

**UNIT TRUST PERFORMANCE IN SOUTH AFRICA: AN
EMPIRICAL INVESTIGATION OF THE
OUTPERFORMANCE AND PERFORMANCE
PERSISTENCE OVER THE PERIOD 2001 TO 2010**

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Declaration

I hereby declare that this thesis is my own original work and that all the sources have been accurately reported and acknowledged. It is submitted for the degree of Masters of Commerce to the University of the Witwatersrand, Johannesburg. This thesis has not been submitted for any degree or examination at this or any other university.

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Abstract

The debate on whether actively managed funds are able to outperform the market or their passively managed counterparts, for that matter, is on-going for almost half a century. However, convincing empirical evidence is yet to be presented in the financial literature. This study contributes to the debate by examining whether unit trusts on average are able to deliver superior performance, and whether such performance persists. This study used six performance measures (namely: nominal returns, Sharpe ratios, CAPM alphas, Fama and French (1993) 3-factor alphas, Carhart (1997) 4-factor alphas and Ferson and Warther (1996) conditional alphas) to test for outperformance, while contingency tables, rank tests and time series regression were used to test for performance persistence. In order to identify the extent to which outperformance and performance persistence exists in a South African context, the tests were applied to the gross and net monthly total returns obtained from a sample of 151 South African domestic equity unit trusts, covering the 10-year period from 01 January 2001 to 31 December 2010. The results indicated that convincing evidence of outperformance could not be found for the South African domestic equity unit trust industry as a whole, and while some evidence of short-run persistence was found, the strength of the evidence decreased over the long-run, disappearing almost entirely in some cases. The results also suggested that 'losers' persist more than 'winners'. Overall the results were sensitive to the methodology and the performance model employed, as well as the time period examined and the length of the evaluation intervals. While the dataset was subject to survivorship bias, the principal conclusion was that this study was unable to produce conclusive evidence that unit trust managers on average possess superior skill, and that investors are therefore not able to choose future 'winners' on the basis of past performance.

1. Introduction

“Do Mutual Fund Managers who actively trade stocks add value?” Wermers (2000:1655)

Academics have debated this issue since the seminal paper of Jensen (1968). Although the question remains controversial and somewhat unanswered, there are a number of studies that claim that actively managed funds on average, underperform their passively managed counterparts. For example, Gruber (1996) and Malkiel (2005) found evidence in the USA that equity mutual funds were not able to outperform their passive counterparts, while Pretorius and Wolmarans (2006) and Oldham and Kroeger (2005) found similar evidence among South African unit trusts. These studies do not provide a promising picture of active mutual fund management; instead, studies such as these conclude that, on average, investors are better off buying a low-expense index fund. Yet, as Gruber (1996:784) notes, the behaviour of investors is “puzzling” – “investors continue to pour money” into actively managed funds, both in South Africa and abroad, in pursuit of performance.

The active manager’s best proof of ability to outperform the market may be found in his or her performance track record and this (rightfully so or not) commonly serves as the criterion on which the manager is judged and selected by investors and employers alike. Professional investment advisors and the media devote much time and energy to study and document the past performance of mutual funds on the premise that an analysis thereof would indicate future winners. The track records of successful portfolio managers are also utilised in fund marketing and several academics have even documented that historical performance is the predominant criterion in fund selection (such as Ippolito (1992); Patel, Zeckhauser and Hendricks (1994); Gruber (1996); Deaves (2004); and Busse and Irvine (2006)). However, other academics continue to raise questions around the persistence of performance (be it superior or inferior for that matter) and whether past performance is a reliable indicator of future performance (for example, Wessels and Krige (2005)). Yet investors chase returns; a good year induces an inflow of capital, and a bad year induces an outflow of capital.

In the words of Berk (2005:28), “The flow of capital into and out of actively managed mutual funds is sensitive to past fund performance, despite no strong evidence of performance persistence.”

However, one need only look to the financial press and a contrasting impression is created. Numerous awards are doled out each year (such as the *Raging Bull* Awards and *PlexCrown* rankings in South Africa) and the financial press constantly cites many an example of “star” performers such as the “legendary” Peter Lynch and Warren Buffet, to local managers such as John Biccard and Allan Gray. Kosowski, Timmerman, Wermers and White (2005:1) had the following to ask of Peter Lynch:

“Was the famous Peter Lynch, former manager of the Fidelity Magellan fund, a “star” stockpicker, or was he simply endowed with stellar luck? The popular press seems to assume that his fund performed well due to his unusual acumen in finding under-priced stocks.”

While Marcus (1990) asserts that the prolonged superior performance of the Magellan fund is difficult to explain as a purely random outcome, the apparent superior performance of a small group of funds, such as the Magellan fund, raises the question of whether this is credible evidence of genuine stock picking skills, or whether it simply reflects the extraordinary luck of a few individual fund managers – after all, it is known from statistics, that if a sample is large enough, it is only a matter of time before outliers begin to appear. Thus, given the size and number of mutual funds in the world today¹, it can be reasonably expected that some active funds will outperform and others will underperform but “no more so than at the roulette wheel, where some gamblers win through sheer luck” or chance (Grinold and Kahn, 2000:559).

Although the usefulness of the track record approach seems fairly plausible, a large number of academics do not believe in this approach. This is in accordance with the Efficient Market Hypothesis (“EMH”), which implies that past performance is no guide to future performance after adjusting for risk and other pricing factors. Finance academics have a fairly long history of studying active manager performance in the context of efficient markets theory. According to the strong version of the EMH, superior active management should be impossible – that is, if security prices already incorporate all possible information (as the strong version of the

¹ \$23 trillion (65,735 funds) at the end of 2009 \$18 trillion in 2005 – according to data from the ICI (2010:182-183).

EMH implies), then no amount of active research should lead to any significant outperformance as there should be no sources of superior information (Grinold and Kahn, 2000). If the hypothesis is true, then not only can the average manager not be expected to outperform the market or their passively managed counterparts, but even managers with the best historical record cannot be expected to keep up their performances in the future (Meyer, 1998; and Oldham and Kroeger, 2005).

Yet, performance persistence remains a popular topic among mutual fund researchers and academics. The persistence studies tend to focus on the issue of whether it is possible to predict future performance by using past performance records. The topic is very central from the viewpoint of the entire performance measurement industry since, if past performance had no prediction power over future performance, the data collecting and ex post performance evaluation would be a unjustified procedure from the investor's standpoint. The only value that past performance records might in this case have would be in evaluating the success of a portfolio manager and possibly, avoiding past 'losers'. However, firing or recruiting a manager based on past performance would be groundless if past performance told nothing about future performance. Nevertheless, the performance measurement industry is growing all the time along with the mutual fund industry. Companies such as *Morningstar* and *Lipper* – that started their business by publishing mutual fund rankings – are employing ever more complex performance evaluation methods, while performance reviews continue to be regularly published in *Barron's*, *Business Week*, *Forbes*, and the *Wall Street Journal* abroad and *Personal Finance* and *Financial Mail* in South Africa, among other publications.

While previous South African studies have been published, most of these were severely constrained by small sample sizes. Prior to the start of the twenty-first century, the number of mutual funds (or unit trusts as they are known locally) in South Africa was small². Moreover, many previous studies utilised only one or two performance evaluation models to test for evidence of superior performance and for persistence in unit trust performance. Using a sample of 151 Domestic Equity unit trusts (including 15 Exchange Traded Funds) over the 2001 to 2010 period, and five performance evaluation models, this study attempts to determine two

² In December 2000, there were 334 different funds, with an asset value of R128.4 billion, of which fewer than 50 were Domestic Equity Funds – according to data from the Association for Savings and Investments South Africa ("ASISA"), previously Association of Collective Investments South Africa.

things – first, whether South African Domestic Equity Unit Trusts are able to deliver superior performance (i.e. “beat” the market), and second, whether past unit trust performance contains any predictive value with respect to future unit performance; that is, do outperformers (underperformers) in one period remain outperformers (underperformers) in the following period.

1.1.Organisation of the Report

This report has been organised as follows: Section 1.2 defines some of the terms and definitions used in this report. Section 2 comprises a literature review, which will provide an overview and brief history of the South African unit trust industry and summarise some of the previous literature relating to the performance of mutual funds and unit trusts. Section 3 highlights the relevance and importance of this study, Section 4 formally states the null hypotheses that this study is attempting to reject). Section 5 details the methodology and sample data used in this study, while Section 6 discusses and interprets the results. Section 7 summarises some of the shortcomings and limitations of this study. Section 8 provides a conclusion and suggests future avenues for research. Section 9 lists all the references used in this study, and last, Section 10 contains the appendices.

1.2.Definitions

For the purposes of this report, the following definitions are used:

The term **Mutual Fund**, which is widely used in the USA and in other countries, refers to open-ended investment companies with redeemable shares. Mutual funds are similar to South African **Unit Trusts**, which are also known as collective investment schemes. Essentially, they are both investment vehicles used by institutional and retail investors for the purposes of investing into some underlying set of securities (e.g. listed

shares, bonds, property, gilts, etc). Oldert (2005) points out the technical difference between a unit trust and a mutual fund. A unit trust is overseen by a trust company, while in a mutual fund it is the responsibility of the directors of the mutual fund company to ensure that the fund manager and the custodian perform their duties in accordance with the constituent documents. “The difference between mutual funds and unit trusts lies in their structure – the end result for the investor is much the same” (Oldert, 2005:30). For the purposes of this report, the terms mutual funds and unit trusts will be used interchangeably.

Passive and **active** investors will be defined according to Sharpe (1991). A passive investor always holds every security from the market portfolio or benchmark portfolio as the case may be, with each represented in the same manner as in the market or benchmark. So for example, if security X represents 3 per cent of the value of the securities in the market, a passive investor's portfolio will have 3 per cent of its total value invested in X. Similarly, a passive manager will hold the same percentage of the total outstanding amount of each security in the market or benchmark. An active investor is one who is not passive – that is, his or her portfolio will tend to differ from that of the passive managers at some or all times. Sharpe (1991:2) explains where the term “active” comes from. Because active managers usually act on perceptions of mispricing, and because such misperceptions change relatively frequently, active managers tend to trade fairly frequently – hence the term "active" managers.

The term, **alpha**, has two uses in this report. First, alpha refers to the magnitude of outperformance achieved by an active manager in the case of a positive value and the magnitude of underperformance when alpha carries a negative value. Second and closely related, alpha refers to the intercept in the regression models used to evaluate the performance of active managers relative to a specified benchmark, and is a direct measure of the magnitude of outperformance or underperformance as implied by its first use.

Superior performance or **outperformance**, by a mutual fund, is defined as producing a return that is in excess of the benchmark return (as determined by the underlying performance evaluation model being used to assess the performance of a mutual fund). Conversely, **inferior or negative performance** or **underperformance** is defined as producing a return that is less than the benchmark return. For example, a

positive alpha as determined by the Capital Asset Pricing Model (“CAPM”) would be evidence of superior performance or outperformance.

The terms, **consistency** in performance, is used distinctly from the terms, **persistence** in performance in this study. Whereas consistency refers to the ability of a manager to deliver superior or inferior performance more than once over a series of time periods, persistence specifically refers to the ability of a manager to deliver repeat superior or inferior performance over adjacent periods. Thus a manager may be able to deliver superior or inferior performance consistently but not persistently. For example, a manager may outperform every second period out of five periods, and underperform every other period, yet it may still be concluded that that manager is able to outperform consistently more often than not – that is, three out of five periods. However, such a manager’s track-record, lacks any positive persistence in performance as outperformance in one period is followed by underperformance in the following period.

Survivorship Bias refers to the exclusion of failed mutual funds from the datasets of mutual fund performance evaluation studies simply because they no longer exist at the end of the sample period covered by the dataset. In other words, “the dataset is truncated, thereby removing the existence of failed funds” (Pawley, 2006:21).

2. Literature Review

There is an extensive library of research dedicated to the evaluation of mutual trust performance internationally, and to a lesser extent, in South Africa. While the bulk of the research focuses on the US mutual fund industry, South African and other international studies have been increasing in number over the past decade. A selection of the past 40 years' worth of research has been reviewed in the following literature review.

The Literature Review has been organised as follows. Section 2.1 provides an overview and brief history of the South African unit trust industry. Section 2.2 states the Efficient Market Hypothesis and presents its implications for active management. Section 2.3 highlights some alternative theories that support or debunk the notion of successful active asset management. Section 2.4 specifically summarises the findings of previous international and South African studies that have examined whether mutual funds are able to deliver superior performance, and whether there is any persistence in the returns of mutual funds. Section 2.4 also considers the implications of survivorship bias on mutual fund studies (refer Section 2.4.4), and considers some of the criticisms of the various performance measures used by researchers in the evaluation of mutual fund performance (refer Section 2.4.6).

2.1. Overview of the South African Unit Trust Industry

Sage launched the first unit trust on 14 June 1965, with initial assets worth approximately R600 000. By the end of 1965, there were two funds with a combined asset value of R3 million. According to Oldert (2005), this first fund was established to: (1) offer the ordinary investor a convenient investment product, which allowed assets to be managed professionally; (2) spread risk across a broad portfolio of shares; (3) provide the investor with the ability to liquidate the investment at short notice; (4) allow for low initial investment amounts; (5)

improve the tax efficiency of investing in shares; and (6) lower the costs of investing relative to the other products available at the time.

During the following 15-year period from 1965 to 1980, only ten new funds were launched; growth during that period was constrained by the market crash of 1969. The unit trust industry experienced strong growth during the second half of the 1980s, with eleven new funds being established in 1987 alone. By December 1990, the industry had grown to 36 different funds, worth R7.5 billion. The comparatively rapid growth in the number of funds in the 1980s was however, insignificant compared to the number of funds added in the 1990s, and since the start of 2000. In December 2000, there were 334 different funds, with a combined asset value of R128.4 billion. By June 2005, there were 617 different funds with an asset value of just over R415 billion, and by 31 December 2010, there were 943 registered funds, managing a combined R938 billion of assets (Pretorius and Wolmarans, 2006; and Association of Savings and Investments South Africa, 2000, 2005, 2010). These figures indicate that unit trusts have become a popular savings channel for the more than two million South Africans who currently invest in unit trusts.

According to the ASISA, funds may be categorised as follows: Domestic, Foreign, and Worldwide. Domestic funds invest largely in South African markets (with a requirement that at least 85 percent of their assets must be invested locally), while Foreign funds invest largely outside of South African markets (with at least 85 percent of their assets being invested in markets outside South Africa). Worldwide funds can invest in a mixture of local and foreign markets. At the second tier, funds are classified as equity funds, asset allocation funds, real estate funds, or fixed interest funds. By far the widest range of unit trusts are equity unit trusts. They give an investor more than 75 percent exposure to the stock market. Table L1 provides a summary of the number of funds in each category as at 31 December 2010. Table L1 includes both institutional and retail unit trusts, as well as third-party funds. As at 31 December 2010, there were 42 Unit Trust management companies (ASISA, 2010).

Table L1: Categorisation of Unit Trust Funds (31 Dec 2010) –

(Source: ASISA, 2010)

	TOTAL ASSETS		NO. OF FUNDS	
	R'm	%	#	%
DOMESTIC FUNDS				
Equity	201,612	23	212	27
Asset Allocation	219,192	25	395	50
Real Estate	29,815	3	29	4
Fixed Interest	441,092	49	156	20
	891,711	100	792	100
WORLD WIDE FUNDS				
Equity	429	7	5	13
Asset Allocation	5,503	90	32	84
Fixed Interest	214	3	1	3
	6,146	100	38	100
FOREIGN FUNDS				
Equity	20,479	50	47	41
Asset Allocation	18,183	44	40	35
Fixed Interest	2,261	6	27	24
	40,922	100	114	100
TOTAL	938,779	100	944	100

According to the ASISA, domestic equity unit trusts must invest at least 85% of their funds under management in South African listed shares. Within the domestic equity category, there are a number of sub-categories, namely: (1) Financial Funds, (2) General Equity Funds, (3) Growth Funds, (4) Industrial Funds, (5) Large Cap

Funds, (6) Resources and Basic Industries Funds, (7) Smaller Companies Funds, (8) Value Funds, and (9) Varied Specialist Funds (which includes all general equity funds that do not fall into any of the other sub-categories). With the exception of the General Equity sub-category, all the others are collectively known as specialist funds. General equity unit trusts can invest in a broad range of stocks, while specialist equity funds invest in a much smaller universe of shares – for example, only in financial shares.

2.2. Efficient Market Hypothesis

The Efficient Market Hypothesis (“EMH”) is defined first before its implications for active asset management are considered.

The EMH asserts that financial markets are “informationally efficient” (Malkiel, 2003a:3). That is, in terms of the EMH, markets are considered to be extremely efficient in reflecting information about individual stocks and about the stock market as a whole. The accepted view is that when information arises, the news spreads very quickly and is incorporated into the prices of securities without delay. Thus, according to Malkiel (2003a) neither technical analysis – the study of past stock prices in an attempt to predict future prices – nor even fundamental analysis – the analysis of financial information such as company earnings, asset values, etc. to help investors select so-called ‘under-valued’ stocks – would enable an investor to achieve returns greater than those obtained by holding a randomly selected portfolio of individual stocks with comparable risk.

Efficient market theory comes in three strengths; weak, semi-strong, and strong. The weak form states that investors cannot outperform the market using only historical price and volume data. The semi-strong form states that investors cannot outperform the market using only publicly available information such as historical prices, fundamental data, analysts' published recommendations, etc. The strong form of the efficient markets hypothesis states that investors can never outperform the market as market prices contain all relevant information, whether public or non-public in nature (Grinold and Kahn, 2000).

It is commonly believed that mutual fund investment performance is consistent with at least the semi-strong version of the EMH, implying that any expenditure or effort spent on research and trading is futile since securities' prices already reflect all available information (Ippolito, 1993:42). In terms of the EMH, therefore, active managers should not be able to outperform the market over time and on an unleveraged basis (Malherbe, 2009).

The EMH is associated with the idea of a 'random walk', which is a term loosely used in the finance literature to characterise a price series where all subsequent price changes represent random departures from previous prices – that is, price movements from one period to the next are independent and are said to approximate those of a random walk (Malkiel, 2003a). The logic of the random walk idea is that if the flow of information is unimpeded and if information is immediately reflected in stock prices, then tomorrow's price change will reflect only tomorrow's news, and will be independent of the price changes today. In other words, no arbitrage opportunities should exist that would allow investors to achieve above-average returns without accepting above-average risk (Malkiel, 2005). Since news is by definition unpredictable, the resulting price changes must be unpredictable and random too. As a result, it is argued that prices fully reflect all known information, and that "even uninformed investors buying a diversified portfolio will obtain a rate of return as generous as that achieved by the experts" (Malkiel, 2003a:3). Thus, apart from its long-run uptrend, Malkiel (2005) argues that stock markets are largely unpredictable.

The large amount of evidence in support of this theory suggests that it may be very difficult (and very expensive) to detect securities that are incorrectly priced. If so, it may not be because security analysts are not doing their jobs properly but because they may be doing it very well. However, if this is the case, it may not pay the manager of a particular fund to devote extensive resources to the search for incorrectly priced securities, and the fund that does so may provide its investors a poorer net performance (after costs) than one that does not (Sharpe, 1966). More specifically, Ippolito (1993) argues that the EMH, in its original form, predicts that active investors will evince alphas equal to the negative of the expenses they incur as a percentage of assets. Cochrane (2001:5) has suggested that many of the empirical papers documenting predictable returns only "amount to clever magnifying glasses, ways of making small facts economically

interesting". The record of professional equity investors certainly does not suggest that sufficient predictability exists in the stock market to outperform a passive portfolio with equivalent risk. Moreover, there appears to be no recognisable anomalies or irrationalities to enable professionals to take advantage of exploitable arbitrage opportunities. Malkiel (2003b:10) argues that investors are likely to achieve higher returns by "employing a passive indexing strategy than they are likely to achieve from active portfolio management."

Not long after it was first theorised in the early 1970s, the EMH became the accepted paradigm among academics. The history of past stock prices appeared to provide no helpful information in predicting future price movements. Moreover, securities' prices appeared to incorporate all fundamental information so rapidly and efficiently that an uninformed investor 'on the street', buying at the current tableau of prices, could earn returns equivalent to those available to the professional managers or 'experts'. In short, "markets were proclaimed to be remarkably efficient" (Malkiel, 1995:549).

However, while researchers continued to find evidence to support the EMH throughout the 1970s and 1980s, several cracks appeared in the efficient market edifice (Malkiel, 1995). For example, evidence began to emerge that stock returns may not be independent over time – that is, some stock returns appeared to be positively correlated over short time spans and negatively correlated when measured over longer periods. Also, various seasonal and day-of-the-week patterns were isolated. Furthermore, there appeared to be a considerable degree of predictability of stock returns on the basis of certain fundamental variables, such as initial dividend yields, market capitalization, price-earnings ratios, and price-to-book-value ratios. Regardless, Malkiel (1995) pointed out that these observations return predictability may not necessarily imply that equity markets are inefficient.

Taken as a whole, Ippolito (1993) argues that the results of the mutual fund performance studies appear to be inconsistent with the hypothesis that research fees and trading expenses are wasted. It seems that they are generally consistent with the hypothesis that mutual funds are sufficiently successful in finding and

implementing new information to offset their expenses. Yet many researchers nevertheless still find themselves tilting towards the views of Michael Jensen³:

"It's difficult to systematically beat the market. But it's not difficult to systematically throw money down a rat hole by generating commissions (and other costs)."

Ippolito (1993) further adds that part of the explanation for the durability of this view is the lack of viable competing theories. Because rejection of the EMH implies to some that the market is inefficient, researchers may have often been reluctant to reject the theory. The lack of alternative theories biases conclusions in favour of the EMH.

While most would argue that passive investment strategies make most sense in a world of efficient markets, Malkiel (2003b) claims that passive investment strategies can be justified even if markets are less than efficient. Indexing may be a sensible strategy because security markets appear to be remarkably efficient in digesting and adjusting to new information. When information arises about individual stocks or about the market as a whole, that information is generally reflected in market prices without delay. While it is true that a number of anomalies have been isolated by researchers, and that a number of predictable patterns appear to exist, including some evidence of under-reaction to news events, none of this evidence is persuasive enough to abandon the EMH. Anomalies are generally very small relative to the transactions costs required to exploit them. Under reaction to news events appears as frequently in the data as over reaction to events, as has been stressed by Fama (1998). Many of the predictable patterns seem to disappear soon after they are discovered, as has been emphasised by Schwert (2001). Moreover, the patterns that have been isolated are not robust and dependable in different sample periods, and some may simply reflect better proxies for measuring risk than inefficiencies (Malkiel, 2003b).

In summary, proponents of the EMH and the random walk theory suggest that the EMH implies three things. First, past performance is no guarantee of future performance. Second, the average manager will not be able to beat a passive strategy, and third, top managers will not be expected to outperform in future. In support of

³ Michael Jensen, quoted in *Forbes*, 8 October 1984. See Ippolito (1993:42).

the EMH, Malkiel (2003b) states that the most convincing evidence that markets must, for the most part, be efficient and that profitable arbitrage opportunities are not readily available, is that professional investors are not able to outperform the collective judgement of the market as a whole. Berk (2005) also points to the evidence that active managers as a group do not beat the market. The conclusion is that these investment professionals do not have the skills necessary to pick stocks or time the market. In the words of Goetzmann and Ibbotson (1994:17), “Excess performance is the result of luck, not skill.” Yet if this argument is correct, “Why do investors buy actively managed mutual funds?” (Gruber, 1996:783).

2.3.Alternative Theories

While the EMH appears to provide a reasonable basis, albeit in theory, to support the claim that active managers should not be able to ‘beat’ the market, there are number of other theories put forward by researchers over the years that provide support for or refute this claim. Some of these are presented in this review and include: (1) The arithmetic of asset management; (2) Equilibrium Accounting; (3) Introducing behavioural finance dynamics; (4) The Diseconomies of Scale; (5) a revised version of the EMH that explicitly considers the cost of obtaining information.

2.3.1. The Arithmetic of Asset Management

In his study, Sharpe (1991) explains why on average active returns should not exceed passive returns. He states, that over any specified time period, the market return will be a weighted average of the returns on the securities within the market, using beginning market values as weights. Because the market return must equal a weighted average of the returns on the passive and active segments of the market, and because one would expect each passive manager to obtain precisely the market return, it therefore follows that – at best and

before costs – the return on the average actively managed dollar must equal the market return (Sharpe, 1991).

The equation changes slightly if costs are introduced. The costs of actively managing a given value of assets will exceed those of passive management since active managers must pay for more research and must pay more for trading. “Security analysis (e.g. the graduates of prestigious business schools) must eat, and so must brokers, traders, specialists and other market-makers.” Because active and passive returns are equal before cost, and because active managers bear greater costs, it follows that the after-cost return from active management must be lower than that from passive management (Sharpe, 1991).

Despite the above, Sharpe (1991:2) attempts to explain why “sensible investment professionals continue to make statements that seemingly fly in the face of [these] simple and obvious relations” described above. Three explanations are provided.

First, the passive managers in question may not be truly passive (i.e., conform to the definition of the term, “passive”). Some index fund managers ‘sample’ the market of choice, rather than hold all the securities in market proportions. Some may even charge high enough fees to bring their total costs to equal or exceed those of active managers (Sharpe, 1991). In effect, researchers may be comparing active funds to funds that, even though marketed as being passive, may be anything but, thereby yielding misleading evidence.

Second, active managers may not fully represent the so-called ‘non-passive’ component of the market in question. For example, the set of active managers may exclude some active holders of securities within the market (for example, individual investors as distinct from professional fund managers). Many empirical analyses (including this study, for example) consider only professional or institutional active managers. It is quite plausible for the average professionally or institutionally actively managed dollar to outperform the average passively managed dollar, after costs. For this to take place, however, Sharpe (1991:2) argues that the non-institutional, individual investors must be “foolish enough” to pay the added costs of the institutions’ active management via inferior performance. Another example arises when the active managers hold securities from outside the stock market in question. For example, returns on equity mutual funds with cash

holdings are often compared with returns on an all-equity index or index fund. In such comparisons, the funds are generally beaten by the index in up markets due to cash-drag, but sometimes perform better than the index in down markets – a phenomenon that is perhaps not too disadvantageous from the investor's point of view, particularly given that investors derive more pain from losses than they do utility from gains. Yet another example arises when the set of active funds excludes those that have gone out of business during the period in question. Because such funds are likely to have experienced especially poor returns, the resulting survivorship bias will tend to produce results that are better than those obtained by the average active fund (Sharpe, 1991). The effect of survivorship bias on mutual fund performance evaluation studies is explored further in Section 2.4.5.

Third and possibly most important in practice, the summary statistics for active managers may not truly represent the performance of the average active manager. To compute the latter, each manager's return should be weighted by the assets that that particular manager has under management at the beginning of the period. Some comparisons use a simple average of the performance of all managers (large and small); others use the performance of the median active manager. While the results of this kind of comparison are, in principle, unpredictable, certain empirical regularities persist. Perhaps most important, equity fund managers with smaller amounts of money tend to favour small-capitalisation stocks. Thus, de facto, an equally weighted average of active fund returns is likely to have a bias toward smaller-capitalization stocks vis-à-vis the market as a whole. As a result, the average active fund may be beaten in periods when small-capitalization stocks underperform large-capitalization stocks, but may exceed the market's performance in periods when small-capitalization stocks do well. Sharpe (1991) concludes that in both cases, the average active fund will underperform the market, net of costs.

In summary, Sharpe (1991) asserts that when properly measured, the average actively managed fund must underperform the average passively managed fund, net of costs, and that empirical analyses that appear to refute this principle must be subject to improper measurement. However, he adds that this need not be taken as a “counsel of despair” Sharpe (1991:3). It is perfectly possible for some active managers to beat their passive brethren, even after costs. But such managers are likely to manage only a minority share of the

actively funds under management within the market in question. It is also possible for an investor (such as a pension fund) to choose a set of active funds that, collectively, provides a total return better than that of a passive alternative, even after costs. “Not all the managers in the set have to beat their passive counterparts; only those managing a majority of the investor's actively managed funds” (Sharpe, 1991:3).

2.3.2. Equilibrium Accounting

Fama and French (2008) examine mutual fund performance from the perspective of equilibrium accounting; a theory not too different from that of Sharpe (1991).

Equilibrium accounting states that equity investors in aggregate should receive the value-weighted equity market return less their investment costs. Within this framework, suppose that when returns are measured before costs, passive investors get passive returns – that is, they have zero alphas. Then if some active investors have positive alphas before costs, it must be dollar for dollar, at the expense of other active investors. Thus, like passive investment, active investment is then in aggregate a zero sum game – aggregate alpha is zero before costs. After costs (that is, in terms of net returns to investors) active investment then becomes a negative sum game.

Similarly, Malkiel (2003b, 2005) proposes a similar theory which is consistent with the theory of equilibrium accounting. They state that passive management is effective even if markets are inefficient since “winning performance must be a zero-sum game.” This can be explained further. Since all stocks have to be held by someone, and if certain investors achieve above-average returns, then it can be inferred that other investors are achieving below average returns. An important implication of this theory is that all investors cannot experience above average performance.

