, in some circumstances the reasons observed could be remedied by the firm prior to the downgrade being effected.

Cantor and Packer (1995) and Kräussl (2005) state that in determining the credit quality of the issuer, the credit rating agencies analyses both qualitative and the quantitative information about the issuer and the issuer's operating environment. By implication, if credit ratings of corporates are downgraded, it would imply that their creditworthiness or financial well-being is or has deteriorated and in some severe cases, the companies will ultimately default on their debt obligations.Intuitively, the worsening financial metrics of a company

Rating agencies pay a big role in the financial markets. Sy (2009) holds the view that credit rating changes are abrupt, mostly unexpected and the downgrades lead to market losses and liquidity drying up. The view is also shared by Kisgen (2006) who also concluded that credit ratings directly affect the capital structure decisions by managers of businesses.

Sy (2009) also notes that credit ratings play a critical role in private contracts. The observation is supported by the Securities Exchange Commission (2003)

which notes that there is increased prevalence of ratings triggers thresholds being inserted in financial contracts. Effectively financial contracts cite a corporate's credit rating deterioration below a certain threshold as an event of default. The availability of ratings triggers in commercial contracts would possibly be one of the factors any investor would consider in making an investment decision.

2.4 Impact of changes in credit ratings on asset prices

2.4.1 Impact of credit rating change in the US

Jorion and Zhang (2007) examined the changes in credit ratings by the three main credit rating agencies and using the structural Merton-type model which links changes in probability of default and stock prices confirmed the findings of the abnormal equity returns, particularly around the three day window period from the rating change date. The study found that there are negative abnormal returns for downgrades and positive abnormal returns for upgrades. Jorion and Zhang (2007) also makes a very important observation that the rating prior to the announcement is the single significant variable impacting stock returns and in this regard lower ratings prior to the rating event are associated with higher price effects for both downgrades and upgrades.

Dichev and Piotroski (2001) observed credit rating changes between 1970 and 1997 using the long-term effect method and their earlier findings match those of Jorion and Zhang (2007) in respect of downgrades, in that a significant negative abnormal equity returns for downgrades was found but no abnormal equity returns subsequent to upgrades. The study however, only observes Moody's ratings and excludes in particular S&P. The reasons cited for this exclusion is that S&P only covers companies whose bonds are still rated that there is the risk of survivorship bias and secondly the argument posed is that Moody's and S&P can be viewed interchangeably as their ratings are generally closely related.

Avramov, Chordia, Jostova, and Philipov (2009) conducted a study on US-based firms with a view to understanding why stocks of firms with high credit risk realise

lower returns than stock of firms with lower credit risk. The study was based on the premise of the risk-reward trade-off concept which suggest that stock with high risk should earn higher returns. The study established that, during the periods of downgrades, the low credit rated firms endure substantial equity price declines and generally institutional investors hurry to divest, especially if the rating is dropping to speculative rating. Avramov et al. (2009) argue that prices of low-rated stocks do not envisage nor fathom the possible significant losses around downgrades.

The studies cited above (Avramov et al., 2009; Dichev & Piotroski, 2001; Graham & Harvey, 2001; Jorion & Zhang, 2007; Kisgen, 2006) were done in the US and the US markets are significantly different from the South African market in terms of size, liquidity, depth and key drivers of the economy point of view. The current study is aimed at assessing the impact of the rating change in an emerging market with different characteristics and under impending downgrade of the sovereign rating.

Weinstein (1977) examined the reaction of bond prices of selected corporates around the rating event date and concluded that there is no evidence of a reaction of bond prices on the changes in credit ratings. The study however found that there is price changes starting from 6-months to 1-year before the rating change. Weinstein (1977) argues that this change in prices which occurs long before the rating event date is as a result of a combination of the information in the market and that ultimately results in the rating change and not necessarily the rating event itself.

Hite and Warga (1997) observed the impact of credit ratings changes on 2,800 bonds issued by 1,200 firms and found that rating upgrades result in positive effect on returns, specifically when a debt issue is upgraded from a speculative rating level to an investment grade in a specific month and a further six months preceding the event. However, other upgrades within speculative grade or within the investment grade show weak evidence of the effects. The credit downgrades reflect a strong evidence of negative cumulative abnormal return six months prior to the event and also subsequent to the rating event.

Micu et al. (2006) observed the impact of rating announcements on the CDS pricing and found that all announcements regarding credit ratings ranging from change in outlooks, reviews and rating changes have a significant impact in CDS prices. The study notes that review of ratings have a significant impact on CDS prices whilst rating and outlook changes reflect an insignificant impact. The study records that negative rating announcements have a substantial effect on the CDS prices albeit the pricing adjustment on the CDS spread tend to occur prior to the announcement of the rating action. The abnormal CDS return average increment on downgrade is approximately 1.1%, whereas positive rating announcements results in average decline of 0.6% following a rating action.

Daniels and Shin Jensen (2005) had earlier reached similar conclusion to that of Micu et al. (2006) that credit ratings impact on the CDS pricing. It is further argued by Daniels and Shin Jensen (2005) that the single highly important factor in the CDS pricing and also corporate bonds is the credit rating of the issuer. Aunon-Nerin, Cossin, Hricko, and Huang (2002, p. 69) even stated that CDS rates can arguably be considered the best pricing information we have on credit risk.

2.4.2 Impact of credit rating change Europe

Abad-Romero and Robles-Fernandez (2006), using the dummy variable regression method to assess the impact of rating on the asset prices in the Spanish stock market, revealed contrary results to the US studies. The study observed negative returns for upgraded firms and no significant returns for the downgraded firms. The authors argue that these findings could be attributed to the wealth distribution hypothesis which suggests an inherent conflict between debtholders and equity-holders interest. Thus, a credit rating downgrade results in a reduction of the bond value which is transferred to stockholders, resulting in the equity price increasing. The reverse would also apply for a credit rating upgrade.

Kenjegaliev, Duygun, and Mamedshakhova (2016) investigated the German stock market reaction to credit rating changes and found that the Frankfurt Stock Exchange largely appears to anticipate rating changes announcements. The study also found that the market tend to react stronger to downgrades than

downgrades. It is, however, noted that the information value of these rating announcements is fairly negligible.

Europe is the SA biggest trading partner and it is always important to understand the dynamics and relationships of the two market including how their bonds and equity markets relate to each other.

