"A comparison of the performance of the FTSE South Africa Islamic Index to the market in South Africa"

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Glossary

Allah	God
Mudaraba	This term refers to a specific type of business contract where one party contributes capital and the other labour to the business
Murabaha	Cost plus financing scheme, sale on profit
Musharaka	This is an Islamic financing technique where two or more parties provide funds for a business venture. The profit is distributed according to predetermined ratios while the loss is limited to the proportion of their contribution.
Quran	The Muslim Holy Book that is believed to have been revealed to the Messenger Muhammad (Peace be upon him) and contains the words of *Allah.*
Riba	It literally means and increase, addition, expansion or growth which has been prohibited in Islam. The definition is usually applied applied to the exchange of money or commodities. E.g. If A sells $100 to B for $110, the $10 is an increase which is termed as riba.
Shariah	Islamic jurisprudence
Sunnah	Any saying or action of the Messenger Muhammad (Peace be upon him) or any action of his companions endorsed by him.

Abstract

The aim of this study is to identify whether there is a difference in performance between shares meeting the Islamic investing criteria and the market in an emerging market context. The proxy for the Islamic market is the FTSE South Africa Islamic Index. The returns on this index are compared to three proxies for the market using single and multiple regression models: (1) the All Share Index on the JSE in a single factor regression (2) the Resources Index and Financial – Industrial Index in a two factor model (3) a four factor model developed by Carhart (1997) that accounts for size, growth and momentum in the market in addition to the All Share Index. The performance is also analysed using traditional performance measures such as the Sharpe, Treynor and Modigliani ratios.

The long run performance is assessed from 1996 to 2007 and the JSE is split into a high and low growth market and the returns of the Islamic index in comparison to the various proxies for the market in each successive period is analysed. While no significant difference in performance exists in the long run, there are small differences when splitting the market. It is found that on average the Islamic index outperforms the market during a low growth market and underperforms during a high growth market.

Key words: Islamic; FTSE South Africa Islamic Index; Sharpe, Treynor and Modigliani ratios

1. Introduction

The performance of shares on stock exchanges has long been an area of interest to researchers in the field of finance and economics. Although there are no defined reasons for the movements of share prices, a number of performance evaluation techniques have been devised. Some evaluate the performance qualitatively and others quantitatively. These performance evaluation studies have sought to identify a number of differences: the difference in performance between a certain set of shares in comparison to the market, the difference in performance between select mutual funds or unit trusts and relative benchmarks and more recently the difference in performance between varieties of investment strategies. One of these alternative investment strategies involves investing according to Islamic religious principles.

This study seeks to analyse the literature on performance evaluation of shares which meet the Islamic investment criteria and thereafter to identify whether there is any difference in performance of such shares in comparison to the market on the JSE Securities Exchange in South Africa. The FTSE South Africa Islamic Index (Islamic Index) is used as a proxy for all shares on the JSE which meet the Islamic criteria. The returns on the Islamic Index are compared to the market using traditional performance measures i.e. Sharpe, Treynor and Modigliani ratios as well as through regression analysis. The returns are regressed against the All Share Index, the Resources Index and the Financial-Industrial Index. A four factor model developed by Carhart (1997) is used to identify persistence in performance.

The evaluation is carried out on a monthly basis over three time periods: long run performance from 1996 to 2007, performance in a low growth market from 1996 to 2003 and in a high growth market from 2003 to 2007.

Investment strategies can be summarised as guidelines and restrictions placed upon the investor in order to achieve a specific objective. Conventional finance theory leans towards the maxim that investors will aim to maximise profits while minimising risk. This conventional theory is tweaked when restrictions are placed on the investment mandate e.g. a pension fund investor may want to ensure that the types of equities in which they invest have a maximum level of risk; an

entrepreneurial investor will only want to invest in shares that have a sufficiently high minimum level of forecast growth.

More recently there has been the growth of ethical investments as an alternative investment strategy. As such, performance evaluation literature and research has evolved to comparisons between market related benchmarks and ethical investments. Alternative investment strategies are being considered from a corporate governance perspective as well. The effect of the financial crisis, as with previous such events, has largely been blamed on poor corporate governance principles. Investors are becoming more wary of the traditional profit maximising strategies adopted by management who ignore the consequences of employing such strategies.

While the concept of Islamic economics and finance has been in existence since the inception of the religion of Islam over 1400 years ago, this has only recently been translated into the formal contemporary financial principles as we know them today. The main characteristic of an Islamic investor is to maximise profits within a socio economic context in accordance with Islamic teachings and principles while at the same time minimising risk. This is vastly different to the conventional investor who, as mentioned above, seeks to maximise profits while minimising risk.

At a corporate governance level, in order to meet the investment criteria prescribed by the religion of Islam, the business practices of management must be aligned with religious principles. This does not only extend to the nature of business activities but the manner in which these activities are carried out.

Islamic finance has been a growing industry over the last 30 years. Across the Middle East, Africa, Asia, Europe and North America, traditional Islamic banks have been formed to serve the needs of Muslim clients. Many leading conventional finance houses such as Barclays, Citibank, HSBC, Morgan Stanley and Merill Lynch have opened Islamic finance windows to cater for their client base. The industry is still, however, in its infancy and will need time to grow.

This renewed interest in modern techniques for an age old economic system prompted the need for local research in the area in the South African market. The South African stock exchange, the JSE Securities Exchange (JSE), is uniquely characterised by a small number of large companies.

On 20th May 2008 the top 10 companies on the JSE by market capitalisation comprised almost 60% of the entire JSE by market cap. Moreover these large companies are mainly resource based and this makes the market as a whole extremely reliant on the trends in resource prices and the exchange rate.

The main difference between Islamic and conventional investors is the prohibition of interest based transactions and the nature of business activities. The prohibition of interest translates into companies being limited by the amount of leverage they can use. As a result of these marked differences, it is anticipated that the investment universe for such investors will be considerable more constrained which may give rise to differences in performance. It is also envisaged that the restriction on business activities, the regulation of business practices and the limit on debt will have an impact on the risk profile of the companies.

This paper is organised as follows: Chapter 2 provides an overview of Islamic economic principles and how these are translated into modern banking and outlines a brief analysis of the Islamic finance industry globally and in South Africa. A brief discussion of the makeup of the JSE ALSI and how this differs from the Islamic Index sheds light on factors that could lead to anticipated differences in performance. Chapter 3 covers the relevant literature on performance evaluation and Chapter 4 sets out the data and methodology employed in this study and summarises the results obtained. Chapter 5 evaluates the results of other Islamic share performance evaluation studies from around the world and Chapter 6 outlines an economic inference to provide a possible explanation for any differences in performance. It must be noted that ratios used to provide the economic inference are calculated at a specific point in time due to the lack of availability of data. This section is an addition to the core performance evaluation nature of the paper.

2. Overview of Islamic Finance

2.1 Principles of Islam

In order to understand the concept of Islamic investing, it is necessary to expand upon the core beliefs of Islam that give rise to these economic principles and to explore the differences between the ideals of the current financial system and an Islamic one.

All Muslims believe in one God, Allah, and they believe that the Messenger Muhammad (Peace be upon him) was the last and final messenger of Allah in addition to other Messengers such as Jesus, Moses, David and Abraham (Peace be Upon them). The Holy Scripture of the Muslims, the Quran, is believed to have been revealed to Muhammad (PBUH) directly from Allah.

The fundamental undertone in the belief of all Muslims is that every aspect of their lives must be in accordance with the pleasure of Allah. The basic articles of this faith are provided in the form of guidelines in the Quran. In addition to the Quran, the Muslims also follow the teachings and actions of Muhammad (PBUH) which are known as the Sunnah. Muslim theologians study these two basic texts and apply the principles to different times. All rulings or fatwas issued by them must be in accordance with the Quran and Sunnah.

The manner in which a Muslim balances his own views, perceptions and logic with that prescribed by religion has been summarised by Mufti Taqi Usmani (2002, p17) as follows: "Islam has a balanced approach to govern human life. One the one hand, it has left a very wide area of human activities to man's own rational judgement where he can take decisions on the basis of reason, assessment of facts and expedience. On the other hand, Islam has subjected human activities to a set of principles which have eternal application and cannot be violated on superficial grounds of expediency based on human assessment." (Usmani 2002, p17)

This means that in the life of a Muslim the rule of religion, which he believes is the rule of Allah, is the supreme and overriding rule of maxim. In economics as well, there are certain guidelines that have been prescribed. This gives rise to the basic difference between the current, capitalist financial system and the Islamic economy. In secular capitalism, "the profit motive or private ownership are given unbridled power to make economic decisions." (Usmani 2002, p17) Those restrictions that are imposed on these powers are done so by human beings and are subject to change through democratic legislation. In Islam, after recognising the concept of private ownership and profit motive, certain divine injunctions are placed on all economic activities.

The most important principle of Islamic financing is that it is an asset-backed means of financing. Money is not seen as a commodity but rather as a medium of exchange that has no intrinsic utility. Profit on money alone cannot be generated. Profit can only be generated when money is used to purchase something with intrinsic utility (i.e. a commodity) and sold in exchange for more money. It is however permissible to trade in different currencies provided it is done within certain guidelines.

There are some salient differences between the two methods of financing. Firstly, in conventional financing money is loaned to someone without the lender bearing the full risk exposure of the venture. In Islam the financier has to have a vested interest in the transaction by purchasing it, taking possession thereof, thereby assuming its risk, and selling it to the customer. Secondly, conventional financiers allow money to be used for any legal profitable purpose e.g. to run a casino while in Islam the nature of business activities must be in line with the moral code issued by the Quran and Sunnah. Thirdly, an Islamic financing transaction assumes the risk of the underlying asset to be financed whereas in conventional financing, the risk of the asset is borne by the borrower. The last and most significant is an economic one. In conventional economic theory, capital and the entrepreneur are two separate factors of production. The first earns interest and the latter profits. Islam does not recognise these two as separate factors. Every person who contributes capital to a commercial enterprise assumes their proportionate share of risk in

the business. As such, capital has an element of entrepreneurship in it and the only reward for both is profit.

The fact that the above two factors of production are seen to be one and the same explains one of the most important features of Islamic financing: the prohibition of interest. While there are a number of other differences between conventional and Islamic finance, the specific prohibition on interest warrants further discussion.

There are two types of interest as defined by Islamic scholars. The first is known as *Riba al Quran* or *Riba al Nasiyah* which is any excess charged by the lender upon lending money to the borrower. This is the same as the modern definition of interest as used by banks and financial institutions today. The prohibition on this type of interest is in in the Quran. The following verses summarise these prohibitions:

"Whatever interest you pay to increase people's wealth does not increase in God's sight. Whatever you pay as zakaah (charity), seeking God's pleasure, such people truly multiply." (Holy Quran, Chapter 30:Verse 39)

"O you who believe! Do not consume interest, compounding it many times over. Fear God that you may be successful. "(Holy Quran, Chapter 3: Verse 130)

"And God has permitted trading and prohibited interest." (Holy Quran, Chapter 4: Verse 275)

The second type of interest is known as *Riba al Hadith* or *Riba al Fadl*. This refers to the unequal or deferred exchange of specified items. For example if a kilogram of good quality dates is exchanged for two kilograms of poor quality dates, this would be termed *Riba al Hadith*. The prohibition of this type of interest can be found in the teachings of the Messenger Muhammad (Peace be upon him).

The main reason cited for the prohibition of interest of both kinds is to prevent injustice in an economic transaction (Mahomed 2007, p.38). Moreover, it prevents the concentration of wealth in the hands of a few by ensuring that those with capital are not provided with a

risk free return for their investment. All capital investments must bear some risk in order to reap a return.

In an ideal Islamic environment, a business will not have any debt holders who are compensated for the risk associated with their debt. Debt is issued to individuals, both private and corporate, as a measure of goodwill and the concept of earning a return on this loan, termed interest, is completely prohibited in Islam. In order to obtain any return from the business, a participant would either have to bring equity capital or expertise to the enterprise. Muslim theologians and scholars have outlined a number of investment and return strategies for both capital and skills providers of a business e.g. Musharaka, Mudaraba

These principles have been translated into modern finance to give rise to two branches of Islamic finance, namely Islamic Banking and Islamic Investments. The Islamic Banking industry seeks to fulfil the role of financing the purchase of assets, leasing and the facilitation of business capital requirements. Examples of these transactions include the Mudaraba and Musharaka financing options. On the investment side, a number of retail products have been created in which average investors can invest according to *shariah* principles. The most common type of investments are unit trust funds that invest only in shares meeting the Islamic guidelines.

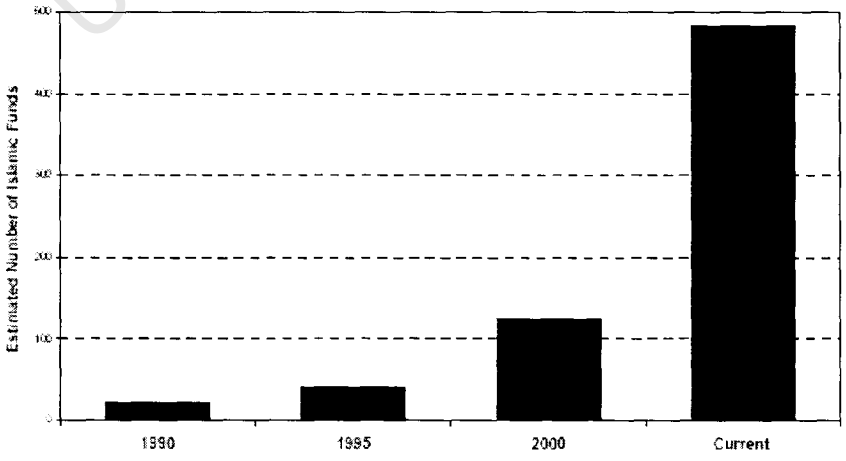
The prohibition of interest, gambling, uncertainty and certain business activities is applied to both the investment and banking sector. Therefore Islamic banks cannot use traditional methods such as mortgages to allow its clients to finance the purchase of their assets. The prohibition on uncertainty also makes it almost impossible to structure hedging strategies that employ the use of derivatives. These prohibitions and restrictions have been put in place to ensure the stability of the economy as a whole. In light of this, practitioners have developed innovative techniques based on Islamic finance principles in order to meet the needs of modern businesses and private individuals.

Although there are a number of such techniques, only one of them will be discussed by

way of example. If a client wishes to purchase an asset using finance from an Islamic bank, one of the methods that could be adopted is that of a *Murabaha* or cost plus financing transaction. This will involve the bank purchasing the said asset from a vendor and selling it to the client at the cost price plus a fixed mark-up which would be paid to the bank over a fixed period of time. The mark-up percentage is a negotiated rate that is usually set by banks in order to maintain a certain level of profitability. While some banks may base this rate on international interest rate benchmarks such as LIBOR, this is not a compulsory facet of the transaction. In theory the bank assumes the full risk of ownership of the asset on the date of purchase and its physical or constructive possession and it then transfers the risk, upon sale, to the client (Mahomed 2007, p 80).

The Islamic banking sector has found it more difficult to stimulate growth over time as this requires large Muslim run businesses to request its services. While there has been a significant amount of trade finance, a large portion of banking has focussed on car and home financing arrangements for private individuals. The investment market, on the other hand, has seen much more transaction activity due to its access to average investors and relatively low minimum lump sum investments. Figure 1 summarises the growth of the Islamic mutual fund industry in recent years.

Figure 1: Number of Islamic Funds, 30 September 2007



Source: Failaka.com, 30 September 2007

2.2 The Islamic Finance Industry

While the principles of Islam are over 1400 years old, the application of modern banking techniques to the fundamentals of Islamic economics in its current form, is fairly new. The Islamic finance industry can be said to be in a stage of infancy with only 30 years of experience. It began in countries that had concentrated Muslim populations in regions such as the Middle East, North Africa and East Asia. The first fully fledged Islamic bank was the Dubai Islamic Bank formed in 1975 (Mahomed 2007, p.112). This was followed by the formation of two such banks in 1997, the Faisal Islamic Bank in Egypt and Sudan. In the same year the Kuwaiti government founded the Kuwaiti Finance House(Zaher *et al*, 2001).

The industry has grown considerably in the last two decades. It is estimated that the total amount of assets under management within *shariah* principles is approaching the $800 billion mark while there are close to 300 accredited Islamic financial institutions operating globally (Nytimes.com, 30 November 2008). This is due to two specific factors: the spread of Islam in the West, as well as, the reawakening of Islamic religious principles amongst Muslims. Islamic banks were originally created for those minority groups of Muslims that wanted to follow strict religious principles. Muslims have become more conscious of religiosity in their wealth management and therefore the demand for Islamic financial products has begun to grow the world over.

There are two types of organisations that offer *shariah* compliant products: conventional banks that have Islamic finance windows and fully fledged Islamic banks whose entire operations are based on Islamic principles. Some countries such as Iran, Pakistan and Sudan have realigned their entire financial systems to be in line with the *shariah*.

There is however, a growing disparity between the concentration of Muslims in specific countries, the wealth potential of Muslim investors and the ability of differing regions to

meet the high standards of modern day financial markets. Although a country such as Saudi Arabia boasts one of the highest percentage Muslim populations and has the largest concentration of oil in the world, its financial regulatory system leaves much to be desired for modern day investors.

While the Middle East has been at the forefront of cutting edge Islamic finance development, both in terms of innovation and asset accumulation, countries in the East such as Singapore and Malaysia, as well as, Western nations such as Britain and USA are becoming increasingly competitive. Although predominantly Muslim countries should have a greater demand for products designed to be in line with *shariah*, Muslims living in Western countries appear to be more financially educated when it comes to their wealth management. This has resulted in Muslim and non – Muslim financial institutions in these countries taking advantage of their developed financial systems to tailor make suitable Islamic financial products.

Table 1.1: Islamic Finance Capitals of the World

Country	Population	% Muslim	Financial Sector Size	Islamic Financial Sector	Major Players
Dubai, UAE	1.3m	96%	$340bn	$46.3bn (13.5%)	Noor Islamic Bank, Dubai Islamic Bank, Emirates Islamic Bank
Manama, Bahrain	718306	81.20%	$251bn	$16.4bn (6.5%)	Arcapita Bank, Gulf Finance House, Albaraka Banking Group, Shamil Bank, Bahrain Islamic Bank
Doha, Qatar	928635	77.50%	$81.3bn	$14.8bn (18.2%)	as above
London, Britain	7.5m	8%	$19.1tril	$10bn (0.05%)	Islamic Bank of Britain, HSBC, European Finance House
Singapore	4.6m	14.90%	$27.6bn	$1.8bn (6.5%)	Standard Chartered, Islamic Bank of Asia, Malayan Bank

Source: Forbes.com (Feb 2008)

Table 1.2: Shariah Compliant Assets 2007

Shariah Compliant Assets, 2007, $bn	
Iran	154.6
Saudi Arabia	69.4
Malaysia	65.1
Kuwait	37.7
UAE	35.4
Brunei	31.5
Bahrain	26.3
Pakistan	15.9
Lebanon	14.3
Britain	10.4

Source: Economist.com (September 2008)

According to Forbes.com, Britain has shown keen interest in issuing an Islamically compliant bond known as a *sukuk* and is planning to make regulatory adjustments to accommodate for this. It was also reported that the German state of Lower Saxony was the first European nation to issue a fully subscribed €100m Islamic bond.

2.3 The Islamic Finance Industry: South Africa

The Islamic finance industry in South Africa is extremely small in comparison to other global markets. At the same time it is one of the fastest growing segments in the world and is strategically positioned given South Africa's strong economic presence and influence across Africa. The market split between banking and investment services mirrors that of the rest of the world with the investment market overshadowing banking products by far.

The banking sector as a whole is dominated by a few large banks. Most of these banks have opened small Islamic banking windows that provide either personal vehicle and asset finance or asset management services. They are in competition with a very small number of completely *shariah* compliant financial institutions.

The only fully fledged Islamic bank currently operating in South Africa is the Albaraka Bank that is a subsidiary of the internationally based Albaraka Banking Group. This is currently the largest Islamic finance banking group in Africa. The bank offers both financing and investment management services. Other banks in South Africa have Islamic finance windows in which some Islamic products are offered. However these banks operate according conventional principles and offer products that are not Shariah compliant. Albaraka Bank, on the other hand, only offers products that are Shariah compliant.

The fastest growing and most popular segment of the Islamic finance market in South Africa is that of equity investments. Table 2 summarises the key equity investment funds currently in operation in South Africa.

Table 2.1: Islamic Fund Facts, South Africa

Name	Futuregrowth Albaraka	Oasis Crescent	Stanlib Shariah	Fraters
Fund Size	R1.07bn	R3.38bn	R104m	R100m
Benchmark	ALSI	Average GE Fund	not available	ALSI
Date	30-Apr-08	30-Sep-08	30-Sep-08	30-Apr-08

Apart from these equity investment funds, financial institutions such as Oasis have structured a number of *shariah* compliant pension and provident fund packages that are aligned with all necessary regulatory requirements. Companies and government organisations with Muslim employees have begun including such *shariah* compliant alternatives within their retirement benefit plans. Table 2.2 summarises other *shariah* compliant funds available in South Africa.

Table 2.2: Other Shariah Compliant Funds in South Africa as at 30 September 2009

Fund Name	Fund Size
Crescent Retirement Annuity Fund	R157m
Crescent Balanced Progressive Fund of Funds	R676m
Crescent Preservation Pension & Provident Fund	R173m
Crescent Retirement Fund	R47m
Oasis Crescent Worldwide Flexible Fund of Funds	R93m

Oasis Crescent Internation Property Equity Feeder Fund	R81m
Oasis Crescent International Feeder Fund	R442m

2.4 The Islamic Investment Market

There are significant differences between equity investment according to Islamic principles and western unconstrained investing. Globally most public stock markets, including the JSE, are structured according to conventional financial principles and at inception did not make provision for Islamic investing. Investors wishing to invest according to Islamic principles are therefore faced with a problem as conventional stock exchanges are not governed by the same regulations. Moreover, practitioners do not have the necessary Islamic investment qualifications to evaluate whether specific shares meet Islamic investment criteria or not.

It was therefore deemed necessary for Islamic scholars to reduce the Islamic business principles into qualitative and quantitative investment criteria that are easily understandable by average investors on the stock market. The qualitative criteria deal with the nature of the business associated with the specific share while the quantitative criteria revolve around the level of debt and other impermissible income earned by the business.

The source of most Islamic investment literature and criteria development is the Islamic Fiqh Academy of Jeddah in Saudi Arabia (Mahomed, 2007). Most countries, markets, global indices and mutual funds operating under Islamic investment principles use the criteria developed by this institution as a basis for the development of their own criteria. These include the nature of the business, the level of debt used by the company, the percentage of interest income received and the level of current receivables (Hayat, 2006).

There is still an ongoing debate amongst scholars with regards to the permissibility of investing on the stock exchange. While this study is aligned with the school of thought that

deems traditional investments on the stock exchange as permissible, it is noteworthy to highlight some of the differing views for illustrative purposes. The discussion on the permissibility of shares on the stock exchange has been thoroughly investigated by Moulana Yusuf bin Yaqub (2008) in the document 'Shari stance on shares and stocks' and has been used as the basis for the purposes of this section of the study.

The views on the impermissibility of share ownership can be divided into those that completely disregard the concept in its entirety and those that recognise it in theory but are unhappy with the nature of business activities and transactions in modern business.

The first issue of contention is whether share ownership as we know it today complies with *shariah* principles. There is a view that the legal concept of a company being a separate juristic person does not comply with the *shariah* . This view is supported by the principles in *shariah* that no transaction should have the potential to be unjust (Holy Quran, Chapter 4, verse 29). By limiting the liability of a company, one is giving it the opportunity to engage in riskier transactions. As such, it would not be permissible to invest in shares on the stock exchange as all publicly listed companies are regarded as separate legal persons with limited liability.

The scholars that hold this view state further that if they were to accept hypothetically the concept of limited liability, the concept of share ownership would still be rejected based on the modern definition of a share. It is argued that a share does not provide the shareholder with a proportionate ownership of assets, but simply gives them a right to profits, a voting right at an annual meeting and a residual share of net asset value on liquidation. The shareholder does not have the ability to trade the asset individually nor can they act as an agent for the company in the use of such assets. As a result the scholars hold the view that the purchase of a share is only a purchase of a bundle of rights which is not permissible according to the *shariah*.

The second contending view accepts the concept of limited liability and ownership of the

assets of the business but declares investing on the stock exchange as impermissible based on the nature of business activities. As has been previously mentioned, a business is only completely in accordance with *shariah* principles when all of its business activities are aligned with the *shariah* and it engages in no interest based transactions. At present it is extremely difficult to find companies that fit such criteria. At the very least some companies will keep a portion of their assets in cash that earns a minimal amount of interest.

From a legal perspective the ownership of an ordinary share in a company entitles the shareholder to a voting right and profit share in the business. Many scholars feel that the ownership of such a share means the shareholder has a *shirkat* or partnership in the business and is thus responsible for the actions carried out by management. Therefore they are jointly liable from a religious perspective for the issue of interest bearing debt or the receipt of interest income even if it is a miniscule amount. Based on this, the scholars rule that it is impermissible to invest in shares on the stock exchange.

On the other hand, some scholars argue that holding a share in a company is not equal to a partnership agreement as the shareholder does not have such influential rights in their individual capacity. The majority of shareholders will make the decisions and a shareholder that holds only a single share in a large company will have no means of overriding such decisions. The scholars argue that in such an instance it is permissible to hold shares in the company under the following conditions: the primary trading activities of the business must be in accordance with the *shariah* and the shareholder must at the very least voice their concern or objection with regards to decisions that may be in conflict with the *shariah*. They should also calculate what portion of their capital gain and dividend income is sourced from such impermissible activities and donate the amount to charity.

Another condition is that at least a portion of the assets of the business should be in an illiquid form i.e. not in cash. This condition is applicable when trading in shares. The basic idea is that one cannot trade in the shares of a business that is made up solely of cash as its

assets. The value of this cash from an Islamic perspective can only be equal to its face value. Any surplus or deficit in trade would be equivalent to the Islamic definition of interest as it would result in an exchange of amounts with different values which in effect is interest. The section on Islamic Indices will elaborate on how the abovementioned *shariah* principles have been constructed into investment guidelines for investors.

Given the disparity between the mechanisms under which conventional stock exchanges operate and those proposed by Islamic finance, there has been much debate around the creation of a fully fledged Islamic stock exchange. Some countries such as Pakistan and Malaysia have attempted to facilitate the creation of such a market. There are a few salient features of such a stock market that would have to be different to conventional stock exchanges. The most important would be the issue of interest based transactions. Not only will companies with high levels of leverage be excluded from listing, but the manner in which the market is structured would have to ensure that all definitions of *riba* (as discussed under Islamic Finance Principles) are excluded. For example the use of asymmetric information to trade would be considered a form of *riba* in Islam. While any illegal use of such information would be classified as insider trading in a western environment, the Islamic definition of such "illegal" information would be wider (Zaher *et al*, 2001).

A second issue of contention would be the speculative nature of the stock market and its relation to the prohibition of gambling in Islam. A number of short term investors seek to time the market and earn returns based on speculation. While there is an argument that this may inject liquidity into the market and ensure greater degrees of information efficiency, it is impermissible to do so in Islam.

Thirdly, the definition of market efficiency would appear to be slightly different. Western markets focus on operational, economic and information efficiency such that shares are priced at the lowest possible price, matching supply to demand and omitting the opportunity to earn arbitrage profits. The Islamic definition would centre more around

issues of social efficiency (Zaher *et al*, 2001).

Fourthly, the types of securities issued by conventional firms are not always in line with Islamic principles. This does not extend so much to common equity which provides commensurate voting rights and profit or loss sharing. Rather it revolves around the issue of preference shares, redeemable preference shares, convertible preference shares, share options and debentures. A preference share typically has no voting rights and will receive a fixed dividend payment. The payoff pattern and risk profile is very similar to debt and is prohibited in Islam. Share options would be barred based on the prohibition of trading in an item that one does not own and the issue of debt has been dealt with adequately earlier on in this paper.

Lastly, the listing requirements on such an Islamic stock exchange would have to be slightly more stringent. Apart from the soundness of operations and financial performances, firms would be expected to trade within a certain band of activities i.e. firms engaged in impermissible activities such as the sale of alcohol would not be allowed to list.