Like Sharpe (1991), Malkiel (2005) extends the theory to take costs into account. He points out that active management is more expensive due to, inter alia, increased brokerage costs, trading costs and administrative

costs. For example, the typical actively managed equity mutual fund in the USA has an expense ratio of over 140 basis points. Low cost index funds are available at expense ratios of between 10 and 20 basis points (Malkiel, 2003b). Malkiel (2003b, 2005) argues that it is this extra 120 basis points (or more) that causes the typical actively managed equity fund to underperform, and that the extent of the underperformance is often equal to this difference in fees.

Despite their producing evidence to the contrary, Fama and French (2008) go on to explain how abnormal positive returns may still be possible in the mutual fund industry. For example, at the aggregate level, if it is found that the value-weight portfolio of all mutual funds produces a positive alpha before costs, it can be inferred that the value-weighted portfolio held by investors outside mutual funds has a negative alpha (Fama and French, 2008). In other words, the mutual fund industry may be able to 'win' at the expense of investments held outside mutual funds.

2.3.3. Behavioural Finance

"Market participants are human after all" – Grinold and Kahn (2000:568)

Researchers such as Malkiel (2003b, 2005) and Shiller (2000) introduce behavioural finance dynamics into the discussion. Malkiel (2003b) admits that some market participants may act irrationally and that behavioural finance economists and psychologists have much to say about the systematic errors that some investors make. An assumption underlying capital market theory and the EMH is that market participants act rationally all of the time. Moreover, proponents of the EMH (in whichever form) believe that clear arbitrage opportunities do not exist. Ross (2002) cited in Malkiel (2003b:2) suggests that despite attempts to "tease" some predictability out of asset return data, returns on financial assets are very close to being serially uncorrelated – that is, they follow a random walk. Then, save for sheer chance, it must follow, that mutual

funds should not be able to deliver superior performance, and if it does occur, it should not persist. However, Malkiel (2003b) states that there is much evidence to support that the market can make large errors in the valuation of securities. For example, periods of large-scale irrationality have been observed in recent times, such as the technology 'bubble' of the late 1990s extending into early 2000 and the global financial crisis starting in 2007 and extending through to early 2009.

De Bondt (1995), who also surveys the body of work on behavioural finance, suggests that stock prices often deviate substantially from fundamental values. In their view, such deviations can be used by investors to 'fashion' winning investment strategies. Shiller (2000) documents the behavioural traits of market participants that lead to investment bubbles and also argues that future stock prices are to some extent predictable on the basis of either past returns or of certain valuation metrics such as dividend yields and price/earnings ratios. In their survey of the econometrics of financial markets, Campbell, Lo and Mackinlay (1997) too conclude that stock markets are at least partially predictable. Moreover, Jegadeesh and Titman (1993) and Lo and MacKinlay (1999) demonstrate that there is momentum in stock returns, implying that the random walk hypothesis does not hold all the time.

Shiller (2000) suggests that market prices are often set by irrational traders. Malkiel (2003b, 2005) further admits that if market prices are set by irrational traders or if market prices often fail to reflect rational estimates of the prospects of companies, and if markets consistently overreact (or under-react) to underlying conditions as has been observed throughout history, then arbitrage opportunities will exist, which rational professional investors may be able to exploit. Moreover, Malkiel (2003b, 2005) states that rational professional investors who are richly incentivised to outperform the market (e.g. through performance fees and other perquisites) and who have an arsenal of resources at their disposal should have little difficulty in identifying and exploiting some of these opportunities, thereby being able to deliver superior investment performance. By this argument, it should follow then that professional investors as a whole will be able to outperform because irrational 'noise traders' will find themselves in the lower half of the returns' distribution. Even though Malkiel (2005) in the end concludes that markets are largely efficient by pointing to the overwhelming amount of evidence that is unable to support that active managers as a whole are able to

outperform passive strategies, the evidence and theories presented in this section does cast some doubt on the credibility of the EMH in a 'real-world' context, thereby implying that successful active asset management may, nonetheless, be a possibility on the basis investors are human and may not always act as anticipated.

2.3.4. Diseconomies of Scale

While it seems quite plausible that there are advantages to scale, a recent study by Chen, Hong, Huang and Kubik (2004) found otherwise. In their study to investigate the effect of scale on performance in the active management industry, they found strong evidence that fund size erodes performance. They consider various explanations supporting this conclusion. Their findings confirm that a large asset base erodes fund performance because of the trading costs associated with liquidity or price impact, and also due to a phenomenon known as "benchmark hugging" (Chen et al., 2004:1300). They also argue that organisational diseconomies of scale related to hierarchy costs may also play a role.

Larger funds tend to be constrained by larger liquidity constraints – that is, they have to hold relatively larger cash balances and may not be able to invest in smaller, less liquid stocks, or may not be able to invest optimal amounts in such stocks. Thus, whereas a small fund can "easily put all of its money in its best ideas", a lack of liquidity curtails the investment universe for larger funds; the greater the number of small, relatively illiquid stocks, the greater the curtailment of the investment universe for larger funds (Chen et al., 2004:1277). Chen et al. (2004) argue that it is this curtailment of the investment universe for larger funds that erodes their performance relative to smaller funds. Moreover, in an effort to limit price impact, larger funds are sometimes required to stagger buy or sell implementations.

On the issue of 'benchmark hugging', active managers attempt to minimize the risk of tracking error by investing in the same stocks in the same weights as their underlying performance benchmark and take active bets on only a small portion of their fund. It also seems that the higher the profile of the fund (usually a trait of larger funds), the less likely the manager of that fund will take active bets. Thus it is quite plausible, that

even if some managers have superior stock-picking skills, they may err on the side of caution and 'hug' the benchmark.

Using expected returns and the notion that as fund size increases, the ability to produce superior returns decreases, Berk (2005) explains how in equilibrium and over time the expected return of all actively managed funds should equal the expected return of a similar indexing strategy. Consider an economy in which neither investors nor managers themselves can initially separate good managers from bad. In this case, participants will have to use the information available to them to deduce managerial ability as best they can. Investors will rush to invest with the managers perceived as the best. Eventually, this manager will receive so much money that it will impact on the manager's ability to generate superior returns, and expected return will be driven down to the second-best manager's expected return. This process will continue until the expected return of investing with any manager is driven down to the expected return of a passive strategy with similar risk. Capital will flow until investors are indifferent between investing with active managers or indexing and an equilibrium is said to be reached. In this equilibrium, Berk (2005) argues that all managers, regardless of their skill level, should have the same expected return.

In Berk's (2005) argument, he implicitly assumes that expected returns are negatively related to fund size. As time passes, differential skill levels among managers become apparent from managers' past investment performance. Consequently, investors react by increasing their investment with managers who have done better than expected; funds will flow to these managers as long as investors believe they are capable of producing returns in excess of expected returns in the future. Funds will stop flowing to these managers when the managers have so much money under management that they are no longer expected to produce superior returns. At that point investors are indifferent between investing with these managers and indexing (Berk, 2005). Similarly, investors who invested with poorly performing managers will withdraw funds until the amount of capital under management is reduced to the point that investors believe these managers can at least match the benchmark expected return. Once capital flows stop, the expected return from investing with all managers, regardless of their skill level, is the same as the expected return from indexing (Berk, 2005)

This scenario demonstrates a general insight. In equilibrium, investors who choose to invest with active managers cannot expect to receive positive excess returns (after fees) on a risk-adjusted basis. If investors do expect to make positive excess returns with a particular manager, there would be an excess supply of capital to that manager. "Every investor in the economy who held assets of equivalent risk would want to sell those assets and invest with the active manager instead" (Berk, 2005:29). This theory seems to suggest that investors are not the beneficiaries of the manager's skill. Berk (2005:29) explains that by managing a large fund and charging a fee that is proportional to the amount of assets under management, "the manager captures all the economic rents generated using his ability." Highly skilled managers will manage larger funds, earn more in fees, and extract more rents.

2.3.5. A revised EMH: The Cost of Obtaining Information

Earlier it was noted that the lack of alternative theories biases conclusions in favour of the EMH (Ippolito, 1993). However, Grossman and Stiglitz (1980) provide one viable alternative. They do not discard the fundamentals of the EMH, but rather add a dynamic element to explain how information gets embedded in prices. They introduce the simple proposition that gathering information is costly. Market participants that do nothing to enhance their knowledge of the financial conditions and prospects of firms can expect to be on the unprofitable side of trades compared to participants that do collect information. Informed investors thus earn higher gross returns, adjusted for risk, although they tend to also incur more expenses. Thus, they conclude that, in equilibrium, informed and uninformed investors can expect to earn the same return net of expenses.

Grossman and Stiglitz (1980) restated the EMH to account for the reality that information is not free. In terms of their model, informed (or professional) investors expend resources to find and act on new information. They are compensated by a wedge between the transaction prices and the "full-information" prices of the securities they trade. In equilibrium, investors are indifferent between being passive investors and active investors.

Passive investors disproportionately find themselves on the unprofitable side of trades and thus earn lower gross returns. Active investors earn higher gross returns but also incur higher expenses. In equilibrium, the returns of either type of investor are equal net of all expenses. The market as a whole benefits from the activity of active investors because the process of acting on new information drives the market toward values that incorporate all available information (except for the wedge required to compensate informed traders). If the market is out of equilibrium, in the sense that too many or too few informed traders enter the market, marginal investors move money toward or away from index funds and other passive portfolios until equilibrium is re-established.

In the original version of the EMH, information is free and fully incorporated in prices. The theory is thus seemingly at odds with the notion that mutual funds could be expending money rationally. In the Grossman and Stiglitz (1980) revision of the EMH, it is expected that some investors work to uncover new information and implement trades based on this information. Because most mutual funds are active traders, the question is whether funds are sufficiently successful in their efforts to offset their higher expenses, compared with an index fund. In short, in the Grossman and Stiglitz (1980) model, the finding that mutual funds are able to beat the market, after all expenses, is consistent with a fully efficient capital market.

2.4.Previous Research

According to Grinold and Kahn (2000:560), studies of managers' performance have typically focused on three separate questions: (1) Has the average active manager outperformed; (2) Are the top performers skilful or lucky; and (3) Does performance persist?

In this section the findings of some of the previous research relating to the evaluation of mutual fund performance and the persistence thereof are presented. The section is organised as follows: Section 2.4.1 evaluates US studies that have tested for outperformance; Section 2.4.2 evaluates the persistence of

performance from the perspective of US research; Section 2.4.3 summarises the research findings produced internationally outside the USA; whereas Section 2.4.4 specifically documents the South African research findings. Section 2.4.5 considers the effects that survivorship bias may have on mutual fund performance evaluation studies, while section 2.4.6 considers some of the criticisms of the performance measures typically used in mutual fund performance research.

2.4.1. Evidence of Outperformance

“The process of fund management, which requires the selection of incorrectly priced securities, effective diversification and the selection of a portfolio in the chosen risk class [as stipulated in the fund prospectus], results in there being ample room for potentially major and persisting differences in the performance of different funds” (Sharpe, 1966:120).

In other words, as much as active fund managers may underperform a comparable passive fund or index, there exists the possibility of outperforming that passive fund or index. Notwithstanding the existence of this possibility, Sharpe (1966:121), who was a proponent of the EMH, qualified his statement by noting that “the likelihood that persistent differences in efficiency exist ex post are probably transitory.” Further, he notes that the only basis for persistently inferior performance would be the continued expenditure of large amounts of a fund’s assets on the relatively “fruitless search” for incorrectly priced securities (Sharpe, 1966:121).

Long before the development of capital market theory, a classic study by Cowles (1933) suggested that there was only limited evidence that professional money managers could outperform the market averages on a risk-adjusted basis. Some 75 years later this question is still being fiercely debated by academics, despite the massive growth in the mutual fund industry worldwide.

One of the first extensive and systematic studies of mutual fund performance was done by Friend, Brown, Herman and Vickers (1962). The study considered 152 US mutual funds with annual data from 1953 to 1958.

While the study did not adjust the benchmark portfolio for the 'not-yet discovered beta', the authors did adjust their market return to be comparable to the funds they studied. They created an index of Standard & Poor's indexes of five securities, with the elements weighted by their representation in the mutual funds sample. Using this benchmark, it was found that, over the period of the study, mutual funds earned an average annual return of 12.4%, while their composite benchmark earned a return of 12.7%. Their 'alpha' was in effect equal to negative 30 basis points, thereby implying that on average the funds sampled performed poorly.

Studies of active managers' performance began to increase in number soon after the development of the CAPM, which provided a framework for performance analysis. Pioneers in this field included Treynor (1965), Sharpe (1966) and Jensen (1968).

Treynor (1965) did not explicitly compare the performance of active funds relative to passive funds, or to an index for that matter, however, he did emphasize the importance of using a performance measure that adjusts for varying risk aversion, and that incorporates the notion that all investors choose to maximize expected returns for each unit of risk borne. The Treynor measure – which was the first measure to incorporate the volatility of a fund's return – laid the foundation for the famous Sharpe ratio, still used today, as well as for the many other performance measures that have subsequently been developed (Sharpe, 1966).

Sharpe (1966) calculated the reward-to-variability ratios for a sample of 34 US mutual funds, for which he had data from 1954 to 1963. He found that the ratio for his sample was 40 basis points lower than the ratio calculated for the Dow Jones index over the same period. He did not report on the statistical significance of his findings, but he did report the individual Sharpe ratio for each fund in his paper. However some 25 years later, treating the Dow Jones index as a constant, Ippolito (1993) used Sharpe's (1966) data to calculate the t-values of the difference between the Sharpe ratio of the Dow Jones Index and those of the funds surveyed by Sharpe (1966). He found that the results obtained by Sharpe (1966) were statistically significant at the 5% level of significance. This further added more weight to the claim that mutual funds were unable to produce superior performance.

Jensen (1968) used the an asset pricing model developed from the work of Sharpe (1964) and Lintner (1965) that became known as the Capital Asset Pricing Model (“CAPM”). He evaluated the performance of a sample of 115 US mutual funds covering the 10-year period from 1955 to 1965; and a second sample of 56 funds covering a 20-year period from 1945 to 1965 and found that on average active managers were not able to predict security prices well enough to outperform a passive strategy. The results also suggested that little evidence exists to support that any individual fund manager was able to do significantly better than what could be expected from mere random chance. These conclusions held true even when fund returns were measured gross of management expenses. Jensen (1968), and even Ippolito (1993), found that the average alpha using the Jensen (1968) study was negative and statistically different from zero at the 99% confidence level. Jensen (1968:415) concluded that “on average the funds sampled did not appear to be successful enough in their trading activities to recoup even their brokerage expenses.”

In short, both the Sharpe (1966) and Jensen (1968) studies found strong and statistically reliable results showing that mutual fund investment returns fall short of returns available from risk-adjusted index portfolios. These two studies became the basis for many studies performed thereafter, whether as a benchmark against which to compare the results of future studies or as the basis upon which to evaluate fund performance. Following these two seminal studies, the question of mutual fund outperformance began to gain increasing attention from researchers.

Treynor and Mazuy (1966) did not measure alphas in their study. Instead, they tested whether any of the 57 mutual funds in their sample showed evidence of market-timing abilities over the 1953 to 1962 period. Their study introduced a nonlinear version of the CAPM. They argued that, if funds could anticipate swings in the market, they could increase their portfolio risk on the upside and decrease it on the downside, thereby altering the linear securities line in the traditional CAPM to a nonlinear function. However, they were unable to find any evidence of market timing abilities in their sample.

Following on from the work of Treynor and Mazuy (1966), Kon and Jen (1979) used a nonlinear version of CAPM to accommodate funds' changing risk positions (i.e. market timing). Using an equally weighted index,

they found an average alpha of positive six basis points. They concluded that on average, the mutual fund sample is able to predict security prices well enough to outperform the securities market line (i.e. some combination of the risk-free asset and market portfolio) given their selected levels of systematic risk, and to recoup all management fees and brokerage commissions. Their evidence was clearly inconsistent with the that of Jensen (1968).

Friend, Blume and Crockett (1970) published the results of a study of mutual fund performance that replicated the Friend et al. (1962) study with two important differences. First, the former incorporated the beta concept developed by Jensen (1968). Second, it used an updated database covering the 1960 to 1968 period. It was found that the average performance of an equally weighted NYSE index yielded a return of 12.4% per annum (versus 9.9% for the value-weighted index). The authors attributed the difference to the relatively strong performance of small stocks, a difference they report may not be fully reflected in the estimated beta. The authors caution against using a benchmark that effectively “tricks” the alpha calculation by overweighting small-firm returns. The notion of a “fair” benchmark has since become quite a contentious issue. Section 2.4.6 considers this in further detail.

McDonald (1974) studied the performances of 123 US mutual funds using monthly data over the 1960-69 period. Using a CAPM model and an equally weighted NYSE index, he found an average alpha of 62 basis points. He concluded that mutual fund performance over the period was neither superior nor inferior relative to the market’s performance. Taking into account fees and expenses embodied in the alphas, he concluded that the evidence suggests that there may be some degree of success in stock selectivity and market timing.

Carlson (1977) recalculated the Jensen (1968) and Sharpe (1966) results using annual data for 82 common stock US mutual funds over the 1948-67 period. His results contradicted both that of Sharpe (1966) and Jensen (1968). The results produced by Carlson (1977) were exactly opposite to those of Sharpe (1966) – that is, just as Sharpe's (1966) results were statistically significant in favour of funds underperforming the market, Carlson’s (1977) results were equally significant in the opposite direction. Carlson (1977) also pointed out that conclusions drawn from calculations of return may depend largely on the: (1) time period sampled, (2) type of

funds sampled, and (3) choice of benchmark used – themes that become hugely important in performance evaluation studies in the latter part of the 20th century and the 21st century.

Mains (1977) replicated Jensen's (1968) study for 70 of the funds using monthly data instead of annual data. It was argued that the monthly data yielded more efficient estimates of beta and reduced the impact of allocating expenses and capital gains. Using annual data (as Jensen did), Mains (1977) found an average alpha of negative 62 basis points, while using monthly data over the same period, he found an alpha of positive nine basis points. Similar to McDonald (1974), the results of Mains (1977) reinforces the notion that conclusions drawn from performance evaluation studies depend also on the measured period sampled.

Shawky (1982) also reported results that contradict those of Sharpe (1966) and Jensen (1968). He studied 255 US mutual funds using monthly data from 1973-77 and a CAPM equation with an equally weighted market portfolio. He found an alpha of negative 43 basis points, which was statistically indistinguishable from zero. He concluded that the returns of the mutual fund industry as a whole conform almost exactly to the returns of the equally-weighted NYSE. In effect, he found no evidence of superior performance.

Studies from the 1980s, however, began to produce results inconsistent with those produced by studies of the previous decade. For example, Henriksson (1984) and Chang and Lewellen (1984) found that during the 1970s, net returns to fund investors before load fees fell on the Sharpe-Lintner market line. These studies implied that fund managers may have access to enough private information to offset their expenses. Ippolito (1989), covering the period 1965 through 1984, found that returns before load fees, but net of other expenses, were actually slightly above the CAPM market line, although Malkiel (1995) pointed out a decade later that this result depended on the particular benchmark employed.

Berkowitz, Finney and Logue (1988) studied mutual fund performance using quarterly data over the 1976-83 period, which according to Ippolito (1993) had the largest sample of funds up to that point. Using a CAPM model with an S&P 500 market portfolio, they calculated an average alpha of positive 68 basis points. While they did not report a standard error on their estimate, Ippolito (1993) suggests that the size of the sample makes it likely that the alpha is statistically different from zero. They did not, however, interpret this result as

consistent with efficient use of information by mutual funds. Instead, because they measured a higher alpha for growth funds, they assumed that their finding is evidence of the small-firm effect.

Prior to 1989, there was little consensus about the ability of professional portfolio managers to earn abnormal returns. Grinblatt and Titman (1989) point out that most studies up to that point had examined the actual returns realised by investors and found, with few exceptions, either negative performance or par performance for the average mutual fund. They argue that this is of little surprise from an economic perspective since mutual funds that may have superior investment talent are likely to capture the rents from their talent in the form of higher fees and/or perquisites. In their study they examine hypothetical gross mutual fund returns, which ignore transactions costs, fees or any other expenses. Regardless of their findings, their method for estimating gross returns has been criticised on the grounds that such returns are not directly observable (for example, Malkiel (1995) and Fama and French (2008)).

Grinblatt and Titman (1989) built on the work of Lehman and Modest (1987) by searching for a large number of benchmarks to find those that generally deliver zero alphas when measured against well-known passive portfolios. That is, they took the approach that, before using a benchmark to conclude something about mutual fund performance, it should first be determined that the benchmark does not generate a positive or negative alpha for simple index funds. They rejected the equally weighted Centre for Research in Security Prices ("CRSP") index and the Lehman-Modest 10-factor benchmark as biased toward negative alphas. They concluded that their eight-portfolio (P8)⁴ benchmark yielded the most efficient test in the sense that it most consistently generated the smallest absolute alphas for passive portfolios.

Using quarterly equity holdings of a large sample of US mutual funds that existed for part or all of the 1975-84 period, they made four important findings. First, they found that survivorship bias is relatively small – approximately 0.5% per year or less. The bias is somewhat larger for the smaller funds. This finding had important implications for future research. Section 2.4.5 further explores survivorship bias in the context of

⁴ P8 was suggested by Grinblatt and Titman (1989). Patari (2009:121) summarizes the methodology used. The basic idea behind the formation of this benchmark is that various firm characteristics are correlated with their stocks' factor loadings. As a result of this, portfolios constructed from stocks classified by securities' characteristics can be used as proxies for the factors. The P8 benchmark, formed from groupings of the passive portfolios' returns just described consists of four size-based portfolios, three dividend-yield-based portfolios, and the lowest past returns portfolio.

mutual fund performance evaluation. Second, they found that transaction costs, on average, were relatively large, in the order of 2.5% per year, and inversely related to fund size. Third, it was found that abnormal performance of the funds, based on gross returns, was inversely related to fund size, but, since transaction costs were inversely related to fund size, the actual net returns were in effect unrelated to the net-asset values of the funds. Fourth, it was found that, on average, actual returns did not appear to display positive abnormal performance for any category of fund. However, it was found that the gross returns of both growth and aggressive growth funds seemed to be significantly positive on average, even after adjusting for risk with a benchmark free of biases - namely: size, dividend-yield and/or beta-related (Grinblatt and Titman, 1989).

Their results suggest that superior performance may in fact exist, particularly among aggressive-growth and growth funds and funds with the smallest net asset values. The evidence also revealed that these funds had the highest expenses so that their actual returns, net of all expenses, did not exhibit abnormal performance. This indicates that investors may not be able to take advantage of these funds' superior abilities since any abnormal performance is captured by the fund manager as fees. However, while they were able to conclude that the expenses incurred by most mutual funds may not be wasted, their results failed to support that mutual funds are able to earn a return equal to or in excess of an indexed market portfolio, net of costs excluding load fees (Grinblatt and Titman, 1989).

Malkiel (1995) calls into question the credibility of these results. Grinblatt and Titman's (1989) finding of abnormal returns depends heavily on their method for the measurement of gross returns. They calculated hypothetical returns for the equity portion of the portfolios of mutual funds assuming that the funds' quarterly reported portfolios were held throughout the period. They estimated returns from the portfolio by using returns from the CRSP for each of the individual stocks owned rather than calculating actual portfolio returns. The difference between the calculated returns (which they take to be the gross returns) and the actual portfolio returns are assumed to reflect transactions costs. The returns measured by Grinblatt and Titman (1989) may not, thus, be returns actually achievable by active managers.

In the same study, Malkiel (1995) found that while general equity mutual funds do not produce excess returns for investors after expenses (Malkiel, 1995), those funds may at least earn sufficient excess gross returns to cover their expenses. By analysing data over the 10-year period from 1982 to 1991, it was found that on average the alpha was negative when net returns were used and positive when gross returns were used, but neither were significantly different from zero. Overall, the Malkiel (1995) study supports the original Jensen (1968) conclusion that mutual fund managers do not outperform the market in general.

To focus more on the possibility of successful active management, Marcus (1990) looked at whether top-performing US mutual funds exhibited statistically significant positive performance, given the large number of funds in existence. The Marcus study is a rigorous version of the classic (and anecdotal) defence of active management: "Look at Peter Lynch, look at Warren Buffet." Using statistics for the maximum of a sample, he shows that the very top funds do outperform. In the words of Grinold and Kahn (2000:562), "Peter Lynch and Warren Buffet don't appear to be just the two out of tens of thousands of investors who are lucky enough to flip heads 10 or 15 times in a row."

Ippolito (1993) reproduced the methods and data used in the Jensen (1968) study. The only important difference was that he selected a sample that was free of survivor bias. He also used annual data for the 20 years following the last observation made by Jensen (1966), covering the 1964-85 period. The overall results were opposite to those of Jensen (1966). While Jensen (1968) found an average alpha of negative 111 basis points over the 1945-55 period, Ippolito (1993) found an average alpha of positive 81 basis points. The average was statistically different from zero at the 95% level of confidence. These results seem to suggest that mutual funds, on average, may be sufficiently successful in their trades to offset their expenses; they contradict the hypothesis that mutual funds essentially waste the entire amount of their expenditures. While this study did not search for the most efficient benchmark, as Grinblatt and Titman (1989) did, it did find similar results using other popular benchmarks, including the NYSE index and a 50/50 S&P 500 and the Shearson Lehman mixed index.

The findings of Ippolito (1993) do not suggest that all funds efficiently expend resources in search of new information all of the time, nor do they suggest that funds as a whole spend money wisely in every period. But the results do suggest that a sizable number of funds are sufficiently successful in generating a return that matches those available from index funds after subtracting expenses and adjusting for risk. Some funds are surely unsuccessful. However, noise in fund returns is often so large that it takes many periods of observations before an investor can conclude with statistical confidence that a fund manager is incompetent. This would explain why a large number of funds continue to attract capital from investors despite their lacklustre performance, and also why some funds are able to survive for longer than one may expect to find.

Several more recent academic studies analysing mutual fund performance have controlled for style and for publicly available information by using what they term “conditional performance evaluation”. For example, Ferson and Schadt (1996) and Ferson and Warther (1996) control for publicly available information—namely, interest rates and market dividend yields—in analyzing 67 U.S. equity mutual funds¹ from 1968 through 1990. Their approach improves average manager performance from below the market to matching the market. While their database suffered from survivorship bias, they claim that this should not affect their result concerning the improvement in average manager performance. Overall Ferson and Warther (1996) found that mutual fund performance is essentially neutral – that is, managers on average are not able to deliver superior performance, yet nor do they perform inferiorly.

From a slightly different perspective, Jones (1998) analysed median institutional manager performance. He found that median performance relative to the S&P 500 could almost entirely be explained by three variables: (1) market return, (2) small-capitalization stocks versus large-capitalization stocks, and (3) value stocks versus growth stocks. He concludes that the average manager owns some cash, has a bias toward small stocks, and has a bias toward growth stocks. Hence, the average manager tends to underperform when the market is up, large-capitalization stocks outperform, and/or value stocks outperform growth stocks (Grinold and Kahn, Book: 561).

Wermers (1997) concluded that mutual fund managers have the ability to choose stocks that outperform their benchmarks, before any expenses are deducted. The evidence is especially strong among growth-oriented funds, which hold stocks that outperform their benchmarks by an average of two to three percent per year, before expenses (Wermers, 2000). Meanwhile, Daniel, Grinblatt, Titman and Wermers (1997) and Grinblatt, Titman and Wermers (1995) attribute much of this performance to the characteristics of the stocks held by the funds. For example, funds using value-investing strategies hold stocks with higher average returns than passive stock indexes.

Daniel et al. (1997) controlled for size, book-to-price, and one-year momentum effects, and use quarterly portfolio holdings for more than 2,500 U.S. equity mutual funds from 1975 through 1994 in their analysis. Their estimated quarterly asset-level returns beyond the effects of size, book-to-price, and momentum by assigning all assets to 1 of 125 groupings based on quintile rankings for these three characteristics, and then looking at each asset's active return relative to its capitalization-weighted group return. To analyse mutual fund returns, they then used the quarterly holdings and these active asset returns. They found statistically significant evidence for positive average performance of 1 to 1.5 percent, but only for growth and aggressive growth funds over the entire period. Most of this arose from the significant outperformance that was recorded between 1975 and 1979. Grinold and Kahn (2000) caution that even this small evidence for average outperformance must be viewed sceptically, since the study ignored both fees and transactions costs. The study did not use the actual mutual fund returns, but returns to quarterly buy-and-hold portfolios with no quarterly rebalance charges. There is little reason to believe that the average growth or aggressive growth fund delivered any of that outperformance to investors.

Grinblatt et al. (1995) found that the majority of mutual funds tend to actively invest in high-past-return stocks – these investment strategies are called “momentum-investing” or “trend-following” strategies. Earlier research (for example, Fama and French (1992 and 1996), Jegadeesh and Titman (1993) and Daniel and Titman (1997)) provides evidence that stocks with certain characteristics (for example, high book-to-market or momentum stocks) outperform other stocks, at least before trading costs are deducted. This evidence prompted Wermers (2000) to conduct his study on the belief that mutual funds employing such styles should

be able to achieve higher average portfolio returns. Wermers (2000) employed a new database allowing him to examine the performance of the mutual fund industry at both the stock holdings level and the net returns level. As previous researchers have pointed out, mutual funds tend to systematically follow certain styles such as holding small-capitalisation stocks or high past-return (or momentum) stocks. For example, Chen, Jegadeesh and Wermers (2000) examined the stockholdings and the active trades of mutual funds, and found that growth-oriented funds appear to have unique skills in identifying under-priced large-capitalization growth stocks.