2.4.3 Impact of credit rating change in other countries

Abdeldayem and Nekhili (2016) investigated the impact of credit rating changes on stock market prices in Bahrain. The study found that rating downgrades and the negative watch announcements impact the long terms equity returns. There are a few shortcomings noted on the Abdeldayem and Nekhili (2016) study, which include the problem with the structure of the Bahrain and other Middle-East countries' economies. The countries are heavily reliant on the oil produce for their economies and the period assessed by Abdeldayem and Nekhili (2016) coincide with the severe drop in the oil price experienced between 2014 and 2015. Thus, the reaction of the capital markets in that country could be reflective of the anticipated adverse economic outlook rather than the credit downgrades. The other limitation is that the study only observed reaction of three sectors namely banks, service and industrial stocks and not the entire Bahrain all share index.

Poornima, Umesh, and Reddy (2015) observed the impact of ratings on the Indian stock market and they found that credit ratings changes have an impact on equity prices. In particular, they observed that the impact is more pronounced around the rating event date. The study also made the observation that the impact is more prolonged and has a long-term impact on the value of companies. The main limitation of the study is that it has only observed 24 companies comprising of the 12 mid-cap and 12 small cap companies. The liquidity of the small and mid-cap stock is generally lower thus the observations may not be relevant for the main indices.

Creighton, Gower, and Richards (2007) observed the impact of rating changes in the Australian market. The study concludes that credit rating announcements

provide news to the market as they impact both the equity and bond markets. However, it is noted that the price impact is insignificant.

Steiner and Heinke (2001) observed the impact of credit ratings on the eurobonds prices using the rank-sum methodology as in Corrado (1989). The study observed a fairly large sample of 546 ratings changes and 182 watchlist announcement and found that adverse announcements comprising of watchlist and downgrades results in negative abnormal returns on the rating event date, whilst positive news comprising of watchlists and upgrades do not result in any significant impact on prices.

The findings in Steiner and Heinke (2001) reflect the view held by Creighton et al. (2007) who argue that the news about positive announcement not having an impact on asset prices whilst negative news results in negative price reaction is intuitive. Creighton et al. (2007) highlights the view that companies have an incentive to publish positive information and on the other hand they tend to downplay adverse information. It is for this reason that market participants will seek independent third parties for adverse newsworthy news.

In a cross jurisdiction study, Ferreira and Gama (2007) sought to establish if the sovereign debt rating of one country could have an impact on stock markets in other countries; it was established that ratings upgrades in other countries have no apparent impact on the equity prices of the first country. However, rating downgrades have shown negative abnormal returns which suggest that downgrades of countries abroad convey a more significant message to the stock markets, contrary to upgrades.

Luo and Hao (2015) observed the reaction of subordinated bonds spread in the Chinese market to the changes in the credit ratings. They found that the spreads reacted positively to downgrades, but there was insignificant evidence of reactions to the upgrades. It was also observed that the rating agency landscape in China is different and their ratings are deemed to not have any information content. Luo and Hao (2015) observed that the rating agencies do not routinely monitor ratings on an ongoing basis unless they are paid to do so and when they are paid, they tend to issue optimistic credit ratings.

Qin and Pattanaik (2000) sought to establish whether credit rating could be used as a proxy for the Capital Asset Pricing Model (CAPM) when determining the cost of capital, specifically in emerging markets. The study observes that some of the inherent risks in emerging economies cannot be clearly segmented into systematic and/or unsystematic which then implies that it may be difficult to determine the necessary risk premium to the cost of capital.

Qin and Pattanaik (2000) made the analysis that, in emerging economies, investors and managers alike have to live with imperfection as no specific model or sound theory is able to give conclusive solutions. The main findings by Qin and Pattanaik (2000) is that the credit rating, if used as proxy for CAPM, may offer solutions that otherwise would have been modelled using theories applicable to globally integrated markets which are deemed more efficient.

South Africa has market characteristics similar to other emerging markets and developing counties such as China and India. The current research seeks to establish whether SA equity market will be affected by bond ratings in similar fashion as in other emerging markets.

2.5 Conclusion of Literature Review

Based on the literature, it is evident that the role of credit rating agencies is valued and is becoming increasingly imperative for the market participants. The validation by the regulatory bodies also serves to entrench their role in the markets. Notably, the results differs across various countries and possibly this could be attributable to the different drivers and specific characteristics of each market. Amongst others factors to note is the liquidity, depth, size of the respective capital market and in some instances drivers of the economy such as that exhibited by the Middle-East economies which rely heavily on oil production.

The fact that pension funds and other investment professionals set their investment parameters and prudential limits around certain credit ratings thresholds, such as investment grade investments, only serve to make the role of agencies more prominent.

More importantly, most of the studies reviewed, apart from the Luo and Hao (2015) and Weinstein (1977) study, indicate that credit ratings have some information value for financial instruments pricing. The rating downgrades seem to contain more significant pricing-relevant information than upgrades, albeit the Spanish Stock Exchange study is an exception, as the impact is different.

It is further evident that downgrades from the investment grade to non-investment grade or speculative ratings result in an even higher impact on financial instruments pricing. This could partly be attributed to the high sell-off by institutional investors, due to their prudential parameters restricting them from holding non-investment grade instruments.

With specific reference to the impact of change in credit ratings on equity prices, the evidence suggest significant negative abnormal returns for rating downgrades but not signficant abnormal returns for upgrades.

It is worth noting that most of the studies reviewed were in developed markets which have stock exchanges driven by different variables including other liquidity profiles, number of issuers, institutional frameworks, etc.

A summary of selected prior studies on the impact of credit ratings on publicly traded financial assets is provided in Table 1 below. The table provide the author's name, the year the study was published, the country which was reviewed, the methodology used and the conclusion of the study.