There have been some suggestions to deal with the issues raised on Islamic stock exchanges. Metawally (1984) proposed a solution to the problem of speculation. This would involve the regulation of the share prices whereby the stock exchange management team would meet periodically to decide on the maximum price of a share based on its intrinsic value. This proposition was rebuffed by Chapra (1985) who argued that such pricing maximums would force small investors to liquidate some of their positions with severely limited returns. Moreover the measure used for intrinsic value would be difficult to determine as traditional accounting standards may not always provide a good indication.

Naughton *et al* (2000) recommend the use of price limits that are used in some derivatives markets where the upward or downward move in the security is limited to a percentage e.g. 7% of the opening price on the trading date. Alternately the use of trading halts as employed in some international equity markets could be employed.

The problem around debentures can be solved by the issue of collateralised debt issues known as *sukuks*. The mechanics of such a transaction would involve the "lenders" providing capital for a company to purchase an asset. They would then sell it to the company at a fixed mark-up and expect payment over a specified period. The problem with such a debt issue is that liquidity is precluded on such instruments due to the *shariah* prohibition on the sale of debt.

2.5 Islamic Indices

While the operation of a completely *shariah* compliant stock exchange may work in some countries, it is a long term project that is not easily achievable in the short to medium term. Scholars have therefore prepared some interim guidelines for investors wishing to work within religious principles. More recently, there has been the development of indices that track the performance of stocks meeting Islamic investment criteria. These indices use their own representations of the market in a specific country and apply the abovementioned *shariah* screens to an existing conventional index. There are 3 major global indices that have sub indices that track the performance of Islamic shares: the Dow Jones, the FTSE and Standard and Poor's (S&P). Although they use similar underlying principles as mentioned above, there are differences in terms of the specific ratios they use as investment criteria. Moreover, most screening bodies have a shariah board that periodically monitors which shares meet the investment criteria and which need to be removed from the index subset as they no longer meet the criteria.

The FTSE Global Islamic Index series was introduced in 1999 and tracks the performance of global shares using different sub categories. The series consists of the FTSE Global Islamic Index, FTSE Americas Islamic Index, FTSE Europe Islamic Index, FTSE Pacific Basin Islamic Index and the FTSE South Africa Islamic Index.

The screening criteria adopted by FTSE excludes shares with the following core activities:

banking or interest related activities, gaming, arms manufacturing, life insurance and the production, packaging and processing of pork, alcohol and tobacco.

The Dow Jones Islamic Market (DJIMI) Index is part of the Dow Jones Global Indices family which covers over 47 countries. The base date of the index is the 31st of December 1995.

The most recently introduced Islamic index is that issued by S&P in 2006. This index applies the *shariah* screens to three headline indices: the S&P 500, the S&P Europe 350 and the S&P Japan 500. This resulted in the S&P 500 Shariah, S&P Europe 350 Shariah and the S&P Japan 500 Shariah indices. In 2007, a few additional indices were introduced. The index applies sector based screens that focus on the business activity of a company, accounting based screens, leverage compliance and cash compliance.

The quantitative screens adopted are as follows:

Table 3: Quantitative screens adopted by different Islamic Indices

Screens	**FTSE Islamic Indices**	**Dow Jones Islamic Market Index**	**S&P Shariah Indices**
Debt	Total debt to total assets < 33%	Total debt to market capitalisation[1] < 33%	Total debt to market capitalisation < 33%
Cash	Cash & other interest bearing items to total assets < 33%	Cash & interest bearing securities to market capitalisation <33%	Cash & interest bearing securities to market capitalisation <33%
Accounts Receivable	Accounts Receivable and cash to total assets < 50%	Accounts Receivable to market capitalisation <33%	Accounts Receivable to market capitalisation < 49%
Other impermissible income	All un Islamic revenue to gross revenue < 5%		All un Islamic revenue to gross revenue < 5%

[1] The 12 month trailing market capitalisation for both the DJIMI and S&P is used

It will be demonstrated during the following sections of the literature review that there are expected differences in performance between conventional shares and those meeting the Islamic criteria. This study will seek to investigate whether any such differences do in fact exist in the South African market and whether they are significant. The proxy for the Islamic market will be the FTSE South Africa Islamic Index.

2.6 The JSE

As the JSE is based on conventional financial principles, one would expect differences in performance between the market as defined by Islamic criteria and that defined by conventional measures. There are three expected sources of difference in performance:

- differences due to prohibitions on business activities e.g. sale of alcohol
- differences due to interest income prohibitions
- differences due to limitations on leverage

In terms of business activity, the main anticipated differences would come from the financial services sector, the entertainment sector and the beverages sector.

Financial service companies derive their income primarily from interest based schemes. These range from mortgage finance for cars, houses and businesses to retail banking products for consumers that provide them with an interest return. These companies also deal in financial markets, derivatives and hedging as well as insurance. Once again, these business practices are not in accordance with *shariah*. Asset management companies may easily invest in non *shariah* compliant shares and derivatives that are prohibited in Islam. Although Islamic alternatives to insurance are being developed rapidly, insurance products that currently dominate listed companies in South Africa do not meet the Islamic *shariah* criteria from a business activity perspective.

A significant portion of revenue from the financial services sector is based on interest

rates. The volatility of these companies will be affected by the volatility of interest rates in South Africa. As shares meeting the Islamic criteria are less exposed to interest rates, it is anticipated that they will be less exposed to the interest rate volatility in terms of their revenue stream. The same could be said for shares in the retail environment that sells merchandise on credit

The entertainment sector includes hotels, restaurant chains and casinos. Hotels and restaurants derive a considerable amount of revenue from the sale of alcohol which pr and casinos earn income from gambling both of which are explicitly prohibited in Islam.

One could also expect the quantitative factor to play a significant role in differentiating the South African Islamic investment arena. In the last few years, interest rates in South Africa were a lot lower and many companies may have felt encouraged to increase their gearing. As the debt ratio is an important aspect in screening shares, this could have a significant impact. Moreover, a number of retail companies such as clothing store chains and furniture stores sell most of their merchandise on credit. Therefore they earn a large portion of their income from interest and will have a large balance of debtors on their balance sheets at any given time. These are again significant criteria in terms of Islamic screening procedures.

2.7 Overview of the JSE and FTSE South Africa Islamic Index

This study seeks to identify any differences in performance between the Islamic Index (as a proxy for the Islamic market) in South Africa and the market. An economic explanation of the results based on the perceived differences in performance will be outlined.Therefore, it is important to understand the makeup of the JSE and the Islamic Index and the level of differences exhibited between them. The market capitalisations of all companies on the JSE on the 20th of May 2008 were obtained and, using a list of the constituents of the Islamic Index (Appendix B) as obtained directly from FTSE London, the market capitalisation of the Islamic Index on this date was computed. It was found that the Islamic Index comprised 37.4% of the market in South Africa by market capitalisation.

Of the top 10 companies by market capitalisation on the JSE, only four were included in the Islamic Index namely, Anglo Platinum Ltd, Sasol Ltd, MTN Group Ltd and Impala Platinum Holdings Ltd. It was not possible to provide a time series comparison of both indices as the information on the composition of the Islamic Index over a period of time was not available.

Table 4: Top 10 Market Capitalisation on the JSE in South Africa as at 20 May 2008

Top 10 Market Cap JSE – ALSI	**TOP 10 by Market Cap – Islamic Index**
Anglo American Plc	Anglo Platinum Ltd
BHP Billiton Plc	Sasol Ltd
Anglo Platinum Ltd	MTN Group Ltd
Sasol Ltd	Impala Platinum Holdings Ltd
MTN Group Ltd	Arcelormittal SA Ltd
SABMiller Plc	Remgro Ltd
Richemont Securities AG	Anglogold Ashanti Ltd
Impala Platinum Holdings Ltd	Naspers Ltd
Standard Bank Group Ltd	Gold Fields Ltd
Kumba Iron Ore Ltd	African Rainbow Minerals Ltd

As at 20 May 2008 the top 10 companies on the JSE as listed in the accompanying Table 4 made up 58% of the JSE by market capitalisation. As these companies are large enough by market capitalisation to make the market move up or down, it is useful to analyse why some of these companies are not included in the Islamic Index.

At face value SABMiller Plc, Standard Bank Group Ltd and Richemont Securities AG were not included as a result of impermissible business activities. SABMiller is involved in the sale of alcohol while Standard Bank is a financial services group whose primary income is interest based, and Richemont has large tobacco interests.

Table 5: FTSE Islamic Indices quantitative ratios of selected top 10 market capitalisation companies on the JSE as at 20 May 2008

	Debt Ratio	**Cash to TA**	**AR & Cash to TA**	**Interest Inc to TO**
ANGLO AMERICAN PLC	56.20%	7.00%	15.30%	1.25%
BHP BILLITON PLC	48.50%	6.00%	7.00%	0.40%
KUMBA IRON ORE LIMITED	36.00%	9.00%	26.00%	0.80%
Maximum per FTSE	33.00%	33.00%	50.00%	5.00%

The key quantitative ratios of the rest of the companies excluded from the Top 10 list were calculated using the criteria as prescribed by the Islamic Index screening criteria. It is clear that all three companies fail on the debt ratio (total debt to total assets).

Table 6.1: Industry weightings of the Islamic Index and the ALSI on the JSE as at 20 May 2008

	Islamic Index		ALSI	
Industry Weightings	**Number of Co's**	**Mkt Cap**	**Number of Co's**	**Mkt Cap**
Basic Materials	15	47.05%	38	39.53%
Consumer Services	15	10.15%	59	26.40%
Industrials	12	11.28%	66	12.28%
Health Care	3	1.86%	4	0.79%
Financials	2	0.39%	44	7.63%
Telecoms	2	14.19%	3	2.57%
Technology	1	0.25%	18	0.41%
Oil and Gas	1	14.83%	1	10.34%
Utilities	0	0.00%	1	0.00%

Table 6.2: Sector weightings of the Islamic Index and the ALSI on the JSE as at 20 May 2008

	Islamic Index		ALSI	
Sector Weightings	**Number of Co's**	**Mkt Cap Weight**	**Number of Co's**	**Mkt Cap Weight**
Mining	9	39.93%	27	38.91%
General Retailers	7	2.86%	17	2.01%
General Industrials	4	5.99%	7	3.20%
Construction & Materials	4	3.92%	29	3.30%
Media	3	3.50%	5	2.62%
Industrial Metals	3	5.89%	7	0.44%
Real Estate	2	0.39%	17	1.34%
Mobile Telecommunications	2	14.19%	2	0.40%
Oil & Gas Producers	1	14.83%	1	10.34%
Banks	-		3	3.86%
Beverages	-		4	9.88%
Other	16	8.51%	172	23.71%

Table 6.1 and 6.2 summarise the main industry and sector holdings in terms of the number of companies and the market capitalisation weights of the Islamic Index and the ALSI. The main industries that the Islamic Index invested in were the Basic Materials, Consumer

Services and Industrials industries. Almost half of the Islamic Index is invested in Basic Materials. On the other hand the main industries characterising the ALSI are the Consumer Services, Industrials and Financials. Almost a third of the ALSI is invested in the Industrials sector.

Figure 2.1: Islamic Index Industry analysis as at 20 May 2008

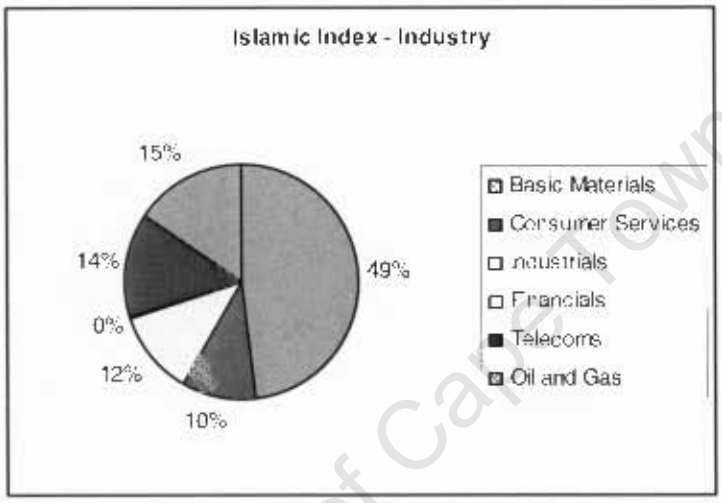
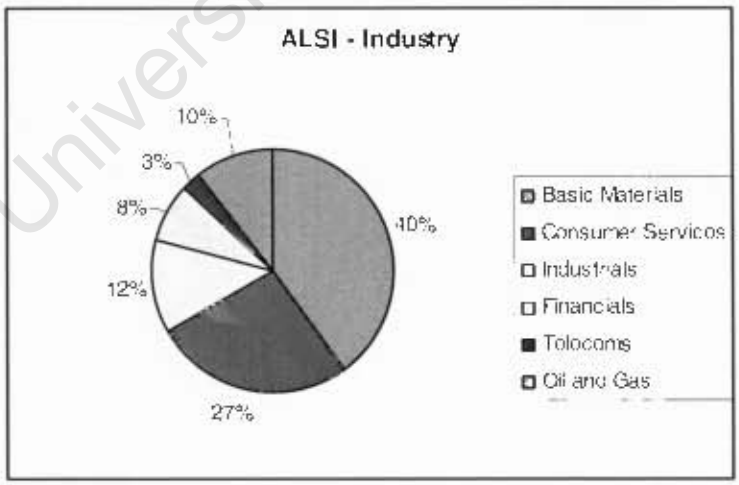


Figure 2.2: ALSI Industry analysis as at 20 May 2008



The Islamic Index is overweight relative to the ALSI in Basic Materials, Oil and Gas, Telecommunications and Consumer Services. This is despite the fact that on this date, Telkom Ltd was not included in the Islamic Index. In terms of Oil and Gas, Sasol is included in both indices. The primary reason for being overweight is the fact that the market capitalisation of the Islamic Index is only 38% of that of the ALSI. Each major company has a more significant impact in the Islamic Index. It is underweight in Financials and Consumer Services.

From an industry perspective, almost 50% of the Index is weighed in Mining, General Retailers, General Industrials and Construction and Materials, with the first two being the main sectors in the Islamic Index. On the other hand, the ALSI's main sector in terms of companies is Construction and Materials.

From a sector perspective, the investment weights of both indices are very similar. Both are most heavily invested in the mining sector. The mining sector has had a large impact on the performance of the JSE. Even though the number of companies included in the Islamic Index is much smaller than those included on the ALSI, the effect of the performance of mining stocks is likely to affect the performance of the ALSI and the Islamic Index in a similar manner.

The above analysis seems to indicate that from an industry and sector investment perspective there are only a few significant differences between the ALSI and the Islamic Index. The biggest difference comes through the much smaller size of the Islamic Index by market capitalisation. This, coupled with the fact that the JSE is characterised by a few large shares by market capitalisation, means that movements in the large shares included in both indices will have a greater impact on the Islamic Index. Moreover, movements in those large companies that are not included in the Islamic Index are bound to create differences in performance.

The industry weights and top 10 holdings of the *shariah* compliant equity funds have been included in Table 7.1 and 7.2 for comparative purposes.

Table 7.1: Industry weightings of Islamic equity funds in South Africa 2008

	Industry Holdings					
	Futuregrowth Albaraka	**Stanlib Shariah**	**Islamic Index**	**ALSI**	**Oasis Crescent**	**Fraters**
Basic Materials	43.70%	40.12%	47.05%	39.53%	not available	not available
Consumer Goods & Services	7.90%	0.40%	10.15%	26.40%		
Industrials	16.70%	22.55%	11.28%	12.28%		
Health Care		4.53%	1.86%	0.79%		
Financials			0.39%	7.63%		
Telecoms	10.90%	9.62%	14.19%	2.57%		
Technology	1.10%		0.25%	0.41%		
Oil and Gas	9.70%	4.65%	14.83%	10.34%		
Utilities						
Other	10.00%	18.13%		0.05%		

Table 7.2: Top 10 Holdings of Islamic equity funds in South Africa 2008

Futuregrowth Albaraka	**Stanlib Shariah**	**Fraters**	**Islamic Index**	**ALSI**	**Oasis Crescent**
Bell	MTN Group Ltd	AECI	Anglo Platinum Ltd	Anglo American Plc	not available
BHP Billiton Plc	ArcelorMittal	Gold Fields	Sasol Ltd	BHP Billiton Plc	
Exxaro	Highveld Steel	Sasol	MTN Group Ltd	Anglo Platinum Ltd	
Gold Fields	Aveng	Tongaat	Impala Platinum Holdings Ltd	Sasol Ltd	
Impala Platinum	Murray & Roberts	Telkom	Arcelormittal SA Ltd	MTN Group Ltd	
Mittal SA	Telkom SA Ltd	Anglo American Plc	Remgro Ltd	SABMiller Plc	
MTN Group	Aspen Pharamacare	Altech	Anglogold Ashanti Ltd	Richemont Securities AG	
Murray and Roberts	Reunert Ltd	Altron Prefts	Naspers Ltd	Impala Platinum Holdings Ltd	
Northam	Anglo American plc	Nampak	Gold Fields Ltd	Standard Bank Group Ltd	
Sasol	Anglo Platinum Ltd	ArcelorMittal Ltd	African Rainbow Minerals Ltd	Kumba Iron Ore Ltd	

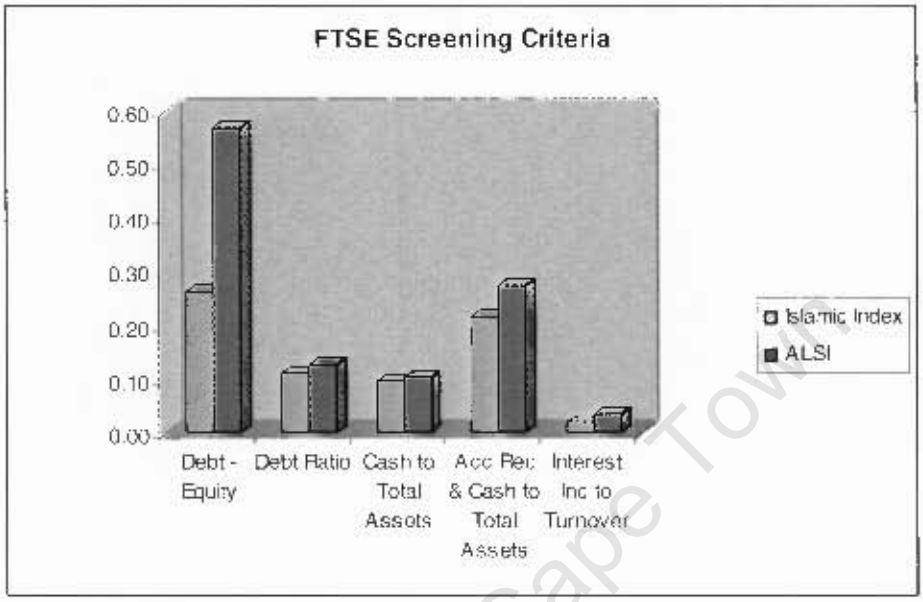
Source: Respective fund brochures, 2009

The accounting information for all companies on the JSE was obtained from the McGregor BFA databases and accounting ratios were computed and weighted by market capitalisation. The most recent financial information was used (Appendix B). Only companies that had all sets of data available on the database were used. The ratios for the ALSI represent 89% of the companies on the market by market capitalisation. The database was further refined to include those companies that were included in the Islamic Index as at the 20th of February 2008. This list of constituents was obtained from FTSE London.

Table 8: FTSE Islamic Indices quantitative ratios as at 20 May 2008

	Islamic Index	ALSI	Maximum per Islamic Index
Debt – Equity	0.263350931	0.568356389	
Debt Ratio	0.110499409	0.128039772	0.33
Cash to Total Assets	0.095772463	0.103167731	0.33
Acc Rec & Cash to Total Assets	0.214420419	0.275272688	0.50
Interest Inc to Turnover	0.018188484	0.034116814	0.05

Figure 3: FTSE Screening Criteria comparison of the Islamic Index and the ALSI as at 20 May 2008



The average debt equity ratio on the Islamic index is significantly lower in comparison to the ALSI with only a quarter of assets being financed through debt. The average leverage factor on the market is 0.56. From a firm value perspective, the overall debt to total assets difference between the Islamic Index and the ALSI is relatively small. The main reason for this is due to the fact that the Islamic Index does not have a number of smaller companies included in it that are financed heavily by debt. The most significant difference in this pool after the debt equity ratio is the interest income and accounts receivable and cash as a percentage of revenue. The FTSE screen only includes companies with minimal interest income and does not include any companies whose income is derived from impermissible activities as defined in the Shariah.

The above analysis yields the following conclusions: the anticipated differences in performance from financial services companies will be marginal given the low exposure of the ALSI to this industry. The same can be said for other industries with business activities that may be impermissible e.g. the entertainment industry. The biggest differences in movements should be due to differences in the Basic Materials, Consumer Services and

Telecommunications sectors. It can also be inferred that differences in performance will not arise as a result of impermissible income such as interest, but either due to leverage differences or restrictions on some business activities.

3. Literature Review

3.1 Ethical Investments

Islamic investing in a conventional financial context can best be described as a rules-driven investment strategy. The most common comparable area of study is that of the performance of ethical funds or socially responsible investments (SRI), which are also based on certain investment screening criteria.

Ethical investment strategies employ ethical and social criteria in selecting shares for investment. This definition has been expanded upon to mean that investors who have ethical investment criteria are concerned about the underlying company's type of business, its location, the nature of its goods and services and its business practices in general (Wilson, 1997).

While Islamic shares provide very specific quantitative criteria, the qualitative criteria revolving around business activities often overlap with the investment objectives of ethical investments. From an investor's perspective, the question is whether there is any difference in the performance of these alternative strategies as opposed to conventional investment strategies.

Investors adopt two types of strategies when investing ethically: positive and negative. Positive strategies involve investing in companies which display good ethical practices. Negative strategies involve ensuring that they do not invest in companies that deal in "immoral" activities such as pornography or are engaged in alcohol or tobacco production.

One of the largest ethical funds in the UK is the Friends Provident Stewardship Fund, established by a well known group called the Quakers. The value of this fund has been

estimated at £205 million as at 31 July 2009 and it was launched in June 1984 (www.trustnet.com)Some positive ethical criteria used by them include safety, staff management, customer relations and product quality. Also, companies that are environmentally friendly are looked at. Some negative characteristics include military suppliers and companies involved in the exploitation of animals (Wilson, 1997). One could argue that in the current environment the Islamic investment strategy exhibits qualities more in line with negative strategies. At the same time, the *shariah* boards of the various Islamic indices only disclose a limited amount of information with respect to their screening criteria. There is no information on their stance with regards to companies that may have questionable corporate governance principles or employee relations. It is envisaged that as the industry matures, such disclosures will be inevitable.

One of the early studies on ethical fund performance was carried out by Luther (1992) who found weak evidence that ethical funds outperformed non ethical investments in the UK. A significant problem that was identified in this study was later investigated by Luther and Matatko (1994). They found that ethical funds tended to invest primarily in smaller companies. They then used a conventional comparative benchmark of smaller companies as a proxy and found that ethical funds seemed to perform better than in the previous study. There has been no work carried out on South African Islamic shares or funds with respect to the size of companies in which they invest.

Kreander et al (2002) extended the above study to look at the performance of ethical funds from seven European countries and found that there was no significant difference in performance to conventional funds. Their main problem was the selection of an appropriate benchmark. Mallin (1995) encountered a similar problem in the study of UK ethical funds. In order to overcome the benchmark issue a matched pairs analysis was used. Ethical funds were matched to benchmarks using fund size and age. It was found that the ethical funds performed at least as well as their non ethical counterparts and that they performed better when using the Jensen measure.

There are different factors that affect the performance of shares. These factors can be investigated to explain differences in performance between various investment strategies. Goldreyer et al (1999) extended ethical fund performance evaluation by looking at different dimensions of performance. The 49 mutual funds examined claimed to screen their investments for corporate performance with regard to social goals or policies. Some of the modifications of the study included calculating three abnormal performance measures to determine whether social screening affected portfolio investment experience. The sample was partitioned by investment strategy (bond, equity and balanced funds) as well as by portfolio size and systematic risk. Lastly, the sample was partitioned into those funds that used inclusion screens versus those that did not employ such screening. The results suggest that social screening did not affect investment performance in any systematic, predictable way. It was, however, found that funds that employed inclusion screens outperformed those that did not.

Thus far, most of the work cited on ethical funds focuses on the UK and Europe. Cummings (2000) investigated ethical fund performance in Australia and found that on a risk adjusted basis there was an insignificant difference in the financial performance of ethical unit trusts versus conventional market benchmarks. However, there was a significant outperformance of ethical unit trusts in comparison to their industry indices and significant underperformance against smaller company indices.

The use of mutual funds or unit trusts in evaluating performance can distort results. Sauer (1997) conducted research on the performance of ethical stocks in the USA and argues that the comparison of unit trust fund performance does not look purely at the differences in returns. Firstly, investing in unit trusts results in management fees and transaction costs. The effect of these could sometimes significantly distort the returns of a fund. The use of such funds is also biased by the fund manager's ability to allocate assets and select appropriate sectors for investment. According to Fama (1972), the return on portfolios of shares can be explained by two factors: the selectivity of the manager and the underlying

risk of the share.

Sauer therefore used the Domini 400 Social Index which he claims was a carefully constructed portfolio that was not affected by the abovementioned biases. The Domini 400 Social Index was launched by an independent investment research firm, KLD Research and Analytics, Inc, in May 1990 and was the first index of U.S. equities constructed using environmental, social and governance structures. The benchmarks selected were the S&P 500 and the Chicago Centre for Research in Security Prices (CSRP) value weighted market indices. He compared the performance using raw returns and variability, the Jensen and the Sharpe Index. It was found that there was no significant difference in investing using socially responsible criterion.

Although ethical investment funds are similar to Islamic equities in that they employ screening criteria, they are fundamentally different. In general, faith based funds exhibit slightly different characteristics in terms of asset allocation and econometric profile. They have more defined investment mandates in comparison to SR funds.

This conclusion serves two purposes. It indicates that faith based investing strategies represent an additional investment methodology independent of ethical strategies. Research on ethical funds does, however, contribute largely to the body of research done on faith based fund performance and has been used and cited by nearly all work done on Islamic fund performance. Moreover, the methodologies employed will be useful to the study of faith based investment markets as the comparison is of a similar nature.

This study has overcome some of the shortcomings cited in ethical investment performance evaluation. The selection of an appropriate benchmark cited by Kreander *et al* (2002) is overcome by a robust selection of different benchmarks, namely the All Share Index, Resources Index and Financial – Industrial Index as will be explained in the chapter on methodology.

Luther and Matatko (1994) faced the obstacle that ethical funds invested only in small

companies, while Sauer (1997) faced that of performance results being distorted by transaction costs and managerial ability. These obstacles have been overcome by the use of an all encompassing Islamic Index.

3.2 Islamic Finance Research

With the advent of Islamic finance as a global industry, there is a new interest in the academic study of the subject. Given the rather broad variety of topics within this subject matter, the review of Islamic finance literature will be restricted to that focusing on fund performance.

3.2.1 Islamic indices performance evaluation

Most studies focus on a specific global Islamic Index or on Islamic mutual funds. Atta (2000) examined the effect of Islamic ethical screening criteria on the returns of the Dow Jones Islamic Market Index (DJIMI) over the period 1996- 1999. The returns were compared to the Datastream Global Index. Atta made use of the Sharpe and Treynor performance measures, as well as, a time varying conditional asset pricing model. It was found that Islamic funds outperformed their unconstrained benchmark irrespective of which measure was used. This outperformance was considerably reduced when using the constrained measures.

Hassan (2002) investigated some performance relationships using the Dow Jones Islamic Market Index (DJIM) from the period 1996 to 2000. In this study the issues of market efficiency and the time-varying risk return relationship of the DJIM were examined using serial correlations, Dickey Fuller tests and the variance ratio as measures of market efficiency. The results indicate that returns were normally distributed and the index appeared efficient. The paper also examined anomalies such as the calendar of the year effects. These include the turn of the year effect, turn of the financial year effect and the

month effect for returns on the DJIM. No evidence of such effects was found. Lastly, the GARCH econometric framework was used to measure the volatility of returns on the DJIM. The results yielded a significant positive relationship between the returns and conditional volatility.

Hakim and Rashidian (2002) considered the relationship between the DJIMI, the Wilshire 5000 Index and the risk free rate proxied by the 3 month Treasury bill rate. This was done over the period 1999 – 2002 using cointegration and causality analysis. The results indicate that there was no significant correlation and that changes in the DJIMI were not affected by changes in the Wilshire 5000 index and the risk free rate. Of course the risk free rate would have a direct correlation on interest rates, the effect of which should theoretically be minimal in Islamic shares given that exposure to debt and interest income is minimal.

