

**COMPARATIVE PERFORMANCE OF SOCIALLY
RESPONSIBLE AND CONVENTIONAL PORTFOLIOS IN
SOUTH AFRICA**



Sculpting global leaders

By

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DECLARATION

I, Shingirirai Bondera declare that the research work reported in this dissertation is wholly my work, except where otherwise indicated and acknowledged. This dissertation has not either in whole or part, been submitted at any other University or institution for degree purposes.

Shingirirai Bondera

Johannesburg

June 2014

Signed at

On the Day of June 2014

DEDICATION

This research report is dedicated to

To the GOD Almighty,

My late Parents, Lovemore Bondera and Alice Tanonoka Bondera

My Brother Mativenga Bondera, Sister Eukeria Bondera

And all my MMFI classmates

ABSTRACT

There is a widespread view amongst private investors and public investment corporations that socially responsible investing leads to substandard returns relative to Conventional investing. Conventional portfolios are portfolios with sin stocks or lowly ranked stocks in terms of the Environmental, Social and Governance (ESG) factors whilst Socially responsible Investments (SRI) are portfolios with stocks regarded as socially desirable with high ESG rankings. We constructed two portfolios using the JSE stocks and the Bloomberg rankings in accordance with the ESG rankings guidelines. As an additional analysis, we also assessed the performances of the JSE socially responsible index, JSE TOP 40 and the FTSE JSE ALL SHARE. Using different performance measures such as the CAPM, Fama French, Carhart 4 factor model, Sharpe ratio, and Treynor ratio; we found interesting evidence contrary to the beliefs of many investors.

No statistically significant difference in performance is found between our self-constructed portfolios, and the different indexes such as JSE SRI, JSE TOP 40 and the FTSE JSE indexes. We have separated beliefs from reality/ facts in this paper that socially conscious investors can perform well in South Africa.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the background of the study, research problem, research objectives, and research questions guiding the study, the gap and significance in the literature. It also presents the outline of the study. The chapter is organised as follows: Section 1.2 presents the background of the study, 1.3 presents the research problem, and section 1.4 elaborates on the research objectives. Section 1.5 presents the research questions, 1.6 presents the gap and significance in the literature whilst section 1.7 discusses the outline of the study.

1.2 Background of the Study

Socially responsible investment (SRI) is investing only in companies whose products, policies and practises are regarded as socially desirable (Jordan, Miller & Dolvin 2012). The objectives of socially responsible investing (SRI) range from environmental issues to personnel policies. Socially responsible investing (SRI) is a theme that is being practised by different types of socially conscious investors including when investing in mutual funds, pension funds and asset managers. Due to a large number of Christians and Muslims calling for investors to do their investments with due considerations to the impact either on the environment or to human being themselves, there has been an encouragement for investors to invest responsibly. These investments are normally done at the expense of sin stocks returns which include alcohol, tobacco, human rights, renewable energy, abortion/birth control, pornographic or adult entertainment, nuclear power business practise and working conditions (Episode, 2008). The broad aim of this study is to investigate if there is a price paid in leaving sin stocks in portfolios of mutual funds or pension funds.

Socially responsible investing (SRI) can be viewed as having started in the mid-1700s during biblical time when Jewish Law laid a recommendation that there should be religious investments which embrace peace, harmony and non-violence (Lozano, Albareda, & Balaguer, 2006 & Geczy, Stambaugh & Levin 2005). Socially conscious investors would not invest in organisations that make profit from products that enslave, kill or impart negatively on human beings and society. Episode (2008) and Renneboog, Ter Horst, and Zhang (2008) found out that sin stocks outperform SRI stocks in the European Market. Derwall, Guenster, Bauer, and Koedijk, (2005) Sauer (1997) and Statman (2000) reiterated that the Domino

Social Index did as well as the S&P500 though it was more risky than the S&P500 from 1990 to 1999.

Kempf and Osthoff (2007) on the contrary, actually found out that socially responsible portfolios outperformed the unethical portfolios between the period of 1995 to 2003. According to Sparkes and Cowton, (2004) and Bauer, Koedijk, and Otten, (2005), ethical investing has been found to have no significant impact on performance or different from conventional investing.

The first socially responsible funds in South Africa were established in 1992 (Viviers, Bosch, Smit, & Buijs, 2009). During the 1970's, many firms avoided investing in firms associated with the Vietnamese war and many also avoided South African firms before 1994 due to the Apartheid system which was practised by the South African government then. It is estimated that more than 2.3trillion dollars was invested in SRI by 1999 in the United States alone. This socially responsible (SRI) phenomenon has encountered a tremendous increase in Europe and it is important to understand the relationship of risk and return it brings especially in new and emerging markets such as South Africa (Hong & Kacperczyk, 2009).

In May 2004, a socially responsible investment (SRI) Index was launched on the Johannesburg Stock Exchange (JSE) which conferred to social sustainability, environmental and corporate governance pillars of the triple bottom line. Schueth (2003) finds that in the UK, France and the US there is a price paid for investing in SRI funds as compared to sin funds' portfolios and that SRI have lower yield of risk and return trade-off. Corporate social responsibility has become more fashionable to investors and it requires more attention since the world is becoming more civilised by day rendering investors to demand socially inclined investments (Hill, Ainscough, Shank, & Manullang, 2007; Seth, 2005)

The purpose of this study is to evaluate the performance of socially responsible stocks portfolios versus sin stocks portfolios especially now when most investors seem to prefer socially responsible stocks. In fact, the number of socially responsible funds have increased and include the Nedbank Sustainability Investing Index, Oasis Crescent Equity Fund, Fraters Islamic Equity Fund, Sanlam Empowerment Equity Fund, Community Growth Gilt Fund, Sasfin Socially Responsible, Sasfin Twenty Ten Fund and Fraters Real Income Fund amongst themselves which have been created as a request by investors to meet their ethical

requirements (Viviers et al, 2009). This study uses the term socially responsible investing to refer to sustainable, ethical environmental and good corporate governance investing.

1.3 Research Problem

In the recent past, we have seen the number of SRI funds increase in South Africa from having none in 2000 to having about 35 funds (Viviers et al 2009). In the year 2004 the JSE established the SRI index. This indicates that over time, investors have become much sensitised about the effect of the companies they invest in on their environment. Finance stipulates that the objective of each investor is to maximize their wealth by way of maximizing their returns from the investment (Jordan et al 2012). The problem is, it is not very clear, especially from emerging markets perspective whether SRI investors maximize their returns compared to conventional investors. .

This study aims to investigate whether there is a price to be paid for constraining portfolios and if it is justified to expect the same returns as those of conventional portfolios. Socially responsible investment is a cause of concern for private investors, governments, churches, private institutions, pension funds, asset managers and the like (Scholtens, 2006) and as such it needs to be given the attention it deserves as it is growing like veld fires in the financial sector.

Lozano et al (2006) reiterates that one of the limiting factors for the development of social responsible investment is investor's attitudes. Most investors are not aware that SRI mutual funds can perform as well as conventional funds. The lack of information on the performance of these socially responsible investments acts as a hindrance to investors from investing in the so called socially responsible funds (Rockness & Williams, 1988).

1.4 Research Objectives

The Objectives of this research are:

- To investigate whether there is a difference in performance between socially responsible investments and conventional stocks portfolios
- To establish how SRI indexes perform as compared to the broader market
- To establish whether socially responsible portfolios are less volatile compared to conventional funds' portfolios

1.5 Research Questions

The research questions are as follows

- Do investors get better / worst returns for investing in socially responsible investments?
- What are the SRI stocks?
- What is the impact of SRI screens on fund returns and risk loading?

1.6 Gap and Significance in the Literature

The extant of literature have mixed findings regarding the difference in the performance of SRI funds compared to conventional funds 'or portfolios. Some literature, for example Kempf and Oscthoff (2007) view SRI portfolios as performing better than conventional funds. On the other hand Sauer (1997), Bauer et al., (2005) and Statman (2000) find that there is no significant difference between SRI portfolio performances compared to conventional funds. Other studies carried out by the likes of Renneborg et al., (2005) and Hong (2009) have highlighted that sin stocks perform better than SRI stocks. These studies have been carried out in America, Europe and Australia and not in developing and emerging markets. This study seeks to add on the literature on the performance of SRI portfolios compared to conventional portfolios in a developing and emerging market using the JSE stocks to create portfolios to enable us see if there is a price paid in investing in SRI portfolios. We have seen the growth of SRI in the developed world and it is said that when the US catches a cold everyone sneezes.

The trend of SRI in South Africa is growing significantly as investors become more and more inclined to socially responsible investing by day. This study will be significant in that it will attempt to shed more light on the performance of the socially responsible stocks portfolio's as compared to investments with sins stocks in their portfolios focussing on the JSE. This study wants to shed light on whether socially responsible investors receive the same returns as conventional investments which include sin stocks. This study makes a contribution in outlining the volatility of socially responsible portfolios as compared to sin stocks portfolios on the JSE. Clarity on the determinants for a stock or portfolio to be considered a socially responsible one or whether it is a sin fund or stock will be aired. The trend of SRI on the JSE and asset management institutions is investigated over the years in South Africa.

1.7 Outline of the Study

Chapter 2 provides literature review on social responsible investments and performance. The chapter develops an insight into the existing gaps in the literature. Chapter 3 presents the research methodology and discusses the research design, and hypothesis testing in analysing the performance of SRI portfolios against conventional portfolios. Chapter 4 analyses and presents the results of the study. Chapter 5 discusses the results and draws conclusions as well as make recommendations and suggestions for further study.

Chapter Summary

In this chapter we looked at the background of the study. The objectives and questions of the study were presented. The gap, significance and outline of the study were highlighted. SRI is an interesting phenomenon which should be given the attention it deserves. The next chapter focuses on the literature pertaining history of SRI, performance of SRI portfolios compared to conventional funds or portfolios and the strategies employed in socially responsible investing will be aired.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the extant literature pertaining to socially responsible investing as well as the performance of socially responsible funds compared to conventional funds. The chapter is organised as follows: Section 2.2 discusses the history and evolution of socially responsible funds. Section 2.3 analyses the performances of SRI funds compared to conventional funds. Section 2.4 clarifies the common investing strategies used by investors whilst section 2.5 sheds light on the socially responsible investing strategies used by socially conscious investors. Drivers of socially responsible investing are described in section 2.6. Section 2.7 presents the impact of SRI investing as Section 2.8 assesses the drawbacks of socially responsible investing. Section 2.9 finally posits the information asymmetry in socially responsible investments.

2.2 History and evolution of Socially Responsible Investments

Socially responsible investment also known as ethical investing is considered to be an investment strategy that seeks to promote good environmental and societal aspirations as well as economic gain (Brzeszczyński & McIntosh, 2013; Gifford 2004; Hamilton, Jo, & Statman, 1993; Renneboog, Ter Horst, & Zhang, 2008,). Socially responsible investing is including non-financial criteria by integrating environmental, social, governmental (ESG) concerns into investing processes (Salaber, 2007). Socially responsible investing is considered to be one of the key elements driving corporate social responsibility (CSR) (Lozano et al., 2006).