Table 1: Summary of prior literature

Author	Year of Study	Country	Methodology	Result
Weinstein	1977	US	Modern portfolio	No evidence
Goh & Ederington	1993	US	Market model	Downgrade - negative (albeit not all downgrades)
Hite & Warga	1997	US	Market model	Downgrade - negative Upgrades - no evidence
Dichev & Piotroski	2001	US	Long-term effect	Downgrade - negative Upgrades - positive
Abad-Romero & Robles-Fernandez	2006	Spain	Dummy variable regression	Downgrade - no evidence Upgrade - negative
Jorion & Zhang	2007	US	Structural Merton-type	Downgrade - negative Upgrades - positive
Creighton, Gower & Richards	2007	Australia	Market model	Downgrade - negative Upgrades - no evidence
Ferreira & Gama	2007	Multi-country	Market model	Downgrade - negative Upgrade - no evidence
Avramov, Chodia, Jostova & Philipov	2009	US	Cross-sectional regression	Downgrade - negative Upgrades - no evidence
Poornima, Umesh & Reddy	2015	India	Market model	Downgrade - negative Upgrades - positive
Abdeldayem & Nekhili	2016	Bahrain	Market model	Downgrade – negative
Kenjegaliev, Duygun, Mamedshakhova	2016	Germany	Market model	Downgrade - negative Upgrades - insignificant evidence

From the literature review the following hypotheses are developed:

H_0 – The upgrade of firms' credit rating by the international credit rating agenies does not significantly impact of the firm's equity prices

H_1 - The downgrade of firms credit rating by the international credit rating agenies does not significantly impact of the firm's equity prices

CHAPTER 3. RESEARCH METHODOLOGY

This chapter describes the methodology used to test the hypothesis presented in Chapter 2. The chapter is organised as follows: Section 3.1 disusses the research paradigm. Section 3.2 presents data and data sources; Section 3.3 presents the research design; Section 3.4 outlines the limitatons of the study. Section 3.5 highlights the validity and reliability considerations of the study and chapter summary concludes the chapter.

3.1 Research paradigm

Creswell (2013) identifies three approaches to research, namely qualitative, quantitative and mixed research methods approaches. Creswell (2013) states that quantitative research method is more appropriate in areas where the researcher seeks to test or verify theory; where the researcher measures or analyses numerical data; employs statistical procedures and collects data on instruments that produce statistical information.

Terrell (2012) sums the difference between quantitative and qualitative methods as being the answers they are seeking to answer, for instance, quantitative method answers the question “if” and qualitative method seeks to answer the “how or why”.

Considering that the current study analyses the historical share price data reactions to the historical changes in credit ratings, naturally the analysis entails statistical analysis of the financial data and therefore qualitative. To follow Terrell (2012)’s definition, the study sought to answer if the changes in credit ratings impact the share prices of companies listed on the JSE.

3.2 Data, Data Sources and Research Sample

The sample in this study comprises JSE-listed firms that are long-term debt issuers and/or have a long term credit rating assigned by the external international rating agencies. The sample period is between the years 2005 to 2015. The proposed time frame is considered ideal since it will provide indications

of equity price reactions through the different cycles, inclusive of the 2008 credit crisis and the subsequent recession. The sample consisted of 155 credit ratings which consisted of ratings within rating categories, rating outlook, reviews, credit rating level change etc. In order to observe the market reaction to rating change, only extreme cases (rating category/level downgrade and upgrade) were included and comprised 37 rating events with counterparties being constituents of various sub-indices on the JSE and operating in various sectors. The rationale for using the rating category changes instead of single or minimal rating changes within the rating band is consistent with the conclusion of the literature review that downgrades from the investment grade to non-investment grade or speculative ratings results in an even higher impact on financial instruments pricing Hite and Warga (1997).

The financial data including daily share price and credit rating was obtained from *Bloomberg* and *INET BFA.* The credit rating information was validated against the information from respective credit rating agencies including S&P, Moody's and Fitch. Only credit ratings for long-term instrument were included in the analysis. The JSE News services (SENS) was checked for any significant events which could influence the share price on the rating event date and there were no confounding effects observed during the change in credit rating of all 37 rating events. Table 2 presents information about the initial and final sample in this research.

Table 2: Research sample

Sample	Downgrades	Upgrades	Total
Original	84 (54%)	71(46%)	155 (100%)
Adjusted	19 (51%)	18 (49%)	37 (100%)

Table 2 shows that original and final sample consisted of more downgrades (54% and 51% respectively than upgrades (51% and 49% respectively). This indicates that over the sample period, most companies default risk increased.

The sample comprised of a wide range of industries. Figures 1 & 2 below indicate the industry segmentation for both upgrades and downgrades. Figures 1 and 2

indicate that financial institutions, in particular banks constitute a significant portion of the sample. This observation is not surprising as in SA, banks and state-owned companies are the significant issuers of debt instruments. The state-owned entities are not listed on the JSE and therefore fall outside the ambit of this study. Banks make 39% of rating upgrades and 58% of the rating downgrades over the 10-year sample period.