Hassan and Girard (2005) extended the study of the DJIMI by looking at the comparative performance of the DJIMI and its seven sub indices with respect to seven conventional counterparts. It was found that no significant difference in performance existed and that both indices had similar reward to risk benefits.

There are different factors in the economy that explain variations in performance. Hussein (2005) did a comprehensive study of the performance of Islamic indices by capturing the effect of industry, size and economic conditions on the DJIMI over the period 1996 – 2003. The hypothesis was that the returns of investors are different if they invest an equal amount in an Islamic index versus a conventional index in both bull and bear periods. It was found that Islamic indices outperformed during bull periods but underperformed during bear periods.

3.2.2 Islamic unit trust performance evaluation

Abdullah (2007) looked at similar hypotheses within the Malaysian market. He found that Islamic funds outperformed conventional funds during bearish economic periods and underperformed their conventional benchmarks during bullish periods. One explanation for this difference could be due to the differences in exposure to leverage experienced by both sets of funds. Islamic funds are only allowed to have a limited exposure to debt. When economic conditions are poor, less risky shares in terms of debt may tend to perform better. However, in an expansionary market in which there is no economic uncertainty, businesses are keen to take on additional debt in an effort to grow. This growth potential is easily reflected in the share price. He also found that conventional funds had marginally better diversification levels than Islamic funds. This is expected as conventional funds have a larger universe of shares in which to invest. One of the reasons for the difference between the results of this study and those obtained by Hussein (2005) could be that one considered the performance of unit trusts while the other investigated the performance of an index.

Elfakhani *et al* (2005) examined the fundamentals of investing in Islamic unit trusts. The study explored various factors such as the dynamics of Islamic unit trusts, their governance and control as well as marketing and distribution. The study questioned whether investing using Islamic screening criteria had a downside affect on investors' wealth in terms of risk adjusted returns in comparison to a market benchmark. A sample of 46 unit trusts was tested and it was found that between 11 and 29 funds outperformed their benchmarks depending on the performance measure and benchmark used. When dividing the funds into categories, it was found that four of the eight categories outperformed their benchmarks regardless of the performance measures used. In addition, ANOVA tests showed no statistical difference in the performance of the funds compared to the selected index benchmarks.

One of the most comprehensive Islamic equity performance studies was carried out by Hayat (2006) on the Malaysian market over the period 2001 – 2006. A number of performance measures were used, including the Sharpe ratio, Jensen's alpha, Treynor

measure as well as the information ratio. The performance of Islamic equity funds was compared to global Islamic equity indices i.e. the DJIMI and the Kuala Lampur Syariah Index (KLSI) and conventional equity indices.

When measured by the Sharpe and Treynor measures, the Islamic funds outperformed their conventional and Islamic benchmarks. There was no significant difference in performance in terms of Jensen's alpha. The funds underperformed their conventional and Islamic benchmark in terms of the information ratio.

There have been two recent, significant Islamic fund performance studies done in South Africa. These studies focus on the performance of unit trust funds and not the market as a whole.

Dhai *et al* (2006) tested whether a significant difference existed between the performance of Islamic unit trusts in South Africa and the market (proxied by the All Share Index – ALSI) as well as three conventional unit trusts over the period 2001 – 2006. There was no significant difference in performance. In addition, conventional funds were found to be better diversified.

A process of purification of returns occurs in South Africa. Despite the use of Islamic investment criteria some of the returns on Islamic unit trusts remain impermissible according to the Shariah. As a result a certain percentage of these returns as determined by the fund managers is extracted and donated to charity. The returns published in South Africa are those before any purification of the funds take place. Hence, Dhai *et al* (2006) compared post purification returns of Islamic funds to the above mentioned benchmarks to identify whether there would be a significant difference in returns. It was found that purifying the returns did not significantly alter performance.

Chohan *et al* (2007) extended the above study in terms of methodology and dataset. The study looked at 15 Islamic funds, both South African and global, and used the above

mentioned traditional performance measures ,as well as, a matched pairs analysis to evaluate performance. Islamic funds were matched to their conventional counterparts based on market capitalisation, age, sector and region. When using the traditional performance measures, the fund performance was compared to both comparative Islamic and conventional benchmarks. No significant difference in performance between the funds and both Islamic and conventional benchmarks was found when using the traditional performance measures except when using the Modigliani measure. In this case, the funds outperformed both sets of benchmarks. When using the matched pairs analysis, no significant difference in performance was found, both before and after the purification process.

Abderezak (2008) carried out the most recent work on Islamic share performance which looked at the performance of Islamic mutual funds around the world. The study sought to identify whether there was any significant difference in performance between Islamic, conventional and ethical funds. It also sought to identify whether Islamic funds had a lower level of diversification when compared to conventional and ethical funds.

No significant difference in performance was found. The findings are consistent with Hassan (2002) who cited Islamic funds as good investment hedge strategies due to their low relationship to the market. The paper also found that Islamic fund managers were poor at selecting stocks and that Islamic funds were more heavily weighted towards shares from smaller companies classified as growth stocks. In terms of the second hypothesis it was concluded that Islamic funds had lower diversification levels. One of the conclusions drawn from the results was that Islamic funds tended to be more weighted towards smaller, growth stocks as large companies like to increase their leverage to boost growth.

It can be seen that the studies of Islamic share performance are relatively distorted. In

some instances there is evidence of underperformance, in others outperformance and in the majority of instances there is no significant difference in performance. These studies also display differences in the markets being tested, whether unit trusts are looked at or whether the entire market of Islamic stocks is investigated. Where unit trust performance is evaluated there is the added complication of the market timing ability of the fund and the managerial selectivity.

No formal study of performance of Islamic shares in South Africa in comparison the market has been carried out. The aim of this study is to provide an overview of the current stock market in South Africa and to evaluate its situation with respect to shares that meet Islamic investment criteria. It then seeks to identify whether there is any difference in the performance of shares meeting the Islamic investment criteria in comparison for the market. The market includes all shares on the stock exchange.

4. Data, Methodology and Results

4.1 Evaluating performance

The performance of both indices will be evaluated using return and risk adjusted return measures. The riskiness of a business can be classified as systematic or unsystematic. Unsystematic risk is the risk of the market that cannot be diversified away by holding a portfolio of different shares. Investors therefore aim to diversify away systematic or firm specific risk

The main factors that affect risk are business activities and the level of debt of the company. The level of debt affects the riskiness of a business both in terms of default risk and interest rate risk. Given the anticipated lower levels of indebtedness allowed by the *shariah*, Islamic shares should have a lower level of debt related risk than conventional shares.

Performance evaluation of shares on the stock exchange has been explored in a variety of markets using a number of techniques (Jensen, 1968; Grinblatt and Titman, 1992; Hendricks *et al*, 1993; Goetzmann and Ibbotson, 1994; Fletcher, 1999; Fletcher and Marshal, 2005). Some of these have looked at the performance of unit trusts while others have compared the performance of certain indices to market benchmarks.

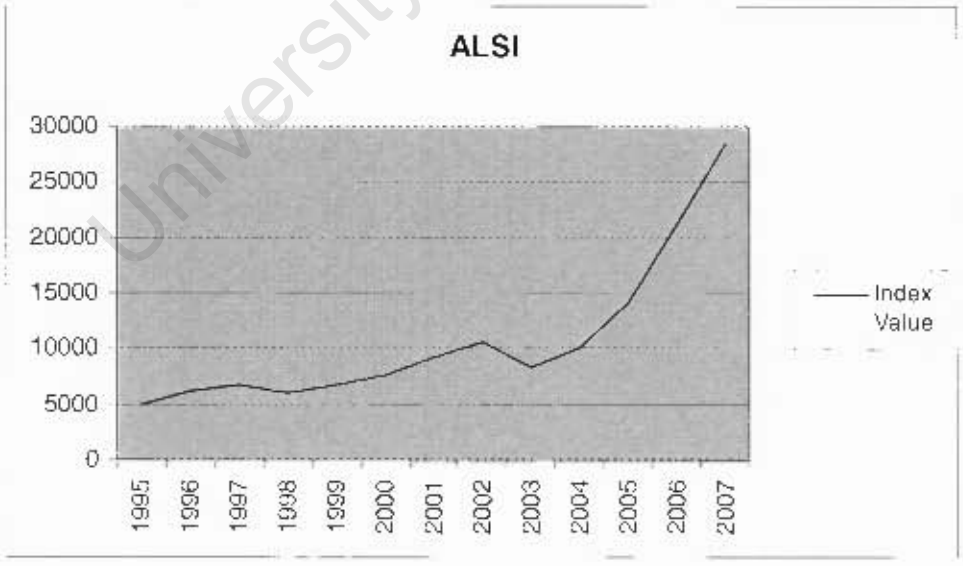
This study uses two different performance evaluation techniques, namely regression analysis and traditional performance measures. In terms of the regression analysis, three sets of regression models have been built over successive time periods.

These measures are used to evaluate the differences in performance in the long run as well as during high and low growth periods. The following sections will include a brief review

of the methodology employed and the results obtained for each technique during the long run performance review. Thereafter a contrast of the results between the high and low growth markets will be explored.

Data for the Islamic Index was obtained directly from FTSE on a monthly basis from 30 June 1996 to 30 April 2008. The All Share Index (ALSI) for the JSE, Resources Index on the JSE (RESI) and the Financial – Industrial Index (FINDI) were obtained from Datastream for the abovementioned period. The total returns for each index were computed on a monthly basis which yielded a total of 155 data points. The returns on the 3 month Government Treasury Bill were used as a proxy for the risk free rate and were converted into a monthly rate. These returns are summarised in Appendix A.

Figure 4: ALSI series value 1995 - 2007



The accompanying figure represents the annual movements in the ALSI over the period under analysis. Based on this, the market was split into two consecutive periods of low

growth (30 June 1996 to 31 March 2003) and high growth (30 April 2003 to 31 December 2007). The average growth in the low growth period was 8% per annum while the rate in the high growth period was 36% per annum. There was no lengthened period that could be defined as a bear market apart from two separate years: the year from 30 June 1997 to 30 June 1998 (-9%) and 1 April 2002 to 31 March 2003 (-21%).

All data was tested for normality using a histogram of residuals and a Shapiro Wilkin Test. A studentized Breusch-Pagan test was carried out to test for heteroskedasticity on all sets of data. There was evidence of heteroskedasticity when using the single and 2 factor model and the regressions were recomputed using a readjusted data set. The data was readjusted using the heteroskedastic estimators for the covariance matrix as outlined in Zeileis (2004). The output for these tests is summarised in Appendix C.

Simple linear and multiple regressions were carried out for the different models specified. Durbin Watson tests were also carried out to test for autocorrelation. There was no evidence of autocorrelation. The results from these tests are included in Appendix C.

4.2 Long run performance measures

4.2.1 Single and 2 factor Jensen models: long run performance

One of the original works was carried out by Jensen (1968) who found that the past performance of mutual funds could not be used to predict future performance. The funds studied were not, on average, able to outperform the market. The study used a single measure of performance known as Jensen's alpha.

The Jensen measure calculates an alpha using the Capital Asset Pricing Model (CAPM) to regress returns against the benchmark. The alpha measure is used to indicate over or underperformance. In this case, a representative benchmark must be selected (Grinblatt and Titman 1994).

The Jensen measure is widely used due to the following factors:

1. It measures risk adjusted return using percentage points instead of a ratio which is much easier to interpret
2. The Jensen measure is easier to estimate from a regression
3. The Jensen measure allows one to remove a non constant risk free rate

As mentioned above, the choice of the benchmark is important in evaluating performance. The incorrect selection of the benchmark will result in an incorrect beta relationship factor being computed and hence the performance evaluation factor such as the Jensen's alpha, will be distorted.

The Jensen measure requires the use of an asset pricing model such as the CAPM. The CAPM is a model that looks at the relationship between the returns on a particular stock or portfolio relative to the market. This relationship is indicated by a beta factor. The CAPM can thus be described as a security market line (SML). Some of the primary assumptions of the CAPM include the stationarity of systematic risk and that the market portfolio is an efficient, completely diversified portfolio containing all assets on the market.

Although there may be many proponents for the use of a single benchmark as a proxy for the market, Van Rensburg and Slaney (1997) found that a 2 factor APT model explained returns on the JSE better. One of the main problems with the use of the CAPM as pointed out by Roll (1981) is to find a proxy for the market. The ALSI in South Africa does not contain all risky assets in the economy nor is it completely diversified. An alternative model that explains the cross section of returns is a multi factor asset pricing model which is based on Arbitrage Pricing Theory (APT).

The main assumptions of the APT are that markets are perfectly competitive, investors prefer more wealth to less wealth and that there is a multi factor stochastic return generating process. An important factor in the use of the APT is that it allows more than a

single factor to be regressed against expected returns and hence there can be more than one beta relationship factor. In most cases macroeconomic factors such as the GDP growth rate, interest rate, exchange rate etc are used. The problems associated with using the APT are that the factors are not specified by theory and that the APT cannot explain micro level irregularities.

Based on the above, two sets of regressions were computed. The first is a single factor regression as follows:

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

Where

R_{it} = monthly returns on the FTSE South Africa Islamic Index at time t

R_{ft} = monthly risk free rate on a 3 month RSA treasury bill at time t

β_i = relationship between the returns on the FTSE South Africa Islamic index and the ALSI

R_{mt} = monthly returns on the ALSI at time t

α_i = Jensen's alpha

ε_i = expected error

The second regression model which, in the South African context, is expected to provide a better fit for the market is as follows:

$$(R_{it} - R_{ft}) = \alpha_i + \beta_{iFINDI} (R_{FINDI} - R_{ft}) + \beta_{iRESI} (R_{RESI} - R_{ft}) + \varepsilon_i$$

Where

R_{FINDI} = monthly returns on the FINDI at time t

R_{RESI} = monthly returns on the RESI at time t

In carrying out the regressions all the models provided a good fit. In looking at the coefficient of determination (R – squared) and the adjusted coefficient of determination, it is found that the 2 factor model provides the best fit for the variation in returns. This finding is consistent with the summary of the sector weightings presented in earlier sections of this study. The analysis showed that 38.91% of the shares by market capitalisation listed on the JSE were from the Mining Sector and a large portion from the Financial and Industrial Sector.

The results from the single and two factor regressions are as follows:

Table 9.1: Regression results – single factor Jensen model : long run performance

Co efficients	Estimate	Standard Error	T value	P value
Alpha	0.0048216	0.0046094	1.0460	0.2972
ALSI	0.6749565	0.0919669	7.3391	1.208e-11

Residual standard error: 0.05777 on 152 degrees of freedom ; Multiple R-squared: 0.329, Adjusted R-squared: 0.3246 ; F-statistic: 74.53 on 1 and 152 DF, p-value: 7.526e-15

The results from the single factor Jensen test show that there is no significant difference in performance between the ALSI and the FTSE South Africa Islamic Index. There is an alpha of 0.0045 but this result is not significant even at a 10% confidence level. There is a positive linear relationship between the ALSI and Islamic Index with a significant beta of 0.67.

Table 9.2: Regression Results – 2 factor APT model: long run performance

Co efficients	Estimate	Standard Error	T value	p value
Alpha	0.0038430	0.0045086	0.8524	0.3953552
FINDI	0.3427054	0.0934652	3.6667	0.0003398
RESI	0.3366618	0.0996754	3.3776	0.0009302

Residual standard error: 0.05678 on 151 degrees of freedom ;Multiple R-squared: 0.356, Adjusted R-squared: 0.3474 ; F-statistic: 41.73 on 2 and 151 DF, p-value: 3.741e-15

Table 2.2

The two factor APT model provides the best fit for the variation in returns in the Islamic Index over the period tested. This is consistent with the claim by Van Rensburg and Slaney (1997) that the two factor model using the RESI and FINDI more accurately represents the market proxy for the JSE.

There is a weak positive linear relationship between the returns on the Islamic index and the FINDI as well as the RESI as evidenced by the low p-values for the Beta coefficients.

4.2.2 Four factor model: long run performance

As indicated by Bauer *et al* (2004), recent literature on the cross sectional variation of returns has resulted in the need for a multifactor asset pricing model (see Fama and French, 1993). The study brought into question the adequacy of a single factor model to explain the variations in returns of any portfolio.

Girard and Hassan (2006) use a four factor model specified by Carhart (1997) to regress the returns of the Dow Jones Islamic Indices against their comparative markets. It is

argued that this model further explains the variations in returns on the market and provides a better model for the explanation of returns on the Islamic indices.

The Carhart model builds on the three factor model specified by Fama and French (1993) to capture size and book-to-market effects in addition to the variations explained by the excess return on the market. The fourth factor captures the momentum anomaly specified by Jeegadesh and Titman (1993).

The model is as follows:

$$(R_{it} - R_{ft}) = \alpha_i + \beta_{im}(R_{mt} - R_{ft}) + \beta_{SMB}(R_{SMBt}) + \beta_{HML}(R_{HMLt}) + \beta_{MOM}(R_{MOMt}) + \varepsilon_i$$

Where

R_{mt} = Return on the market proxied by the ALSI at time t

R_{SMB} = difference in return between a small cap portfolio and large cap portfolio at time t

R_{HML} = difference in return between low and high book to market portfolios i.e. growth stocks versus value stocks at time t

R_{MOM} = difference in return between a portfolio of past 12 month winners and losers at time t

Using the methodology adopted by Girard and Hassan (2006) and Bauer *et* al (2004) the portfolios representing the additional three factors in the above model were constructed. Firstly, all stocks on the JSE Overall Index as obtained from Datastream were ranked based on market capitalisation. The bottom 20% of market capitalisation was assigned to the small portfolio and the remaining 80% to the large portfolio. SMB is the value weighted return difference between the large and small portfolios. HML was constructed by ranking the shares on the same index based on their book to market ratios. The top 30% of market capitalisation was allocated to the high book to market portfolio and the bottom 30% to the small book to market portfolio. HML is the value weighted return difference between the two. The MOM portfolio is ranked based on the prior 12 month return. The value weighted return difference between the top 30% and bottom 30% results in the

MOM portfolio.

The results from the four factor regression are summarised in Table 10.

Table 10: Regression results – 4 factor Carhart model: long run performance

Co efficients	Estimate	Standard Error	T value	p value
Alpha	-0.001202	0.005335	-0.225	0.822
ALSI	0.897679	0.204643	4.387	2.26e-05
Size Portfolio	-5.191456	10.757388	-0.483	0.630
Book to Market Portfolio	8.080775	9.335180	0.866	0.388
Momentum Portfolio	14.550918	8.784975	1.656	0.100

Residual standard error: 0.05972 on 139 degrees of freedom ; Multiple R-squared: 0.3315, Adjusted R-squared: 0.3123 ; F-statistic: 17.23 on 4 and 139 DF, p-value: 1.682e-11

The results show that although the Islamic Index appears to marginally underperform the market, this underperformance is not significant. None of the 3 factors appear to have significant betas at the 5% level and so there is no relationship between the Islamic Index and these factors. Based on this, there is little evidence to infer that shares meeting the Islamic criteria are biased towards high or low growth companies and small or large companies. There is, however, weak evidence to infer that there is a relationship between the Islamic Index and the momentum portfolio. The MOM portfolio is ranked based on the prior 12 month return. The value weighted return difference between the top 30% and bottom 30% results in the MOM portfolio. The results therefore seem to indicate that the

Islamic Index includes a number of shares that outperformed in the past year over the period being tested.

4.2.3 Traditional performance measures: long run performance

The traditional performance measures employed in this study are average returns, the Sharpe Ratio, Treynor Measure, Modigliani Measure and the TT Measure.

The Sharpe Ratio calculates the average excess return over the risk free rate per unit of total risk as measured by standard deviation.

$Sharpe = (R_i - R_f)/\sigma_i$

Where R_i = average return on index i

R_f = average risk free rate for the period

σ_i = standard deviation of index i

A higher Sharpe ratio indicates superior risk adjusted performance.

The Treynor measure is similar but uses only systematic risk while the Sharpe measure looks at total risk. A higher ratio indicates superior systematic risk adjusted performance.

$Treynor = (R_i - R_f)/\beta_i$

where β_i = the systematic risk of index i

An extension of the Sharpe Ratio is the Modigliani Measure which converts the Sharpe Ratio to percentage returns.

The Modigliani measure is defined as : $MM = (SR_p - SR_m)\sigma_m$

Where SR_p = Sharpe Ratio of the Index

SR_m = Sharpe Ratio of the market

σ_m = standard deviation of the market

While the TT measure is defined as: $TT = TR_p - (\bar{r}_m - \bar{r}_f)$

Where TR_p = Treynor ratio of the index

$(\bar{r}_m - \bar{r}_f)$ = average excess market return over the period

The raw returns as well as the Sharpe Ratio, Treynor Measure, TT measure and Modigliani Measure have been calculated for the Islamic Index, the ALSI, the FINDI and the RESI. Table 11 summarises these ratios.

Table 11: Traditional performance measures – long run performance

	Sharpe	Treynor	Modigliani	TT	Average Monthly Returns
Islamic Index	0.113242	0.011356	0.611672	0.004112	0.017151243
ALSI	0.077078	0.004557		0	0.013810856
RESI	0.122603	0.008669	0.770012	0.004112	0.019304123
FINDI	0.033217	0.002214	-0.74186	-0.00234	0.011211459

Table 12: Descriptive statistics – long run performance

	ALSI	RESI	FINDI	Islamic Index
Mean	0.013811	0.019304	0.011211	0.01715124
Standard Error	0.004764	0.006606	0.004749	0.0056198
Median	0.01349	0.015025	0.012913	0.01728094
Standard Deviation	0.059123	0.081974	0.058936	0.06973984
Sample Variance	0.003496	0.00672	0.003474	0.00486364
Kurtosis	3.910008	0.830869	6.689903	1.02223178
Skewness	-0.86608	0.37609	-1.265386	-0.01255803
Range	0.434876	0.517552	0.503957	0.46157391
Minimum	-0.29455	-0.19024	-0.331976	-0.20767947
Maximum	0.140329	0.327311	0.171981	0.25389444

The descriptive statistics for all indices under analysis are summarised in Table 12. The ALSI had an average monthly return of 1.3% with a standard deviation of 5.9%. The Islamic Index yielded an average return of 1.7% with a standard deviation of 6.9%. It is clear that on average the Islamic Index outperformed the traditional proxy for the market but also had a higher level of risk.

It is clear that the strongest performance indicator of the market is the RESI during this period. All traditional measures calculated seem to indicate that the RESI outperforms even on a risk adjusted basis. The FINDI seems to have underperformed the general ALSI definition of the market which explains the negative TT and Modigliani measures.

In looking at the traditional performance measures as per table 11, it is clear that the Islamic Index outperformed the market on average, obtaining monthly returns of 1.7% while the ALSI yielded a monthly return of only 1.38%. The strongest set of returns was obtained by the RESI which, throughout the period, outperformed at monthly returns of

1.9%. This is not unexpected as the rising resources prices and weaker exchange rate throughout the period bolstered the performance of resourced based stocks. The RESI outperformed the Islamic Index using the Sharpe Ratio while the FINDI underperformed.

On a risk adjusted basis, the Sharpe ratio of 0.11 of the Islamic Index is significantly higher than that of 0.07 for the ALSI. This is despite the fact that the average level of risk as measured by the standard deviation is higher for the Islamic Index than for the ALSI. The stronger Sharpe ratio is solely as a result of stronger returns. This trend can also be seen when looking at the Treynor measure. Unlike the Sharpe Ratio which looks at excess returns per unit of total risk, the Treynor measure looks only at the excess return per unit of systematic risk. Once again the Islamic Index has outperformed the market significantly. When looking at other indicators, the RESI outperforms the Islamic Index when using the Treynor measure as an indicator while the FINDI underperforms.

In terms of the Modigliani Measure the RESI has the highest level of performance, followed by the Islamic Index and finally the FINDI which ends up with a negative figure. This can be explained as a result of its poorer performance in comparison to the ALSI.

The TT measure is an adjustment to the Treynor measure which looks at the excess of the Treynor value over and above the market premium for risk. The ranking of performance is consistent with the other measures computed above.

4.3 High growth versus low growth periods

4.3.1 Single and 2 Factor Jensen Models: High Growth versus Low Growth Periods

Table 13.1: Regression Results – Single Factor Model: Low Growth Period

Co efficients	Estimate	Standard Error	T value	P value
Alpha	0.006318	0.005684	1.11153	0.269270
ALSI	0.727073	0.071971	10.10228	0.000000

Regression Summary for Dependent Variable: Var1 (Spreadsheet1) R= .72707259 R^2= .52863455 Adjusted R^2= .52345471
F(1,91)=102.06 p<.00000 Std.Error of estimate: .05473

As can be seen from Table 13.1 when the period of analysis is reduced, the power of the model increases significantly as evidenced by an improved adjusted coefficient of determination of 52.35%. Appendix 4 summarises the regression results for the low growth period. The single factor analysis seems to indicate that the Islamic Index and the ALSI have an overwhelming positive linear relationship with a beta factor of 0.727. Although there is marginal evidence of outperformance with an alpha for 0.006, it is not significant.

Table 13.2: Regression Results – 2 Factor APT Model: Low Growth Period

Co efficients	Estimate	Standard Error	T value	p value
Alpha	0.003016	0.005247	0.574813	0.566852
FINDI	0.631201	0.077715	8.121966	0.000000
RESI	0.234449	0.077715	3.016773	0.003321

Regression Summary for Dependent Variable: Var1 (Spreadsheet1) R= .78193631 R^2= .61142440 Adjusted R^2= .60278938
F(2,90)=70.808 p<0.0000 Std.Error of estimate: .04997

Table13.2 summarises the results of the 2 factor regression model. The fit of the model is better than the single factor one with an adjusted coefficient of determination of 60.28%. The Islamic Index is significantly related to both the FINDI and RESI with respective betas of 0.63 and 0.23. The relationship with the RESI is relatively weak while that with the FINDI is much stronger. Although there is a small value for alpha, the result is not significant and there is no evidence of differences in performance.

Although the same model regressions were carried out for the period 30 April 2003 to 31 December 2007, none of these proved to have a good fit when looking at the p-values of

the F-tests for the model's validity. As such, the model cannot be used to interpret the results generated.

The techniques used to evaluate performance during this period are thus limited to the traditional performance measures.

4.3.2 Four Factor Model: High Growth versus Low Growth Periods

Table 13.3: Regression Results – 4 Factor Carhart Model: Low Growth Period

Co efficients	Estimate	Standard Error	T value	p value
Alpha	0.0155	0.00749	2.06854	0.041740
ALSI	1.031806	0.179993	5.73247	0.000000
Size Portfolio	-0.225864	0.160869	-1.40403	0.164087
Book to Market Portfolio	0.140103	0.111899	1.25205	0.214111
MOM	-0.007511	0.078882	-0.09522	0.924374

Regression Summary for Dependent Variable: Var1 (Spreadsheet1) R= .74236535 R^2= .55110631 Adjusted R^2= .52920906 F(4,82)=25.168 p<.00000 Std.Error of estimate: .05623

The four factor model also provides a good fit with an adjusted coefficient of determination of 52.92%. There is evidence of outperformance by the Islamic Index when using this model as the alpha value is 0.0155. This outperformance is significant at the 5% confidence interval.

Moreover, there is overwhelming evidence to suggest a strong, positive linear relationship between the Islamic Index and the ALSI yielding a beta of 1.03.

Consistent with the findings of the single and two factor Jensen models, the four factor Carhart model did not provide a good fit for the high growth period. The results from these regressions are summarised in Appendix 5.

4.3.3 Traditional Performance Measures: High Growth vs Low Growth Periods

Table 14: Traditional Measures: Low Growth Period

	Sharpe	Treynor	Modigliani	TT	Average Monthly Returns
Islamic Index	0.039652	0.003627	1.441121665	0.007315	0.013964478
ALSI	-0.05573	-0.00369			0.007150987
RESI	0.042032	0.003355	1.477084351	0.007044	0.014578234
FINDI	-0.10709	-0.00781	-0.77604194	-0.00412	0.003672292

The low growth period was classified from 30 June 1996 to 31 March 2003. The most significant event that occurred in this period was the 1998 Asian crisis which spilled over into South Africa resulting in sharp falls of the rand. The September 2001 terrorist attacks also affected world markets significantly. There was a sustained period of lower growth in the ALSI during this period. During some years the ALSI experienced negative growth.

