



UNIVERSITY
OF
JOHANNESBURG

COPYRIGHT AND CITATION CONSIDERATIONS FOR THIS THESIS/ DISSERTATION

 creative
commons



- Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
- NonCommercial — You may not use the material for commercial purposes.
- ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original.

How to cite this thesis

Surname, Initial(s). (2012). Title of the thesis or dissertation (Doctoral Thesis / Master's Dissertation). Johannesburg: University of Johannesburg. Available from: <http://hdl.handle.net/102000/0002> (Accessed: 22 August 2017).



The Performance of Shariah Compliant Investment Funds in South Africa.

by

Yusuf Patel

Submitted in partial fulfilment of the requirements for the degree

MAGISTER COMMERCII

in

FINANCIAL MANAGEMENT

at the

College of Business and Economics

University of Johannesburg

UNIVERSITY OF JOHANNESBURG

supervised by

Mr Niel Oberholzer

2018

Affidavit

DECLARATION

I certify that the *minor dissertation/dissertation/thesis* submitted by me for the degree *Master's of Commerce (Financial Management)* at the University of Johannesburg is my independent work and has not been submitted by me for a degree at another university.

___YUSUF PATEL_____

(Name in block letters – no signature)



Acknowledgements

I would first like to thank my thesis supervisor Mr Niel Oberholzer of the Department of Finance and Investment at the University of Johannesburg. The door to Mr Oberholzer's office was always open whenever I ran into a spot of trouble or had a question about my research or writing. He consistently allowed this paper to be my own work but steered me in the right the direction whenever he thought I needed it.

I am also grateful to my wife Lamees who supported me through this venture, and her unceasing encouragement, support and attention. I thank my two sons Ahmed Ayaan and Hassan for the unconditional love and light they bring to my life during the toughest times of academic research.

A final thanks to my colleagues and fellow students at the Department of Finance and Investment at the University of Johannesburg for their support and guidance during this process. I also place on record, my sense of gratitude to one and all, who directly or indirectly, have lent their hand in this venture.

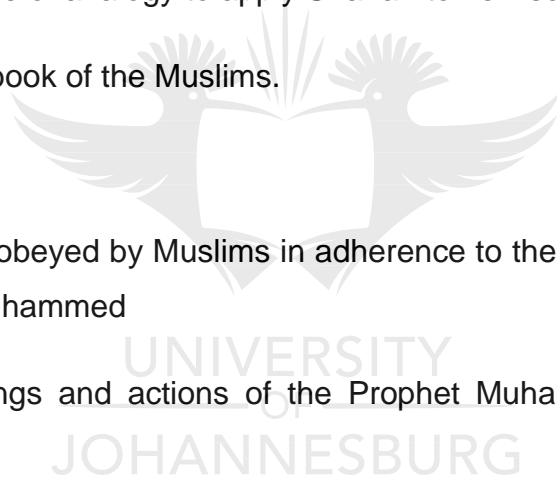


List of Acronyms

AAOFI	- Accounting and Auditing Organization for Islamic Financial Institutions
APT	- Arbitrage Pricing Theory
ASISA	- Association of Investments and Saving South Africa
CAPM	- Capital Asset Pricing Model
CFA	- Institute of Chartered Financial Analysts
CISI	- Chartered Institute of Securities and Investments
CPI	- Consumer Price Index
JSE	- Johannesburg Stock Exchange Limited
MENA	- Middle East and North Africa
MPT	- Modern Portfolio Theory
NAV	- Net-Asset Value
REIT	- Real Estate Investment Trusts
SML	- Securities Market Line
SPV	- Special Purpose Vehicle
SRI	- Socially Responsible Investing
SSB	- Shariah Supervisory Board
UK	- United Kingdom
USA	- United States of America
VaR	- Value at Risk

Glossary of Terms

Gharar	- Uncertainty
Ijma	- The unanimous consensus of the Muslim Ummah on a given issue, usually as represented by the agreement of the jurists.
Ijtihad	- The process by which a qualified Islamic scholar endeavours to arrive at the correct ruling on a given issue by reflecting on source texts from the fundamental sources of the Sharia: the Quran and Sunnah.
Islam	- The Islamic faith
Maysir	- Gambling
Muslim	- A follower of the Islamic Faith
Qiyas	- It is the use of analogy to apply Shariah to new scenarios.
Quraan	- The holy book of the Muslims.
Riba	- Interest
Shariah	- The laws obeyed by Muslims in adherence to the Quraan and Teachings of Prophet Muhammed
Sunnah	- The sayings and actions of the Prophet Muhammed, PBUH, during his lifetime
Ummah	- The term used to reference all followers of the Islamic faith as a group
Zakat	- Payment of tax for religious purposes



Abstract

The global and South African financial markets landscape has changed and grown over the past 20 years, with a greater number of institutions offering Shariah-compliant products to Muslim individuals and investors. This has resulted from more investors seeking to align their wealth creation with their religious belief system. Shariah imposes certain restrictions and limitations on persons on members of the faith. This article aims to examine how the South African Shariah-compliant mutual funds perform relative to the conventional markets.

This minor dissertation empirically investigates the performance of Shariah-compliant funds to conventional funds for the period 01 April 2012 to 30 March 2017. Specifically, the analysis is focused on three objectives. Firstly, the Shariah funds compared to their own respective and proxy benchmarks using simple measures of performance. Secondly, the Shariah funds compared to proxy benchmarks using risk-adjusted measures of performance including the Sharpe ratio, Treynor ratio, Information ratio and Jensen's Alpha. Lastly, Shariah indices relative to traditional market indices are investigated.

Twenty-two funds were analysed in the study, all domiciled in South Africa. The funds were split over the five ASISA categories. The study found that multi-asset and income funds underperformed during the period in both the simple and risk-adjusted basis. Equity funds performed on par with the conventional benchmarks on the simple and risk-adjusted basis. REITs and global equity outperformed on both measures. The final empirical examination found that South African Shariah indices underperformed against the traditional market indices for the period.

Table of Contents

	Page number
CHAPTER ONE INTRODUCTION	1
1.1. Background	1
1.2. Research Problem and Question	3
1.3. Literature Review	4
1.3.1. Shariah Investing in South Africa.....	4
1.3.2. Shariah Funds can differ in Performance	6
1.3.3. Measures used to evaluate Fund Performance	8
1.3.3.1. Treynor Ratio	8
1.3.3.2. Sharpe Ratio	8
1.3.3.3. Jensen's Alpha	8
1.3.3.4. Information Ratio	8
1.4. Research Design and Methodology	9
1.4.1. Design	9
1.4.2. Data	9
1.4.3. Methodology	10
1.4.4. Population	10
1.4.5. Sampling	10
1.4.6. Validity	11
1.4.7. Reliability	11
1.5. Delimitations of the Study	11
1.5.1. Time Period of Study	11
1.5.2. Population of Funds.....	12
1.5.3. Participants.....	12
1.5.4. Research Instruments	12
1.6. Limitations of the Study	12
1.6.1. Shortage of Studies in South Africa.....	12
1.6.2. Population and Sample Size	13
1.6.3. Limitations of Risk-adjusted Measures of Return	13
1.6.4. General Performance of Financial Markets	13
1.7. Significance of Research.....	14
1.8. Overview of Chapters	14
CHAPTER TWO LITERATURE REVIEW	16
2.1. Introduction	16
2.2. Shariah and Investments.....	16
2.2.1. Shariah	16
2.2.2. Shariah Finance	17
2.2.2.1. Prohibitions and Obligations under Shariah	17
2.2.2.2. Shariah Supervisory Boards	18
2.2.3. Islamic Financial Instruments	18
2.2.3.1. Cash	19
2.2.3.2. Equity.....	19

2.2.3.3. Debt Instruments.....	20
2.2.3.4. Derivatives	20
2.3. Financial Theories on Fund Management.....	21
2.3.1. Modern Portfolio Theory by Markowitz	21
2.3.2. Separation Theorem by Tobin (1958).....	22
2.3.3. Capital Asset Pricing Model by Sharpe	23
2.3.4. Arbitrage Pricing Theory by Ross (1976).....	23
2.3.5. Behavioural Finance.....	24
2.4. Measures used to Evaluate Fund Performance.....	25
2.4.1. Treynor Ratio.....	25
2.4.2. Sharpe Ratio	26
2.4.3. Information Ratio	27
2.4.4. Jensen's Alpha	27
2.5. Review on the Performance of Shariah Funds.....	28
2.5.1. Malaysia and the Far East performance of Shariah Funds.....	29
2.5.2. Rest of the World performance of Shariah Funds.....	31
2.5.3. South African performance of Shariah Funds.....	33
2.5.4. Concluding Remarks on Performance.....	34
2.6. Weaknesses of Shariah Funds	34
2.7. Summary.....	35
CHAPTER THREE RESEARCH METHODOLOGY.....	37
3.1. Introduction	37
3.2. Research Questions	38
3.3. Research Strategy.....	38
5.3.1. Qualitative Methodology	39
5.3.2. Quantitative Methodology.....	39
5.3.3. Concluding Remarks	39
3.4. Research Paradigm.....	40
3.5. Research Instrument	41
3.6. Population.....	41
3.7. Sampling Strategy.....	41
5.7.1. Sampling Methodology	42
5.7.2. Data Collection	43
5.7.3. Data Collection of Indices, Shariah Funds and Conventional Funds	44
5.7.4. Fund Factsheets.....	45
5.7.5. Sample and Data Analysis Process.....	46
5.7.6. Calculation of Monthly, Quarterly and Annualised returns.....	46
3.8. Assumptions for performance Analysis	48
3.9. Ethical considerations.....	48
5.9.1. Quality of research	48
5.9.2. Objectivity	49
5.9.3. Protection from Harm and the Right to Privacy	49
5.9.4. Anonymity and Confidentiality	49
5.9.5. Informed Consent.....	49
5.9.6. Honesty with Professional Colleagues	49

3.10. Validity	50
5.10.1. Content Validity	50
5.10.2. Instrument Validity	50
5.10.3. Validity of performance Results	51
5.10.3.1. Population Size	51
5.10.3.2. Survivorship Bias.....	51
5.10.3.3. Total Expense Ratios of Funds	51
5.10.3.4. Sector Classification.....	51
3.11. Reliability	52
3.12. Conclusion	52
CHAPTER FOUR RESULTS AND FINDINGS	54
4.1. Introduction	54
4.2. Empirical Analysis and Interpretation	54
4.2.1. Question 1: How do Shariah Funds perform against their Respective Benchmark Indices?.....	55
4.2.1.1. Equity	57
4.2.1.2. Multi-asset	58
4.2.1.3. Real Estate	59
4.2.1.4. Global Equity	60
4.2.1.5. South African Interest Bearing	60
4.2.1.6. Summary	61
4.2.2. Question 2: How do Shariah Funds perform against Proxy Benchmark Indices?.....	61
4.2.2.1. Highlights from Table 4.2 are as follows.	62
4.2.2.2. Sharpe Ratio	62
4.2.2.3. Jensen's Alpha	62
4.2.2.4. Treynor Ratio	63
4.2.2.5. Information Ratio	63
4.2.2.6. Summary	64
4.2.3. Question 3: How do Shariah Indices perform against other South African General Market Indices?	64
4.3. Conclusion	66
CHAPTER FIVE CONCLUSION	68
5.1. Introduction	68
5.2. Findings of the Study	69
5.2.1. Objective 1: Shariah Funds versus Respective Benchmarks	69
5.2.2. Objective 2: Shariah Funds versus Proxy Benchmark Market Indices	70
5.2.3. Objective 3: Shariah Indices versus Global Market Indices	70
5.3. Concluding Remarks	71
5.4. Limitations	71
5.4.1. Limitations of the Study	71
5.4.1.1. No Previous Domestic Studies	71
5.4.1.2. Small Sample Data	71
5.4.1.3. Shariah Boards	72
5.4.2. Limitations of the Method	72
5.4.2.1. Limitations of Treynor Ratio	72

5.4.2.2. Limitations of Jensen's Alpha	72
5.4.2.3. Limitations of Sharpe Ratio	72
5.4.2.4. Limitations of Information Ratio	73
5.5. Contributions of the Study	73
5.6. Recommendation for Further Research.....	73
REFERENCES	75
APPENDIXES.....	85
A1: Shariah fund performance versus respective benchmark.....	85
A2: Multi Asset Shariah fund performance versus respective benchmark.....	86
A3: Real Estate Shariah fund performance versus respective benchmark	87
A4: Global equity Shariah fund performance versus respective benchmark	87
A5: South African Interest Bearing Shariah fund performance versus respective benchmark.....	88
A6: Risk adjusted performance measures for equity Shariah funds versus proxy benchmark.....	89
A7: Risk adjusted performance measures for multi-asset Shariah funds versus proxy benchmark.	90
A8: Risk adjusted performance measures for real estate Shariah funds versus proxy benchmark.	91
A9: Risk adjusted performance measures for equity Shariah funds versus proxy benchmark.....	91
A10: Risk adjusted performance measures for equity Shariah funds versus proxy benchmark.....	92



List of Tables

	Page number
Table 1.1: Thesis overview	14
Table 3.1: Population of Shariah funds in South Africa.....	43
Table 4.1: Summary of Shariah fund performance versus the respective benchmark.....	56
Table 4.2: Risk-adjusted performance measures for Shariah funds versus proxy benchmark.	61
Table 4.3: Comparison of annualised performance of Shariah and traditional indices	64
Table 4.4: Comparison of annualised performance of focused Shariah and traditional indices	65



List of Formulas and Figures

	Page number
Formula 2.1: Treynor Index.....	26
Formula 2.2: Sharpe Ratio.....	26
Formula 2.3: Information ratio.....	27
Formula 2.4: Jensen's Alpha	28
Figure 3.1: Population of global Shariah funds	29
Formula 3.1: Performance of funds	47
Formula 3.2: Performance of indices	47
Formula 3.3: Annualised return.....	47



Chapter One

Introduction

The following chapter will contextualise the study by providing a brief literature review. This will allow the research problem to be discussed and for the research methodology used in the research to be outlined. Finally, the significance of the research will be noted.

1.1. Background

The world population is approximated to be 7 billion people according to a study conducted by Pew Research Centre Forum (2015). Of the global population, it is estimated that, as of 2010, 23% of the total population is Muslim. The study further goes on to describe that approximately 15% or 242 million followers of the Islamic faith live within the Sub-Saharan African region. The research forum expects the Muslim population to grow at double the rate of the non-Muslim population and by 2030, the Muslim population will constitute 26% of the world population. The South African Census (Statistics South Africa, 2011) conducted in 2010 finds that of the total South African population, 1.3% are Muslims, at an estimated amount of 700 000 persons in South Africa. Therefore, the Muslim population makes up a fairly small minority within South Africa and sub-Saharan Africa.

Muslim wealth in the world is difficult to estimate as countries in which Muslims make up the majority of the population are in possession of a vast amount of oil wells, and a lot of Muslim wealth is privately owned. Furthermore, these countries have thriving economies. Within a South African context, Muslim wealth can be extrapolated using the South African Census conducted in 2010 (Statistics South Africa, 2011). The Muslim population is predominantly made up of "Indians" (42.93%) and "Malay" (45.25%) (Vahed & Vawda, 2008:454) with the balance consisting of other racial groups. The census shows that the average annual household income of an Indian which consists of Muslim, Hindu, Christian and other religious make up in South Africa is R251 541, which is directly below the highest racial group (White South Africans) at R365 154 with Coloureds (Malay South Africans) ranked third at R112 172. Indians experienced a growth of 146% versus the 88% and 118% of growth experienced by

Whites and Coloureds, respectively, which is above the CPI increase of 77% (Statistics South Africa, 2011). The increase above inflation contributed to greater disposable income for Muslim families and in turn opens up a viable market for investment managers.

Muslims in South Africa, according to Vahed and Vawda (2008:454), are moving towards adopting a more Islamic focused lifestyle within a secular country. According to Derigs and Marzpan (2008:1166-1168) and Alam (2010:1), Shariah is fairly specific when it relates to business and investment activities. In a study by Hoepner, Rammal and Rezec (2011:837-838), the compliance of Shariah funds for 20 countries against the Dow Jones Islamic Market Index was analysed and it was found that South Africa has a compliance factor of 0.37 which is the fourth highest out of the 20 countries included in the study.

As can be expected due to the evolution of financial and investment instruments over the past 1400 years, Shariah principles needs to be applied to these instruments. The principles can be broken down into three hierarchical levels; the Quran which is the word of God; the *Hadith*, which is the teachings of the Prophet; and finally *Ijtihad*, which is further guidance from learned scholars. Different Muslims from across the globe have different advisory boards, and it results in varying interpretations and rulings of the limitations and investment methodologies. Due to these strict rules and screening practices, Shariah investing has parallels with ethical investing (Alam, 2010:1; Clarke, 2015:107).

Shariah prescribes further rules with regards to religious taxes payable and the dealings of any non-permissible income. Shariah firstly, prescribes a tax called *Zakat* which equates to 2.5% of the excess wealth (Tower & Dean, 2010:3). Generally, investments fall within this category. Secondly, non-permissible income will be mostly attributed to any interest earned by an institution and will need to be removed from the dividend, and it also excludes certain *Haram* industries, such as alcohol, tobacco and traditional financial institutions, completely. Lastly, due to the screening out of certain asset classes completely such as fixed income and derivative instruments (Hoepner, Rammal & Rezec, 2011:5; Clarke, 2015:108). All of the above limitations, rules and additional taxes have a direct impact on portfolio construction which may have an

effect on the performance of a Shariah-compliant portfolio as compared to a conventional portfolio.

The Islamic financial markets are a growing market in South Africa for investment managers. However, they face a problem of increased rules and regulations, taxes and fees, and a limited amount of investment vehicles such as Sukuk bonds. Alternatively, there are entrenched players in the market such as the Oasis Investment Group which offers general funds to the public.

1.2. Research Problem and Question

Literature in South Africa is limited when it comes to Shariah investing. The most prominent research by Vahed and Vawda (2008) specifically looks at the development of the Islamic financial markets in South Africa. If research is consulted outside of South Africa, the majority of studies conducted across the globe tend to only focus on a single asset class such as Sukuk bonds or mutual funds (Alam & Rajjaque, 2010; Azmat, Skully & Brown, 2014). The literature also focuses on specific issues of the asset such as the study by Farooq and Tbeur (2013) that focuses on the dividend policies of Shariah-compliant stocks as compared to *Haram* stocks. Some literature has focused on the different screening types available and which one might produce better results (Derigs & Marzban, 2008:285 - 303). But, none of the literature has focused on mutual fund performance, including capital and dividend growth from a South African perspective. It is, therefore, not known whether a South African Muslim investor is able to match, underperform or outperform conventional mutual funds.

As a result of this, the principal research question is: do Shariah-compliant high equity mutual funds differ in performance from conventional mutual funds? The following research questions can be deduced in an attempt to solve the research problem:

- i. How do Shariah funds perform against their respective benchmark indices?
- ii. How do Shariah funds perform against proxy benchmark indices?
- iii. How do Shariah indices perform against other South African general market indices?

The Shariah funds will be limited to assets that are publically available on the market and have sufficient time series data to allow for stringent testing. The study will focus

on all the Shariah-compliant funds available on the South African financial markets. All funds will need to exist as at 01 April 2012 and have complete time series points until 31 March 2017. Furthermore, all funds will need to meet the South African Shariah Supervisory Board's standards.