Figure 1: Industry categories for upgrades

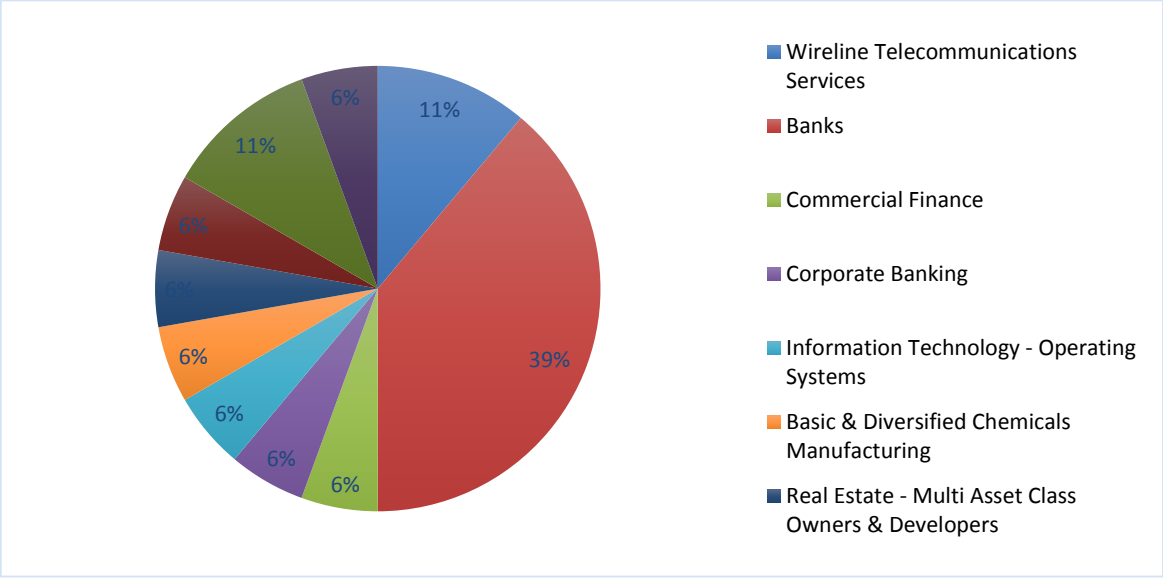
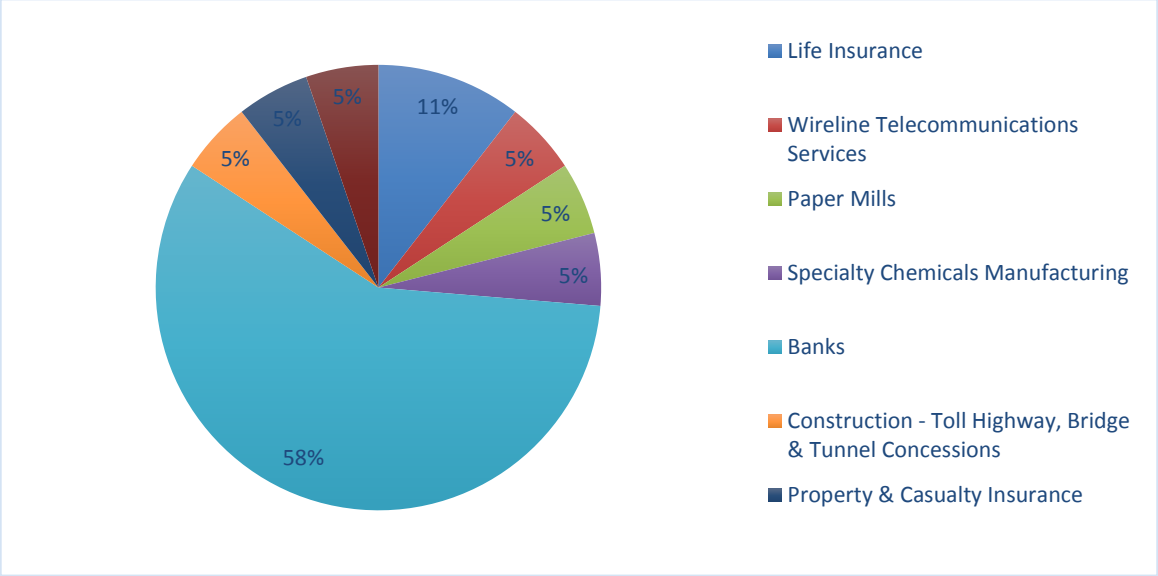


Figure 2: Industry categories for downgrades



3.3 Research Design

The event study methodology is employed in this study to investigate the stock market reaction to changes in company's credit rating. Various studies (e.g. McWilliams and Siegel (1997); Corrado (2011)) describe the event study methodology as a valuable tool that researchers can use to analyse the impact of a specific event on the company's financial metrics. As in Chi and Tang (2008), the idea is to estimate the direction and significance of the abnormal return attributable to the new and unexpected new information – in this case the increase of decrease in credit rating level.

The short-term event window is chosen, as during a short-term, it is less likely to have other confounding events that may impact on the share price. MacKinlay (1997) indicates that when daily data is used, the parameters for the market model methodology may be estimated by as much as over 120-days prior to the event. An estimation window of 180 days before the event window was chosen in this study. The estimation window chosen is required primarily to compute the beta and the intercept. The impact of the rating change was measured over five days before the event and five days after the event. Thus, the actual rating event happens at t = 0, the event window observed is between t-5 and t+5 which denotes five days prior and post the event.

The returns on the share price data is calculated using the geometric return formula as follows:

$$R_{it} = \frac{P_{it} - P_{i\,(t-1)}}{P_{i\,(t-1)}}$$

Where

R_{it} = the actual stock return over the period *t*; P_{it} and $P_{i(t-1)}$ represent the stock price for the respective periods *t* and *t-1.*

The market model is used to estimate the expected returns (see for example, Harrington and Shrider (2007); and Kenjegaliev et al. (2016). This model

considers the market returns to be the appropriate benchmark for the stock return. In this regard, the JSE All Share Index was used as the proxy for the market return portfolio.

The market model model is stated in the following equation:

$$E(R_{it}) = \alpha_i + \beta_i \, x \, R_{mt}$$

Where:

$E(R_{it})$ = expected return of the stock on the specific day; α_i = alpha or intercept of the stock; of β_i = Beta value of the stock and R_{mt} = Market Return. Alpha and Beta are obtained from *Bloomberg* over the estimation window period, whereas the market return is computed using the JSE All Share Index returns also from Bloomberg.

To ascertain if the event result in the returns which are beyond the expectation, the abnormal returns are computed by deducting the expected return from the actual or normal returns.

$$AR = R_{it} - E\,(R_{it})$$

Where:

AR = Abnormal Return; R_{it} = the actual return of the stock on the day and $E(R_{it})$ = Expected Return on the stock for the respective day.

As in MacKinlay (1997), to dray inferences for the event being studied, observations made on abnormal returns are aggregated through the time period. The cumulative abnormal returns are defined as follows:

$$Car_{in} = \sum_{t=t_1}^{t_2} Ar_t$$

Cumulative abnormal returns are effectively the summing up of the abnormal returns from the beginning of the period t_1, up until t_2.

3.3.1 *Testing Procedures*

To determine whether the specific rating event has a significant impact on the stock returns of the respective counterparties, the *p*-values of both the abnormal and cumulative abnormal returns were calculated.

The 5% significance level was used to test the significance level of the rating events. The final results were articulated based on the comparison of abnormal returns, expected returns and cumulative abnormal returns.

The null hypothesis would hold that credit rating changes do not impact on equity prices, and consequently the information value hypothesis of credit ratings does not hold.

3.4 Limitations of the study

The possible limitation in respect of South Africa corporates that are rated, specifically the four main banks, namely, ABSA, FirstRand, Nedbank and Standard Bank is that they maintain the same rating as the sovereign. They are deemed to be systemically important banks in the country, thus their ratings are generally similar and follow the sovereign rating patterns.