Table 15 summarises the traditional performance measures for the indices for the period. The strongest performing index was once again the RESI. This would be bolstered primarily by the extremely weak rand throughout the period. As resources are exported to other parts of the world to be refined, the weaker rand would have resulted in greater export revenue for resource companies. The Islamic Index significantly outperformed the ALSI benchmark for the market, earning an average monthly return on 1.396% while the ALSI yielded half that at 0.715%. The excess return per unit of total risk as measured by the Sharpe Ratio is also much higher for the Islamic Index (0.039562) in comparison to the ALSI which yielded a negative result of -0.05573. Again, the strongest performing index was the RESI.

Similar performance results are indicated by the Treynor measure whereby the Islamic

index clearly outperforms the market benchmark.

Table 15: Traditional Measures: High Growth period

	Sharpe	Treynor	Modigliani	TT	Average Monthly Returns
Islamic Index	0.284845	0.021074	-2.1322055	0.003946	0.022009752
ALSI	0.380759	0.017128			0.023964428
RESI	0.280612	0.0146	-2.2263157	-0.00253	0.026509167
FINDI	0.377487	0.021141	-0.0727417	0.00654	0.022705598

Table 15.1 Student t – tests for differences in means :High growth period

	ALSI	RESI	FINDI
Islamic Index	0.79	0.83	0.69

There is clear evidence that the average monthly returns of the ALSI (2.40%) outperformed those of the Islamic Index (2.2%). This outperformance is supported by a stronger Sharpe ratio of 0.38 versus 0.28. The reason for the higher Treynor measure is the lower beta factor for the Islamic Index. The difference in monthly returns between the Islamic Index and the ALSI, RESI and FINDI respectively are not statistically significant based on the t-tests.

The Islamic Index outperformed the RESI on all measures except the average returns while it underperformed the FINDI on all measures including average returns. The results of all regressions and traditional measures are summarised in Tables16.1 and 16.2 respectively. Figure 5is a graphical representation of the comparison of yearly performance which appears to be consistent with the results obtained.

Table 16.1: Summary of Regression Results

Regressions	Long Run			Low Growth Period		
	1 Factor	2 Factor	4 Factor	1 Factor	2 Factor	4 Factor
Over/underperformance	Over but not significant	Over but not significant	Under but not significant	Over but not significant	Over but not significant	Over and significant

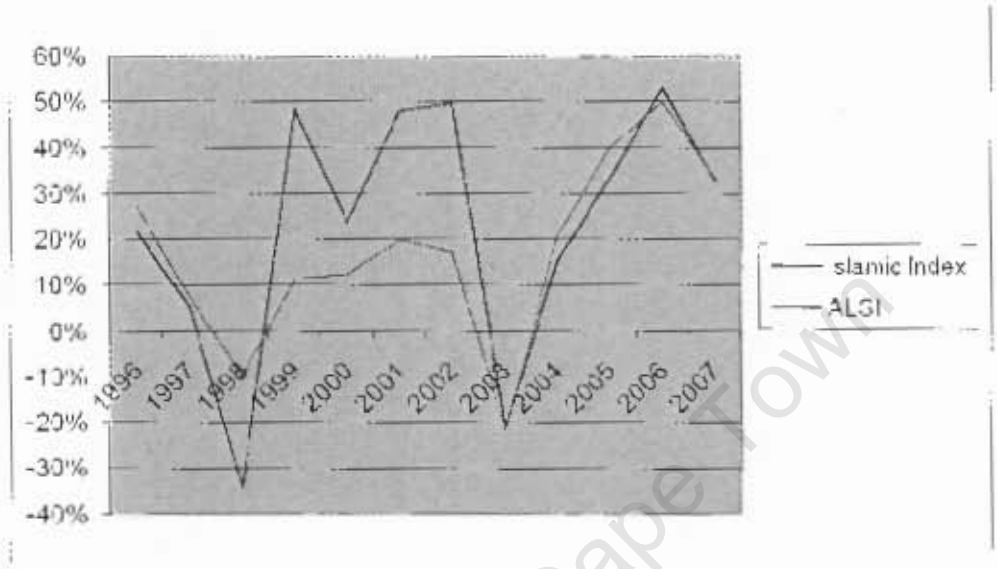
Over = overperformance ; under = underperformance

Table 16.2 Summary of Traditional Performance Measures

	Long Run				
	Sharpe	Treynor	MM	TT	Avg Ret
I I v ALSI	Over	Over			over
I I v RESI	Under	Over	Under	equal	under
I I v FINDI	Over	Over	Over	over	over
	Low Growth Period				
	Sharpe	Treynor	MM	TT	Avg Ret
I I v ALSI	Over	Over			over
I I v RESI	Under	Over	Under	over	under
I I v FINDI	Over	Over	Over	over	over
	High growth Period				
	Sharpe	Treynor	MM	TT	Avg Ret
I I v ALSI	Under	Over			under
I I v RESI	Over	Over	Over	over	Under
I I v FINDI	Under	Under	Under	over	Under

I I = Islamic Index; Over = overperformance ; under = underperformance

Figure 5: Comparison of annual returns of Islamic Index and ALSI (1996 – 2007)



5. Results of Previous Studies

The results obtained in other Islamic investment performance evaluation studies are important in order to draw economic conclusions from the results yielded in this study. As expanded on in section 3.2 on Islamic Finance Research, these results can be classified into performance evaluation of indices and performance evaluation of unit trusts. The results are summarised as follows with all studies evaluating the performance of Islamic indices or unit trusts against selected representative benchmarks:

Table 17: Summary of International research results

Study	Market	Result
	Indices	
Hassan and Girard (2005)	USA – DJIMI	1996 – 2000 DJIMI outperforms (bear market) 2001 – 2005 DJIMI underperforms (bull market)
Atta (2000)	USA – DJIMI	1996 – 2000 DJIMI outperforms (bear market)
Hussein (2005)	USA – DJIMI	DJIMI outperforms in bull markets and underperforms in bear markets
	Unit Trusts	
Abdullah *et al*(2007)	Malaysia	Islamic unit trusts outperform in bear markets and underperform in bull markets
Elfakhani *et al* (2005)	????	No significant difference in performance
Dhai *et al* (2006)	South Africa	No significant difference in performance
Chohan *et al* (2007)	South Africa	No significant difference in performance

The studies on unit trusts by Elfakhani, Dhai and Chohan were conducted over much shorter periods of time. Apart from this, there is evidence to infer that, consistent with the results obtained in this study, Islamic indices and unit trusts outperform representative market benchmarks during a low growth market and underperform during a high growth or bull market although the differences are not statistically significant. Hussein (2005) is the only study that finds results contrary to this.

The argument presented by Hussein is based on the level of debt financing. Hussein argues that there is a negative relationship between leverage and profitability and since firms in the DJIMI would have lower debt, their overall performance would be higher. This theory appears to be in contradiction to conventional finance theory that suggests a positive relationship between leverage and profitability up to the point where default risk becomes too high.

The explanation provided by Hussein for poorer performance during a bear market is based on one of two possibilities: the fact that shares labelled as "sin stocks" such as alcohol and tobacco companies tend to perform better during bear markets and such stocks would not be included in the DJIMI. This is a reasonable explanation as these companies can be categorised as having durable, non cyclical goods that are better able to weather poorer market conditions. On the other hand it is argued that the lower returns could be attributed to the September 11 attacks which occurred during the bull market period. It is argued that Islamic investors may have reduced demand for the DJIMI stocks as a result of a hostile environment. While this theory may be plausible it is difficult to believe that Muslim investors have sufficient purchasing power to produce this effect.

5.1 Accounting Performance Evaluation

In addition to statistical performance evaluation techniques such as the regressions and ratios computed above, it is possible to analyse the Islamic Index using qualitative criteria such as accounting ratios. While these ratios may not provide statistically significant results, it is helpful in providing insight for the reader. It is also vital in identifying the drivers for differences in performance. The accounting analysis is however limited to a specific point in time due to a limitation in obtaining the necessary data.

As mentioned previously, the income statement and balance sheet line items for all companies on the JSE were obtained from the McGregor BFA database for the most recent financial period. Using these amounts the accounting ratios as per table 18 were computed. Only those companies

for which all such line item information was available were used in calculating the ratios for the ALSI. A list of constituents of the Islamic Index was obtained from FTSE London for the 20th of May 2008 and the ratios for these companies were also computed. As there are significantly fewer companies in this list in comparison to the ALSI, any missing information from the McGregor database was obtained directly from the published annual financial statements. Therefore some ratios for the ALSI were not computed due to a lack of information. All ratios were calculated using data that represents 89% of the market capitalisation of the JSE while the working capital ratios were calculated using data that represents 63% of the market capitalisation. The ratios are weighted by market capitalisation.

Table 18: Accounting Ratios as at 20 May 2008

	FTSE			DJIMI[i]	
	Islamic Index	ALSI		Islamic Index	ALSI
Debt – Equity	0.26	0.57	**Debt to Mkt Cap**	0.09	0.24
Debt Ratio	0.11	0.13	**Cash to Mkt Cap**	0.05	0.15
Cash to Total Assets	0.10	0.10	**Acc Rec to Mkt Cap**	0.07	0.34
Acc Rec & Cash to Total Assets	0.21	0.28			
Interest Inc to Turnover	0.02	0.03			
	Inc St/ Bal Sheet			**Working Capital**	
	Islamic Index	ALSI		Islamic Index	ALSI
ROE	0.28	0.26	**CA:CL**	1.67	3.54
ROA	0.16	0.09	**Acc Rec Days**	62.72	64.49
TA:TL	4.41		**Acc Pay Days**	62.15	94.36
GP Margin	0.32		**Stock Days**	57.15	83.62
NP Margin	0.19	0.20	**WC Cycle**	56.68	53.75
			Cash Ratio	0.91	0.40

CA:CL = Current Assets to Current Liabilities; TA:TL = Total Assets to Total Liabilities; Cash Ratio = Cash Generated from Ops before dividends to Net profit

The ratio analysis was split into ratios extracted from the FTSE Islamic Indices criteria, the ratios as per the Dow Jones Islamic Market Index criteria and select balance sheet, income statement and working capital accounting ratios.

The debt equity ratio of the JSE is almost twice that of the Islamic Index. However, when changing this leverage perspective to the debt ratio or debt to market capitalisation ratio, there is not a major difference between the ALSI and Islamic Index. The average debt ratio of the market as a whole is well under the FTSE Islamic Indices maximum criteria of 33%. While on average the leverage differences are small, there are some key players in the ALSI that are not included in the Islamic Index that may affect performance e.g. Telkom Ltd (40%).

The income restrictions do not play a significant role on the JSE. There are some key shareholdings such as SABMiller plc, Richemont Ltd and Sun International Ltd that are excluded as a result of business activities. However, the majority of these impermissible companies do not have a major impact on the JSE as a result of their small market capitalisations.

From a performance perspective the Islamic Index has provided a better return on equity and return on assets. This is despite the fact that the average net profit margin for both indices is almost the same. The Islamic Index also appears to have a healthier level of cash generation with an average cash ratio of 0.91 while the ALSI is 0.41. There are minor differences in working capital with the average working capital cycle of both indices relatively similar.

The possible drivers of differences in performance identified in Chapter 2 of this paper are as follows:

- differences due to prohibitions on business activities e.g. sale of alcohol
- differences due to interest income prohibitions
- differences due to limitations on leverage

The evaluation of accounting information at a point in time seems to indicate that the interest income prohibitions will not have a major impact in differentiating performance. This is coupled with the fact that the financial services sector is not so prominent on the market as a whole. The prohibitions on business activities will have an impact on differences in performance given a few large capitalisation players e.g. SABMiller plc but this will not be the dominant cause of such differences. It was also found in prior sections of this paper that movements in the same companies included in both indices would have a greater impact on the Islamic Index given its much smaller market capitalisation. The driving force behind the differences found in this study is the variations in leverage between companies meeting the Islamic investment criteria and the rest of the market..

This finding is consistent with international research on the relationship between macroeconomic factors and performance. Chen *et al* (1986) examined which economic variables could explain the variation in returns on the NYSE. The factors identified were the spread between long and short term interest rates, expected and unexpected inflation, industrial production and the spread between high and low grade bonds. Christie (1982) found that equity variances were strongly related to interest rates and the level of financial leverage. The comparison of an Islamic Index and its representative market benchmark yields an overlap in all of the above factors except the impact of interest rates and bonds i.e. debt. Alternately it can be said that the only macroeconomic factors that affect returns that are different for Islamic and conventional indices are interest rates and leverage.

6. Economic Explanation for results obtained

This section aims to provide some economic insights that may explain the results obtained in the study. The insights are not conclusive and have been presented for the purposes of discussion. With differences in leverage being the main identified driver behind differences in performance, it is essential to evaluate the relationship between the capital structure of firms in the Islamic Index and the ALSI and their performance. Grinblatt and Titman (1997) outline the relationship between a firm's capital structure and the impact on performance in "Financial Markets and Corporate Strategy".

This relationship can be summarised in three different ways. Firstly, the capital structure of a firm will affect the corporate strategy employed by managers. The type of industry the firm is in and the nature of products or services it sells can have an impact on the level of debt it is willing to take on and the impact of such a decision on its financial performance. Secondly, there is the issue of information and signalling effects that are sent out by the firm's decision to increase or decrease its leverage. Lastly, leverage carries with it the risk of bankruptcy and shareholders tend to factor such debt-equity conflicts into their pricing decisions.

It is also important to understand the relationship between the financial information provided to shareholders and the effect it has on the share price. The information conveyed to shareholders about the firm creates a perception in their minds about the firm's future earnings potential. The current price of a share is based on the present value of this earnings potential. Therefore the performance of the shares is essentially a reflection of changes in the perceptions of shareholders. In this scenario, varying levels of debt may have varying levels of impact on the perceptions shareholders have of the companies, thereby resulting in differences in performance.

By way of explanation, there may be a situation in which Company A and B both increase their debt by the same amount with all else remaining constant. If Company A is already highly leveraged, the increased debt will send out a perception of risk to shareholders. Their future

outlook for the firm may become diluted thereby reducing the share price. On the other hand, if Company B has extremely low levels of debt, shareholders may perceive this to be positive in terms of future earnings potential thereby increasing the share price.

The results from this study are characterised by the following salient variables:

- a comparison long run performance from 1996 to 2007
- a comparison of performance in a high growth period
- a comparison of performance in a low growth period
- differences in data sets due to Islamic screening criteria

The question that therefore needs to be explored at this point is what impact differing levels of debt has on share price performance in high and low growth periods and in companies meeting the Islamic investment criteria in comparison to the rest of the market.

6.1 Capital Structure and Corporate Strategy

Before delving into the relationship between performance and leverage, it is essential to identify the types of firms that would tend to be incorporated into the Islamic Index. Consistent with the expectations of Islamic finance theory and supported by evidence from this study, firms in the Islamic index have lower levels of leverage. Grinblatt and Titman (1997) state that producers of non durable goods e.g. tobacco tend to have higher debt ratios. This is due to the fact that they have low costs associated with distress and because stakeholders are not particularly concerned with their long run viability. They will continue to sell their products and services during positive and negative market conditions. Borrowers will therefore be willing to lend them money at attractive rates. They are also able to generate high taxable earnings and have minimal non debt related tax shields and can fully utilise their interest tax deductions.

The brief analysis of the sector makeup of both indices as at 20 May 2008 indicates that the Islamic Index was extremely underweight in Consumer Services (10%) in comparison to the ALSI (27%). The Consumer Services sector is one of the key non durable goods and services sectors on

the JSE. Given their propensity to take on higher debt, non durable goods and services companies are less likely to be included in the Islamic Index. Despite the fact that it is expected that such companies would be able to weather poorer markets, it is found that the Islamic Index outperforms during the low growth market period.

6.2 Information and Signalling Effects

The evidence from this study is aligned with the theory that in a growing market, higher levels of debt can be associated with stronger levels of performance. Grinblatt and Titman (1997) conclude that firms that increase their debt ratios in such periods are considered to be sending out a favourable signal. It indicates that managers believe the firm will be generating taxable earnings in the future and they are not overly concerned about incurring financial distress costs.

Grinblatt and Titman (1997) also state that shareholders prefer higher leverage ratios during growth periods and so firms that are more strongly influenced by shareholders will respond positively to such increases in debt during a growing market. Another reason for superior performance based on higher debt is that the large debt obligation limits management's ability to use corporate resources in ways that does not benefit investors.

These theories provide a comprehensive explanation for the results obtained in this study: the Islamic Index outperforms the market in South Africa in the long run, underperforms during high growth periods and outperforms during low growth periods. In the international studies mentioned above, Islamic indices outperformed during bear markets as well.

The state of the market i.e. high or low growth, bull versus bear is an indication of the growth opportunities available at the time. In order to capitalise on such opportunities firms require cash. Cash can be obtained either through equity or the issue of debt. Generally debt is seen as a cheaper alternative due to the application of an interest tax shield. Firms will therefore be encouraged to use debt to fund such growth opportunities. On the other hand debt has risks associated with it. The main risks are the inability to meet interest payments and the risk of default

on capital.

The analysis of the companies, as well as, the economic theory stated above suggests that companies on the ALSI will have higher levels of debt than those on the Islamic Index. This is primarily due to the fact that companies in the Islamic Index are restricted in terms of their indebtedness. These "conventional" companies (i.e. companies on the ALSI) will therefore be in a better position to capitalise on growth opportunities during a high growth period. At the same time they may have a greater risk of default in a low growth or bear market period.

While the share price is a function of supply and demand on the stock exchange, the driving factor behind this fundamental economic theory is investors' perception of the company and its future earnings. Companies that have the ability to fund growth opportunities in a high growth period will be perceived to be better and hence experience superior performance. This can also be explained by the fact that shareholders feel that managements' projection for future earnings are high while those for financial distress are low. Companies meeting the Islamic investing criteria have on average lower levels of debt and are thus perceived as less equipped to fund growth.

Conversely, investors will perceive the higher levels of debt during low growth periods as a greater risk of default and hence these companies will experience inferior performance. Companies meeting the Islamic investing criteria have on average lower levels of exposure to debt and are perceived as safer investments. A similar explanation will hold for a bear market.

6.3 Bankruptcy Costs and Debt Equity Conflicts

It is observed that there are two sets of costs associated with leverage. Companies will firstly incur the legal and administrative costs of bankruptcy which are seen to be minimal. The second cost which is more difficult to quantify is the cost of a conflict of interest. Grinblatt and Titman (1997) explain these conflicts of interest as arising when highly leveraged firms sometimes pass up positive NPV projects in favour of those that pay off more quickly. This would aid these firms in

paying off debt and in reducing their debt risk exposure. They also state that highly leveraged firms have an increased appetite for taking on risk. In the long run this will result in poorer performance as financial results will have a negative impact on shareholder perceptions. As firms in the Islamic Index have lower levels of debt, their performance is greater in the long run.

The lack of a significant difference in performance can be attributed to the fact that firms on the JSE were not on average highly leveraged over the period of this study. Had the levels of indebtedness mirrored international norms, it is envisaged that there would have been greater differences in performance in the long run.

In the short run, the fact that highly leveraged firms are willing to take on additional risk will result in a greater ability to capitalise on opportunities during a high growth or bull market. This in turn will result in better performance. The converse will be true for a low growth period.

It must be noted that firms that are included in the Islamic Index are there purely because they meet the qualitative and quantitative criteria set out by the FTSE regulatory body. Management does not intend to run the business in accordance with Islamic principles. Therefore it is difficult to infer whether management has actively chosen to limit the levels of debt or whether it happens to be the case at a point in time.

What we can draw from the analysis is a renewed insight into the relationship between leverage and performance in the South African market. Although the analysis was only done at a specific point in time, one would expect the economic and asset class allocation of both indices to mirror that included in this study.

The study finds certain differences in performance between the Islamic Index and the market during differing periods of growth. The main driving factor behind the difference in performance is the different levels of leverage between both sets of firms. Based on the evidence provided, it can be inferred that firms with lower levels of debt outperform during low growth periods and underperform during high growth periods in the South African market.

7. Conclusion

This study documents differences in performance between the FTSE South Africa Islamic Index and a representative for the market on the JSE Securities Exchange in South Africa. Traditional performance measures such as the Sharpe Ratio, Treynor Measure, Modigliani Measure and TT Measure, as well as, one, two and four factor regressions were used to identify differences in monthly performance over a period of 155 months from June 1996 to December 2007. The period of analysis was further split into respective low and high growth periods. The long run, low growth period and high growth period performance evaluation was computed.

The results obtained are consistent with those found by Hassan and Girard (2005), Atta (2000) and Abdullah *et al* (2007). The Islamic Index outperformed the market in the long run although the difference was not statistically significant while it underperformed during the high growth period and underperformed during the low growth period. The average monthly return over the period of analysis for the Islamic Index was 1.7% while the ALSI was 1.4%. It was also found that the Islamic Index exhibited a greater level of risk (standard deviation = 6.9% per month) than the ALSI (5.9% per month)

At the outset it was anticipated that the key factors that would affect performance would be the restriction on business activities, prohibition on interest income and limitations on the level of debt (Refer to Section 2.7 Overview of the JSE and FTSE South Africa Islamic Index). The study found that the most compelling reason for differences in performance was the differing levels of debt. To date, this is the first study that seeks to propose a comprehensive economic explanation for the differences in performance.

Therefore, from the tests carried out, there is evidence to infer that firms with lower levels of debt marginally outperform the market in South Africa in the long run and during low growth periods, and underperform the market during high growth periods.

From a debt perspective the Islamic Index had lower levels of debt due to the restriction on the investment criteria. Economic theory suggests that firms with higher levels of debt have an increased appetite for risk and are more likely to pass up high or positive NPV projects in favour of those that pay off quicker. This results in superior performance for companies with lower levels of debt. The poor statistical significance is attributed to the uniqueness of the JSE where companies do not, on average, mirror debt levels of other markets.

The underperformance of the Islamic Index during the high growth market could be attributed to the theory that firms with more debt are perceived to be better equipped to fund growth opportunities in such a market. Shareholders reward such firms for their potential to capitalise on these opportunities.

Conversely, the outperformance during a low growth period can be attributed to firms in the Islamic Index being perceived as safer investments. Firms with lower levels of debt in poorer markets are perceived to have less risk of default. Shareholders reward such firms for their relative safety.The author recommends that further areas of research should engage in a time series analysis of the accounting ratios of the Islamic Index versus the market. Further analysis as to the long term differences in sector and industry weightings of the Islamic Index in comparison to the market will be useful in pointing towards more refined explanations for differences in performance. It was also not possible to identify a lengthened bear market on the JSE during the period of this study. The current economic crisis will give rise to substantial bear market data and the comparison between the Islamic Index and the market in South Africa should be extended to cover this as well. The study did not include a comparison after May 2008 as the form of the Islamic Index used in this study was discontinued and a revised format was implemented. The revised format did not include historic data

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Appendix 1: Monthly Returns: Islamic Index, ALSI, RESI, FINDI, Risk Free Rate

FTSE		
Data Point	Date	Returns
2	1995/07/31	-0.00464
3	1995/08/31	0.015457
4	1995/09/30	0.007647
5	1995/10/31	0.002963
6	1995/11/30	0.01744
7	1995/12/31	0.027695
8	1996/01/31	0.134468
9	1996/02/29	-0.03183
10	1996/03/31	0.029305
11	1996/04/30	0.061757
12	1996/05/31	-0.02188
13	1996/06/30	-0.03135
14	1996/07/31	-0.0586
15	1996/08/31	0.043067
16	1996/09/30	0.0158
17	1996/10/31	0.024667
18	1996/11/30	-0.03149
19	1996/12/31	-0.02345
20	1997/01/31	-0.00965
21	1997/02/28	0.087485
22	1997/03/31	-0.01519
23	1997/04/30	0.014186
24	1997/05/31	-0.0331
25	1997/06/30	0.045148
26	1997/07/31	-0.01921
27	1997/08/31	-0.03669
28	1997/09/30	-0.03351
29	1997/10/31	-0.12177
30	1997/11/30	-0.07666
31	1997/12/31	-0.03762
32	1998/01/31	0.053334
33	1998/02/28	-0.03588
34	1998/03/31	0.054511
35	1998/04/30	0.19997
36	1998/05/31	-0.15701
37	1998/06/30	-0.15159
38	1998/07/31	0.054949
39	1998/08/31	-0.20768
40	1998/09/30	0.086389
41	1998/10/31	0.058476
42	1998/11/30	-0.13495
43	1998/12/31	0.059098
44	1999/01/31	0.0627

Risk Free Rate		
Data Point	Date	Returns
2	1995/07/31	0.011583
3	1995/08/31	0.011567
4	1995/09/30	0.011633
5	1995/10/31	0.0114
6	1995/11/30	0.011375
7	1995/12/31	0.01185
8	1996/01/31	0.011608
9	1996/02/29	0.011642
10	1996/03/31	0.011817
11	1996/04/30	0.012575
12	1996/05/31	0.013383
13	1996/06/30	0.012583
14	1996/07/31	0.012592
15	1996/08/31	0.013158
16	1996/09/30	0.01255
17	1996/10/31	0.012458
18	1996/11/30	0.013092
19	1996/12/31	0.013417
20	1997/01/31	0.0132
21	1997/02/28	0.013167
22	1997/03/31	0.013158
23	1997/04/30	0.013075
24	1997/05/31	0.013033
25	1997/06/30	0.0127
26	1997/07/31	0.012483
27	1997/08/31	0.012283
28	1997/09/30	0.012242
29	1997/10/31	0.012075
30	1997/11/30	0.012158
31	1997/12/31	0.012325
32	1998/01/31	0.011875
33	1998/02/28	0.011408
34	1998/03/31	0.010767
35	1998/04/30	0.0107
36	1998/05/31	0.012
37	1998/06/30	0.0145
38	1998/07/31	0.0161
39	1998/08/31	0.018133
40	1998/09/30	0.016742
41	1998/10/31	0.015417
42	1998/11/30	0.014525
43	1998/12/31	0.014192
44	1999/01/31	0.013367

45	1999/02/28	0.102098
46	1999/03/31	0.101691
47	1999/04/30	0.253894
48	1999/05/31	-0.06923
49	1999/06/30	0.120924
50	1999/07/31	0.030806
51	1999/08/31	0.040747
52	1999/09/30	0.073996
53	1999/10/31	0.017122
54	1999/11/30	0.024618
55	1999/12/31	0.101534
56	2000/01/31	-0.02651
57	2000/02/29	-0.04021
58	2000/03/31	-0.01529
59	2000/04/30	-0.08967
60	2000/05/31	0.05861
61	2000/06/30	0.054658
62	2000/07/31	0.01207
63	2000/08/31	0.156602
64	2000/09/30	-0.00495
65	2000/10/31	-0.02216
66	2000/11/30	-0.00025
67	2000/12/31	0.056282
68	2001/01/31	0.107602
69	2001/02/28	0.064143
70	2001/03/31	-0.10298
71	2001/04/30	0.146258
72	2001/05/31	0.069762
73	2001/06/30	-0.05025
74	2001/07/31	0.00262
75	2001/08/31	0.003226
76	2001/09/30	-0.1135
77	2001/10/31	0.100472
78	2001/11/30	-0.07759
79	2001/12/31	0.07125
80	2002/01/31	0.115243
81	2002/02/28	0.137072
82	2002/03/31	0.012415
83	2002/04/30	0.092725
84	2002/05/31	0.068451
85	2002/06/30	0.030175
86	2002/07/31	-0.05793
87	2002/08/31	-0.11731
88	2002/09/30	0.101127
89	2002/10/31	0.021515
90	2002/11/30	-0.04226
91	2002/12/31	-0.01534
92	2003/01/31	0.022701
93	2003/02/28	-0.04415