1.3. Literature Review

The following section is a brief overview of the current literature surrounding the Islamic financial markets and fund performance of these markets. Chapter 2 will discuss in detail the different facets of Shariah with a focus on how it relates to the financial services world. It will further highlight the various theories behind mutual fund investment, the risk-adjusted measures of return and conclude by analysing the current literature and findings for the performance of Shariah-compliant mutual funds.

1.3.1. Shariah Investing in South Africa

Shariah investing is significantly different from conventional investing. The Shariah-compliant form of investment competes with conventional investing but faces further constraints which can affect performance. Due to these rules and regulations as laid down by Shariah, it is certain that performance from Shariah-compliant investing does differ from the conventional form.

Derigs and Marzban (2009:1166) argue that Shariah is fairly specific when it comes to business and investment activities. They further argue that Shariah is rarely questioned by Muslims and that there are three hierarchical levels of Shariah. The first level is the Quran which is taken to be the word of *Allah* (God), the second level is the *Hadith* or practices of the Prophet Muhammad and lastly, the third level is the *Ijtihad* which is further guidance from learned scholars. The evolution of new financial instruments over the past century and the change in the modern economy has resulted in the need to use these instruments daily. Due to the increasing changes, more guidance is required and relied on for interpretation from the *Ijtihad* level, although the Quran and *Hadith* still form the backbone of the religion (Hoepner *et al*, 2011:5; Clarke, 2015:108).

These rules and regulations are further monitored and analysed by a panel of *Ulema* (learned scholars) (Vahed & Vawda, 2008:453-457). As is evident, there are many

Ulema from different geographical regions of the world which form part of the greater Islamic world (Walkshäusl & Lobe, 2012:53). Due to the different types and forms of Islam, there is a resultant difference in some of the rules and regulations. These *Ulema* then work together to create what is known as Shariah Supervisory Boards (SSB) (Walkshäusl & Lobe, 2012:53). These boards function to monitor and analyse products and grant their seal of approval for these products. Some boards function on a governmental level and others on a product level. In South Africa, the board functions as an independent entity (Vahed & Vawda, 2008:453-459).

Shariah can be broken down to two primary sources of information – the Quran and *Hadith*. These sources prescribe certain principles as to what is allowable under Shariah. There are five main pillars in Islamic finance which are continually referred to in many works. The prohibition of *riba* (usury/interest), *maysir* (speculation), *gaysir* (excessive uncertainty) and investing in certain industries such as alcohol, gambling, and financial institutions. The final pillar is sharing of risk and returns (Vahed & Vawda, 2008:453-457, Yusof, Bahlous & Kassim, 2010:391, Walkshäusl & Lobe, 2012:53; Abdelsalam, Fethi, Matallin & Tortosa-Ausina, 2014:112).

A controversial perspective was drawn by Vawda and Vahed (2008:456) which implied that Muslims will not go against the Shariah even though an *Ulema* board might allow it. They conceded that a certain board gave South African Muslims the right to trade in interest with non-Muslims during the 1960's as Muslims lived as a minority and were under oppression. They further highlight that South African Muslims refuted the ruling, which was then retracted. What developed from the phenomenon is that Muslims in South Africa were then allowed to participate in the economy but not to take or charge interest. This ruling would contradict the first pillar of Islamic finance.

The SSBs further prescribed more blanket rules for investing. These rules are considered by Derigs and Marzban (2008:290), and they analyse current screening practices which include the analyses of certain ratios and other screening factors. The ratios could be interest as a percentage of revenue, or the debtors or creditors to equity ratio. These take into account the five pillars of Islamic investing as it tries to eliminate instruments that may have excessive debt or risk. The SSBs also call for interest, as a percentage of revenue, to be removed from the dividend and given to charity. The distribution aims to reduce all exposure to interest.

Muslim investors, due to their faith and moral code, are limited to certain types of investments, which differ to conventional investing. It excludes certain instruments completely such as interest-bearing instruments or exposure to certain industries such as alcohol and financial intuitions. The SSB has their own screening criteria which further eliminates more assets from the pool using a negative screening process. These rules and regulations create a significant difference between the asset universe of a Shariah portfolio and a conventional portfolio. It can be conceded that although these rules exist, many instruments will form part of both a Shariah fund and a conventional fund, as these instruments tend to be defensive stocks that provide good value to investors. The overlap might not be enough to benefit from full diversification benefits and provide equitable performance from the different types of funds.

1.3.2. Shariah Funds can differ in Performance

A Shariah fund is inherently different from a conventional fund, as a Shariah fund has to adhere to certain stringent rules and regulation. These rules and regulation exclude certain types of assets and even complete asset classes such as a fixed income. Furthermore, additional taxes and fees are paid by the Shariah investor. All of these issues combined can have an effect on the performance of a Shariah portfolio when compared to a conventional portfolio. The performance differential can be positive or negative and the literature argues both points, but it can be expected that there is a negative impact on performance. This is because as the investment tends to move away from highly risky assets and more towards defensive assets in bear markets, the Shariah funds fund will benefit a less risky type of investor or vice versa in bull markets.

A fund is generally made of many parts to provide the best diversification benefits. The three main categories are cash, equities and fixed income. Each of these needs to be discussed individually as each behaves in a different manner and has different attributes and expected performance. The purpose of cash in a fund will have the same function in a Shariah fund and in a conventional fund as it is used to purchase returns making financial assets and to manage uncertainty.

The equity portion of the fund would be greatly affected as Shariah completely forbids investment into certain industries such as tobacco, alcohol and financial institutions. The Shariah boards also have certain screening criteria that Shariah investors abide

by. El Khamlichi, Ferry and Laaradh (2014:2) investigated for any performance differences between Dow Jones conventional and Islamic indices and found that on a global level, the Islamic indices outperformed whereas on a sectoral level, the Islamic indices outperformed in only three sectors. Contradicting the finding, Girard and Hassan (2008:121) found no significant difference in performance, but rather that the difference can be attributed to different investment styles. And finally, Hoepner et al. (2011:829) found that in more developed Islamic economies, the Islamic mutual funds outperform the conventional funds, but conversely, in the western economies, these Islamic funds underperform.

Within the literature, it is also a widely held belief that derivative trading is not allowed under Shariah. The exclusion of derivative further helped to shield the Shariah-compliant investments from most of the negative effects during the 2007-2008 economic downturn as Alam (2010) discussed during his presentation at the 8th International Conference on Islamic Economics and Finance.

Conventional fixed income investment is usually invested in interest-bearing bonds. These interest-bearing instruments are completely forbidden by Shariah. To combat the rulings, new financial instruments have been developed that replicates the cash flows of a conventional fixed income instrument (Godlewski; Turk-Ariss; Weill 2013:745) as well as contain a similar risk profile but aligns with the Shariah finance. These products are called "Sukuk bonds". These Sukuk bonds are structured to completely replicate a conventional bonds' returns but are based on an underlying asset and not interest (Godlewski *et al.*, 2013:749). However, it is argued that these instruments might not be Shariah-compliant at all due to the underlying nature and, therefore, cannot be used in a Shariah portfolio. Therefore, it can be taken that the Sukuk instrument will produce the same income as a conventional bond, but the risk profile might be somewhat different from a conventional bond.

The literature points to the fact that, in South Africa, it is possible for Shariah funds to either match or outperform conventional portfolio performance. Furthermore, due to there being domestic Sukuk issuances, it will allow for a more robust analysis due to a larger amount of compliant financial instruments becoming available.

1.3.3. Measures used to evaluate Fund Performance

As the study aims to investigate the performance of mutual funds, certain measurement tools have been identified. These are discussed briefly below, but in detail in Chapter 2.

1.3.3.1. Treynor Ratio

The Treynor ratio was introduced in 1965 by Jack Treynor and is commonly used to evaluate fund performance. The measure only takes into account systematic risk as the denominator is Beta and it essentially measures the difference between the growth of the risk-free rate and the growth of the fund (Dewi and Ferdian, 2012:14; Kassim & Kamil, 2012:66).

1.3.3.2. Sharpe Ratio

The Sharpe ratio is a similar measure to the Treynor ratio but instead of using Beta as the denominator it uses total risk and, therefore, takes into account both the systematic and unsystematic risk. The denominator used is standard deviation (Dewi and Ferdian, 2012:15; Kassim & Kamil, 2012:66).

1.3.3.3. Jensen's Alpha

The Jensen's Alpha uses the Capital Asset Pricing Model to measure fund performance by calculating the excess return. For example, the Alpha will also give an indication of the fund manager's ability to outperform the market highlighting the managers stock-picking skill (Hoepner *et al.*, 2011:839; Dewi and Ferdian, 2012:16).

1.3.3.4. Information Ratio

The Information ratio is largely similar to the Sharpe ratio but it calculates the excess return by using a market index rather than the risk-free rate. Furthermore, portfolio managers aim to outperform a benchmark index; it would be prudent to analyse the performance against a standardised benchmark (Abdullah, Hassan & Mohamad, 2007:146).

1.4. Research Design and Methodology

The research design and methodology to address the research problem will be discussed in greater detail in Chapter 3. The study aims to take a positivist approach to addressing the research problem. The approach taken is due to the research problem primarily trying to identify a trend between two sets of data. The study will be deductive in nature.

1.4.1. Design

The question asked is: do Shariah-compliant funds differ in performance from conventional funds? A Shariah-compliant fund is a fund that will comply with the South African SSB's recommendations and all the returns are reinvested into the fund. The study will only focus on South African Shariah-compliant mutual funds. The performance will be measured by comparing the daily net-asset values (NAV) of the fund to the FTSE/JSE Top 40 Index daily prices.

The design will be quantitative and longitudinal in nature as it will analyse and compare existing numerical data that shows the growth in the selected mutual funds. The research design used will follow an approach by Bhatt and Bandopadhyay (2011:60-62) and Dewi and Ferdian (2012:13-14) which uses four of the most common approaches in analysing fund performance. These methods are as follows:

- i. Treynor ratio
- ii. Sharpe ratio
- iii. Jensen's Alpha
- iv. Information ratio

1.4.2. Data

Three sets of data will be collected from the iNet BFA databases. These three types are i) a sample of mutual funds in South Africa net-asset value monthly, ii) the daily prices of the FTSE/JSE Top 40 Index, iii) the risk-free rate daily close for South African government bonds with a 10-year expiry.

The data to be collected is of a secondary nature and will be obtained from the iNet BFA terminal. Access to the terminal will be gained from the University of Johannesburg's available databases. iNet BFA is one of the largest and most prominent providers of financial information in Southern Africa, and their data can be taken as reliable and complete. The data will be for the period of 1 April 2012 to 31 March 2017; a period of five years totalling 60 monthly time series points.

1.4.3. **Methodology**

This section will outline the methodology used in addressing the research problem. It will discuss the population and sampling method as well as the reliability and validity of results.

1.4.4. **Population**

The population will include all 28 of the South African Shariah-compliant mutual funds that are available publically in South Africa.

1.4.5. **Sampling**

The population will be filtered using the following sampling method. It will follow a purposeful sampling methodology, and any funds that do not meet the criteria will be eliminated. All Shariah-compliant funds will be selected. The funds will then be analysed for the following: they are supervised by an SSB, and do they have sufficient data points for the 60 month Period?

The sample is sufficient and should provide a representative view of the population of all Shariah funds. Similarly sized studies were conducted by Kassim and Kamil (2012:65) and Agusallim, Limakrisna and Ali (2017:153) which used a sample of 33 and four funds, respectively. All of the Shariah funds will be selected as it will form a relatively small number totalling 28 funds out of a total mutual fund population of 905, due to it being a niche market. The time period is appropriate as it allows for a long-term analysis of the funds and should eliminate any short-term volatility.

1.4.6. Validity

The literature suggests that the funds NAV, the index price, fund managers expense and the government risk-free rate be used (Bhatt & Bandopadhyay, 2011:60-62; Dewi and Ferdian, 2012:14-16; Ashraf, 2013:111). The data allows for comparative performance as it will find a link between growth and will allow one to deduce which fund performed the best on a risk adjusted basis. The study will be conducted using the four tests described above. These will be run by the researcher and the findings using desktop research methods and will be compared to findings in similar literature such as Dewi and Ferdian (2012) and Ashraf (2013) as a reference point.

1.4.7. Reliability

The design will be reliable as all the procedures to collect, filter and test the data are stated above, and it will allow for replication which will produce the same results. All methods and formulas used will be detailed. All analysis will be conducted using Microsoft Excel and Eviews. This will allow future researchers to replicate the study, thus, ensuring reliability.

The iNet BFA resource is reliable as it is a prominent provider of financial data. All results and information will be recorded and compared against original test results. The original data set and test workbooks will be made available upon request. Reliability will be enhanced as all four tests will be testing the growth in NAV of the fund using risk-adjusted measures of performance.

1.5. Delimitations of the Study

Whilst planning the research, certain decisions were undertaken for factors that are under the control of the researcher. These delimitations include the scope of research, research methods, research population, and research instruments.

1.5.1. Time Period of Study

The period under analysis is 01 April 2012 to 31 March 2017. The time period is guided by the availability of complete time series data available and, to allow as many funds into the sample as possible, consideration was given to new or dead funds.

1.5.2. Population of Funds

The population is solely restricted to Shariah-compliant funds that are registered and openly traded in South Africa. It allows for a narrow and focused analysis that allows for ease of comparison of the performance of the funds. Furthermore, it allows for greater reliability and validity of the results.

1.5.3. Participants

The scope of the research is limited to funds that comply with the following factors: i) have been in existence for the entire period under analysis; ii) are managed and comply with an independent Shariah Supervisory Board. The funds should iii) be classified as Shariah-compliant under the ASISA classification guidelines and iv) have a performance history of five years.

1.5.4. Research Instruments

The data collected on iNet BFA is the primary research instrument used in the study. Additionally, investment manager websites, fund fact sheets and industry news serve as useful sources for secondary data. The data will consist of monthly NAV's which will be used to calculate the annualised returns for the Shariah funds.

1.6. Limitations of the Study

The limitations of the study, in contrast to the delimitations, highlight factors that are outside of the researcher's control. These factors are detailed below.

1.6.1. Shortage of Studies in South Africa

There are no studies of Shariah-compliant mutual funds' performance in South Africa. Two relevant studies exist in the literature the first is by Mvubu (2014) who analysed the performance of socially responsible funds (SRI) versus conventional funds and included the Shariah funds but this was under the SRI banner, the second study was conducted by Dhali (2015) which analysed the performance of FTSE/JSE Shariah indices to conventional indices. None of the literature focusses directly on the mutual

fund performance. Therefore, the majority of the literature referenced will be of an international nature.

1.6.2. Population and Sample Size

South Africa is considered a secular country with mature financial markets; as at December 2014, the mutual fund population consists of 905 funds. An analysis was conducted using Morningstar and Stanlib fund classification sheets to determine the available population of Shariah-compliant funds in South Africa. The analysis resulted in 28 funds that were identified as at June 2017. Of the 28 funds, six had insufficient data points or did not exist anymore and were eliminated, resulting in a final sample of 22 funds.

The selected sample size is still relevant as studies conducted by Kassim and Kamil (2012:65) and Agusallim *et al.* (2017:153) have 33 and four funds, respectively. The empirical results of these studies were considered reliable and valid, based on the varying sizes of the sample.

1.6.3. Limitations of Risk-adjusted Measures of Return

The following limitations have been identified as weaknesses in the method used for the analysis of the data, due to the weaknesses associated with risk-adjusted measures of performance. These measures are based on theoretical concepts which may have assumptions that do not apply in the real world. Furthermore, each measure may only take into account either systematic or unsystematic risk. Another concern is the use of single-factor models. Lastly, the measures tend to either smoothen volatility or they will not register regular small losses. The reliability and validity of the results will not be affected as studies by Abdullah, *et al.* (2007:145-146), used similar methodologies and their empirical finds were accepted as valid and reliable.

1.6.4. General Performance of Financial Markets

The financial markets are cyclical and follow the upturns and downturns of the economy. Over the period analysed South Africa faced rising inflation, a weakening rand and various rating downgrades. These factors may have an impact on the performance in a positive or negative manner.

1.7. Significance of Research

The study will primarily benefit the asset management company who would use the findings to further bring out new products in the asset management industry. It will further benefit the Muslim investor as it will highlight the best performing Shariah funds.

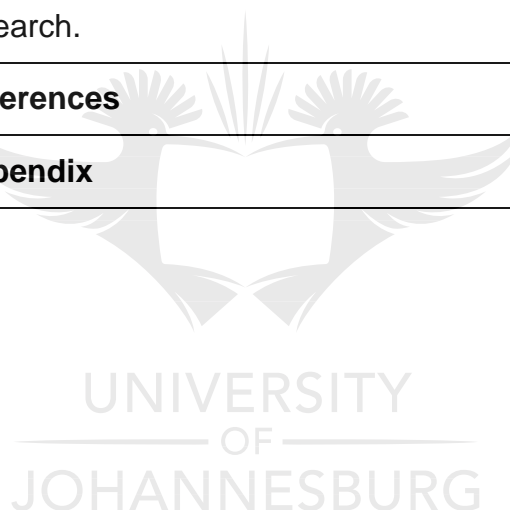
1.8. Overview of Chapters

The table below provides an outline of the chapters, the order in which each chapter will be discussed as well as a summary of each chapter's content.

Table 1.1: Thesis overview

Chapter	Contents
Chapter 1:	Introduction and Background to the Study
	Chapter 1 introduces the field of study, this encompasses the historical background, an understanding of Shariah, the research problem and the methodology employed to address the research problem.
Chapter 2	Literature Review
	Chapter 2 details the concept of Shariah and specifically, the financial component of such and Islamic financial instruments. Furthermore, it explores the relevant theory behind fund management and the manner in which performance can be evaluated. It is concluded by a review of global financial Shariah fund performance and the surrounding literature.
Chapter 3:	Research Methodology
	Chapter 3 discusses the research design and methodology used. It describes the research problems and related research questions. Furthermore, it highlights the data collection methods, research instruments, sampling methods and available data, ethical considerations and limitations of the study.

Chapter 4	Results and findings
	Chapter 4 consist of the data analysis and results of the study. There is a focus on answering the primary research questions and objectives of the study. In conclusion, the measures used to ensure reliability and validity of the study are discussed.
Chapter 5:	Conclusion
	Chapter 5 provides a summary of the research findings with respect to the research questions. It provides a conclusion for the four research questions that were employed underlying the research problem. It concludes by the highlighting the contributions of the study and recommendations for further research.
Chapter 6:	References
Chapter 7:	Appendix



Chapter Two

Literature Review

2.1. Introduction

The literature review will expand, investigate and debate the existing literature on Shariah finance and investment, conventional financial theories and the measures of testing.

2.2. Shariah and Investments

The section aims to unravel the laws regarding Islamic law and how it relates to the financial services world and in particular, mutual funds. It will cover the following topics, Shariah, Shariah finance and the regulations surrounding it, and the various financial instruments available to Shariah investors.

2.2.1. Shariah

CISI (2015) translates the word *Shariah* literally as the *path to water*, it is then further developed that Shariah is the guide to all Islamic teachings (Alam, 2010:1). Shariah is derived from two major sources, the Quran and the Sunnah. The Quran is taken as the literal word of God that has been revealed to Prophet Muhammed, Peace Be upon Him (PBUH). The Sunnah is the considered the second most important primary source of Shariah and is defined by the sayings and actions of the Prophet Muhammed, PBUH, during his lifetime (Derigs and Marzban; 2009:1169; Alam, 2010:1).