The potential weakness is that it may not be possible to extrapolate the share price reaction of each bank or the share price reaction may not necessarily be attributable to company specific drivers. Ordinarily and based on historical trend, the sovereign is downgraded first and then the banks ratings follows. It could therefore be argued that the rating actions on banks following the sovereign downgrades are largely anticipated by the market and consequently the reaction of share prices on the event date (if any) could not be attributable to the rating change.

The sample of 37 firms is considered relatively small, albeit these are the firms that have experienced material changes in their ratings over the past 10 years, since 2005.

3.5 Validity and reliability

According to Onwuegbuzie (2000), for an experiment to be deemed valid, it should possess internal validity and the results of internally manipulated independent variables should not be generalised to the external context (i.e. external validity).

Golafshani (2003, p. 599) further notes that reliability and validity in a quantitative research should effectively comply with two precepts, firstly, with regard to reliability, it should be replicable and secondly, with regard to validity it should establish if the means of measurement are accurate and if they are actually measuring what they are intended to measure.

3.5.1 *External validity*

Considering the proposed study is primarily aimed at the South African equities market that has peculiar features, such as few counterparties rated and relatively smaller size and liquidity, it therefore renders the study impossible to generalise to other markets.

Whilst Ferreira and Gama (2007) in a study that included South Africa in the sample, concluded that downgrades of countries abroad convey a more significant message to the stock markets contrary to upgrades, for our study it was impossible to make such a general inference.

3.5.2 *Internal validity*

According to Loewenstein (1999), internal validity refers to the ability to draw confident causal conclusions from one’s research. This study aimed to establish if there is causal link between credit ratings and equity prices.

Whilst the view is held that the study has internal validity, the amount of the data available for the South African market, specifically the smaller volume of rated firms, was concerning.

The study of impact of credit ratings impact on the capital markets is one that is often discussed in the finance media, particularly when there is an impending rating action. Domestically, this topic is a frequently discussed topic, particularly when rating action is against the sovereign and/or key utilities, such as the electricity generator, Eskom. We therefore hold the view that the study has relevance and enhance the study validity.

3.5.3 *Reliability*

As Golafshani (2003) noted, the reliability of the research is underpinned by consistency and accuracy of the study. The event study methodology which is a methodology used for this study, has been employed in various studies highlighted in the literature review section which include amongst others (Abad-Romero & Robles-Fernandez, 2006; Avramov et al., 2009; Dichev & Piotroski, 2001) etc.

The software used for analysis is the IBM SPSS software, thus we are reasonably confident that the outcome is fairly reliable.

Chapter Summary

This research methodology chapter provide an outline of the data used in this study and also the sources of the data. The statistical methods and mathematical calculations performed are discussed under the research design whilst evident limitations and validity considerations of the study are also discussed in this chapter. Considering the event study methodology and market model parameters are well established research methodologies used to establish the impact of an event on financial markets, we are reasonably confident with the methodologies employed.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the results of the empirical analysis performed on the data using the event study methodology. This chapter is structured as follows: Section 4.2 outlines the descriptive statistics of the sample analysed. Section 4.3 presents the results of the stock market reaction to credit rating change. The chapter summary concludes the chapter.

4.2 Descriptive Statistics

The rating agencies use different measures to assess the deterioration / improvement in default risk of the company including the company's financial characteristics as presented in their financial reports. Table 3 presents the univariate statistics about financial characteristics of companies that received credit rating upgrades and downgrades at the time that the rating was changed.

Table 3: Financial characteristics of firms that had a rating action (upgrades and downgrades)

Panel 1: Rating Upgrades	**Mean**	**Median**	**SD (σ)**	**Skewness**
Total Assets ('millions)	3,778,979	3,862,329	934,300	-0.22
Total Liabilities (millions)	3,467,323	3,535,310	834,849	-0.25
Market Cap ('million)	685,405	644,727	122,150	1.13
Total Liabilities -to- Market Cap (x)	5.06	5.48	6.83	-0.51
EPS ('cents)	30,756	31,508	8,447	-0.86
Cash Flow from operations ('millions)	55,409	51,246	16,634	0.11
Interest Cover	25	26	8	-1.04
P:E Ratio	145	139	32	2.19
Panel 2: Rating Downgrades	**Mean**	**Median**	**SD (σ)**	**Skewness**
Total Assets ('millions)	6,434,776	6,840,546	1,664,299	-0.74
Total Liabilities (millions)	5,964,220	6,382,416	1,557,238	-0.72
Market Cap ('million)	2,653,986	2,556,245	1,401,389	1.09
Total Liabilities -to- Market Cap (x)	2.25	2.50	1.11	1.12
EPS ('cents)	29,845	31,774	6,620	-1.76
Cash Flow from operations ('millions)	1 07,272	97,891	46,962	1.00
Interest Cover	19	17	7	0.79
P:E Ratio	148	165	85	-1.37

Table 3 shows that on average firms that experienced rating upgrades have a better interest cover ratio relative to the downgraded firms. The interest cover is considered an ideal proxy for debt service ability of a company and consequently significant determinant of the probability of default.

Considering the varied nature of companies, the gearing proxy used was total liabilities to market capitalisation ratio. Interestingly, the downgraded firms have lower indebtedness relative to the upgraded firms. This is contrary to the belief that downgraded firms generally have higher financial obligations. The results of the gearing proxy used, corroborate with Goh and Ederington (1993) whose views indicate that not all gearing is negative for equity returns as in some instances, higher gearing indicate the transfer of wealth from debt holders to equity holders. The analysis indicates that despite the level of gearing, the ability to service the debt as reflected by the interest coverage ratio is the most important metric in establishing the probability of default by companies.

4.3 Stock market reaction to credit rating upgrades and downgrades

The cumulative average abnormal returns (CAAR) were observed over the window period with a view to establishing whether the downgrades/upgrades of the firm's credit rating have any impact on the share price. Table 4 presents information about the performance of the shares when the firms' credit rating is upgraded.