With respect to fund performance, Wermers (2000) found that although the average fund held stocks that outperform the market by 1.3 percent per year, their average net returns underperform the market by 1 percent per year. Interestingly, it was found that the average net return matched that of the Vanguard Index 500 passive fund during the sample period, although the Vanguard fund has, more recently, produced higher net returns. Of the 2.3 percent per year difference between the return on stock holdings and net returns, about 0.7 percent per year was found to be due to the lower average returns of the non-equity holdings of the funds during the period relative to stocks. Wermers (2000) discovered that the remaining 1.6 percent per year could be split almost evenly between the expense ratios and the transactions costs of the funds. Thus, considering only stock holdings, mutual fund managers hold stocks that beat the market portfolio by almost 1.3 percent per year, enough to cover their expenses and transactions costs of 1.6 percent per year, which is consistent with the equilibrium model of Grossman and Stiglitz (1980). Wermers (2000) concludes that funds pick stocks well enough to cover their costs and that the evidence found supports the value of active mutual fund management. He further adds that if one were to view the additional 55 to 60 basis points per year return from the characteristics of stock holdings as wholly a compensation for risk, then the funds can be said to underperform the market by about 90 basis points per year, and the Vanguard Index 500 fund by 87 basis points per year, respectively.

The evidence produced by Wermers (2000) also suggested that high-turnover funds, although incurring substantially higher transactions costs and charging higher expenses, hold stocks with significantly higher average returns than low-turnover funds. He infers that at least a portion of this higher return level must be

due to substantially better stock-picking skills by managers of high-turnover funds, relative to their low-turnover counterparts. Although high-turnover funds exhibited a negative (but statistically indistinguishable from zero) characteristic-adjusted net return, their average unadjusted net return over our sample period significantly beat that of the Vanguard Index 500 fund. The evidence, although weak and somewhat inconclusive, at best suggests that investors should be indifferent between active and passive returns.

Malkiel (2003) analysed all general equity mutual funds in the US relative to the Vanguard S&P500 Index Fund, described as one of the largest index mutual funds available to retail investors at the time of his study. Over the 10 year period ending 31 Dec 01, 71% of actively managed equity funds produced total returns (including dividends and capital charges) that were inferior to the returns achieved by the index fund, after expenses. Even during the falling US stock market of 2001, when the index fund was disadvantaged by being fully invested, whereas the typical actively managed fund held between 5 and 10% of its assets in cash, more than half of the actively managed funds were outperformed by the fully invested index fund (Malkiel, 2005). This finding makes a convincing argument against the ability of active funds to outperform their passive counterparts.

In a study of large capitalization US equity funds, Malkiel (2005), found that actively managed funds do not outperform comparable benchmark indices. During the year ended December 31, 2003, close to three quarters of the mutual funds holding large capitalization stocks were outperformed by the large capitalization Standard and Poor's 500 stock index. Results were similar for other one-year periods. When returns were measured over periods of 10 years or longer, over 80% of active managers were outperformed by the index (Malkiel, 2005). Further analysis of the data revealed that after adjusting for expenses, the average (median) actively managed fund underperformed a passive S&P index fund by over 200 basis points. Moreover, it was found that the performance figures for active managers appear worse when measured over periods of 30 years or more. It certainly does not help that the performance figures were biased upwards due to survivorship bias: Malkiel (2005) states that the record of non-survivors up to the time of their demise is usually substantially worse than the record of the survivors.

Malkiel (2005:3) also provided an explanation as to why the underperformance of the average active manager is so substantial relative to a passive index fund. The typical active mutual fund has an expense ratio of just less than 150 basis points, whereas index funds can have expense ratios of less than 20 basis points, even for small individual investors. In addition, active managers turn over their portfolio—often as much as 100% each year. Trading entails additional expenses from brokerage costs, bid-asked spreads, and market impact. The underperformance of active managers relative to the market index can be fully explained by these extra costs.

Given that in a large enough sample (such as all the funds in the US mutual fund industry), outliers become more likely merely due to sampling variability, Kosowski et al. (2005) attempted to decipher whether – in the case of mutual fund performance – the presence of positive outliers is due to skill or luck. They apply a bootstrap technique to the monthly net returns of the universe of US open-end, domestic equity funds, during the period 1975 to 2002. Across a wide array of performance measures, their bootstrap tests consistently indicated that the large, positive alphas of the top ten percent of funds, net of costs, was unlikely to be solely due to sampling variability (i.e. luck). To elaborate, their results showed that by luck alone, nine funds would be expected to exhibit an estimated alpha greater than 10 percent per year net of costs over at least a five-year period. In reality, however, 29 funds exceeded this level of alpha. Their tests also showed strong evidence of mutual funds with negative and significant alphas, which they argue controls for luck. They assert that this is sufficient, from a statistical point of view, to support that some fund managers may have superior talents in picking stocks.

Further results, however, indicate that superior performance was found mainly among growth-oriented funds. This result adds to prior evidence (for example, Chen et al., 2000) indicating that the average manager of a growth-oriented fund can pick stocks that beat their benchmarks, but the average manager of an income-oriented fund cannot (Kosowski et al. 2005:3). The findings indicate that even seemingly well-performing income fund managers appear to be lucky, statistically anyway. In addition, stronger evidence of superior fund management during the first half of their sample period was found. However, after 1990, the huge growth in new funds appeared to have been driven by a growth in the number of active managers without talents, who often appear to perform well by chance alone.

In testing for superior returns, Fama and French (2008) comment on the trading costs incurred by active funds. Their net returns ignored load fees, which overstates the returns to investors in load funds. On the other hand however, their gross returns were before fees and expenses, but net of trading costs. They argue that they did not attempt to add trading costs to gross returns (as Grintblatt and Titman (1989) did), since because turnover is often missing on the CRSP, and even when turnover data are available, differences across funds in investment styles and trading strategies make estimates of trading costs imprecise. Further, they assert that (unlike management fees) trading costs are inherent in a fund's strategy, and actively managed funds should, at a minimum, provide expected returns that cover trading costs. Their results suggest that, at least on average, funds may achieve this "bare minimum" result (Fama and French, 2008:8).

In summary, the evidence is overwhelming that active equity management is, in the words of Ellis (1975:41), a "loser's game." Malkiel (2005) states that switching from security to security accomplishes nothing but to increase transactions costs and harm performance. Thus, even if markets are less than fully efficient, indexing is likely to produce higher rates of return than active portfolio management. Malkiel (2005) adds that both individual and institutional investors will be well served to employ indexing for, at the very least, the core of their equity portfolio.

Overall, while there is no conclusive evidence to support that the average active manager is able to produce exceptional returns, Grinold and Kahn (2000:560) argue that this, on its own, does not allow one to draw any conclusion regarding the possibility of successful active management. To focus more on the possibility of successful active management, Marcus (1990) looked at whether top-performing mutual funds exhibited statistically significant positive performance. Marcus (1990) was able to show that the very top funds do outperform. But beyond whether the average fund outperforms or whether the top fund outperforms, the question concerning the possibility of successful active management that has received the most attention is whether performance persists. This is considered next.

2.4.2. Persistence in Performance

Do the winners in one period remain winners in a subsequent period? One common response made by Malkiel (2005:6) is: “Past performance does not predict future returns!” Yet, Grinblatt and Titman (1992) note that there is a large and growing industry devoted to measuring mutual fund performance and that this industry, as evidenced by newsletters, regular features in the financial press, and the existence of firms that professionally evaluate funds, is based on the idea that funds that do well (or poorly) in the past, will continue to do so in the future.

Mutual fund performance rankings (such as *Morningstar* and *Raging Bull*) are compiled on a regular and timely basis and are widely followed. Mutual funds that do relatively well tout their performance prominently in their advertising material and even those that do not, search for some other measure that puts them in the best possible light. Hendricks, Patel and Zeckhauser (1993) state that directly or indirectly, investors are willing to act on such information of relative performance. Further, Patel et al. (1994) find evidence to support the premise that investors steer their money to funds that have performed well recently, while Brown, Goetzmann, Ibbotson and Ross (1992:554) notes that past performance is usually a high significant input into the decision to “hire or fire” pension fund money managers.

Brown et al. (1992) assert that managers as a group performing poorly does not on its own preclude the possibility of particular managers having special skills. Given the high turnover of managers, it is quite conceivable that the market selects out those managers with skills. Skillful managers are those who succeed and survive. It is this view, “fostered by annual mutual fund performance reviews of the type published by Barrons, Business Week, Consumer Reports, and other publications” that leads to the popular investment strategy of selling shares in mutual funds that underperform the average manager in any given year, and buying shares in those funds with superior performance. (Brown et al., 1992:554).

The following sections categorise the studies of persistence in mutual fund performance according to the time period in which they were undertaken. Thus, using the study by Patari (2009), three eras are presented,

namely: (1) The pioneering studies of the 1960s, 1970s and 1980s; (2) The studies of the 1990s; and (3) The studies of the 2000s.

2.4.2.1. *The Pioneer Studies*

As far back as 1965, there was sufficient evidence to support the notion that investors may use good historical performance as the basis to invest in a particular fund. Treynor (1965:67) commented that “it is interesting to note that when one talks about the historical performance pattern of a fund, [one] is looking at the past: but when [one] considers the preferences of individual investors and their choices among funds, [one] is talking about their appraisal of the future.”

However, even though the EMH has generated interest among academics in testing whether funds exhibit performance, prior to the 1990s there was little research devoted to testing for persistence in fund performance. Nonetheless, these early studies did find that persistence persists. For example, Grinblatt and Titman (1988) found evidence of persistence in 157 mutual funds over the period 1975 to 1984 when examining 5-year risk-adjusted returns, and Lehmann and Modest (1987) reported similar results from looking at 130 mutual funds from 1968 to 1982, albeit Brown et al. (1992) pointed out that this finding may be sensitive to the method used to compute risk-adjusted performance measures. The distinctive feature of the earlier studies was the use of long selection periods and typically holding period of the same length – most used 10,11 or 12 year selection periods and holding periods. For example, Sharpe (1966), Jensen (1968) and Carlson (1970) used 10 year selection and holding periods; Sarnat (1972) used 12 year periods; and Levy and Sarnat (1984) and Levy and Lerman (1988) used 11 year periods. Carlson (1970) used both 5-year and 10-year evaluation periods. It is worth noting that strongest evidence of persistence was found systematically in the studies employing shorter selection and/or holding periods (such as Carlson (1970) and Lehman and Modest (1987)).

Grinblatt and Titman (1992) claimed that one reason for the lack of research prior to the 1990s was that the traditional benchmarks used to evaluate performance were known to exhibit persistent biases – they are still criticised for this. For example, the CAPM and APT-based benchmarks were known to favour small capitalization and high dividend-yield stocks. This reason, they claim, is why small-firm funds and income-oriented funds appear to persistently outperform other funds when traditional benchmarks are used.

In an early study of 34 open-ended mutual funds, Sharpe (1966) using the Reward-to-Variability (R/V) ratio or the Sharpe Ratio – found that the differences in performance among funds can be predicted, although imperfectly, but the sources for these differences were not apparent. Sharpe (1966) compared the performance rank orders based on the Sharpe Ratios of two successive decades – the selection period being the former and the holding period being the later. “Although the relationship is far from perfect, there is a general upward trend,” suggesting that funds ranking low in the early period tend to rank low in the later period, while those ranking high in the early period tend to rank high in the later period (Sharpe, 1966:126). Most importantly, although some evidence of persistence was found, given the statistically insignificant correlations, it was noted that there is “no assurance” that past performance is the best predictor of future performance (Sharpe, 1966:127). Sharpe (1966) also used the rankings of funds based on the Treynor Ratio and computed from the earlier period data to predict rankings based on the Sharpe Ratio of the later period but the results remained the same; the evidence of persistence appeared to be weak.

Sharpe (1966) was perhaps the first to explore the attributes of fund size and expense ratios on relative fund performance. It was theorised that the differences in performance may not necessarily be due to differences in management skill. The higher correlation among mutual fund returns suggests that most managers accomplish the task of diversification rather well. Differences in performance are thus likely to be due to either: (1) differences in the ability of management to find mispriced securities, or (2) to differences in expense ratios among funds. On the one hand, if the market is very efficient, then funds with the lowest costs should show the best (net) performance. However, on the other hand, if it is not, then funds devoting more resources to management may produce enough gains to offset the increased expenditure and thus show better net performance. In terms of fund size, Sharpe (1966) argues that a fund with substantial assets can

obtain a given level of security analysis by spending a smaller percentage of its income (or the value of its assets under management) than a smaller fund. Alternatively, by spending that same percentage it can obtain more (and/or better) analysis. On the other hand, more analysis may be required for a larger fund than for a small one (Sharpe, 1966)

From the results of his study, Sharpe (1966) made a number of observations. First, using expense ratios (which ranged from 0.27% to 1.49%), results to suggest that good performance is associated with low expense ratios were produced. Second, it appeared that larger funds exhibited better performance, notwithstanding that the results were weak and the relationships were “marginal at best” (Sharpe, 1966:132). Overall, even though Sharpe (1966) cautioned against generalizing from the results found during his one ten-year period, the results seem to suggest that the average mutual fund manager may be able to select a portfolio at least as good as the Dow Jones Industrial Index before costs are deducted, but that after the deduction of costs, this may not be the case at all. Further, while Sharpe (1966) may not have produced convincing results regarding his theories about fund size and expense ratios, these attributes of mutual funds gained increasingly more attention in future research.

While Sharpe (1966) may have demonstrated that past performance is weak predictor of future performance, some of the studies that followed showed that, based on different asset classes and different time periods, performance does not appear to persist. For example, Jensen (1968) looked at the performance of 115 mutual funds over the 1945 to 1964 period and found no evidence of persistence. Jensen (1968) used the same lengths of both selection and holding period as Sharpe (1968), but examined the persistence of abnormal performance determined by the Jensen Alpha. He found positive correlation in the performance between the selection period and the holding period indicating that some funds may be consistently inferior and others consistently superior. Jensen (1968) emphasised that one must be very careful in interpreting these results, since a fund manager who experienced superior performance in the earlier period would be likely to experience inferior results in the latter period. He further noted that evidence of persistence in inferior performance was strongest.

Kritzman (1983) analysed the performance persistence of 32 fixed-income funds on the basis of total returns from two successive five-year periods and found no relationship between past and future performance even among the very best and very worst fund. Dunn and Theisen (1983) found no evidence of persistence in 201 institutional portfolios from 1973 to 1982. Like Jenson (1968), Elton, Gruber, and Rentzler (1990) showed that performance did not persist for 51 publicly offered commodity funds from 1980 to 1988. However, Elton and Gruber (1989) concluded, on the basis of a Securities and Exchange Commission study commission in 1971, that mutual funds that outperform in one year will tend to outperform in the next year, while Grinblatt and Titman (1989) reported some statistical evidence of persistence in mutual fund returns over five-year selection and holding periods. However, like Jenson (1968), from the above, it was concluded that an investor would not be able to realise economically significant strategies based on this pattern (Hendricks et. al, 1993).

As a part of larger mutual fund performance study, Lehmann and Modest (1987) examined the persistence of fund rankings based on various performance measures (i.e., Treynor & Black (1973) Appraisal Ratios, alphas based on both the CAPM model and several applications of the APT models, and in addition, total returns) for the 15-year period divided further into three 5-year sub-periods. According to Patari (2009:119), this study can be considered “one of the cornerstone studies of mutual fund performance evaluation” since this is the first time when multifactor models were used as the basis of performance measurement and set the stage for future research. Although evidence of persistence is found, Lehmann and Modest (1987) note that their results are highly dependent on the performance metrics employed; the results showed considerable differences between rankings based on the CAPM model and those based on various applications of the APT model. Moreover, substantial ranking differences occurred also within alternative APT implementations. Lehmann and Modest (1987) stressed the need to find a set of benchmarks that represent the common factors determining fund returns.

Using the same data as Levy and Sarnat (1984), Levy and Lerman (1988) extended the work of the former to test the predictive power of investment decision criteria that also use information about the riskless asset. While keeping the selection period constant at 11 years, Levy and Lerman (1988) vary the length of the holding period from a maximum of eleven years to one year for entry in the 12th year of entry. Generally, the

results indicated that there is a definite persistence when using ex post information for ex ante portfolio selection.

2.4.2.2. *The Studies of the 1990s*

A review of the studies of the 1990s reveals one general trend in the research design of the performance persistence studies; there is shift towards the use of shorter selection and holding periods.

On the basis of data studies covering the 1974 to 1988 period, both Hendricks, Patel and Zeckhauser (1991) and Goetzmann and Ibbotson (1991) obtained strong results in favour of performance persistence. The former study examined funds for the period 1974 to 1988, while the latter study considers a much larger sample of 728 mutual funds for the period 1976 to 1988, 258 of which survived for the entire period. Bogle (1992) ranked the annual raw returns of over 330 equity funds for 10 successive years for the 1981 to 1990 period. By comparing the average ranking of the Top 20 funds for the former period to their average ranking for the subsequent period he found no persistence in rankings from one year to the next. In the inter-decade return comparisons (that is, 1971 to 1980 versus 1981 to 1990), the rankings were found to be even less meaningful.

Using 5-year selection and holding periods and Grinblatt and Titman's (1989) eight-portfolio benchmark, Grinblatt and Titman (1992) found evidence to indicate that there is positive persistence in mutual fund performance. They also noted that "The persistence cannot be explained by inefficiencies in the benchmark that are related to firm size, dividend yield, past returns, skewness of return distribution, interest rate sensitivity, or CAPM beta." Grinblatt and Titman (1992:1983). These findings are consistent with there being persistent differences in fees and transaction costs across funds, although the results suggest that this was not the sole explanation for their results. Irrespective of the sources of the persistence, they assert that the past performance of a fund provides useful information for investors who are considering an investment in mutual funds on that basis.

In trying to reassess the extent to which the relative performance of mutual funds can be reliably predicted, Hendricks et al. (1993) found statistically significant short-run persistence of performance relative to a number of benchmarks by studying shorter evaluation periods. They examined quarterly total returns data (net of management fees) over the 1974 to 1988 period on a sample of open-end, no-load, growth-oriented, equity-only funds constructed to mitigate survivorship bias. Statistical evidence on performance was computed in relation to fellow funds as well as to a variety of market indices. Their results showed that funds outperform in the most recent year continue to outperform in the near term, peaking at the holding period of the same length – they tested 12-month selection periods against 3-, 6-, 9- and 12-month periods. Adopting the argot of the sports world, they described their findings as evidence of what they coined the “Hot Hands” Phenomenon (Hendricks et al., 1993:94). While they claimed that ‘hot hands’ were not a result of survivorship bias, they did however, find the “evil counterpart” of the ‘hot hands’ phenomenon – ‘icy hands’ - that is, they found that funds that perform poorly in the most recent year continue to be inferior performers in the near term. Moreover, the “icy hands” phenomenon was found to be more significant and more sustained than the ‘hot hands’ phenomenon

Hendricks et al. (1993) also considered the possibility of profiting from investment strategies related to past performance. To elaborate further, they found that during the 1975 to 1988 period, substantial gains could have been made “from investing in the mutual fund equivalents of last year's pennant winners” Hendricks et al. (1993:122). Specifically, no-load growth-oriented mutual funds that performed well relative to their brethren in the most recent year continued to be superior performers in the near term. Hendricks et al. (1993) found that a strategy of selecting, every quarter, the top performers based on the last four quarters (such as the top octile) can significantly outperform the average mutual fund, albeit doing only marginally better than some benchmark market indices. Overall they inferred from their results that ex ante investment strategies based on identifying funds with “hot (and icy) hands” can successfully sort among funds, and can improve risk-adjusted returns by 6% per year and nominal returns by 3 to 4% per year (Hendricks et al., 1993:94). Last, using the Grinblatt and Titman's (1989) eight-portfolio (P8) benchmark, they were able to prove that the results were robust on several potential biases (i.e. benchmark efficiency, spurious persistence, nonlinearities

between fund returns and benchmark returns, time-varying betas, survivorship bias, and data mining bias introduced by Lo and MacKinlay (1990)).

While Grinblatt and Titman (1992) and Elton, Gruber, Das and Hlavka (1993) were able to produce evidence supporting mutual fund return predictability over longer horizons of five to ten years – which they attributed to manager differential information or stock-picking talent – Daniel et al. (1997) cautioned against the findings of Grinblatt and Titman (1992) for several reasons. First, the number of funds used in their study was relatively small (at most, 274 funds) and the time period was relatively short (at 10 years in total). Replicating the Grinblatt and Titman (1992) study with a larger data set and controlling for momentum, Daniel et al. (1997) argued that the much stronger evidence of performance persistence described in the Grinblatt and Titman (1992) study can be attributed to the fact that their benchmark does not control for momentum investing. However, they add that momentum investing does not entirely explain why aggressive growth and growth funds tend to outperform growth-income and income funds. Although the aggressive-growth and growth funds do pick stocks with higher momentum on average, the residual performance after controlling for momentum is still somewhat higher for these funds than for growth-income, balanced and income funds (Daniel et al., 1997).

Jegadeesh and Titman (1993) examined the past returns of stocks. Against the ‘popular’ notion held by many journalists, psychologists and economists that many stock prices overreact to information, they documented that strategies which buy stocks that have performed well in the past and sell stocks that have performed poorly in the past (i.e. follow a momentum strategy⁵) generate significant positive returns over 3- to 12-month holding periods. However, part of the abnormal returns generated in the first year after portfolio formation was found to dissipate in the following two years. A similar pattern of returns around the earnings announcements of past winners and losers was also documented. However, while they did not directly examine mutual fund performance, their results do infer that mutual fund managers following momentum strategies should be able to outperform their benchmarks.

⁵ This is also known as the momentum effect in stock returns when attempting to explain the cross-sectional variation in stock returns.

Goetzmann and Ibbotson (1994) analysed the monthly total returns of 728 mutual funds over a 13-year period from 1976 to 1988. Oldham and Kroeger (2005:82) describe their study as “innovative in the sense that, for the first time in the mutual fund literature, it controlled for the momentum effect.” Using total returns and the Jensen alpha as performance measures, Goetzmann and Ibbotson (1994) examined the power of various lengths of selection periods to predict the performance measured from holding periods of the same length. The time horizons tested in this study were one year, two and three years and one month. Generally, they found persistence in performance, and that past returns may be a useful guide to an investor for predicting the funds’ future returns. They also established a measure for the magnitude of persistence in performance.. In order to discriminate whether the one-month persistence was due to momentum effect or a long-term phenomenon (related possibly to risk level), they performed a randomization test, which explicitly used the fund’s long-term mean return as the control to test whether the preceding month’s return has any additional explanatory power. They found that the preceding month’s ranking had some power to predict the next month’s ranking above and beyond the effects caused by differences in long-term means.

Further researchers analyse these findings in more detail. For example, Carhart’s (1997) analysis indicated that Jegadeesh and Titman’s (1993) one-year momentum in stock returns accounts for Hendricks et al.’s (1993) ‘hot hands’ effect in mutual fund performance. However, funds that earn higher one-year returns do so not because fund managers successfully follow momentum strategies, but because some mutual funds just happen by chance to hold relatively larger positions in last year’s winning stocks. ‘Hot-hands’ funds were found to infrequently repeat their abnormal performance. This is in contrast to Wermers (1997) – who suggested that it was the momentum strategies themselves that generate short-term persistence – and Grinblatt et al. (1995), who found that funds following momentum strategies realise better performance before management fees and transaction expenses, but after the consideration of fees, individual mutual funds that appear to follow the one-year momentum strategy earn significantly lower abnormal returns. Carhart (1997) too concluded that transaction costs consume the gains from following a momentum strategy.

Using data from U.S. equity mutual funds from 1971 through 1991, Malkiel (1995) examined the issue of whether a ‘hot hand’ phenomenon exists by testing the prediction power of the previous-year return of a

fund on the corresponding return of the successive year. He found evidence for persistence of performance in the 1970s – albeit the results did not appear to be robust – but, nonetheless, it disappeared in the 1980s, especially later in the decade. In attempting to determine a strategy by which an investor can consistently achieve excess returns, Malkiel (1995) found that, *ex post*, mutual-fund investment strategies existed that would have produced large excess returns during the 1970s. However, the strategy failed to work during the 1980s, producing somewhat inferior returns in that decade. The excess returns during the 1970s were sufficiently large to make persistence strategies effective over the whole 20-year period. Nevertheless, he concluded that he was been unable to fashion a dependable strategy by which an investor can consistently achieve excess returns over long periods of time (Malkiel, 1995). Similar results were reported later by Droms and Walker (2001a) who found that the time period dependency may be due to the style characteristics of the stocks held by the funds and size anomaly; small-capitalisation stocks outperformed the broader S&P 500 index during the 1970a, while the reverse was true for the 1980s.

Studies by Kahn and Rudd (1995) differed from the majority of previous studies by making use of a style analysis method. Mutual funds were categorised into growth versus value and large cap versus small cap orientated styles, thereby separating style returns from selection returns. For example, if value managers outperformed the broader S&P 500 index over two review periods, an alpha analysis may have indicated persistence, but not so when using the style analysis method. With the latter method a value manager would first be evaluated with a value index over both periods and second whether persistence existed. Using a sample of 300 equity funds from October 1988 to September 1994, they did not find evidence of performance persistence among equity mutual funds, before and after accounting for expenses. A selection and holding period of 3-years was used to predict performance. They concluded that in the absence of persistence in mutual fund returns, investors would be better off by making use of index investing, whichm they argue, due to its low cost, would yield better returns than the median of active funds. They further noted that the presence of survivorship bias makes it appear that winners repeat. Kahn and Rudd (1997a) and Kahn and Rudd (1997b) found similar results when they extended the analysis to additional time periods and to

institutional portfolios as well as mutual funds, and when they focussed on managers rather than just on mutual funds.

Elton, Gruber and Blake (1996) examined the survivorship bias-free sample of common stock funds followed from 1977 to the end of 1993. Similar to the results of Hendricks et al. (1993), they found that both one- and three-year alphas conveyed information about future performance – one-year performance periods appeared to have a higher predictive power. When ranking was done on a risk-adjusted basis the predictability increases as performance is measured over longer periods. When optimal portfolios based on past information were formulated it led to a positive and statistically significant return compared to a portfolio where funds were equally weighted. Elton, et al. (1996) concluded that the differences between the top and bottom performance deciles were attributed to differences in selection skill and expenses. Earlier, Carhart (1992) demonstrated that persistence in expense ratios drove much of the long-term persistence in mutual fund performance.

Using the raw returns of 270 US equity mutual funds from 1985 to 1994 and controlling for size, book-to-price, and bond market effects as Elton et al. (1996) did, Gruber (1996) found strong performance persistence with both one- and three year horizons, and found that the performance measures he used displayed superiority over simple CAPM regressions (used for example, by Malkiel (1995)) to forecast future performance determined on the basis of either risk-adjusted or raw returns. Gruber used his evidence to the growth in the active mutual funds industry.

Carhart (1997) examined survivorship-bias free data consisting of monthly returns of 1892 diversified equity funds over the 1962 to 1993 period. Controlling for size, book-to-price and 1-year momentum effects and replicating the methodology of Hendricks et al. (1993), he formed decile portfolios of mutual funds on lagged one-year returns and estimated performance on the resulting portfolios. Though his results strongly support the short-term performance persistence, he boldly claimed that persistence in mutual fund performance does not reflect superior stock-picking skill. Rather, he noted that most of the short-term persistence observed was explained by the common factor sensitivities of his four-factor model and differences in expenses and

transaction costs (Carhart, 1997). It was found that performance persistence among funds was short-lived and mostly eliminated after one year. Beyond a year, there was little evidence of performance persistence—managers who do well in one year are no more likely to do well the next year. Only the strong, persistent underperformance by the worst-return mutual funds remains anomalous. For example, when following a strategy of buying last year's top-decile funds and selling last year's bottom-decile funds, a significant difference in return between the deciles was noted after one year. Most of the spread between the deciles could be explained by differences in the momentum of stock returns and investment costs between funds. Over the longer term these differences narrowed and, except for the bottom decile, could be explained mostly by common stock factors and investment costs.

While Carhart's (1997) evidence was derived from plots of post-ranking raw returns, his results suggested that any persistence in performance was short-term, but that performance is sensitive to the way in which funds are ranked. Fama and French (2008) confirmed this sensitivity some 10 years later. In more formal tests that address these issues, both Fama and French (2008) and Bollen and Busse (2005) found no evidence of persistence when funds are ranked on past average returns.

While Daniel et al. (1997) acknowledged that several studies found evidence of persistence in mutual fund performance (for example, Brown et al. (1992); Malkiel (1995); Wermers (1997) and Carhart (1997)) suggesting *prima facie* that superior portfolio managers may exist, they argued that much of this persistence may be attributed to either survivorship bias or benchmark errors. Daniel et al. (1997) criticised the use of examining actual returns that investors realised from holding such funds in the assessment of mutual funds, and put forward a number of advantages to directly evaluating the portfolio holdings of mutual funds. First, by observing the portfolio holdings of funds, it may be possible to design benchmarks that better capture the investment styles used by fund managers. Second, hypothetical returns generated from portfolio holdings do not include the fees, expenses, and trading costs that reduce the actual mutual fund returns used in other studies. Although these hypothetical returns overestimate the returns from holding the funds, Daniel et al. (1997) claimed that they were appropriate in determining whether fund managers have any stock selection or timing abilities, since they were compared to a benchmark that also ignores transaction costs.