45	1999/02/28	0.012567
46	1999/03/31	0.012025
47	1999/04/30	0.011125
48	1999/05/31	0.011417
49	1999/06/30	0.01075
50	1999/07/31	0.009683
51	1999/08/31	0.009708
52	1999/09/30	0.009108
53	1999/10/31	0.008942
54	1999/11/30	0.008917
55	1999/12/31	0.008925
56	2000/01/31	0.00815
57	2000/02/29	0.008142
58	2000/03/31	0.008192
59	2000/04/30	0.008425
60	2000/05/31	0.008725
61	2000/06/30	0.008542
62	2000/07/31	0.008508
63	2000/08/31	0.008442
64	2000/09/30	0.008483
65	2000/10/31	0.008542
66	2000/11/30	0.008508
67	2000/12/31	0.008542
68	2001/01/31	0.008433
69	2001/02/28	0.008442
70	2001/03/31	0.0086
71	2001/04/30	0.008667
72	2001/05/31	0.008633
73	2001/06/30	0.008042
74	2001/07/31	0.007817
75	2001/08/31	0.007808
76	2001/09/30	0.007408
77	2001/10/31	0.007375
78	2001/11/30	0.00745
79	2001/12/31	0.007892
80	2002/01/31	0.007925
81	2002/02/28	0.008325
82	2002/03/31	0.0087
83	2002/04/30	0.009133
84	2002/05/31	0.009492
85	2002/06/30	0.009517
86	2002/07/31	0.009458
87	2002/08/31	0.009775
88	2002/09/30	0.010342
89	2002/10/31	0.010408
90	2002/11/30	0.010233
91	2002/12/31	0.01035
92	2003/01/31	0.010317
93	2003/02/28	0.010608

94	2003/03/31	-0.06686
95	2003/04/30	-0.10943
96	2003/05/31	-0.06686
97	2003/06/30	0.180391
98	2003/07/31	-0.01757
99	2003/08/31	0.025239
100	2003/09/30	0.069043
101	2003/10/31	-0.0182
102	2003/11/30	0.065445
103	2003/12/31	0.005637
104	2004/01/31	0.070914
105	2004/02/29	0.016199
106	2004/03/31	-0.02738
107	2004/04/30	0.001735
108	2004/05/31	-0.04248
109	2004/06/30	0.00357
110	2004/07/31	-0.04185
111	2004/08/31	0.022175
112	2004/09/30	0.104453
113	2004/10/31	0.042026
114	2004/11/30	0.021606
115	2004/12/31	0.062893
116	2005/01/31	0.011451
117	2005/02/28	-0.00167
118	2005/03/31	0.0463
119	2005/04/30	-0.02034
120	2005/05/31	-0.03997
121	2005/06/30	0.09759
122	2005/07/31	0.037004
123	2005/08/31	0.064344
124	2005/09/30	0.026606
125	2005/10/31	0.12483
126	2005/11/30	-0.04859
127	2005/12/31	0.049854
128	2006/01/31	0.086615
129	2006/02/28	0.109517
130	2006/03/31	-0.04817
131	2006/04/30	0.075369
132	2006/05/31	0.026483
133	2006/06/30	-0.05161
134	2006/07/31	0.045824
135	2006/08/31	-0.03745
136	2006/09/30	0.044344
137	2006/10/31	0.050682
138	2006/11/30	0.052075
139	2006/12/31	0.054406
140	2007/01/31	0.026695
141	2007/02/28	0.003518
142	2007/03/31	0.053476

94	2003/03/31	0.010625
95	2003/04/30	0.010625
96	2003/05/31	0.010025
97	2003/06/30	0.0089
98	2003/07/31	0.00895
99	2003/08/31	0.0083
100	2003/09/30	0.007342
101	2003/10/31	0.006508
102	2003/11/30	0.00595
103	2003/12/31	0.006283
104	2004/01/31	0.0063
105	2004/02/29	0.006317
106	2004/03/31	0.0065
107	2004/04/30	0.006408
108	2004/05/31	0.006458
109	2004/06/30	0.006558
110	2004/07/31	0.006558
111	2004/08/31	0.005958
112	2004/09/30	0.005917
113	2004/10/31	0.006067
114	2004/11/30	0.006
115	2004/12/31	0.0061
116	2005/01/31	0.006033
117	2005/02/28	0.006
118	2005/03/31	0.005975
119	2005/04/30	0.005608
120	2005/05/31	0.005633
121	2005/06/30	0.005633
122	2005/07/31	0.005608
123	2005/08/31	0.005592
124	2005/09/30	0.005658
125	2005/10/31	0.0057
126	2005/11/30	0.005742
127	2005/12/31	0.00565
128	2006/01/31	0.005575
129	2006/02/28	0.005492
130	2006/03/31	0.0055
131	2006/04/30	0.005617
132	2006/05/31	0.005692
133	2006/06/30	0.005992
134	2006/07/31	0.006358
135	2006/08/31	0.006425
136	2006/09/30	0.006667
137	2006/10/31	0.006892
138	2006/11/30	0.006883
139	2006/12/31	0.007075
140	2007/01/31	0.007392
141	2007/02/28	0.007008
142	2007/03/31	0.006883

143	2007/04/30	0.039276
144	2007/05/31	-0.01726
145	2007/06/30	-0.02321
146	2007/07/31	-0.00735
147	2007/08/31	0.000952
148	2007/09/30	0.03542
149	2007/10/31	0.066792
150	2007/11/30	-0.01764
151	2007/12/31	-0.03167
152	2008/01/31	-0.0341
153	2008/02/29	0.109041
154	2008/03/31	-0.02383
155	2008/04/30	0.039414

143	2007/04/30	0.006933
144	2007/05/31	0.007233
145	2007/06/30	0.007583
146	2007/07/31	0.007383
147	2007/08/31	0.007717
148	2007/09/30	0.007858
149	2007/10/31	0.0083
150	2007/11/30	0.008692
151	2007/12/31	0.008767
152	2008/01/31	0.008642
153	2008/02/29	0.008533
154	2008/03/31	0.008367
155	2008/04/30	0.008717

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Data Point	Date	Returns
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4	1995/09/30	0.024031
5	1995/10/31	0.020719
6	1995/11/30	0.026534
7	1995/12/31	0.041211
8	1996/01/31	0.105201
9	1996/02/29	-0.02825
10	1996/03/31	0.009745
11	1996/04/30	0.043976
12	1996/05/31	-0.01973
13	1996/06/30	-0.00019
14	1996/07/31	-0.03803
15	1996/08/31	0.018031
16	1996/09/30	0.025574
17	1996/10/31	0.009951
18	1996/11/30	-0.0354
19	1996/12/31	-0.01357
20	1997/01/31	0.004632
21	1997/02/28	0.068175
22	1997/03/31	-0.01014
23	1997/04/30	0.011323
24	1997/05/31	-0.02257
25	1997/06/30	0.061054
26	1997/07/31	0.010483
27	1997/08/31	-0.03122
28	1997/09/30	-0.02469
29	1997/10/31	-0.0858
30	1997/11/30	-0.04545
31	1997/12/31	-0.01798
32	1998/01/31	0.067679
33	1998/02/28	0.076708

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Data Point	Date	Returns
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7	1995/12/31	0.024184
8	1996/01/31	0.156736
9	1996/02/29	-0.00795
10	1996/03/31	0.045804
11	1996/04/30	0.104529
12	1996/05/31	-0.01528
13	1996/06/30	-0.04179
14	1996/07/31	-0.0364
15	1996/08/31	0.04437
16	1996/09/30	-0.00322
17	1996/10/31	0.02557
18	1996/11/30	-0.04729
19	1996/12/31	-0.01838
20	1997/01/31	-0.0238
21	1997/02/28	0.084251
22	1997/03/31	-0.03679
23	1997/04/30	-0.00486
24	1997/05/31	-0.02226
25	1997/06/30	0.019574
26	1997/07/31	-0.04555
27	1997/08/31	-0.01143
28	1997/09/30	-0.01388
29	1997/10/31	-0.12794
30	1997/11/30	-0.10529
31	1997/12/31	-0.01908
32	1998/01/31	0.035994
33	1998/02/28	-0.04356

34	1998/03/31	0.07418
35	1998/04/30	0.095336
36	1998/05/31	-0.08081
37	1998/06/30	-0.11179
38	1998/07/31	0.052138
39	1998/08/31	-0.29455
40	1998/09/30	0.04972
41	1998/10/31	0.137834
42	1998/11/30	-0.02814
43	1998/12/31	-0.03547
44	1999/01/31	0.080778
45	1999/02/28	0.02262
46	1999/03/31	0.077556
47	1999/04/30	0.118025
48	1999/05/31	-0.07962
49	1999/06/30	0.093449
50	1999/07/31	0.01551
51	1999/08/31	-0.0223
52	1999/09/30	-0.00662
53	1999/10/31	0.048255
54	1999/11/30	0.065774
55	1999/12/31	0.128449
56	2000/01/31	-0.0129
57	2000/02/29	-0.06256
58	2000/03/31	0.00416
59	2000/04/30	-0.0663
60	2000/05/31	-0.0103
61	2000/06/30	0.054974
62	2000/07/31	0.006775
63	2000/08/31	0.097084
64	2000/09/30	-0.0257
65	2000/10/31	-0.01477
66	2000/11/30	-0.04227
67	2000/12/31	0.06208
68	2001/01/31	0.095303
69	2001/02/28	-0.00292
70	2001/03/31	-0.0912
71	2001/04/30	0.098626
72	2001/05/31	0.041395
73	2001/06/30	-0.01952
74	2001/07/31	-0.06973
75	2001/08/31	0.050935
76	2001/09/30	-0.10001
77	2001/10/31	0.059463
78	2001/11/30	0.109818
79	2001/12/31	0.111911
80	2002/01/31	-0.01176
81	2002/02/28	0.052409
82	2002/03/31	0.01287

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35	1998/04/30	0.208323
36	1998/05/31	-0.16682
37	1998/06/30	-0.10497
38	1998/07/31	0.073955
39	1998/08/31	-0.19024
40	1998/09/30	0.110431
41	1998/10/31	0.06406
42	1998/11/30	-0.00536
43	1998/12/31	-0.08443
44	1999/01/31	0.051756
45	1999/02/28	0.105591
46	1999/03/31	0.105175
47	1999/04/30	0.327311
48	1999/05/31	-0.09917
49	1999/06/30	0.08156
50	1999/07/31	0.107154
51	1999/08/31	0.024035
52	1999/09/30	0.049241
53	1999/10/31	0.003273
54	1999/11/30	0.053285
55	1999/12/31	0.100369
56	2000/01/31	-0.05714
57	2000/02/29	-0.13675
58	2000/03/31	0.036187
59	2000/04/30	-0.07959
60	2000/05/31	0.0467
61	2000/06/30	0.074264
62	2000/07/31	0.006055
63	2000/08/31	0.160378
64	2000/09/30	-0.01618
65	2000/10/31	0.050713
66	2000/11/30	-0.02429
67	2000/12/31	0.045863
68	2001/01/31	0.150888
69	2001/02/28	0.092237
70	2001/03/31	-0.08092
71	2001/04/30	0.130328
72	2001/05/31	0.053209
73	2001/06/30	-0.06665
74	2001/07/31	-0.09462
75	2001/08/31	0.107524
76	2001/09/30	-0.08281
77	2001/10/31	0.107559
78	2001/11/30	0.193604
79	2001/12/31	0.21921
80	2002/01/31	0.016462
81	2002/02/28	0.104436
82	2002/03/31	0.014341

83	2002/04/30	-0.00067
84	2002/05/31	0.017549
85	2002/06/30	-0.04849
86	2002/07/31	-0.13312
87	2002/08/31	0.047434
88	2002/09/30	-0.0219
89	2002/10/31	-0.00941
90	2002/11/30	0.019998
91	2002/12/31	-0.02996
92	2003/01/31	-0.05162
93	2003/02/28	-0.04504
94	2003/03/31	-0.08596
95	2003/04/30	-0.02207
96	2003/05/31	0.140329
97	2003/06/30	-0.02477
98	2003/07/31	0.054768
99	2003/08/31	0.047286
100	2003/09/30	-0.03257
101	2003/10/31	0.094067
102	2003/11/30	-0.00366
103	2003/12/31	0.06759
104	2004/01/31	0.044481
105	2004/02/29	0.004296
106	2004/03/31	-0.01866
107	2004/04/30	-0.02869
108	2004/05/31	0.002697
109	2004/06/30	-0.02931
110	2004/07/31	0.019516
111	2004/08/31	0.082919
112	2004/09/30	0.053811
113	2004/10/31	-0.00899
114	2004/11/30	0.071682
115	2004/12/31	0.013295
116	2005/01/31	0.011195
117	2005/02/28	0.052978
118	2005/03/31	-0.01321
119	2005/04/30	-0.05584
120	2005/05/31	0.098046
121	2005/06/30	0.026671
122	2005/07/31	0.069864
123	2005/08/31	0.017854
124	2005/09/30	0.094825
125	2005/10/31	-0.02622
126	2005/11/30	0.020778
127	2005/12/31	0.07881
128	2006/01/31	0.091101
129	2006/02/28	-0.03342
130	2006/03/31	0.066354
131	2006/04/30	0.038511

83	2002/04/30	-0.06121
84	2002/05/31	0.022599
85	2002/06/30	-0.05317
86	2002/07/31	-0.17379
87	2002/08/31	0.087979
88	2002/09/30	0.027199
89	2002/10/31	-0.0508
90	2002/11/30	-0.02702
91	2002/12/31	0.005219
92	2003/01/31	-0.06347
93	2003/02/28	-0.03702
94	2003/03/31	-0.0837
95	2003/04/30	-0.08758
96	2003/05/31	0.196186
97	2003/06/30	-0.06548
98	2003/07/31	0.061613
99	2003/08/31	0.097056
100	2003/09/30	-0.0522
101	2003/10/31	0.104243
102	2003/11/30	-0.05474
103	2003/12/31	0.08665
104	2004/01/31	0.048559
105	2004/02/29	0.004247
106	2004/03/31	-0.05879
107	2004/04/30	-0.07704
108	2004/05/31	0.00245
109	2004/06/30	-0.07093
110	2004/07/31	0.047128
111	2004/08/31	0.124209
112	2004/09/30	0.041612
113	2004/10/31	-0.08868
114	2004/11/30	0.015709
115	2004/12/31	-0.03996
116	2005/01/31	0.042149
117	2005/02/28	0.108719
118	2005/03/31	0.000211
119	2005/04/30	-0.08854
120	2005/05/31	0.165361
121	2005/06/30	0.024722
122	2005/07/31	0.049974
123	2005/08/31	0.024514
124	2005/09/30	0.156182
125	2005/10/31	-0.03096
126	2005/11/30	0.029764
127	2005/12/31	0.071798
128	2006/01/31	0.118964
129	2006/02/28	-0.07777
130	2006/03/31	0.082604
131	2006/04/30	0.079373

132	2006/05/31	-0.02697
133	2006/06/30	0.032696
134	2006/07/31	-0.01659
135	2006/08/31	0.051147
136	2006/09/30	0.019167
137	2006/10/31	0.043066
138	2006/11/30	0.026214
139	2006/12/31	0.040303
140	2007/01/31	0.021374
141	2007/02/28	0.013685
142	2007/03/31	0.057034
143	2007/04/30	0.03313
144	2007/05/31	0.016229
145	2007/06/30	-0.01015
146	2007/07/31	0.007926
147	2007/08/31	0.00345
148	2007/09/30	0.045318
149	2007/10/31	0.045922
150	2007/11/30	-0.03278
151	2007/12/31	-0.04454
152	2008/01/31	-0.05666
153	2008/02/29	0.122875
154	2008/03/31	-0.03541
155	2008/04/30	0.03907

132	2006/05/31	0.018556
133	2006/06/30	0.101417
134	2006/07/31	-0.04904
135	2006/08/31	0.051167
136	2006/09/30	-0.00108
137	2006/10/31	0.031941
138	2006/11/30	0.010674
139	2006/12/31	0.000243
140	2007/01/31	0.006916
141	2007/02/28	0.026396
142	2007/03/31	0.099564
143	2007/04/30	-0.00572
144	2007/05/31	0.066112
145	2007/06/30	0.007884
146	2007/07/31	0.012149
147	2007/08/31	-0.01071
148	2007/09/30	0.12109
149	2007/10/31	0.011606
150	2007/11/30	-0.02734
151	2007/12/31	-0.06174
152	2008/01/31	0.032686
153	2008/02/29	0.174702
154	2008/03/31	-0.03912
155	2008/04/30	0.047403

FINDI

Data Point	Date	Returns
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6	1995/11/30	0.039852
7	1995/12/31	0.052218
8	1996/01/31	0.07459
9	1996/02/29	-0.04123
10	1996/03/31	-0.01411
11	1996/04/30	0.001699
12	1996/05/31	-0.02316
13	1996/06/30	0.032087
14	1996/07/31	-0.03922
15	1996/08/31	-0.00105
16	1996/09/30	0.047377
17	1996/10/31	-0.00086
18	1996/11/30	-0.02695
19	1996/12/31	-0.01023
20	1997/01/31	0.02645
21	1997/02/28	0.056457
78	2001/11/30	0.054037
79	2001/12/31	0.031259
80	2002/01/31	-0.03673
81	2002/02/28	0.004537
82	2002/03/31	0.011409
83	2002/04/30	0.060714
84	2002/05/31	0.013005
85	2002/06/30	-0.04423
86	2002/07/31	-0.09719
87	2002/08/31	0.014423
88	2002/09/30	-0.06479
89	2002/10/31	0.030518
90	2002/11/30	0.061858
91	2002/12/31	-0.05851
92	2003/01/31	-0.04151
93	2003/02/28	-0.05173
94	2003/03/31	-0.08784
95	2003/04/30	0.033292
96	2003/05/31	0.09848
97	2003/06/30	0.008957
98	2003/07/31	0.049499
99	2003/08/31	0.008559

22	1997/03/31	0.009806	100	2003/09/30	-0.01575
23	1997/04/30	0.022414	101	2003/10/31	0.085695
24	1997/05/31	-0.02277	102	2003/11/30	0.039168
25	1997/06/30	0.088739	103	2003/12/31	0.053226
26	1997/07/31	0.045506	104	2004/01/31	0.041321
27	1997/08/31	-0.04252	105	2004/02/29	0.004319
28	1997/09/30	-0.03107	106	2004/03/31	0.012733
29	1997/10/31	-0.06068	107	2004/04/30	0.006333
30	1997/11/30	-0.01233	108	2004/05/31	0.002807
31	1997/12/31	-0.01742	109	2004/06/30	-0.00112
32	1998/01/31	0.080948	110	2004/07/31	0.002276
33	1998/02/28	0.124984	111	2004/08/31	0.056014
34	1998/03/31	0.077768	112	2004/09/30	0.062229
35	1998/04/30	0.057219	113	2004/10/31	0.044506
36	1998/05/31	-0.04761	114	2004/11/30	0.104426
37	1998/06/30	-0.11415	115	2004/12/31	0.041988
38	1998/07/31	0.044729	116	2005/01/31	-0.00412
39	1998/08/31	-0.33198	117	2005/02/28	0.024171
40	1998/09/30	0.023278	118	2005/03/31	-0.02079
41	1998/10/31	0.171981	119	2005/04/30	-0.03723
42	1998/11/30	-0.03772	120	2005/05/31	0.061641
43	1998/12/31	-0.01421	121	2005/06/30	0.027831
44	1999/01/31	0.091713	122	2005/07/31	0.081672
45	1999/02/28	-0.00828	123	2005/08/31	0.013995
46	1999/03/31	0.06611	124	2005/09/30	0.058628
47	1999/04/30	0.02922	125	2005/10/31	-0.02318
48	1999/05/31	-0.06909	126	2005/11/30	0.015042
49	1999/06/30	0.099693	127	2005/12/31	0.083339
50	1999/07/31	-0.03126	128	2006/01/31	0.073306
51	1999/08/31	-0.04934	129	2006/02/28	-0.00403
52	1999/09/30	-0.04169	130	2006/03/31	0.056335
53	1999/10/31	0.078803	131	2006/04/30	0.012822
54	1999/11/30	0.073661	132	2006/05/31	-0.05748
55	1999/12/31	0.145846	133	2006/06/30	-0.01826
56	2000/01/31	0.011289	134	2006/07/31	0.010249
57	2000/02/29	-0.02474	135	2006/08/31	0.051117
58	2000/03/31	-0.0103	136	2006/09/30	0.034626
59	2000/04/30	-0.0601	137	2006/10/31	0.051433
60	2000/05/31	-0.03629	138	2006/11/30	0.03766
61	2000/06/30	0.045385	139	2006/12/31	0.069052
62	2000/07/31	0.007132	140	2007/01/31	0.031075
63	2000/08/31	0.065773	141	2007/02/28	0.005434
64	2000/09/30	-0.03082	142	2007/03/31	0.028355
65	2000/10/31	-0.05055	143	2007/04/30	0.061467
66	2000/11/30	-0.05315	144	2007/05/31	-0.01805
67	2000/12/31	0.072184	145	2007/06/30	-0.02367
68	2001/01/31	0.062227	146	2007/07/31	0.004976
69	2001/02/28	-0.06426	147	2007/08/31	0.014281
70	2001/03/31	-0.09895	148	2007/09/30	-0.01132

71	2001/04/30	0.075145	149	2007/10/31	0.075069
72	2001/05/31	0.032226	150	2007/11/30	-0.03712
73	2001/06/30	0.015566	151	2007/12/31	-0.03067
74	2001/07/31	-0.05519	152	2008/01/31	-0.12647
75	2001/08/31	0.019241	153	2008/02/29	0.07532
76	2001/09/30	-0.11048	154	2008/03/31	-0.03144
77	2001/10/31	0.030045	155	2008/04/30	0.031018

Appendix 2.1: Islamic Index Composition 20 May 2008

	Industry	Market Cap	5 year beta	Sector
A E C I LIMITED	Basic Materials	8421794815	0.62138	Chemicals
AFRICAN OXYGEN LIMITED	Basic Materials	9205600633	0.48522	Chemicals
AFRICAN RAINBOW MINERALS LIMITED	Basic Materials	59115331385	1.57005	Mining
ALLIED TECHNOLOGIES LIMITED	Telecommunications	6358174779	0.57868	Mobile Telecommunications
ANGLO PLATINUM LIMITED	Basic Materials	3.40023E+11	1.54624	Mining
ANGLOGOLD ASHANTI LIMITED	Basic Materials	84403826996	0.79135	Mining
APEXHI PROPERTIES LIMITED	Financials	3241253396	0.43407	Real Estate
ARCELORMITTAL SA LIMITED	Basic Materials	1.0386E+11	1.21383	Industrial Metals
ASPEN PHARMACARE HOLDINGS LIMITED	Health Care	12301864327	0.34779	Pharmaceuticals & Biotechnology
AVENG LTD	Industrials	25945011544	0.81074	Construction & Materials
AVI LIMITED	Consumer Goods	5465083484	0.76827	Food Producers
AVUSA LTD	Consumer Services	2647439554	0.14748	Media
BARLOWORLD LIMITED	Industrials	21149410150	0.83326	General Industrials
DATATEC LIMITED	Technology	5452520343	0.86755	Software & Computer Services
ELEMENTONE LIMITED	Consumer Services	1453496226	0.53835	Media
EQSTRA HOLDINGS LIMITED	Industrials	3912022631	1.87702	General Industrials
FOSCHINI LIMITED	Consumer Services	8941724600	0.49212	General Retailers
Fountainhead Property Trust	Financials	5059898851	0.42686	Real Estate
GOLD FIELDS LIMITED	Basic Materials	69821616290	0.78165	Mining
GROUP FIVE LIMITED	Industrials	6402648453	0.60113	Construction & Materials
HARMONY GOLD MINING COMPANY LIMITED	Basic Materials	38892329573	1.03764	Mining
HIGHVELD STEEL AND VANADIUM CORP LD	Basic Materials	17451408748	1.05445	Industrial Metals
HULAMIN LIMITED	Basic Materials	4959705878	0.9214	Industrial Metals
IMPALA PLATINUM HOLDINGS LIMITED	Basic Materials	2.23844E+11	1.56654	Mining
IMPERIAL HOLDINGS LIMITED	Industrials	12068068304	0.59323	Industrial Transportation
JD GROUP LIMITED	Consumer Services	6105600000	0.66248	General Retailers
MASSMART HOLDINGS LIMITED	Consumer Services	14988382553	0.39603	General Retailers
MEDI-CLINIC CORPORATION LIMITED	Health Care	11741676130	0.43476	Health Care Equipment & Services
METOREX LIMITED	Basic Materials	8640120763	1.41147	Mining

Mondi Limited	Basic Materials	8788806945	0.29792	Forestry & Paper
MR PRICE GROUP LIMITED	Consumer Services	4139869499	0.40734	General Retailers
MTN GROUP LIMITED	Telecommunications	2.97987E+11	0.79271	Mobile Telecommunications
MURRAY AND ROBERTS HOLDINGS LIMITED	Industrials	31496609543	0.61327	Construction & Materials
MVELAPHANDA GROUP LIMITED	Industrials	3499701761	0.46583	Support Services
MVELAPHANDA RESOURCES LIMITED	Basic Materials	13528454464	0.90218	Mining
NAMPAK LIMITED	Industrials	10094880851	0.50518	General Industrials
NASPERS LIMITED	Consumer Services	70986489430	0.98572	Media
NETCARE LIMITED	Health Care	15880146593	0.47492	Health Care Equipment & Services
NEW CLICKS HOLDINGS LIMITED	Consumer Services	4726380009	0.43477	General Retailers
NORTHAM PLATINUM LIMITED	Basic Materials	17997727650	1.27921	Mining
PICK N PAY STORES LIMITED	Consumer Services	15943217283	0.28667	Food & Drug Retailers
PRETORIA PORTLAND CEMENT COMPANY LD	Industrials	20160464625	0.64365	Construction & Materials
REMGRO LIMITED	Industrials	93347849687	0.49997	General Industrials
REUNERT LIMITED	Industrials	11194065444	0.42687	Electronic & Electrical Equipment
SASOL LIMITED	Oil & Gas	3.17949E+11	1.21655	Oil & Gas Producers
SHOPRITE HOLDINGS LIMITED	Consumer Services	23880487472	0.6629	Food & Drug Retailers
STEINHOFF INTERNATIONAL HOLDINGS LD	Consumer Goods	26441000185	0.94928	Household Goods
SUPER GROUP LIMITED	Industrials	2570753742	0.8309	Industrial Transportation
TONGAAT HULETT LIMITED	Consumer Goods	9586288224	0.89324	Food Producers
TRUWORTHS INTERNATIONAL LIMITED	Consumer Services	11827747560	0.51711	General Retailers
WOOLWORTHS HOLDINGS LIMITED	Consumer Services	10511542111	0.55868	General Retailers

Appendix 2.2: Accounting Ratios – ALSI as at 20 May 2008

	Debt – Equity	Debt Ratio	Cash to TA	AR & Cash to TA	Interest Inc to TO	Debt to Mkt Cap	Cash to Mkt Cap	AR to Mkt Cap	ROE
ACCENTUATE LIMITED	0.199	0.112	0.037	0.218	0.006	0.000	0.000	0.000	0.298
ACC-ROSS HOLDINGS LIMITED	0.416	0.212	0.019	0.071	0.012	0.000	0.000	0.000	0.125
ACUCAP PROPERTIES LIMITED	0.032	0.025	0.215	0.281	0.030	0.000	0.000	0.000	0.205
ADAPTIT HOLDINGS LIMITED	0.032	0.024	0.000	0.000	0.014	0.000	0.000	0.000	0.391
ADCORP HOLDINGS LIMITED	0.185	0.112	0.000	0.227	0.018	0.000	0.000	0.000	0.171
AFGRI LIMITED	0.005	0.005	0.064	0.064	0.031	0.000	0.000	0.000	0.174
Africa Cellular Towers Limited	0.000	0.000	0.059	0.059		0.000	0.001	0.000	0.255
AFRICAN AND OVERSEAS ENTERPRISES LD	0.354	0.207	0.000	0.000	0.049	0.000	0.000	0.000	0.122