Table 4: Abnormal return measure for upgrades

Days	Mean CAAR %	Median	STD	t-value	p-value
-5	0.0002	0.0006	0.002	0.0864	0.5339
-4	0.0014	0.0003	0.005	0.2946	0.6139
-3	0.0050	0.0006	0.002	2.4692	0.9874
-2	0.0114	0.0012	0.004	2.6643	0.9915
-1	0.0091	(0.0021)	0.002	3.7360	0.9991
0	0.0102	(0.0011)	0.005	1.9313	0.9643
1	0.0158	0.0050	0.003	5.2326	1.0000
2	0.0129	(0.0077)	0.006	2.2607	0.9810
3	0.0136	0.0001	0.004	3.5896	0.9988
4	0.0141	(0.0006)	0.003	4.2964	0.9997
5	0.0151	(0.0006)	0.003	5.3930	1.0000

The results in Table 4 show that the mean CAAR for credit rating upgrades is positive throughout the window period but not significant at any conventional level, implying that the credit rating upgrades have no impact on the share price. These findings corroborate other researchers including (Avramov et al., 2009; Creighton et al., 2007; Ferreira & Gama, 2007; Hite & Warga, 1997) who all found that ratings upgrades contains no new information. Kenjegaliev et al. (2016) also found that there is insignificant evidence of the impact of rating upgrades on stock prices.

Figure 3 below graphically presents the market reaction on rating upgrades throughout the window period using both abnormal return and cumulative average abnormal return. The CAAR increased to about 1.50% over the sample period.

Figure 3: Average Abnormal Returns and Cumulative Average Abnormal Return performance on credit rating upgrade

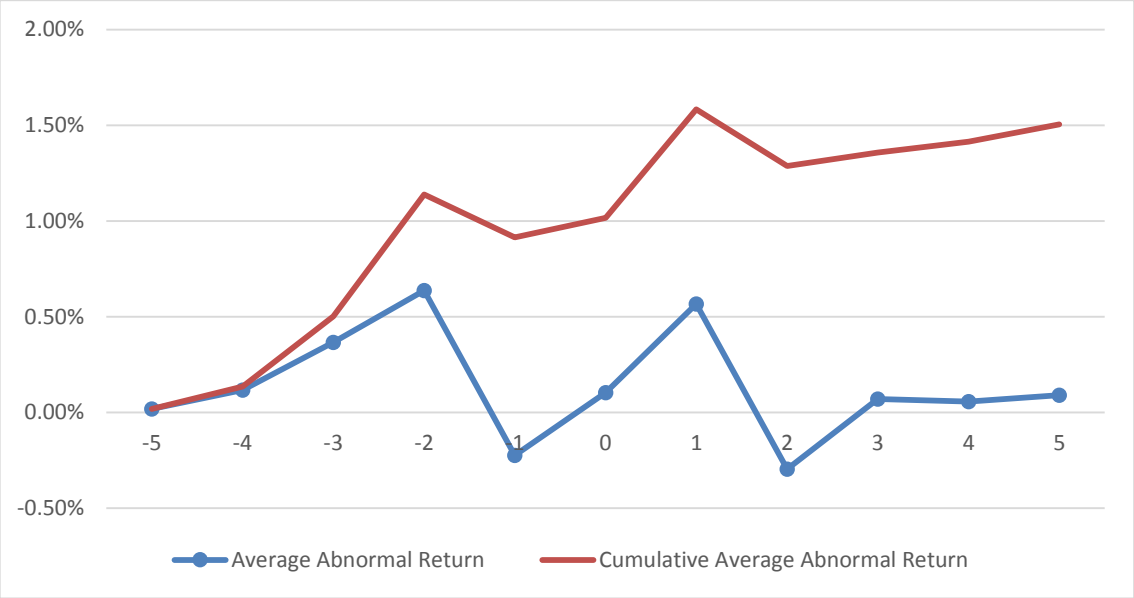


Table 5 shows that the market significantly reacts negatively to the credit rating downgrade news from about 3 days before the actual announcement. The significant negative market reaction continues up to five days after the downgrade announcement was made. The results generally shows that the JSE underreacts to bad news but do not overreacts to good news.

Table 5: Abnormal return measure for downgrades

Days	Mean CAAR %	Median	STA	t-value	p-value
-5	0.0036	0.0020	0.003	1.1276	0.8614
-4	(0.0036)	(0.0038)	0.004	-0.8902	0.1937
-3	(0.0061)	(0.0016)	0.002	-3.0123	0.0044
-2	(0.0124)	(0.0052)	0.004	-3.2018	0.0030
-1	(0.0076)	0.0040	0.003	-2.2766	0.0190
0	(0.0050)	0.0026	0.002	-2.1709	0.0232
1	(0.0142)	(0.0031)	0.004	-3.1856	0.0031
2	(0.0119)	0.0029	0.004	-2.9034	0.0055
3	(0.0162)	(0.0026)	0.007	-2.3385	0.0168
4	(0.0147)	0.0075	0.006	-2.6059	0.0099
5	(0.0127)	0.0022	0.002	-5.0950	0.0001

Figure 4 below graphically illustrates how the market reaction to credit rating downgrades and shows much more clearly how the market reacts to the bad news.

Figure 4: Average Abnormal Return and Cumulative Average Abnormal Return on credit rating downgrades