Socially responsible investors avoid sin stocks (alcohol, gambling, weapons, tobacco, adult entertainment\ pornography , nuclear) whilst they engage in stocks of companies seen as involved in practises regarded as socially sustainable with good labour conditions, environment and community relations in their portfolios or funds (Capelle-Blanccard & Monjon, 2012) . Capelle-Blanccard and Monjon (2012), state that socially responsible investments (SRI) can be the solution to the moral crisis created by capitalism such as the financial crisis that was created by subprime mortgages.

Socially responsible investing is believed to originate from the Jewish, Islamic and Christians religions for example Christians had restrictions and limitations on loans, in specific usury in

the mediaeval times (Renneboog et al., 2008; Schwartz 2003). Islamic banking prohibits making money from interest on lend funds. From historical times, the Muslims have forbidden their followers from eating pork; they have been also involved in eating food in conjunction with their Halal laws meaning permitted foods (Renneboog et al 2008). In the 17th Century, the Quakers refused to be involved in the business of enslaving people and making money from the sale of weapons; they believed in doing as you say phenomenon (Dillenburg, Greene, & Erekson, 2003). Renneboog et al. (2008) further clarifies that the Methodists in the 1920s avoided investing in companies seen as involved in sinful activities such as tobacco, alcohol, weapons production and gambling.

Sparkes and Cowton (2004) argue that any investor who cares about ethical, moral, political and religious principles should at least want to invest their money in accordance with their principles and beliefs. The maturity of socially responsible investments has links with the development of corporate social responsibility (CSR).

According to Dillenburg et al (2003), one of the first socially responsible mutual funds was the Pioneer Fund created in the mid-1920s which had screens barring alcohol and tobacco. One of the religious concerns over products such as alcohol, tobacco, gambling, the environment, human rights ,animal welfare issues, apartheid in South Africa and green energy have been considered in social responsible investing (Sparkes & Cowton, 2004). Ethical investing has its origins in the Islamic religion following the interpretations from their holy book, the Koran (Renneboog et al., 2008).

Modern roots of SRI can be traced back to the harsh political climates of the 1960s bedevilling the Vietnamese, cold wars, women rights which made investors not to want to promote these proponents of inequality, deaths and the like (Knoll 2002 & Schueth, 2003). Circumstances in South Africa between 1960 and 1994 catapulted many investors to loathe dealing, or investing in any South African companies due to Apartheid¹ (Dillenburg et al 2003; Viviers et al 2009; Starr, 2007). Emphasis on socially responsible investing then shifted to human rights violations particularly in labour practises. Corporate governance, of late has been the major focus of SRI where firms are evaluated in terms of their responsiveness to ethical and societal considerations (Hill, Ainscough, Shank, & Manullang, 2007).

¹ See also Hylton (1992)

Religious socially responsible investing was demonstrated in modern times in the US by avoiding investing in sin stocks (Schueth, 2003). Fabozzi, Ma and Oliphant (2008) describe sin as an act of wilful or deliberate disobedience to a religion's morals or views. Almost 10% of all US investments are managed by at least some screening of socially acceptable norms (Galema, Plantinga, & Scholtens, 2008). The goal of SRI is firstly to change institutions of their asset management sector by restoring social responsibility to finance and secondly to propose alternative institutions based on SRI principles as alluded to by Kofi Annan (Arjalies, 2010).

Mill (2006) believes that socially responsible investments are growing across the whole world as seen in Europe where they started in Sweden with the retail SRI fund established in 1965. Whilst most of the origins of the socially responsible phenomenon are religious most of SRI funds were born in the 1960s when there were encouragements to recognise civil rights, rights of women, anti war calls and also apartheid in South Africa (Bilbao-Terol, Arenas-Parra, & Canal-Fernandez, 2012). The forum for sustainable and responsible investments, 2012 report claims that one in nine dollars under professional management in the United States is in SRI funds. The report also noted that 3.74 trillion dollars was under a certain socially responsible management strategy out of the 33.3 trillion in the US representing 11 % of the total funds under management. Sparkes and Cowton (2004) noted that SRI was limited to a few retail funds however there has been an increase across the world from UK, Australia, US to have it diversified across sectors.

Renneboog et al (2008) ascertains that the growth of the SRI industry is consumerism where consumers pay for products or services that are inclined to their beliefs and personal values. Viviers et al (2009) noted that SRI funds represented R18 billion, nearly 1% of the investment capacity in South Africa. The first SRI fund in South Africa was established in 1992. In May 2004, the SRI Index was launched on the JSE and the index is meant for companies that consider the triple bottom line which is economic, social and governance reporting. The SRI index is in line with corporate social responsibility (CSR) for socially desirable investors (Gladyssek & Chipeta, 2012). The paradigm of socially responsible is viewed as changing from an exclusionary scenario to an influence on corporate behaviour (Dillenburger, Greene, & Erikson, 2003).

The first SRI funds in South Africa were created in 1992. Many SRI have since been created such as the Community Growth Equity Fund, Community Growth Gilt Fund, Fraters Earth Equity Fund, Fraters Islamic Equity Fund, Nedbank Sustainability Investing Index Fund, Oasis Crescent International Fund of Funds, Sasfin Socially Responsible Fund, Sasfin Twenty Ten Fund, Sanlam Empowerment Equity Fund signalling a real growth by investors willing to invest in socially responsible investments (Viviers et al 2009). The Broad-Based Black Economic Empowerment (BBBEE) is regarded as a social consideration trying to address the bad societal norms of the past to empower blacks. Sparkes and Cowton (2004) acknowledge that the socially responsible investing phenomenon is growing amongst large institutions and that SRI has grown significantly and has also matured.

2.3 Performance of SRI funds compared to conventional funds

The extant literature findings are mixed in terms of whether SRI funds perform better than conventional funds. Some researchers found that there is not a statistically significant difference between the performance of socially responsible investments and that of conventional investments. A study carried out by Almazan, Brown, and Chapman (2004) reiterates that after controlling for fund size, portfolio turnover policy, restrictions or constraints did not produce statistically significant differentials in returns.

Gladyssek and Chipeta (2012) carried out an event study methodology and found out that investors do not earn any significant abnormal returns by investing in an SRI index. They found that the SRI index only outperformed the JSE ALSI in 2004, which was attributed to the enthusiasm of the establishment of the index though overall, there was not any significant difference between the indexes.

Statman (2000) points out that the Domino Social Index (DSI) performed equally well as the S&P500 from 1990 to 1998. The raw returns of the DSI were just a little higher than the S&P500 however the risk adjusted returns of the DSI were slightly lower than that of the S&P500 rendering the difference statistically insignificant. This was in contrast to studies carried out by Kempf and Osthoff (2007), who conducted a positive screening and the best in class screening approach using stocks included in the S&P500 and the DS 400 from 1992 to 2004. Using the Carhart (1997) four factor models the study found out those socially conscious investors can earn abnormal returns.

Sauer (1997) investigated the returns of the Domino Social Index (DSI) relative to those of the S&P500 and the CRSP value weighted market index from 1986 to 1994 using raw returns, Jensen alpha and the Sharpe index and realised that the DSI performed as well as the Vanguard S&P500 using risk adjustment factors.

Episode (2008) and Renneboog et al (2008) found that sin stocks outperform SRI stocks in the European Market. Hong and Kacperczyk (2009) also reiterate that sin industries had higher returns than stocks of companies in other industries. Salaber (2007) investigated 18 European countries using time series data and found that sin stocks outperform other stocks in protestant countries but their performance depended on legislation and the religious environment even after controlling for other risk factors.

Ortas, Moneva and Salvador (2012) investigated whether socially responsible investment indexes in Brazil paid off by comparing the performances of the Brazilian Corporate Sustainability Index (BSCI) and the Bovespa Index by using a single market model and found out that investing in the BSCI did not result in a risk or return disadvantage in bullish markets.

Durand, Koh and Limkriangkrai, (2012) found out and denoted that socially responsible investors are the so called saints whilst conventional investors are the so called sinners. Having constructed an SRI portfolio and a portfolio including sin stocks and using CAPM, Fama & French three factor model and the Carhart four factor model including momentum, that is the Carhart 4 factor model for performance evaluation, found out that companies inclined to social responsibility are less likely to have more agency costs than those of the so called sinners. This is because financial policies of saints are most likely to be financially more optimal than those of the so called sinners including sin stocks.

Managi, Okimoto and Matsuda, (2012) used data from important SRI indexes such as the FTSE 4 Good, MS-SRI, DJSI to represent SRI firms in the US, UK and Japan and found that there was no statistically significant difference between the mean and volatility in all the regions. They also found that there is a positive relationship between corporate governance and firm value.

Derwall et al (2005), Sauer (1997) and Statman (2000) reiterated that the Domino Social Index did as well as the S&P500 though it was more risky than the S&P500 from 1990 to

1999. Schroder (2004), Bauer et al (2006) and Statman (2000) found the difference in returns of SRI funds and those of conventional funds to be insignificant. Statman (2000) found that the DSI returns were slightly lower but not statistically significant so socially responsible investors still get their wishes. Statman and Glushkov (2009) analysed returns from 1992 to 2007 of stocks regarded as social by KLD and found that they had a return advantage as compared to conventional portfolios. They concluded that social responsible investors could perform as well as conventional investors if they used the best of sector screening approach strategy. Schroder (2004) investigated 16 German and Swiss funds and 30 US SRI funds and found out that they have the same performances as conventional funds. Schroder (2004) found that only the Calvin Index underperformed the benchmarks whilst the FTSE4GOOD Index had a significantly negative Jensen alpha.

Bauer et al (2005) analysed 103 ethical mutual funds using multi factor models. Apart from using the CAPM, they also used the Carhart (1997) 4 - factor asset pricing model that controls for book to market, size and the momentum for stock prizes. No evidence of statistically significant difference in returns between SRI and conventional mutual funds was found.

Mill (2006) did a research on the UK unit trust using data which later changed from being conventional funds to being socially responsible found no evidence of any significant difference between the funds' performance. Sauer (1997), using the Jensen alpha also found that investing in SRI does not have an adverse impact on investment performance. He found no significant difference on the Domino Social Investment as compared to the S&P500. Brzezczynski and McIntosh (2013) investigated SRI portfolios returns with dividends against the FTSE100 and the FTSE4GOOD indexes and demonstrated good performance of the SRI portfolios from 2000 to 2010. British SRI funds from the Global 100 list were higher than the returns of both the FTSE100 and the FTSE4GOOD; however the difference in returns between SRI portfolios and both indexes were not statistically significant in most sub periods.