AFRICAN BRICK CENTRE LIMITED	0.153	0.104	0.032	0.032	0.000	0.000	0.000	0.000	0.113
AFRICAN DAWN CAPITAL LIMITED	0.282	0.134	0.016	0.144	0.000	0.000	0.000	0.000	0.245
AFRICAN RAINBOW MINERALS LIMITED	0.144	0.091	0.107	0.274	0.000	0.000	0.000	0.000	0.316
AFRIMAT LIMITED	0.011	0.007	0.012	0.036	0.000	0.000	0.000	0.000	-0.010
AFROCENTRIC INVESTMENT CORP LIMITED	0.257	0.085	0.073	0.366	0.000	0.000	0.000	0.000	0.242
AG INDUSTRIES LIMITED	0.003	0.002	0.177	0.370	0.000	0.000	0.000	0.000	0.668
ALERT STEEL HOLDINGS LIMITED	0.138	0.037	0.217	0.733	0.001	0.000	0.000	0.000	0.354
ALEXANDER FORBES PREF SHARE INV LTD	0.000	0.000	0.073	0.090	0.000	0.000	0.000	0.000	0.204
ALL JOY FOODS LIMITED	0.512	0.223	0.088	0.241	0.000	0.000	0.000	0.000	0.139
ALLIANCE MINING CORPORATION LIMITED	0.023	0.011	0.431	0.674	0.000	0.000	0.000	0.000	0.219
ALLIED ELECTRONICS CORPORATION LD	0.003	0.001	0.213	0.213	0.004	0.000	0.000	0.000	0.329
ALLIED TECHNOLOGIES LIMITED	0.000	0.000	0.023	0.081		0.000	0.000	0.000	0.190
AMALGAMATED APPLIANCE HOLDINGS LD	0.053	0.022	0.198	0.396	0.000	0.000	0.000	0.000	0.753
AMALGAMATED ELECTRONICS CORP LTD	0.000	0.000	0.364	0.451	0.000	0.000	0.000	0.000	0.514
APEXHI PROPERTIES LIMITED		0.000	0.071	0.205	0.001	0.000	0.000	0.000	
AQUARIUS PLATINUM LIMITED	0.000	0.000	0.001	0.013	0.030	0.000	0.000	0.000	-0.065
ARB HOLDINGS LIMITED	0.097	0.022	0.089	0.237	0.001	0.000	0.000	0.000	0.491
ARGENT INDUSTRIAL LIMITED	0.206	0.117	0.075	0.075	0.000	0.000	0.000	0.000	0.188
ASPEN PHARMACARE HOLDINGS LIMITED	0.000	0.000	0.223	0.231		0.000	0.000	0.000	0.030
ASSORE LIMITED	0.000	0.000	0.023	0.081		0.000	0.000	0.000	0.190
ASTRAPAK LIMITED	0.023	0.007	0.140	0.263	0.000	0.000	0.000	0.000	0.260
AVENG LTD	1.114	0.306	0.083	0.263	0.000	0.001	0.000	0.001	-0.049
AVI LIMITED	0.000	0.000	0.137	0.669	0.093	0.000	0.000	0.000	0.440
AWETHU BREWERIES LIMITED	2.402	0.560	0.019	0.093	0.005	0.002	0.000	0.000	0.074
BARNARD JACOBS MELLET HOLDINGS LD	0.399	0.186	0.000	0.125	0.000	0.000	0.000	0.000	0.258
BEGET HOLDINGS LIMITED	0.001	0.000	0.030	0.178	0.006	0.000	0.000	0.000	0.214
BEIGE HOLDINGS LIMITED	0.419	0.133	0.073	0.135	0.000	0.000	0.000	0.000	0.266
BEST CUT LIMITED	5.746	0.443	0.098	0.165	0.010	0.000	0.000	0.000	1.072
BHP BILLITON PLC	0.000	0.000	0.425	0.450	0.693	0.000	0.000	0.000	-0.096
BIOSCIENCE BRANDS LIMITED	0.136	0.079	0.009	0.466	0.138	0.000	0.000	0.000	0.292
BLUE FINANCIAL SERVICES LIMITED	0.330	0.172	0.026	0.109	0.000	0.000	0.000	0.000	0.168
BLUE LABEL TELECOMS LIMITED	0.079	0.018	0.358	0.358	0.000	0.000	0.000	0.000	0.420

BOWLER METCALF LIMITED	0.219	0.122	0.323	0.503	0.006	0.000	0.000	0.000	0.260
BRAEMORE RESOURCES PLC	0.000	0.000	0.044	0.198	0.008	0.000	0.000	0.000	0.169
BRAIT S.A.	0.506	0.111	0.198	0.198	0.000	0.000	0.000	0.000	0.212
BRIKOR LIMITED	0.038	0.021	0.431	0.685	0.000	0.000	0.000	0.000	0.215
BSI (SA) LIMITED	0.002	0.001	0.412	0.608	0.004	0.000	0.000	0.000	0.108
BUILDMAX LIMITED	0.164	0.078	0.033	0.257	0.000	0.000	0.000	0.000	0.196
BUSINESS CONNEXION GROUP LIMITED	0.000	0.000	0.130	0.596	0.003	0.000	0.000	0.000	0.118
CADIZ HOLDINGS LIMITED	0.147	0.071	0.193	0.500	0.008	0.000	0.000	0.001	0.247
CALGRO M3 HOLDINGS LIMITED	0.197	0.146	0.009	0.014	0.160	0.000	0.000	0.000	0.098
CAPITEC BANK HOLDINGS LIMITED	0.000	0.000	0.394	0.426	0.000	0.000	0.000	0.000	-0.098
CARGO CARRIERS LIMITED	0.000	0.000	0.133	0.358	0.006	0.000	0.000	0.000	0.231
CASHBUILD LIMITED	0.085	0.045	0.167	0.371	0.003	0.000	0.000	0.000	0.372
CAXTON CTP PUBLISHERS AND PRINTERS	0.599	0.286	0.063	0.187	0.000	0.000	0.000	0.000	0.109
CELCOM GROUP LIMITED	2.548	0.468	0.013	0.124	0.003	0.001	0.000	0.000	0.063
CENMAG HOLDINGS LIMITED	0.000	0.000	0.029	0.043		0.000	0.000	0.000	0.160
CERAMIC INDUSTRIES LIMITED	0.955	0.323	0.016	0.076	0.508	0.001	0.000	0.000	0.240
CHEMICAL SPECIALITIES LIMITED	0.132	0.112	0.022	0.029		0.000	0.000	0.000	0.288
CHROMETCO LIMITED	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.198
CIC HOLDINGS LIMITED	0.000	0.000	0.018	0.704	0.000	0.000	0.000	0.001	0.235
CITY LODGE HOTELS LIMITED	0.195	0.105	0.118	0.118	0.016	0.000	0.000	0.000	-0.427
CLIENTELE LIMITED	0.760	0.241	0.002	0.013	0.078	0.000	0.000	0.000	0.052
COLLIERS S A HOLDINGS LIMITED	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.213
COMAIR LIMITED	0.083	0.063	0.179	0.266		0.000	0.000	0.000	0.234
COMBINED MOTOR HOLDINGS LIMITED	0.407	0.134	0.041	0.048	0.053	0.000	0.000	0.000	0.199
COMMAND HOLDINGS LIMITED	0.064	0.051	0.065	0.098	0.024	0.000	0.000	0.000	0.360
COMPU CLEARING OUTSOURCING LIMITED	0.000	0.000	0.060	0.068		0.000	0.000	0.000	0.097
COUNTRY BIRD HOLDINGS LIMITED	0.085	0.012	0.084	0.092	0.080	0.000	0.000	0.000	0.337
CROOKES BROTHERS LIMITED	0.014	0.010	0.201	0.583	0.007	0.000	0.000	0.000	0.331
DATACENTRIX HOLDINGS LIMITED	0.055	0.041	0.066	0.200	0.012	0.000	0.000	0.000	0.377
DATATEC LIMITED	0.114	0.038	0.362	0.362	0.000	0.000	0.000	0.000	0.235
DECILLION LIMITED	1.087	0.262	0.009	0.014	0.000	0.000	0.000	0.000	0.180
DIGICORE HOLDINGS LIMITED	0.000	0.000	0.210	0.217		0.000	0.000	0.000	0.188
DISCOVERY HOLDINGS LIMITED	0.687	0.156	0.077	0.295	0.000	0.001	0.000	0.001	0.082
DISTELL GROUP LIMITED	0.144	0.041	0.033	0.427	0.005	0.000	0.000	0.000	0.359

DISTRIB. AND WAREHOUSING NETWORK LD	0.065	0.014	0.141	0.639	0.000	0.000	0.001	0.002	0.150
DRDGOLD LIMITED	0.110	0.064	0.374	0.480	0.000	0.000	0.000	0.000	0.938
DYNAMIC VISUAL TECHNOLOGIES HDGS LD	0.000	0.000	0.132	0.162	0.000	0.000	0.000	0.000	0.616
ELB GROUP LIMITED	0.000	0.000	0.175	0.175	0.000	0.000	0.000	0.000	0.200
ELEMENTONE LIMITED	2.473	0.530	0.043	0.184	0.000	0.001	0.000	0.000	0.269
ELLIES HOLDINGS LIMITED	0.000	0.000	0.030	0.030		0.000	0.000	0.000	0.234
EMIRA PROPERTY FUND	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.070
ENTERPRISE RISK MANAGEMENT LIMITED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.014
ENVIROSERV HOLDINGS LIMITED	0.000	0.000	0.106	0.513	0.002	0.000	0.000	0.000	0.190
EOH HOLDINGS LIMITED	0.682	0.308	0.061	0.113	0.073	0.001	0.000	0.000	0.325
EQSTRA HOLDINGS LIMITED	0.000	0.000	0.041	0.041	0.066	0.000	0.000	0.000	0.271
ERBACON INVESTMENT HOLDINGS LIMITED	0.459	0.212	0.140	0.358	0.018	0.000	0.000	0.000	0.382
ESOR LIMITED	0.219	0.112	0.153	0.511	0.032	0.000	0.000	0.000	0.298
EUREKA INDUSTRIAL LIMITED	0.024	0.019	0.085	0.253	0.009	0.000	0.000	0.000	0.157
EXCELLERATE HOLDINGS LIMITED	0.380	0.154	0.095	0.396	0.012	0.000	0.000	0.000	0.246
FAIRVEST PROPERTY HOLDINGS LIMITED	0.000	0.000	0.174	0.491	0.000	0.000	0.000	0.000	0.315
FAMOUS BRANDS LIMITED	0.000	0.000	0.238	0.293	0.005	0.000	0.000	0.000	0.336
FARITEC HOLDINGS LIMITED	0.461	0.220	0.141	0.286	0.000	0.000	0.000	0.000	0.321
Finbond Property Finance Limited	0.000	0.000	0.103	0.103		0.000	0.000	0.000	0.132
FIRST URANIUM CORPORATION	0.000	0.000	0.222	0.769	0.010	0.000	0.000	0.000	0.127
FIRSTRAND LIMITED	0.000	0.000	0.067	0.067	0.000	0.000	0.000	0.000	2.011
FONEWORX HOLDINGS LIMITED	0.000	0.000	0.001	0.001		0.000	0.000	0.000	-0.041
FOSCHINI LIMITED	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.225
GIJIMA AST GROUP LIMITED	0.015	0.009	0.203	0.530	0.000	0.000	0.000	0.001	0.079
GLENRAND M.I.B. LIMITED	0.000	0.000	0.029	0.052		0.000	0.000	0.000	0.126
GOLD FIELDS LIMITED	0.362	0.171	0.132	0.165	0.000	0.000	0.000	0.000	-0.461
GOODERSON LEISURE CORPORATION LTD	0.000	0.000	0.292	0.460		0.000	0.000	0.000	-0.130
GOODHOPE DIAMONDS (KIMBERLEY) LTD	0.000	0.000	0.283	0.388	0.000	0.000	0.000	0.000	0.326
GRAND PARADE INVESTMENTS LIMITED	0.437	0.179	0.027	0.276	0.000	0.000	0.000	0.000	0.129
GROUP FIVE LIMITED	0.815	0.221	0.147	0.720	0.006	0.000	0.000	0.001	0.351
GROWTHPOINT PROPERTIES LIMITED	0.023	0.015	0.144	0.181	0.026	0.000	0.000	0.000	-0.019
HARDWARE WAREHOUSE LIMITED	0.000	0.000	0.194	0.606	0.012	0.000	0.000	0.000	0.349
HARMONY GOLD MINING	0.000	0.000	0.084	0.130		0.000	0.000	0.000	0.150

COMPANY LIMITED									
HOSPITALITY PROPERTY FUND LIMITED	0.202	0.084	0.037	0.567	0.001	0.000	0.000	0.000	0.334
HUGE GROUP LIMITED	1.257	0.520	0.073	0.075	0.000	0.000	0.000	0.000	0.356
IDECO GROUP LIMITED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.134
IFA HOTELS AND RESORTS LIMITED	0.836	0.233	0.149	0.257		0.001	0.000	0.000	0.219
ILLOVO SUGAR LIMITED	0.052	0.025	0.020	0.284	0.000	0.000	0.000	0.001	0.099
IMPALA PLATINUM HOLDINGS LIMITED	0.000	0.000	0.066	0.525	0.011	0.000	0.000	0.000	0.258
IMPERIAL HOLDINGS LIMITED	0.009	0.006	0.150	0.462	0.006	0.000	0.000	0.000	0.285
Imuniti Holdings Limited	0.059	0.042	0.059	0.241	0.000	0.000	0.000	0.000	0.205
INFRASORS HOLDINGS LIMITED	0.011	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.231
INSIMBI REFRACTORY & ALLOY SUP LTD	0.000	0.000	0.405	0.836	0.007	0.000	0.000	0.000	0.346
INTERTRADING LIMITED	0.159	0.095	0.031	0.152	0.002	0.000	0.000	0.000	0.095
INVESTEC LIMITED	0.674	0.194	0.189	0.397	0.000	0.000	0.000	0.000	0.438
INVESTEC PLC	0.107	0.062	0.016	0.367	0.000	0.000	0.000	0.000	0.093
INVICTA HOLDINGS LIMITED	0.000	0.000	0.021	0.537	0.016	0.000	0.000	0.000	0.219
IQUAD GROUP LIMITED	0.000	0.000	0.085	0.574	0.000	0.000	0.000	0.001	0.372
ISA HOLDINGS LIMITED	0.363	0.112	0.076	0.083	0.161	0.000	0.000	0.000	0.296
ITALTILE LIMITED	0.036	0.028	0.120	0.214	0.000	0.000	0.000	0.000	0.136
JASCO ELECTRONICS HOLDINGS LIMITED	0.000	0.000	0.107	0.630	0.038	0.000	0.000	0.001	0.234
JOHN DANIEL HOLDINGS LIMITED	0.000	0.000	0.025	0.354	0.000	0.000	0.000	0.000	0.282
JUBILEE PLATINUM PLC	0.009	0.008	0.039	0.239	0.000	0.000	0.000	0.000	0.339
KAGISO MEDIA LIMITED	0.010	0.007	0.000	0.037	0.000	0.000	0.000	0.000	0.145
KAIROS INDUSTRIAL HOLDINGS LIMITED	0.000	0.000	0.182	0.254	0.000	0.000	0.000	0.000	0.177
KAP INTERNATIONAL HOLDINGS LIMITED	0.035	0.012	0.373	0.479	0.022	0.000	0.001	0.000	0.272
KEATON ENERGY HOLDINGS LIMITED	0.090	0.062	0.026	0.380	0.000	0.000	0.000	0.000	0.218
KIMBERLEY CONSOLIDATED MINING LTD	0.010	0.005	0.235	0.663	0.000	0.000	0.000	0.000	0.253
KING CONSOLIDATED HOLDINGS LIMITED	1.613	0.337	0.003	0.026	0.074	0.001	0.000	0.000	0.381
KIWARA PLC	0.026	0.017	0.112	0.112	0.000	0.000	0.000	0.000	0.291
Kwikspace Modular Buildings Limited	0.664	0.382	0.315	0.330	0.000	0.000	0.000	0.000	-0.306
KWV BELEGGINGS BEPERK	0.560	0.157	0.207	0.454	0.000	0.001	0.001	0.001	0.154
LABAT AFRICA LIMITED	0.166	0.057	0.005	0.174	0.000	0.000	0.000	0.000	0.223
LEWIS GROUP LIMITED	0.374	0.149	0.104	0.323	0.000	0.000	0.000	0.000	0.124
LONDON FINANCE AND INVEST. GRP PLC	0.347	0.117	0.023	0.378	0.000	0.000	0.000	0.000	0.184
MAKALANI HOLDINGS LIMITED	0.000	0.000	0.759	0.769	0.000	0.000	0.000	0.000	0.205
MASSMART HOLDINGS LIMITED	0.013	0.008	0.066	0.444	0.000	0.000	0.000	0.001	-0.035
MATODZI RESOURCES	0.736	0.199	0.080	0.358	0.000	0.000	0.000	0.001	0.086

LIMITED									
MAZOR GROUP LIMITED	0.000	0.000	0.051	0.238	0.045	0.000	0.000	0.000	0.106
MEDI-CLINIC CORPORATION LIMITED	2.187	0.550	0.140	0.207	0.000	0.001	0.000	0.000	-0.030
METMAR LIMITED	0.166	0.006	0.041	0.045		0.000	0.001	0.000	0.158
METOREX LIMITED	1.989	0.547	0.061	0.164	0.016	0.001	0.000	0.000	0.458
METROFILE HOLDINGS LIMITED	0.057	0.031	0.100	0.169	0.000	0.000	0.000	0.000	-0.279
MIX TELEMATICS LIMITED	0.029	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.186
MONEY WEB HOLDINGS LIMITED	0.416	0.248	0.144	0.198	0.055	0.000	0.000	0.000	0.132
Monyetla Property Fund Limited	0.000	0.000	0.102	0.349	0.000	0.000	0.000	0.000	-0.106
MR PRICE GROUP LIMITED	0.412	0.013	0.000	0.000	0.000	0.000	0.000	0.000	-0.685
MURRAY AND ROBERTS HOLDINGS LIMITED	0.000	0.000	0.035	0.044	0.040	0.000	0.000	0.000	0.148
MUSTEK LIMITED	0.102	0.039	0.149	0.531	0.006	0.000	0.000	0.000	0.294
MVELAPHANDA GROUP LIMITED	0.178	0.087	0.000	0.303	0.000	0.000	0.000	0.000	0.262
MVELAPHANDA RESOURCES LIMITED	0.859	0.304	0.154	0.209	0.000	0.001	0.000	0.000	0.163
MYRIAD MEDICAL HOLDINGS LIMITED	0.271	0.153	0.119	0.312	0.000	0.000	0.000	0.000	0.169
NASPERS LIMITED	0.174	0.075	0.027	0.027	0.000	0.000	0.000	0.000	-0.082
NICTUS BEPERK	0.200	0.073	0.074	0.462	0.000	0.000	0.000	0.001	0.152
NORTHAM PLATINUM LIMITED	0.079	0.029	0.119	0.581	0.000	0.000	0.000	0.001	0.183
OASIS CRESCENT PROPERTY FUND	0.000	0.000	0.017	0.308	0.000	0.000	0.000	0.000	0.265
O-LINE HOLDINGS LIMITED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.203
OMNIA HOLDINGS LIMITED	0.019	0.010	0.141	0.500	0.011	0.000	0.000	0.000	0.221
ONELOGIX GROUP LIMITED	0.110	0.049	0.123	0.414	0.010	0.000	0.000	0.000	0.161
ORION REAL ESTATE LIMITED	0.617	0.361	0.000	0.000	2.866	0.000	0.000	0.000	0.102
PAN AFRICAN RESOURCES PLC	20.785	0.365	0.032	0.486	0.000	0.000	0.000	0.000	6.532
PANGBOURNE PROPERTIES LIMITED	0.250	0.142	0.030	0.186	0.010	0.000	0.000	0.000	0.144
PEREGRINE HOLDINGS LIMITED	1.241	0.345	0.006	0.120	0.000	0.001	0.000	0.000	0.236
PETMIN LIMITED	0.148	0.051	0.036	0.614	0.000	0.000	0.000	0.002	0.160
PHUMELELA GAMING AND LEISURE LTD	0.489	0.222	0.028	0.279	0.001	0.000	0.000	0.000	0.247
PICK N PAY STORES LIMITED	0.000	0.000	0.047	0.078		0.000	0.000	0.000	0.000
PINNACLE TECHNOLOGY HOLDINGS LD	0.408	0.241	0.001	0.001	0.054	0.001	0.000	0.000	0.087
PLACECOL HOLDINGS LIMITED	0.468	0.172	0.066	0.408	0.000	0.000	0.000	0.001	0.324
PREMIUM PROPERTIES LIMITED	0.000	0.000	0.056	0.166	0.000	0.000	0.000	0.000	0.107
PROTECH KHUTHELE	0.000	0.000	0.086	0.428	0.000	0.000	0.000	0.001	0.193

HOLDINGS LIMITED									
PSG GROUP LIMITED	0.281	0.173	0.014	0.014	0.000	0.000	0.000	0.000	0.045
PSV HOLDINGS LIMITED	0.000	0.000	0.002	0.023		0.000	0.000	0.000	-0.082
PUTPROP LIMITED	0.000	0.000	0.048	0.237	0.000	0.000	0.000	0.000	0.103
RAINBOW CHICKEN LIMITED	0.001	0.001	0.304	0.472	0.000	0.000	0.000	0.000	0.083
RARE HOLDINGS LIMITED	0.022	0.017	0.197	0.197	0.000	0.000	0.000	0.000	0.145
RAUBEX GROUP LIMITED	0.068	0.039	0.102	0.318	0.003	0.000	0.000	0.001	0.141
REAL AFRICA HOLDINGS LIMITED	0.000	0.000	0.009	0.232	0.005	0.000	0.000	0.000	0.164
REMGRO LIMITED	0.062	0.029	0.075	0.305	0.000	0.000	0.000	0.000	0.042
REX TRUEFORM CLOTHING COMPANY LD	0.026	0.022	0.110	0.217	0.028	0.000	0.000	0.000	0.135
RICHEMONT SECURITIES AG	0.000	0.000	0.334	0.562	0.000	0.000	0.000	0.000	0.219
RMB HOLDINGS LIMITED	0.185	0.117	0.615	0.781	0.000	0.000	0.000	0.000	0.278
ROLFES TECHNOLOGY HOLDINGS LIMITED	0.000	0.000	0.198	0.243	0.149	0.000	0.000	0.000	0.182
S A FRENCH LIMITED	0.076	0.037	0.015	0.317	0.008	0.001	0.000	0.008	-0.132
SABLE HOLDINGS LIMITED	0.822	0.298	0.021	0.229	0.000	0.000	0.000	0.000	0.137
SABMILLER PLC	2.205	0.421	0.000	0.024	0.014	0.001	0.000	0.000	0.373
SALLIES LIMITED	0.008	0.006	0.030	0.135	0.000	0.000	0.000	0.000	0.157
SANTOVA LOGISTICS LIMITED	0.006	0.001	0.018	0.814	0.041	0.000	0.000	0.003	0.078
SANYATI HOLDINGS LIMITED	0.524	0.205	0.016	0.182	0.007	0.001	0.000	0.001	0.350
SASFIN HOLDINGS LIMITED	0.000	0.000	0.548	0.680	0.000	0.000	0.000	0.000	0.239
SASOL LIMITED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
SEA KAY HOLDINGS LIMITED	14.616	0.090	0.076	0.081	0.050	0.000	0.000	0.000	0.000
SEARDEL INVESTMENT CORPORATION LD	0.000	0.000	0.031	0.069		0.000	0.000	0.000	-0.161
SENTULA MINING LIMITED	0.000	0.000	0.024	0.123	0.000	0.000	0.000	0.000	0.155
SHOPRITE HOLDINGS LIMITED	0.006	0.004	0.440	0.679	0.072	0.000	0.000	0.000	0.222
SIMEKA BUSINESS GROUP LIMITED	0.000	0.000	0.190	0.190	0.033	0.000	0.000	0.000	0.208
SIMMER AND JACK MINES LIMITED	0.129	0.045	0.009	0.077	0.000	0.000	0.000	0.000	0.362
SOUTHERN ELECTRICITY COMPANY LD	0.000	0.000	0.015	0.018		0.000	0.000	0.000	0.079
SOVEREIGN FOOD INVESTMENTS LIMITED	0.000	0.000	0.223	0.601	0.007	0.000	0.000	0.000	0.261
SPANJAARD LIMITED	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	-1.037
SPUR CORPORATION LTD	0.160	0.101	0.117	0.338	0.000	0.000	0.000	0.000	0.150
STEFANUTTI STOCKS HOLDINGS LTD	0.155	0.070	0.031	0.299	0.000	0.000	0.000	0.001	0.012
STEINHOFF INTERNATIONAL HOLDINGS LD	0.069	0.051	0.594	0.776	0.063	0.000	0.001	0.000	0.230
STRATCORP LIMITED	0.000	0.000	0.001	0.119	0.001	0.000	0.000	0.000	-

									0.176
SUN INTERNATIONAL LIMITED	0.000	0.000	0.891	0.900	0.000	0.000	0.001	0.000	0.272
SUPER GROUP LIMITED	0.051	0.040	0.127	0.539	0.005	0.000	0.000	0.000	0.239
SYCOM PROPERTY FUND	0.000	0.000	0.422	0.803	0.000	0.000	0.000	0.000	0.094
TASTE HOLDINGS LIMITED	0.052	0.007	0.000	0.255	0.000	0.000	0.000	0.000	3.054
TELKOM SA LIMITED	0.000	0.000	0.004	0.399	0.001	0.000	0.000	0.001	0.092
THABEX LIMITED	0.172	0.033	0.241	0.489	0.000	0.000	0.003	0.003	0.077
THE BIDVEST GROUP LIMITED	0.000	0.000	0.354	0.669	0.008	0.000	0.000	0.000	0.242
THE DON GROUP LIMITED	0.159	0.094	0.023	0.128	0.000	0.000	0.000	0.000	-0.025
THE YORK TIMBER ORGANISATION LD	0.031	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.101
TOTAL CLIENT SERVICES LIMITED	0.000	0.000	0.000	0.014	0.071	0.000	0.000	0.000	-0.449
TRADEHOLD LIMITED	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.150
TRANS HEX GROUP LIMITED	0.000	0.000	0.842	0.843	0.000	0.000	0.002	0.000	0.013
TRANSPACO LIMITED	0.147	0.065	0.000	0.375	0.000	0.000	0.000	0.002	0.037
TRUWORTHS INTERNATIONAL LIMITED	0.000	0.000	0.409	0.502	0.017	0.000	0.008	0.002	0.200
TWP HOLDINGS LIMITED	-0.718	0.231	0.085	0.186	0.000	0.000	0.000	0.000	-0.256
VALUE GROUP LIMITED	0.013	0.002	0.053	0.308	0.000	0.000	0.000	0.001	-1.974
VERIMARK HOLDINGS LIMITED	1.963	0.409	0.023	0.418	0.000	0.002	0.000	0.002	-0.297
VILLAGE MAIN REEF GOLD MIN COMP LD	0.000	0.000	0.410	0.503	0.000	0.000	0.011	0.003	0.195
VUKILE PROPERTY FUND LIMITED	0.000	0.000	0.196	0.422	0.033	0.000	0.006	0.006	0.019
W G WEARNE LIMITED	-6.178	0.640	0.000	0.339	0.000	0.001	0.000	0.001	4.189
WESCO INVESTMENTS LIMITED	0.000	0.000	0.415	1.000	7.639	0.000	0.000	0.000	0.179
WESCOAL HOLDINGS LIMITED	0.271	0.143	0.000	0.000	0.007	0.001	0.000	0.000	0.272
William Tell Holdings Limited	0.000	0.000	0.289	0.289		0.000	0.001	0.000	-4.595
WILSON BAYLY HOLMES-OVCON LIMITED	0.000	0.000	0.021	0.058	0.026				-0.034
ZAMBIA COPPER INVESTMENTS LIMITED	0.000		0.121	0.124	0.000				-0.010