CISI (2016:8) defines the secondary sources of information as *Ijma*, *Qiyas*, and *Ijtihad*. Firstly, *Ijma* can be defined as consensus within the Muslim community. Secondly, *Qiyas* is defined as an analogy that exists as a current rule can be applied to a new scenario, and finally, *Ijtihad* can be defined as scholarly interpretation which has been developed by religious leaders who rigorously examined any issue that had not been covered in the primary sources of Shariah (CISI, 2016:8 – 9).

2.2.2. Shariah Finance

Shariah financial instruments appeal to the investor who requires products that fit within their belief system (El Khamlichi *et al.*, 2014:2). CISI (2016:5) argues that Shariah applies to Muslims' daily behaviour and, therefore applies, to all the financial transactions that may occur. Shariah forces one to evaluate each transaction on its own merit so that it complies with Shariah (CISI (2016:33; Wilson, 1991:206). Muslims are allowed to pursue profit maximisation and trade as long as it does not contradict the Shariah. Furthermore, they are encouraged to participate in the economy (CISI, 2016:4; Wilson, 1991:208). The requirement to be involved in the economy has allowed for tremendous growth in the Islamic Financial Services Industry with more funds flowing in every year.

Ahmed and Al-Rashidi (2015:30) state that Islamic mutual funds have "*emerged to occupy an important place in all the major stock markets of the world*". Islamic funds have become an integral part of the global financial industry and, therefore, what it constituents needs to be studied. Shubbar (2010:21) states that Islamic financial instruments have similar characteristics to conventional products in design but in principle, they differ. Shubbar (2010:21) further clarifies his statement but advises that an Islamic financial product or instrument must have elements of a real asset underlying the instrument and there has to a variable rate of return based on the performance of the instrument.

2.2.2.1. Prohibitions and Obligations under Shariah

Shariah has created prohibitions and obligations of which Muslim investors need to be cognisant. These factors are to be considered when a Muslim investor purchases a fund or when a fund manager develops a fund.

The three major prohibitions are firstly, interest (*riba*) which is unqualified in interpretation in Islam (Alam, 2010:2). Interest can be defined as any excess above or below the capital on a loan (CISI, 2016:38; Walkshäusl & Lobe, 2012:53-54; Hayat, Butter & Kock, 2013:52). Interest has negative socio-economic influences by creating a further divide between high and low-income earners. Secondly, *Gharar*, or excessive risk, is prohibited due to one party taking large amounts of risk that could result in a

substantial loss to one or both parties. Lastly, the prohibited products, these are products which are considered to be harmful towards individuals and society, examples being alcohol, pornography and pork (Walkshäusl & Lobe, 2012:53-54). These elements are further corroborated by Yusof *et al.* (2010:391)

The obligation is a *Zakat* payment which is mandatory almsgiving that Muslims need to pay. *Zakat* amounts to 2.5% on idle wealth on an annual basis. The payment is based on the market value of the assets less the deduction of specific liabilities.

The final factor is the purification of unlawful income. CISI (2016:28) states that due to the interrelationship between Islamic finance and conventional systems, it sometimes becomes necessary that an investment may be subject to receiving unlawful income. The income has to be removed and distributed to charity which is usually determined by the presiding SSB. An example of the above would be a resource based company receiving revenue from interest and, therefore, the interest portion of the income will need to be removed and distributed.

2.2.2.2. Shariah Supervisory Boards

Shariah financial instruments are evaluated by Shariah Supervisory Boards (SSB's) (Walkshäusl & Lobe, 2012:53). These bodies have been created to allow for leading jurists to provide regulation and opinion of Islamic financial services products. The SSB is not involved in any strategic or operational issues, rather it develops a framework for the fund and monitors for Shariah compliance. Typically the SSB will be created by the institution that it serves and the body generally consists of three or more independent Shariah scholars (Hayat *et al.*, 2013:605).

2.2.3. **Islamic Financial Instruments**

Wilson (1991:205) describes financial instruments as tradable securities on the secondary markets. These are holders of value that are important for the fundamental principle of the financial markets which is to mediate the transfer of funds from the lender to the borrower. Ahmed and Al-Rashidi (2015:31) state that an Islamic fund has the same features as its conventional counterpart, which is being a depository for investment capital. Due to the enormous growth of both conventional and Shariah-compliant financial instruments in conjunction with the restrictions imposed by Shariah,

each category needs to be analysed on its own merit. This is confirmed by Alexandri, Pragiwani and Laiela (2017:165) who discovered that Shariah mutual funds consist of cash, equities, debt instruments and derivatives and Shariah-compliant deposit products. These instruments will be discussed below.

2.2.3.1. Cash

CISI (2015:50) states that that money is seen as a holder of value, and a medium of exchange and is accepted within the confines of Shariah. The only caveat being that the cash cannot attract any interest income for the portfolio. CISI (2015:50) further states that a profit cannot be gained on the money alone. Cash in a portfolio is mainly used as a means to purchase other instruments. Cash usually consists of a minimal or insignificant portion of the portfolio.

2.2.3.2. Equity

Equities form a substantial part of most portfolios, and each equity needs to be considered on its own merit. In its entirety, the equity asset class is permissible to invest in due to sharing in the risk as well as having an ownership stake in the company (Wilson, 1991:213; Chapra, 1985:67). Due to equities being regarded as permissible as a whole, each equity needs to be screened for permissibility using screening factors (CFA, 2009:45-46).

The equities' screening tests are qualitatively and quantitatively based. Qualitative factors are a negative screening method, and include the type of company and industry in which the specific factor operates (El Khamlichi *et al.*, 2014:2). The screening method removes any impermissible companies that operate in financial services: tobacco, pork, arms and gambling (CISI, 2009:46; Shubbar, 2010:8). The quantitative screening methods include but are not limited to using financial ratios such as leverage ratio, interest to cash ratio and accounts receivable to revenue ratios. These ratios cannot breach the thresholds as prescribed by the SSB (Yusof *et al.*, 2010:392).

Hayat *et al.* (2013:602) advise that screening methods differ between countries and schools of thought but fundamentally they exclude the same type of equities. Hayat *et al.* (2013:601) also analyse whether the certification process can be standardised and

a company can be given a *Halal* certification which could reduce costs within the Islamic financial markets

2.2.3.3. Debt Instruments

Conventional short term and long term debt instruments are excluded from Islamic mutual funds due to the interest income received which is expressly prohibited (Wilson, 1991:210). The availability of a lower risk, highly liquid fixed profit instrument that participates in the debt market has allowed for the creation of a new type of instrument namely a Sukuk bond (CFA; 2009:47; Alam, Hassan & Haque; 2013:22). The Sukuk bond is regulated by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) (Azmat *et al.*, 2014:123). They, in substance, have similar characteristics such as cash flow and risk as compared to conventional bonds but differ in legal form (Alam *et al.*, 2013:22). The CFA Institute (2009:47) and Alam *et al.* (2013:23) state that the returns are tied to an underlying asset using a special purpose vehicle (SPV) to structure the transaction.

The CFA Institute (2009:47) further states that the Sukuk bond market is one of the fastest growing globally. The International Islamic Financial Market (2017:2) indicates that new Sukuk Issuances increased from USD 60bn to USD 80bn which is a 44% increase in volume. The new issuances further highlight its continued growth within the Islamic financial services industry, and more so within a balanced Islamic mutual fund. Sukuk bonds are now used in both balanced and fixed income funds in South Africa, with the National Treasury in South Africa debuting a Sukuk issuance in 2014 (National Treasury, 2014:1). Furthermore, there have recently been the creation of Shariah-compliant money market funds in the South African space such as the Oasis bond fund or the 24/7 Income prescient fund.

2.2.3.4. Derivatives

These are excluded due to the innate high risk as well as the speculative nature of derivatives. Furthermore, Wilson (1991:207) specifies that it can be taken that hedging is a form of insurance against price changes which needs to be analysed according to Islamic. The CFA Institute in their publication titled “a primer on Islamic finance” (2009:51) further clarifies Wilson’s (1991) findings by stating that it would be allowable

to use derivatives for hedging as long as it free of interest and excessive uncertainty. Furthermore, the CFA Institute (2009:51) advises that Shariah does allow for derivatives to be used for arbitrage purposes, but Wilson (1991:57) argues that the speculation plays too large a role in the price gouging of derivative markets which could negate the permissibility of using it for fund purposes. It can be concluded that derivatives can be excluded from conventional Shariah-compliant mutual funds due to their high-risk nature and no need of arbitrage and hedging.

2.3. Financial Theories on Fund Management

Financial theories have developed over the latter half of the twentieth century (Balling & Gnan, 2013:157). Balling and Gnan (2013:158) suggest that these theories have been used to mould and develop both theoretical and practical concepts in managing funds. Due to various theories being developed, and a multitude of different types of funds, it should be evident that different theories can be applied and each has its strengths and weaknesses. These strengths and weaknesses should be discussed and debated when relating to Shariah fund management. Five prominent theories have developed from the literature. These are Modern Portfolio Theory, Separation Theorem, Capital Asset Pricing Model, Arbitrage Pricing Theory and Behavioural Finance.

2.3.1. Modern Portfolio Theory by Markowitz

Mangram (2013:59) describes Markowitz as a pioneer in modern financial theory. Mangram (2013:59) defines Modern Portfolio Theory (MPT) as “*an investment framework for the selection and construction of investment portfolios based on the maximization of expected portfolio returns and simultaneous minimization of investment risk.*” To simplify Balling and Gnan (2013:158) indicates that an investor will always look to maximise returns for the lowest amount of risk possible. Markowitz (1952) theorised that the optimisation can be done by using diversification as a means to reduce the risk and maximise the return and assets should not be looked at individually. Balling and Gnan (2013:158) further highlight that on a portfolio level, securities performance can be estimated using the variance and covariance of the various securities’ to provide the maximum return.

Mvubu (2014:33) describes the ideals of MPT as an investor that establishes “a portfolio by optimally combining higher yielding assets at a lower risk”. MPT can be seen as the foundation of modern financial theories and these assumptions have been challenged by academics using the Capital Asset Pricing Theory by Sharpe (1964) and Arbitrage Pricing Theory by Ross (1976).

Balling and Gnan (2013:159) further emphasise the use of MPT in practice by outlining that it was used by J.P Morgan in 1989 to develop a Transparent Portfolio Model which was used as a benchmark for risk management. The model was revised to include the concept of Value-at-Risk (VaR) which is a risk measure commonly used today by financial institutions. Balling and Gnan (2013:159) summarised their stance concluding that “*the mean-variance optimization is still relevant. The 60-year old model is a long way from retirement.*”

Shariah reduces the universe of available financial instruments, and the investor is tasked with combining a Shariah-compliant investment that will be able to compete with conventional funds.

2.3.2. Separation Theorem by Tobin (1958)

Tobin (1958:65) in his seminal paper titled “liquidity preferences as behaviour towards risk” challenges Markowitz theory of the most efficient risky portfolio. Van Wyk, Botha and Goodspeed (2015:240) summarise the theorem that the “*selection of securities for the most efficient risk portfolio is separate from the decision on how to divide a total portfolio between risky assets such as equity and corporate bonds*”.

The Separation Theorem is still used today by investor’s globally as the asset mix is first decided and thereafter, the optimal portfolio can be developed (Van Wyk *et al.*, 2015:240).

The development of new Shariah-compliant financial instruments such as Sukuk bonds has created new methods for an investor to create portfolios that can include debt-like instruments and have differing risk profiles. The Separation Theorem, therefore, applies to Shariah fund investors.

2.3.3. Capital Asset Pricing Model by Sharpe

Building on Markowitz's and Treynor's (1965) work, Sharpe developed the Capital Asset Pricing Theory in 1964 in the seminal paper titled "capital asset prices – a theory of market equilibrium under conditions of risk" (Sharpe, 1964:425). Lintner (1965) further refined the model. The findings resulted in one of the most widely used theories in modern-day finance and are widely known as the Capital Asset Pricing Model (CAPM) (Mangram, 2013:59; Van Wyk *et al.*, 2015:241).

CAPM further simplifies the MPT model by reducing the need for estimating individual expected return, variance and co-variances and replacing it with the concept of a variable referred to as Beta (Van Wyk *et al.*, 2015:241). Furthermore, the model theorises that there are two types of risk, systematic and unsystematic risk which forms the basis of an investors' expected return (Balling & Gnan, 2013:160; Mvubu, 2014:31). The theorem indicates that an investor is to be rewarded for taking on systematic risk which is non-diversifiable. Systematic risk is referred to as the equity risk premium and can be defined as the excess return above the risk-free rate of return (Van Wyk *et al.*, 2014:241; Mvubu, 2014:31). The systematic risk can be calculated by regressing its returns against those of the market portfolio, which is referred to as the Beta (β) (Balling & Gnan, 2013:160; Van Wyk *et al.*, 2015:241).

CAPM, although simplifying the MTP model, still has weaknesses. Balling and Gnan (2013:160) summarise these weaknesses as only having a single risk factor and only looking at a single future period. Ross (1976:340) expressed various doubts on the effectiveness of the CAPM, which has resulted in the development of Arbitrage Pricing Theory, as other researchers attempted to adjust the periods or include other factors such as foreign exchange risk and International Capital Asset Pricing Model (ICAPM) (Balling & Gnan, 2013:161).

2.3.4. Arbitrage Pricing Theory by Ross (1976)

The Arbitrage Pricing Theory (APT) was developed by Ross (1976:340) in his seminal paper. APT is widely considered as an alternative model to the Capital Asset Pricing Model developed by Sharpe, Lintner and Treynor (Ross, 1976:341). The APT model

was developed by Ross to address the weaknesses in that were found in the CAPM (Van Wyk *et al.*, 2015:243).

Mvubu (2014:32-33) summarises the differences between APT and CAPM as that the APT uses a multi-factor model as opposed to the CAPM single factor model. APT is also applied over multiple periods rather than the single period CAPM. The model also employs fewer assumptions and in turn is less restrictive than CAPM.

2.3.5. Behavioural Finance

Van Wyk *et al.* (2015:244) imply that the most recent financial crisis in 2008 was obscured by the focus on the efficiency of markets as well the rationality of investors. They further elaborate by implying that signs of the financial crisis were missed due to these factors. These findings have created an even greater focus on the importance of the psychology of investing. Mvubu (2014:35) and Bracker (2013:69) further strengthen the view by stating that investors need to take into account risk and return, risk-based asset pricing models, pricing of contingent claims, and the Agency Theory when investing. Mvubu (2014:35) further states that in practice investors behave differently and the assumptions of the traditional models are based on investor rationality.

Behavioural finance aims to understand the psychology behind the behaviour of investors. Bracker (2013:69) states that “*behavioural finance recognizes that people are sometimes irrational, tend to exhibit loss-aversion rather than risk-aversion and often rely on heuristics as a decision-making tool.*” Behavioural finance claims that investor’s psychology and emotions play a large role in investment decisions (Bracker, 2013:71; Mvubu, 2014:36).

Behavioural finance is relevant to the Shariah investor as they make an irrational decision e.g. invest in a non-optimal portfolio according to a rational finance model to comply with a religious belief. The decision may have an effect on the assumed risk and expected return the investor may expect. Alam (2010:5) further strengthens the view by stating that “*social issues will become more important decision factors in coming times*”.

The five predominant finance theories presented in the above section has brought about numerous mathematical measures of performance. These will be discussed in section 2.4.

2.4. Measures used to Evaluate Fund Performance

This next section builds on the previous discussion of financial theories. It evaluates the different quantitative metrics that are used to evaluate the performance of mutual funds.

For the purpose of the study the Treynor ratio, Sharpe ratio, Information ratio and Jensen's Alpha are relevant as measures of performance of Shariah funds. These ratios have been used in numerous studies to study the effects of performance of mutual funds (Hassan, Nahian & Ngow, 2010:148; Dah, Hoque & Wang, 2015:357; Tripathi & Bhandari, 2015:13).

To reiterate, the purpose of the study is to examine how Shariah-compliant funds compare to their conventional peers. In order to compare the funds reliably, it is prudent to consider the risks as well as the returns that investment managers generate. For example, according to Risk and Return Theory, it can be expected that Shariah will produce lower risk portfolios due to the nature of the restrictions, which in fact, will have a direct impact on the return. Each risk-adjusted measure will be discussed below.

2.4.1. Treynor Ratio

The Treynor ratio was developed by Treynor (1965:63-66) and is used to commonly evaluate the performance of mutual funds. Mvubu (2014:38) states that it is the first risk-adjusted measure for the analysis of portfolio performance. The Treynor ratio only takes beta into account which can be referred to as systematic risk. The ratio is calculated by dividing the difference of the risk premium and risk-free rate by the beta. The Treynor ratio can be expressed mathematically in the following manner:

$$T = \frac{\bar{R}_i - \bar{R}_f}{\beta}$$

Where: T = Reward per unit of Risk

R_i = Average mutual funds return

R_f = Average risk free rate

β = Beta is the relative volatility of the market.

Formula 2.1: Treynor Index

Source: Dah *et al.* (2015:358)

The larger the value of T will indicate a stronger return above market return, and that the portfolio is producing higher yields (Dewi & Ferdian, 2012:14; Mvubu, 2014:38). A latent weakness of the ratio is that it does not include unsystematic risk and assumes that it can be diversified away (Mvubu, 2014:38).

The Treynor ratio was used by the following researchers in measuring the performance of Shariah mutual funds or indices Hassan *et al.* (2010:157), Dewi and Ferdian (2012:14) and Mvubu (2014:38).

2.4.2. Sharpe Ratio

The Sharpe ratio is a risk-adjusted measure of performance developed in the seminal work of William Sharpe (1964:425). It is calculated by obtaining the reward per unit of risk (Morningstar, 2005:4) and is based on a mean-variance model. The Sharpe model is highly regarded in the investment universe and is still used widely today as a primary performance measure (Mvubu, 2014:39). The ratio can be expressed mathematically in the following manner:

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

Where: S_p = Reward per unit of Risk

R_p = Average mutual funds return

R_f = Average risk free rate

σ_p = Variance of risk premium

Formula 2.2: Sharpe Ratio

Source: Dah *et al.* (2015:358)

The highest positive ratio will be the best performing indices (El Khamlichi *et al.*, 2014:5). If the Sharpe ratio is negative it means that it has underperformed the risk-free rate. The ratio also takes into account unsystematic risk by using the total risk as a denominator (Dewi & Ferdian, 2012:15). It can be further deduced that if the unsystematic risk is negligible, the Treynor and Sharpe ratio will produce the same result.

The Sharpe ratio was used by the following researchers in measuring the performance of Shariah mutual funds or indices Alam (2010:8), Hassan *et al.*, (2010:157) and El Khamlichi *et al.* (2014:5).