Becchetti and Ciciretti (2009) concluded that socially responsible portfolios did not have inferior risk adjusted returns and were less risky as compared to the conventional portfolios from a study of socially responsible portfolios and that of conventional portfolios from January 1990 to December 2003. Risk adjusted returns for socially responsible portfolios

were not significantly different from their conventional portfolios (Becchetti & Ciciretti, 2009). Using the Garch models they found that SRI portfolio had lower exposure to systematic non diversifiable risk than conventional portfolios.

In contrary, Kempf et al (2007) found that socially responsible portfolios outperformed the unethical portfolios between the periods of 1992 to 2004. Having implemented positive and best in class screening approach using the DS 400² and S&P 500, Kempf et al (2007) found that investors can earn excessive returns of about to 8.7% per year using the Carhart (1997) model.

Hamilton et al (1993) studied 170 conventional funds established before 1985 and 17 social mutual funds and also 150 conventional funds established after 1986 and 15 social or ethical funds and found that the market does not price social responsible characteristics.

In general most studies using the simple one factor model, three and four factor models reveal that SRI funds perform similarly to the conventional funds. Bauer et al (2006) compared 25 ethical funds to their conventional peers in an Australian perspective using multiple factor models found statistically insignificant difference in their returns. Bauer et al (2006) also found out that ethical mutual funds had less exposure as compared to conventional funds. Sauer (1997) posit that socially responsible investors can invest in their socially desirable firm's portfolios and demand the same return as conventional funds as his studies contrasted the performance of the Domino Social Equity Mutual fund and that of Vanguard Extended Market index Mutual Funds and found a favourable performance of the Domino Social Equity Fund.

Cortez, Silva and Areal (2008) focused their studies on 46 funds from the US and Europe, social responsible investments portfolios from August 1996 to February 2007 using conditional and traditional performance measures such as multi index, alphas and betas found that European social responsible funds matched their performances to those of conventional portfolios. Cortez et al (2008) however, found a contrasting performance of mutual funds in the US contrary to previous studies which found the same performance of SRI funds and conventional global funds. They found that SRI global fund slightly under performed conventional funds in the US and Austrian global funds. Furthermore, SRI funds are viewed

² DS 400 stands for Domini 400 Social Index

to be more hinged to conventional indices than the SRI indices (Vandekerckhove & Leys 2007).

Bello (2005) outlines that SRI funds did not differ from conventional funds in terms of asset characteristics, degree of portfolio diversification, or long run investment performance. A sample of 42 socially responsible mutual funds was evaluated using the Sharpe ratio and the Jensen alpha from 1994 to march 2001 using the Domino Social Index (DSI 400) and the S & P 500 as the benchmarks.

Renneboog, Ter Horst and Zhang (2008) and Ter Horst, Zhang and Renneboog (2007) found that there is actually a price paid for being ethical or social conscious in many European, North American and Pacific Asia. The SRI funds underperformed the conventional funds in these countries except for Sweden, Japan and France where they posit that the difference of the risk adjusted returns of the SRI funds and that of conventional funds were statistically insignificant. This finding corroborate the findings of Lee, Humphrey, Benson and Ahn (2010) who carried out a study on 61 US mutual funds and discovered that screening has no effect on a fund's raw unadjusted return but has a decrease in performance when the Carhart model is used.

2.3.1 South African SRI Performance

Viviers et al (2008) tested the risk adjusted SRI funds in South Africa and found out that the SRI funds underperformed their benchmarks indices in some periods but over performed in other periods. They also found out that for SRI to grow in South Africa, more SRI products, funds and investments are required to increase the growth (Gladyssek & Chipeta 2012). The lack of a universally accepted definition of socially responsible investments is also believed to be a hindrance in the growth of the SRI sector in South Africa. By November 2012, about 70% of entities were in line with the requirements to be recognised in the JSE SRI index, according to a research published in the JSE 2012 SRI Index Annual Review Results. 108 companies were reviewed in 2012 as compared to 109 in 2011 and 76 firms qualified in 2012 as compared to 74 in 2011. The 2012 SRI index comprised of 36 top 40 firms, 33 mid cap firms and seven small cap firms whilst 3 firms were first timers in the index.

2.4 Common Investing Strategies

Common investing strategies includes a top down investing strategy, a bottom up investing strategy, growth investing strategy, value investing, index investing and socially responsible investing strategy (Jordan et al 2012)

2.4.1 A top down investing strategy

A top down investing strategy involves choosing stocks based on an investors assumption of the general economy's performance. If the investor anticipates growth of the economy the investor will buy stocks. The great advantage of a top down investing approach is that "the investor is looking at the forest rather than the trees" Mick Heyman, a financial advisor said.

2.4.2 A bottom up investing strategy

Bottom up investing strategy involves choosing stocks based on the assumption of the strength of individual companies performances regardless of the general economy performance or outlook. A bottom up investor benefits from thorough research of individual companies (Farmer & Joshi 2002: Jordan et al 2012).

2.4.3 A contrarian investing strategy

Contrarian investing strategy is picking stocks of companies that are deemed to be out of favour for instance choosing stocks where there is an economic crisis, or where there has been a drop in value due to problems like where there is an oil spill for example BP when it had an oil spill its stock prices plunged (Jordan et al 2012).

2.4.4 Growth investing strategy

Growth investing strategy is investing in stocks that are likely to growth in the future. This is very risky as stocks of small companies that are usually beginning are the most likely to grow but are also likely to fall apart due to competition (Bodie, Kane and Marcus 2005).

2.4.5 Index Investing strategy

An index investing strategy is an investment strategy which aims to replicate the movement of an index of a specific financial market such as the FTSE JSE ALL SHARE, S&P 500, Dow Jones indexes.

2.4.6 Value investing strategy

Value investing is buying stocks of companies that are relatively regarded as cheap and are viewed as undervalued and the investment is done in the hope that the stocks prices will rise.

Value Investing involves taking a long position in the assumption that the market is undervalued and taking a negative (short) position in the assumption that the market is overvalued (Farmer & Joshi 2002).

2.4.7 Income / Dividend investing strategy

This is an investing strategy that focuses on stocks that pays large dividends usually investing on bigger companies like for instance Microsoft, Apple, in the US and SABMiller in South Africa. Even if stock prices plunge at least the investor receives huge pay-outs in the form of dividends (Farmer & Joshi 2002).

2.5 Socially Responsible Investing Strategies

The socially responsible investing strategies used by investors, fund managers include screening, which involves negative, positive and best of sector screening as well as shareholder activism and caused based investing (Viviers et al 2009).

2.5.1 Negative Screening

Screening is the practise of including or excluding firms stocks in mutual funds or portfolios based on their regard and deeds regarding social, religious and environmental perceptions of investors (Schueth 2003). Negative or exclusionary screening is the simplest method used by socially responsible investors where mutual funds or portfolios exclude or avoids companies that participate in the production of tobacco, gambling, alcohol, military weapons, firearms, nuclear power and also adult entertainment / pornography.

Islamic investors use the Shariah principle which comes from the Riba rule; it prohibits Muslims from investing in companies associated with alcohol, pornography, and gambling, non Halaal foods such as pork, tobacco, entertainment and weapons. The Shariah rule compels Muslims not to invest in any form of business that charge interest as well as prohibiting usury and highly geared business, the so called Shariah funds (Viviers et al 2009).

The major disadvantages of avoidance screening are that it limits efficient portfolio diversification and that ostracising bad companies does not change them to be socially considerate (Viviers 2009). This type of socially responsible investing is also known as exclusion as investors exclude stocks regarded as not conforming to being socially desirable by the investor (Gladyssek & Chipeta, 2012) . Another drawback of exclusionary or negative screening is that it is subjective. The way people view sin is different across religions. For example, whereas Muslims feel pork is a sin product of which Christians do not have the

same view. Also where Hindus view cattle as sacred Christians and Muslims view them as their favourite meat.

2.5.2 Positive Screening

The second type of screening is called positive screening which tends to focus on firms with a positive performance according to societal, environmental and religious considerations, (Bibao-Terol et al., 2012; Renneboog et al, 2008). Positive screening tends to look for firms with good records in environmental, labour and societal issues. Negative and positive screening is often referred to as the first and second generation of SRI screens. Many databases provide information on social performance used for screening either negatively or of positive such as KLD³ and Innovest (Starr, 2007). Positive screening can also be called inclusion since investors include in their portfolios stocks which they regard as involved in ethical practises (Gladysek & Chipeta, 2012).

Viviers et al (2009) explains that there are a number of socially responsible indices that have been created such as the Dow Jones Sustainability indexes, FTSE4GOOD, and the KLD indices which meet the globally accepted standards on corporate social responsibility criterion. The FTSE/JSE SRI index was also launched in May 2004 on the JSE. The King 11 report recognises socially responsible investing companies as well as managed companies which respond positively to social issues, and have high ethical considerations. The King report suggests that businesses should incorporate issues such as corporate values, animal rights, HIV/AIDS, BBBEE, diversity, community rights, employee rights, human rights, greenhouse emissions, human skills development and corporate social investments and their endeavours.

2.5.3 Best in class screening

The third screening type is the best in class approach usually relying on combining the positive and negative screening approaches within every sector. Bilbao- Terol et al (2012) acknowledge that the best in class approach is mainly used in the US and the UK. The best in class approach is believed to lead to a smaller sector bias and is thus more efficient and suitable to use in the South African SRI sector given the size of JSE which is smaller compared to other global exchanges (Viviers et al 2009). This approach is also known as the sustainability or triple bottom line.

³ KLD means Kinder, Lydenberg & Domini researchers of social investing

2.5.4 Shareholder Activism

Shareholder activism and commitment is also referred to as the fourth generation SRI strategy where shareholders use their voting powers to divest from companies that are regarded as weak in terms societal or ethical considerations in their dealings (Sholtens, 2006). Shareholder activism is also referred to as an engagement whereby shareholders use constructive dialogue to make their concerns well known to management (McLachlan & Gardner 2004). The main disadvantage of shareholder activism is that the concerned shareholders need to have a significant stake in a firm to make decisions. Shareholders of a listed company under legislation in various jurisdictions can meet and vote regarding ethical issues at annual general meetings (AGMs) (Sholtens, 2006). Pressure can be exerted on firms through divestment in an attempt to influence public opinion. Shareholder activism can also be spurred by NGOs which can influence corporate behaviour through influences on the investment community (Guay, Doh, & Sinclair 2004).

2.5.5 Cause based / Community investing

Cause-based (targeted) investing is an SRI strategy which deals with primary investments that is investing directly in investments for a particular cause for instance BBBEEE (Viviers et al 2009; Schueth 2003). Cause-based investing is very powerful as it is direct and is supported by investors in the developed world. Cause-based investing is also called community investing in that funds are placed in areas where there is lack of adequate capital for job creation, amenable housing and ethically sustainable services and products (Haigh & Hazelton 2004; Schueth 2003). Gifford (2004) further clarifies community investing as another form of positive screening where a provision of small scale loans to people to develop or start their own businesses.