By constructing a benchmark that directly matches the characteristics of the component stocks of the portfolios being evaluated, Daniel et al. (1997) found evidence consistent with that of Carhart (1997) and Wermers (1997) to support that the persistence in mutual fund performance may be due to the use of simple momentum strategies, rather than to certain managers having “hot hands” that allow them to pick winning stocks as documented by earlier studies (for example, Hendriks et al. (1993)). In particular, it was found that aggressive-growth and growth funds exhibited the greatest degree of outperformance but once the effect of management fees were taken into account, the outperformance was reduced to nil. However, even though some funds may be able to perform extremely well, average abnormal performance is relatively small. Moreover, no evidence that funds are successful style timers was found.

Zheng (1999) investigated whether investors’ purchasing and selling decisions were able to predict funds’ future performances. In essence, he tested whether investors in general were smart in selecting funds. Evidence was found that funds that received more inflows subsequently performed significantly better than those that had a net outflow. He noted that previous studies reported that money flows into past good performers and flows out of past poor performers. The studies by Goetzmann and Ibbotson (1994) and Carhart (1997) suggested that past performance persisted at least over the short term. These two phenomena indicated that active fund investors might have had selection ability. Zheng’s (1999) study supported what Wessels and Krige (2005:72) call the “smart money” effect; Investors were able to select funds by divesting from poor performers and investing in good performers as the latter group outperformed the former over the short term (on average 30 months).

However, Zheng (1999) reported that when constructing a portfolio of funds with net inflows, no abnormal positive returns over the market returns were evident. Investors’ cash flow could not be used to predict or earn abnormal returns, thus the ‘smart money’ effect carried no information value. Chavalier and Ellison (1999) examined whether mutual fund performance was related to the characteristics of fund managers. Most of the raw differences in fund returns could be explained by differences in risk, expenses and investment styles. However, some differences remained. By isolating the style, risk and expense differences, the inherent characteristics of the fund manager were an important dividing line between good and bad

performance. For example, Wessels and Krige (2005:72) state that managers that “attended more selective tertiary institutions had higher returns on average than those managers who attended less selective institutions. Superior stock-picking ability existed for a subgroup of managers and could be explained by differences in inherent abilities, benefits from better education, value of social networks, or difference in the characteristics of fund management companies that hire managers from the different schools.”

2.4.2.3. *The Studies of the 2000s*

Like the studies of the 1990s, studies of persistence in the new millennium focus on shorter selection and holding periods.

Chen et al. (2000) investigated performance persistence by examining the performance of both the holdings and the trades of mutual funds for the 1975 to 1994 period. Controlling for differences in stock characteristics, their results generally did not support the persistence of fund performance, although persistence in unadjusted returns on mutual fund portfolio holdings seemed to exist.

Jain and Wu (2000) examined 117 mutual funds that were advertised from July 1994 through June 1996 in *Barron's* or *Money* magazine by comparing pre- and post-advertisement performance of these funds. Using four different performance measures (including Jensen's alphas and 4-factor alphas) they found that advertised funds have superior performance prior to advertisement year, but turned to underperformers in the year following advertising.

Davis (2001) examined the relationship between equity fund performance and manager style by employing the Fama-French (1993) alpha as his performance measure. Davis (2001) addressed whether any particular investment style reliably delivers abnormal performance, and furthermore, whether any evidence of performance persistence can be found when funds with similar styles are compared. Davis (2001) did not find positive abnormal returns over the 1965 to 1998 period, although he did find some evidence of short-term

performance persistence among best-performing growth funds. However, this persistence did seem to persist beyond one year.

The study of Droms and Walker (2001a) followed the methodology developed by Goetzmann and Ibbotson (1994), Brown and Goetzmann (1995), and Malkiel (1995) to test for performance persistence among equity mutual funds over the two decades from 1971 to 1990. The results showed no long-term persistence based on either total returns or the Jensen Alphas. Instead, evidence of short-term persistence was found for periods of one, two and three years. Consistent with the findings of Brown and Goetzmann (1995), and Malkiel (1995), the persistence appeared to be more pronounced during the 1970s than the 1980s.

As a part of the larger study of mutual fund performance, Jan and Hung (2003) examined the performance persistence of U.S. mutual funds over the 1961 to 2000 period. They formed 'winner' and 'loser' portfolios based on one-year raw returns and found that the some persistence existed among 13 out of 24 of the fund categories examined. However, they also found evidence of performance reversal among 7 of the fund categories. According to their results, persistence appeared to be more common among equity funds while performance reversal appeared to be most common among all categories of fixed income funds. A later study by Jan and Hung (2004), which used a smaller sample covering the same time period as their earlier study found that in the subsequent year the best funds significantly outperform the worst funds. Using Carhart (1997) 4-factor alphas, they also found evidence of short-run and long-run persistence, and concluded that mutual fund investors can likely benefit from selecting funds on the basis of not only past short-run performance but also past long-run performance.

In a study of large capitalization funds, Malkiel (2003b) found that there was not sufficient persistence in fund returns to enable an investor to select funds by examining past fund returns. Malkiel (2003b) analysed general equity funds in the 1970s, 1980s and 1990s, and found that with very few exceptions (e.g. Fidelity's Magellan Fund), an investor cannot expect to achieve higher than index fund returns by confining his or her purchases to those funds that get publicised in the financial press as the top performing funds. For example,

the 10 best actively managed funds during the 1960s achieved rates of returns of almost double that of the index, but those same funds underperformed the index during the 1970s. Malkiel (2003b:7) concludes:

“While there will undoubtedly be a number of funds that will beat the index over any decade, an investor cannot know in advance with any significant degree of confidence which funds they will be.”

Malkiel (2005) cited a further example of how investors that rely on past fund performance can be disappointed with future performance. The top 20 US equity mutual funds which earned returns of 50% or higher than an index fund as measured over the 4-year period, 1 January 1996 to 31 December 1999, generated negative returns almost three times worse than the market as a whole over the subsequent 4-year period. One may point out that those 20 funds may have been overweight with respect to technology stocks, which following the technology crash in 1999/2000 led to their demise, but the example cited is a case in point nonetheless.

Malkiel (2005) argues that although it is true that in any period there will be some active managers who will achieve returns higher than the index, it is not possible to tell in advance who those will be. There is not sufficient persistence in performance to be able to choose winning managers by an examination of their past records. For example, he demonstrates that the ten best actively managed funds during the 1960s achieved returns that were almost double those of the index, but those same funds underperformed the index during the decade of the 1970s. Similarly, the best funds of the 1970s underperformed during the 1980s, and the winners of the 1980s achieved below average returns during the 1990s.

Further, Malkiel (2005:5) also comments on the value that professional investment services give to investors. Morningstar provides an “excellent information service for investors showing the past returns, expense ratios, risk levels, and considerable additional information regarding mutual funds. The service also provides a rating for each fund with four and five star ratings indicating those funds most favoured for purchase” Malkiel (2005:5). In likening the mutual fund industry to the restaurant industry, Malkiel (2005:6) muses, “Unfortunately, while highly starred Michelin Guide restaurants guarantee the diner an excellent meal, four,

and five star Morningstar ratings do not provide mutual fund investors with above-average returns.” It was found that the highest-rated Morningstar funds substantially underperform the broad Wilshire 5000 stock-market index (Malkiel, 2005).

Using a 3×3 classification system similar to that of Morningstar, Harlow and Brown (2006) sorted the fund universe based on alphas of the Fama & French (1993) 3-factor model, and examined performance persistence both within these fund classes and at the aggregate level. Based on the three-year selection period, the results indicated a strong degree of performance persistence in the active U.S. equity fund sample for holding periods up to one year. Harlow and Brown (2006) concluded that that persistence was particularly strong and statistically significant for time periods of one month and three months.

Fama and French (2008) claim that the traditional persistence tests share a common shortcoming. They only allow inferences about the existence of inferior or superior funds. Since a large cross-section of funds produces some extreme alpha estimates simply by chance, it is not possible to identify the specific managers that are skilful rather than lucky. Kosowski et al. (2005) applied bootstrap tests to a universe of US open-ended, domestic equity mutual fund over the 1975 to 2002 period instead of the standard parametric t-tests used mostly by others (for example, Carhart (1997)). They found evidence to support significant persistence in the net monthly returns for the top decile (and sometimes top two deciles) of managers, using several different past alpha selection periods. Their results are also interesting in light of the model of Berk and Green (2004), who predict that net return persistence is competed away by fund inflows (since managers are likely to have decreasing returns-to-scale in their talents). The evidence of persistence in the top decile of funds may indicate that such a reversion to the mean in performance may take some time to occur.

Fama and French (2008) attempted to identify the information effects by applying traditional persistence tests and a bootstrap simulation to a sample of data – relatively free of survivorship bias, covering the period 1983 to 2006. In the persistence tests, sorting funds on t-statistics for market-adjusted average returns did not point to the existence of funds with private information. However, sorting funds on the basis of Fama and French (1993) 3-factor and Carhart (1997) 4-factor alphas produced some results consistent with information

effects. These persistence results were stronger for smaller funds, and they disappeared almost completely after 1992. However, the bootstrap simulations for 1984-2006 could not confirm the evidence of information effects from the persistence sorts. The simulation tests for net returns indicated that there was no evidence of funds with information sufficient to cover their costs. The simulation results for gross returns produced hints of the existence of funds with bad information and of others with good information. "But they are just hints!" Fama and French (2008:25). Ultimately, the simulation tests for 1984-2006 did not identify information effects in fund returns. The results supported the notion that if there are funds with good information that enhance expected returns, then they are offset by funds with bad information.

Fama and French (2008) provide an explanation as to why the two approaches (i.e. the bootstrap simulations and traditional persistence tests) produce somewhat different inferences. If some funds consistently have private information, the simulations probably have more power to infer their existence because the tests typically use longer periods to estimate alpha. But if access to information is temporary, its effects can be masked in a long return history. Persistence tests, which rank funds on the basis of short-term performance, are then probably better for identifying when funds have information. Overall, their persistence results suggest that when there is post-ranking performance, it is temporary and probably of little use to investors in choosing funds.

More recently, several scholars have started to use Bayesian alphas as a performance measure in the evaluation of mutual fund performance (for example, Busse and Irvine (2006) and Huij and Verbeek (2007)). Patari (2009) explains that the basic idea of the Bayesian approach is to include prior information related to such issues as fund expenses, investor beliefs about managerial skills, benchmark pricing abilities, the returns on other mutual fund,s and benchmark factors, in the resulting estimates. The results of the studies applying the Bayesian approach are promising since the superior prediction power of Bayesian alphas over standard alphas is documented most often.

Using daily returns of 230 US equity funds and the Bayesian approach suggested by Pástor and Stambaugh (2002), Busse and Irvine (2006) compared the performance predictability of Bayesian alphas with standard

performance measures. It was found that when the returns on passive non-benchmark assets were correlated with fund holdings, incorporating the histories of these returns in a Bayesian framework produced alphas that predict future performance better than standard alphas do. During the 1985 to 1995 evaluation period, persistence appeared to be at its strongest when the Bayesian alphas estimated over one-year ranking period were used to predict subsequent standard quarterly alphas. Also, the other selection periods tested (namely: one quarter and three years) showed evidence of prediction power.

Using monthly return data of more than 6,400 US equity mutual funds Huij and Verbeek (2007) investigated short-run performance persistence over the period 1984 to 2003. They found that when funds are sorted into decile portfolios based on 12-month ranking periods, the top decile of funds earned a statistically significant, abnormal return of 0.26 percent in the first month after ranking. This finding was robust to load fees that are involved with a strategy of chasing winners. Furthermore, their results showed that persistence varies across investment styles and it appears to be mainly concentrated in relatively young, small cap and growth funds.

2.4.2.4. Summary

In summary, there are many studies on the persistence of mutual fund returns, but with varying conclusions. Some found no persistence; others experienced persistence at least over the short term. The difference in conclusions, as noted by Kahn and Rudd (1995), could be attributed to the different evaluation methods used, the effect of survivorship bias, whether fees were accounted for or not, the integrity of the databases used, and finally, the time period studied. On balance, however, it seems that short-term persistence, whether good or bad, was found, but disappeared over longer review periods. The difference between the top performing funds and the worst performing funds could be ascribed to a combination of differences in managers' skill, expense ratios and the momentum effect of stock return. Most of the persistence phenomenon observed is due to consistent underperformance rather than due to consistent outperformance.

2.4.3. International Studies (outside the USA)

“Mutual funds are an established institution in developed financial markets. The extent to which research, both at the theoretical and technical levels, has been conducted in developed markets indicates the stage of maturity of mutual funds in these markets. In emerging markets, however, mutual funds are a recent phenomenon.” (Ramasamy and Yeung, 2003:122)

The bulk of the mutual fund performance evaluation studies outside South Africa have focused on the USA, while fewer have focused on other markets (such as the United Kingdom and Australia) and even fewer have focused on emerging markets (such as India, Malaysia or even South Africa for that matter). Some of these studies are summarised in this section.

In a relatively early study in the United Kingdom, Brown, Draper and McKenzie (1997) demonstrated evidence for persistence using data on 550 pension managers from 1981 to 1990. Using two by two contingency tables of growth funds classified by risk-adjusted returns over successive intervals over the 1976-1987 period, Brown et al. (1992:557) found that if a manager “wins” or ranks in the top half of all managers in the first 3 years, the probability is greater than 50% that that manager will “win” in the second 3 years. These results were also statistically significant in at least 2 of the 3 successive 3-year intervals. However, in attempting to provide an explanation for their results, Brown et al. (1997) state that their results are not necessarily an indication of skill among surviving managers.

Brown et al. (1997) attack the view held by many pension fund trustees in the UK, whereby past above-average performance is seen as a major criterion for appointing and retaining fund managers going forward. They claim that this view is “too naïve and simplistic in efficient capital markets in which information is rapidly incorporated into prices” Brown et al. (1997:175). They argue, citing evidence from a number of performance studies of unit trusts, that consistent pension fund performance, except by chance, is a “chimera that is unlikely to be realised” Brown et al. (1997:175). To support their claim, they were able to produce evidence of

limited persistence in pension fund performance, notwithstanding that they found that pension funds displaying top quartile performance in one period appeared to have a higher probability than one would reasonably expect by chance, of displaying top quartile performance in the next period. However, they argue that this apparent persistence in performance is not spread evenly across all fund managers: “One large fund manager stood out as successful. Such success suggests the existence of a ‘house’ philosophy that by superior analysis, or chance has boosted performance” Brown et al. (1997:176).

Allen and Tan (1999) investigated the performance persistence of 131 UK investment trust company managers over the 1989 to 1995 period. The authors examined the prediction ability of both raw returns and that of style-index alphas for the one-year, half-year and monthly periods. According to the results, prior one-year performance appeared to include definite information about future performance for the periods of both one year and two years on the basis of both measures. By contrast, for shorter periods the results supported performance reversal rather than persistence.

Fletcher (1999) examined the performance of a sample of 85 UK American unit trusts using both the unconditional Jensen alpha and the conditional Jensen alpha (developed by Ferson and Schadt (1996)). At the beginning of each year, all trusts were ranked on the basis of their cumulative excess returns over the previous year and grouped into quartile portfolios. Equally weighted monthly excess returns were then estimated over the next year. In summary, Fletcher (1999) found no evidence of the persistence in performance for this sample of trusts.

Quigley and Sinuefield (2000) examined the performance after expenses of all UK equity unit trusts. They used a 3-factor model, which took into account exposure to market, value and size risk. Their sample covered the period from January 1978 to December 1997. They found that UK money managers were unable to outperform markets in any meaningful sense, that is, after taking into account their exposure to market, value and size risk. They also found that contrary to the notion that small company shares offer abundant ‘beat-the-market’ opportunities, small-company unit trusts were the worst performers – these results were persistent and reliable. Their conclusion can be summed up as, “Only poor performance appeared to persist. Losers

repeat and winners do not” Quigley and Siquefield (2000:90). After, adding back expenses, they found that some of the most successful unit trusts are able to repeat their winning performance.

Dahlquist, Engstrom and Soderlind (2000) estimated performance persistence of Swedish mutual funds by treating previous-year alphas obtained from various regressions as an attribute of future success. The results showed persistence neither for equity nor bond funds, but among money market funds it did appear to exist.

Droms and Walker (2001b) tested for short-term performance persistence in international equity mutual funds over the 20-year period from 1977 to 1996. Using annual returns as performance measures, Droms and Walker (2001b) found statistically significant performance persistence for 1-year holding periods, but no persistence for 2-, 3- or 4-year periods. Similar conclusions were also made by Horst, Nijman and Verbeek (2001) who examined the impacts of survivorship bias and look-ahead bias with the sample of U.S. growth and income equity funds for the 1989 to 1994 period. For 3-year selection period and holding period the results showed evidence of risk-adjusted performance persistence only among the worst-performing funds (particularly among income equity funds). Without any risk-adjustment procedures the same analysis showed no signs of medium-term persistence.

Fletcher and Forbes (2002) found evidence of persistence in UK unit trust performance using factor models based on the CAPM and APT. However, when using the Carhart (1997) 4-factor model, the persistence disappeared. Interestingly, the use of the conditional performance measure developed by Ferson and Schadt (1996) turned the observed persistence into a significant reversal. Thus, Fletcher and Forbes (2002) concluded that the persistence in the performance of UK trusts was not due to superior stock-picking skill on the part of unit trust managers; instead it can be explained by factors that are known to capture cross-sectional differences in stock returns.

Deaves (2004) examined performance persistence of Canadian equity funds on the basis of several performance measures. Using a carefully constructed bias-free sample for the 1988-1998 period, he found evidence of short-term persistence at its strongest when one-year selection period were used to predict next year's performance.

Malkiel (2005) studied mutual fund performance in an international context. He found that Index funds tend to outperform actively managed funds in international markets. First he considered actively managed European equity funds. While in many individual years, 50% or more of these funds were found to beat the Morgan Stanley Capital International ("MSCI") Europe stock market index, the longer-term results suggested otherwise. Over a 10-year period ending December 31, 2002, over 80% of the actively managed funds underperformed the index, while only four managers were able to beat the index by 400 basis points or more.

Second, he examined actively managed global funds. Over the 10-year period ending December 31, 2002, 80% of these funds were found to outperform the MSCI Global Equity Index. They also demonstrated that small-capitalization active equity managers tend to be outperformed by a Russell 2000 small-cap benchmark index, and active emerging-market managers were unable to beat the MSCI emerging-market index. Even in markets that are "undoubtedly less efficient than the large-capitalization U.S. market, active management does not win out" (Malkiel, 2005:6). He does add that these results could be explained, in part, because of the inefficiencies in the trading markets for small-capitalisation and emerging-market stocks; bid-ask spreads tend to be wide, price-impact costs tend to be large, and, in emerging markets, a variety of transfer taxes tend to make trading far more costly (Malkiel, 2005).

Using a comprehensive data set for UK equity mutual funds, over the period April 1975 to December 2002, Cuthbertson, Nitzsche and O'Sullivan (2008) used a bootstrap methodology to distinguish between 'skill' and 'luck' in the ex-post performance of funds. Depending on the particular model chosen, they found evidence of stock picking ability for somewhere between 5 and 10% of top performing UK equity mutual funds (i.e. performance which is not solely due to good luck). Controlling for different investment objectives, however, it was found that some of the top performing equity-income funds show stock picking skills, whereas such ability is generally not found among small stock funds and 'all company' funds. They also found that positive performance amongst onshore UK funds was likely due to skill, whereas for offshore funds, positive performance seemed to be attributable to luck.

With respect to performance persistence, funds were ranked into quintile portfolios based on past t-alphas and it was found that past performance cannot be used to find future 'winners' — but past 'losers stay losers'. Cuthbertson et al. (2008) pointed out that none of the above results necessarily implies that the mutual fund industry is inefficient, since in a competitive market one would only expect a few funds to earn positive risk adjusted returns over long horizons. This is because funds with skill and high past performance tend to experience large inflows, and, with increasing marginal costs to active management, this should lead to zero long-run average ex-post performance for most funds and a lack of persistence in many past-winner funds (Berk and Green, 2004). At the negative end of the performance scale, they claim that most of these funds demonstrate 'poor' skill. However, this result is not consistent with the competitive model of Berk and Green (2004), since 'bad skill' should lead to large cash outflows and the return on funds who survive should, in equilibrium, equal that on a passive (index) fund. They concluded that the continued existence over long time periods of a large number of funds which have a truly ex-post inferior performance and which exhibit performance persistence for past loser-funds, indicates that many investors may not be able to correctly evaluate fund performance or find it 'costly' to switch between funds or suffer from an element of irrationality (Cuthbertson et al., 2008:632).

While international studies of unit trust performance has been steadily increasing in prominence and number, the bulk of the research conducted so far does not seem to suggest that unit trust managers in general possess much skill and are able to 'beat' the market. Future research may paint a clearer picture or even produce contrary evidence, but until then, like the US studies, international studies seem to suggest that investors are better off investing in passive index funds since past winning performance does not seem to persist; to the contrary, if anything, losing performance has a better likelihood of persisting. The South African studies are considered next.

2.4.4. South Africa

While studies of South African unit trust performance date back to the early 1970s, the findings of these early studies (such as Pyle (1979) and Gilbertson and Vermaak (1982)) were plagued by three caveats: namely: (1) the unit trust industry was in its infancy at that time so that only limited amounts of data were available for analysis, (2) less rigorous performance criteria were used back then, and (3) there was evidence at the time that the Johannesburg Stock Exchange (“JSE”) may not have been efficient in terms of even the weakest form of the EMH.

In an early study by Gilbertson and Vermaak (1982), it was pointed out that because the JSE was a small market with relatively poor information dissemination procedures at the time of that study, price changes may not have been completely independent – that is, the JSE is not efficient. Furthermore, in the early 1980s, gold mining shares (which appear to have several features that distinguish them from typical industrial shares) comprised a large proportion of the JSE’s total market capitalization, implying that the standard unit trust performance measures used in other markets may not be appropriate. Firer (2001) – who performed a comprehensive review of the literature relating to performance persistence of South African unit trusts – highlights that the earliest studies (such as Kerbel (1974) and Du Plessis (1974)) have little relevance today since these studies evaluated the performance of only six funds. Thus, the review of the South African literature begins with Gilbertson (1976).

Gilbertson (1976) studied the performance of eleven unit trusts over the period 1970 to 1976. It was shown using Jensen’s alphas that unit trusts on average earned 1.1 percent less than the return on the JSE All Share Index. He found that only two unit trusts were able to outperform the market, but this outperformance was not statistically significant. Gilbertson concluded that his findings were consistent with the strong form of the EMH. Taylor (1977) studied the performance of 10 unit trusts over the same period as Gilbertson (1976) using the Sharpe (1966), Jensen (1968), and Treynor (1965) measures. On average he found that the funds earned 2.4% less than the market on a risk adjusted basis, but these results were not statistically significant at the 5%

level. It is worth noting that Taylor's (1977) results were subject to the scrutiny of Knight and Firer (1989) who highlighted the fact that the betas calculated were not stable or stationary. For this reason, Firer, (2001:2) warns that "studies using CAPM based tests should be treated with caution."

Gilbertson and Vermaak (1982) first performed their tests before adjusting for risk. Using annualised geometric means of monthly returns for each of 11 funds sampled over the 1974 to 1981 period, it was found that only 3 out of the 11 funds were able to outperform the benchmarks used in the study. Even though the sample was small from a statistical point of view, they were able to conclude that the "mutual fund movement" as a whole seems to have underperformed the indices. Furthermore, they interpreted their findings as support for the premise that the JSE is somewhat inefficient. Using simple rank tests, they found that performance in one year is not a good predictor of performance in the following year.

Performing the same tests on a risk-adjusted basis, their findings were somewhat different. They found that the majority of the 11 mutual funds outperformed all the benchmarks used in their study over their 8 year sample period. They also found that their findings held, irrespective of the performance measure used (namely: Sharpe (1966) Ratio, Treynor (1965) Index and Jensen's (1968) alpha). However, instead of concluding that mutual fund managers are able to outperform passive benchmarks, they concluded that their findings were not consistent with the strong form of the EMH and suggest that a degree of inefficiency exists in the pricing mechanism of the JSE. Using rank tests, they found little, if any, relationship between rankings from period to period. Overall, they concluded that, on average, relative performance in a particular period cannot be used with any confidence to predict relative performance in a later period.

Knight and Firer (1989) updated the Gilbertson and Vermaak (1982) study. They studied 10 of the 11 unit trusts in existence from January 1977 to December 1986 – one was excluded as the trust's objective (and hence risk profile) was altered in 1984. They found that some of the unit trusts outperformed the market on a non-risk adjusted basis. On average, however, the unit trusts earned returns of about 2% less than the market. Risk-adjusted testing was performed using Jensen's (1968) alpha, and the Treynor (1965) and Sharpe (1966) measures. The beta estimates were found to be both stable and stationary. The results of the risk-

adjusted testing established that 5 funds managed to significantly outperform the market index at the 5% confidence level. They observed that some persistence did exist amongst the 2 top funds. They found some evidence (at the 5% level of significant) of persistence in rankings between the first and second five-year periods.

Biger and Page's (1993) study, using single and multi-factor regression models, showed no correlation between rankings based on the different models. This result indicated the importance of the choice of benchmark in performance studies. In order to avoid this problem, Garvin (1995), using Grinblatt and Titman's (1993) benchmark-free methodology (i.e. the P8 portfolio), studied the performance of 32 equity unit trusts to the end of 1992. He found no evidence of persistence of performance. Further, Nicholson (1996) found results consistent with those of Garvin (1995) for the ten years ending in 1995.

Meyer (1998) used a sample of 84 unit trusts (specifically 24 general equity funds, 38 specialist equity funds, 16 income funds and 6 gilt funds) over the period July 1985 to June 1995. However, only 13 of these funds existed over the full 10-year sample period, while 33 funds existed during the 5-year period from July 1990 to June 1995. She also performed her tests over 4-year, 2-year and one year intervals to address whether the length of the time period is important to predict performance. However, Meyer (1998:105) concluded that "some persistence, although not statistically significant, in the performance of unit trusts in South Africa does exist." Using 1-, 2- and 4-year periods, she also found that the longer the evaluation period, the better the result for the repeat 'winner' phenomenon. Firer (2001:3) warns that "the requirements of beta stability and stationarity were not addressed in Meyer's (1998) study", and hence her risk-adjusted results should be treated with caution. She did, however, find little difference between the results using the risk-adjusted and nominal techniques.

Von Wielligh and Smit (2000) produced evidence of positive persistence in the performance of South African unit trusts. In the short-run there was some persistence in performance for the general equity unit trusts, but none for the all unit trusts as a whole. Long-run persistence in performance existed for the general equity unit trust portfolio and to a certain extent for the all unit trusts as a whole. Furthermore, the bottom-performing

portfolio remained the worst performer while the best and average portfolios remained the best and average performers. In conclusion, there seemed to be some long-run evidence of persistence in performance among South African unit trusts. These results concurred with Meyer's (1998) results, which suggested that persistence in performance existed over a longer period for South African unit trusts.

Firer (2001) was able to demonstrate short-run persistence in performance, finding that an investment strategy of selecting past superior performance may improve investment returns. For example, significant persistence was found for most combinations of formation and holding periods for the equity unit trusts. The strongest overall persistence was found when using a 6-month formation period to predict a 3-month holding period. For a 2-year formation period predicting a 2-year holding period, 35.8% of the persistence was explained by winner-winner persistence (compared to 26% for the half year/quarter-year strategy). His results thus suggested that the 2-year selection and holding period strategy may be best for investors looking for positive out-performance to follow. Firer (2001) concludes that the selection of above average funds based on past performance appears to be possible, but a more detailed analysis, taking into account switching costs needs to be made. While previous SA research results in conclusions different to those from Firer (2001), the differences may be attributed to the larger data sets used and to different methodologies used in testing for persistence.

Bradfield and Swartz (2001) analysed the persistence of general equity unit trusts over the period 1995 to 2001. They found that some top performing funds consistently delivered superior returns and concluded that those managers possessed significant skill to outperform their peers. Gopi, Bradfield and Maritz (2004) elaborated on the work done by Bradfield and Swartz (2001). They found a high degree of persistence among the top quartile funds when evaluated on a quarterly forward-looking basis, while the worst-performing funds showed persistence in poor performance. However, when the forward-looking basis was extended to 6 months, the persistence deteriorated. The top quartile funds still exhibited significant persistence, but the inter-quartile movements in the other quartile groups became more random in nature. When evaluating fund-of-funds strategies, based on a quarterly and annual 'look-back' period respectively, it was found that a strategy of allocating funds to top quartile funds would have yielded the highest return in both cases.

Furthermore, the quarterly 'look-back' strategy yielded a better return than the annual 'look-back' strategy. This could be explained by short-term trending or momentum effects, but the quarterly 'look-back' strategy would only be feasible if substantial discounted fees could be negotiated.

Oosthuizen and Smit (2002) applied the evaluation techniques used by Zheng (1999) to establish whether South African unit trust investors displayed ex ante selection ability of investing in funds that would perform better. The results from the analysis indicated that investors on aggregate displayed a weak, but statistically significant skill in identifying winners. Nonetheless, no evidence was found that investors could beat the market by investing in funds with positive money flows. Thus, similar to the findings of Zheng (1999), it was found that the 'smart money' effect carried no information value in a South African context.