2.4.3. Information Ratio

The Information ratio is largely similar to the Sharpe ratio but it calculates the excess return by using a market index rather than the risk-free rate. By using the market index it will indicate the excess growth above a benchmark rather than the risk-free rate. The result can be attributed to the asset selection of the portfolio manager rather than to excess performance. Furthermore, portfolio managers aim to outperform a benchmark index, so it would be prudent to analyse the performance against a standardised benchmark (Abdullah *et al.*, 2007:146):

$$Sp = \frac{Rp - Ri}{\sigma_p}$$

Where: Sp = Reward per unit of Risk over market index

Rp = Return of portfolio

Ri = Return of market index

σ_p = Variance of risk premium

Formula 2.3: Information ratio

Source: Abdullah *et al.* (2007:146)

2.4.4. Jensen's Alpha

The Jensen's Alpha (α) was developed by Jensen (1968:390) in his seminal paper. The Alpha is based on the CAPM theory (Kassim & Kamil, 2012:66). The Alpha as

Alam (2010:8) defines it as a measure that “*shows the expected return of the portfolio over the expected return of the same portfolio as determined by the risk-reward equilibrium of the market*”. The measure is considered as the Alpha (α) of the Portfolio (Albaity & Ahmad, 2008:29). The Alpha allows for the researcher to determine if the fund had outperformed the market Beta. Jensen’s Alpha can be expressed mathematically as follows:

$$\alpha_j = R_p - [R_f + \beta(R_m - R_f)]$$

Where:

- α_j = Jensen’s Alpha
- R_p = Return of portfolio
- R_f = Risk free rate
- β = Beta of the market
- R_m = Return of market index
- σ_p = Variance of risk premium

Formula 2.4: Jensen’s Alpha

Source: Dah *et al.* (2015:361)

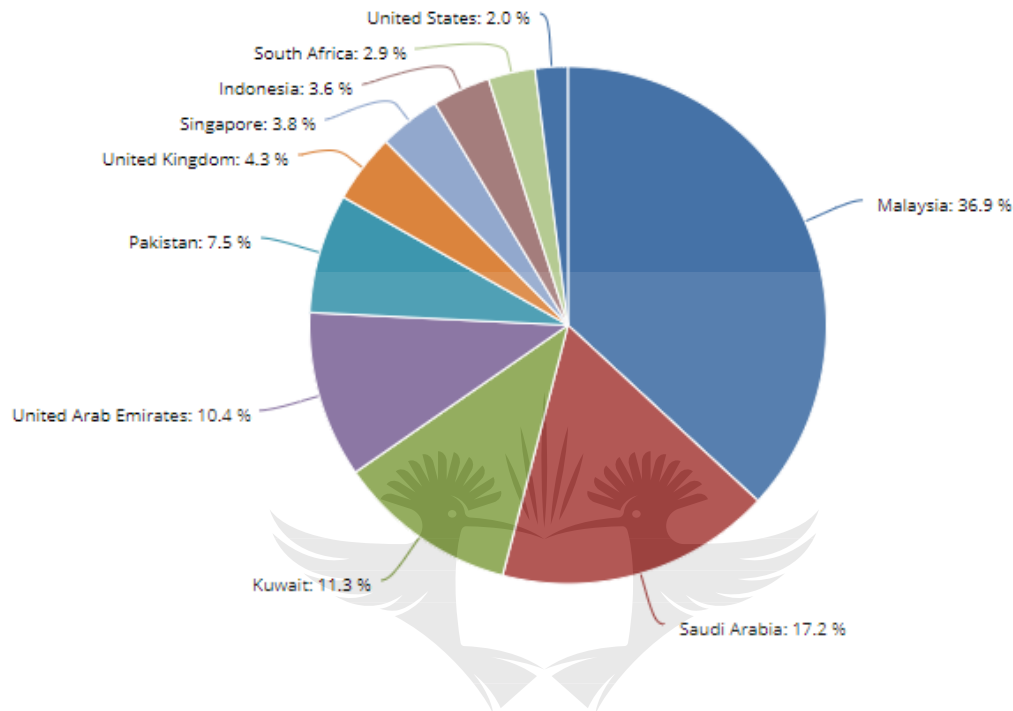
If the Jensen’s Alpha is positive or negative, it implies that the fund is outperforming or underperforming the market, respectively (Hassan *et al.*, 2010:155). Alpha will be zero when the CAPM and securities are correctly priced (Mansor & Bhatti, 2011:29). The Jensen’s Alpha was used by the following researchers in measuring the performance of Shariah mutual funds or indices, Alam (2010:8) and Mansor and Bhatti (2011:491).

2.5. Review on the Performance of Shariah Funds

The following section aims to review the empirical findings of the performance of Shariah-compliant and conventional funds. The research problem outlines the need to evaluate the performance of Shariah-compliant funds and conventional funds. Research conducted by EurekaHedge (2017) as shown in figure 3.1, shows that South Africa makes up 2.9% of the global population of Shariah-compliant funds. The majority of funds are domiciled in Malaysia, at 36.9%, Saudi Arabia at 17.9% and

Kuwait at 11.3%. The number of funds domiciled in South Africa is disproportionate to the total South African population of approximately 700 000 Muslims relative to the total global Muslim population of 1.7bn Muslims, which is approximately 0.4%.

Figure 3.1: Population of global Shariah funds



Source: EurekaHedge (2018)

The majority of literature surrounding Shariah-compliant funds focuses on the Malaysian market, as the Malaysian market comprises the largest number of funds. The next section will be composed of a review of academic literature on the performance of Shariah-compliant mutual funds and their findings. The section will be laid out in the following manner:

- i. Malaysia and the Far East
- ii. Rest of the world
- iii. South Africa.

2.5.1. Malaysia and the Far East performance of Shariah Funds

The Malaysian market consists of 37% of the global population of Shariah-compliant funds. Due to the materiality of the market, it is natural that a large number of studies have focused on the Malaysian market. Nassir, Qurratul, Shadi and Hamid (2012:12)

consider Malaysia as a pioneer of the Islamic capital markets and as a leader in Islamic finance development. The following findings have been found in the literature.

Agussalim *et al.* (2017) found that conventional funds performed better in Sharpe tests, whereas Shariah provided superior performance in the Treynor and Jensen's Alpha tests. Agussalim *et al.* (2017) compared four Shariah funds and five conventional funds, using risk-adjusted measures of performance for a seven-year period. The results are valid for the Indonesian financial markets, which is a Muslim majority country.

Mohamad (2016) investigated the performance of Shariah-compliant Real Estate Investment Trusts (REITs) in Malaysia. The study investigates the performance of the REITs for a five-year period, using a one-way ANOVA and an Independent Sample Kruskal-Wallis test. Mohamed (2016) found that the Shariah REITs outperformed the conventional REITs for the five-year period. The Shariah REITs will exclude any real estate where the tenants engage in activities against the Shariah.

It was found that Shariah-compliant unit trusts and conventional unit trusts had both outperformed the market and Shariah funds found greater resistance during periods of crisis (Alam, Tang & Rajjaque, 2013:324). The empirical analysis consisted of four measures including risk-adjusted returns, market timing abilities, selection performance and persistence for a 17-year period. Good selectivity of asset managers was found to be good by both conventional and Shariah fund managers, and Shariah even more so during the sub-prime crisis.

Dewi and Ferdian (2012) compared the performance of Shariah mutual funds in Indonesia and Malaysia using risk-adjusted measures of performance. The study was conducted over a period of three years and a total of 24 funds were analysed. It was found that Malaysian funds outperformed Indonesian funds and the Indonesian debt funds outperformed the Malaysian funds. It was further highlighted that these funds outperformed the market, and even more so during the financial crisis, which corresponds to the literature.

Nassir *et al.* (2012:12) empirically conducted a ranking methodology to analyse Malaysian fund performance. It was found that only two funds had non-random ranking

which in turn highlights the fact that Islamic investors need to be very selective as performance cannot be reliably predicted due to the inconsistent ranking.

Hassan *et al.* (2010) found that there is no significant performance difference between Shariah and conventional funds. The empirical analysis uses the Sharpe, Treynor, Fama and Jensen's Alpha ratios, as well as a four-factor Carhart model. The study analysed 80 funds over a period of 10 years.

Albaity and Ahmad (2008:23) state that ethical investment is expected to underperform due to the ethical portfolio being a subset of the market portfolio which has an impact on the ability to diversify fully.

2.5.2. Rest of the World performance of Shariah Funds

Hoepner *et al.* (2011) conducted a broad study to empirically investigate the performance of Shariah funds for 20 countries, with a sample of 256 compliant funds. Hoepner *et al.* (2011) use a three-factor Carhart model to analyse the performance. The study is divided into two regions namely, developed Islamic markets and western or non-majority Islamic nations. Hoepner *et al.* (2011) further contributed that the developed Islamic markets outperform or match international market indices, whereas the western markets tend to underperform against international markets. It is further elaborated that funds do not under or over perform but tend to have national characteristics that differ from country to country. It is further stated that Shariah funds face a disadvantage in non-Islamic countries.

Hayat and Kraeusl (2011) found that in the sample of 145 Islamic equity funds for the period 2000 to 2009, the Islamic equity funds underperformed the market even more so during the financial crisis. The empirical analysis was conducted using the Beta, Alpha, market timing and downside risk. The finding by Hayat and Kraeusl (2011) contradicts previous research that found that Shariah funds outperform in bear markets and underperform in bull markets. It is further stated that globally invested funds perform worse than domestic-focused funds. Lastly, the research identified that Islamic fund managers tend to be poor market timers, often resulting in weaker performance.

El-Masry, El-Mosallamy, Matallin-Saez and Tortosa-Ausina (2016) identified a need to investigate the performance in the Middle East and North African region (MENA). They found that in North Africa, the Shariah funds underperform, and conversely, in the Gulf co-operation countries, they outperform. The findings confirm the results found by Hoepner *et al.* (2011). They further found that Shariah funds outperform in times of financial crisis which contradicts the findings of Hayat and Kraeussl (2011). The paper used monthly data over a period of eight years covering the financial crisis.

Makni, Benousa and Delhoumi (2015) used a Meta frontier approach to analyse the efficiency of Islamic equity funds for a 20-year period with a sample of 301 funds. They found that Islamic equity funds outperform the market during a period of financial crisis. They further found that Islamic equity funds are continually improving in efficiency with gains that can be seen on a yearly basis.

Rafay, Gilani and Izhar (2017) conducted an analysis on the performance of Islamic mutual funds in Pakistan, a developing economy that is predominantly Muslim. They used ARCH and GARCH models and analysed the KMI Islamic and conventional indices and found that in Pakistan, conventional and Islamic funds have consistent performance and volatility.

Abdelsalam, Duygun, Matallin and Tortosa-Ausina (2015) investigated the persistence of ethical and Islamic funds as a measure of performance. It empirically investigated persistence by using a recursive portfolio approach over a period of 13 years for 335 global Shariah funds. It found that the best performing funds had greater persistence and it was conversely true for weaker funds, and that survivorship bias has an impact on persistence. The results further show increases in persistence of funds during the period of financial crisis, which is in line with other findings.

Dah *et al.* (2015) found that there is no performance penalty suffered by the Dow Jones Islamic index versus the broader market. The empirical analysis consisted of 45 funds over a period of six years and covered four regions. It was conducted using four risk-adjusted measures of performance and it found that the lack of diversification did not constrain the performance of the funds.

Seth and Das (2015) empirically investigated two Shariah-compliant funds in India, a non-Muslim majority country. They used various risk-adjusted measures of

performance and found that the funds provided superior risk-adjusted performance, and are adequately diversified and defensive in nature. These findings on the Indian market are confirmed by Tripathi and Bhandari (2015) who also found that Shariah funds provide superior performance in the Indian financial markets.

2.5.3. South African performance of Shariah Funds

In a recent study by Dhai (2015), the FTSE South African Islamic Index was compared to three proxies of the conventional JSE for a period of 10 years. The paper used three methods of empirical analysis: i) Single factor regression, ii) the Resources and Financial-Industrial index in a two-factor model and lastly, iii) Carhart four-factor model. Dhai (2015) found that there are no significant differences between the performance of the South African Islamic markets and the conventional indices. The findings are consistent with findings by Elfakhani, Hassan and Sidani (2005) who found no significant differences in performance. However, the findings of Dhai (2015) differ from the findings of Hoepner *et al.* (2011:844) which used a three-factor Carhart model and analysed the Shariah fund performance of 20 countries, which found that the South African Shariah mutual funds underperformed against the international benchmarks.

Mvubu (2014) conducted a study which analysed the performance of socially responsible funds (SRI) in South Africa. Shariah funds were included within the scope of SRI. He found that the Oasis International Feeder Fund underperformed its benchmark, mainly due to excessive levels of volatility of the benchmark during the period. Mvubu (2014) also found that SRI funds outperformed the benchmarked and proxy benchmarked indices, on the Treynor, Sharpe, Sortino and Upside potential ratios. It was also found that the SRI indices underperformed against the market indices.

In South Africa, which is a predominantly secular country, it seems that the financial penalty of Shariah screening does have an effect on the performance of the funds, with both the Shariah Indices and SRI indices underperforming the market (Hoepner *et al.*, 2011; Mvubu, 2014; Dhai, 2015). The results indicate that the fund managers are in greater need to make expert decisions when selecting the constituents of the

funds. It also highlights the need for a rigorous empirical study of the Shariah fund performance and the need for expert asset collection by fund managers.

2.5.4. Concluding Remarks on Performance

The majority of findings suggest that Islamic funds are defensive in nature and provide superior returns in times of financial crisis. Furthermore, it could partly be attributed to the fact that Shariah funds exclude stocks in traditional financial services listed companies. Another consistent finding is that Shariah funds are efficient and persistent in nature. The performance of Shariah funds tend to differ on a national basis, with differences such as major religion, number of funds, net-asset values of funds and maturity of the market having a direct impact on whether funds will underperform or outperform the market.

2.6. Weaknesses of Shariah Funds

Makni, Benouda and Delhoumi (2016:81) conducted an empirical investigation on the relationship between the characteristics of Islamic equity funds and the persistent impact on performance. The study found that fund age, management fees and family size have a positive effect on the performance of funds, whereas flows, load fees and minimum investment sizes have a negative effect on performance. The above factors highlight to the asset manager and investor which factors to consider when either developing or selecting funds for investment.

Marzuki and Worthington (2015:390) found that Islamic investors behave irrationally, and react less proportionately to poor performance. Islamic investors tend not to limit asset fund flows into poor performing Shariah funds, as compared to their conventional counterparts in the Malaysian markets. The decreased sensitivity to poor performance may be due to investors expected lower performance due to the perceived financial penalty (Marzuki & Worthington, 2015:390).

Shariah fund performance has mentioned being negatively affected by market timing (Mansor & Bhatti, 2011:487) which indicates that it is not as efficient as the traditional markets.

Another major criticism of Shariah investing is the contradiction of principles of the Modern Portfolio Theory and the Efficient Market Hypothesis (Albaity & Ahmad, 2008:25). Shariah finance investors will identify more with Behavioural Finance as they irrationally make a decision to invest in a constrained investment due to religious beliefs.

A further weakness of Islamic investing is the differing opinion on a national level, regional level and even a domestic level, as in the case of South Africa, where each Shariah board consists of members that are employed by the investment firm to employ a seat on the SSB committee. Azhar, Mohd and Mohd Herry (2010) found that a large number of stocks on the Kuala Lumpur Stock Exchange Shariah Index do not comply with the Dow Jones Islamic Index methodology. Furthermore, 44% of stocks are highly geared which may not comply with other SSB screening criteria.

2.7. Summary

The chapter outlined the current literature surrounding the background of Shariah finance. It highlighted the law and rules applicable to an investor who chooses to be Shariah-compliant. It further discussed the various instruments available to that investor. It continued to discuss the prominent financial theories that fund managers take into account while investing in Shariah and conventional portfolios including the risk-adjusted metrics used to evaluate the performance of such funds. It finally concluded with a summary of the current literature on the performance of such funds as well as the weaknesses that may be associated with investing in Shariah-compliant portfolios.

The following conclusions can be drawn from the literature. There are primarily four measures of performance that are continually used to measure the performance of Shariah-compliant funds. These are the Treynor ratio, Jensen's Alpha, Sharpe ratio and Information ratio. These measures have both practical and theoretical uses in evaluating fund performance.

Secondly, despite some variation, it is commonly found that Shariah funds are defensive in nature and provide superior performance during times of financial crisis.

It can be further noted that Shariah-funds can both underperform or outperform the market indices, and performance varies on a national basis.

Thirdly, various studies were conducted using small samples, from two to 40 constituents, which is mainly due to a small number of funds within developed traditional markets. The majority of funds are represented by Muslim majority nations.

The following chapter will discuss the research problem and questions and will details the applicable methodology that will be used to address the research objectives. It then discusses the data and sampling methodolgy and collection technique. It concludes by outlying the limitations of the study.



Chapter Three

Research Methodology

3.1. Introduction

The following chapter presents the research philosophy, the research strategy, and the sampling techniques for the research problem that will be tested in the dissertation. The following chapter, furthermore, outlines the scope and limitations of the research design and concludes by discussing the validity and reliability of the results.

Park and Park (2016:3) describe two fundamental roads within a research methodology, namely quantitative and qualitative research. These approaches may be mixed which will result in a mixed methodology or a triangular approach that which would encompass both qualitative and quantitative research. The choice is determined by the research question and objectives, review of the literature as well as from the author's own experience.

Based on these factors a quantitative approach has been taken. Kothari (2004:20) states that quantitative data is primarily concerned with measurement and quantity: the measurement of performance. The chosen method has primarily been used due to the research requiring the use of secondary data to perform the analysis. Secondary data is information that has been collected for a primary reason and can now be analysed using empirical analysis to determine any trend or relationship (Saunders, Lewis & Thornhill, 2009:256)

Kothari (2004:21) noted that the selected approach is relevant as an inferential approach can be undertaken using secondary data which will allow for the use of mathematical models to determine any trends or relationships that may be able to answer the research problem.

The chapter is broken down into three main sections. The first section discusses the research question and objectives, which will allow for the research design and methodology to be aligned with the research question and objectives.

The second section will primarily discuss the data used, as well as the sampling method and techniques employed. Lastly, in the final portion of the chapter, the reliability and validity measures will be discussed along with any research limitations. The chapter is then concluded with a summary of any key points that have been developed within the chapter.

3.2. Research Questions

The analysis of current literature from local and international studies has found that Shariah funds tend to outperform in bear markets and underperform in bull markets. The following research question has, thus, been formulated in the previous chapters in relation to the research problem. The research problem aims to investigate the performance of Shariah funds in relation to conventional funds within the South African financial markets.

In order to solve the research problem, a main, as well as sub-research questions have been developed. The main question is: do Shariah-compliant high equity mutual funds differ in performance from conventional funds? Thus, the following three research questions as formulated by Mvubu (2014:61) can be derived from the main question:

- i. How do Shariah funds perform against their respective benchmark indices?
- ii. How do Shariah funds perform against proxy benchmark indices?
- iii. How do Shariah indices perform against other South African general market indices?

3.3. Research Strategy

The methodology is used to address research problems. Fundamentally, there are two primary forms of research methods available to the researcher. The researcher needs to determine which methodology is the best fit for the type of research problem identified. The two types of methodologies need to be understood, and the salient differences highlighted. Thereafter, a methodology can be identified that will help to answer the research questions identified above in section 3.1. The two types of methodologies are:

- i. Qualitative
- ii. Quantitative

5.3.1. Qualitative Methodology

A qualitative methodology is a deductive form of methodology. It focuses on investigating “*phenomena relating to or involving in quality or kind*” (Kothari, 2004:20) which can be interpreted as trying to understand human behaviour usually requiring interviews and specialised tests. The qualitative methodology will normally result in new theories being produced which results in a subjective or an inductive reasoning from the data. Qualitative research is more relevant to the behavioural sciences (Kothari, 2004:20).

5.3.2. Quantitative Methodology

Quantitative methodology as described by Kothari (2010:20-21) is the measurement of quantity or amount and will relate to an inductive approach by analysing the quantitative data to search for any trends or relationships that could solve a research problem. Creswell (2009:4), furthermore, states that “*quantitative research is a means for testing objective theories by examining the relationship between variables*”. Creswell (2009:4) highlights that the method is most appropriately used when analysing numbered data using statistical methods. Creswell (2014:13) also notes that a major characteristic of quantitative analysis finds a relationship between variables.