Appendix 2.3: Accounting Ratios – Islamic Index as at 20 May 2008

	ROA	NP Margin	CA: CL	AR Days	AP Days	Stock Days	WC Cycle	Cash Ratio
ACCENTUATE LIMITED	0.168	0.181	1.993	71.130	0.000	98.241	-27.111	0.740
ACC-ROSS HOLDINGS LIMITED	0.064	0.107	0.665	31.897				0.844
ACUCAP PROPERTIES LIMITED	0.161	0.296	3.008	44.128	108.32	399.441	246.987	0.294
ADAPTIT HOLDINGS LIMITED	0.285	0.471	2.633	0.000	0.000	0.000	0.000	0.635
ADCORP HOLDINGS LIMITED	0.104	0.114	2.008	90.004	139.26	195.115	34.154	0.208
AFGRI LIMITED	0.163	1.064	3.547	0.000				0.227
Africa Cellular Towers Limited	0.016		0.196					0.546
AFRICAN AND OVERSEAS ENTERPRISES LD	0.071	0.198	1.413	0.000	0.000	0.000	0.000	1.087
AFRICAN BRICK CENTRE LIMITED	0.077	0.209	1.014	0.000				1.390
AFRICAN DAWN CAPITAL LIMITED	0.116	0.145	0.575	58.273				1.297
AFRICAN RAINBOW MINERALS LIMITED	0.199	0.393	1.807	120.314	100.24	81.457	139.106	0.843
AFRIMAT LIMITED	-0.007	-0.027	0.601	34.598	68.245	34.471	68.372	-7.069
AFROCENTRIC INVESTMENT CORP LIMITED	0.080	0.030	1.052	0.000	70.710	34.490	36.220	0.869
AG INDUSTRIES LIMITED	0.376	0.396	1.472	74.256	271.32	0.000	345.584	0.933
ALERT STEEL HOLDINGS LIMITED	0.095	0.074	1.109	146.178				1.255
ALEXANDER FORBES PREF SHARE INV LTD	0.154		0.000	0.000				0.142
ALL JOY FOODS LIMITED	0.060	0.076	1.300	70.703				1.232
ALLIANCE MINING CORPORATION LIMITED	0.105	0.078	1.547	65.873				2.009
ALLIED ELECTRONICS CORPORATION LD	0.107	0.033	1.059	0.000	0.000	45.024	-45.024	1.410
ALLIED TECHNOLOGIES LIMITED	0.012		0.270					2.464
AMALGAMATED APPLIANCE HOLDINGS LD	0.316	0.347	1.119	79.645	0.000	100.678	-21.033	1.780
AMALGAMATED ELECTRONICS CORP LTD	0.362	0.384	3.063	33.743	73.205	114.579	-7.631	0.348
APEXHI PROPERTIES LIMITED	0.101	0.021		10.005	0.000	30.259	-20.254	0.000
AQUARIUS PLATINUM LIMITED	-0.003	-0.034	0.315	44.625				-3.918
ARB HOLDINGS LIMITED	0.114	0.034	0.993	16.185	83.060	53.473	45.771	0.684
ARGENT INDUSTRIAL LIMITED	0.107	0.169	0.773	0.000				0.129
ASPEN PHARMACARE HOLDINGS LIMITED	0.022		0.986					3.337
ASSORE LIMITED	0.012		0.270					2.464
ASTRAPAK LIMITED	0.080	0.177	0.691	99.533	137.95	198.667	38.821	0.468
AVENG LTD	-0.014	-0.009	1.611	44.516				-3.967
AVI LIMITED	0.329	0.227	3.402	134.154	93.524	56.427	171.251	0.565
AWETHU BREWERIES LIMITED	0.017	0.075	1.748	117.247	0.000	30.388	86.858	0.705
BARNARD JACOBS MELLET HOLDINGS LD	0.120	0.111	1.524	0.000				0.519
BEGET HOLDINGS LIMITED	0.148	0.101	2.504	37.007				-0.059
BEIGE HOLDINGS LIMITED	0.084	0.047	1.564	12.686	55.788	38.279	30.196	0.453

BEST CUT LIMITED	0.083	0.094	0.545	27.358				2.930
BHP BILLITON PLC	-0.058	-1.043	1.421	165.561	535.01	61.817	638.762	0.000
BIOSCIENCE BRANDS LIMITED	0.170	0.157	2.344	153.745	60.448	105.119	109.073	-0.037
BLUE FINANCIAL SERVICES LIMITED	0.087	0.285	0.884	0.000				1.128
BLUE LABEL TELECOMS LIMITED	0.098	0.070	1.072	0.000				2.696
BOWLER METCALF LIMITED	0.144	0.138	2.163	63.006	71.961	11.392	123.576	1.209
BRAEMORE RESOURCES PLC	0.132	0.153	2.981	64.766				0.671
BRAIT S.A.	0.046	0.048	1.104	0.000				3.400
BRIKOR LIMITED	0.118	0.053	1.853	41.495				1.570
BSI (SA) LIMITED	0.064	0.017	2.014	18.349				-0.095
BUILDMAX LIMITED	0.093	0.069	1.421	60.543	89.714	74.726	75.531	0.261
BUSINESS CONNEXION GROUP LIMITED	0.042	0.020	1.303	79.916	94.275	35.968	138.223	0.404
CADIZ HOLDINGS LIMITED	0.120	0.062	1.661	57.413				0.989
CALGRO M3 HOLDINGS LIMITED	0.072	0.597	0.650	16.110				0.240
CAPITEC BANK HOLDINGS LIMITED	-0.058	-0.272	3.792	0.000	126.91	20.610	106.300	0.881
CARGO CARRIERS LIMITED	0.141	0.091	1.959	52.868				0.372
CASHBUILD LIMITED	0.197	0.076	1.816	28.922	86.484	76.028	39.378	0.551
CAXTON CTP PUBLISHERS AND PRINTERS	0.052	0.088	1.427	76.396				0.686
CELCOM GROUP LIMITED	0.011	0.067	0.974	236.065				1.034
CENMAG HOLDINGS LIMITED	0.057		0.000					-0.074
CERAMIC INDUSTRIES LIMITED	0.081	1.750	0.750	470.959				-0.156
CHEMICAL SPECIALITIES LIMITED	0.244		0.782					0.001
CHROMETCO LIMITED	0.071	0.043	1.184	0.000	0.000	0.000	0.000	0.712
CIC HOLDINGS LIMITED	0.169	0.340	3.084	505.209	86.767	66.108	525.868	0.403
CITY LODGE HOTELS LIMITED	-0.229	-0.476	0.815	0.000				-0.106
CLIENTELE LIMITED	0.016	0.256	0.411	65.224				0.061
COLLIERS S A HOLDINGS LIMITED	0.213		0.635					0.000
COMAIR LIMITED	0.177		2.378					0.386
COMBINED MOTOR HOLDINGS LIMITED	0.066	0.507	1.533	19.373				-0.052
COMMAND HOLDINGS LIMITED	0.290	0.376	1.746	15.498				0.560
COMPU CLEARING OUTSOURCING LIMITED	0.054		1.477					-4.341
COUNTRY BIRD HOLDINGS LIMITED	0.046	0.530	1.145	34.398				0.946
CROOKES BROTHERS LIMITED	0.241	0.156	2.992	90.024	19.810	54.527	55.306	0.036
DATACENTRIX HOLDINGS LIMITED	0.283	0.570	2.166	98.196	96.044	50.284	143.956	0.413
DATATEC LIMITED	0.079	0.057	1.191	0.000				2.821
DECILLION LIMITED	0.043	0.318	0.511	12.858	184.57	0.000	197.435	0.173
DIGICORE HOLDINGS LIMITED	0.078		0.381					-1.512
DISCOVERY HOLDINGS LIMITED	0.019	0.016	1.112	70.009				1.852
DISTELL GROUP LIMITED	0.103	0.070	1.130	97.602				-0.138
DISTRIB. AND WAREHOUSING NETWORK LD	0.033	0.028	1.074	157.602	90.699	49.603	198.698	-0.478

DRDGOLD LIMITED	0.541	0.664	2.908	47.607	95.567	15.517	127.657	0.020
DYNAMIC VISUAL TECHNOLOGIES HDGS LD	0.090	0.139	1.453	17.038				0.518
ELB GROUP LIMITED	0.165	1.442	2.561	0.000				-0.419
ELEMENTONE LIMITED	0.058	0.090	1.538	80.262				0.477
ELLIES HOLDINGS LIMITED	0.062		0.219					0.406
EMIRA PROPERTY FUND	0.068	2.116	2.920	0.000				-9.471
ENTERPRISE RISK MANAGEMENT LIMITED	-0.013		18.253	0.000				-0.330
ENVIROSERV HOLDINGS LIMITED	0.091	0.029	1.347	46.551	26.498	0.000	73.049	0.664
EOH HOLDINGS LIMITED	0.147	0.354	2.900	46.083	149.88	126.774	69.193	0.161
EQSTRA HOLDINGS LIMITED	0.262	4.042	2.236	1.327				0.270
ERBACON INVESTMENT HOLDINGS LIMITED	0.177	0.207	1.707	93.345				0.457
ESOR LIMITED	0.153	0.114	1.524	97.544	96.857	3.537	190.864	1.026
EUREKA INDUSTRIAL LIMITED	0.123	0.124	2.313	62.097				0.721
EXCELLERATE HOLDINGS LIMITED	0.099	0.099	1.561	109.303				1.397
FAIRVEST PROPERTY HOLDINGS LIMITED	0.234	0.214	3.044	105.567	65.017	68.320	102.265	0.000
FAMOUS BRANDS LIMITED	0.106	0.042	1.235	7.964	117.63	95.800	29.794	2.066
FARITEC HOLDINGS LIMITED	0.153	0.110	1.506	38.004				0.947
Finbond Property Finance Limited	0.129		4.702					0.185
FIRST URANIUM CORPORATION	0.090	0.061	2.702	135.823				0.853
FIRSTRAND LIMITED	1.641	0.701	0.944	0.000				0.013
FONEWORX HOLDINGS LIMITED	-0.023							0.000
FOSCHINI LIMITED	0.083	0.761		0.000				0.000
GIJIMA AST GROUP LIMITED	0.047	0.029	1.813	74.462	43.104	13.587	103.979	2.629
GLENRAND M.I.B. LIMITED	0.122		31.464					0.004
GOLD FIELDS LIMITED	-0.218	-0.630	1.812	34.348	62.663	415.647	-318.636	-0.621
GOODERSON LEISURE CORPORATION LTD	-0.129		41.955					2.111
GOODHOPE DIAMONDS (KIMBERLEY) LTD	0.222	0.041	1.273	7.159				0.457
GRAND PARADE INVESTMENTS LIMITED	0.053	0.039	1.290	67.848	80.514	61.222	87.141	0.967
GROUP FIVE LIMITED	0.095	0.045	1.593	97.919				0.386
GROWTHPOINT PROPERTIES LIMITED	-0.012	-0.021	2.157	23.639	0.000	58.530	-34.891	-6.937
HARDWARE WAREHOUSE LIMITED	0.124	0.033	1.247	40.067	42.612	18.826	63.853	1.599
HARMONY GOLD MINING COMPANY LIMITED	0.118		1.327					1.487
HOSPITALITY PROPERTY FUND LIMITED	0.139	0.069	1.694	96.917				-0.843
HUGE GROUP LIMITED	0.147	0.399	12.079	2.295				0.000
IDECO GROUP LIMITED	0.043	0.023	0.709	0.000				1.751
IFA HOTELS AND RESORTS LIMITED	0.061		0.586					0.905
ILLOVO SUGAR LIMITED	0.047	0.028	1.285	57.629				1.216
IMPALA PLATINUM HOLDINGS	0.093	0.136	1.196	244.73				-0.480

LIMITED				8				
IMPERIAL HOLDINGS LIMITED	0.180	0.101	2.523	63.834				0.407
Imuniti Holdings Limited	0.144	0.156	2.023	71.891	51.444	52.393	70.942	0.650
INFRASORS HOLDINGS LIMITED	0.050	0.013	1.335	0.000	0.000	0.000	0.000	-0.325
INSIMBI REFRACTORY & ALLOY SUP LTD	0.186	0.076	2.000	64.079				0.779
INTERTRADING LIMITED	0.057	0.113	0.955	87.935	222.15	148.587	161.503	1.522
INVESTEC LIMITED	0.126	0.169	0.926	0.000				1.306
INVESTEC PLC	0.054	0.059	1.290	0.000				-0.748
INVICTA HOLDINGS LIMITED	0.150	0.138	2.840	173.77 7				-0.890
IQUAD GROUP LIMITED	0.115	0.042	1.353	64.993	93.892	44.929	113.955	0.566
ISA HOLDINGS LIMITED	0.091	1.139	1.847	31.883				-0.027
ITALTILE LIMITED	0.107	0.201	2.071	0.000				0.521
JASCO ELECTRONICS HOLDINGS LIMITED	0.090	0.279	1.159	592.16 2				0.659
JOHN DANIEL HOLDINGS LIMITED	0.170	0.160	1.527	112.94 8	153.21	78.344	187.818	0.654
JUBILEE PLATINUM PLC	0.294	0.259	2.830	0.000				0.514
KAGISO MEDIA LIMITED	0.104	0.170	3.117	21.983				0.353
KAIROS INDUSTRIAL HOLDINGS LIMITED	0.139	0.234	3.517	44.197	53.254	126.775	-29.324	0.355
KAP INTERNATIONAL HOLDINGS LIMITED	0.092	0.073	1.449	30.709				1.396
KEATON ENERGY HOLDINGS LIMITED	0.149	0.085	3.076	0.000	51.747	133.834	-82.088	-0.147
KIMBERLEY CONSOLIDATED MINING LTD	0.121	0.065	1.396	83.618	121.11	4.562	200.168	0.700
KING CONSOLIDATED HOLDINGS LIMITED	0.080	0.683	0.486	72.415				0.696
KIWARA PLC	0.194	0.436	1.098	0.000				0.454
Kwikspace Modular Buildings Limited	-0.176	-0.217	7.640	6.718				0.429
KWV BELEGGINGS BEPERK	0.043	0.026	1.484	0.000	117.93	99.203	18.726	0.842
LABAT AFRICA LIMITED	0.077	0.074	0.959	59.767				1.436
LEWIS GROUP LIMITED	0.050	0.042	0.970	67.766				3.198
LONDON FINANCE AND INVEST. GRP PLC	0.062	0.041	1.378	0.000	85.723	145.574	-59.851	-1.740
MAKALANI HOLDINGS LIMITED	0.175	0.169	6.757	0.000	41.054	19.443	21.612	-0.954
MASSMART HOLDINGS LIMITED	-0.022	-0.011	2.447	67.451				9.368
MATODZI RESOURCES LIMITED	0.023	0.013	1.397	0.000	58.471	25.200	33.270	-1.819
MAZOR GROUP LIMITED	0.067	0.108	0.747	109.91 8				1.116
MEDI-CLINIC CORPORATION LIMITED	-0.008	-0.047	2.606	152.14 5				-8.754
METMAR LIMITED	0.006		1.038					3.895
METOREX LIMITED	0.126	0.180	1.421	53.472				0.936
METROFILE HOLDINGS LIMITED	-0.154	-0.233	3.602	38.003	52.209	114.757	-24.546	0.860
MIX TELEMATICS LIMITED	0.138	0.122	2.523	0.000				1.339
MONEY WEB HOLDINGS LIMITED	0.079	0.166	2.982	41.579	73.276	93.277	21.577	0.746
Monyetla Property Fund Limited	-0.053	-0.055	1.227	93.954	126.16	64.078	156.037	0.594
MR PRICE GROUP LIMITED	-0.022	-0.172	0.998	0.000				-0.352
MURRAY AND ROBERTS HOLDINGS LIMITED	0.140	1.188	0.849	25.940				0.002
MUSTEK LIMITED	0.112	0.141	0.984	176.00	317.39	19.878	473.526	0.745

MVELAPHANDA GROUP LIMITED	0.129	0.094	1.743	80.997	106.91	133.507	54.402	0.087
MVELAPHANDA RESOURCES LIMITED	0.058	0.080	1.444	0.000				1.535
MYRIAD MEDICAL HOLDINGS LIMITED	0.095	0.097	1.289	72.248				1.101
NASPERS LIMITED	-0.036	-0.026	1.305	0.000	0.000	0.000	0.000	1.623
NICTUS BEPERK	0.056	0.047	1.319	121.18 0	136.11	115.616	141.678	2.446
NORTHAM PLATINUM LIMITED	0.066	0.019	1.402	48.236				-0.485
OASIS CRESCENT PROPERTY FUND	0.116	0.064	1.432	58.468	0.000			-1.691
O-LINE HOLDINGS LIMITED	0.076	0.031	1.002	0.000				1.074
OMNIA HOLDINGS LIMITED	0.121	0.065	1.555	70.506				0.579
ONELOGIX GROUP LIMITED	0.072	0.050	1.399	73.946	0.000	97.804	-23.858	1.338
ORION REAL ESTATE LIMITED	0.060	5.945	0.734	0.000	0.000			-0.963
PAN AFRICAN RESOURCES PLC	0.115	0.030	1.328	0.000	0.000	33.457	-33.457	-3.951
PANGBOURNE PROPERTIES LIMITED	0.082	0.097	1.117	67.531	0.000			0.007
PEREGRINE HOLDINGS LIMITED	0.065	0.099	2.647	63.028	0.000	382.812	- 319.783	-9.212
PETMIN LIMITED	0.056	0.028	1.073	105.97 1				0.461
PHUMELELA GAMING AND LEISURE LTD	0.112	0.070	0.985	57.276	0.000			1.157
PICK N PAY STORES LIMITED	0.049		0.000					-0.750
PINNACLE TECHNOLOGY HOLDINGS LD	0.051	0.937	0.175	0.000				0.163
PLACECOL HOLDINGS LIMITED	0.119	0.068	1.459	71.095	0.000	62.911	8.184	0.666
PREMIUM PROPERTIES LIMITED	0.038	0.046	0.000	48.280	0.000	336.709	- 288.429	-5.886
PROTECH KHUTHELE HOLDINGS LIMITED	0.143	0.219	2.658	191.89	0.000			-0.438
PSG GROUP LIMITED	0.027	0.099	0.658	0.000	0.000			1.421
PSV HOLDINGS LIMITED	-0.065		1.957					0.432
PUTPROP LIMITED	0.069	0.065	1.465	64.877	0.000			0.893
RAINBOW CHICKEN LIMITED	0.074	0.337	5.019	277.87	0.000			-1.599
RARE HOLDINGS LIMITED	0.114	0.182	3.466	0.000				0.019
RAUBEX GROUP LIMITED	0.079	0.095	1.360	94.651	117.15	77.875	133.928	0.362
REAL AFRICA HOLDINGS LIMITED	0.124	0.098	2.253	63.811	0.000	139.100	-75.289	0.087
REMGRO LIMITED	0.019	0.004	0.960	15.930	0.000			0.937
REX TRUEFORM CLOTHING COMPANY LD	0.116	0.276	2.042	92.999				0.599
RICHEMONT SECURITIES AG	0.143	0.117	3.219	67.726	62.850	123.022	7.554	0.213
RMB HOLDINGS LIMITED	0.175	0.209	3.222	0.000	0.000	0.159	-0.159	1.408
ROLFES TECHNOLOGY HOLDINGS LIMITED	0.173	1.124	14.49 9	107.90				-0.227
S A FRENCH LIMITED	-0.063	-0.048	1.420	83.119	75.918	98.407	60.630	-0.033
SABLE HOLDINGS LIMITED	0.050	0.036	1.305	55.620	0.000	29.681	25.939	1.555
SABMILLER PLC	0.071	0.965	0.886	117.36	0.000			-0.602
SALLIES LIMITED	0.112	0.150	0.979	51.808	211.45	18.654	244.613	1.018
SANTOVA LOGISTICS LIMITED	0.018	0.056	1.146	887.21	0.000			2.771
SANYATI HOLDINGS LIMITED	0.137	0.126	0.944	55.892	0.000			-0.949
SASFIN HOLDINGS LIMITED	0.215	0.240	10.19	0.000	0.000			0.783
SASOL LIMITED	0.019	0.013	1.372	0.000				3.504

SEA KAY HOLDINGS LIMITED	0.000	0.000	1.786	10.740	0.000			
SEARDEL INVESTMENT CORPORATION LD	-0.149		0.937					1.279
SENTULA MINING LIMITED	0.093	0.096	2.317	37.207	0.000	7.160	30.048	-0.069
SHOPRITE HOLDINGS LIMITED	0.157	0.295	2.401	164.63				0.727
SIMEKA BUSINESS GROUP LIMITED	0.195	0.374	6.948	0.000	0.000			0.502
SIMMER AND JACK MINES LIMITED	0.126	0.047	1.228	9.389	64.718	118.570	-44.463	-0.600
SOUTHERN ELECTRICITY COMPANY LD	0.079		62.24					0.621
SOVEREIGN FOOD INVESTMENTS LIMITED	0.206	0.127	2.862	85.048	0.000	0.000	85.048	0.618
SPANJAARD LIMITED	-0.335	-0.645	0.312	0.000	0.000	0.000	0.000	-0.201
SPUR CORPORATION LTD	0.094	0.079	2.589	67.764	0.000			-1.203
STEFANUTTI STOCKS HOLDINGS LTD	0.006	0.003	1.431	57.968	0.000	60.296	-2.328	6.596
STEINHOFF INTERNATIONAL HOLDINGS LD	0.168	0.214	3.978	84.035	0.000	1.130	82.904	0.898
STRATCORP LIMITED	-0.141	-0.216	1.118	65.411	136.22	79.282	122.356	0.329
SUN INTERNATIONAL LIMITED	0.261	0.661	30.65	8.198	0.000			0.971
SUPER GROUP LIMITED	0.189	0.069	3.216	55.079	0.000	1.262	53.817	0.687
SYCOM PROPERTY FUND	0.079	0.058	4.953	0.000	0.000			-0.026
TASTE HOLDINGS LIMITED	0.417	0.435	0.452	97.284	0.000	50.201	47.083	0.053
TELKOM SA LIMITED	0.044	0.018	1.908	58.625	0.000	84.519	-25.894	1.618
THABEX LIMITED	0.015	0.025	0.689	154.07 2	46.992	50.069	150.995	5.238
THE BIDVEST GROUP LIMITED	0.185	0.105	2.830	65.493	2638.6	0.000	2704.09	0.919
THE DON GROUP LIMITED	-0.015	-0.016	0.715	42.159	0.000	13.344	28.814	-2.303
THE YORK TIMBER ORGANISATION LD	0.064	0.040	2.351	0.000	0.000	0.000	0.000	2.102
TOTAL CLIENT SERVICES LIMITED	-0.398	-14.874	0.872	187.47	0.000	1141.79	-954.321	0.430
TRADEHOLD LIMITED	0.078	0.025	1.803	0.000	0.000	0.000	0.000	0.645
TRANS HEX GROUP LIMITED	0.013	0.136	118.8	6.186				2.875
TRANSPACO LIMITED	0.016	0.019	0.863	161.54	127.42	29.066	259.909	-3.022
TRUWORTHS INTERNATIONAL LIMITED	0.161	0.085	4.936	17.916	49.303	94.757	-27.537	0.859
TWP HOLDINGS LIMITED	0.082	0.051	0.688	22.793				0.799
VALUE GROUP LIMITED	-0.303	-0.186	0.694	57.142	0.000			0.168
VERIMARK HOLDINGS LIMITED	-0.062	-0.018	1.770	41.625				0.478
VILLAGE MAIN REEF GOLD MIN COMP LD	0.156	0.083	4.912	0.000	0.000	0.000	0.000	0.886
VUKILE PROPERTY FUND LIMITED	0.006	0.009	1.511	119.36				-2.811
W G WEARNE LIMITED	-0.434	-1.607	0.832	457.04	0.000	93.922	363.122	2.050
WESCO INVESTMENTS LIMITED	-7.159	-5.793	0.024	172.65	0.000			0.857
WESCOAL HOLDINGS LIMITED	0.143	0.076		0.000	0.000	0.000	0.000	2.311
William Tell Holdings Limited	-0.281		96.75					0.084
WILSON BAYLY HOLMES-OVCON LIMITED	-0.030	-0.157	1.268	72.324	0.000	208.536	-136.212	2.416
ZAMBIA COPPER INVESTMENTS LIMITED	-0.010		13.92	0.000	0.000			3.320

	Debt - Equity	Debt Ratio	Cash to TA	AR & Cash to TA	Interest Inc to TO	Debt to Mkt Cap	Cash to Mkt Cap	AR to Mkt Cap	ROE
A E C I LIMITED	0.13	0.06	0.05	0.30	0.00	0.06	0.05	0.24	0.12
AFRICAN OXYGEN LIMITED	0.45	0.20	0.02	0.20	0.00	0.11	0.01	0.10	0.26
AFRICAN RAINBOW MINERALS LIMITED	0.14	0.09	0.11	0.27	0.00	0.04	0.04	0.07	0.32
ALLIED TECHNOLOGIES LIMITED	0.04	0.02	0.43	0.69	0.00	0.01	0.25	0.15	0.21
ANGLO PLATINUM LIMITED	0.26	0.14	0.08	0.15	0.00	0.02	0.01	0.01	0.44
ANGLOGOLD ASHANTI LIMITED	0.63	0.16	0.05	0.07	0.13	0.12	0.04	0.02	-0.24
APEXHI PROPERTIES LIMITED	1.63	0.54	0.04	0.05	0.05	1.69	0.13	0.02	0.20
ARCELORMITTAL SA LIMITED	0.00	0.00	0.14	0.22	0.01	0.00	0.04	0.02	0.28
ASPEN PHARMACARE HOLDINGS LIMITED	0.02	0.01	0.14	0.26	0.00	0.01	0.12	0.11	0.26
AVENG LTD	0.02	0.01	0.43	0.67	0.00	0.01	0.37	0.21	0.22
AVI LIMITED	0.16	0.08	0.03	0.26	0.00	0.07	0.03	0.22	0.20
AVUSA LTD	0.00	0.00	0.19	0.43	0.01	0.00	0.37	0.46	0.22
BARLOWORLD LIMITED	0.39	0.14	0.04	0.26	0.00	0.21	0.06	0.32	0.23
DATATEC LIMITED	0.00	0.00	0.13	0.60	0.00	0.00	0.04	0.16	0.12
ELEMENTONE LIMITED	0.00	0.00	0.07	0.07	0.03	0.00	0.11	0.00	2.01
EQSTRA HOLDINGS LIMITED	2.55	0.47	0.01	0.12	0.00	1.21	0.03	0.29	0.06
FOSCHINI LIMITED	0.14	0.08	0.01	0.47	0.14	0.06	0.01	0.36	0.29
Fountainhead Property Trust	0.08	0.07	0.04	0.04	0.05	0.10	0.06	0.00	0.24
GOLD FIELDS LIMITED	0.15	0.10	0.03	0.07	0.00	0.09	0.03	0.03	0.11
GROUP FIVE LIMITED	0.51	0.11	0.20	0.49	0.00	0.16	0.29	0.42	0.21
HARMONY GOLD MINING COMPANY LIMITED	0.01	0.01	0.01	0.04	0.00	0.01	0.01	0.02	-0.01
HIGHVELD STEEL AND VANADIUM CORP LD	0.00	0.00	0.16	0.34	0.01	0.00	0.04	0.05	0.56
HULAMIN LIMITED	0.26	0.15	0.01	0.17	0.00	0.19	0.02	0.20	0.01
IMPALA PLATINUM HOLDINGS LIMITED	0.03	0.02	0.05	0.14	0.01	0.01	0.01	0.02	0.39
IMPERIAL HOLDINGS LIMITED	1.11	0.31	0.08	0.26	0.00	0.96	0.26	0.57	-0.05
JD GROUP LIMITED	0.13	0.08	0.10	0.71	0.00	0.12	0.16	0.98	0.19
MASSMART HOLDINGS LIMITED	0.10	0.02	0.09	0.24	0.00	0.02	0.07	0.12	0.49
MEDI-CLINIC CORPORATION LIMITED	2.40	0.56	0.02	0.09	0.01	1.98	0.07	0.26	0.07
METOREX LIMITED	0.33	0.17	0.03	0.11	0.00	0.16	0.02	0.08	0.17
Mondi Limited	0.37	0.18	0.03	0.22	0.01	0.14	0.02	0.15	0.09
MR PRICE GROUP LIMITED	0.09	0.05	0.17	0.37	0.00	0.03	0.11	0.14	0.37
MTN GROUP LIMITED	0.45	0.20	0.15	0.25	0.00	0.08	0.06	0.04	0.23

MURRAY AND ROBERTS HOLDINGS LIMITED	0.14	0.04	0.22	0.73	0.00	0.03	0.15	0.35	0.35
MVELAPHANDA GROUP LIMITED	0.20	0.10	0.12	0.20	0.02	0.22	0.25	0.17	-0.43
MVELAPHANDA RESOURCES LIMITED	0.08	0.06	0.22	0.23	0.82	0.04	0.14	0.00	0.03
NAMPAK LIMITED	0.09	0.04	0.05	0.27	0.00	0.05	0.06	0.29	0.17
NASPERS LIMITED	0.35	0.21	0.21	0.24	0.05	0.17	0.17	0.03	0.12
NETCARE LIMITED	3.37	0.57	0.03	0.08	0.02	1.82	0.09	0.18	0.13
NEW CLICKS HOLDINGS LIMITED	0.06	0.02	0.10	0.30	0.00	0.02	0.09	0.17	0.29
NORTHAM PLATINUM LIMITED	0.00	0.00	0.36	0.45	0.00	0.00	0.08	0.02	0.51
PICK N PAY STORES LIMITED	0.18	0.02	0.07	0.20	0.00	0.01	0.04	0.08	0.92
PRETORIA PORTLAND CEMENT COMPANY LD	0.07	0.03	0.27	0.41	0.00	0.01	0.06	0.03	0.61
REMGRO LIMITED	0.01	0.01	0.06	0.08	0.03	0.00	0.04	0.01	0.17
REUNERT LIMITED	0.11	0.06	0.11	0.46	0.01	0.02	0.05	0.15	0.26
SASOL LIMITED	0.20	0.11	0.04	0.22	0.01	0.05	0.02	0.08	0.30
SHOPRITE HOLDINGS LIMITED	0.00	0.00	0.21	0.21	0.00	0.00	0.13	0.00	0.33
STEINHOFF INTERNATIONAL HOLDINGS LD	0.51	0.22	0.09	0.24	0.00	0.48	0.19	0.33	0.14
SUPER GROUP LIMITED	0.69	0.16	0.08	0.29	0.00	0.66	0.33	0.93	0.08
TONGAAT HULETT LIMITED	0.14	0.05	0.05	0.28	0.01	0.04	0.04	0.18	1.16
TRUWORTHS INTERNATIONAL LIMITED	0.00	0.00	0.14	0.67	0.09	0.00	0.05	0.18	0.44
WOOLWORTHS HOLDINGS LIMITED	0.42	0.13	0.07	0.14	0.00	0.14	0.08	0.07	