Collinet and Firer (2003) analysed the relative performance of general equity unit trusts over a twenty-year period, using a database free of survivorship bias. Their results appeared to be highly sensitive to the holding period length, the time period studied, and the ending date of the analysis. A positive but weak relationship existed between past and future rankings. However, as the holding period lengthens the relationship weakens. The strongest relationship, for both winning and losing funds, was evident for holding and formation periods of six months. The authors argue that the most important cause of the disparate results obtained in earlier South African studies was the selection of different sample periods. These short-term studies using different sample periods and non-equivalent holding periods could not be expected to yield consistent results. An important result emerging from this study was that individual unit trusts did not perform consistently for any length of time.

Using a conditional performance evaluation approach, Akinjolare and Smit (2003) showed strong evidence that a fund's market risk exposure varies in response to changes in the market indicators. The traditional measures of average performance (that is, Jensen's alpha) were found to be negative most of the time, which have been interpreted, albeit wrongly, as poor fund performance. This, they claim, can be attributed to the unconditional time-variation of these models. This finding was consistent with Ferson and Warther (1996). When this was controlled, using the market indicators (namely market dividend yield and interest rates) in an

approach called 'conditional performance evaluation', fund performance during the sample period improved. It was also found that the evidence for perverse market timing demonstrated by the traditional model was removed by its conditional version. More importantly, the study found no evidence of market timing using the conditional approach.

Even in a fairly recent study, Oldham and Kroeger (2005:81) were restricted in terms of sample size and the period over which they are able to test performance; "The market was limited in size prior to 1998." Their study evaluates performance using the CAPM and APT tests – for the CAPM, they use the JSE All Share Index ("ALSI") as the benchmark, while for the APT, they use the Mining, Resources, Financial and Industrial indices as benchmarks. They used weekly returns from a sample of 20 domestic unit trust funds, selected from various sectors (namely: Domestic AA Prudential, Domestic Equity General, Domestic Equity Growth, Domestic Equity Smaller Companies and Domestic Equity Value sectors) for the 1998 to 2002 periods. Their results indicate that only 4 of the 20 unit trust managers were able to beat the market as measured by both the CAPM and APT models, while 6 funds achieved negative, inferior performance in terms of either model. The remaining funds exhibited performances that showed no special management ability – good or bad – earning a return related to market risk. They also found that growth funds fared poorly compared to value funds but they point out that this has been the worldwide experience in bear markets, a phenomenon at the time (Oldham and Kroeger, 2005). From a performance persistence point of view, they found only weak evidence of short-run persistence, which appeared to be short-lived.

By using two models to evaluate performance, Oldham and Kroeger (2005) were able to comment on the appropriateness of the JSE All Share index as a benchmark in evaluating the performance of South African unit trusts. In drawing a comparison between the CAPM (JSE ALSI benchmark) and the APT model (Financial, Industrial and Mining Resource indices benchmarks), the APT model appeared to be a better statistical model when identifying funds that had positive and statistically significant alpha values. These funds focused on certain sectors to enhance performance rather than taking a general equity approach. The funds that exhibited positive superior performance were not taking a general equity approach, which implies wide diversification, but focusing on certain sectors. This brings into question the use of the JSE ALSI as an

appropriate benchmark to judge performance. If, however, the fund specified a particular sector index as a benchmark this may severely reduce the flexibility of the fund managers to shift between sectors in changing economic circumstances.

Wessels and Krige (2005) found evidence of short-term persistence in performance return but concluded that in general, no long-term predictability value was exhibited. A few funds showed significant persistence in keeping their performance in the top quartiles, or alternatively to beat the index on a regular basis. However, similarly some funds showed persistence in underperforming. The rest delivered a wide dispersion of relative performance. Index investing ranked at about the 60th percentile of active fund performance over the various investment periods, but showed large deviations in performance ranking over time. Nonetheless, its average ranking of the 60th percentile confirms that index investing indeed yields better-than average results over time. Overall, they concluded that no infallible method exists to identify those active managers in advance that will substantially outperform the index.

In a study on how the South African unit trust industry has evolved over the period 1965 to 2005, Pretorius and Wolmarans (2006) found that general equity funds appeared to be successful in outperforming the broader JSE ALSI over the period 1988 to 2005. By timing the market and selecting better performing shares, unit trust managers were able to earn an average of 19.5% per annum as compared to 18% for the market as a whole. However, after accounting for all costs, the average return to investors was a mere 12.4%. They concluded that while unit trust managers may have the potential to outperform the market, from an investor's perspective, there appears to be compelling evidence to suggest that equity unit trust underperform the market by a substantial amount, due largely to the costs involved. Bogle (2005) produced evidence supporting a similar trend for USA equity mutual funds - for the 20 years from 1983 to 2003; the average stock market return was 13%, whereas the average equity fund return was only 10.3%.

Tests relating to whether unit trusts on average are able to outperform appear to be inconclusive as a whole. The evidence in support of outperformance seems to be sensitive to the time period evaluated. Evidence has however been produced to support the premise that some unit trust managers do appear to possess some

skill and are able to produce superior results, albeit not all of the time. Persistence tests of South African unit trust performance are inconclusive. From the review of the literature it appears that the findings of previous researches appear to be sensitive to the time period analysed, the length of evaluation periods used and the testing method employed. There is very little evidence of long-term persistence, but the results of most short-term persistence studies suggest that at least a weak relationship between past and future rankings does exist. However, it is suggested that previous South African research findings be viewed with some degree of caution, particularly studies before 2005 when the number of unit trusts that could be sampled was considered small by statistical standards.

2.4.5. Survivorship Bias

There are a number of international studies (such as Brown et al. (1993) and Malkiel (1995)) that demonstrate how the presence of survivorship bias in the dataset can affect the results of studies of mutual fund performance. In a South African context, Meyer (1998) and Pawley (2006), among others, analysed the effects that survivorship bias have on unit trust performance.

While it is true that investors may not be interested in the records of funds that no longer exist, this creates the possibility of significant biases in the performance results calculated from data sets that are subject to survivorship. Malkiel (1995) explains that a mutual fund that accepts very high risk will have a high probability of failure. If, however, that fund survives, this implies that the fund took a large bet and won, with the result that high returns will tend to persist, since funds whose bets were unsuccessful (i.e. had poor returns) will tend to drop out of the sample as they do not tend to survive. “The record of non-survivors up to the time of their demise tends to be substantially worse than the record of the survivors” (Malkiel, 2005:4). It is extremely difficult to sell a mutual fund to the public that has a poor record. Mutual fund complexes (that run large numbers of funds) will typically allow the fund to suffer a painless death by merging the fund into one of the more successful funds in the complex, thereby burying the fund's bad record with it. Thus, there may be a

tendency for only the more successful funds to survive, and measures of the returns of such funds may tend to overstate the success of the average mutual fund (Malkiel, 1995).

This claim is further supported by Pawley (2006:21) who states that “survivorship bias causes the results of some studies, where truncated datasets have been used, to skew higher generally as a result of successful [unit trusts] continuing to remain in the dataset at the end of the period.” Moreover, Pawley (2006) outlines three implications that survivorship bias may have from the perspective of the investor. First, given that average performance could be overstated due to the presence of survivorship bias, there may be a “pseudo-perception” that active managers have a higher probability of outperformance Pawley (2006:21). Second, the perception that past performance may act as a good proxy for future performance is further strengthened. Third, an investor may select funds based on a long-term mandate, believing fund longevity to be sound.

Survivorship bias started to receive academic attention relatively late – while the prominent mutual trust performance evaluation studies date back to the 1960s, studies commenting on survivorship bias only began to emerge some 25 years later. Prior to the 1990s, there was a general perception that the survivorship bias effect was insignificant. For example, Grinblatt and Titman (1989) reported that the survivorship effect accounted for only approximately 0.1 and 0.4 percent return per year measured on a risk-adjusted basis before transaction costs and fees. They did, however, find that the bias is somewhat larger for smaller funds. Not long after this claim was made however, statements to the contrary began to emerge with researchers making counter-claims that Grinblatt and Titman (1989) may have underestimated the magnitude of survivorship bias and that it is not as small as initially believed. For example, Sharpe (1991) states that because non-surviving managers are likely to have experienced especially poor returns, the resulting survivorship bias will tend to produce results that are better than those obtained by the average actively managed fund (Sharpe, 1991).

Malkiel (1995:555) offered an explanation as to why Grinblatt and Titman (1989) may have reported that the magnitude of survivorship bias was “relatively small”. He claimed that Grinblatt and Titman's (1989) finding of abnormal returns depended heavily on their method for the measurement of gross returns. They calculated

hypothetical returns for the equity portion of the portfolios of mutual funds assuming that the funds' quarterly reported portfolios were held throughout the period. They estimated returns from the portfolio by using returns data from the CRSP for each of the individual stocks owned rather than calculating actual portfolio returns. The difference between the calculated returns (which they took to be the gross returns), and the actual portfolio returns were assumed to reflect transactions costs. The returns measured by Grinblatt and Titman (1989) were not returns actually achieved by active managers.

In a more thorough study addressing survivorship bias directly, Brown et al. (1992) showed that survivorship bias could significantly affect the results of performance studies. In particular, they demonstrated that survivorship bias would generate the appearance of significant persistence. If the probability of survival depends on past performance to date, it might be expected that the set of managers who survive will have a higher ex post return than those who do not survive. Managers who take on significant risk and lose may also have a lower probability of survival. This observation suggests that past performance numbers are biased by survivorship. This does not suggest, however, that performance persists (Brown et al., 1992). Furthermore, it was argued that even though the magnitude of the survivorship bias effect depends on the fraction of managers that survive and on the prevailing market conditions (particularly volatility) over the test period, standard risk-adjustment technology, which adjusts for single factor risk, may not suffice to correct for this effect. They showed that this effect may give rise to a substantial probability that statistical tests based on risk-adjusted returns may point to their being persistence or dependence in security returns.

Malkiel (1995) concluded that the results from Grinblatt and Titman (1992), Hendricks et al. (1993) and Goetzmann and Ibbotson (1994) could be explained by survivorship bias. Thus, Malkiel's (1995) study adjusted for survivorship bias and, after taking transaction costs into account, found no evidence of persistence in performance. He constructed databases free of survivorship bias by including all funds that existed over his sample period (even if just briefly). He demonstrated that from 1982 through 1991, the average surviving equity mutual underperformed the S&P 500 Index by 43 basis points per year, while the average equity mutual fund (including survivors and non-survivors) underperformed the index by 1.83 percent per year.

Carhart (1997) produced bias estimates for varying time periods as a guide in order to adjust returns reported using datasets subject to survivorship bias. For example, he estimated that for samples of one year, the bias is on average 17 basis points, for periods of five years this expands to 43 basis points, and the bias seems to level off at roughly one percent per annum for periods of 15 years or more.

Another behavioural aspect of mutual fund management companies points towards the significance of survivorship bias. A mutual fund 'house' may start many small new incubator equity funds with different in-house managers and monitor which ones are successful. Suppose after a few years only three funds produce total returns better than the broad market averages. The complex begins to market those successful funds aggressively, dropping the other unsuccessful funds, thus burying their records. The full records from inception of the successful funds will be the only ones to start appearing in the marketing publications of mutual fund returns (Malkiel, 1995).

In a South African context, Meyer (1998) claimed that survivorship bias was non-existent since there were no funds that ceased to exist. She claimed that the problem of survivorship bias did not appear to exist to a material extent, since only a few of the unit trusts have, at the time of her study, closed down (for example, she found that in the sample period of July 1985 to June 1995, none had closed down). However, in a later study examining the unit trust industry in South Africa, Pretorius and Wolmarans (2006) documented that by 1999, fifty-seven funds had disappeared, and that by 2005 a further 54 had disappeared. This calls into question the claims made by Meyer (1998). However, Pretorius and Wolmarans (2006) define the term 'disappear' as ceasing to exist as a separate fund, and point out that such funds could have simply been rolled into other funds, closed down, or sold to other managers.

More evidence challenging the conclusions of Meyer (1998) is presented by Pawley (2002), who demonstrated that, for the period 1978 to 2001, marked survivorship bias existed and displayed an inverse relationship with time which corresponded with previous research, albeit for the US market. Survivorship bias has received very little academic attention in South Africa, and only a handful of studies (such as Pawley (2006)) have exclusively considered the impact of survivorship bias on unit trust performance. Pawley (2006)

found that the magnitude of the bias increased from a minimum of 0.23 percent at 5 years to 1.05 percent at 20 years. The results suggested that the magnitude of the bias is directly proportional to the evaluation period. He concluded that poor fund performance is pervasive – that is, funds that fail do so as a result of persistently poor performance over multiple periods.

Pawley (2002) examined the survival rate of unit trusts over the 1976 to 2001 period and found that, on average, 3.05 percent of unit trusts fail each year. This is not significantly different to the 3.6 percent attrition or failure rate for the US market as established by Carhart (1997). However, Pawley (2006:25) warned that attrition rates are increasing “dramatically” with time, which are not apparent from the averages reported in studies such as Pawley (2002). For example, at the one year level, the average attrition rate for the period 1999 to 2004 was 15.86 percent versus the average of 5.23 percent for the period 1972 to 2004, “which may translate into survival rates as low as 3.16 percent at the 20 year level” Pawley (2006:25). The implication is that it seems that the pursuit of performance seems to produce “higher casualties”. Furthermore, long-term investors are expected to select funds ex-ante with the knowledge that fund attrition rates are increasing merely with the passage of time as the industry continues to grow.

In conclusion, survivorship bias is important in the studies of mutual fund performance, and the presence thereof can call into question the findings of performance persistence studies (Pawley (2006); Malkiel (2005); and Grinold and Kahn (2000)). The results and conclusion sections will therefore consider survivorship bias in the context of this study.

2.4.6. Criticisms of Mutual Fund Performance Evaluation

Despite the abundant number of mutual fund studies that have been undertaken to find evidence in support of outperformance or persistence in performance as well as the numerous performance evaluation models that have been developed (whether linear or non-linear, conditional or unconditional), at best researchers have only been able to find pockets of evidence in support of outperformance (or underperformance, for that

matter) or performance persistence. Collectively, the evidence is not conclusive or irrefutable in either direction. Naturally any astute researcher would ask why. Mutual fund performance evaluation and the statistical models employed therein are subject to a number of flaws, which, if not controlled for, can drastically affect the inferences drawn from such studies. Thus, a consideration of some of these flaws and the possible impacts that it may have on the inferences drawn from mutual fund performance evaluation studies is vital. This section examines some of these flaws.

Grinblatt and Titman (1993) explored some of the flaws inherent in mutual fund performance evaluation. These included: (1) the problem of identifying an appropriate benchmark portfolio; (2) the possibility of overestimating risk because of market-timing ability; and (3) the failure of informed (as different from uninformed) investors to earn positive risk-adjusted returns because of increasing risk aversion. These are explored in further detail.

It is argued that one of the widely held "folk theorems" in finance is that informed investors can achieve a better risk-return trade-off than uninformed investors (Grinblatt and Titman, 1993:393). Risk, however, is difficult to define and measure, particularly in markets with asymmetric information, especially when one considers that it must be evaluated by an uninformed observer. For this reason, there has been a great deal of controversy over whether the performance measures proposed by Treynor (1965), Sharpe (1966), and Jensen (1968) can identify investors with superior information. Jensen's alpha and other such factor regression models (such as the Fama and French (1993) 3-factor model and Carhart (1997) 4-factor model), which measure the deviation of a portfolio from the securities market line or some other 'best-fit' line, have been the focus of most of the controversy because it is the most widely used in academic empirical studies.

One criticism of the Jensen measure is that it is based on an upwardly biased estimate of systematic risk for a market-timing investment strategy. Examples provided by Jensen (1972) and Admati and Ross (1985) demonstrate that, because of this, the Jensen measure can assign negative performance to a market timer – that is, erroneously indicating that an informed investor is an inferior performer (Grinblatt and Titman, 1993). The reason for this, in part, may be that the CAPM model assumes that the risk level of the portfolio under

consideration is stationary through time. However, this need not be strictly true since the portfolio manager can certainly change the risk level of his portfolio very easily. He can simply switch from more risky to less risky equities (or vice versa), or he can simply change the distribution of the assets of the portfolio between equities and cash (Jensen, 1966). For example, a 'market-timer' may increase his or her overall equity exposure in anticipation of a bull market.

Further, building on the argument of Grinblatt and Titman (1993), Ferson and Warther (1996:20) argue that "unconditional" (or traditional) performance measures may not account for the fact that risk and expected returns may vary with the state of the economy – a direct violation of one of the assumptions underpinning the CAPM and other such unconditional factor models. In particular, they claim that traditional performance measures tend to ignore the evidence that expected returns in the stock market are likely to be higher at the beginning of an economic recovery, typically when dividend yields are high and interest rates are low. It is argued that if the market exposure of a managed portfolio varies predictably with the business cycle but the manager does not have superior forecasting ability, a traditional approach to performance measurement will tend to confuse the common variation between fund risk and expected market returns with truly superior information and abnormal performance. For example, the unconditional approach leads to the mistaken conclusion that the manager has positive abnormal performance. The manager's performance however, does not reflect superior skill or ability, it just reflects the fund's decision to take on more market risk in times when risk is more highly rewarded in the market. Investors, who are assumed to have access to the same information about the economic state, would not be willing to pay the fund management fees to use this common knowledge (Ferson and Warther, 1996)

To prove their point, Ferson and Warther (1996:23) constructed a "notional 'naïve' buy-and-hold portfolio" (i.e. a passive strategy). They found that according to traditional performance measures (such as the CAPM), the buy-and-hold portfolio appeared to show abnormal performance. This of course, they argue, is nonsensical and is for them the most "telling piece" of evidence to support that the traditional performance measures may be prone to giving "false signals about performance" Ferson and Warther (1996:23).

Grinblatt and Titman (1993) also argue that the Jensen measure of a portfolio bears no reliable relation to its true performance because there is no appropriate benchmark portfolio with which to compute beta. Since it is undesirable to classify uninformed investors who engage in passive strategies (e.g., buy and hold small firms) as superior performers, index portfolios that yield such anomalies may be inappropriate as performance benchmarks. They demonstrate that the mean-variance efficient portfolio is an appropriate benchmark for both Jensen's alpha and for their measure⁶ as it appears to correctly classify informed investors as positive performers and uninformed investors as zero-performers.

Adding to the notion of a fair benchmark first proposed by Friend et al. (1970), Lehmann and Modest (1987) examined whether the results of performance measurement comparisons can be affected by the benchmark. It is widely recognised that no risk-adjustment model is perfect. They also argue that once biases in the measure are known, researchers can skew their results merely by the choice of their market index. For example, Lehmann and Modest (1987) illustrated the impact of using different benchmarks. They used the value weighted NYSE index and value-weighted CRSP benchmark in a CAPM model and found that negative alphas under the first benchmark became positive when the second was used over the same data.

Choosing an appropriate benchmark given the investment mandate of a unit trust manager is also important. Grinblatt and Titman (1993) argue that the appropriate benchmark portfolio can consist only of those assets that can be included in the portfolio being evaluated. For example, portfolio managers who select the oil stocks in a larger portfolio can be evaluated with a mean-variance efficient benchmark portfolio consisting only of oil stocks. This is because, from the perspective of these managers, non-oil investments in the complete portfolio may be regarded as non-traded assets. Thus, incorrect inferences may be drawn from the results of comparing mutual funds that are limited in terms of their security choices to a more general all-encompassing benchmark. For example, an equity mutual fund investing exclusively in financial stocks may be incorrectly construed as an outperformer when compared to a general equity index if financials outperformed other equity sectors. However, that mutual fund may still have delivered inferior performance when measured against an appropriate index comprising financial stocks only.

⁶ They use the P8 portfolio described earlier.

Furthermore, Grinblatt and Titman (1993) also point out that the market portfolio in tests of the CAPM requires the observability of all assets, which may not always be possible, and where data is not reliably available, misspecification errors become more likely. A further criticism was raised by Verrecchia (1980), who presented an example in which an informed investor realised average returns below that expected by uninformed observers who know the risk of the portfolio. This means that informed investors can realise negative risk-adjusted returns, even when returns are properly adjusted for risk. Thus, as Grinblatt and Titman (1993) note, this example challenges the validity of all measures of portfolio performance.

Akinjolare and Smit (2003) assert that the CAPM model is subject to a number of other theoretical assumptions that may not always hold in the real world. Jensen (1968) lists these: (1) All investors are risk averse and are maximisers of single period expected utility of terminal wealth; (2) All investors have identical decision horizons and homogenous expectations regarding investment opportunities; (3) All investors are able to choose among portfolios solely on the basis of expected returns and the variance of returns; (4) All transaction costs and taxes are zero; (5) All assets are infinitely divisible; (6) and The Capital Market is in equilibrium.

Ashton (1990) investigates the reason for the failure of the Jensen methodology to detect superior performance by mutual funds. Ashton (1990) provides an explanation as to why a large number of studies have failed to produce evidence of outperformance. It is shown that the expected value of the residual, although biased, is very close to the true measure of abnormal performance. However, when the variance of the residual is examined, this is shown to be relatively large. Thus, the reason why the statistical methodology tends to reject claims of superior investment performance is because the observed variations in the residual are likely to be much larger than its mean value. The conventional methodology of treating the ratio of the mean of the residual to its standard deviation as a t-statistic concludes that the residual should not be significantly different from zero. As a result, the approach will tend to accept the null hypothesis that there is no evidence of superior performance.

Moreover, Ferson and Warther (1996) argue that the standard factors used in multi-factor performance evaluation models (such as book-to-market ratios and market capitalisation) can suffer from a number of problems in practice. For example, traditional measures may not be able to handle the dynamic behaviour of returns. Traditional approaches to performance measurement are unconditional, which means that they use historical average returns to estimate expected performance. For example, an alpha may be calculated as the historical average return of a fund in excess of a beta-adjusted historical average for a benchmark portfolio, such as the Standard & Poor's 500 Index.

Last, Patari (2009) comments that the test procedures employed in persistence studies can be subject to many biases that may have implications on the inferences drawn about performance persistence. Although he states that survivorship bias is controlled for in almost every recent persistence study, other biases such as look-ahead bias, self-selection bias, backfilling bias, or data-snooping bias induce more often spurious persistence than spurious non-persistence. Therefore, an investor should be cautious in forming generalisations from the abundant evidence of performance persistence of mutual funds.

The criticisms outlined in this section refocus one's attention on the question of whether it is possible to detect superior investment performance by fund managers, if indeed such a thing exists. The answer, according to Ashton (1990:348) would appear to be an "unequivocal yes". The solution, he claims, does not lie in refining the existing statistical methodology in order to detect small shifts in noisy systems, but rather the solution relies on a direct approach to measure the reduction in noise brought about by forecasting models. Researchers must continue to work in the 'real world', where certain assumptions must be made and certain criticisms will remain. No statistical study can be without its shortcomings.

3. Relevance and Importance of the Study

Both in South Africa and abroad, the mutual fund industry has experienced significant growth. From the very first mutual, or “open-end,” fund introduced in Boston, USA in March 1924, mutual funds (as well their South African unit trust counterparts) continue to gain importance worldwide. (Investment Company Institute (“ICI”), 2010:185). The mutual fund industry has registered spectacular growth worldwide. The industry has more than doubled its size from \$9.6 trillion (54,568 funds) at the end of 1998 to roughly \$23 trillion (65,735 funds) at the end of 2009 \$18 trillion in 2005 – according to data from the ICI (2010) – corresponding to a growth rate of approximately 8.3% per annum. In South Africa alone, the industry has grown to roughly USD 140billion as at 31 December 2010, representing a growth rate of roughly 21% per annum over the past 8 years. The unit trust industry continues to gain more prominence in the financial press, the number of awards is constantly increasing and performance evaluation companies continue to become more sophisticated. As more investors look to unit trusts, and as the amount of assets under management swells, further reliance is placed on past performance to determine tomorrow’s so-called ‘winners’, assuming that such ‘winners’ even exist.

Numerous studies have been conducted, both internationally and locally, with respect to the performance and persistence in performance of mutual funds and unit trusts. Oldham and Kroeger (2005:82) assert that: (1) investors expect superior returns from actively managed unit trusts to justify management fees and expenses incurred, and (2) persistence of performance is particularly important because many investors compare and select unit trusts by looking at the past performances of funds. Moreover, unit trusts receive considerable attention in the financial press and a number of awards are held annually for the ‘top-performing’ unit trust managers in South Africa, and even more so abroad.

According to Berk (2005:27), the level of compensation commanded by unit trust managers is “puzzling”. One of the first principles any student of microeconomics learns is that in a competitive market (which the capital markets surely are, he argues), people can earn economic rents only if they have a skill that is in short supply.

Berk (2005:27) asks, “If active managers cannot pick stocks or time the market, what rare skill do they have that makes them among the highest paid members of society?” The next obvious question which flows is whether unit trust managers are able to ‘justify their keep’.

From an academic point of view, the EMH implies that successful asset management should be impossible. However, market participants are human and humans have been shown to act anything but rationally at times; acting rationally is one of the assumptions underpinning the EMH and capital market theory in general. Perhaps more surprising, humans are irrational in consistent and specific ways. The field of behavioural finance – a relatively newer branch in finance theory – has developed to understand these persistent human behaviours and their impact on financial markets. Behavioural finance claims that markets are not efficient because of this irrational behaviour. Grinold and Kahn (2000:568) state that “until evolution co-operates, market inefficiencies will remain available for successful active management.” Thus, in the real world outside the classroom of the academic, perhaps the EMH does not hold and successful active management is quite possible.

Turning to the issue of fees charged by unit trust managers, Wermers (2000) documents that the average US active mutual fund expense ratio is at least 100 basis points above the roughly 20 basis points per year charged by the Vanguard Index 500 fund, passive fund that tracks the S&P500 Index – this is consistent with the fees charged by the passive suite of index-tracking investment products offered by Satrix in South Africa. Pretorius and Wolmarans (2006) found evidence to support the finding of Wermers (2000), noting that South African unit trusts can charge anything from 1 to 5 percent per annum. Wermers (2000) also noted that actively managed funds incur substantially higher trading costs than index funds due to the higher turnover of securities in their portfolios. Given the magnitude of these costs, it is important to determine whether the industry as a whole or perhaps industry subgroups have stock-picking talents that are able to justify the trading costs incurred and the management fees and expenses charged.

The mutual fund industry has grown in prominence worldwide. Despite its importance, the mutual fund industry outside the USA – according to Ramos (2009) – has received limited academic attention. In a South

African context, the unit trust industry only began to experience significant growth after 1998. Today, there are well over 900 unit trusts registered in South Africa – almost two times more than the number of shares listed on the JSE. While there are a handful of South African studies that date as far back as the 1970s (such as Pyke (1979)), most of these were constrained by the small number of funds that were available and the relatively short time over which such funds had been in existence. As recently as 2005, Oldham and Kroeger (2005) commented that the sample used in their study was relatively small because of the limited number of funds which had met the selection criteria. Moreover, their sample period was also relatively short and covered a period during which the share market was very volatile, swinging from negative average returns to positive and then back to negative. Even though they found some evidence of persistence, they warn that their results cannot therefore be generalised to the South African unit trust market as a whole.

Moreover, earlier South African researchers such as Pyle (1979) and Gibertson and Vermaak (1982) were plagued by three additional problems: (1) less rigorous performance criteria were used back then, (2) there was evidence at the time that the JSE may not have been efficient in terms of even the weakest form of the EMH, and (3) in the early 1980s, gold mining shares (which appear to have several features that distinguished their return characteristics and price movements from typical industrial shares) comprised a large proportion of the JSE's total market capitalization, implying that the standard unit trust performance measures used in other markets may not have been appropriate.

Over the last decade, however, in the words of Pretorius and Wolmarans (2005:65), “the situation has changed and new opportunities for research have now emerged.” Data is now available for a statistically significant sample size, thereby creating the possibility of being able to draw meaningful conclusions from an analysis of this data with respect to unit trust performance. Most of the previous South African studies focusing on unit trust performance evaluation apply a limited number of performance measures to their data. This study will utilise five performance evaluation models (namely: Sharpe Ratios, CAPM alphas, Fama and French (1993) 3-factor alphas, Carhart (1997) 4-factor alphas and Ferson and Warther (1996) conditional 3-factor alphas) to search for evidence in support of outperformance on the part of unit trust managers and

persistence in unit trust performance. Based on the review of the literature, no previous South African studies employing either the Fama and French (1993) and Carhart (1997) models were found.

These models will be applied to a sample of 151 South African Domestic Equity (including 15 Exchange Traded Funds (“ETFs”)) covering the 10-year period from 2001 to 2010 – given the growth of the industry and the relatively few studies that have been undertaken over the past 5 years, this may be the largest sample size ever employed in a South African study on unit trust performance. Moreover, three approaches (namely: contingency tables, rank tests and time series regression) are used to test for persistence in unit trust returns. Furthermore, this study considers the total returns of unit trusts and hence does not exclude that portion of unit trust returns that stem from dividends as do some of the previous researchers (for example, Oldham and Kroeger (2005)). Also gross and net returns are evaluated.

Despite the lack of evidence found so far (regardless of the reasons thereof), Grinold and Kahn (2000:569) affirm that there are compelling arguments for believing in successful active management, notwithstanding that successful active management requires “cleverness” and “hard work”. This study, for the reasons stated above, will attempt to discover any evidence in support of successful active management, at least in the South African unit trust industry.

4. Hypotheses and Research Questions

In light of the previous section, the following research questions are hypothesised. Based on the evidence collected, this study will attempt to reject the null hypotheses relating to the following hypotheses.