2.5.6 SRI management strategies in South Africa

Viviers et al (2009) reveals that local South African SRI investments use cause based socially responsible strategies for BBBEE and social infrastructure development such as RDP housing , electrification and roads. Some of the SRI funds which use caused based socially responsible strategy include amongst them Investec SRI life fund, Prodigy Transformation Fund, Future growth Infrastructure Bond Fund, Future growth Community Property Fund, AIIF South African Infrastructure Fund. Some funds also screen companies based on ESG factors and criteria (Herringer, Firer & Viviers 2009).

2.6 Drivers of Socially Responsible Investing

Socially responsible investors include individuals, hospitals and medical institutions, banks and investment firms, venture capitalists, responsible property funds, pension funds, non-profit organisations and foundations. Investor's types and their motives for investing socially is summarised below.

According to the forum of sustainable investments (2012), individuals are driven to hold socially desirable retirement savings with mutual funds regarded as having good labour practises as well as environmental practises in line with their beliefs. Hospitals and medical institutions will drive SRI by encouraging investments that promote good healthy living and discouraging alcohol and tobacco products. Banks and Credit Unions enable SRI by serving low and middle classes and promoting clients desire's in broad. Venture Capitalists identify and promote entities that produce environmentally desirable goods and service as well as creating employment. Pension funds and Responsible property funds try to strategize their planning by factoring in climate change to reduce greenhouse emissions and developing residential and commercial buildings to high efficient standards. Foundations and NGOs drive SRI by promoting community development, loan funds and high social impact investments.

Basically investors invest in socially responsible funds for financial returns, non-wealth returns and social change (Beal, Goyen & Philips 2005). Finance's rational theory states that investors are rational, meaning they prefer higher returns given high risk. Investors are concerned with maximising return on investments. Pension funds constitute the largest investment sector under management especially in South Africa. They are controlled by trustees and these trustees need to conform to some socially desirable standards in investing public funds (Gifford, 2004). Investments done by pension funds ultimately finance different industries and sectors therefore, pension funds should be able to influence social impacts of public funds.

Social change is one of the motivations for ethical investing since it sets to improve the world. Investors gain psychic returns indirectly from the outcomes of investing in socially desirables investments (Beal et al., 2005). SRI provides a vehicle for social change. The joint objectives of limiting the damaging corporate activities and a favourable financial return can be met through SRI funds or portfolios. The main benefit derived from social change phenomenon is that of psychic return which leads to feeling good or happiness about

supporting socially desirable activities and discouraging the socially undesirable activities Capelle-Blancard & Monjon 2012.

Self-esteem, altruism and reputation can be the motives behind investors investing in socially responsible investments (Capelle-Blancard & Monjon 2012). Major drivers of socially responsible investing include amongst them more stringent legislation, belief that it will reduce risks, pressure from investors, and pressure from civil society, alignment with corporate mission or beliefs.

2.7 The impact of Social Responsible Investing

The echelons of socially responsible investing varies widely depending on the investors but dwells on the subsets of providing business with intent, generating social or environmental impact on society, and providing capital for publicly traded investments but the major purpose is to provide a positive impact to society in general. Gifford (2004) asserts that funds that screen would score positively on their impact indicators where there is a positive change in corporate behaviour.

Social impact investments are intended to create a positive impact which goes beyond financial return. This can be done through providing capital, business designed with intent, generating social and environmental impact and expecting financial returns (Canada Impact Investment Fund 2011). Giamporcaro, Pretorious and Visser (2012) discovered that most SRI strategies main focus is on social developmental impact or goals. Campbell (2007) asserts that investors should not do anything which has a negative impact on their stakeholders and if they were involved in any harmful activity they should address the problem swiftly to create a positive impact.

Beal, et al (2005) reiterates that investors do not always conform to the mean variance optimisation criteria of finance theory. As such, motives for ethical investing can be summarised in a nutshell as for superior financial returns, for ethical and religious beliefs and as well as for social change.

Social responsible investing can be done in line with two major objectives which are financial return and social impact the investments have on social, environmental and governance issues. The investments can either have a high impact on financial return and hence none impact on social concerns. The investments can also have none financial return and none social impact which will be a useless exercise. An investor can also optimise financial returns

and optimise social, environmental with a financial floor as illustrated above which will bring maximum utility to the investor in terms of financial return and social impact the investment can have.

2.7.1 South African SRI Mutual Funds

The Future growth asset management company uses the Environmental, Social and Governance (ESG) screening and the active ownership and engagement criterion as their socially responsible investing strategy. According to a research on the state of responsible investment in South Africa done in 2007, approximately 32 pension funds controlled ZAR 975 billion which is equivalent to US \$ 138 billion. The biggest mutual fund in South Africa is the Government employee Pension Fund which alluded to socially responsible investing. The study discovered that between 11% and 15% of total assets under management in South Africa were managed under a socially investment strategy. The enablers of SRI in South Africa were noted to be the mainstream responsible investment benchmarks such as the JSE SRI, DJSI, FTSE 4 GOOD, government and civil society.

JSE Securities Exchange SRI Index, Background and Criteria (2013) notes that the selection criterion of the SRI stocks should look at environment, society, governance and related social responsible concerns and finally the climate change. Environment issues involve addressing all key issues and working towards environmental sustainability. Societal concerns include training and development, HIV and AIDS, equal opportunities, Health and safety issues as well as BEE. Governance issue relate to board practises, indirect impacts, ethics business values and risk. Climate issues will be managing and putting effort to reduce carbon emissions and environment degradation.

The JSE SRI Index Background and Criteria (2013) uses a certain criteria to measure SRI stocks which include corporate governance, society, economy and the environment (ESG) factors (Sonnenburg & Hamann 2006). The major objective of the JSE SRI Index is to provide socially responsible investment products. The JSE SRI index uses the ESG factors highlighted above to rank companies so as to put them on the SR1 index.

2.8 Drawbacks of socially responsible investing

Socially responsible investing presents some challenges which may deter its growth in many financial markets especially in emerging market such as South Africa. Some of the challenges are presented below.

2.8.1 The real definition of SRI

What is a socially desirable stock or portfolio is vague and is defined by the religion of the investor. For instance Christians, Muslims, Hindus have different beliefs rendering socially responsible investing ambiguous (Entine 2003). Also sin is subjective in nature due to the different religions and personalities of investors.

2.8.2 Distinguishing between stocks on SRI basis

Viviers et al (2009) notes and posit that exclusionary screening has an adverse effect on diversification of a portfolio rendering a portfolio facing more unsystematic, also known as diversifiable, residual or specific risk exposure. Another drawback of ostracising bad companies does not mean that they get reformed. Socially responsible screening based on positive screening is difficult due to the fact that private information which is not publicly available is needed to know the stocks regarded as socially desirable. Furthermore, a company can be viewed as socially desirable in certain aspects and not in other aspects. For example a company can perform better in labour relations and be regarded as wanting in environmental issues (Vivier et al 2009).

2.8.3 Evidence of reduced Financial Return

Another drawback is that some investors do not want to invest in ethical investments because of evidence of reduced financial return on SRI portfolios. Separating business with beliefs is another drawback to socially responsible investing in South Africa. Jongh et al (2007) further points out that some investors do not want to be involved in ethical or moral debates. Campbell (2007) concludes by pointing out that the general economic conditions of the market and that of the investor affect the way in which socially responsible investments are made. Some investors may argue that the sole major goal of a firm is to add value to their wealth; social desires are secondary to the main goal of increasing shareholders' wealth. Some studies regard socially responsible phenomenon of doing well by good as wishful thinking (Capelle-Blancard & Monjon 2012).

2.8.4 Availability of adequate SRI Information

According to a research about the state of responsible investment in South Africa carried out by Jongh, Ndlovu, Coovadia and Smith (2007), possible barriers to social responsible investing include amongst them lack of adequate information about SRI in South Africa.

Hummels and Timmer (2004) argue that the current reporting is inadequate and insufficient for investors to use in their investment processes.

2.8.5 Costs Involved

Jongh et al (2007) further propagates in their survey that investors seem to think that socially responsible investing is too costly to implement. No evidence of improved financial returns is associated with SRI is another setback of socially responsible investing. There is no clear indication that investing in socially desirable portfolios leads to superior returns.

Herringer et al (2009) asserts that major challenges facing the SRI growth in South Africa include amongst them is that there is no real agreeable definition of SRI or even lack of it thereof. Another challenge is the belief amongst trustees and investors that the SRI is an overwhelmingly underperforming asset class. The availability of SRI information is also regarded as an impediment to SRI growth in South Africa. Inadequate and insufficient human capital as the sector is a new one poses as a challenge to the growth of SRI sector in South Africa.

2.9 Information Asymmetry in Socially Responsible Investments

Socially responsible investing distinguishes itself from traditional investing practise in that socially responsible investor's decisions to invest are not based solely on expected financial returns but on the social impact their investments have on the environment, social and governance (ESG). Another aspect of information asymmetry is revealed if an investor uses the negative screening or exclusionary method, one wonders if one avoids products such as tobacco, adult entertainment/pornography or alcohol, should the investor also avoid or exclude retailers who sell the products and financial firms which offer financial services to the producers of these so called sin products deemed to be socially undesirable (Vandekerckhove & Leys 2007).

Information on how to measure the screening method of the best in class approach is still ambiguous in that it is difficult to ascertain what the reference points for the so called best in class stocks. Information about what is happening in a company can be held by insiders only and outsiders may not know what is actually happening inside or about the company. Information about what one intends to do is not evenly distributed. Also, the past information about a firm is difficult to prove and this makes the process of choosing socially desirable stocks a difficult task due to lack of information on the part of the investor (Vandekerckhove & Leys 2007).

Rhodes (2010) further clarifies that the actual selecting and screening of stocks into funds or portfolios is actually hard. Investors do not understand the term socially responsible investing. A basic solution on determining an accepted screening method among investors is hindered by information asymmetry on the socially responsible investing subject. Rhodes (2010) further clarifies that ethical mutual funds, performances can be heavily affected by the selection criterion. Another phenomenon reiterated by Rhodes (2010) is that investors cannot control what they cannot measure. For example carbon emissions which are seen as pollution to the environment are challenging to measure in terms of corporate social responsibility.

Lozano et al (2006) reiterate that one of the limiting factors for the development of SRI is investor's attitudes. Most investors are not aware that SRI mutual funds can perform as well as conventional funds. The lack of information about the performance of these socially responsible investments acts as a hindrance to investors to invest in the so called socially responsible funds (Rockness & Williams 1988).

Chapter Summary

This Chapter looked at various literatures concerning the history of SRI, the different findings of literature concerning the performance of the SRI funds as compared to conventional funds. As conferred in this study, literature has found different performance, some alluding to the fact that SRI funds perform better than conventional funds including sin stocks, others pointing out that there is actually not a statistical difference and other scores of literature pointing to the contrary that SRI funds are outperformed by conventional funds with sin stocks. Strategies used in SRI investing were aired in this chapter .Chapter 3 will try to add significantly on the research methodologies and design by creating portfolios in a South African context utilising firms listed on the JSE.