	ROA	TA:TL	GP Margin	NP Margin	CA:CL	AR Days	AP Days	Stock Days	WC Cycle	Cash Ratio
A E C I LIMITED	0.06	2.13	0.07	0.04	1.39	65.22	95.01	74.28	44.48	-0.24
AFRICAN OXYGEN LIMITED	0.12	2.53	0.37	0.10	1.69	55.98	74.43	68.16	49.70	1.04
AFRICAN RAINBOW MINERALS LIMITED	0.20	3.70	0.56	0.39	1.81	120.3	100.2	81.46	101.52	0.84
ALLIED TECHNOLOGIES LIMITED	0.12	2.25	0.00	0.05	1.85	41.50	0.00	0.00	41.50	1.57
ANGLO PLATINUM LIMITED	0.23	2.52	0.41	0.27	1.06	33.00	46.53	84.49	70.96	1.09
ANGLOGOLD ASHANTI LIMITED	-0.06	1.79	-0.21	-1.63	0.50	233.2	89.77	90.84	234.35	-1.54
APEXHI PROPERTIES LIMITED	0.07	1.71	1.00	0.51	1.53	19.37	0.00	0.00	0.00	-0.05
ARCELORMITTAL SA LIMITED	0.20	8.29	0.26	0.19	3.38	28.52	48.48	80.83	60.87	0.81
ASPEN PHARMACARE HOLDINGS LIMITED	0.08	1.56	0.46	0.18	0.69	99.53	137.9	198.67	160.25	0.47
AVENG LTD	0.10	1.97	0.00	0.08	1.55	65.87	0.00	0.00	65.87	2.01
AVI LIMITED	0.09	2.27	0.40	0.07	1.42	60.54	89.71	74.73	45.56	0.26

AVUSA LTD	0.12	3.00	0.43	0.12	1.73	82.48	171.4	67.32	-21.65	0.86
BARLOWORLD LIMITED	0.08	1.79	0.00	0.06	1.46	57.53	0.00	0.00	0.00	1.52
DATATEC LIMITED	0.04	1.68	0.14	0.02	1.30	79.92	94.27	35.97	21.61	0.40
ELEMENTONE LIMITED	1.64	7.72	0.00	0.70	0.94	0.00	0.00	0.00	0.00	0.01
EQSTRA HOLDINGS LIMITED	0.01	1.29	0.00	0.07	0.97	236.0	0.00	0.00	0.00	1.03
FOSCHINI LIMITED	0.17	2.67	0.42	0.16	2.34	153.7	60.45	105.12	198.42	-0.04
Fountainhead Property Trust	0.22	9.07	0.74	2.55	1.03	14.01	187.4	0.00	-173.44	0.02
GOLD FIELDS LIMITED	0.08	4.89	0.21	0.21	1.01	33.31	84.58	38.75	-12.52	1.39
GROUP FIVE LIMITED	0.05	1.31	0.04	0.05	1.10	111.3	168.3	15.11	-41.83	3.40
HARMONY GOLD MINING COMPANY LIMITED	-0.01	5.64	0.20	-0.03	0.60	34.60	68.24	34.47	0.82	-7.07
HIGHVELD STEEL AND VANADIUM CORP LD	0.39	6.57	0.24	0.27	4.22	46.76	43.84	33.38	36.31	0.66
HULAMIN LIMITED	0.01	3.08	0.11	0.01	1.87	56.29	45.93	60.27	70.63	0.00
IMPALA PLATINUM HOLDINGS LIMITED	0.29	6.20	0.47	0.47	2.63	53.71	130.0	73.36	-3.01	0.63
IMPERIAL HOLDINGS LIMITED	-0.01	1.54	0.00	-0.01	1.61	44.52	0.00	0.00	44.52	-3.97
JD GROUP LIMITED	0.11	3.01	0.50	0.08	3.34	169.5	118.4	75.50	126.58	0.69
MASSMART HOLDINGS LIMITED	0.11	1.42	0.18	0.03	0.99	16.18	83.06	53.47	-13.40	0.68
MEDI-CLINIC CORPORATION LIMITED	0.02	1.62	0.44	0.08	1.75	117.2	0.00	30.39	147.63	0.70
METOREX LIMITED	0.09	2.92	0.00	0.29	0.88	99.11	0.00	0.00	99.11	1.13
Mondi Limited	0.04	2.34	0.39	0.05	1.36	75.92	109.8	72.56	38.69	3.00
MR PRICE GROUP LIMITED	0.20	2.33	0.39	0.08	1.82	28.92	86.48	76.03	18.47	0.55
MTN GROUP LIMITED	0.10	1.99	0.31	0.16	0.96	62.81	120.5	8.47	-49.27	2.88
MURRAY AND ROBERTS HOLDINGS LIMITED	0.10	1.41	0.00	0.07	1.11	146.1	0.00	0.00	146.18	1.26
MVELAPHANDA GROUP LIMITED	-0.23	2.44	0.25	-0.48	0.81	60.84	102.5	5.11	-36.61	-0.11
MVELAPHANDA RESOURCES LIMITED	0.02	3.05	1.00	0.25	0.99	30.92	0.00	0.00	30.92	3.34
NAMPAK LIMITED	0.08	2.30	0.10	0.06	1.16	62.68	64.97	55.87	53.58	0.77
NASPERS LIMITED	0.07	2.54	0.47	0.20	1.41	35.18	53.61	24.39	5.96	1.09
NETCARE LIMITED	0.02	1.46	0.42	0.06	0.93	56.40	86.41	20.17	-9.84	0.87
NEW CLICKS HOLDINGS LIMITED	0.09	1.63	0.19	0.04	1.18	28.77	85.16	53.36	-3.04	3.01
NORTHAM PLATINUM LIMITED	0.36	5.34	0.59	0.38	3.06	33.74	73.20	114.58	75.12	0.35
PICK N PAY STORES LIMITED	0.10	1.53	0.18	0.02	0.85	10.00	54.69	30.26	-14.43	1.72
PRETORIA PORTLAND CEMENT COMPANY LD	0.29	2.08	0.45	0.26	1.07	45.64	68.86	40.08	16.86	1.02
REMGRO LIMITED	0.16	27.2	0.00	1.06	3.55	47.14	0.00	0.00	47.14	0.23

REUNERT LIMITED	0.13	2.16	0.29	0.07	1.59	65.27	92.14	47.48	20.61	0.48
SASOL LIMITED	0.17	3.24	0.43	0.18	1.99	71.13	0.00	98.24	169.37	0.74
SHOPRITE HOLDINGS LIMITED	0.11	1.61	0.20	0.03	1.06	0.00	0.00	45.02	45.02	1.41
STEINHOFF INTERNATIONAL HOLDINGS LD	0.06	2.07	0.00	0.08	1.30	70.70	0.00	0.00	70.70	1.23
SUPER GROUP LIMITED	0.02	1.61	0.00	0.02	1.11	70.01	0.00	0.00	70.01	1.85
TONGAAT HULETT LIMITED	0.45	2.61	0.13	0.54	1.41	99.43	98.13	87.42	88.72	0.20
TRUWORTHS INTERNATIONAL LIMITED	0.33	4.35	0.55	0.23	3.40	134.1	93.52	56.43	97.06	0.56
	0.08	1.63	0.35	0.05	1.56	12.69	55.79	38.28	-4.82	0.45

Appendix 3: Long Run Performance Regressions

Appendix 3.1: Single Factor Jensen Model: Long Run Performance

Co efficients	Estimate	Standard Error	t value	p value
Alpha	0.004822	0.004669	1.033	0.303
ALSI	0.674957	0.078182	8.633	7.53e-15

Residual standard error: 0.05777 on 152 degrees of freedom
Multiple R-squared: 0.329, Adjusted R-squared: 0.3246
F-statistic: 74.53 on 1 and 152 DF, p-value: 7.526e-15

Durbin Watson d = 2.566235

Heteroskedasticity Consistent Fit

Co efficients	Estimate	Standard Error	t value	p value
Alpha	0.0048216	0.0046094	1.0460	0.2972
ALSI	0.6749565	0.0919669	7.3391	1.208e-11

Test for Heteroskedasticity

studentized Breusch-Pagan test

BP = 2.9132, df = 1, p-value = 0.08786

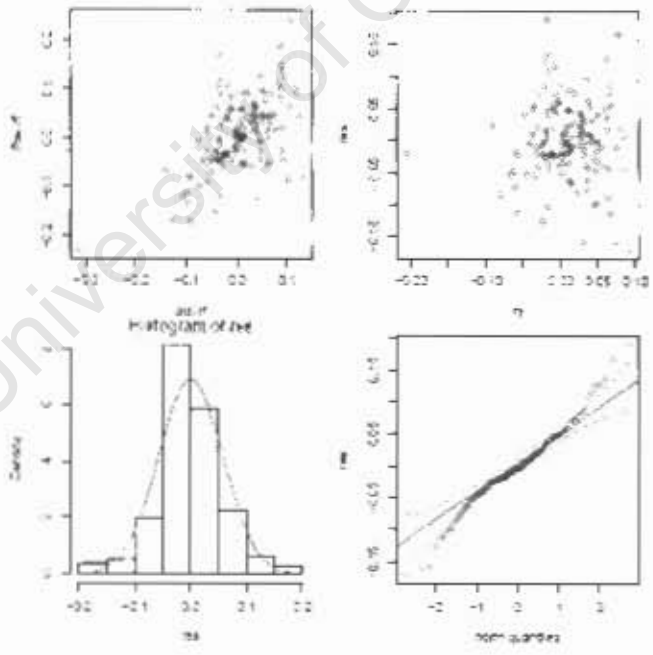
Test for Normality – Shapiro – Wilk Test

W = 0.9784, p-value = 0.01597

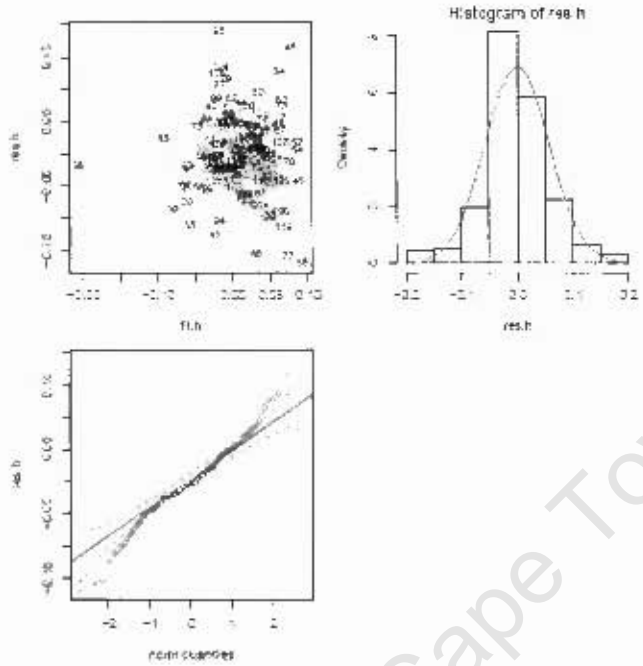
Test after Heteroskedasticity Fit

W = 0.9784, p-value = 0.01597

Scatter Plot and Histogram of residuals before testing for heteroskedasticity



Scatter Plot and Histogram of Residuals after heteroskedasticity fit



Appendix 3.2: Two Factor Jensen Model: Long Run Performance

Co efficients	Estimate	Standard Error	t value	p value
Alpha	0.003843	0.004612	0.833	0.406050
FINDI	0.342705	0.089473	3.830	0.000187
RESI	0.336662	0.064550	5.216	5.95e-07

Residual standard error: 0.05678 on 151 degrees of freedom
Multiple R-squared: 0.356, Adjusted R-squared: 0.3474
F-statistic: 41.73 on 2 and 151 DF, p-value: 3.741e-15

Durbin Watson d = 2.623248

Heteroskedasticity Consistent Fit

Co efficients	Estimate	Standard Error	t value	p value
Alpha	0.0038430	0.0045086	0.8524	0.3953552
FINDI	0.3427054	0.0934652	3.6667	0.0003398
RESI	0.3366618	0.0996754	3.3776	0.0009302

Testing for Heteroskedasticity

studentized Breusch-Pagan test

BP = 4.9433, df = 2, p-value = 0.08445

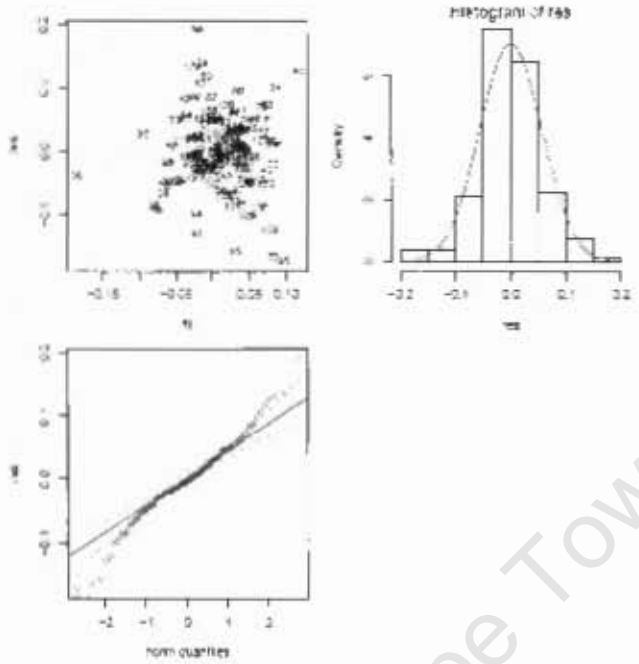
Test for Normality – Shapiro – Wilk Test

W = 0.9784, p-value = 0.01597

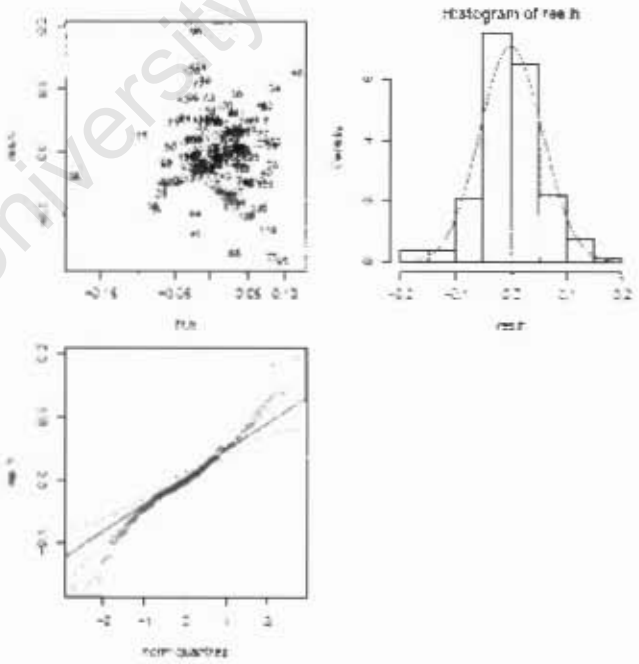
Test after Heteroskedasticity Fit

W = 0.9782, p-value = 0.01513

Scatter Plot and Histogram of Residuals before heteroskedasticity fit



Scatter Plot and Histogram of Residuals after heteroskedasticity fit



Appendix 3.2: Four Factor Carhart Model: Long Run Performance

Co efficients	Estimate	Standard Error	t value	p value
Alpha	-0.001202	0.005335	-0.225	0.822
ALSI	0.897679	0.204643	4.387	2.26e-05
SMB	-5.191456	10.757388	-0.483	0.630
HML	8.080775	9.335180	0.866	0.388
MOM	14.550918	8.784975	1.656	0.100

Residual standard error: 0.05972 on 139 degrees of freedom
Multiple R-squared: 0.3315, Adjusted R-squared: 0.3123
F-statistic: 17.23 on 4 and 139 DF, p-value: 1.682e-11

Durbin Watson d =2.067750

Test for Heteroskedasticity

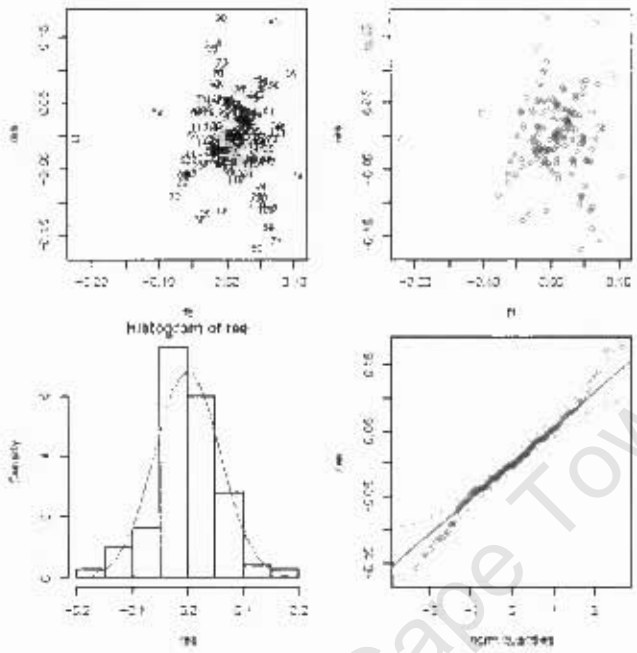
studentized Breusch-Pagan test

BP = 4.1963, df = 4, p-value = 0.3801

Test for Normality – Shapiro – Wilk Test

W = 0.9849, p-value = 0.1162

Scatter Plot and Histogram of Residuals



Appendix 4: Low Growth Period Regressions

Appendix 4.1: Single Factor Jensen Model

Coefficients	Estimate	Standard Error	t value	p value
Alpha	-0.00976	0.01384	-0.705	0.488
ALSI	-0.06852	0.23722	-0.289	0.775

Residual standard error: 0.06794 on 23 degrees of freedom
Multiple R-squared: 0.003614, Adjusted R-squared: -0.03971
F-statistic: 0.08342 on 1 and 23 DF, p-value: 0.7753

Durbin Watson d = 1.9176, p-value = 0.4123

Test for heteroskedasticity

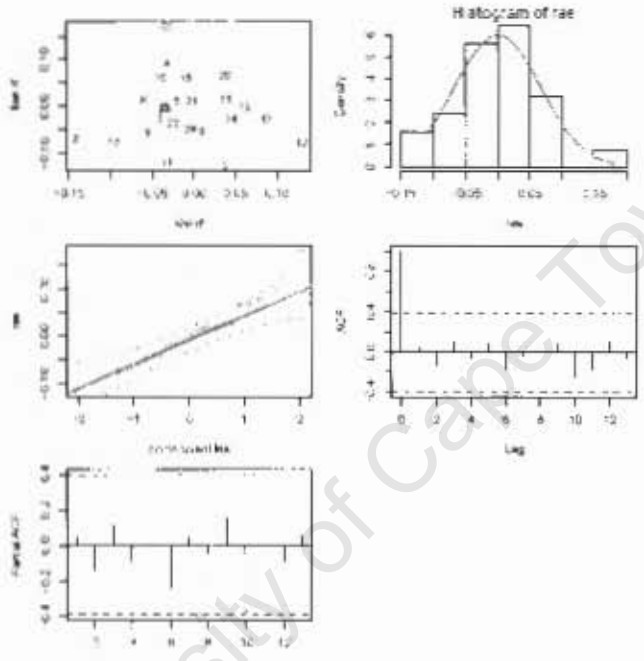
studentized Breusch-Pagan test

BP = 0.2893, df = 1, p-value = 0.5907

Test for Normality – Shapiro – Wilk Test

W = 0.9681, p-value = 0.5979

Scatter Plot and Histogram of Residuals



Appendix 4.2: Four Factor Carhart Model

Coefficients	Estimate	Standard Error	t value	p value
Alpha	-0.01079	0.02000	-0.540	0.595
ALSI	-0.37586	4.50522	-0.083	0.934
SMB	20.01187	340.48214	0.059	0.954
HML	-10.14234	74.16281	-0.137	0.893
MOM	7.65435	23.94232	0.320	0.753

Residual standard error: 0.07227 on 20 degrees of freedom
Multiple R-squared: 0.01979, Adjusted R-squared: -0.1762
F-statistic: 0.101 on 4 and 20 DF, p-value: 0.9809

Durbin Watson d = 1.8228, p-value = 0.3183

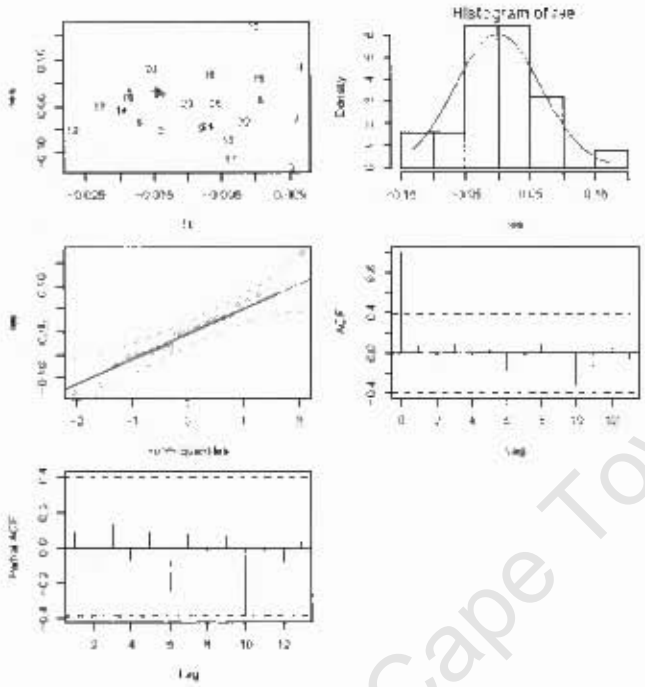
Test for heteroskedasticity

studentized Breusch-Pagan test
BP = 5.9758, df = 4, p-value = 0.2010

Test for Normality – Shapiro – Wilk Test

W = 0.9763, p-value = 0.8035

Scatter Plot and Histogram of Residuals



Appendix 5: High Growth Period Regressions

Appendix 5.1: Single Factor Jensen Model

Coefficients	Estimate	Standard Error	t value	p value
Alpha	0.012273	0.009881	1.242	0.227
ALSI	0.237711	0.270186	0.880	0.388

Residual standard error: 0.04503 on 22 degrees of freedom
Multiple R-squared: 0.03399, Adjusted R-squared: -0.009921
F-statistic: 0.7741 on 1 and 22 DF, p-value: 0.3885
Durbin Watson d = 2.3246, p-value = 0.793

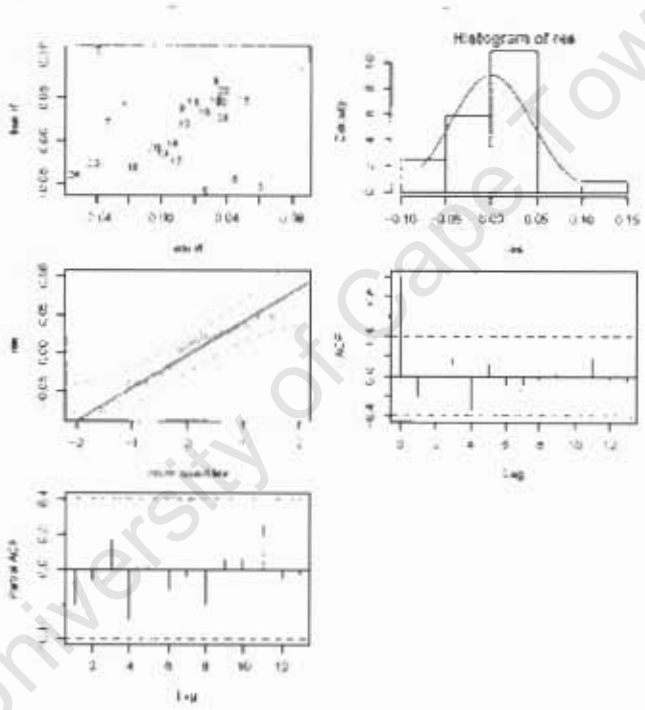
Test for heteroskedasticity

studentized Breusch-Pagan test
BP = 0.0021, df = 1, p-value = 0.9634

Test for Normality – Shapiro – Wilk Test

W = 0.9634, p-value = 0.5095

Scatter Plots and Histogram of Residuals



Appendix 5.2: Two Factor Jensen Model

Coefficients	Estimate	Standard Error	t value	p value
Alpha	0.01279	0.00940	1.361	0.1880
FINDI	0.49275	0.23963	2.056	0.0524
RESI	-0.13282	0.16451	-0.807	0.4285

Residual standard error: 0.04264 on 21 degrees of freedom
Multiple R-squared: 0.173, Adjusted R-squared: 0.09419
F-statistic: 2.196 on 2 and 21 DF, p-value: 0.1362

Durbin Watson d = 2.3069, p-value = 0.7846

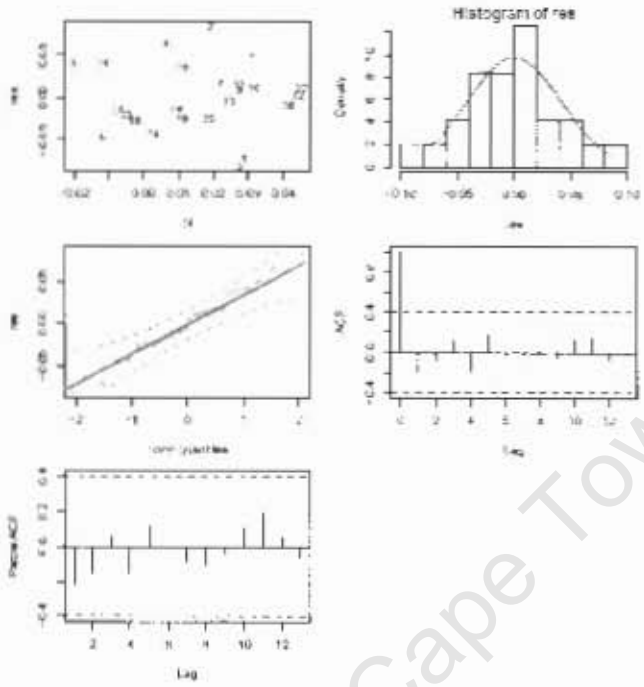
Test for heteroskedasticity

studentized Breusch-Pagan test
BP = 0.4776, df = 2, p-value = 0.7876

Test for Normality – Shapiro – Wilk Test

W = 0.989, p-value = 0.9934

Scatter Plots and Histogram of Residuals



Appendix 5.3: Four Factor Carhart Model

Coefficients	Estimate	Standard Error	t value	p value
Alpha	0.01412	0.01219	1.158	0.2613
ALSI	-0.99004	2.69298	-0.368	0.7172
SMB	134.12282	256.08937	0.524	0.6065
HML	49.64277	90.91511	0.546	0.5914
MOM	-55.70003	30.71750	-1.813	0.0856

Residual standard error: 0.04297 on 19 degrees of freedom
Multiple R-squared: 0.2401, Adjusted R-squared: 0.08011
F-statistic: 1.501 on 4 and 19 DF, p-value: 0.2417

Durbin Watson d = 1.6505, p-value = 0.1531

Test for heteroskedasticity

studentized Breusch-Pagan test
BP = 1.5065, df = 4, p-value = 0.8255

Test for Normality – Shapiro – Wilk Test

W = 0.9632, p-value = 0.5067

Scatter Plots and Histogram of Residuals