Hypothesis 1

South African domestic equity unit trust managers are on average able to produce superior total returns relative to the market.

- Hypothesis 1a

Some South African domestic equity unit trust managers possess some skill with respect to being able to deliver superior total return performance and are not merely lucky.

- Hypothesis 1b

South African domestic equity unit trust managers are on average able to produce superior total returns on a nominal basis as well as on a risk-adjusted basis.

- Hypothesis 1c

South African domestic equity unit trust managers are on average able to deliver superior total return performance gross of fees and expenses as well as net of fees and expenses.

In the words of Jensen (1968:394), “At first glance it might seem difficult to do worse than a random selection policy [that is, observe negative alphas], but such results may very well be due to the generation of too many expenses in unsuccessful forecasting attempts.” Thus, the following hypothesis is also tested:

- Hypothesis 1d

Some South African domestic equity unit trust managers are able to deliver inferior total returns that are statistically significant.

Hypothesis 2

Past South African domestic unit trust performance – whether superior or inferior – contains predictive (informational) value with respect to the future performance of those funds.

- Hypothesis 2b

Investors of South African domestic equity unit trust are able to profit from strategies that choose unit trusts on the basis of past returns.

5. Methodology

5.1. Sample Data

In order to perform the methodology detailed in this section, data from a number of databases was collected. These included BFA McGregor, the ASISA, I-Net Bridge and Morningstar South Africa. Data covering the period 01 January 2001 to 31 December 2010 (“sample period”) relating to: (1) shares listed on The Johannesburg Stock Exchange (“JSE”); (2) indices published by the JSE; and (3) South African Domestic Equity Unit Trusts was extracted. Broader economic data (namely: South African Interest Rates) was also obtained.

The sample period is further broken down into two 5-year periods from 2001 to 2005 and 2006 to 2010 respectively and evaluation intervals of differing lengths ranging from 3-month to 10-years are used. In the case of the tests relating to persistence in performance, ‘formation’ and ‘holding’ periods of varying but equal length are formed to test for persistence across adjacent ‘formation’ and ‘holding’ period pairs.

5.1.1. Share Data

Using the BFA McGregor database, the following information was extracted for all the shares listed on the JSE over the sample period as well as for the year preceding the sample period (i.e. the year, 2000). Data for both listed and delisted shares has been obtained.

- End of month closing prices for each share
- End of year market capitalisation values for each share
- End of year price-to-book ratios for each share (where available)
- End of year book value per share (“BVPS”) values for each share (where available)

Monthly returns for each share are calculated as follows:

$$R_s = \frac{\text{Price}_t - \text{Price}_{t-1}}{\text{Price}_{t-1}}$$

R_s is the discrete monthly return of Share, s , in percentage terms; Price_t is the price of share, s , at the end of the month for which the return is being calculated; and Price_{t-1} is the price of share, s , at the start of that month. Dividends are excluded from the monthly returns calculation as the returns on the market indices used in the regression models are based on total returns, which explicitly includes dividends.

Book-to-market values are calculated by taking the inverse value of the Price-to-Book ratio for a particular share. Where a book-to-market value is unavailable for a particular share and its BPVS value is available, its BVPS divided by its end-of-year closing price is used as a surrogate for its Book-to-market value.

In addition, the value-weighted dividend yield for the JSE All Share Index at the end of each month was extracted in the sample period as well as the for the year preceding the sample period.

5.1.2. Economic Information

The 90-day Banker's Acceptance rate was used as the risk-free rate of return in this study in line with Oldham and Kroeger (2005). The 90-day Banker's Acceptance rate for the end of each month covering the sample period as well as for the year preceding the sample period was obtained from I-Net Bridge. End of month yields for the following government bonds were also obtained over the sample period and for the year preceding the sample period as proxies for long-term interest rates:

- R157 South African Government Bond (Jan 2000 to Dec 2005)
- R204 South African Government Bond (Jan 2006 to Dec 2007)

- R207 South African Government Bond (Jan 2008 to Dec 2010)

5.1.3. JSE Indices

Using I-Net Bridge, the end of month values for the J203T: JSE All Share Total Return Index (“JSE ALSI TR”) as published by the JSE were obtained for the sample period.

The monthly return on the index is calculated as follows:

$$R_i = \frac{\text{Value}_t - \text{Value}_{t-1}}{\text{Value}_{t-1}}$$

R_i is the discrete monthly return on the index, i ; Value_t is the value of the index, i , at the end of the month for which the return is being calculated, and Value_{t-1} is the value of the index, i , at the start of that month. The values observed for all the indices incorporated all dividends declared by the constituent shares.

5.1.4. Unit Trust Data

Using the Morningstar South Africa database, the following information was extracted for all the unit trusts falling in the South African Domestic Equity category and its subcategories:

- End of month total returns (assumes that income distributions are reinvested)
- Annual Expense Ratios as at 31 December 2010

By the end of the sample period, 136 South African registered domestic equity unit trusts were in existence, categorised as follows: 84 general equity unit trusts, 5 growth unit trusts, 6 industrial unit trusts, 8 large-cap unit trusts, 7 resource and basic industrial unit trusts, 7 smaller companies unit trusts, 10 value unit trusts, 3

varied speciality unit trusts, and 6 financial unit trusts. 74 of these funds were in existence over the full 10-year period from 01 January 2001 to 31 December 2010, while 104 unit trusts were in existence over the 5-year period 01 January 2006 to 31 December 2010. The sample is not free from survivorship bias as only data for the surviving funds up to 31 December 2010 could be obtained.

In addition, 15 Exchange Traded Funds (“ETFs”) are selected in this study and included as part of the unit trust dataset. Instead of comparing unit trust performance to the index funds as many researchers in the past have done, the ETFs are treated as Unit Trusts and their performance is evaluated relative to the market. In this way, it is argued that ETFs may be evaluated and ranked alongside their unit trust counterparts in a manner that is intuitive for investors. End of month total returns relating to the ETFs were obtained from the Morningstar Database. Thus, the total sample size was 151 funds. Annual expense ratios could not be obtained for the ETFs and only gross returns are used in the case of ETFs.

The monthly return as reported in the Morningstar Database is calculated by comparing the end of month net asset value (“NAV”) per unit to the beginning of month NAV per unit. Any distributions declared by a unit trust are included in the calculation of the total return calculation and assumed to be reinvested at the NAV per unit on the reinvestment date as specified by the unit trust manager.

The annual expense ratio as reported in the Morningstar Database expresses the percentage of assets deducted each year for fund expenses and includes: management fees, administrative fees, operating costs, and all other asset-based costs incurred by the fund. Portfolio transaction fees, or brokerage costs, as well as initial or deferred sales charges (i.e. load fees) are not included in the expense ratio.

Where gross returns were positive, net returns were calculated by multiplying the gross return by $(1 - 1/12 \text{ of the total expense ratio})$. In the case of negative gross returns, the net returns were derived by multiplying the gross return by $(1 + 1/12 \text{ of the total expense ratio})$. Since only expense ratios at as at 31 December 2010 could be obtained, these were applied retrospectively.

5.1.5. Data Analyses

All the data analyses have been performed in Microsoft Office Excel 2010, including all the statistical regressions analyses as well as the tests for statistical significance. All the output was manually analysed and collated using arrays and pivot tables.

5.2.Models

This study focuses on two areas of South African unit trust performance evaluation. First tests for evidence of outperformance by unit trust managers are performed. Second, tests for persistence in unit trust performance are performed using the results of the outperformance tests. The models used to test for outperformance and performance persistence are detailed in the following sections.

5.2.1. Outperformance

The conventional theory of performance evaluation dictates that returns must be adjusted for risk before they can be meaningfully compared (Akinjolare and Smit, 2003). This notion was further emphasised by Jensen (1968) who stated that when evaluating the performance of portfolios, the effects of differential degrees of risk on the returns of those portfolios must be taken into account.

Akinjolare and Smit (2003) state that the simplest and most popular way to adjust returns for the portfolio risk is to compare rates of return with those of other investment funds with similar characteristics (for example, using rank tables or contingency tables). While this comparison of performance with other managers of similar investment style is a useful first step in evaluating performance, such rankings can be misleading

because within a particular “universe”, some managers may concentrate on particular subgroups, so that portfolio characteristics are not truly comparable (Akinjolare and Smit, 2003; and Bodie, Kane and Marcus, 1999). These considerations suggest that a more precise means for risk adjustment is desirable.

In order that a fund’s investment manager might be able to judge whether he is in fact optimising his fund’s investment yield, it is necessary to have a suitable standard against which to compare the yield being achieved (Pyle, 1979). Sharpe (1991:3) further argues that only when this type of measurement is in place can an active manager (or one who hires active managers) “know whether he or she is in the minority of those who have beaten viable passive alternatives.” Since the development of the first model – the CAPM – which incorporates mean-variance criteria (that is, it explicitly adjusts for risk) and incorporates the notion of benchmarking, a number of subsequent such models have since been developed (such as Fama and French’s (1993) 3-factor model, and Carhart’s (1997) 4-factor model).

In testing for outperformance, this study uses both nominal and risk-adjusted returns. Most of the focus is placed on testing for outperformance using risk-adjusted returns in line with the existing and generally accepted capital market theory that when comparing returns across different investments, the differential risk factors should be expressly adjusted for. In addition to testing for outperformance on the basis of Nominal Returns, the following performance measures are used: (1) Sharpe Ratios, (2) CAPM Alphas, (3) Fama and French (1993) 3-factor alphas, (4) Carhart (1997) 4-factor alphas, and (5) Ferson and Warther (1997) Conditional Alphas.

5.2.1.1. Nominal Performance Rankings

The nominal return (i.e. raw returns which make no consideration for differential risk factors among funds) for each unit trust is compared to the market return using evaluation intervals of 3-months, 6-months, one-year, two-years, four-years, five-years and ten-years. The return of any unit trust is only calculated for a particular

interval if the unit trust was in existence over that entire evaluation interval. Unit trust performance is evaluated on the basis of both gross returns and net returns.

Similar to the methodology of Meyer (1998), overlapping periods for evaluation intervals in excess of one-year are used. For example, 9 two-year periods are formed: 01 January 2001 to 31 December 2002, 01 January 2002 to 31 December 2004, 01 January 2003 to 31 December 2004 and so on, while 6 five-year periods are formed: 01 January 2001 to 31 December 2005, 01 January 2002 to 31 December 2006 and so on. The use of overlapping periods allows for the observation of a greater number of point estimates given the relatively small sample period of 10-years. For example, if only adjacent five-year periods were used, two observations would be possible, whereas this number increases to six when overlapping periods are used.

A number of previous studies have suggested that the JSE All Share Index (“JSE ALSI”) is a suitable proxy for the market return (such as Van Rensburg and Slaney (1997); Meyer (1998); Collinet and Firer (2003); and Oldham and Kroeger (2005)). However, as this study uses the total returns for unit trusts, the JSE All Share Total Return Index is used as a proxy for the market return and as the benchmark portfolio – thus, if a unit trust is said to ‘beat’ the market for a particular period, that unit trust has in effect ‘beat’ the JSE ALSI TR. If a fund displays a greater return than that of the market, that trust can be said to have displayed superior performance on a nominal basis (i.e. a ‘winner’). However, if a fund displays a lower return than that of the market, it can be described as having performed inferiorly (i.e. a ‘loser’).

5.2.1.2. *Unconditional Performance Measures*

Using the methods of previous researchers (namely: Sharpe (1966), Jensen (1968), Fama and French (1993) and Carhart (1997)), performance evaluation models that explicitly adjust for risk are used to test whether South African unit trust managers are able to produce superior returns.

5.2.1.2.1. *Sharpe Ratio*

The Sharpe Ratio (or reward-to-variability ratio) was developed by Sharpe (1966) and can be stated as follows:

$$\text{Sharpe Ratio}_p = \frac{R_p - R_f}{\sigma_p}$$

R_p is the return of the portfolio (or unit trust), p , over a specified evaluation interval (e.g. 3-months); R_f is the risk-free rate (i.e. the 90-day Bankers' Acceptance rate) over the same evaluation interval; and σ_p is the total risk (or volatility) of portfolio, p , over that interval as measured by its standard deviation.

The Sharpe Ratio – using discrete monthly gross and net returns – is calculated for each unit trust in the sample period using evaluation periods of 3-months, 6-months, one-year, two-year, four-year, five-year and ten-year intervals. Longer evaluation periods (i.e. in excess of one-year) are used so that more reliable point estimates of the standard deviation of monthly returns can be obtained (Collinet and Firer, 2003:526). Previous researchers (such as Collinet and Firer (2003)) calculate the standard deviation for shorter evaluation intervals (such as 3-month intervals) by measuring the volatility over a specified number of months (for example, 12 months) preceding the evaluation interval to ensure that a statistically robust and more precise standard deviation is calculated. This study does not adopt this approach as the volatility of the prior period could be vastly different from the volatility during that evaluation interval. Moreover, given the 'wild' fluctuations in the volatility indices witnessed over the sample period – particularly over the 2006 to 2010 period – this approach could result in the volatility of returns being grossly misstated. Overlapping periods for evaluation periods in excess of one-year are used, and the Sharpe Ratio for any unit trust is only calculated for a particular evaluation interval if it existed over that entire interval.

The Sharpe Ratios for each of the unit trusts is then compared to the Sharpe Ratio for the market using the JSE ALSI TR. If a unit trust has a Sharpe Ratio in excess of the Sharpe Ratio for the market, that fund can be

said to have delivered superior performance in terms of the Sharpe Ratio. Conversely, if a fund's ratio is less than that of the market, that fund can be said to have delivered inferior performance.

5.2.1.2.2. *Jensen's Alpha*

Jensen (1968) developed his model – the CAPM – from the work of Sharpe (1964) and Lintner (1965). The CAPM states that the expected return on any security (or portfolio) should exceed the riskless rate of return by an amount which is proportionate to the systematic risk (or beta) of that security (or portfolio) relative to the market or benchmark portfolio. He showed how the single-period CAPM developed by Sharpe (1964) and Lintner (1965) could be extended to a “multiperiod world” in which investors are allowed to have heterogeneous horizon periods, and in which the trading of securities takes place continuously through time. His model can be described as follows:

$$R_{it} - R_{ft} = a_i + b_i(R_{Mt} - R_{ft}) + e_{it}$$

R_{it} is the return on unit trust, i , for month t ; R_{ft} is the risk-free rate (being the 90-day Banker's Acceptance rate); b_i is the beta or measure of systematic risk of unit trust, i , relative to the market risk premium, $(R_{Mt} - R_{ft})$ – the only factor in this single-factor model; R_{Mt} is the market return (the return on the JSE ALSI TR Index), and e_{it} is the regression residual or error term. A_i is the intercept term or measure of performance, also known as Jensen's alpha. Jensen's alpha measures the average return of the unit trust over and above that predicted by the CAPM, given the beta of the unit trust and the average market return. A positive alpha value denotes a unit trust whose returns are consistently greater than those implied by its level of systematic risk, and thus superior performance. In a similar manner, negative or zero values denote inferior or neutral performance respectively (Jensen, 1968:394). This parameter is of particular value in that its sampling

distribution is known from least-squares regression theory, thereby allowing inferences to be made regarding the statistical significance of any particular estimate of alpha (Akinjolare & Smit, 2003:41).

The CAPM model is subject to a number of assumptions, all of which have been already described in Section 2.4.6 of this report.

Discrete monthly gross and net total returns for each unit trust are regressed against the corresponding returns of the JSE ALSI TR using the CAPM model described above for 3-month, 6-month, one-year, two-year, four-year and five-year evaluation intervals to measure the extent of each unit trust's performance. Regressions are only performed for any unit trust over a particular evaluation interval if that unit trust was in existence over that entire interval. Overlapping periods are used for evaluation intervals in excess of one-year to increase the number of point estimates that may be observed.

To discern whether a positive intercept or alpha observation in any sample of unit trust returns is not due to mere random chance but rather to the superior forecasting ability of the unit trust manager, the methodology of Jensen (1968:394) is employed to test for statistical significance. T-statistics are calculated and using a 5% level of significance and $n-2$ degrees of freedom, all alpha observations are tested for statistical significance.

If a unit trust portfolio contained exactly the same proportions of assets as those making up the JSE ALSI, the CAPM estimate would show a correlation co-efficient (R^2 measure) of 100%, a beta of unity and an alpha of zero. A fund manager who tracks the market will not, of course, be able to achieve superior performance according to the Jensen's alpha test described above. The achievement of a significantly positive alpha requires a portfolio biased towards those sectors which experience above average returns.

5.2.1.2.3. *Fama and French 3-factor Model*

Building on the work of previous researchers (such as Banz (1981); Rosenberg, Reid and Lanstein (1985); and De Bondt and Thaler (1985)), Fama and French (1993:3) found that - in addition to the market return – two

empirically determined variables, namely: (1) size or market capitalisation, and (2) book-to-market equity, are able to explain the cross-section of average stock returns. Banz (1981) found that a negative relationship existed between stock returns and the market capitalisation of a stock and concluded that investing in smaller-cap stocks resulted in superior performance relative to the market as a whole. Rosenberg et al. (1985) and De Bondt and Thaler (1985) documented a significant positive relationship between stock returns and book-to-market ratios and found that investing in shares with low book-to-market ratios (i.e. so-called value shares) may enhance performance.

While Fama and French (1993) did not directly apply their model to mutual fund performance evaluation, they did explain how it can be applied for that purpose (Fama and French, 1993). The Fama and French (1993) 3-factor model has formed the basis for many subsequent models (e.g. Carhart (1995), Jegadeesh and Titman (1993), Carhart (1997), and Fama and French (2008)). This study uses the model described by Fama and French (2008), which was an extension of the original Fama and French (1993) study. The model can be described as follows:

$$R_{it} - R_{ft} = a_i + b_i(R_{Mt} - R_{ft}) + s_iSMB_t + v_iVMG_t + e_{it}.$$

R_{it} is the return on unit trust, i , for month t ; R_{ft} is the risk-free rate (90 day Bankers' Acceptance Rate); RM_t is the market return (the return on the JSE ALSI TR); SMB_t and VMG_t are the size and value-growth returns of Fama and French (2008). a_i is the intercept or average return left unexplained by the benchmark model (that is, the estimate of alpha or α_i); b_i , s_i and v_i are the co-efficients of the independent variables: $R_{mt} - R_{ft}$, SMB_t and VMG_t ; and e_{it} is the regression residual or error term. In the words of Fama and French (2008:29), the intercept in the time-series regression of the unit trust's excess return is "the average abnormal return needed to judge whether a manager can beat the market, that is, whether that manager can use special information to generate average returns greater than those on passive combinations of the mimicking returns for the factors specified."

Following the methodology of Fama and French (1993), at the end of December of each year, k . All the shares listed on the JSE at that point are sorted into two portfolios on the basis of size or market capitalisation, namely: Small and Big. Small includes all shares below the median market capitalisation value, while Big includes all shares with a market capitalisation above the median. Stocks are also sorted into three book-to-market equity portfolios on the basis of their book-to-market ratios, namely: Growth, Neutral and Value. Growth includes all shares falling in the bottom 30% as ranked by book-to-market equity ratios; Neutral includes all shares falling the middle 40%; while Value includes all shares falling in the top 30%. Book equity in the Book-to-Market equity ratio is for the fiscal year ending in the calendar year k , while the market capitalisation is for the end of June of year k .

A further 6 portfolios (namely: SG, SN, SV, BG, BN, BV) are formed from the intersections of the two size and the three book-to-market equity portfolios. Monthly value-weighted returns on the six portfolios are calculated from January of year $k+1$ to December of $k+1$, using weights derived from the market capitalisation at the end of December of the preceding year, k . The portfolios are reformed in December every year. In line with the methodology of Fama and French (1993), for a share to be included in any one of the six portfolios described, the market capitalisation value and book-to-market value for that share must be available at the end of December of the preceding year, k .

The independent variable, SMB_t (small minus big) in the regression model described above, meant to mimic the risk factor in returns related to size, is the difference, each month, between the simple average of the returns on the three small-stock portfolios (namely: SG; SN; and SV) and the simple average of the returns on the three big-stock portfolios (namely: BG; BN; and BV). Thus, SMB is the difference between the returns on small- and big-stock portfolios with about the same weighted-average book-to-market equity. Fama and French (1993:9) argue that “this difference should be largely free of the influence of book-to-market equity ratios, focusing instead on the different return behaviours of small and big stocks.”

The independent variable, VMG_t (value minus growth), meant to mimic the risk factor in returns related to book-to-market equity, is defined similarly. Thus, VMG_t is the difference, each month, between the simple

average of the returns on the two high book-to-market portfolios (SV and BV) and the average of the returns on the two low book-to-market portfolios (SG and BG). The two components of VMG are the returns on high and low book-to-market portfolios with about the same weighted-average size. Thus the difference between the two returns should be largely free of the size factor in returns, focusing instead on the different return behaviours of high and low book-to-market shares (Fama and French, 1993).

The six portfolios in SMB and VMG are value-weighted. According to Fama and French (1993), using value-weighted components is in the spirit of minimizing variance, since return variances are negatively related to size. More importantly, it is argued that using value-weighted components results in mimicking portfolios that capture the different return behaviours of small and big stocks or high and low book-to-market stocks, in a way that corresponds to realistic investment opportunities.

Using the regression equation described above, the discrete monthly gross and net total returns for each unit trust are regressed against the corresponding values for each factor described in the equation for 3-month, 6-month, one-year, two-year, five-year; and ten-year evaluation intervals. The regressions are only performed for any unit trust over a particular evaluation interval if that unit trust was in existence over that entire interval. Overlapping periods are used for evaluation periods in excess of one-year. As with the CAPM model, if a unit trust displays a positive intercept or alpha value, it can be described as a 'winner' and 'losers' are those that have negative alpha values. In addition, the alpha values are tested for statistical significance using t-statistics with $n-4$ degrees of freedom at a 5% level of significance.

5.2.1.2.4. Carhart 4-factor Model

Carhart (1997) constructs a 4-factor model using Fama and French's (1993) 3-factor model plus an additional factor, which captures Jegadeesh and Titman's (1993) one year-momentum anomaly. Jegadeesh and Titman (1993) showed that buying past 'winners' and selling past 'losers' generated significant abnormal positive returns over the following 12 months. The inclusion of the one-year momentum anomaly is motivated by the

inability of Fama and French's (1993) 3-factor model to fully explain the cross-sectional variation in momentum-sorted portfolio returns (Fama and French, 1996). Chen and Knez (1996) suggest that the momentum anomaly is a market inefficiency due to the slow reaction of market prices to information. However, some researchers state that this effect is robust to time-periods (e.g. Jegadeesh and Titman (1993), and Asness et al. (1996)). Thus, the Carhart (1997) model allows unit trust performance to be corrected for this anomaly "by using factor-mimicking portfolios for size, book-to-market and stock price momentum" (Otten and Bams, 2002: 98). This study uses the version of Carhart's (1997) model cited in Fama and French (2008), and can be described as follows:

$$R_{it} - R_{ft} = a_i + b_i(R_{Mt} - R_{ft}) + s_iSMB_t + v_iVMG_t + m_iMOM_t + e_{it}.$$

Save for the momentum return term, m_iMOM_t , the equation is no different to that of the 3-factor model used by Fama and French (2008), described in the preceding section. m_i is the co-efficient of the independent variable MOM_t . MOM_t is defined similarly to VMG_t except that the sorts are made on the basis of prior return as opposed to book-to-market equity ratios and the momentum sorts are refreshed monthly as opposed to annually in December. At the end of month, $k-1$, all the stocks listed on the JSE at that date are sorted on the average of the eleven months of returns to the end of month $k-2$. Fama and French (2008) state that dropping the return for month $k-1$ is common in the literature, and this study does the same. Three portfolios (namely: Low, Medium and High momentum portfolios) are formed using the 30th and 70th percentiles of momentum returns to assign shares to the three momentum portfolios. The intersection of the size-sorted portfolios for the most recent December and the independent momentum-sorted portfolios produces six value-weighted portfolios (namely: SL; SM; SH; BL; BM and BH) that are refreshed monthly. Thus, the momentum return, MOM_t , is the simple average of the month k returns on the two High momentum portfolios (namely: BH and SH) minus the average of the returns on the Low momentum portfolios (namely: BL and SL). Thus, MOM_t is

the difference between the returns on high- and low-momentum stock portfolios with about the same weighted average size.

Using the regression equation described above, the discrete monthly gross and net total returns for each unit trust are regressed against the corresponding values for each factor described in the equation for 3-month, 6-month, one-year, two-year, five-year; and ten-year evaluation intervals. Regressions are only performed for any unit trust over a particular evaluation interval if that unit trust was in existence over that entire interval. Overlapping periods are used for evaluation periods in excess of one-year. As with the preceding two models, if a unit trust displays a positive intercept or alpha value, it can be described as a 'winner', and 'losers' are those that have negative alpha values. In addition, the alpha values are tested for statistical significance using t-statistics with $n-5$ degrees of freedom at a 5% level of significance.

5.2.1.3. Conditional Performance Evaluation

A growing body of literature has been focussing on a conditional performance measurement framework following the seminal work of Ferson and Schadt (1996) and Ferson and Warther (1996). Empirical studies such as Hodrick and Zhang (2001) and Lettau and Ludvigson (2001) using US stock returns, and Gao and Huang (2008) using UK and Japanese stock returns, among others, find that conditional asset pricing models do a 'better job' in pricing cross-sectional stock returns than unconditional models.

In using unconditional performance evaluation models (such as the single-factor CAPM model), it is assumed that the risk level of the portfolio under consideration is stationary through time. This was described in more detail in Section 2.4.6 of this report. However, this need not be strictly true since the portfolio manager can certainly change the risk level of his portfolio very easily. For example, in trying to outguess the market, a portfolio manager may reshuffle his or her portfolio to include more (or less) risky equities (Jensen, 1968). Moreover, Ferson and Warther (1996) advocate that if the market exposure of a managed portfolio varies predictably with the business cycle but the manager does not have superior forecasting ability, a traditional

approach to performance measurement would confuse the common variation between fund risk and expected market returns with truly superior information and abnormal performance. The conditional performance evaluation approach advocates that a managed portfolio strategy that can be replicated using readily available public information, should not be judged to have superior information. They argue that only managers who correctly use more information than is generally publicly available should be considered to have potentially superior ability. For this reason, in the words of Ferson and Warther (1996:20), “conditional performance evaluation is consistent with a version of market efficiency in the semi-strong form sense” of the EMH. Thus, Ferson and Warther (1996) claim that conditional performance evaluation is superior to using the traditional performance measures that most researchers tend to use when evaluating mutual fund performance.

Conditional performance evaluation introduces market variables into the performance measurement models and the subsequent analyses are conditioned upon these market variables. Ferson and Schadt (1996) show that interest rates and dividend yields are two of the most useful market indicators from the perspective of evaluating mutual fund performance. From a theoretical perspective, using this approach is attractive for three reasons. First, traditional measures are beset by problems in handling the dynamic behaviour of returns. Second, the trading behaviour of managers results in rich and interesting dynamics not captured by simple performance measures (Akinjolare and Smit, 2003). Third, a conditional approach allows for time variation in the fund betas and factor risk premiums (or time variation in the coefficients of the stochastic discount factor) for a benchmark model and time variation in fund performance (Fletcher & Ntozi-Obwale, 2009).

Building on the work of Akinjolare and Smit (2003), this study will attempt to use the conditional performance evaluation method in the performance evaluation of South African Equity Unit Trusts. The conditional performance model used by Akinjolare and Smit (2003) – an extension of the model first proposed by Ferson and Warther (1996) – can be described as follows:

$$R_{it} = a_i + b_0 RM_t + b_1(R_{Mt} * DY_{t-1}) + b_2(R_{Mt} * TS_{t-1}) + e_{it}$$

R_{it} is the return on unit trust, i , for month t ; R_{Mt} is the market return (the return on the JSE ALSI TR), and e_{it} is the regression residual. DY_{t-1} and TS_{t-1} are market indicators and are used to denote the one-year lagged value-weighted market dividend yield and term structure of interest rates, respectively. The difference between the lagged levels of the monthly long-term and short-term rates represents the term structure variable, TS_{t-1} . Whereas Akinjolare and Smit (2003) use the monthly value of the 3-month Negotiable Certificate of Deposit (“NCDs”), as the lagged level of the one-month short-term interest rate, this study uses the 90-day Bankers’ Acceptance Rate instead. A measure of the ‘Government ten-year bond’ is used to represent the lagged level of the long-term interest rate.

Ferson and Warther (1996) explain that the conditional model adds two additional predictors to the regression traditionally used to estimate the unconditional alpha. These variables, namely $(R_{Mt} * DY_{t-1})$ and $(R_{Mt} * TS_{t-1})$, are essentially interaction terms between the return on the market (i.e. the JSE ALSI TR) and the lagged values of the market indicators. The co-efficients, b_1 and b_2 , measures the response of the conditional betas to the lagged market indicators, while b_0 measures the sensitivity of unit trust, i , to the market return, R_{Mt} . The intercept, a_i , is the conditional alpha which measures abnormal performance (if any).

As with the unconditional performance models, the above equation is used to regress monthly discrete gross and net unit trust returns against the corresponding values of the factors described in the regression equation above over 3-month, 6-month, one-year, two-year, four-year, five-year and ten-year evaluation intervals. Regressions are only performed for any unit trust over a particular evaluation interval if that unit trust was in existence over that entire interval. Overlapping periods are used for evaluation periods in excess of one-year. Positive conditional alphas indicate superior performance, while negative conditional alphas indicate negative performance. In addition, the alpha values are tested for statistical significance using t-statistics with $n-4$ degrees of freedom at a 5% level of significance.