CHAPTER 3

RESEARCH METHEDODOLOGY

3.1 Introduction

This chapter presents information about the data; data sources and research design to ascertain the performance of SRI stock portfolios versus that of conventional stocks funds. The research design discusses the different models used to compare performances. This chapter is organised as follows: Section 3.2 presents data and data sources. Section 3.3 discusses research design using different measures which include factor models and risk adjusted models.

3.2 Data and Data Sources

The current study investigates the differential performance between socially responsible stocks, sin funds and conventional funds for all the 407 stocks listed on the JSE. The socially responsible stocks are stocks that hold important values to the investor such as the environment, consumer protection, religion, beliefs, employee and human rights considerations. Because ethical screening is subjective in nature, we chose to construct our own socially responsible and conventional portfolios using stocks on the JSE as in Diltz (1995) using the ESG rankings as provided by *Bloomberg*⁴.

The SRI stocks are chosen using the best in class screening strategy method which combines both negative and positive screens such as in Durand et al (2012). Sin stocks are those that are classified in sectors such as alcohol breweries, distillers, gambling, tobacco and any products with negative societal impact. Stocks that are not classified as SRI or Sin stocks will be classified as conventional stocks. The price data, market capitalization and book value of all different types of stocks are also obtained from *Bloomberg* databases.

Market capitalization and book value indicates the characteristics of the stocks in different categories in terms of size and value. Only stocks that have price data are included in the sample. The research period is between January 2000 and December 2013.

As an additional analysis performance of different stocks were compared to the performance of indices including JSE All Share Index, Top 40 and SRI Index. The data appropriate for

⁴ The purpose of this study is to investigate the performance of socially responsible investments and conventional investments that can be constructed by investors in South Africa using the JSE listed stocks

indices is obtained from Bloomberg. The main data used in this research is monthly price data of all stocks listed on the JSE and the total prices of the JSE SRI index, JSE TOP40 and the JSE All Share Index over a period from May 2004 to December 2013 since the JSE SRI index was launched in May 2004.

The different basket of the portfolios have stocks ranging from various sectors which include the financial sector such as banks, insurance, resources including mining, gas, oil, construction, healthcare, real estate, retail sectors all of which have a mixture of different types of stocks (Hallerbach, Ning, Soppe & Spronk 2002).

3.3 Research Design

3.3.1 Dividing JSE stock into a socially responsible and conventional portfolios

Two portfolios comprising socially responsible and conventional stocks were constructed using *Bloomberg* ESG rankings. *Bloomberg* ranks companies by their ESG scores whereby companies that score highly in ESG get a maximum score of 50 points and the ones that score a lowest get a minimum score of 0. We decided on a cut-off point of 20 where stocks that have an ESG of 20 and above are regarded as highly ranked and therefore socially responsible stocks. A stock with an ESG ranking below 20 is regarded as lowly ranked and therefore a conventional stocks. The final sample consists of 407 stocks of which 260 stocks are classified as a portfolio of conventional stocks and 147 stocks are classified as a portfolio of socially responsible stocks.

The price data for all the stocks are then converted into returns data using the following formula

$$r = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where: P_t = Ending stock price

P_{t-1} = Initial stock price

3.3.2 Calculating portfolio's returns

Different methods are used to determine the comparative return performance of the two portfolios. The methods used are factor models (CAPM, Fama-French and the Carhart 4 factor model) and the risk adjusted models (Treyner ratio, Sharpe, Treyner measure).

3.3.2.1 Capital Asset Pricing Model (CAPM)

CAPM refines the notions of systematic and unsystematic risk developed in the 1950s (Markowitz 1950). CAPM shows that the required returns for an asset depends on the pure time value of money, measured by the risk free rate⁵ which is the reward for merely waiting for your money without taking any risk, the reward for bearing systematic risk, shown by the risk premium ($R_m - R_f$), the reward the market offers for bearing an average amount of systematic risk, the amount of systematic risk as measured by beta (β) which is the amount of systematic risk present in a particular asset relative to that in an average asset. We used the ordinary least squares (OLS) regression to estimate the CAPM equation (Brooks 2008; Gujarati 2004; Koop 2006).

The CAPM is calculated as follows

$$R_{it} - R_{ft} = \alpha_i + \beta_i (R_{mt} - R_{ft}) + \varepsilon_{it}$$

Where R_{it} = the return on fund in month t,

R_{ft} = the return on local one month T-bill,

ε_{it} = an error term;

R_{mt} = the return on the relevant equity benchmark in month t,

α = the Jensen alpha measured as out or under performance relative to the market.

β_i = Beta

Assumptions under the CAPM model include that investors share the same characteristics of being risk averse, investors time horizons are homogeneous, returns are normally distributed, a risk free asset exists, the model assumes no transaction costs, all investors maximise expected utility and finally all investors have identical expectations (Bodie et al 2005).

3.3.2.2 The Fama French three-factor model:

Bauer et al (2005) explains that the CAPM has limitations because it uses a basic single index model. Fama and French (1993) introduced a three factor model which includes the value weighted market proxy, size and book to market as additional risk factors.

The Fama French is calculated as follows

$$R_{it} - R_{ft} = \alpha_i + \beta_{0i} (R_{mt} - R_{ft}) + \beta_{1i} SMB_t + \beta_{2i} HML_t + \varepsilon_{it}$$

Where SMB_t = the difference in return between a small cap portfolio and a large cap portfolio at time t

⁵ The source of the risk free rate is the South African Government Bond as provided by the South African Reserve Bank (SARB).

HML_t = the difference in return between a portfolio of a high book to market and a portfolio of low book to market stocks at time t

The intercept in this model is referred to as the “three-factor alpha”

3.3.2.3 The Carhart four-factor model:

The Fama-French 3 factor model takes into account the limitations of CAPM but still is not able to explain cross sectional variations in momentum of portfolio returns (Fama & French 1992). The Carhart 4 factor model captures the momentum factor. The momentum factor is the tendency of a stock continuing rising if it has been going up and continuing declining if it has been going down (Carhart 1997). This model is used in this study as in (Derwal et al (2005ear); Lee et al 2010; and Otten & Bams 2004).

The Carhart 4 factor model is calculated as follows

$$R_{it} - R_{ft} = \alpha_i + \beta_{0i} (R_{mt} - R_{ft}) + \beta_{1i} SMB_t + \beta_{2i} HML_t + \beta_{3i} MOM_t + \varepsilon_{it}$$

Where SMB_t = the difference in return between a small cap portfolio and a large cap portfolio at time t

HML_t = the difference in return between a portfolio of a high book to market and a portfolio of low book to market stocks at time t monthly premium of the book-to-market factor,

MOM_t = the difference in return between a portfolio of past 12 month’s winners and a portfolio of past 12 month losers at time t

3.3.2. Treynor Ratio

The Treynor ratio portfolio performance measures the composite performance that included risk produced by general market fluctuations and risk resulting from unique fluctuations in the portfolio securities (Reilly & Brown 2003).

The Treynor ratio is calculated as follows

$$T = \frac{R_p - R_f}{\beta_i}$$

Where R_p = the average rate of return of portfolio i during a specified period,

R_f = the average rate of return on a risk free investment during the same period,

β_i = the slope of the funds characteristics line during that time period portfolio’s relative volatility.

3.3.2.5 Sharpe’s Ratio

Sharpe ratio seeks to measure the total risk of the portfolio by including the standard deviation of returns rather than considering only the systematic risk summarised by beta. The Sharpe’s ratio measures the excess return per unit of the total risk (Brzeszczyński &

McIntosh 2013). The Sharpe ratio measures the standard deviation of returns as the measure of total risk whereas the Treynor ratio uses beta (systematic risk) (Reilly & Brown 2003).

The Sharpe ratio is calculated as follows

$$S_p = \frac{R_p - R_f}{\delta_p}$$

Where R_p = the average rate of return for portfolio i during a specified time period,

R_f = the average rate of return on risk free assets during the same time period,

δ_p = the standard deviation of the rate of return for portfolio i during the time period.

3.3.2.6 Jensen Measure

Jensen measure is the average return on the portfolio over and above that predicted by CAPM, and given the portfolio's beta, the average market return, Jensen measure is the portfolio's alpha value (Bodie, Kane & Marcus 2005). Because it is estimated from a regression equation it is possible to signify the statistical significance of the manager skill level. It is flexible enough to allow for alternate models of risk and expected return than the CAPM specifically risk adjusted performance (Reilly & Brown 2003).

The Jensen measure is calculated as follows

$$\alpha_p = r_p - r_f + \beta_p(r_m - r_f) + \varepsilon_{it}$$

Where α_p = the Jensen alpha

r_p = the return of the portfolio

r_f = the risk free rate

β_p = the beta of the portfolio

3.4 Hypothesis Testing

Commonly investors believe that conventional stocks have a higher return than socially desirable stocks and this may be the reason why investors keep on investing in conventional stocks which include amongst them sin stocks. This research aims to test the hypothesis that socially responsible investments have lower returns and less risk than conventional investments or portfolios. A "difference" portfolio is constructed by subtracting the returns of the conventional portfolio from the SRI portfolio as in Ranther (2013). A significant difference in performances of the two portfolios is found if the Jensen alpha of the difference portfolio is positive and statistically significant as shown by its probabilities values. An

insignificant difference in performance of the two portfolios is found if the “difference” portfolio’s Jensen alpha is statistically insignificant.

The research tests three hypotheses:

Hypothesis 1

H₀ : SRI portfolios have significantly negative returns than conventional portfolios

H₁ : SRI portfolios have significantly positive returns than conventional portfolios

Hypothesis 2

H₀ : SRI portfolios are significantly less risky than conventional portfolios

H₁ : SRI portfolios are significantly highly risky than conventional portfolios

Hypothesis 3

H₀ : Including environmental, social and governance factors in stock selection affect the performance of a portfolio negatively

H₁ : Including environmental, social and governance factors in stock selection does not affect the performance of a portfolio negatively

Chapter Summary

This chapter looked at how SRI portfolios and conventional stocks are constructed using stocks listed on the JSE whose data is obtained from *Bloomberg*. The research design was spelled out which involves comparing the performances of the SRI portfolio and the conventional portfolio including sin stocks using factor models and risk adjusted models.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 Introduction

This chapter presents the results of the performance of the constructed socially responsible and conventional portfolios. The chapter is organised as follows: Section 4.1 presents the performance of factor models. Section 4.2 presents the performance of risk adjusted models and the chapter summary concludes the paper.

4.2 Performance of portfolios using factor models

Table 1 below presents the performance of SRI and conventional portfolios using the factor models. Panel A presents the performance of the two portfolios when CAPM is used. The alphas of both the SRI and conventional portfolio are positive and statistically significant with probabilities of 0 and 0.001 respectively. The adjusted R-squared of the SRI portfolio is 0.336 whilst that of the conventional portfolio is 0.305. The alpha for the difference portfolio is 0.002 which is not statistically significant as shown by its probability of 0.699.