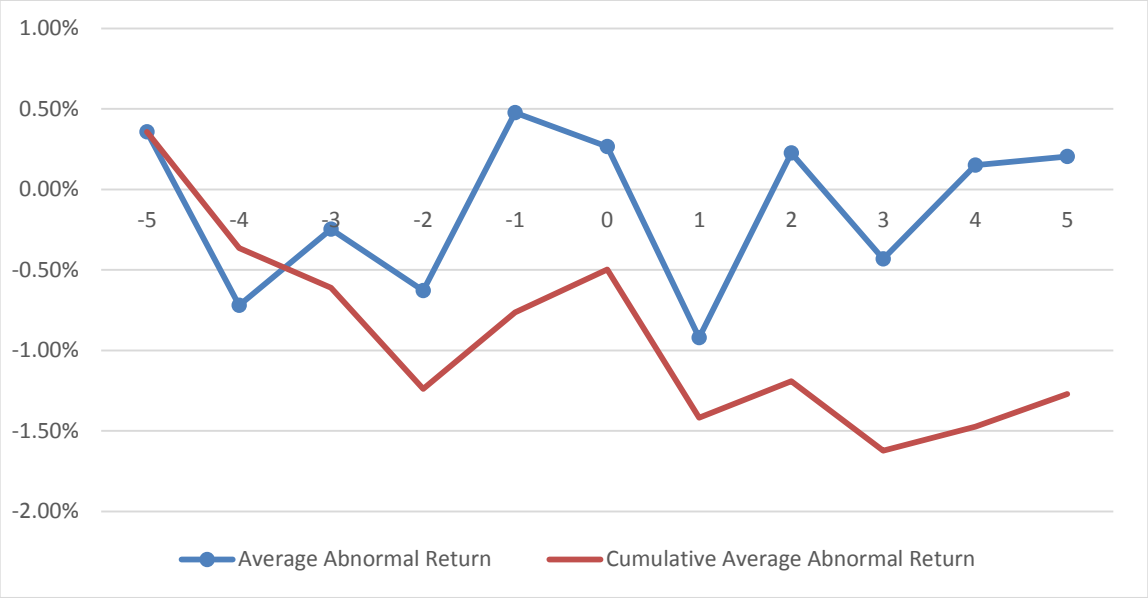


Figure 5 below depict the comparative movement of stock market when the firms' credit rating is downgraded and upgraded. The picture shows the significant under reaction of the market to downgrades.

Figure 5: Cumulative Average Abnormal Return for each rating action (Upgrades and Downgrades)

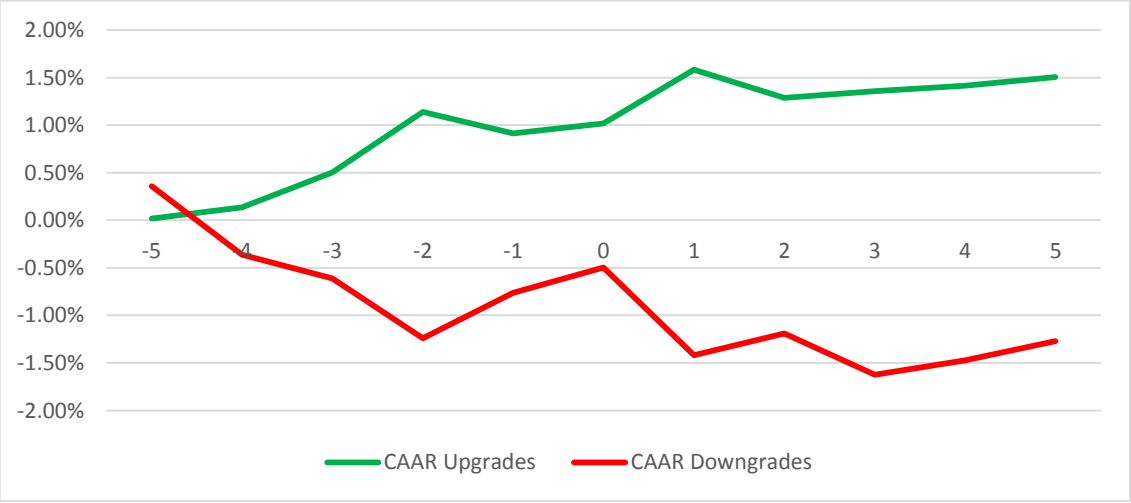


Figure 5 shows that the market significantly underreacts to negative news of credit rating downgrade while on the other hand upgrades result in positive, albeit insignificant CAAR implying that rating upgrades do not bring any new information to the market but rating downgrades bring about significant adverse movement in the equity prices.

The findings of the significant negative abnormal returns for downgrades corroborate the findings by other researchers including (Creighton et al., 2007; Dichev & Piotroski, 2001; Goh & Ederington, 1993; Hite & Warga, 1997) and Avramov et al. (2009) amongst others.

Chapter summary

The empirical results show that the market does not react significantly positive to credit rating upgrades but significantly reacts negatively to credit rating downgrades. The next chapter discusses and concludes the thesis. The observations made in this chapter are largely in line with the majority of the literature reviewed under the literature review chapter.

CHAPTER 5. DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter discusses the results and presents the conclusion of the study. The chapter is organised as follows: Section 5.2 discusses the results. Section 5.3 provide the recommendations to identified parties that may be interested in the outcome of this study; Section 5.4 outlines the suggestions for related areas of interest that may require future research and Section 5.5 concludes the study .

5.2 Discussion of the results

The aim of this study is to investigate how the stock market reacts to the credit rating upgrades and downgrade, and in so doing establish the relationship between bond ratings and stock returns. The findings indicate that the credit rating upgrade do not have any impact while the rating downgrade brings about a significant market underreaction in stock prices. This observation suggests that rating upgrades are largely anticipated by the market at the time that they are announces while on the other hand, the rating downgrades provide new sensitive information to the market. The reaction to credit rating downgrade refutes the Efficient Market Hypotheses which suggests that share prices react immediately to new information and adjust accordingly.

The findings of this study corroborate the findings of Poornima et al. (2015); Dichev and Piotroski (2001) and Jorion and Zhang (2007) who found positive but insignificant average abnormal returns following a rating upgrade. The result of this analysis is also consistent with the findings of Hite and Warga (1997), Creighton et al. (2007), Avramov et al. (2009), Ferreira and Gama (2007) and Kenjegaliev et al. (2016) who all found that ratings upgrades contains no new information or if any, it contains very insignificant information consumed by capital markets.

Most of the studies including Abdeldayem and Nekhili (2016); Poornima et al. (2015); Kenjegaliev et al. (2016) and Creighton et al. (2007) also argue that the

most pronounced impact found of credit ratings is on the rating downgrades which suggest downgrades contain more valuable information for the market than upgrades. The findings in this study corroborate these studies by showing that the downgrades have price sensitive information.

The findings in this study are different from Abad- Romero and Robles-Fernandez (2006) who observed negative abnormal returns for upgraded firms. The reasoning for the different observation was attributed to wealth distribution hypotheses which suggest that rating downgrades for a company result in reduction in bond yields and therefore the beneficial interest is transferred to the equity holders resulting in the rise in equity prices. The findings in this study do not support the wealth distribution hypothesis, instead the findings support the information effect hypothesis.

5.3 Recommendations

The main stakeholders identified under the significance of the study, were identified as being the equity market participants, in particular investors in the South African equity markets and perhaps other emerging countries' capital markets with similar institutional frameworks to South Africa and also non-banking financial institutions regulators such as the Financial Services Board in South Africa.