The research problem and research question identified and developed within the study as well as the primary research instrument being secondary data, leads to a quantitative methodology to be applicable. It will allow for objective results of the numerical data using the appropriate mathematical methods.

5.3.3. Concluding Remarks

Both quantitative and qualitative analyses have weaknesses associated with them. It is up to the researcher to determine which method is the most appropriate to use to provide an appropriate and accurate answer to the research problem. All techniques and methods will produce a differing response to the research problem (Saunders *et al.*, 2009:154). The research will use previous literature to determine the most

appropriate manner in which to address the research problem. Some weaknesses that may be encountered are that the data may not be fit for the manner presented, access to data may be difficult or costly, and that the purpose of the data may not be appropriate. The data collected for the study will be both domestic and global, although some global data is not easily accessible locally. Furthermore, fund factsheets may contain data that is focused on the investment professional or the general public, and so, the data may not be presented in an ideal way to allow for a detailed analysis.

3.4. Research Paradigm

Research paradigms can be defined as the manner in which the research will be carried out (Creswell, 2009:5). Furthermore, it can be described in a philosophical manner in which the research is designed and conducted in order to address the research problem (Creswell, 2009:5). The philosophy of research relates to the development and nature of knowledge (Saunders *et al.*, 2009:107). The research philosophy is the manner in which one views the world, that is, worldviews on research (Creswell, 2009:6; Saunders *et al.*, 2009:108).

The research paradigm or worldview consists of various epistemological stances which include positivism, realism, and pragmatism (Creswell, 2009:5). Positivism can be taken as an approach that seeks to predict and explain the causal relationships between its variables in the social world (Mvubu, 2014:63). The positivism approach also indicates a manner in which the researcher attempts to answer in an objective way using the relationships between data (Saunders *et al.*, 2009:114). The approach will allow for the researcher to be objective in its interpretation of the results of the analysis. It may further be argued that a neutral position is not possible as the researcher will decide on key elements of the research process including the type of data, and method employed to analyse the data (Saunders *et al.*, 2009:114).

In conclusion, and based on the above description, a positivist approach will be suitable for the study as it aims to objectively identify if Shariah funds outperform the conventional funds in South Africa, using numerical, time series secondary data.

3.5. Research Instrument

Research instruments are the tools that are used to investigate the research problem. These tools include both primary and secondary data. Primary data is data that was collected for a specific purpose and secondary data is data that is used from another source. Sources of primary data include tests, surveys and scales (Saunders *et al.*, 2009:256-257).

The study will focus on using secondary data as it is quantitative in nature. The secondary data will be collected from various sources after taking validity and reliability into account (Saunders *et al.*, 2009:256-257). The type of secondary data used will be time series data in the form of monthly, quarterly and annual returns for funds and indices, the prime interest rate, and fund factsheets.

The data is collected from databases that collect, store and analyse financial data. Furthermore, fund factsheets and other qualitative information can be found directly on the financial institution's website. The above data was used to provide a broader understanding of the funds that were analysed.

3.6. Population

The population consists of all mutual funds including Shariah and conventional mutual funds within South Africa. The target population will consist of all funds that are Shariah-compliant and have been evaluated by an independent Shariah board. It will ensure that all funds selected will comply with Shariah rules and regulations.

The population of Shariah funds comprises of 28 funds. A sample will be selected from these funds based on certain factors. The analysis can be found below.

3.7. Sampling Strategy

Sampling strategy entails the analysis of the population and the selection of a relevant and representative sample. The sample will allow for an empirical analysis that will give a representation of the population as a whole (Kothari, 2004:31). The sampling strategy will discuss the following components of the sampling strategy undertaken for the study, the population, the sample frame and sampling technique used.

5.7.1. Sampling Methodology

A sample should answer the question set out, namely, what does the researcher want to accomplish? What does the researcher want to know? (Creswell, 2014:140-143). Will the sampling methodology allow the researcher to adopt an appropriate sampling methodology that can allow for an analysis that will answer the research question? There are two methods to select a sample, probability sampling and non-probability sampling (Saunders *et al.*, 2012:281). The method chosen will be determined by the type of research question and its objectives.

A sample frame as defined by Saunders *et al.* (2012:262) is the complete list from which a sample can be drawn and the variables and units within the population. The sample that is drawn has to be representative of the population. The sample frame is the total Shariah funds population in South Africa of 28 funds. Due to challenges in collecting data due to insufficient data points the frame was reduced to a sample of 22 funds as detailed below.

The sample selection process has required that certain criteria be set. A non-probability sampling or judgemental sampling was used that was purposive (Saunders *et al.*, 2012:287) will be used. A time frame of five years was used due to the lack of available data and majority of funds having limited time series data available. It will enable the data collected to be consistent, valid and reliable. The criteria used are as follows:

- i. The funds have five years of performance history;
- ii. Each fund must adhere to the Shariah and be advised by an independent Shariah board;
- iii. The funds must have monthly, quarterly and annual data as well as fund factsheets;
- iv. The funds must invest in South African JSE listed equity instruments;
- v. The fund must be a unit trust, collective investment scheme or mutual fund with a Shariah focus;

The resultant sample comprises of 22 funds that were selected using a self-selection methodology. The data used is homogenous and the sample size is appropriate.

5.7.2. Data Collection

Secondary data was collected for all indices: Shariah funds and conventional funds. The frequency of the data collected was dependent on the type of analysis conducted and it varied between monthly, quarterly and annual net-asset values. The data collected was for a period of five years from 01 April 2012 to 31 March 2017.

The entire population of unit trusts in South Africa were analysed and filtered using Morningstar Online to determine the full population of Shariah-compliant funds in South Africa. The sampling process resulted in 28 funds spread over five classifications being identified.

The following sources of secondary time series data were collected from iNet BFA, fund factsheets directly from the asset manager's website and Morningstar Online. These tools provided the monthly, quarterly and annual net-asset values for the period 01 April 2012 to 31 March 2017.

A notable observation is that there are six Shariah fund managers in South Africa, with Oasis being the most prevalent provider with 18 out of the 28 funds population. Oasis was the first to market in South Africa with Shariah-compliant funds and operates on a global basis.

The net-asset values of the selected funds from table 3.1 were collected from iNet BFA. After the initial data collection, 22 funds were selected based on the availability of data. Minimum disclosure documents were collected from the respective fund manager factsheets. The respective data is an important source of information as it provides the purpose and outcomes of the funds as well as annualised fund and benchmark performance. The minimum disclosure documents are a primary source of evidence and allows the researcher to confirm the robustness of the secondary data sourced from data providers. The next section will discuss the method of preparing the data for analysis.

Table 3.1: Population of Shariah funds in South Africa

Fund name	Comment
Oasis Balanced Stable Fund Of Funds	Included in study
Oasis Balanced Unit Trust Fund	Included in study
Oasis Bond Fund	Included in study
Oasis Crescent Balanced High Equity Fund Of Funds	Included in study
Oasis Crescent Equity Fund	Included in study
Oasis Crescent Income Fund	Included in study
Oasis Crescent Int Property Equity Feeder Fund	Included in study
Oasis Crescent Intl Prop Eq Ff	Not included due to insufficient data
Oasis General Equity Fund	Included in study
Oasis International Feeder Fund	Included in study
Oasis Property Equity Unit Trust Fund	Included in study
Oasis Crescent Balanced Progressive Fund Of Funds	Included in study
Oasis Crescent Balanced Stable Fund Of Funds	Included in study
Oasis Crescent International Feeder Fund	Included in study
Oasis Int Bal low equity feeder fund	Not included due to insufficient data
Oasis Worldwide Flexible FOF	Not included due to insufficient data
Oasis Money market fund	Not included due to insufficient data
27Four Shari'ah Active Equity Prescient Fund - A1	Included in study
27Four Shari'ah Balanced Prescient Fof - A1	Included in study
27Four Shari'ah Prescient Income Fund	Not included due to insufficient data
Element Islamic Equity Fund A	Included in study
Element Islamic Balanced Fund Class A	Included in study
Kagiso Islamic Balanced Fund	Included in study
Kagiso Islamic Equity Fund	Included in study
Old Mutual Albaraka Balanced Fund A	Included in study
Old Mutual Albaraka Equity Fund A	Included in study
Stanlib Shariah Equity Fund Class A	Included in study

Data sources: iNet BFA, Morningstar Online

5.7.3. Data Collection of Indices, Shariah Funds and Conventional Funds

The historical secondary data which comprises of monthly, quarterly and annual net-asset value prices of the funds were collected from iNet BFA, Morningstar and

Fundsdata. The data was used during the empirical analysis of matched samples of Shariah and conventional funds.

It is of utmost importance that any data collected is appropriate and of sufficient quality, accuracy and validity. The secondary data that will be used needs to be assessed to ensure that the above caveats are met.

The following forms of data analysis were conducted:

- i. The data were screened for completeness for the period. All data needs to have sufficient data points for analysis.
- ii. Returns were calculated for all monthly and quarterly data for all the selected funds using formula 3.1.
- iii. The funds were sorted into respective classifications namely equity, multi-asset, global equity, REITs and income funds according to ASISA classification.
- iv. The calculation of average performance per fund was calculated using formula 3.3.
- v. Fund evaluation against proxy benchmarks was conducted for the Treynor, Sharpe, Jensen's Alpha and Information ratios.
- vi. Log returns were compared between Shariah and conventional market indices.
- vii. Lastly, log returns were compared between South Africa Shariah and global Shariah market indices.

5.7.4. Fund Factsheets

These factsheets consist of some quantitative and qualitative data of the respective funds. The qualitative data provides for a better conclusion to be drawn from the empirical analysis. It gives insight into the fees of funds, the composition of the funds, the objectives and strategies and the respective benchmarks. The factsheets are obtained directly from the fund manager's website and are available to the public. Factsheets were sourced from the following fund manager websites: 27Four, Element Investment Managers, Kagiso Asset Management, Oasis, Old Mutual and Stanlib.

5.7.5. Sample and Data Analysis Process

A discussion on the sampling method and data analysis was provided in the previous sections of the research project. The following discussion will augment and detail the process further and will enable the researcher to further contextualise the empirical findings.

Step 1: Sampling: The sampling and collection of the data that will be used in the empirical analyses of the research questions.

Step 2: The calculation of the average monthly, quarterly and annualised returns for Shariah funds. The returns will be compared to its respective benchmark and is a simple measure of return.

Step 3: Each of the Shariah funds' average performance will also be analysed on a categorical basis which will take into account the various investment strategies, for example, equity, global equity, multi-asset, real estate and fixed income.

Step 4: Proxy benchmarks

Step 5: Risk-adjusted measures of performance will be conducted, which includes the Sharpe, Treynor, Information and Jensen's Alpha ratios.

Step 6: Compare to domestic traditional indices.

The following section and sections 4.2 to 4.5 will elaborate on the steps described above in detail.

5.7.6. Calculation of Monthly, Quarterly and Annualised returns

All data collected was in the form of net-asset values at the end of the month or quarter. The following has been taken into consideration when calculating the monthly, quarterly and annualised returns.

- i. Returns are assumed to be the growth from one period to the next,
- ii. Monthly and quarterly NAV prices were used to calculate the returns,
- iii. Returns were not logged due to the comparability of the data,

- iv. Returns for fund benchmarks were taken directly from the minimum disclosure documents.

Previous studies by Dah *et al.* (2015:356), Hassan *et al.* (2010:156) and Seth and Das (2015:53) have used a methodology that included both simple and risk-adjusted measures of performance. In order to calculate performance or return of a Shariah fund and indices the following three formulae have been used:

$$\text{Fund performance} = \frac{\text{Closing NAV} - \text{Previous closing NAV}}{\text{Previous closing NAV}}$$

Formula 3.1: Performance of funds

Source: Abdallah *et al.* (2007:145)

$$\text{Index performance} = \frac{\text{Closing index value} - \text{Previous closing index value}}{\text{Previous closing value}}$$

Formula 3.2: Performance of indices

Source: Abdallah *et al.* (2007:145)

$$\text{Annualised return} = (1 + \text{total return})^{\frac{1}{n}} - 1$$

Where n = total number of year of the sample

Formula 3.3: Annualised return

Source: Chan (2012:185)

Firstly the use of annualised return and benchmarked annualised return was sourced from the minimum disclosure documents. The data was then used as a simple measure of performance that compared the Shariah funds to their respective benchmark.

Secondly, unit trust data and indices data was used to calculate the return for the funds and indices and calculate the risk-adjusted measures of returns such as the Sharpe, Treynor, Information and Jensen’s Alpha ratios.

Thirdly, local and global Shariah and conventional indices data were used for the empirical analysis of the indices to compare performance.

3.8. Assumptions for performance Analysis

A number of comparative studies that investigated the performance of funds' performance against benchmarks, peers and indices were reviewed. The following assumptions were made during the empirical analysis of the data and the presentation thereof:

- i. The experience and management of Shariah funds are done by equally good and bad fund managers;
- ii. Funds managed within the same ASISA industry classification are managed in a similar way with similar objectives;
- iii. The empirical analysis timeframe is 01 April 2012 to 31 March 2017. Each of the funds has an equal amount of monthly, quarterly and annual data points.
- iv. Reliability of data integrity was placed in minimum disclosure documents and secondary data providers;
- v. All funds selected have been in operation for the entire timeframe selected, and there was no survivorship bias observed.

The researcher acknowledged the above assumptions but focused on issues that were in control of the researcher.

3.9. Ethical considerations

With every study conducted, ethics is an important concept to consider. Business research is generally considered to have a low ethical risk. Wallace and Sheldon (2015:275) also found that business research might have an ethical concern if participants are closely involved in the study. There are various factors that need to be considered so that the study will be conducted within a conducive ethical framework:

5.9.1. Quality of research

The researcher allowed for sufficient time and effort to allow for a study that is of high quality. Using resources provided by the University research databases, high quality, recent and relevant studies were referenced. These studies included both local and international journal articles.

5.9.2. Objectivity

The researcher conducted the study by being objective in nature, all data that passed the screening test was used that will ensure that the results are true and accurate.

5.9.3. Protection from Harm and the Right to Privacy

The study uses secondary data and does not use any confidential, human or animal subjects, therefore, no persons or animals could be harmed by the study. All research articles used have been accessed through the University provided databases and all the relevant authors have been credited for their work.

5.9.4. Anonymity and Confidentiality

The study uses secondary data to find a relationship between two concepts. The secondary data was collected from the University iNet BFA terminal, and no approval was necessary to use the terminal. All the data used is readily available in the public domain. Qualitative data, such as fund factsheets, were obtained directly from the respective fund manager's website and are available to all members of the public.

5.9.5. Informed Consent

The study uses only secondary data and no human subjects were used. No consent was necessary as all access to data and journals were provided by the University.

5.9.6. Honesty with Professional Colleagues

The conclusions developed within the research report have been conducted with objectivity, professional competence and due care. The results are shown free of bias or misrepresentation. The researcher understands that fund managers, Muslim individuals and any other interested parties may benefit from these findings. However, the author does not accept any responsibility for any misuse of the research findings that may be used after the completion of the study

3.10. Validity

Kothari (2004:73) defines validity as it “*indicates the degree to which an instrument measures what it is supposed to measure*”. In assessing the validity of the research, various steps were taken to ensure that the methodology, process and empirical techniques that have been presented are valid.

Validity can be further broken down into content validity, instrument validity and performance validity (Kothari; 2004:74).

5.10.1. Content Validity

Content validity is defined by Kothari (2004:74) as the “*extent to which a measuring instrument provides adequate coverage of the topic under study*”. The study ensured validity by conducting a detailed literature review on domestic and international Shariah markets. The literature review covered important topics such as key definitions and issues and comparative performance studies. All data has been accurately collected, captured and analysed. All figures have been cross-validated against fund factsheets which are a primary source of data to further ensure that the data is valid and accurate.

5.10.2. Instrument Validity

The two primary research instruments are secondary data collected from data providers and desktop research conducted directly from investment management company’s websites.

The validity of secondary data is ensured in the following manner:

- i. iNet BFA, Bloomberg and Morningstar Online were used to collect secondary data.
- ii. These secondary data providers are industry leaders that collate large amounts of secondary data for analysis in academia and industry.
- iii. Access to the systems was obtained through the University of Johannesburg’s databases.

The validity of the desktop research is ensured by collecting primary sources of data directly from the asset managers' websites which contain minimum disclosure documents as required by the JSE. These documents include information on the benchmarks, strategies and performance of the funds, which allows the researcher to develop greater insight into the funds.

5.10.3. Validity of performance Results

The validity of the results could have been affected by various factors. The factors are discussed below.

5.10.3.1. Population Size

Even though the entire population of Shariah funds in South Africa had been selected for analysis, the criteria required for the study would not allow for an analysis of the entire population. Funds that did not have sufficient data points were eliminated, which resulted in a total sample of 22 funds out of a population of 28 funds.

5.10.3.2. Survivorship Bias

The researcher acknowledges that funds are subject to changes over the period of analysis. The survivorship bias may include mergers and acquisitions, adjustment of benchmarks, changes in objective and rebranding of the fund. Only funds that had a full five years worth of data points were included in the study.

5.10.3.3. Total Expense Ratios of Funds

The management and or performance fees charged by asset managers have been specifically excluded from the scope of the study. To ensure that the data is valid and does not include the fee's payable, all returns were calculated closing NAV prices as supplied by the secondary data providers.

5.10.3.4. Sector Classification

All funds were allocated based on their respective classification by ASISA. It ensures that the funds have the correct definitions as well as the appropriate sector proxy benchmark.

3.11. Reliability

Kothari (2004:74) states that “*a measuring instrument is reliable if it provides consistent results*”. Validity ensures that the researcher measures what it truly represents, whereas reliability focuses on how replicable the results are.

To ensure the reliability of the analysis the following has been considered; appropriate research methods have been used for the study. Widely used metrics and methods have been used for the empirical analysis. Data has been sourced from reputable secondary data providers to ensure reliability of data. All domestic Shariah compliant funds were considered for the study. All outcomes were rechecked and recalculated to ensure that they are accurate as well as provide an objective analysis of these outcomes. Finally to ensure consistency between research methodology, analyses and findings.

Reliability and validity of data are of fundamental importance in the analysis of any research study. The above factors have been taken into account to ensure that the finding and recommendations are valid and reliable.

3.12. Conclusion

The chapter details the applicable research design and methodology for the study. It began by detailing the different facets of the method. It discussed the merits of using a quantitative approach to solve the research question and how the method relates to the research objective.

The reason for using a quantitative approach is the use of secondary time series data. The method results in objective results that are measurable and observable and that will address the research problem. The method mirrors numerous similar studies that have been recorded in the literature. Research instruments include secondary time series data from iNet BFA, as well as fund factsheets from the asset managers directly. These research instruments provided the data used for the empirical analysis for the researcher.

The next section of the chapter focused on the sampling method and data selection methodology employed. The population consisted of 28 funds which were identified

as Shariah-compliant funds. These funds were then analysed, and six were eliminated due to insufficient time series data available. Therefore, only 22 funds qualified to be included in the data analysis.

A rigorous data analysis using appropriate techniques and methods were used to conduct the sampling method for the population which allowed for valid and reliable results. Lastly, any limitations and ethical issues that may affect the research process were highlighted.