The beta coefficients of the two portfolios are statistically significant with both having probabilities of 0 and the SRI portfolio showing less exposure to the market than the conventional portfolio. The difference in the exposure is not statistically significant as shown by the p-values of the difference portfolio of 0.344 which is above the 5% level of significance.

From the CAPM model we can see that the difference in performance of the SRI portfolio and the conventional portfolio is not statistically different. In both the SRI portfolio and the conventional portfolios, the dependent variables which are the return of portfolios less the risk free rate and the market return multiplied by its beta less risk free rate were statistically significant in explaining the alpha of the two portfolio returns.

Table 1 – Portfolio’s performance using factor models

PANEL A - CAPM			
	SRI	CONVENTIONAL	DIFFERENCE⁶
α	0.012***	0.014***	0.002
t-stat	3.663	3.432	0.388
Probabilities	0.000	0.001	0.699
β Mkt	0.565***	0.657***	0.092
t-stat	9.220	8.603	0.948
Probabilities	0.000	0.000	0.344
Adj. R	0.336	0.305	-0.001
F-statistic	85.005	74.018	0.899
Prob(F-statistic)	0.000	0.000	0.344
Nr Obs	167	167	167.
PANEL B – FAMA FRENCH 3-Factor model			
α	0.009***	0.014***	0.005
t-stat	2.906	3.491	0.969
Probabilities	0.004	0.001	0.334
β Mkt	0.509***	0.705***	0.196**
t-stat	8.351	9.180	2.089
Probabilities	0.000	0.000	0.038
β SMB	-0.013	-0.051	-0.038
t-stat	-0.523	-1.571	-0.945
Probabilities	0.602	0.118	0.346
BHML	0.356***	-0.313***	-0.669***
t-stat	3.793	-2.650	-4.624
Probabilities	0.000	0.009	0.000
Adj. R	0.383	0.339	0.113
F-statistic	35.280	29.319	8.054
Prob(F-statistic)	0.000	0.000	0.000
Nr Obs	167	167	167
PANEL C – CAHART4-Factor model			
α	0.008**	0.013***	0.005
t-stat	2.585	3.293	1.083
Probabilities	0.011	0.001	0.280
β Mkt	0.338***	0.604***	0.266
t-stat	4.910	6.642	2.372
Probabilities	0.000	0.000	0.019
β SMB	-0.015	-0.052	-0.037
t-stat	-0.599	-1.607	-0.934
Probabilities	0.550	0.110	0.352
BHML	0.380***	-0.299**	-0.679***
t-stat	4.281	-2.548	-4.689

⁶ The difference potfolio is obtained by subtracting the returns of the Conventional portfolio from the SRI portfolio as in the studies of Ranther (2013) and Derwal et al (2004)

Probabilities	0.000	0.012	0.000
BMOM	0.927***	0.548**	-0.379
t-stat	4.533	2.028	-1.136
Probabilities	0.000	0.044	0.258
Adj. R	0.449	0.351	0.115
F-statistic	34.771	23.437	6.374
Prob(F-statistic)	0.000	0.000	0.000
Nr Obs	167	167	167

* Statistically significant at the 10% level; ** Statistically significant at the 5% level; *** Statistically significant at the 1% level

Panel B presents the performance of the portfolios when using Fama-French 3-factor model.

The alphas of both portfolios are statistically significant with probabilities of less than 0.05. The alpha of the difference portfolio which is the difference in returns of the conventional portfolio from the SRI portfolio is statistically insignificant with a p-value of 0.334. Both funds have insignificant exposure to the SMB factor. Both funds have significant exposures to the HML factor as shown by their probabilities of less than 0.05. The difference in exposure of the HML factor is statistically significant as shown by the p-values of 0. The Adjusted R-squared shows that the models cannot be fully explained by the variables and they don't properly fit the model since they are too low and below 0.5

Panel C presents the performance when Cahart 4-factor model is used. Panel C, shows that alpha of both portfolios are positive and statistically significant with p-values of less than the 95% significance level. The difference portfolio had an insignificant alpha showing that the difference in the performance of the two portfolios is not statistically significant. The two portfolios exposure to the market was all statistically significant with conventional portfolio having a higher exposure than the SRI portfolio. The difference in their exposures is significant though. The exposure of the two portfolios to the SMB factor is not statistically significant as well as their difference in exposure to the SMB factor is not statistically significant.

For both the SRI and conventional portfolio there is a negative coefficient for the SMB which were all not significant highlighting a bias towards highly capitalised stocks on the JSE. The difference in high book to market portfolio and a low book to market portfolio was statistically significant for the SRI portfolio while it was not significant for the conventional portfolio. The return difference in the momentum factor is insignificant for the SRI portfolio

with a negative coefficient whilst that of the conventional portfolio was not statistically significant. The results show that the risk adjusted returns of the SRI portfolio are not statistically significant. The adjusted R-squared is below the 0.5 level postulating that the model couldn't explain the regression completely. The variables are all statistically significant except for SMB⁷ which represented the difference in return between a small cap portfolio and a large cap portfolio.

4.3 Performance of portfolios using risk- adjusted measures

Table 2 below presents the performance of portfolios using risk related measures. Jensen Alpha for the conventional fund is 0.4394 which is greater than that of the SRI fund which is 0.373, meaning that the conventional fund earns better returns for its level of risk compared to SRI fund. However, for both portfolios, Jensen alpha is positive meaning that a fund manager can beat the market with their skills of picking either socially desirable stocks or conventional stocks.

Table 2 - Performance of portfolios using risk adjusted measures

Measures	PORTFOLIOS	
	SOCIALLY RESPONSIBLE PORTFOLIO	CONVENTIONAL PORTFOLIO
Jensen Alpha	0.373	0.439
Treynor Ratio	0.562	0.498
Sharpe	1.157	0.927
Risk-Adjusted returns		
Annualized	30.38%	27.53%
Portfolio Variance	0.002	0.003
Portfolio Beta	0.425	0.428

⁸ Notes: This table presents the results of the Socially responsible portfolio denoted as SRI and the Conventional portfolio denoted as CON

Treynor ratio also known as the reward to volatility ratio is highest to the SRI fund at 0.562 compared to the conventional fund of 0.498. This can mainly be attributed to the low beta of the SRI portfolio compared to the higher beta of the conventional portfolio. The risk adjusted returns for the SRI fund is much higher than that of the conventional portfolio meaning that the SRI fund earned in excess of that which could have been earned on a riskless investment per unit of market risk more than the conventional portfolio.

⁷ We created a portfolio of large JSE market cap portfolio and a small market cap portfolio from the JSE

⁸ This table shows the results of a self-constructed most optimal SRI portfolio and a self-constructed most optimal Conventional portfolio from the 407 equity stocks on the JSE Stock Exchange.

The annualised portfolio returns over what period? For the socially responsible portfolio are 30.38% while that of conventional portfolio are 27.53%. This indicates that investors can get better returns whilst being socially conscious. The portfolio variance for the SRI portfolio is 0.00200 per month whilst that of the conventional portfolio is 0.00251 meaning the SRI portfolio is a little bit less risky than the conventional fund.

The portfolio beta of the SRI fund is 0.425 whilst that of the conventional fund is 0.428 which shows that socially responsible funds are less volatile compared to conventional stocks.

4.4 Comparisons of performances between JSE sample portfolios and their JSE indices

4.4.1 Raw returns

The table 3 below shows the yearly raw returns of the SRI portfolio and SRI index as well as their F-tests and the probabilities from equality tests. To determine whether to reject the null hypothesis of statistical insignificance we focus on the F-test's p-values. If the probability⁹ value is below 5% we reject the null hypothesis and conclude that there is a statistical significant difference in the means of two variables. To test for homogeneity in the variance between two variables we use the Levene test for equality of variance. If the p-value of the Levene test is greater than 0.05 we cannot reject the null hypothesis and assumption of homogeneity in the variables.

Table 3 - Mean test of significance for SRI Portfolio and SRI Index

PANEL A SRI INDEX AND SRI PORTFOLIO						
Years	Mean -SRI INDEX	Mean- SRI PORT	F-test	Probability	Levine Test	Probability
2004 ^[1]	0.028	0.051	0.516	0.632	6.992**	0.05
2005	0.035	0.038	8.774***	0.007	1.025	0.431
2006	0.03	0.026	4.354**	0.044	5.182**	0.029
2007	0.016	0.02	4.677**	0.041	0.267	0.771
2008	-0.02	-0.031	1.155	0.406	1.976	0.203
2009	0.026	0.036	5.021**	0.032	2.37	0.151
2010	0.013	0.027	1.995	0.193	0.814	0.521
2011	0.002	0.012	3.877*	0.065	10.911***	0.006
2012	0.017	0.039	2.213	0.169	1.568	0.283
2013	0.013	0.031	0.605	0.63	0.846	0.506
TOTAL RESULTS	0.015	0.024	6.23	0.001	1.573	0.2

⁹ In this research our confidence intervals are 95% meaning that our size of tests is 5%

. * Statistically significant at the 10% level; ** Statistically significant at the 5% level; *** Statistically significant at the 1% level

The means of the SRI Index are statistically different from the SRI portfolio over the years 2005, 2006, 2007 and 2009 as shown by their F- tests probabilities values which are all less than 0.05. In all the other years the difference in performances of the SRI portfolio and the SRI index is not statistically significant.

Table 4 - Mean test of significance for the conventional portfolio and the JSE All share index

PANEL 1 FTSE JSE ALLSHARE INDEX AND CONVENTIONAL PORTFOLIO						
Years	Mean-FTSE JSE	Mean-CON PORT	F-test	Probability	Levine Test	Probability ^[1]
2000	-4.00E-05	-4.30E-02	8.91**	0.011	1.858	0.237
2001	0.024	-0.004	2.684	0.121	1.964	0.205
2002	-0.009	0.022	0.727	0.601	2.185	0.173
2003	0.012	0.02	8.305** *	0.008	1.68	0.248
2004	0.017	0.017	0.693	0.582	1.992	0.194
2005	0.031	0.01	0.729	0.509	3.879	0.061
2006	0.028	0.001	0.258	0.853	1.381	0.317
2007	0.013	0	3.51*	0.069	3.535	0.068
2008	-0.022	-0.055	0.456	0.766	0.545	0.709
2009	0.023	0.008	2.983*	0.096	1.183	0.376
2010	0.014	0.011	4.27**	0.046	0.847	0.538
2011	0	-0.009	0.25	0.901	1.664	0.261
2012	0.017	0.013	1.535	0.279	0.732	0.561
2013	0.014	0.05	2.422	0.145	1.474	0.306
TOTAL RESULTS	0.012	0.228	12.033	0	1.664	0.177

* Statistically significant at the 10% level; ** Statistically significant at the 5% level; *** Statistically significant at the 1% level

The statistical significance difference in the FTSE JSE all share indexes from the conventional portfolio performance was in 2000, 2003 and 2010 as shown by the F-tests probabilities values of less than 5%. The above table shows that the difference in returns of the conventional portfolio and the FTSE JSE ALL share index was in 2000.