It is recommended that both the stakeholders note the information hypotheses of the credit rating announcements which could possibly be included in their roles i.e investors could consider using the information disseminated by the credit rating agencies in their investment appraisal process. The regulators could set the credit rating change announcements as one of the parameters for monitoring the stock market as part of their on-going regulatory function.

5.4 Suggestions for further work

While the findings in this study are topical given the current situation in SA, further work could make a comparison of the impact of credit rating between emerging markets and developed markets.

The current study only looked at the impact of material changes in credit ratings to equity prices. The other studies, in particular the latest published study by Kenjegaliev et al. (2016) looked at changes in credit ratings, irrespective of their materiality. It is therefore suggested that a study assessing the impact of all credit rating movements, even within the same rating band be conducted.

The South African equity market, represented by the JSE All Share Index which was used as the benchmark to determine abnormal returns, comprises largely multi-jurisdictional counterparties that are not only exposed to the South Africa sovereign risk; it may be prudent to investigate the importation of risk from other geographies for the purposes of determining the impact on equity prices.

5.5 Conclusion

In conclusion, in SA's market, the downgrading of credit rating has effect on the share price while the credit rating upgrade does not have the impact. Thus, bond yields dues to rating downgrades have impact on stock prices. Thus, although at macro level, the SA sovereign rating downgrade has not led to a decline on the JSE value, at micro level, when a companies' rating is downgraded, the investors loose value in their share portfolios.

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ANNEXURE A

Company Name	Frequency	Percent	Cumulative Percent
Absa Bank Ltd	2	5.4	5.4
Absa Ltd	2	5.4	10.8
ABSA Ltd	1	2.7	13.5
Adcorp Holdings Ltd	1	2.7	16.2
AECI Ltd	1	2.7	18.9
African Bank Investments Ltd	2	5.4	24.3
Basil Read Holdings Ltd	1	2.7	27.0
Capitec Bank Holdings Ltd	1	2.7	29.7
Delta Property Fund Ltd	1	2.7	32.4
Dimension Data Holdings PLC	1	2.7	35.1
FirstRand Ltd	3	8.1	43.2
Hospitality Property Fund Ltd	2	5.4	48.6
Investec Ltd	2	5.4	54.1
Nedbank Ltd	3	8.1	62.2
Old Mutual Plc	2	5.4	67.6
Omnia Holdings Ltd	1	2.7	70.3
Premium Properties Ltd	1	2.7	73.0
Santam Ltd	1	2.7	75.7
Sappi Ltd	1	2.7	78.4
Sasfin Holdings Ltd	2	5.4	83.8
Standard Bank Group Ltd	3	8.1	91.9
Telkom	1	2.7	94.6
Telkom SA SOC Ltd	2	5.4	100.0
Total	37	100.0	

ANNEXURE B

Category	Agency	Definition
AAA / Aaa	Fitch	Lowest expectation of default risk. Exceptionally strong capacity for payment of financial commitments
	Moodys	Judged to be of the highest quality, subject to the lowest level of credit risk
	S&P	The obligor's capacity to meet its financial commitment on the obligation is extremely strong
	GCR	Highest credit quality. The risk factors are extremely low
AA / Aa	Fitch	Expectations of very low default risk. very strong capacity for payment of financial commitments
	Moodys	Judged to be of high quality and are subject to very low credit risk
	S&P	The obligor's capacity to meet its financial commitment on the obligation is very strong
	GCR	Very high credit quality. Protection factors are very strong
A / A	Fitch	expectations of low default risk. The capacity for payment of financial commitments is considered strong
	Moodys	Judged to be upper-medium grade and are subject to low credit risk
	S&P	Somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher-rated categories. However, the obligor's capacity to meet its financial commitment on the obligation is still strong
	GCR	High credit quality. Protection factors are good. However, risk factors are more variable and greater in periods of economic stress
BBB / Baa	Fitch	Expectations of default risk are currently low. capacity for payment of financial commitments is considered adequate but adverse business or economic conditions are more likely to impair this capacity
	Moodys	Judged to be medium-grade and subject to moderate credit risk and as such may possess certain speculative characteristics
	S&P	Exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation.
	GCR	Adequate protection factors and considered sufficient for prudent investment. However, there is considerable variability in risk during economic cycles.
BB / Ba	Fitch	Elevated vulnerability to default risk, particularly in the event of adverse changes in business or economic conditions over time
	Moodys	Judged to be speculative and are subject to substantial credit risk
	S&P	Less vulnerable to nonpayment than other speculative issues. However, it faces major ongoing uncertainties or exposure to adverse business, financial, or economic conditions which could lead to the obligor's inadequate capacity to meet its financial commitment on the obligation
	GCR	Below investment grade but capacity for timely repayment exists
B / B	Fitch	material default risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment
	Moodys	considered speculative and are subject to high credit risk
	S&P	more vulnerable to nonpayment than obligations rated 'BB', but the obligor currently has the capacity to meet its financial commitment on the obligation. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitment on the obligation
	GCR	Below investment grade and possessing risk that obligations will not be met when due
CCC / Caa	Fitch	Default is a real possibility
	Moodys	Judged to be speculative of poor standing and are subject to very high credit risk
	S&P	Currently vulnerable to nonpayment, and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitment on the obligation. In the event of adverse business, financial, or economic conditions, the obligor is not likely to have the capacity to meet its financial commitment on the obligation
	GCR	Well below investment grade securities. Considerable uncertainty exists as to timely payment of principal or interest
CC / Ca	Fitch	Default of some kind appears probable.
	Moodys	highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest
	S&P	currently highly vulnerable to nonpayment. Default has not yet occurred, but the agency expects default to be a virtual certainty, regardless of the anticipated time to default
	GCR	N/A
C / C	Fitch	Default appears imminent or inevitable
	Moodys	Lowest rated and are typically in default, with little prospect for recovery of principal or interest
	S&P	Currently highly vulnerable to nonpayment, and the obligation is expected to have lower relative seniority or lower ultimate recovery compared to obligations that are rated higher
	GCR	N/A
D	Fitch	Default - non-payment, bankruptcy filing, creditors judgement etc
	Moodys	N/A
	S&P	in default or in breach of an imputed promise
	GCR	Defaulted on one or more of its obligations, failing to meet scheduled principal and/or Interest payments. Defaulted on all obligations, or is likely to default on all or substantially all of its obligations as they fall due, thus failing to meet all or substantially all scheduled principal and/or Interest payments

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