5.2.2. Persistence in Performance

By far the most important question that unit trust investors ask is whether unit trust performance can persist – that is, do the winners in one period remain winners in the following period. The following section details how this study tests for evidence of persistence in the performance of South African Domestic Equity Unit Trusts. Contingency tables, Repeat Performance Rankings and Time-Series Regression are used. As performance persistence tests measure the extent of the relationship of the performance measure (if any) between periods, only gross returns are used in the performance persistence tests. Since expense ratios are uniformly applied to gross returns to calculate net returns, it is argued that persistence tests performed on the basis of net returns would yield identical results to those on the basis of gross returns. Moreover, Oldham and Kroeger (2005) confirm that unit trust fees and expenses remain stable over time.

5.2.2.1. *Sample Periods*

Data covering the 10-year period from 01 January 2001 to 31 December 2010 is further divided into a number of sub-periods of varying lengths to test whether unit trust performance in one period known as the selection or formation period (“Period 1”) contains any predictive value relating to the performance in a subsequent adjacent holding period (“Period 2”).

Given the trend over the past 20 years to use shorter evaluation periods of one year or less (particularly in the 1990s and 2000s), this study uses formation and holding period lengths of 3-months, 6-months, one-year, two-years, four-years and five years. Unlike Firer (2001) who tests adjacent formation and holding periods of varying lengths, this study only uses adjacent formation and holding periods of equal length (e.g. a 3-month formation period from 01 January 2010 to 31 March 2010, and a 3-month holding period from 01 April 2010 to 30 June 2010). To increase the number of available observations and thereby increase the robustness of the study (Firer, 2001), overlapping periods are used for formation and holding periods in excess of one-

year as was done in the case of the outperformance tests described in section 5.2.1. For example, if a 5-year formation period from 01 January 2001 to 31 December 2005, then a 5-year holding period from 01 January to 2002 to 31 December 2006 is formed, and so on.

5.2.2.2. *Contingency Tables*

Following the methodology of Meyers (1998), Kahn and Rudd (1995) and Goetzman and Ibbotson (1994), to test for the ‘winner/loser’ phenomenon, contingency tables are used to analyse performance persistence. In addition to producing 2 x 2 contingency tables, this study also produces 4 x 4 contingency tables. Contingency tables are produced for adjacent period pairs – that is, for all permutations of Period 1 and Period 2 pairs described in Section 5.2.2.1.

2 x 2 contingency tables are formed by first sorting unit trusts returns in each of the two adjacent periods into ‘winners’ and ‘losers’. To be included in a particular contingency table, a unit trust must be in existence during both periods over which the contingency table is being constructed. Winners are distinguished from losers by ranking fund performance according to the performance measure of interest (e.g. nominal returns, Sharpe Ratios, and alphas). The top half of the ranking table is defined as winners, while the bottom half is defined as losers, such that there should be an equal number of winners and losers in each period. If the statistical evidence shows that winners (losers) in Period 1 remain winners (losers) in Period 2, evidence in support for persistence of performance is found. The contingency tables show the numbers of funds that were winners in both periods, losers in both periods, winners then losers and losers then winners (Kahn and Rudd, 1995) – each of these categories can be described as a ‘cell’ such that a 2 x 2 contingency table produces 4 such cells. Because half the funds are winners and half are losers in each period by definition, if performance does not persist, the numbers in each of the 4 cells of a 2 x 2 contingency table should be equal. Evidence for persistence in performance will, thus, be an observation of a higher number of actual observations in the

‘Period 1 – win/Period 2-win’ (“persistent winners”) and ‘Period 1 – lose/Period 2-lose’ (“Persistent Losers”) cells.

Similarly 4 x 4 contingency tables using quartiles are constructed, resulting in 16 cells, by ranking unit trust returns into quartiles. For example, the upper left most cell in a 4 x 4 contingency table will measure the number of unit trusts that fell in the first quartile on the basis of relative rankings in both period 1 and period 2. Evidence of persistence is found by searching for repeat winner performance and repeat loser performance.

Using each of the performance measures described in Section 5.2.1 (namely: (1) nominal returns, (2) Sharpe Ratios, (3) Jensen’s alphas, (4) 3-factor alphas, (5) 4-factor alphas, and (6) conditional alphas), 2 x 2 and 4 x 4 contingency tables are constructed using all possible permutations of formation and holding periods as described in section 5.2.2.1.

In terms of this methodology – specifically of ranking funds vis-à-vis one another – unit trust performance is not compared against any benchmark return (such as the JSE ALSI TR index or any of the factors incorporated into regression models detailed in section 5.2.1). Meyers (1998:101) argues that this method avoids the “unresolved issues” relating to the selection of appropriate benchmarks in the evaluation of unit trust performance.

Unlike Firer (2001), and Kahn and Rudd (1995) before them, both of whom only test whether any of the persistent winners and persistent losers display statistically significant persistence in performance, this study uses time-series regression as well as rank test to test all the unit trusts sampled for persistence in performance. Section 5.2.2.3 and Section 5.2.2.4, respectively, discuss these tests in further detail. In particular, the regression analyses are able to test for statistical significance.

To ensure that persistence of performance (if any) across the entire sample as a whole is not mere random chance, statistical significance is tested for using two methods, namely: (1) the Chi-Squared Statistic as Kahn and Rudd (1995) did in their earlier study; and (2) Spearman’s Rank Correlation Co-efficient as Hendriks et al. (1993) and Meyer (1998) did in their respective studies.

5.2.2.2.1. *Chi-Squared Statistic*

The following Chi-squared statistic is used to analyse statistical significance:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where O_i is the observed number of funds in each cell of the contingency table and E_i is the expected number of observations in each cell. χ^2 follows a chi-squared distribution with 1 degree of freedom in the case of a two-by-two table and $(R - 1) \times (C - 1)$ degrees in an $R \times C$ contingency matrix so the degrees of freedom for a 4 x 4 contingency table is 9. The Chi-square statistic is used to discern whether unit trust performance on average in period 1 is related in any way to performance in period 2. Thus, the greater the value of the Chi-Squared statistic, the greater the likelihood that some relationship exists between period 1 performance and period 2 performance. Further, if the Chi-Square statistic is found to be statistically significant, it may be concluded that a significantly important relationship exists between period 1 performance and period 2 performance taken as a whole.

5.2.2.2.2. *Spearman's Rank Correlation*

Spearman's Rank Correlation of Spearman's statistic is calculated as the sum of the squared differences between a unit trust's period 1 ranking and its overall period 2 ranking. If, in the words of Hendriks et al. (1993), the 'hot-hands' strategy can perfectly sort funds ex ante across from period 1 to period 2 (that is,

produce the same overall ranking for each unit trust in both periods), Spearman's statistic will be zero. The Spearman rank correlation may take on any value of between -1 and +1 and is calculated as follows:

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

Where d_i is the difference between a unit trust's rank in the formation period and its rank in the holding period, and n is the number of observations that have been ranked in both period 1 and period 2. The sign of the Spearman correlation indicates the direction of association between the performance of all unit trusts in period 1 and their performance in period 2. More specifically the Spearman correlation describes the relationship of the underlying performance measure in period 1 with that of period 2. Thus, a positive Spearman rank correlation for unit trusts ranked on the basis of alphas indicates that the alphas of unit trusts on average in period 1 tends to increase in period 2, while conversely a negative Spearman rank correlation indicates that the alpha values of unit trusts on average in period 2 are less than those of period 1. Spearman rank correlations in excess of +0.5 may be inferred as evidence of significant of persistence.

As nominal returns and Sharpe ratios move up and down from period to period naturally in tandem with market cycles, calculating Spearman Rank Correlations on the basis of nominal returns and Sharpe Ratios is nonsensical. For example, a positive Spearman Rank correlation may be observed between two periods merely due to markets rising over the two periods, even though unit trusts in general underperformed the market during the second period.

5.2.2.3. *Repeat Performance Rank Tests*

Since the construction of the contingency tables described in Section 5.2.2.2 relies on the relative ranking of unit trusts without reference to a benchmark of any kind, a second rank test is proposed that explicitly introduces external benchmarking – that is, unit trusts are not just ranked relative to each other. It is argued that this kind of approach makes sense from the viewpoint of the investor, who may not only be interested in investing in just the top performing unit trusts when ranked relative to each other on the basis of performance persistence, but also on the basis of being able to ‘beat’ the market or some or other benchmark persistently.

Not following the methodology of any particular researcher, unit trusts are ranked according to the number of adjacent pairs of periods during which a particular unit trust is able to record either superior or ‘winning’ performance in both periods or inferior or ‘losing’ performance – that is, repeat performance is tested for. The observation of several pairs of ‘winning’ or ‘losing’ performance for a particular fund may be interpreted as evidence for persistence in the performance of that unit trust.

The ranks are performed on the basis of each performance measure described in Section 5.2.1 for all possible permutations of Period 1 and Period 2 pairs described in Section 5.2.2.1. In the case of nominal returns and Sharpe Ratios, a unit is ranked as a ‘winner’ in any one period if its nominal return or Sharpe ratio is greater than that of the market, while the converse is true for ‘losing’ performance. In the case of the other performance measures, a ‘winner’ is a unit trust that records a positive alpha, while a ‘loser’ is one that records a negative alpha.

5.2.2.4. *Time Series Regression Analysis*

Time series regression analysis can be used as an alternative method to test for the persistence of unit trust performance. Using the methodology of Kahn and Rudd (1995:45) and Oldham and Kroeger (2005:84), Period 2 performance measures are regressed against Period 1 performance measures as follows:

$$\text{performance}_t = c + b \times \text{performance}_{t-1} + \varepsilon$$

Performance can take on the value of the some of the performance measures described in Section 5.2.1 (namely: CAPM alphas; Fama and French (1993) 3-factor alphas; Carhart (1997) 4-factor alphas; and Conditional alphas) in time period, t ; a_{t-1} is the value of the corresponding performance measure from time, $t-1$; c is the intercept term; and b is the new slope co-efficient. Positive estimates of the co-efficient, b , with significant t -statistics (on the basis of $n-2$ degrees of freedom and a 5% level of significance) can be inferred as evidence of persistence in performance – that is, Period 1 performance contains useful information for predicting period 2 performance. The regression analyses are performed using all possible permutations of formation and holding periods as described in Section 5.2.2.1.

For much the reasons as with the Spearman' Rank Co-efficient, time series regression analyses are not applied to nominal returns and Sharpe Ratios.

6. Results and Interpretation

6.1.Outperformance Tests

Evidence for outperformance (and its converse, underperformance) is tested from two angles, namely: in absolute terms and in terms of consistency. From an investors perspective, both are desirable – that is, an investor would prefer outperformance relative to the market in absolute terms (e.g. greater nominal return, positive alpha) as well as in terms of consistency (e.g. being able to outperform more often than not). The summary statistics relating to model robustness and appropriateness are presented first, thereafter the results of each performance measure are reported.

6.1.1. Model Robustness and Appropriateness

Using monthly equally-weighted average gross returns for the unit trust sample as a whole over the 10-year period from January 2001 to December 2010, the robustness and appropriateness of the regression models are evaluated.

Table R1 reports the summary statistics relating to the regression intercepts and independent variables – specifically, the co-efficient values, standard errors, and t-statistics at the 5% level of significance (as well as the corresponding p-values) are reported. From the slope co-efficient values presented, it is observed that a large portion of the cross-sectional variation in unit trust returns are explained by the return on the market less the risk-free rate (in the case of the CAPM, and Fama and French (1993) and Carhart (1997) models) and the return on the market (in the case of the Conditional Model). However, it appears that the other independent variables (for example, SMB; VMG and MOM) are not able to explain significant portions of the cross-sectional variation in unit trust returns – relatively low slope co-efficient values for these independent

variables are observed, and none of the t-statistics are significant at the 5% level of significance. These findings are in contrast to the findings of Carhart (1997). For example, Carhart (1997) found that each of the independent variables used in his study had statistically significant slope co-efficient values and that the return on the market less the risk-free rate had a slope co-efficient value of less than 0.5 when evaluating the performance of mutual fund returns over the period 1963 to 1993.

Table R1 Summary Statistics Relating to Regression Intercepts and Independent Variables based on data over full 10-year period

Performance Measure	Intercept				Rm-Rf (Conditional Model: Rm)				Intercept and Independent Variables				SMB (Conditional Model: Rm * DY)				VMG (Conditional Model: Rm * TS)				MOM			
	Coefficients	Std Error	t-Stat	P-value	Coefficients	Std Error	t-Stat	P-value	Coefficients	Std Error	t-Stat	P-value	Coefficients	Std Error	t-Stat	P-value	Coefficients	Std Error	t-Stat	P-value	Coefficients	Std Error	t-Stat	P-value
CAPM	0.165	0.129	1.280	0.203	0.775	0.023	34.219	0.000																
Fama and French 3-factor Model	0.001	0.119	0.011	0.992	0.763	0.028	27.676	0.000	0.024	0.026	0.913	0.363	0.010	0.023	0.444	0.658								
Carhart 4-factor Model	0.005	0.120	0.045	0.964	0.766	0.029	26.673	0.000	0.028	0.029	0.945	0.347	0.006	0.026	0.244	0.807								
Conditional 3-factor Model	0.383	0.134	2.867	0.005	0.858	0.118	7.270	0.000	-0.360	0.506	-0.710	0.479	-0.119	0.127	-0.932	0.353	-0.005	0.017	-0.305	0.761				

Given that the return on the market is able to explain such a significant portion of the cross-sectional variation in unit trust returns, it is quite plausible that the managers of the unit trusts sampled in this study may be ‘benchmark huggers’ – that is, those managers may invest large proportions of their portfolios in a manner that replicates the JSE ALSI TR, whereas ‘active’ bets may only be made with a relatively small proportion of the funds under management. While anecdotal evidence does exist to support this claim, more formal research may need to be undertaken. Thus, even if unit trust managers do exploit the pricing factors (such as the size or momentum effects) incorporated in the performance models used in this study, such pricing factors will be limited in terms of their ability to explain the cross-sectional variation in unit trust returns, and unit trust returns will be relatively insensitive to such factors.

While Carhart (1997) constructs his own value-weighted index, which incorporates all listed shares, for the market factor in his models, this study uses the JSE ALSI TR as a proxy for the market factor. Even though the JSE ALSI TR is a value-weighted index that tracks the return of approximately 99% of all shares traded on the JSE (in terms of market capitalisation), the exclusion of the remaining 1% of shares is unlikely to affect the validity of the results, if at all.

Table R2 Summary Statistics Relating to Model Robustness

Performance Measure	Multiple R	R Square	Adj. R Square
CAPM	0.9531	0.9085	0.9077
Fama and French 3-factor Model	0.9634	0.9282	0.9263
Carhart 4-factor Model	0.9635	0.9282	0.9257
Conditional 3-factor Model	0.9526	0.9075	0.9051

Table R2 reports various 'Goodness of Fit' measures. In all four cases, all the R^2 -squared values are greater than 0.9. From a statistical point of view, this implies that the regression models used in this study are each able to explain more than 90% of unit trust returns. It can be safely concluded that the models used are highly robust and well suited to explaining unit trust returns. However, ever so slight improvements are observed in the R^2 -squared values for the Fama and French (1993) and Carhart (1997) models over that of the CAPM, thereby suggesting that the single-factor CAPM may be quite capable, on its own, of explaining the cross-sectional variation of unit trust performance and for testing for outperformance.

Table R3 Correlations Among Independent Regression Variables

<i>Fama and French 3-factor and Carhart 4-factor Models</i>					<i>Conditional 3-factor Models</i>			
	<i>Rm-Rf</i>	<i>SMB</i>	<i>VMG</i>	<i>Mom</i>		<i>Rm</i>	<i>Rm * Dy</i>	<i>Rm * TS</i>
Rm-Rf	1.0000				Rm	1.0000		
SMB	0.0317	1.0000			Rm * Dy	0.9799	1.0000	
VMG	0.2443	0.9489	1.0000		Rm * TS	0.2116	0.1693	1.0000
Mom	-0.1092	0.0651	-0.0714	1.0000				

Table R3 reports the correlation co-efficients among the independent regression variables. It is observed that the SMB and VMG variables used in the Fama and French (1993) and Carhart (1997) models and also the market return (R_m) and the lagged market dividend yield multiplied by the market return ($R_m * DY_{t-1}$) variables in the case of the conditional model are highly correlated. Therefore, one may infer that the presence of multicollinearity may question the validity of the results produced by these models. However, previous researchers have documented that multicollinearity does not actually bias results; it merely produces larger standard errors in the related independent variables (for example, O'Brien (2007) and Farrar and Galuber

(1967)). Moreover, others have found that multicollinearity does not reduce the predictive power or reliability of regression models as a whole, at least within the sample data themselves; it only affects calculations regarding individual predictors (Lipovestky and Conklin (2001), and Van den Poel and Lariviere (2004)). Thus, even though Carhart (1997) did not observe any evidence of multicollinearity, the observations of multicollinearity in this study should not be construed as any cause for concern when evaluating the results in this study, especially given that the regression models employed are not used to predict values outside the sample data.

Given that the models used in this study were developed by researchers in the United States (“US”) – where markets are considered to be largely efficient in terms of the semi-strong form of the EMH – one must consider how efficient the JSE is relative to US markets. From the review of the literature, it was noted that early South African Unit Trust performance evaluation studies (such as Pyle (1979) and Gilbertson and Vermaak (1982)) found that the JSE as a whole was not informationally efficient, even in the weak sense of the EMH. However, more recent studies have found that the JSE is efficient, at least in the weak form of the EMH (for example, Smith, Jefferis and Ryoo (2002), Smith and Jefferis (2002) and Magnusson and Wydick (2002)), while some evidence to support that the JSE may be efficient in terms of the semi-strong form of the EMH has been found after the effects of ‘thin trading’ have been adjusted for (Mabhunu, 2004). Thin trading is generally a phenomenon observed among small capitalisation stocks, and due to the size and liquidity constraints of most unit trusts; such shares are seldomly held in significant proportions in unit trust portfolios.

Moreover, the introduction of the Stock Exchange News Service (“SENS”) and Share Trading Transactions Totally Electronic (“STRATE”) system over the last 15 years has also contributed to the improvement to the JSE’s efficiency. SENS was implemented to ensure early, equal, and wide dissemination of all price sensitive information. Its introduction has contributed directly to the informational efficiency of the JSE through the efficient use of the now readily available information, while the introduction of the automated trading and clearing system has also reduced the friction in the trading process. If the market is liquid, then all perceived inefficiencies can be readily arbitrated, making the market even more efficient (Mabhunu, 2004). According to the World Federation of Exchanges, the JSE was the 16th largest stock exchange in the world (as measured

by total market capitalisation) as at 31 May 2009 with an annual turnover of 19.3% of total market capitalisation. While the annual turnover is much lower than the mean turnover percentage of 72.4% for the largest 15 exchanges, much of the low turnover percentage can be attributed to thin trading (Mlambo and Biekpe, 2007). Thus, the mutual fund performance evaluation models used in this study appear to be appropriate with respect to evaluating unit trust performance in a South African context.

6.1.2. Nominal Returns

Table 1.1 summarises the mean performance of all the unit trusts sampled in this study on the basis of nominal total returns (both gross and net of fees) over the 10-year period from 2001 to 2010. Table 1 also shows the mean total return for the JSE All Share Index over the same period. The mean average return for each evaluation interval used to measure performance is presented, and the results are further grouped into 2 sub-periods, namely the 5 year periods from 2001 to 2005 and 2006 to 2010. For example, unit trusts on average achieved a nominal return of 4.39% per quarter (or 3-month period) when mean performance is measured using 3-month evaluation intervals over the full 10-year period. As overlapping periods have been used for evaluation intervals that are greater than 1-year, the mean return for such evaluation intervals when measured over the full 10-year period may not be equal to the average of the means reported for that interval in each of the two 5-year sub-periods. For example, the 5-year mean return when measured over the full 10-year sample is equal to the average of the mean return for the following periods: 2001 to 2005; 2002 to 2006; 2003 to 2007; 2004 to 2008; 2005 to 2009; and 2006 to 2010, whereas the mean 5-year return when measured over the 2001 to 2005 period is equal to the return over the 2001 to 2005 period only.

Table A1.1 and Table A1.2 (refer to Section A of the Appendix) show the mean performance for each fund sampled on the basis of gross nominal returns and net nominal returns, respectively. The results are sorted according to the sub-category of unit trusts samples (e.g. Domestic Equity Growth) and then in descending order on the basis of 3-month returns measured over the entire 10-year period. Values in bold indicate

superior performance – or outperformance – relative to the JSE ALSI. From the bottom of Table A1.1 and Table A1.2, the proportion of funds able to beat the market versus the proportion of funds unable to beat the market is presented. It is observed that over the entire 10-year period, a slightly higher proportion of funds are unable to beat the market regardless of the evaluation interval used. Over the first 5-year period, a significant proportion of funds were able to beat the market, while the opposite is true for the second 5-year period. This suggests that overall, unit trusts are only just more likely to underperform over the 10-year period, while they are very likely to outperform during bull market periods and underperform during bear market periods.

Table 1.1 Mean Nominal Returns

	Mean Nominal Returns (% per evaluation interval)																		
	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
JSE ALL Share Index	4.76	9.78	20.14	42.76	113.19	165.44	429.69	5.50	10.97	22.62	39.59	86.84	160.73	4.01	8.59	17.66	29.62	57.30	103.16
Mean Unit Trust Returns (Gross)	4.44	9.34	18.49	40.40	105.22	162.91	493.19	6.77	13.99	26.98	58.34	132.67	209.36	3.59	7.74	15.35	26.56	46.96	88.67
Mean Unit Trust Returns (Net)	4.43	9.31	18.43	40.24	104.76	162.17	489.67	6.76	13.96	26.91	58.17	132.15	208.45	3.58	7.71	15.29	26.41	46.61	88.12

The unit trust industry as a whole is considered first using gross returns. From Table 1.1, it is observed that over the 10-year period from 2001 to 2010, the nominal mean return for the unit trusts sampled was 491.90% compared to the JSE All Share Total return of 429.69%, indicating that the average unit trust was able to outperform the broader market on a nominal return basis by 62.21% over this period. Over the 5-year period 2001 to 2005, the mean unit trust return was 208.95% compared to the market return of 160.73% - an excess return of 48.23% over this period. However, in the 5 year period from 2006 to 2010, unit trusts on average were not able to beat the market regardless of the evaluation interval used – the market return of 103.16% was 15.03% higher than the mean unit trust return for the entire 5-year period. It is interesting to note, that over the entire 10-year period, the mean unit trust return fell just below the market return when using evaluation periods other than a 10-year evaluation interval, while the mean unit trust return exceeded the market return regardless of the evaluation interval over the first 5 years. This suggests that, even though unit

trusts outperformed over the 10 year sample period, unit trusts may underperform by a larger extent during periods of underperformance compared to the extent of their outperformance during periods of superior performance. However, only 75 funds existed over the full 10-year period. By the end of 2010, there were 151 unit trusts in existence. Thus, there exists the possibility that the 'newer' funds performed worse relative to the original 75, thereby explaining the lower mean returns over the 10-year period when 3-month, 6-month, 1-year, 2-year, 4-year and 5-year returns are evaluated.

When unit trust returns are considered net of fees, mean performance falls to 488.38% for the entire 10-year sample period, 208.04% for the 2001 to 2005 period, and 87.58% for the 2006 to 2010 period. The decrease in mean returns is less than expected. This can be attributed to the method in which fees have been incorporated to calculate net returns from gross returns. Annual expense ratios obtained from the Morningstar database as at 31 December 2010 were applied retrospectively and annual expense ratios were applied directly to gross returns without any reference to beginning and end of period net asset values, thereby resulting in over-stated net returns. Moreover, the annual expense ratio obtained from the Morningstar Database does not account for all fees (for example, initial fees are excluded), thereby further biasing net returns upwards. However, as previous researchers (for example, Fama and French (2008)) have noted, when comparing unit trust net returns to the return on the market, this is in part cancelled by the fact that no fees are considered when evaluating the performance of the market – if an investor were to replicate an index portfolio or invest in an exchange traded fund, that investor would incur some fees.

The number of observations across all funds sampled showing outperformance (and underperformance) relative to the JSE All Share Index over the entire sample period on the basis of gross nominal returns is summarized in Table 2.1. The results are summarized for each year across the 10-year sample period, and for each evaluation interval category ending in a particular year. In the case of 3-month and 6-month evaluation intervals, an observation (i.e. outperform or underperform) is made per fund per quarter or half-year, as the case may be, during which that fund was in existence. Thus, the number of observations under the 3-month and 6-month evaluation intervals is higher than under the other evaluation intervals. The percentages in parentheses refer to the proportion of observations falling in each of the outperformance and

underperformance categories in each year for a particular evaluation interval. Table B1 (refer to Section B of the Appendix) shows the same set of results using unit trust returns net of fees.

Table 2.1 Outperformance results: Unit Trust Nominal Total Returns (Gross of Fees) versus JSE All Share Index Total Returns

Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
Outperformed	145 (47%)	234 (67%)	222 (62%)	230 (61%)	98 (24%)	232 (52%)	225 (46%)	232 (43%)	234 (40%)	265 (44%)	
Underperformed	166 (53%)	115 (33%)	136 (38%)	150 (39%)	306 (76%)	218 (48%)	265 (54%)	303 (57%)	350 (60%)	338 (56%)	
Net Outperformers	-21	119	86	80	-208	14	-40	-71	-116	-73	-230
6-month Intervals											
Outperformed	43 (28%)	110 (64%)	108 (61%)	153 (81%)	43 (22%)	101 (45%)	98 (40%)	128 (48%)	89 (31%)	128 (43%)	
Underperformed	109 (72%)	63 (36%)	70 (39%)	36 (19%)	157 (79%)	121 (55%)	144 (60%)	137 (52%)	201 (69%)	173 (57%)	
Net Outperformers	-66	47	38	117	-114	-20	-46	-9	-112	-45	-210
1-year Intervals											
Outperformed	19 (25%)	68 (80%)	68 (76%)	74 (80%)	13 (13%)	25 (23%)	47 (39%)	59 (45%)	37 (26%)	57 (38%)	
Underperformed	56 (75%)	17 (20%)	21 (24%)	19 (20%)	84 (87%)	82 (77%)	72 (61%)	72 (55%)	105 (74%)	93 (62%)	
Net Outperformers	-37	51	47	55	-71	-57	-25	-13	-68	-36	-154
2-year Intervals											
Outperformed		36 (48%)	71 (84%)	71 (80%)	56 (60%)	11 (11%)	32 (30%)	46 (39%)	46 (35%)	40 (28%)	
Underperformed		39 (52%)	14 (16%)	18 (20%)	37 (40%)	86 (89%)	75 (70%)	73 (61%)	85 (65%)	102 (72%)	
Net Outperformers		-3	57	53	19	-75	-43	-27	-39	-62	-120
4-year Intervals											
Outperformed				56 (75%)	69 (81%)	55 (62%)	39 (42%)	14 (14%)	23 (21%)	32 (27%)	
Underperformed				19 (25%)	16 (19%)	34 (38%)	54 (58%)	83 (86%)	84 (79%)	87 (73%)	
Net Outperformers				37	53	21	-15	-69	-61	-55	-89
5-year Intervals											
Outperformed					50 (67%)	63 (74%)	47 (53%)	33 (35%)	14 (14%)	23 (21%)	
Underperformed					25 (33%)	22 (26%)	42 (47%)	60 (65%)	83 (86%)	84 (79%)	
Net Outperformers					25	41	5	-27	-69	-61	-86
10-year Interval											
Outperformed										38 (51%)	
Underperformed										37 (49%)	
Net Outperformers										1	1

From Table 2.1, it can be observed that during the 2001 to 2005 period, with the exception of 2001 and to a lesser extent, 2005, it appears that a greater proportion of funds on average are able to 'beat' the JSE All Share index regardless of the evaluation interval when measured on the basis of the number of 'win' or 'lose' observations across the sample as a whole. In particular, 2004 seemed to be a great year for unit trust managers, with a significant majority of unit trusts outperforming the index across all the evaluation intervals. These results are confirmed by the findings presented at the bottom of Table D1 (refer to Section D of the Appendix). Table D1 shows for each unit trust the number of 'winner' observations as well as the number of 'loser' observations recorded for all evaluation intervals over the full 10-year period and both 5-year sub-

periods. Summary statistics are presented at the bottom and it should be noted that the sum of the proportion of funds recording more 'winner' observations and the proportion of funds recording more 'loser' observations may not equal 100%, since funds recording an equal number of 'winner' and 'loser' observations are excluded. Table D1 indicates that during the 2001 to 2005, roughly 48% of individual funds recorded more 'winner' observations than 'loser' observations. Given that the mean unit trust return over this period was greater than that of the market, this can be construed as evidence that the extent of the outperformers of the industry as a whole was greater than that of underperformers over this period.