The Levene tests showed that there was homogeneity of variances in all the years from 2000 to 2013 with the highest Levine test in 2008 for the FSTE JSE ALL share. In 2006 the conventional portfolio's comparisons had the highest p- value.

4.5 Comparing the JSE SRI and All Share indices

4.5.1 Cumulative Returns

Fig 4.1 - SRI and the JSE All Share Index Cumulative returns

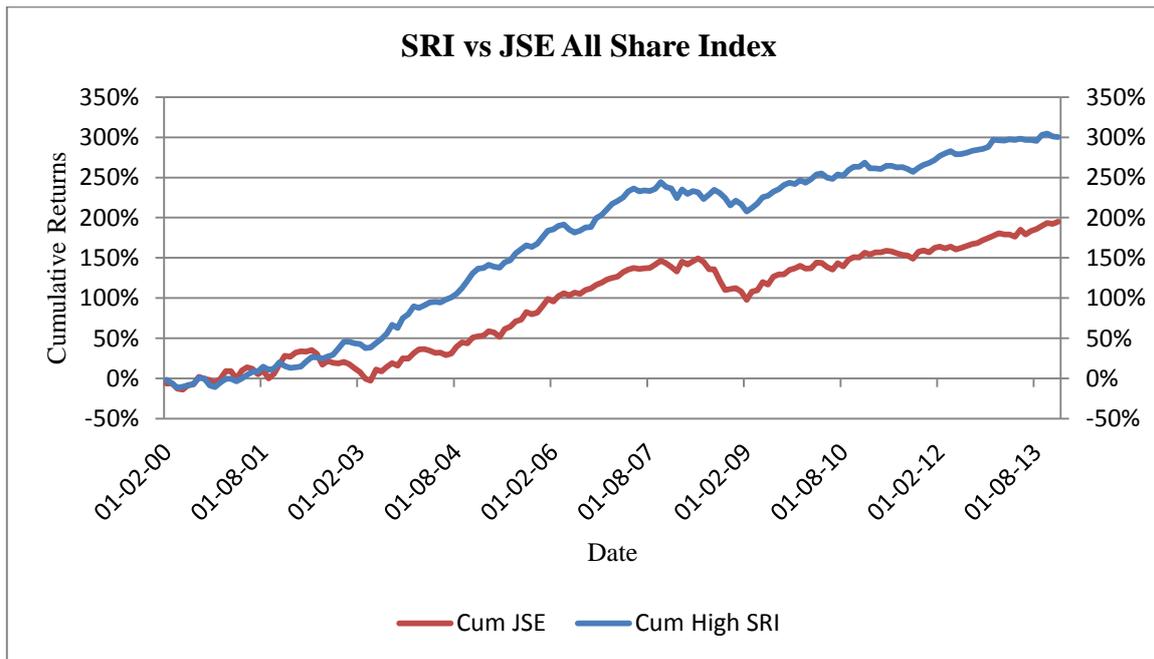
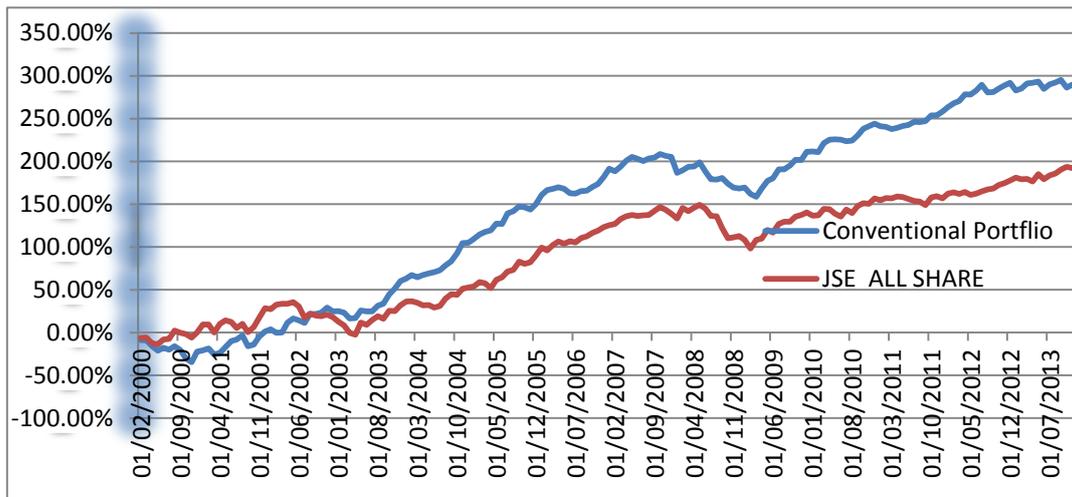


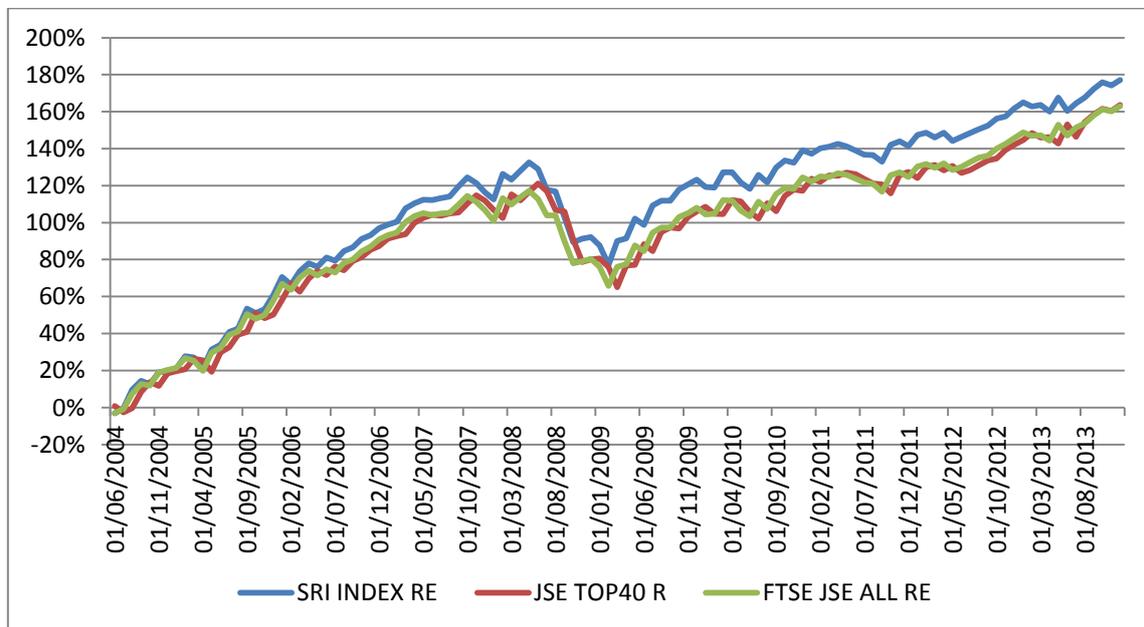
Figure 4.1 shows us that the socially responsible portfolios index is performing much better than the JSE ALL Share index from March 2003 up to December 2013. The cumulative performance of the socially responsible fund is toe to toe with the all share index from January 2000 up to October 2000, and then it takes a slump there about up to March 2003. This goes hand in hand with Managi et al (2012)'s study which rejected the hypothesis that pursuing a social benefit comes at the expense of economic capital.

Fig 4.2 - Conventional Portfolio and the JSE All Share index Cumulative Returns



The conventional portfolio as shown above starts by performing better from January 2002 up to December 2013 than the JSE ALL SHARE. The conventional portfolio and the FTSE JSE ALLSHARE all have a dip in November 2008 due to the world economic crisis of 2008. The conventional portfolio reaches a peak cumulative return in December 2013 of around 300% whilst the JSE ALL SHARE also reaches a peak in December 2013 at nearly 200%.

Fig 4.3 - JSE Indices Cumulative Returns



The figure above shows annualised returns of the JSE SRI index, FTSE JSE ALL Share and the JSE TOP40. From the graph above we can see that the JSE SRI index outperformed the FTSE JSE ALL share and the JSE TOP40. From the JSE SRI index's inception in May 2004

the three indexes performed similarly up until June 2005. Since July 2005 the JSE SRI index outperformed the other JSE indexes. The indexes all slumped during the world economic crisis in 2008 but it still performed a little bit better than the other two indexes. When the world financial crisis slowed down, the SRI index began again to outperform the other indexes by at least 10% points. The three indexes though seem to have similar trajectory. With this we can see that socially desirable stocks can outperform the conventional stocks therefore we reject the null hypothesis that socially responsible investments have lower returns than their conventional peers. This goes hand in hand with the studies carried out by Brzeczynski and McIntosh in 2013.

4.5.2 Index Performances using factor Models

Table 5 - Index Performances using factor Models

PANEL A - CAPM			
	JSE SRI INDEX	JSE TOP40	DIFFERENCE
α	0.001	0.010**	-0.009*
t-stat	1.012	2.026	-1.858
Probabilities	0.314	0.045	0.066
β_{Mkt}	1.062***	-0.074	1.137***
t-stat	78.482	-0.739	11.09
Probabilities	0	0.462	0
Adj. R	0.982	-0.004	0.517
F-statistic	6159.488	0.546	122.992
Prob(F-statistic)	0	0.462	0
Nr Obs	115	115	115
PANEL B – FAMA FRENCH 3-Factor model			
α	0.001	0.009*	-0.008
t-stat	0.914	1.692	-1.541
Probabilities	0.363	0.094	0.126
β_{Mkt}	1.062***	-0.1	1.162***
t-stat	76.335	-0.971	11.108
Probabilities	0	0.334	0
β_{SMB}	0	-0.051	0.051
t-stat	-0.043	-1.299	1.271
Probabilities	0.965	0.197	0.206
BHML	0.003	0.041	-0.038
t-stat	0.178	0.289	-0.26
Probabilities	0.859	0.773	0.795
Adj. R	0.982	-0.006	0.515

F-statistic	2017.43	0.757	41.417
Prob(F-statistic)	0	0.521	0
Nr Obs	115	115	115
PANEL C – CAHART 4-Factor model			
α	0.001	0.008	-0.007
t-stat	0.971	1.524	-1.368
Probabilities	0.334	0.13	0.174
β Mkt	1.069***	-0.268**	1.337***
t-stat	65.273	-2.282	11.206
Probabilities	0	0.024	0
β SMB	0	-0.055	0.055
t-stat	-0.013	-1.439	1.415
Probabilities	0.99	0.153	0.16
BHML	0.002	0.069	-0.066
t-stat	0.119	0.497	-0.473
Probabilities	0.906	0.62	0.637
BMOM	-0.034	0.832***	-0.866***
t-stat	-0.801	2.727	-2.795
Probabilities	0.425	0.007	0.006
Adj. R	0.981	0.049	0.543
F-statistic	1508.337	2.459	34.921
Prob(F-statistic)	0	0.05	0
Nr Obs	115	115	115

* Statistically significant at the 10% level; ** Statistically significant at the 5% level; *** Statistically significant at the 1% level

Panel 1 presents the CAPM showing the alpha of the SRI index is not statistically significant although positive whilst the JSE Top 40 is statistically significant with a positive alpha. The difference portfolio is not statistically significant at the 5% level of significance though significant at the 10% level of significance. The sensitivity of the SRI portfolio to the market is great and positive. The SRI portfolio is highly volatile than the market as the beta is 6.2%. On the other hand the JSE TOP40 is less volatile than the market.