The chapter concluded by discussing the measures taken to ensure validity and reliability of the study's results and findings. These measures were discussed which led to the conclusion that the results are both reliable and valid. In addition, it was illustrated that the research method and approach were appropriate and relevant for the study. Any limitations were also acknowledged in the study. The next chapter implements the relevant research methodology to address the research problem and discusses the results and findings of the data analysis.



Chapter Four

Results and Findings

4.1. Introduction

The following chapter entails providing the empirical analysis, results and interpretation of the research question. The empirical analysis forms an integral part in finding answers to the research problem identified and towards achieving the objectives of the study.

The primary objectives of the study will be fulfilled when the following three primary research questions have been addressed. The primary research questions are:

- i. How do Shariah funds perform against their respective benchmark indices?
- ii. How do Shariah funds perform against proxy benchmark indices?
- iii. How do Shariah indices perform against other South African general market indices?

The research objectives will be conducted in the following manner throughout the chapter. Firstly the sampling of the data used for the empirical analysis, the preparation of the data and its method used for calculating the monthly, quarterly, and annual returns will be discussed. Secondly, the empirical analysis for each of the research questions will be conducted followed by an interpretation of the results. The empirical analysis will include but is not limited to the following risk-adjusted measures: Treynor ratio, Sharpe ratio, Jensen's Alpha and the Information ratio. The empirical analysis will also include comparisons against the benchmarks, proxy benchmarks and relevant market indices.

4.2. Empirical Analysis and Interpretation

The following section will detail the empirical analysis and the resulting interpretation of results. The analysis and interpretation will be done per research question as listed in the introduction to Chapter 4.

4.2.1. **Question 1: How do Shariah Funds perform against their Respective Benchmark Indices?**

The purpose of the following sections is to analyse the five-year annualised and annualised since inception performance of Shariah funds relative to their respective benchmarks. The benefit of using annualised performance is that it allows for a meaningful analysis that ignores short-term interference and focuses on long-term performance. Long-term performance will also remove statistical noise that can be found in daily or monthly returns.

The 22 selected funds are classified by fund category. The respective benchmark and proxy benchmark is then stated for each fund. The five-year annualised and annualised since inception figures are then listed. A notable observation is that funds within the same industry classification do not have comparable benchmarks which will enable easier comparison. For example in the multi-asset category, the Oasis series of funds use CPI + x% as a benchmark as compared to Kagiso Islamic Balanced Fund which is benchmarked against the South African - multi-asset - High Equity funds mean. A summary of the information can be found in table 4.1 which shows a summary of the mean for each category available. The full results that highlight details the individual fund performance and relevant benchmark can be found in Appendices A1 to A5.

Funds are grouped according to the Association for Savings & Investment SA (ASISA) classifications, but fund managers are free to choose a benchmark. Portfolio managers do have a management style and have different outcomes and purposes of funds and, therefore, choose a specific benchmark in which they try to outperform. It does not allow for a direct comparison to be made and, therefore, the category means were calculated to provide a sector view of each category.

The proxy benchmark's annualised five-year return was also included in order to compare, on a simple basis, the return by each category against the allocated proxy benchmark. The proxy benchmark will be discussed individually in each category summary below.

Table 4.1: Summary of Shariah fund performance versus the respective benchmark

Category Equity	1:	Shariah fund 5-year Annualised Return	Benchmark 5-year Annualised Return	FTSE/JSE Top 40 Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Category mean:		10.0%	10.0%	12.1%	12.0%	10.8%
Category Multi Asset	2:	Shariah fund 5-year Annualised Return	Benchmark 5-year Annualised Return	FTSE/JSE ALSI Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Category mean:		8.3%	7.4%	12.5%	8.9%	7.4%
Category Real Estate	3:	Shariah fund 5-year Annualised Return	Benchmark 5-year Annualised Return	FTSE/JSE REITs Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Category mean:		14.4%	3.6%	15.8%	11.5%	3.9%
Category Global Equity	4:	Shariah fund 5-year Annualised Return	Benchmark 5-year Annualised Return	FTSE Shariah All-World Index Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Category mean:		19.8%	20.5%	7.4%	11.4%	11.9%
Category South African Interest Bearing	5:	Shariah fund 5-year Annualised Return	Benchmark 5-year Annualised Return	All Bond Composite Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Category mean:		7.4%	7.0%	7.4%	9.3%	9.3%

Source: iNet BFA, Morningstar Direct

These are the highlights from the empirical analysis of table 4.1.

In total, 22 Shariah funds were compared against their respective and proxy benchmark in five categories, namely equity, multi-asset, REITs, global equity and South African interest bearing. The analysis was done over a five-year annualised basis and an annualised since inception basis. The analysis was conducted for the period 01 April 2012 until 31 March 2017. The next section provides further detail on the results for each of the five categories.

4.2.1.1. Equity

The ASISA which has developed the framework of fund classification in South Africa defines equity funds as “*portfolios that invest a minimum of 80% of the market value of the portfolios in equities and generally seek maximum capital appreciation as their primary goal*” (ASISA, 2017:3). It further classifies equity general funds as funds that invest across all market sectors as well as across the range of small to larger capitalisation shares with a focus on medium to long-term growth. All of the Shariah-compliant funds listed under Category 1 fall within the Equity – General classification. The category is a high-risk high-return category which reinvests all dividends.

Category 1 funds make up the second largest number of Shariah funds. Most of the funds’ benchmark against the Shariah fund mean or use a composite benchmark. Eight funds fall into the category with Oasis managing three of the funds, and the balance is managed by the other fund managers. It allows for more meaningful comparison due to the fact that a more varied fund management style can highlight any performance differences.

The proxy benchmark selected for the Category 1 funds is the FTSE/JSE Top 40, which will allow for a comparison with the full equity indices that has the FTSE/JSE Top 40 performing equities of the Johannesburg Stock Exchange (JSE).

Table 4.1 and Appendix A1 show that the mean performance of Category 1 funds is on par with the mean benchmark for Category 1 funds of 10.0% and has underperformed the FTSE/JSE Top 40 Index by 2.1%. Two of the funds, namely the Element Islamic Equity funds and the Stanlib Shariah Equity fund, have performed poorly, achieving annualised returns of 3.5% and 4% respectively. The best performing fund was the Oasis International Feeder Fund and achieved a return of 18.7% versus its benchmark of 16.1% and the proxy benchmark of 12.1%. The underperformance against the proxy benchmark is related to the

limited population available to Shariah investors and the impact that diversification will have on the performance of the Shariah fund.

On an annualised since inception basis, the Shariah equity funds' mean has outperformed the benchmarks' mean by 1.2% with only two funds underperforming against its chosen benchmark. Six out of eight funds have outperformed its benchmark.

These performance figures are not encouraging as it shows that Shariah equity funds are able to match their respective benchmarks but will underperform against the FTSE/JSE Top 40. It could be taken that the constituents of Shariah funds will inherently be less risky than the FTSE/JSE Top 40 due to the Shariah principles, which could be an indication of the lower performance.

4.2.1.2. Multi-asset

“Multi-asset portfolios are portfolios that invest in a wide spread of investments in the equity, bond, money and property markets to maximise total returns (comprising capital and income growth) over the long term” (ASISA, 2017:3). Furthermore, the second layer of classification includes low-, medium- and high-risk funds, which have varying levels of equity fund exposure.

Category 2 funds make up the largest number of Shariah funds. Most of the funds benchmark against the Category means or CPI. Ten funds fall within the category with Oasis managing five of the funds and the balance is managed by the other fund managers. The benchmark chosen allows for a more meaningful comparison as the more varied fund management style can highlight any performance differences.

The proxy benchmark selected for the Category 2 funds is the FTSE/JSE All Share Index (ALSI). The benchmark will allow for a comparison with the equity indices that cover the entire JSE's performance.

Table 4.1 and Appendix A2 show that the Shariah multi-asset funds have outperformed the benchmark mean by 0.9% but have underperformed the ALSI index by 4.2%. The reason for the outperformance of the benchmark is a large number of funds are benchmarking against CPI + x% which is a relatively low performance indicator. None of the funds have outperformed the proxy benchmark. These results are alarming and show that the Category 2 funds perform really poorly.

On an annualised since inception basis, table 4.1 shows that the Category 2 funds have outperformed their mean benchmarks by 1.5% by having a mean performance of 8.9%. Two out of the 10 funds have underperformed against their respective benchmark, namely the Element Islamic Balanced Fund and the Old Mutual Al Baraka Balanced Fund.

Overall, the performance of Category 2 funds is disappointing as they have underperformed the proxy benchmark by a significant percentage. The lower benchmarks and performance of some funds could be due to them having a low or medium equity classification.

4.2.1.3. Real Estate

Real estate *“portfolios invest in listed property shares, collective investment schemes in property and property loan stock and real estate investment trusts. The objective of these portfolios is to provide high levels of income and long-term capital appreciation. These portfolios invest at least 80% of the market value of the portfolio in shares listed in the FTSE/JSE Real Estate industry group or similar sector of an international stock exchange and may include other high yielding securities from time to time. Up to 10% of a portfolio may be invested in shares outside the defined sectors in companies that conduct similar business activities as those in the defined sectors”* (ASISA, 2017:3).

Category 3 funds consist of two funds, both being managed by Oasis group with one being a domestic-focused fund and the other a foreign-focused fund. It can be expected that both the funds implore a similar management style.

The proxy benchmark chosen for Category 3 funds is the JSE Real Estate Investments Trusts (REITs) index. The index has outperformed all of the proxy indices included in the study for the five-year sample period.

Table 4.1 and Appendix A3 show that both of the funds, as well as the mean, had outperformed their allocated benchmarks by substantial margins on a five-year annualised basis. Furthermore, the international-focused fund outperformed the proxy benchmark by 1.5% and the domestic-focused fund underperformed the proxy benchmark by 4.4%. Both funds outperformed their respective benchmarks since inception.

Overall, the performance shown here is notable, especially when considering the foreign fund. Furthermore, it can be extrapolated that the local market may have some property portfolios that generated good returns but are not Shariah-compliant.

4.2.1.4. Global Equity

Global equity “are collective investments that invest in both South African and foreign markets. No minimum is set for either domestic or foreign assets” (ASISA, 2017:3). These funds focus on offshore investment to increase the asset universe available for domestic Shariah investors.

Category 4 funds consist of a single fund that is managed by the Oasis group. The proxy benchmark allocated to the category is FTSE Shariah All-World Index.

Table 4.1 and Appendix A4 reveal that the funds had performed exceptionally well with a five-year annualised growth of 19.8% but still underperformed its allocated benchmark by 0.7%. Furthermore, it outperformed the proxy benchmark by 12.4% which is a notable achievement. On a performance since inception basis, it currently underperforms its allocated benchmark by 0.5%

Overall, the performance of Category 4 funds highlights that good performance is a possibility. The global equity category has outperformed all of the mutual funds.

4.2.1.5. South African Interest Bearing

“Interest Bearing Portfolios [are] collective investment portfolios that invest exclusively in bond, money market investments and other interest earning securities. These portfolios may not include equity securities, real estate securities or cumulative preference shares.” (ASISA, 2017:3).

Category 5 funds consist of a single fund managed by Oasis group. The proxy benchmark allocated is the All Bond Composit (ALBI).

Table 4.1 and Appendix A5 show that the Category 5 fund has outperformed its respective benchmark and has equalled performance with the proxy benchmark. Furthermore, it has equal performance with its respective benchmark on an annualised performance since inception basis.

Overall, Category 5 highlights that Shariah-compliant bond funds using Sukuk bonds can provide equal performance to the ALBI and does provide an adequate alternative to Muslim investors that want bond exposure on a non-risk adjusted basis.

4.2.1.6. Summary

In terms of empirical analysis, three categories outperformed their respective benchmarks on a five year-annualised basis. Only a single category outperformed the proxy benchmark index, namely global equity, with the other four categories underperforming the proxy market benchmark. Global equity and South African Interest Bearing categories each had a single fund and the results should be interpreted with caution. Equity funds and multi-asset funds both underperformed their proxy benchmarks but managed to either match or outperform their respective benchmarks. Globally exposed funds produced the best results as compared to their respective and proxy benchmarks.

4.2.2. Question 2: How do Shariah Funds perform against Proxy Benchmark Indices?

The following section aims to provide a risk-adjusted analysis for Shariah funds relative to their proxy benchmark indices. These indices were discussed in section 4.3.1. The objective of using the proxy indices is to provide a standardised benchmark across the entire category. The empirical analysis allows the researcher to determine if the fund is competing with the proxy benchmark on a risk-adjusted basis. The risk-adjusted measures of performance used in the section include the Sharpe ratio, Jensen's Alpha, Treynor ratio and Information ratio. Performance for each fund can be found in appendices A6 to A10.

Table 4.2: Risk-adjusted performance measures for Shariah funds versus proxy benchmark.

Category	Benchmark/ Proxy Benchmark	Sharpe Ratio	Jensen's Alpha	Treynor Ratio	Information Ratio
Equity	FTSE/JSE TOP 40	0.25793	0.00073	0.00440	-0.00262
Multi-asset	FTSE/JSE All Share	0.02013	-0.00130	0.00099	-1.30375
Real Estate	FTSE/JSE Real Estate Investment Trusts.	0.46404	0.00369	0.04118	0.31575
Global Equity	FTSE Shariah All-World Index	0.92025	0.00955	0.09133	0.95617
South African Interest Bearing	FTSE/JSE All Bond Compst	-1.17600	0.00172	-0.00445	-1.37465
Total mean		0.13350	0.00052	0.00974	-0.58388

Source: iNet BFA

4.2.2.1. Highlights from Table 4.2 are as follows.

Overall, three of the four mean ratios are positive, but do show an underperformance or minimum performance. Fixed income funds show a large underperformance on the risk-adjusted measures of performance. Global equity and REITs have performed the best out of all the categories. Equity funds have neither underperformed nor outperformed on the risk-adjusted measures. The ratios indicate that Shariah fund managers are good stock pickers. But, overall, there is a financial penalty that is faced by Shariah-compliant investors.

4.2.2.2. Sharpe Ratio

The first risk-adjusted measure of performance is the Sharpe ratio. The Sharpe ratio uses standard deviation instead of the Beta as a risk measure. The ratio aims to adjust excess returns by volatility generated by the portfolio. The ratio measures the excess return above the risk free rate. A higher ratio indicates that the fund is generating a greater return and is also experiencing greater volatility. A Sharpe ratio of 1 indicates a good return; a ratio greater than 2 is very good. A negative Sharpe ratio implies that the fund has underperformed the risk free rate.

The total mean is 0.13350 which indicates that, as a whole, the Shariah funds underperform market indices. The best performing category is the global equity category which has a 0.9025 Sharpe ratio, which indicates that the global equity fund performs close to the benchmark. The only fund in the category is the Oasis International Feeder Fund. The second best performing category are the REIT funds with a mean Sharpe ratio of 0.46404, with international property fund performing closer to the benchmark. The equity fund category is alarming at 0.25793 as it indicates that the category severely underperforms the market. The multi-asset fund performs close to the risk-free rate and the Oasis bond fund performs worse than the risk-free rate which is a cause for concern.

The Sharpe ratio measures total portfolio risk, which increases its importance for fund managers. This is because it has more relevance for adequately diversified portfolios. The ratio is widely used by industry personnel as a measure of performance.

4.2.2.3. Jensen's Alpha

Jensen's Alpha is the second risk-adjusted measure of performance. The ratio is often referred to as the Alpha of the portfolio. The Alpha indicates the excess return generated by

the asset manager, above the market return. The excess return can be attributed to the stock-picking skills of the asset manager. A result above 0 would indicate an excess return, with a negative result indicating the asset manager was not rewarded for the risk taken.

The overall mean for Shariah funds is 0.00052, which indicates that the stock-picking skill of the market, as a whole, results in neither an outperformance nor an underperformance. Therefore, the asset manager skill is of paramount importance for Shariah funds. Once again the global equity category performed best with an Alpha of 0.00955 followed by the REITs with an Alpha of 0.00369. None of the categories performed at a negative Alpha which further highlights the skills of the asset managers.

4.2.2.4. Treynor Ratio

The third measure of risk-adjusted performance is the Treynor ratio. It indicates the relationship between portfolio returns and market rates of return. The measure is known as the Securities Market Line (SML). It can be simply explained as to generate an excess return, it would expose the portfolio to greater risk in the form of volatility.

The SML measures the sensitivity of the portfolio to the market portfolio. The slope ranges from -1 to 1, the greater the slope's line, the better the risk-return ratio. The SML measures the return per unit of risk.

The mean of the Shariah funds as a whole indicates a ratio of 0.000974 which can be interpreted as the funds neither underperforming nor outperforming the market. Once again the global fund performed the best with a ratio of 0.09133, followed by the REITs funds with a ratio of 0.04118. None of the categories expressed a negative measure which, with the worse performing category being the multi-asset funds.

The results indicate that even with a lack of diversifiable opportunities and with the additional risk taken, asset managers manage to perform at market returns.

4.2.2.5. Information Ratio

The Information ratio is the final measure of performance. The ratio is largely similar to the Sharpe ratio, but it aims to show the excess return above a selected benchmark, rather than the risk free rate that is used in the Sharpe ratio.

The proxy benchmarks used were specially allocated to each category, to allow a like for like comparison. Overall, the mean return achieved for all funds is -0.58388, which indicates that the funds have underperformed the respective benchmarks. The result can be misleading as there is a large standard deviation in these results. The Interest bearing and multi-asset funds were the worst performing generating a ratio of -1.37465 and -1.30374 respectively. It indicates that the funds performed substantially below the proxy benchmarks. Global equity has achieved the highest performance with a ratio of 0.95617 which indicates that it outperformed the conventional proxy benchmark substantially. Global equity was followed by REITs funds at 0.31575, which is a positive result. The equity category resulted in a ratio of -0.00262 which indicates neither an underperformance nor an overperformance of the fund category. Only three out of the eight equity funds had a positive Information ratio.

4.2.2.6. Summary

After analysis of the risk-adjusted measures, it can be proven that the local equity funds do not underperform or outperform the general South African market. The global funds provide the best return for the South African investor. This could be attributed to the devaluation of the Rand during the period of analysis. The REITs funds provide the second best return out of the Sharpe ratio, Jensen's Alpha, Treynor ratio and Information ratio. Finally, the multi-asset and Bond funds provide a sub-optimal return based on the risk taken.

The positive ratios also indicate that the South African asset managers are good stock pickers, as they can provide a risk-adjusted return with a limited diversified portfolio of funds.

4.2.3. **Question 3: How do Shariah Indices perform against other South African General Market Indices?**

The third research objective relates to comparing the performance of Shariah indices to general market indices. The benefit of using indices is that investors use them as a general market gauge as they comprise of a whole market or sector and are not subjective to any management style.

The FTSE/JSE All Share, and the FTSE/JSE Shariah All Share was taken into account as it allows the researcher to gauge the market performance as a whole.

Table 4.3: Comparison of annualised performance of Shariah and traditional indices

Market Indices	Mean Quarterly Return	5 years Annualised Return
FTSE/JSE All Share	2.39%	9.08%
FTSE/JSE Shariah All Share	0.73%	1.81%
FTSE/JSE Real Estate Investment Trusts	1.79%	6.55%
All Bond Composit	1.66%	6.30%
STEFI Index Cash	1.52%	5.90%

Source: JSE, iNet BFA

Table 4.3 shows that the FTSE/JSE Shariah All Share underperformed greatly against the FTSE/JSE All Share (ALSI) for the period 01 April 2012 to 31 March 2016 by 7.27%.