Panel B show that the alphas of the two indexes are positive but not statistically significant at the 5% level of significance. The difference portfolio's alpha is not significant showing that the difference in performance between the SRI index and the JSE TOP40 is not statistically significant as in the case with the two portfolios above. The exposure to the market is highest for the SRI index with a positive alpha. The difference in the two indexes to the exposure of the market is statistically significant as shown in the table above. Both portfolios have a statistically insignificant exposure to the HML factor, in other terms to value investors.

The 4 factor models show us that both indexes had positive alphas though they were all not statistically significant as shown by their probability values. The difference portfolio shows that there is not a statistically significant difference in performance between the two indexes as shown by the statistically insignificant Jensen alpha of the “difference” portfolio. The exposure of the SRI index is higher than the JSE TOP 40. The difference in the two indexes’ exposure is statistically significant as shown by the probabilities values. The sensitivity to the market (betas) of the two portfolios is statistically significant. The HML factor on all the indexes is statistically insignificant as shown by their probability values. The difference in exposure of the two indexes to the HML factor is statistically insignificant.

4.5.3 Risk Adjusted Returns for Indices

Table 6 - Indexes Results

Year	Treynor ratio			Sharpe Ratio		
	SRI INDEX	JSE TOP40	FTSE JSE ALL	SRI INDEX	JSE TOP40	FTSE JSE ALL
2004	0.327	-4.407	0.347	0.487	0.487	0.665
2005	0.448	-4.395	0.385	0.519	0.388	0.507
2006	0.366	-5.471	0.324	0.731	0.691	0.732
2007	0.152	-3.053	0.106	0.409	1.036	0.345
2008	-0.282	4.863	-0.296	-0.133	-0.173	-0.169
2009	0.299	-3.3	0.251	0.199	0.152	0.199
2010	0.111	-0.794	0.114	0.124	0.067	0.143
2011	-0.041	-0.634	-0.06	-0.104	0.08	-0.155
2012	0.162	-1.363	0.169	0.637	0.307	0.849
2013	0.103	-2.559	0.126	0.182	0.24	0.264
Total	0.14	-1.765	0.121	0.594	0.523	0.557

Notes: This table presents the risk adjusted results of the JSE SRI Index, FTSE JSE Allshare and the JSE TOP40

Table 7 - Indexes Total Results

	SRI INDEX	JSE TOP40	FTSE JSE ALL
Portfolio Return	0.015	0.014	0.014
Annualized	0.201	0.185	0.184
Portfolio Variance	0.003	0.003	0.002
Risk Free	0.063	0.063	0.063
Variance Adjustment Mnt-Yrs	21	21	21
Sharpe	0.594	0.523	0.557
Portfolio Beta	0.991	-0.069	1
Jensen Alpha	0.004	0.2	0
Treynor Ratio	0.14	-1.765	0.121

Notes: This table presents the risk adjusted results of the JSE SRI Index, FTSE JSE Allshare and the JSE TOP40. The JSE SRI index had a better annualized return of 20.128%, whilst the JSE TOP40 and the FTSE JSE ALLSHARE had annualized returns of 18.487% and 18.395% respectively. The JSE SRI Index's variance is 0.003 per month whilst the JSE TOP40 variance is 0.026 and that of the FTSE JSE ALLSHARE is 0.002. This shows that the JSE SRI index is less volatile than the other indexes.

JSE SRI Index had better risk adjusted returns as measured by the Sharpe ratio, of 0.594 as compared to its peers JSETOP40, and the FTSE JSE ALLSHARE, having Sharpe ratios of 0.523 and 0.557 respectively. The Jensen alpha of the JSE TOP 40 is 0.2 which is better than the JSE SRI Index's of 0.004 and yet that of the FTSE ALLSHARE was 0 since we regarded it as the market return. The JSE SRI index had a better treynor ratio of 0.140 as compared to the JSETOP40, s -1.765 and the FSTE JSE ALLSHARE, s 0.121.

From our results we therefore reject the first null hypothesis that SRI portfolios have lower returns than conventional portfolios. The difference in performance of the SRI portfolios and conventional portfolios is statistically insignificant as in the studies carried out by Bauer et al (2004), Becchetti & Ciciretti (2009), Bello (2005), Cortez et al (2008), Derwal et al (2005), Gladyssek & Chipeta (2012), Mill (2006), Schroder (2004); Statman (2000). We cannot therefore accept the alternative hypothesis that SRI portfolios have higher returns than conventional portfolios in South Africa.

The SRI portfolio had a beta of 0.4250 whilst that of the conventional portfolio was 0.4275. The difference is statistically insignificant as shown by the Capm, Fama French model and the Carhart 4 factor model therefore we reject the null hypothesis that SRI portfolios are less risky than conventional portfolios. We therefore cannot accept the alternative hypothesis that SRI portfolios are highly risky than conventional portfolios.

From the above inference we therefore conclude that in the South African financial market including environmental, social and governance factors in stock selection performance of an optimal portfolio will not make the portfolio miss any significant returns relative to returns of a conventional portfolio, this concurs with the findings of Sauer (1997).

Chapter Summary

This chapter presented the results of the performances of SRI and conventional portfolios. An additional analysis was performed to assess the performance of JSE SRI and All Share indices against the research SRI and conventional portfolios. Furthermore, the performance of JSE Indices was compared to each other. Chapter five presents discussion, conclusions and recommendations for further study of the research from the presented results.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion, conclusion of the study before setting out the recommendations for further research regarding the comparative performance of socially responsible investments and conventional investments in a South African context. The chapter is organised as follows: Section 5.2 presents the discussion. Section 5.3 presents the conclusion and section 5.4 presents the recommendations for further work.

5.2 Discussion

The results show that the difference in performance of the SRI portfolios and conventional portfolios is statistically insignificant as in the studies carried out by Bauer et al (2004), Becchetti & Ciciretti (2009), Bello (2005), Cortez et al (2008), Derwal et al (2005), Gladyssek & Chipeta (2012), Mill (2006), Schroder (2004), Statman (2000). We cannot therefore accept the alternative hypothesis that SRI portfolios have higher returns than conventional portfolios in South Africa. This goes hand in hand with the studies carried out by Brzeszcznnski & McIntosh in 2013. This finding corroborate the findings of Lee, et al (2010) which carried out a study on 61 US mutual funds and discovered that screening has no effect on a fund's raw unadjusted return but has a decrease in performance when the Carhart model is used.

This study is at loggerheads with the studies of Renneboog et al (2008) and Zhang & Renneboog (2007) which discovered that there is actually a price paid for being socially conscious in many European countries, North American and Pacific Asia. Cortez et al also found conflicting results from our findings. They found out that SRI global funds slightly underperformed their peers.

We review this study as good news for investors because it shows that being ethically conscious does not constrain a portfolio performance. This is also in line with the studies carried out by Diltz (1995). This however does not mean that investors who pursue a conventional strategy of investing in stock portfolios will lose out.

This study shows that the SRI portfolio is less risky compared to the conventional portfolio as well as the JSE SRI index is less risky than the JSE TOP40 and the FTSE JSE ALLSHARE index but the difference is not statistically significant. This study corroborates that of Sauer

(1997) which investigated the DSI index using the Jensen alpha and the Sharpe ratio found the same performances of the indexes. Managi et al (2012) also found insignificant indexes performances between SRI indexes and the conventional indexes.

The difference in performance of the SRI index to FTSE JSE ALLSHARE and the JSE TOP 40 is statistically insignificant as shown by the insignificant alphas. These findings are in line with the findings of Bechetti & Ciciretti (2009) who outlined that SRI portfolios didn't have inferior risk adjusted returns. This research commensurate with that of Almazan et al (2004) which after controlling for fund size did not produce statistical significant differentials in returns. Even the studies of Bello, who used the Sharpe and Jensen alpha found similar results to this study.

In essence investors who are ethically inclined are justified to demand the same returns as those of conventional investors in an emerging market like South Africa. The JSE SRI index outperformed its other two indexes, JSE TOP40, FTSE JSE ALLSHARE as it had a better risk adjusted returns as indicated by Sharpe ratio and the treynor ratio. The difference in performance was not statistically significant though as indicated by the CAPM, Fama French and the Carhart 4 factor models. However the difference in the JSE SRI and the JSE Top 40 to the exposure of the market is statistically significant.

Many challenges hinder SRI sector growth in South Africa due to many challenges. Key challenges includes amongst them lack of interest by investors to committing to SRI investments. One of the drawbacks inhibited by investors is the perception of achieving below average returns and / or low or the same risk adjusted performances, lack of accessibility of SRI information and also lack of pension fund interest in SRI investments.

5.3 Conclusion of the Study

The main purpose of this research was to investigate whether investors would get better returns by investing in SRI compared to conventional portfolio. In conclusion is that in South Africa, the market does not price social considerations any different from conventional portfolios, as a result investors should feel at ease with investing in their socially desirable stocks.

The SRI screens in South Africa's impact on investments performances are not statistically significant as found by this research. SRI screens do not affect in general the risk loading of

investments as found out in the non-significant differential in performances of the SRI and Conventional portfolio as well as the JSE indexes.

The three indexes investigated in this paper signified a trajectory movement and did not signify any statistical significance in performance. In essence investors who are ethically inclined are justified to demand the same returns as those of conventional investors in an emerging market like South Africa. This study reiterates that investing in socially desirable stock in South Africa will more or less lead to the same results in returns as conventional investing but does not guarantee statistically significant differential benefits in investing is SRI.

5.4 Recommendations for further research

A number of issues were identified in this research which can be explored for further study. These issues include amongst them

- Include other developing countries in the study for performance of socially responsible stocks and conventional portfolios
- Include different mutual funds in the study which have bonds in their portfolios and the necessary risk adjustments
- Include non-financial factors such as screening strategies' and screening intensity used and their effects on fund performance
- Research on how the SRI phenomenon impacts on Financial Institutions

This research has fulfilled its purpose of using literature and econometrics methods to investigate the comparative performance of socially responsible investments and conventional investments in South Africa using the JSE listed stocks in creating the two equally weighted portfolios, the JSE TOP40, FTSE JSE ALL SHARE and the JSE SRI indexes and also the socially responsible investments strategies mainly used in South Africa.

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