Secondly, the Shariah Index underperformed against the FTSE/JSE Real Estate Investment Trusts, All Bond Composit and STEFI Cash Index. The result is alarming as the Shariah All Share focuses on growth as opposed to the All Bond and STEFI which focuses on income production.

Table 4.4: Comparison of annualised performance of focused Shariah and traditional indices

Market Indices	Mean Quarterly Return	5 years Annualised Return
FTSE/JSE Top 40	2.33%	8.79%
FTSE/JSE Shariah Top 40	0.29%	-0.05%

Source: JSE, iNet BFA

Further analysis was conducted on the FTSE/JSE Top 40 indices to investigate if the poor performance occurred because of exposure to larger or small companies. The analysis reveals that the FTSE/JSE Top 40 performed 8.84% better than the Shariah FTSE/JSE Top 40 for the period 01 April 2012 to 31 March 2017 on an annualised basis. It has alerted to the fact that the FTSE/JSE Top 40 has a large number of non-Shariah-compliant companies.

The analysis further shows that the majority of the performance of the FTSE/JSE All Share and the FTSE/JSE Top 40 can be attributed to companies that are not Shariah-compliant.

To conclude, the evidence shown from table 4.3 and table 4.4 will force the asset manager to be more cognisant of asset allocation and stock picking for each fund. The choice is made

even more prevalent due to the poor performance of the basket of Shariah funds, due to the limited asset universe.

4.3. Conclusion

The chapter's focus was the empirical analysis and findings in relation to the four research questions, namely, Shariah fund benchmarks, proxy market indices and general market indices. Each of the questions was directed to address the research objective and to present the findings of the analysis.

The historical analysis of non-risk adjusted measures of performance indicated that three categories of funds, namely, the REITs, global equity and bond funds outperformed their benchmarks on a five-year annualised basis. The only category to outperform the proxy benchmark allocated was the global equity fund. The general equity and multi-asset funds underperformed the proxy benchmark fund for the five-year period. The result indicates that there is a financial penalty faced by asset managers who focus on Shariah-compliant funds and the investors for these products.

The second question sought to address the performance based on four risk-adjusted measures of performance. The empirical analysis of the Sharpe, Treynor, Jensen's Alpha and Information ratio reveals that the local performance varies over the different categories. The REITs and global equity provide a positive return on a risk-adjusted basis, the local equity funds neither underperform nor outperform the market. Lastly, the multi-asset and bond funds show an underperformance relative to the market on a risk-adjusted basis. The positive ratios also indicate that the South African asset managers are good stock pickers, as they can provide a risk-adjusted return with a limited diversified portfolio of funds for the categories of equity, REITs and global equity. O'Neal (2009) found that Shariah-compliant REITs in the United States of America (USA) do not face any real challenges as most assets that a REIT will invest in is Shariah-compliant, It was further concluded that the Shariah REITs market in the USA is expected to grow substantially in the future. On average the Shariah funds did not outperform the market and this confirms the concerns raised by Markowitz Theory as well as Behavioural Finance.

The final question empirically investigated the performance of Shariah indices relative to the general market indices. The FTSE/JSE Shariah Top 40 underperformed the JSE Top 40 by 8.4% on a five-year basis, which is indicative of the penalty faced by religious investors. It

further confirms that the asset manager is required to carefully pick stocks that will provide a return that can be equal to or outperform the general market indices.

The results and findings of the empirical analysis were discussed in the above chapter. This included an analysis on each of the research objectives that were developed in aiming to answer the research problem. The next chapter will conclude on the research findings and the contributions that the study has made.



Chapter Five

Conclusion

5.1. Introduction

Wealth creation and preservation is about making choices. Investors may align their investment choice to certain phases in life or amount of risk they are willing to accept. These investors can further choose to invest in products that align with their social or religious beliefs. Shariah-compliant funds provide an opportunity for investors both religious and non-religious to align their wealth creation with their belief or social system, which may not be available in the traditional markets.

Shariah-compliant products in particular have achieved tremendous growth in the past 25 years. Sadeghi (2008:15) estimates this at a rate of 12% to 15% yearly. The Shariah Finance Industry can still be seen as a niche market in the global financial markets. Muslim and non-Muslim majority countries have increasingly introduced Shariah-compliant products within the traditional western financial system. South Africa is no exception with 28 Shariah-compliant funds currently in the market to target this growing niche.

Markowitz Portfolio Theory is a fundamental concept within the financial system and argues that a well-diversified portfolio can generate greater returns at the lowest risk undertaken. Portfolio Theory is a pre-eminent theory that is being contested by Behavioural Finance theories that state an investor may make irrational choices to achieve certain investment goals, that is, to invest in a non-optimal portfolio. This leads to the question: is there a financial penalty faced by these investors?

Rubio, Hassan and Merdad (2012:224) have indicated that "*non-Muslim investors who seek to maximise risk-adjusted returns could highly profit from diversifying towards Islamic mutual funds*". Rubio *et al.* (2012:224) further indicate that Muslim investors do face a performance penalty and need to identify further avenues of investments. Furthermore, Islamic funds provide a new avenue of investment for all investors. It opens this form of investment to the traditional markets as an investor may choose to invest in Shariah-compliant funds due to the SRI similarities or to hedge against risk in times of economic crisis. Abdelsalam, Fethi, Matallin and Tortosa-Ausina (2014:109) further clarify that SRI investors can use Shariah

funds, but Shariah investors cannot use SRI funds due to the stricter screening process that is required by Shariah funds.

The aim of the study was to examine the performance of South African Shariah-compliant funds. The focus was on three objectives, namely, respective benchmarks, proxy benchmark indices and general market indices. Additionally, single and multi-factor performance measures were considered in undertaking the empirical analysis of the funds.

The study found that South African Shariah-compliant funds slightly underperformed the JSE Top 40, in all categories except for global equity and REITs from 01 April 2012 to 31 March 2017. The data was empirically tested using the Sharpe, Treynor, Jensen's Alpha and Information ratios. Furthermore, the Shariah indices underperformed the general market indices for the time period. The results support a vast number of studies that conclude that Shariah funds underperform in bull cycles and outperform in bear cycles.

5.2. Findings of the Study

To simplify the empirical analysis of the data, the data was analysed using the average performance and risk-adjusted performance measures. The empirical performance was conducted by investigating three research objectives: Shariah funds versus respective benchmarks, Shariah funds versus proxy benchmark market indices, and Shariah indices versus global market indices.

5.2.1. Objective 1: Shariah Funds versus Respective Benchmarks

The purpose of the analysis was to assess the performance of Shariah-compliant funds against their own respective benchmarks. Each fund has a different mandate and objective which indicates that the fund would need to compare to its own benchmark.

The objective was addressed by calculating the average five-year annualised returns for the funds and benchmarks. Most funds used Shariah focused benchmarks or a CPI + x% benchmark. The funds were grouped according to the ASISA classification framework.

The empirical analysis of unadjusted returns versus benchmarks resulted in the REITs, global equity and Bond funds outperforming their benchmarks on a five-year annualised basis. Global equity funds were the only category to outperform the allocated proxy benchmark. The general equity and multi-asset funds underperformed the proxy benchmark fund for the five-year period.

5.2.2. **Objective 2: Shariah Funds versus Proxy Benchmark Market Indices**

The second research objective empirically tested the performance of the Shariah-compliant funds to proxy benchmarks. The proxy benchmarks were category specific with the following proxy benchmarks used: ALSI for low equity, FTSE/JSE Top 40 for high equity, All Bond Composit for fixed income focused funds, FTSE Shariah All World for global equity and the REIT index for the real estate funds.

The results found that global equity and REITs outperformed their respective market indices for the Sharpe, Treynor, Jensen's Alpha and Information ratios. The results are in line with the findings of research objective 1.

The equity funds did not significantly underperform or outperform the proxy benchmark, and the fixed income and multi-asset funds underperformed in all ratios. This indicates that the performance varies per category.

A number of factors can contribute to these findings. Manager stock-picking skill is evident in the majority of ratios obtained; it highlights the specialised nature and skills of the current asset managers in this space. The result is positive as it shows that Shariah funds do have the possibility of outperforming or performing on par with the market benchmarks.

5.2.3. **Objective 3: Shariah Indices versus Global Market Indices**

The final objective aimed to compare the FTSE/JSE All-Share Shariah Index and FTSE/JSE Top 40 Shariah Index to the FTSE/JSE All Share, Top 40, REITs and Bond Composit. The Shariah indices underperformed on all accounts which confirms the MPT that a less diversified portfolio is not likely to outperform broad market indices that comprise of all stocks.

The results further corroborate the findings of research objective 2 that found that the stock picking skill of asset managers is high. Asset managers need to focus even more attention to stock picking to allow for them to choose winners, which can improve performance on a risk-adjusted basis. The findings further confirm previous literature that found that Shariah-compliant funds do suffer a financial penalty against the traditional market, but asset managers can use their skill to make up the financial penalty.

5.3. Concluding Remarks

Through this research, it has been established that there are a limited number of studies in South Africa that focuses on Islamic investing. According to research, information on the performance of Shariah-compliant funds is non-existent. This study will contribute to the collection of local studies for Islamic finance and, more specifically, the performance of Shariah funds in South Africa. The question can now be answered with a relative degree of certainty.

The study incorporated the use of risk-adjusted measures of return including proxy indices for all categories of funds according to ASISA classifications. These are the equity, multi-asset, REITs, global equity and income funds. The study also compared the performance of Shariah indices and broad market indices.

5.4. Limitations

In Chapter 1, a brief list of limitations was detailed. The following section revisits the limitations and constraints which the study faces and could have an impact on the research findings. They are discussed in detail below.

5.4.1. Limitations of the Study

The following are general limitations that apply to the over-arching design of the study.

5.4.1.1. No Previous Domestic Studies

No previous literature has been identified that deals specifically with the issue of Shariah fund performance. Furthermore, research on the Shariah industry within South Africa is also limited.

5.4.1.2. Small Sample Data

A total of 28 Shariah funds exist within the South African market, the population was then reduced to 22 funds after the sampling and data analysis stages. The number of funds is small but can be compared to other fund analysis reports which allow for validity of the study's results.

5.4.1.3. Shariah Boards

Various Shariah boards exist and each has different selection criteria. Each board comprises of well-qualified clerics and, in essence, should comply with the overarching rules and regulations as set out by Shariah. Only funds that are advised by Shariah boards are included in the study.

5.4.2. Limitations of the Method

The following limitations have been identified as weaknesses in the method used for the analysis of the data.

5.4.2.1. Limitations of Treynor Ratio

The limitations of the Treynor ratio are as follows; it Relies on Beta and is based on the CAPM, therefore, all weaknesses of the CAPM as discussed in section 2.3.3 apply to the calculation of the Beta. It does not take into account multi-factors, and relies only on a single factor. The ratio assumes costless transactions, which is not applicable to the real world. Portfolios that do not make use of full diversification may have a lower Beta, even though it provides a greater return and finally the benchmark index chosen can have a high impact on the calculated Beta.

5.4.2.2. Limitations of Jensen's Alpha

The limitations of the Alpha are as follows; it does not take into account volatility and draw-downs and the Alpha is derived from the CAPM model and uses Beta. Therefore, it shares some of the same limitations of the Treynor ratio, that is, it only accounts for market risk and not total risk and It is sensitive to the choice of market index.

5.4.2.3. Limitations of Sharpe Ratio

The limitations of the Sharpe ratio are as follows; firstly, investments do not have a normal distribution of returns which can affect or skew the ratio, secondly, investments tend to have small positive returns, and until there is a large loss, the Sharpe ratio will be abnormally high; finally, the Sharpe ratios do not incorporate the profit and loss of the underlying investments.

5.4.2.4. Limitations of Information Ratio

The Information ratio can provide a positive result, which provides an acceptable risk adjusted measure of performance. This can be positive even if the performance is low resulting from poor performance of the benchmark.

5.5. Contributions of the Study

This mini-dissertation contributes to the collection of studies in the field of Islamic Finance. It specifically highlights the performance of South African Shariah-compliant funds and integrates international findings into the local context.

The study highlights the growing Shariah financial market in South Africa which deserves consideration as an alternative investment form. It deepens the interest for both religious and non-religious investors, including SRI investors, who may want to diversify away from the traditional methods of fund investing.

The study focused on analysing the risk-adjusted measures of performance for the greater population of South African Shariah-compliant funds. It also looked at the average performance per sector which is similar to other studies and allows for greater comparability.

The information provided in the research would be useful to investors, academics, asset managers, industry bodies and any interested party in the financial community. This study further lays a foundation for future studies as more funds achieve a stable long term track record.

5.6. Recommendation for Further Research

Due to the increased growth and focus on Islamic finance and related products as well as an increased focus on socially responsible funds, increased consumer and market knowledge on the subject is needed to make investors aware of various options available in the market

The persistence and efficiency of South African Shariah-compliant mutual funds can be tested to allow for more results using a different methodology that may have allowed for better decision making in the future.

Lastly, it can be recommended that further research be conducted in order to allow for more funds to be included that were excluded due to insufficient data on performance history. A 10-year study could be viable and could include the financial crisis which would improve the findings due to the various market cycles incorporated.



References

- 27Four. (2017). *Fund centre*. Retrieved 04 May, 2017, from <https://www.27four.com/fund-centre/>
- Abdelsalam, O., Duygun, M., Matallin, J.C. & Tortosa-Ausina, E. (2015). Is ethical money sensitive to past returns? The case of portfolio constraints and persistence in Islamic funds. *Journal of Financial Services Research*, 51(3):363-384.
- Abdelsalam, O., Fethi, M.D., Matallin, J.C. & Tortosa-Ausina, E. (2014). On the comparative performance of socially responsible and Islamic mutual funds. *Journal of Economic Behavior and Organization*, 103:108-128.
- Azhar, A. R., Mohd, A. Y., & Mohd Herry, M. N. (2010). Islamic norms for stock screening: A comparison between the Kuala Lumpur stock exchange Islamic index and the Dow Jones Islamic market index. *International Journal of Islamic and Middle Eastern Finance and Management*, 3(3), 228-240.
- Abdullah, F., Hassan, T. & Mohamad, S. (2007). Investigation of performance of Malaysian Islamic unit trust funds. *Managerial Finance*, 33(2):142-153.
- Agussalim, M., Limakrisna, N. & Ali, H. (2017). Mutual funds performance: Conventional and Sharia product. *International Journal of Economics and Financial Issues*, 7(4):150-156.
- Ahmed, M. & Al-Rashidi, F. (2015). The relationship between Islamic mutual funds and oil prices: Which leads the other? *ISRA International Journal of Islamic Finance*, 7(2):29-53.

- Alam, N. (2010) *Resilience of Islamic finance during credit Crunch—Empirical evidence from European market*. 8th International Conference on Islamic Economics and Finance, Qatar. 1-15.
- Alam, N., Hassan, M.K. & Haque, M.A. (2013). Are Islamic bonds different from conventional bonds? International evidence from capital market tests. *Borsa Istanbul Review*, 13(3):22-29.
- Alam, N. & Rajjaque, M.S. (2010). Shariah-compliant equities: Empirical evaluation of performance in the European market during credit crunch. *Journal of Financial Services Marketing*, 15(3):228-240.
- Alam, N., Tang, K.B. & Rajjaque, M.S. (2013). A comparative performance of conventional and Islamic unit trusts: Market timing and persistence evidence. *Journal of Financial Services Marketing*, 18(4):316-326.
- Albaity, M. & Ahmad, R. (2008). Performance of Syariah and composite indices: Evidence from bursa Malaysia. *Asian Academy of Management Journal of Accounting and Finance*, 4(1):23-43.
- Alexandri, M.B., Pragiwani, M. & Laiela, D. (2017). Performance of Sharia mutual fund: The analysis of asset allocation in Indonesia. *Mediterranean Journal of Social Sciences*, 8(3):163-169.
- Ashraf, D. (2013). Performance evaluation of Islamic mutual funds relative to conventional funds: Empirical evidence from Saudi Arabia. *International Journal of Islamic and Middle Eastern Finance and Management*, 6(2):105-121.
- Association for Savings and Investments South Africa. (2017). *ASISA standard on fund classification for South African regulated collective investment scheme portfolios*. South Africa: Association for Savings and Investments South Africa.

- Azmat, S., Skully, M. & Brown, K. (2014). Issuer's choice of Islamic bond type. *Pacific-Basin Finance Journal*, 28(0):122-135.
- Balling, M. & Gnan, E. (2013). The development of financial markets and financial theory: 50 years of interaction. *The SUERF 50th Anniversary Volume "50 Years of Money and Finance: Lessons and Challenges"*, 1:157-193.
- Bhatt, P. & Bandopadhyay, A.K. (2011). Performance evaluation of schemes of Indian and international mutual funds: An empirical study of selected equity large cap funds. *Journal of Finance, Accounting and Management*, 2(2):58-65
- Bracker, K. (2013). Introducing behavioral finance: A student quiz. *Journal of Financial Education*, 39(3/4):69-91.
- Chartered Institute of Securities and Investments. (2015). *Fundamentals of Islamic banking and finance* (1st ed.). London: Chartered Institute of Securities and Investments.
- Chartered Institute of Securities and Investments. (2016). *Islamic finance qualification*. (1st ed.). London: Chartered Institute of Securities and Investments.
- Chartered Financial Analysts. (2009). *A primer on Islamic finance*. (1st ed). Institute of Chartered Financial Analysts.
- Chan, E. (2012). Harvard Business School Confidential: Secrets of Success. *John Wiley & Sons*. pp. 185
- Chapra, M.E. (1985). Towards a just monetary system. *Leicester: The Islamic Foundation*
- Clarke, K.A. (2015). A critical analysis of Islamic equity funds. *Journal of Islamic Accounting and Business Research*, 6(1):107-121.
- Creswell, J.W. (2009). *Research design* (3rd ed.). Los Angeles [u.a.]: Sage.

- Creswell, J.W. (2014). *Educational research* (4th ed). Harlow: Pearson.
- Dah, M., Hoque, M. & Wang, S. (2015). Constrained investments and opportunity cost and evidence from Islamic funds. *Managerial Finance*, 41(4):348-367.
- Derigs, U. & Marzban, S. (2008). Review and analysis of current Shariah-compliant equity screening practices. *International Journal of Islamic and Middle Eastern Finance and Management*, 1(4):285-303.
- Derigs, U. & Marzban, S. (2009). New strategies and a new paradigm for Shariah-compliant portfolio optimization. *Journal of Banking and Finance*, 33(6):1166-1176.
- Dewi, M.K. & Ferdian, I.R. (2012). Evaluating performance of Islamic mutual funds in Indonesia and Malaysia. *Journal of Applied Economics and Business Research*, 2(1):11-33.
- Dhai, R. (2015). A comparison of the performance of the FTSE South African Islamic index to the conventional market (JSE) in South Africa. *South African Journal of Accounting Research*, 29(2):101-114.
- El Khamlichi, A., Ferry, O. & Laaradh, K. (2014). The performance of Islamic vs. Conventional equity indices: Sectoral evidence. *Working Paper*, 2014-(293):1-17.
- Element Investment Managers. (2017). *Fund facts sheets*. Retrieved 05 May, 2017, from http://www.elementim.co.za/retail_investors/fund-fact-sheets-and-quarterly-newsletter/
- Elfakhani, S., Hassan, K. & Sidani, Y. (2005). *Comparative performance of Islamic versus secular mutual funds*. 12th Economic Research Forum Conference, Cairo. 1-44.
- El-Masry, A., El-Mosallamy, D., Matallin-Saez, J.C. & Tortosa-Ausina, E. (2016). Environmental conditions, fund characteristics, and Islamic orientation: An analysis of

mutual fund performance for the MENA region. *Journal of Economic Behavior & Organization*, 132:174-197.

EurekaHedge. (2018). *Global Islamic fund database*. Retrieved 03 April, 2018, from <http://www.eurekahedge.com/Products/islamic-fund-database>

Farooq, O. & Tbeur, O. (2013). Dividend policies of Shariah-compliant and non-Shariah-compliant firms: Evidence from the MENA region. *International Journal of Economics and Business Research*, 6(2):158-172.

Girard, E.C. & Hassan, M.K. (2008). Is there a cost to faith-based investing: Evidence from FTSE Islamic indices. *The Journal of Investing*, 17(4):112-121.

Godlewski, C.J., Turk-Ariss, R. & Weill, L. (2013). Sukuk vs. conventional bonds: A stock market perspective. *Journal of Comparative Economics*, 41(3):745-761.

Hassan, M., Nahian, F.K. & Ngow, T. (2010). Is faith-based investing rewarding? The case for Malaysian Islamic unit trust funds. *Journal of Islamic Accounting and Business Research*, 1(2):148-171.

Hayat, R., Butter, F.D. & Kock, U. (2013). Halal certification for financial products: A transaction cost perspective. *Journal of Business Ethics*, 117(3):601-613.

Hayat, R. & Kraeusl, R. (2011). Risk and return characteristics of Islamic equity funds. *Emerging Markets Review*, 12(2):189-203.

Hoepner, A.G.F., Rammal, H.G. & Rezec, M. (2011). Islamic mutual funds' financial performance and international investment style: Evidence from 20 countries. *The European Journal of Finance*, 17(9-10):829-850.

International Islamic Financial Market. (2017). *A comprehensive study of the global sukuk market* (6th ed). Bahrain: International Islamic Financial Market.

- Kagiso Asset Management. (2017). *Fund facts*. Retrieved 03 May, 2017, from <http://www.kagisoam.com/fund-info/>
- Kassim, S.H. & Kamil, S. (2012). Performance of Islamic unit trusts during the 2007 global financial crisis: Evidence from Malaysia. *Asian Academy of Management Journal*, 17(2):59-78.
- Kothari, C.R. (2004). *Research methodology: Methods and techniques* (2nd ed.). Daryaganj: New Age International.
- Lintner, J. (1965). Security Prices, Risk and Maximal Gains from Diversification. *Journal of Finance*. December, 20(4):587–615.
- Makni, R., Benouda, O. & Delhoumi, E. (2015). Large scale analysis of Islamic equity funds using a meta-frontier approach with data envelopment analysis. *Research in International Business and Finance*, 1(34):324-337.
- Makni, R., Benouda, O. & Delhoumi, E. (2016). International evidence on Islamic equity fund characteristics and performance persistence. *Review of Financial Economics*, 31(1):75-82.
- Mangram, M.E. (2013). A simplified perspective of the Markowitz portfolio theory. *Global Journal of Business Research*, 7(1):59-70.
- Mansor, F. & Bhatti, M.I. (2011). Risk and return analysis on performance of the Islamic mutual funds: Evidence from Malaysia. *Global Economy and Finance Journal*, 4(1):19-31.
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1):77-91.

- Marzuki, A. & Worthington, A. (2015). Comparative performance-related fund flows for Malaysian Islamic and conventional equity funds. *International Journal of Islamic and Middle Eastern Finance and Management*, 8(3):380-394.
- Mohamad, N.E.A.B. (2016). The performance of Shariah real estate investment trust and conventional real estate investment trust in Malaysia. *Indonesian Capital Market Review*, 8(1):1-11.
- Morningstar. (2005). *Standard deviation and Sharpe ratio*. Chicago: Morningstar.
- Morningstar. (2017). *Morningstar fund screener*. Retrieved 04 May, 2017, from <http://tools.morningstar.co.za/za/fundscreener/default.aspx?Site=za&LanguageId=en-ZA>
- Mvubu, M.C. (2014). *The performance of socially responsible funds: A review of South African funds*. University of Johannesburg.
- Nassir, A.M., Qurratul, S., Shadi, A., Ali, M. & Hamid, A. (2012). Performance of Malaysian Islamic unit trusts based on consistency of ranking. *Greener Journal of Business and Management Studies*, 2(1):2276-7827.
- National Treasury. (2014). *South Africa concludes debut Sukuk bond issue*; South Africa: National Treasury.
- Oasis. (2017). *Investment funds - fund facts*. Retrieved 01 May, 2017, from <http://www.oasis.co.za/default/content.aspx?initial=true&moveto=839>
- Old Mutual. (2017). *Fund centre*. Retrieved 20 May, 2017, from <https://www.oldmutual.co.za/personal/investments-and-savings/tax-free-and-flexible-fund-list>

- O'Neal, N.C. (2009). The development of Islamic finance in America: The future of Islamic real estate investment trusts. *Real Property, Trust and Estate Law Journal*, 44(2):279-297.
- Park, J. & Park, M. (2016). Qualitative versus quantitative research methods: Discovery or justification? *Journal of Marketing Thought*, 3(1):1-7.
- Pew Research Centre. (2015). *The future of world religions: Population growth projections, 2010-2050*. Retrieved 7 September, 2016, from <http://www.pewforum.org/2015/04/02/religious-projections-2010-2050/>
- Rafay, A., Gilani, U. & Izhar, M. (2017). Investigating the performance of Islamic mutual funds: Evidence from an emerging economy. *City University Research Journal*, 7(2):234-241.
- Ross, S.A. (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, 13(3):341-360.
- Rubio, J.F., Hassan, M.K. & Merdad, H.J. (2012). Non parametric performance measurement of international and Islamic mutual funds. *Accounting Research Journal*, 25(3):208-226.
- Sadeghi, M. (2008). Financial performance of Shariah-compliant investment: Evidence from Malaysian stock market. *International Research Journal of Finance and Economics*, 20(8):15-24.
- Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research methods for business students* (5th ed.). Harlow: Pearson Education Limited.
- Seth, S. & Das, S. (2015). Ethical investing: Examining the performance of Indian Shariah funds vis-a-vis Shariah index. *Journal of Commerce and Accounting Research; New Delhi*, 4(2):51-57.

- Sharpe, W.F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3):425.
- Shubbar, S. (2010). *Empirical performance of Islamic stock market indices in 2008 credit crisis*. Unpublished manuscript.
- Stanlib. (2017). *UT fact sheets*. Retrieved 15 May, 2017, from <http://www.stanlib.com/Individuals/FundCentre/Pages/Factsheets.aspx>
- Statistics South Africa. (2012). *Census 2011 - statistical release*. South Africa: Statistics South Africa.
- Tobin, J. (1958). Liquidity preference as behaviour towards risk. *The Review of Economic Studies*, 25(2):65.
- Tower, E. & Dean, J.W. (2010). *Islamic mutual funds: Assessing performance*. Unpublished manuscript.
- Treynor, J.L., (1965). How to rate management of investment funds. *Harvard business review*, 43(1):63-75.
- Tripathi, V. & Bhandari, V. (2015). Do ethical funds underperform conventional funds? - empirical evidence from India. *International Journal of Business Ethics in Developing Countries*, 4(2):10-19.
- Vahed, G. & Vawda, S. (2008). The viability of Islamic banking and finance in a capitalist economy: A South African case study. *Journal of Muslim Minority Affairs*, 28(3):453-472.
- Van Wyk, K., Botha, Z. & Goodspeed, I. (2015). *Understanding South African financial markets* (5th ed.). South Africa: Van Schaik.

- Walkshäusl, C. & Lobe, S. (2012). Islamic investing. *Review of Financial Economics*, 21(2):53-62.
- Wallace, M. & Sheldon, N. (2015). Business research ethics: Participant observer perspectives. *Journal of Business Ethics*, 128(2):267-277.
- Wilson, R. (1991). Islamic financial instruments. *Arab Law Quarterly*, 6(2):205-214.
- Yusof, R.M., Bahlous, M. & Kassim, S.H. (2010). Ethical investment and Shariah-compliant investment compared: Can investors benefit from diversification? *Savings and Development*, 34(3):389-412.



Appendixes

A1: Shariah fund performance versus respective benchmark

Category 1: Equity	Benchmark	Shariah fund 5 year Annualised Return	Benchmark 5 year Annualised Return	FTSE/JSE Top 40 Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
27Four Shari'ah Active Equity Prescient Fund - A1	Average of the South African Equity General Category	13.6%	10.5%	12.1%	13.6%	10.5%
Element Islamic Equity Fund A	Average of Shari'ah General Equity Funds with a 1-year track record	3.5%	10.9%	12.1%	6.5%	9.8%
Kagiso Islamic Equity Fund	South African - Equity - General funds mean	9.7%	9.9%	12.1%	12.5%	12.7%
Oasis Crescent Equity Fund	Average South African Shari'ah Equity General Portfolio	9.4%	7.2%	12.1%	19.2%	13.2%
Oasis Crescent International Feeder Fund	Average Shari'ah Global Equity Peer Group in ZAR	18.7%	16.1%	12.1%	10.1%	6.1%
Oasis General Equity Fund	Average South African Equity General	9.6%	9.6%	12.1%	17.0%	15.2%
Old Mutual Albaraka Equity Fund A	85% Customised SA Shari'ah Equity Index & 15% S&P Developed Markets Large and Mid-Cap Shari'ah Index	11.4%	11.1%	12.1%	14.8%	14.4%
Stanlib Shariah Equity Fund Class A	FTSE/JSE Shari'ah ALSI	4.0%	4.8%	12.1%	2.4%	4.5%
Category mean:		10.0%	10.0%	12.1%	12.0%	10.8%

Source: iNet BFA/Authors own calculations

A2: Multi Asset Shariah fund performance versus respective benchmark

Category 2: Multi Asset	Benchmark	Shariah fund 5 year Annualised Return	Benchmark 5 year Annualised Return	FTSE/JSE ALSI Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
27Four Shari'ah Balanced Prescient Fof - A1	South African- Multi Asset High Equity Category Average	5.9%	8.1%	12.5%	7.7%	9.6%
Element Islamic Balanced Fund Class A	Average of Shari'ah General Balanced Funds with a 1- year track record	6.3%	10.5%	12.5%	5.4%	10.1%
Kagiso Islamic Balanced Fund	South African - Multi Asset - High Equity funds mean	8.6%	10.0%	12.5%	7.3%	9.7%
Oasis Balanced Stable Fund Of Funds	CPI Rate + 1%	9.1%	5.8%	12.5%	10.2%	5.8%
Oasis Balanced Unit Trust Fund	CPI Rate + 2%	9.5%	5.8%	12.5%	14.2%	5.8%
Oasis Crescent Balanced High Equity Fund Of Funds	CPI Rate + 3%	9.0%	5.8%	12.5%	8.8%	5.5%
Oasis Crescent Balanced Progressive Fund Of Funds	CPI Rate + 1%	8.6%	5.8%	12.5%	9.6%	6.1%
Oasis Crescent Balanced Stable Fund Of Funds	CPI Rate	9.1%	5.8%	12.5%	10.2%	5.8%
Oasis Crescent Income Fund	No benchmark used - apply the CPI rate to allow for comparison	7.4%	5.8%	12.5%	7.0%	5.8%
Old Mutual Albaraka Balanced Fund A	45% Customised SA Shari'ah Equity Index, 10% S&P Developed Markets Large and Mid-Cap Shari'ah Index, 40% STeFI Composite - 0.5% & 5% Three- month US Dollar LIBOR	9.4%	10.1%	12.5%	8.3%	9.9%
Category mean:		8.3%	7.4%	12.5%	8.9%	7.4%

Source: iNet BFA/ Authors own calculations

A3: Real Estate Shariah fund performance versus respective benchmark

Category 3: Real Estate	Benchmark	Shariah fund 5 year Annualised Return	Benchmark 5 year Annualised Return	FTSE/JSE REITs Proxy Benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Oasis Crescent Int Property Equity Feeder Fund	CPI Rate of OECD countries+3%	17.3%	1.4%	15.8%	6.6%	1.9%
Oasis Property Equity Unit Trust Fund	CPI Rate + 4%	11.4%	5.8%	15.8%	16.3%	5.8%
Category mean:		14.4%	3.6%	15.8%	11.5%	3.9%

Source: iNet BFA/ Authors own calculations

A4: Global equity Shariah fund performance versus respective benchmark

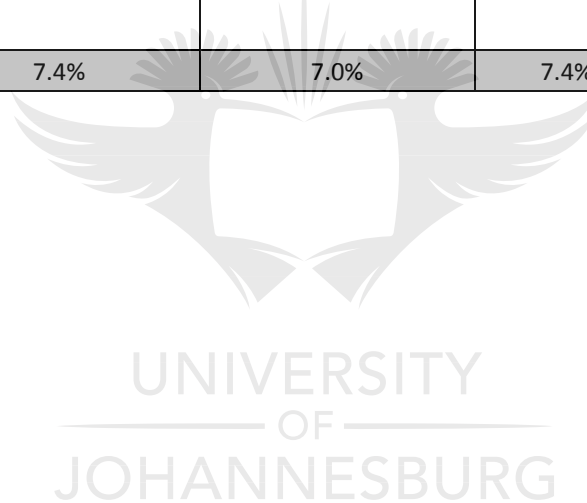
Category 4: Global Equity	Benchmark	Shariah fund 5 year Annualised Return	Benchmark 5 year Annualised Return	Ftse Shariah All-World Index Proxy benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Oasis International Feeder Fund	Average Global Peer Group in ZAR	19.8%	20.5%	7.4%	11.4%	11.9%
Category mean:		19.8%	20.5%	7.4%	11.4%	11.9%

Source: iNet BFA/ Authors own calculations

A5: South African Interest Bearing Shariah fund performance versus respective benchmark

Category 5: South African Interest Bearing	Benchmark	Shariah fund 5 year Annualised Return	Benchmark 5 year Annualised Return	All bond composit Proxy benchmark	Shariah Annualised Return Since Inception	Benchmark Annualised Return Since Inception
Oasis Bond Fund	South African Interest Bearing Variable Term Portfolio	7.4%	7.0%	7.4%	9.3%	9.3%
Category mean:		7.4%	7.0%	7.4%	9.3%	9.3%

Source: iNet BFA/ Authors own calculations



A6: Risk adjusted performance measures for equity Shariah funds versus proxy benchmark.

Category	Benchmark/ Proxy Benchmark FTSE/JSE TOP 40	Sharpe Ratio	Jensen's Alpha	Treynor Ratio	Information Ratio
Equity					
27Four Shari'ah Active Equity Prescient Fund - A1	Average of the South African Equity General Category	0.66203	0.00014	0.00504	0.35385
Element Islamic Equity Fund A	Average of Shari'ah General Equity Funds with a 1-year track record	-0.19145	-0.00074	-0.00312	-0.41874
Kagiso Islamic Equity Fund	South African - Equity - General funds mean	0.24723	0.00044	0.00272	-0.01159
Oasis Crescent Equity Fund	Average South African Shari'ah Equity General Portfolio	0.24844	0.00008	0.00210	-0.03284
Oasis Crescent International Feeder Fund	Average Shari'ah Global Equity Peer Group in ZAR	0.86051	0.00634	0.02742	0.66340
Oasis General Equity Fund	Average South African Equity General	0.14779	0.00010	0.00138	-0.11754
Old Mutual Albaraka Equity Fund A	85% Customised SA Shari'ah Equity Index & 15% S&P Developed Markets Large and Mid-Cap Shari'ah Index	0.40623	0.00006	0.00324	0.11524
Stanlib Shariah Equity Fund Class A	FTSE/JSE Shari'ah ALSI	-0.31730	-0.00057	-0.00355	-0.57276
Category mean:		0.25793	0.00073	0.00440	-0.00262

Source: iNet BFA/ Authors own calculations

A7: Risk adjusted performance measures for multi-asset Shariah funds versus proxy benchmark.

Category	2: Benchmark/ Proxy Benchmark FTSE/JSE All Share	Sharpe Ratio	Jensen's Alpha	Treynor Ratio	Information Ratio
Multi Asset					
27Four Shari'ah Balanced Prescient Fof - A1	South African- Multi Asset High Equity Category Average	0.22119	-0.00071	0.00063	-0.25748
Element Islamic Balanced Fund Class A	Average of Shari'ah General Balanced Funds with a 1- year track record	0.05279	0.00005	0.00041	-0.28329
Kagiso Islamic Balanced Fund	South African - Multi Asset - High Equity funds mean	0.26075	-0.00020	0.00159	-0.07428
Oasis Balanced Stable Fund Of Funds	CPI Rate + 1%	0.22530	-0.00067	0.00051	-0.39346
Oasis Balanced Unit Trust Fund	CPI Rate + 2%	0.33690	-0.00095	0.00131	-0.05790
Oasis Crescent Balanced High Equity Fund Of Funds	CPI Rate + 3%	0.32920	-0.00040	0.00175	-0.03047
Oasis Crescent Balanced Progressive Fund Of Funds	CPI Rate + 1%	0.20541	-0.00013	0.00110	-2.53711
Oasis Crescent Balanced Stable Fund Of Funds	CPI Rate	0.29404	-0.00051	0.00083	-3.71199
Oasis Crescent Income Fund	No benchmark used - apply the CPI rate to allow for comparison	-1.91475	-0.00924	0.00104	-2.62725
Old Mutual Albaraka Balanced Fund A	45% Customised SA Shari'ah Equity Index, 10% S&P Developed Markets Large and Mid-Cap Shari'ah Index, 40% STeFI Composite - 0.5% & 5% Three-month US Dollar LIBOR	0.19046	-0.00026	0.00075	-3.06423
Category mean:		0.02013	-0.00130	0.00099	-1.30375

Source: iNet BFA/ Authors own calculations

A8: Risk adjusted performance measures for real estate Shariah funds versus proxy benchmark.

Category Real Estate	3: Benchmark/ Proxy Benchmark FTSE/JSE Real Estate Investment Trusts.	Sharpe Ratio	Jensen's Alpha	Treynor Ratio	Information Ratio
Oasis Crescent Int Property Equity Feeder Fund	CPI Rate of OECD countries+3%	0.73147	0.00733	0.08069	0.60570
Oasis Property Equity Unit Trust Fund	CPI Rate + 4%	0.19662	0.00005	0.00166	0.02581
Category mean:		0.46404	0.00369	0.04118	0.31575

Source: iNet BFA/ Authors own calculations

A9: Risk adjusted performance measures for equity Shariah funds versus proxy benchmark

Category Global Equity	4: Benchmark/ Proxy Benchmark FTSE Shariah All-World Index	Sharpe Ratio	Jensen's Alpha	Treynor Ratio	Information Ratio
Oasis International Feeder Fund	Average Global Peer Group in ZAR	0.92025	0.00955	0.09133	0.95617
Category mean:		0.92025	0.00955	0.09133	0.95617

Source: iNet BFA/ Authors own calculations

A10: Risk adjusted performance measures for equity Shariah funds versus proxy benchmark

Category	5: Benchmark/ Proxy Benchmark FTSE/JSE All Bond Compisit	Sharpe Ratio	Jensen's Alpha	Treynor Ratio	Information Ratio
South African Interest Bearing					
Oasis Bond Fund	South African Interest Bearing Variable Term Portfolio	-1.17600	0.00172	-0.00445	-1.37465
Category mean:		-1.17600	0.00172	-0.00445	-1.37465

Source: iNet BFA/ Authors own calculations