In contrast, the 2006 to 2010 period appears to be a period during which more funds on average underperformed the market, while the mean unit trust return over this period was less than that of the market. From Table D1, it is observed that 77% of individual unit trusts recorded more 'loser' observations. From these results it is difficult to gauge the extent of the outperformers relative to the underperformers, since with a greater number of underperformance observations, one would expect a lower mean return relative to the market. It is interesting to note that over the 10-year evaluation interval (refer to the last row in Table 2.1), the number of funds that underperformed fell just short of the number that outperformed, suggesting that on average for some funds, the earlier outperformance of the 2001 to 2005 period was able to provide a large enough buffer to absorb much of the underperformance of the 2006 to 2010 period. This is further confirmed by examining the longer evaluation intervals (such as the 5-year and 4-year intervals) ending earlier in the 2006 to 2010 period, which record more outperformance observations while a large part of those evaluation intervals still lie in the 2001 to the 2005 period. When fees are considered, it is observed from Table B1 that a marginal number of funds move from the outperformance category to the underperformance category but allow the same inferences to be drawn.

Table C1 (refer to Section C of the Appendix) examines the extreme tails of the distribution of individual unit trust performance on the basis of gross nominal returns relative to the JSE All Share Index in terms of the most number of periods during which a particular fund was able to either 'beat' the market or underperform relative to the market. In other words, Table C1 examines for consistency (as distinct from persistence) in unit trust performance as opposed to the absolute margin by which a unit trust outperformed or underperformed

the market. Thus, for each evaluation interval, Table C1 shows the number of funds able to produce the most positive (or negative) observations relative to the market. For example, for the 2001 to 2010 period and using 3-month evaluation intervals, the RMB Value Unit Trust was the only fund able to produce a positive result relative to the market in 27 out of the 40 possible 3-month evaluation intervals sampled. The results are presented for the 10-year period from 2001 to 2010, as well as for the 5-year sub-periods, namely: 2001 to 2005 and 2006 to 2010. As overlapping periods are observed for 2-year, 4-year and 5-year intervals, only those intervals falling exclusively in any one sub-period are considered in Table C1. Hence, the maximum number of 5-year evaluation intervals during which any fund can record a 'winner' or 'loser' observation is one for the 5-year sub-periods but six for the entire 10-year period. The reader is cautioned somewhat when viewing the findings presented in Table C1 as funds that did not exist over the entire 10 year sample period could be biased as the maximum number of observations for such funds would be less than for funds that existed over the entire 10-year period. For example, a fund that existed for only twenty 3-month periods but outperformed in 15 of those would be ranked the same as a fund that achieved 15 outperformance observations out of 40 possible observations. Similar biases may be present in the case of underperforming funds that did not exist for the entire 10 year sample period.

It is argued that presenting the results in this manner is useful from an investor's point of view as an investor may be more interested in a fund that can 'beat' the market regularly – or consistently – albeit ever so slightly, than a fund that is able to beat the market once by a once-off large margin. Consistent performance is more likely to be indicative of some skill on the part of the unit trust manager (be it due to superior stock selection and/or market timing abilities), while a once-off 'star' performance could be due to mere chance or luck. In summary, while Table C1 demonstrates that individual unit trusts are able to outperform the market consistently on the basis of nominal returns (for example, the RMB Value and Investec Value unit trusts), a greater number of funds appear to be even more successful in 'being beaten' by the market on a consistent basis. For example, the ABSA Growth Funds of Funds was one of three funds that underperformed the market in 16 out of a possible 20 3-month evaluation intervals over the 2001 to 2005 period. From Table C1, it is also

noted that the number of funds able to produce consistent 'winner' results was higher for the 2001 to 2005 period, while there were more consistent 'losers' in the 2006 to 2010 period.

Table C1, on its own does not necessarily imply persistence in performance, nor does it claim that the examples of unit trusts listed therein are the best in absolute terms. For example, a fund could record small positive results in every second evaluation interval but larger negative results in every other period. Clearly, such a fund demonstrates no persistence in its performance from period to period as outperformance in one period is followed by underperformance in the next. It is also quite conceivable that a fund may have one large negative result and several small positive results, but cumulatively it may still have underperformed relative to the market. Both examples may show up in Table C1 as they were able to outperform in a larger number of evaluation intervals, yet in absolute terms they may still have underperformed overall relative to the market. While this scenario may be a rare occurrence it does point out the dangers of interpreting Table C1 on its own.

However, using evaluation intervals of differing lengths (as this study does) controls for this, since one would expect a truly superior performing fund to show up as an outperformer in both short and longer evaluation intervals. Table D1 (refer to Section D of the Appendix) further shows the number of 'winner' and 'loser' observations that each fund recorded using different evaluation intervals over the entire sample period. It can be observed from the bottom of Table D1 that over the 2001 to 2010 period, 58 or 38% of funds were able to record more 'winner' observations across all evaluation intervals. 73 or 48% of funds and 35 (or 23%) were able to do so in the 2001 to 2005 and 2006 to 2010 periods respectively. It should be noted that the sum of the number of funds recording more 'winner' observations and the number of funds recording more 'loser' observations does not sum up to 100%, as those funds with an equal number of 'winner' and 'loser' observations are excluded from the summary statistics at the bottom of Table D1.

These findings further support the observation that the 2001 to 2005 period appeared to be better for unit trust managers from the perspective of outperforming the market. While Table D1 should not be construed as a ranking of funds due to the presence of survivorship bias – that is, a newly registered fund would naturally

record fewer observations than a fund that has been in existence over the entire sample period and would thus, be negatively prejudiced if ranked on this basis – it does indicate whether individual funds are able to ‘beat’ the market more often than not. Like Table C1, Table D1 does not measure absolute performance and can be misleading. Table A1.1 and Table A1.2, which explicitly show absolute performance, mitigate these dangers. The point is that the results are most meaningful when the findings presented in all the tables are viewed together.

An example of how the results of a particular fund should be interpreted is provided. Still using the RMB Value unit trust which outperformed in 27 out of 40 three year-evaluation intervals (as per Table D1), it is observed that the unit trust recorded 61 ‘winner’ observations and 29 ‘loser’ observations across all evaluation intervals during the 2001 to 2010 period (as per Table C1), ranked 8th of out 75 unit trusts when measured using a 10-year evaluation interval on the basis of nominal returns (as per Table F7) and produced a 10-year compounded return of 779% on the basis of gross nominal returns compared to the JSE All Share return of 449% (as per Table A1.1). One may conclude that the RMB unit trust is a superior performer; not only did it outperform the JSE by a large margin, it did so consistently over short and longer evaluation intervals. Moreover, given the consistency in performance, one may conclude that manager of the RMB unit trust is likely to possess some skill.

In summary, the results (supported by the total column in Table 2.1) indicate that individual unit trusts are able to outperform or ‘beat’ the market on the basis of nominal returns and some are able to do so consistently – that is, as a result of what seems to be skill on the part of the unit trust manager as opposed to luck. However, more funds appear to underperform and appear to be even more successful at doing so than their superior performing counterparts. This phenomenon does not appear to be as a result of luck or chance. Some fund managers are just ‘poor’ at managing money. While these results are consistent with the findings of Gilbertson and Vermaak (1982) who also found that unit trusts underperform when measured on the basis of nominal returns, they are inconsistent with the results of Knight and Firer (1989), who repeated the study of Gilbertson and Vermaak (1982) but over a longer time period.

From the results presented so far, three trends are worth noting about the unit trust industry as a whole. One, outperformance appears to be sensitive to the time period selected and may also be correlated to market cycles – the 2001 to 2005 period which showed evidence of outperformance was largely characterized by bull markets, whereas the 2006 to 2010 period which was marked by underperformance was a time of severe recession and bear markets with the advent of the global financial credit crisis; even though 2006 and 2007 were great for equity markets, the fallout and ensuing global recession arising from the global credit crisis dominated the 2006 to 2010 period, thereby enabling one to safely conclude that the 2006 to 2010 period was one dominated by bear markets. This is apparent from the results of previous researchers who found contrasting evidence of outperformance over different time periods. Two, taken as a whole, more funds appear to underperform during periods of bear markets (e.g. 2006 to 2010) than those that appear to outperform during periods of bull markets (e.g. 2001 to 2005). The total number of net out-performers across the entire sample period in Table 2.1, which is negative in all except the 10-year interval, confirms this. Last, the results suggest that individual unit trusts are certainly able to outperform, while there are those that do underperform, but on balance the industry as a whole appears to have a slight slant towards underperformance – that is, for every outperformer there seems to be a greater number of underperformers. However, these observations have been made on the basis of nominal returns, which do not adjust for differential risk among unit trusts.

6.1.3. Sharpe Ratios

Before the results from the Sharpe Ratio tests are considered, some discussion around the calculation and interpretation of the Sharpe Ratio is necessary. The Sharpe ratio does not explicitly refer to the market portfolio, albeit the implicit benchmark is the risk-free rate of return (being the 90 day Bankers' Acceptance Rate in the case of this study). Because the total risk of a portfolio (or unit trust) – its standard deviation – is used in the Sharpe Ratio, diversification does not play any role in performance analysis. Thus, the Sharpe

Ratio is a useful measure for an investor that invests entirely in one fund only – then, only total risk matters (Sharpe (1964) and Sharpe (1966)).

However, being an absolute measure, the Sharpe Ratio can take on both negative and positive values. Negative values can be difficult, if not impossible, to interpret (Sharpe, 1966). For example, capital market theory assumes that investors are mean-variance efficient and prefer ‘more return’ and ‘less risk’. Risk in the context of the Sharpe Ratio is return volatility. One would therefore expect that when ranking portfolios with equal returns by their Sharpe Ratios, portfolios with lower volatilities (i.e. less risk) would be preferred. This is not the case when the returns are negative – that is, investors would not want larger negative returns for accepting more risk. Moreover, it could be successfully argued that investors would not want to accept any risk for earning a rate of return that is less than the risk-free rate. While it may be argued that achieving a certain negative result with a larger volatility is better since the large volatility implies that the probability is higher to achieve a positive return, the presence of negative Sharpe Ratios makes it that much more difficult to draw inferences from the results presented here. As market returns cannot be persistently positive, negative Sharpe Ratios are unavoidable. Furthermore, the results of the shorter evaluation intervals (namely: 6-month and particularly, 3-month intervals) should be viewed with caution as the sample standard deviation required for the computation of the Sharpe Ratio is calculated from relatively few observations – that is, 6 observations in the case of 6-month intervals and merely 3 in the case of 3-month intervals. Given the shortcomings of the Sharpe Ratio, no tests of statistical significance are calculated.

Table 1.2 Mean Sharpe Ratios

	Mean Sharpe Ratios (per evaluation interval)																		
	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
JSE ALL Share Index	0.818	1.554	2.527	5.775	15.246	21.825	50.791	0.568	1.372	2.460	4.308	7.359	17.594	1.067	1.735	2.594	3.278	2.459	9.006
Mean Unit Trust Sharpe Ratios (Gross)	1.818	1.817	2.571	5.559	14.894	23.966	68.925	1.263	2.565	4.096	9.216	19.267	31.428	1.931	1.653	2.093	2.559	0.708	6.902
Mean Unit Trust Sharpe Ratios (Net)	1.816	1.813	2.559	5.529	14.803	23.818	68.250	1.262	2.560	4.084	9.185	19.166	31.257	1.929	1.648	2.081	2.531	0.641	6.794

The results obtained from the analysis of Sharpe Ratios are now considered in light of the above discussion. Similar to the findings presented in Table 1.1, Table 1.2 summarises the mean Sharpe Ratio for all the unit trusts sampled over the sample period. The Sharpe Ratios are shown on the basis of both gross and net returns. The average Sharpe Ratio for the JSE All Share index is also presented. Sharpe Ratios calculated on the basis of gross returns are discussed first. It is observed that the mean Sharpe Ratio for the unit trust over the entire 10-year period from 2001 to 2010 was 68.250 or 18.134 greater than the value of 50.791 observed for the market as a whole. For the 5 year period from 2001 to 2005, a Sharpe Ratio of 17.594 was observed for the market, which was lower than the mean unit trust Sharpe Ratio of 31.257 by some 13.834 points over the same period. Over the 5 year period from 2006 to 2010, the mean Sharpe Ratio for the unit trusts was 6.794 or 2.103 points below the value of 9.006 observed for the market.

Much like the results presented on the basis of nominal returns, the mean Sharpe Ratios for the unit trusts during the first 5 years exceeded that of the market regardless of the evaluation interval. With the exception of the 3-month evaluation interval, the contrary was observed over the latter 5-year period. Unlike the results obtained on the basis of nominal returns, mixed results were obtained over the 10-year evaluation period. In other words, when using 3-month, 6-month, 1-year, 5-year and 10-year evaluation intervals, the mean Sharpe Ratio for the unit trusts exceeded the Sharpe Ratio of the market, but this was not the case when using 2-year and 4-year evaluation intervals. While the Sharpe Ratio, which explicitly adjusts for total risk, can indicate outperformance and underperformance, it is difficult to interpret the extent of outperformance or underperformance given that the Sharpe Ratio is an absolute value without a constant reference point. Nonetheless, it can be concluded that there is strong evidence of outperformance over the first 5 years, fairly strong evidence of underperformance in the second five years, and some evidence of outperformance over the full 10-year period.

When net returns are considered, the mean 10-year Sharpe Ratio for unit trusts falls to 68.25, 31.257 over the first 5-year period and 6.794 for the second 5-year period on the basis of 5-year returns. As with nominal returns, the decrease in the Sharpe ratios calculated on the basis of net returns are less than expected for the same reasons outlined in the preceding section. Regardless, the same inferences can be drawn from the

Sharpe Ratios calculated on the basis of net returns as those derived from gross returns. Table A2.1 and Table A2.2 (refer to Section A of the Appendix) detail the Sharpe Ratios for each unit trust sampled on the basis of gross returns and net returns, respectively. From the bottom of Table A2.1 and Table A2.2, it is observed that slightly more funds are able to outperform over the 10-year period once risk has been adjusted for. Compared to the results when nominal returns are used, an even greater proportion of funds are able to outperform during the 2001 to 2005 period, while the gap between the proportion of funds underperforming and outperforming over the 2006 to 2010 period narrows. Ultimately, these results suggest that overall unit trusts are only just more likely to outperform over the 10-year period, while they are very likely to outperform during bull market periods and underperform during bear market periods.

Table 2.2 Outperformance results: Unit Trust Sharpe Ratios (Returns gross of fees) versus the Sharpe Ratio for the JSE All Share Index

Year-Ending	Number of Observations										Total
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
3-month Intervals											
Outperformed	139 (45%)	200 (57%)	274 (77%)	212 (56%)	175 (43%)	251 (56%)	229 (47%)	220 (41%)	303 (52%)	365 (61%)	
Underperformed	172 (55%)	149 (43%)	84 (23%)	168 (44%)	229 (57%)	199 (44%)	261 (53%)	315 (59%)	281 (48%)	238 (39%)	
Net Outperformers	-33	51	190	44	-54	52	-32	-95	22	127	272
Negative Observations	134 (43%)	230 (66%)	100 (28%)	100 (26%)	54 (13%)	91 (20%)	186 (38%)	472 (88%)	145 (25%)	166 (28%)	1678 (38%)
6-month Intervals											
Outperformed	57 (38%)	101 (58%)	133 (75%)	148 (78%)	48 (24%)	104 (47%)	94 (39%)	135 (51%)	116 (40%)	148 (49%)	
Underperformed	95 (63%)	72 (42%)	45 (25%)	41 (22%)	152 (76%)	118 (53%)	148 (61%)	130 (49%)	174 (60%)	153 (51%)	
Net Outperformers	-38	29	88	107	-104	-14	-54	5	-58	-5	-44
	36 (24%)	133 (77%)	89 (50%)	52 (28%)	6 (3%)	7 (3%)	92 (38%)	235 (89%)	83 (29%)	137 (46%)	870 (39%)
1-year Intervals											
Outperformed	25 (33%)	62 (73%)	70 (79%)	75 (81%)	15 (15%)	21 (20%)	45 (38%)	39 (30%)	70 (49%)	81 (54%)	
Underperformed	50 (67%)	23 (27%)	19 (21%)	18 (19%)	82 (85%)	86 (80%)	74 (62%)	92 (70%)	72 (51%)	69 (46%)	
Net Outperformers	-25	39	51	57	-67	-65	-29	-53	-2	12	-82
	15 (20%)	64 (75%)	9 (10%)	5 (5%)	0 (0%)	0 (0%)	12 (10%)	131 (100%)	1 (1%)	1 (1%)	238 (22%)
2-year Intervals											
Outperformed		35 (47%)	71 (84%)	72 (81%)	73 (78%)	16 (16%)	35 (33%)	38 (32%)	35 (27%)	70 (49%)	
Underperformed		40 (53%)	14 (16%)	17 (19%)	20 (22%)	81 (84%)	72 (67%)	81 (68%)	96 (73%)	72 (51%)	
Net Outperformers		-5	57	55	53	-65	-37	-43	-61	-2	-48
		42 (56%)	46 (54%)	7 (8%)	0 (0%)	0 (0%)	0 (0%)	119 (100%)	129 (98%)	1 (1%)	344 (37%)
4-year Intervals											
Outperformed				58 (77%)	68 (80%)	69 (78%)	49 (53%)	15 (15%)	27 (25%)	33 (28%)	
Underperformed				17 (23%)	17 (20%)	20 (22%)	44 (47%)	82 (85%)	80 (75%)	86 (72%)	
Net Outperformers				41	51	49	5	-67	-53	-53	-27
				2 (3%)	0 (0%)	1 (1%)	0 (0%)	8 (8%)	23 (21%)	83 (70%)	87 (19%)
5-year Intervals											
Outperformed					54 (72%)	64 (75%)	61 (69%)	35 (38%)	18 (19%)	32 (30%)	
Underperformed					21 (28%)	21 (25%)	28 (31%)	58 (62%)	79 (81%)	75 (70%)	
Net Outperformers					33	43	33	-23	-61	-43	-18
					0 (0%)	0 (0%)	2 (2%)	2 (2%)	1 (1%)	8 (7%)	13 (2%)
10-year Interval											
Outperformed										43 (57%)	
Underperformed										32 (43%)	
Net Outperformers										11	11
										0 (0%)	0 (0%)

Table 2.2 summarises the number of ‘outperform’ and ‘underperform’ observations recorded from the unit trust sample relative to the JSE ALSI, on the basis of Sharpe Ratios calculated from gross returns. Where a unit trust has a greater Sharpe ratio for a particular evaluation interval, an observation of ‘outperformance’ is recorded and vice versa in the case of ‘underperformance’. Table B2 (refer to Section B of the Appendix) details the same results using unit trust returns that are net of fees.

Even though the Sharpe Ratio adjusts for risk, the results of the Sharpe Ratio tests yield similar results to those based on nominal returns, albeit the strength of the results may differ. With the exception of the year 2001 and to a lesser extent 2005, the 5-year period from 2001 to 2005 was dominated by more observations of outperformance, while the 2006 to 2010 period was dominated by more underperformance observations. Given positive mean Sharpe Ratios over the 10-year period, it seems that the outperformance of the former five years was sufficient enough to absorb much of the underperformance that followed in the latter five years. Also, average performance appears to vary according to the time period evaluated and appears to be correlated with market cycles. In contrast to the results based on nominal returns, however, the margin by which the number of underperformers exceeds the number of outperformers is narrower. It is worth noting that over the 10-year evaluation interval, 11 more unit trusts were found to outperform than underperform. These results are confirmed by the findings of table D2 (refer to Section D of the Appendix) – that is, 50% of funds recorded more ‘winner’ observations over the entire 10-year period and during the first 5-year period, while 65% of funds recorded more ‘loser’ observations in the second 5-year period. Given that half of the funds recorded more ‘winner’ observations over the 10-year period and the mean Sharpe Ratio is greater than that of the market, it can be concluded that the extent of the outperformers exceeded that of the underperformers over the 10-year period. Thus far the results from the analysis of the Sharpe Ratios seem to provide stronger evidence in support of outperformance for the industry as a whole and for individual funds as compared to the results obtained on the basis of nominal returns. After adjusting for unit trust fees, the inferences drawn remain unaffected (Refer to Table B2).

Table 2.2 also includes the number of negative Sharpe Ratio observations across all the evaluation intervals for each year. There are 12 cases in Table 2.2 during which at least 50% of funds recorded a negative Sharpe

Ratio. However, given that a 'winner' observation is one in which a particular fund achieves a Sharpe Ratio that is larger than the that of the market, an investor would still prefer to earn a lower negative return than a higher negative return for bearing the same level of risk if those were his or her only choices. For example, an investor would prefer to lose 5% (i.e. -5%) versus 10% (i.e. -10%) of his capital if faced with only those choices. The Sharpe Ratio of the two choices would both be negative but the -5% choice would have a greater Sharpe ratio than that of the -10% choice. Thus, it is argued that the observation of negative Sharpe Ratios does not affect the inferences drawn.

Turning to the consistency of performance, it is observed from Table D2, that a higher proportion of unit trusts are able to achieve more outperformance observations over the entire 10-year period and both 5-year sub-periods on the basis of Sharpe Ratios, which adjusts for risk, than compared to when unit trust performance is evaluated purely on the basis of nominal returns. In the 2001 to 2010 and 2001 and 2005 periods, it is found that 50% of unit trusts are able to record more observations of outperformance, while 48% of funds were able to record more 'loser' observations. This is construed as moderate evidence in support of outperformance and given that the mean Sharpe Ratios for these periods were, for the most part, greater than those of the JSE ALSI, it may be inferred that the extent of outperformance is greater than the extent of underperformance over these two periods anyhow. Moreover, this adds to the evidence that some unit trust managers may appear to possess some skill and are able to outperform the market more often than not over fairly long time periods. However, unit trust managers do not fare as well in the 2006 to 2010 period, with only 38% of funds being able to record more observations of outperformance than underperformance. Again, it appears that unit trust performance is sensitive to the time period sampled and possibly the underlying market cycles. Similar to the results produced by the CAPM, an overwhelming 56% of unit trusts were unable to record a significant alpha observations over the first 5-year period from 2001 to 2005.

From Table C2, it is observed that a greater number of funds are able to outperform the market more often than not on the basis of the number of periods in which outperformance is recorded for a particular fund when performance is evaluated using Sharpe Ratios. A similar trend is observed for funds that consistently underperform the market. On balance it appears that the extent to which underperforming funds

underperform and outperforming funds outperform, on this basis anyway, appears approximately equal. For example, the best performing fund over 10-years measured using 3-month returns is able to outperform in 28 out of forty 3-month intervals, while the worst performing fund is able to underperform in 29 out of 40 times. The number of top and worst performing funds, measured on this basis, appears to fluctuate with the time period. During the 2001 to 2010 and first 5-year period from 2001 to 2005, on balance, more top performing funds are recorded, while more underperforming funds are recorded in the second 5-year period from 2006 to 2010.

In summary, unit trusts do appear to be able to 'beat' the market, albeit not all the time. These results are consistent with the findings of previous researchers. For example, Gilbertson and Vermaak (1982) found evidence of outperformance using Sharpe Ratios, while Treynor (1987) found the opposite five years later. However, the extent of that outperformance and the proportion of funds that outperform appear to vary with the time period studied as well as the underlying state of the market. Overall, over the entire 10-year period, as many funds that appear to underperform also appear to outperform, yet a mean Sharpe Value greater than that of the market is observed, suggesting that the extent of outperformance is somewhat greater than the extent of underperformance for the 75 funds that existed over this entire period. Despite the concerns raised about interpreting results made on the basis of Sharpe Ratios, it is concluded that the inferences drawn here are credible.

6.1.4. CAPM Alphas

Before discussing the alpha observations (regardless of the model used), some comments are necessary. When using 3-month, and to a lesser extent, 6-month evaluation intervals, the number of observations used to derive the alpha or intercept values may be too small by statistical standards (i.e. 3 and 6 observations respectively), thereby placing some doubt on the credibility of 3-month and 6-month alpha values. However, it is hoped that by recording forty 3-month observations over the 2001 to 2010 period and using longer

evaluation intervals (such as 1-year and 2-year intervals), credible inferences may still be drawn from examining the data on the basis of 3-month and 6-month evaluation intervals. Moreover, in the case of the CAPM – a single factor model – multicollinearity as well as the problems associated with multiple-factor models is absent. A more detailed discussion around the limitations of this study can be found in Section 7.

Table 1.3 Mean CAPM Alphas

	Mean Alphas (per evaluation interval) as measured by the CAPM Model																		
	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Unit Trust Alphas (Gross)	0.250	0.127	0.065	0.095	0.147	0.172	0.211	0.432	0.453	0.376	0.553	0.550	0.470	0.200	-0.005	-0.064	-0.098	-0.091	-0.039
Mean Unit Trust Alphas (Net)	0.247	0.123	0.061	0.091	0.143	0.167	0.206	0.429	0.449	0.372	0.548	0.545	0.466	0.197	-0.008	-0.068	-0.102	-0.096	-0.044

The alpha values presented in Table 1.3 are slightly different from those presented in Table R1 in section 6.1.1 since in Table 1.3, the mean alphas are only calculated for a particular unit trust over a particular evaluation interval if that unit trust existed over that entire evaluation interval, whereas for the purposes of model robustness, this is not the case. Also here, the mean alpha values for each unit trust are calculated for each evaluation interval and then for each of the evaluation intervals presented, the mean alpha for the unit trust sample as a whole is calculated as the equal-weighted average of the individual unit trusts' mean alpha values, whereas in the case of evaluating model robustness (i.e. Table R1), the equal-weighted monthly mean unit trust return for the sample as a whole is calculated and then regressions are performed on those mean unit trust returns. Thus, t-statistics are not reported in Table 1.3.

From Table 1.3, it can be observed that the mean CAPM alphas value using gross (net) returns for unit trusts on average was +0.211 (+0.206) for the entire 10-year sample period when 10-year returns are evaluated. The mean alpha value was +0.470 (+0.466) for the first 5-year period and -0.039 (-0.044) for the second five-year period when unit trust performance is evaluated using 5-year evaluation intervals. Again the net alphas appear lower than expected, and the reason for this may be attributed to the shortcomings around calculating net returns as detailed earlier. It is interesting to note that regardless of the evaluation interval used, the mean alphas values were positive across the entire 10-year period and the first 5-year period for

both gross and net returns. This can be interpreted as strong evidence in favour of the average unit trust manager being able to outperform over these 2 periods. However, it is observed that the alpha values were negative across the second 5-year period for both gross and net returns except when using 3-month evaluation intervals. This is evidence of underperformance on the part of the average unit trust manager over this period. Given that the alpha values over the full 10-year period are positive, it is argued that on average the extent of the outperformance in the first 5-years exceeded the extent of the underperformance of the second 5-years. This is confirmed by examining the absolute values of the alphas – in absolute terms the values are lower in the second 5-year period. Table A3.1 and Table A3.2 (refer to Section A of the Appendix) show the alpha values for each unit trust sampled on the basis of gross and net returns, respectively. From the bottom of Table A3.1 and Table A3.2, we observe similar trends to those observed when Sharpe Ratios are used to evaluate performance.

Table 3.1 and Table E1 (refer to Section E of the Appendix) show the frequency distribution of all positive and negative alpha observations for the 2001 to 2010, 2001 to 2005 and 2006 to 2010 periods across the different evaluation intervals. With few exceptions, it is observed that the majority of alpha observations fall between the -0.25 and 0 class interval during the 2001 to 2010 period and to a lesser extent during the 2006 to 2010 period. However, the number of positive or ‘winner’ observations in total exceeded the number of negative or ‘loser’ observations over all three periods. It is interesting to note that in the case of the 2006 to 2010 period, more negative alpha observations are recorded for evaluation intervals of 2-, 4- and 5-years. This is consistent with the positive mean alpha values observed for the 2001 to 2010 and 2001 to 2005 periods. In the case of the 2006 to 2010 period, the negative mean alphas observed in Table 1.3 for the 2-, 4- and 5-year intervals appear consistent with the results presented in Table 3.1.

Moreover, to distinguish luck from skill (or a lack thereof), the number of statistically significant alpha values as determined by the appropriate t-statistic at the 5% level of significance is shown in parentheses in Table 3.1 and Table E1. Even though a significant drop in the number of observations is recorded when considering statistically significant alphas only, some valuable inferences can still be drawn. It is interesting to note that across the 2001 to 2010 and 2001 to 2005, the most number of statistically significant observations fall in the

+1 to +3 class intervals. This is strong evidence in support of the average unit trust manager being able to outperform the market on the basis of skill as opposed to mere chance for these 2 periods. However, for the 2006 to 2010 period, the most number of statistically significant observations fall in the negative class intervals in all but one instance. Thus it seems, that on average, unit trust managers appear to lack (or possess ‘poor’) skill over the 2006 to 2010 period. Statistically significant alpha values are also observed in the >5 class, indicating that some managers are extremely successful in outperforming the market. On the same token, a significant number of statistically significant negative observations are also recorded, indicating that some managers are ‘beaten’ by the market due to a lack of skill or having ‘poor’ skill.

Table 3.1 Frequency Distribution of CAPM Alpha Observations on the basis of Gross Returns (Statistically Significant Observations in Parentheses)

	Frequency of Alpha Observations																	Neg. Alphas Observed		Pos. Alphas Observed		
	Negative (< 0)								Positive (> 0)									Total	Statistically Significant	Total	Statistically Significant	
	< -5	-5 to -3	-3 to -2	-2 to -1.5	-1.5 to -1	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1	1 to 1.5	1.5 to 2	2 to 3	3 to 5					> 5
2001-2010 (10 years)	79 (19)	207 (50)	371 (90)	294 (69)	425 (70)	355 (34)	508 (52)	849 (62)	1375 (57)	1203 (9)	970 (70)	670 (111)	506 (141)	695 (233)	449 (145)	494 (136)	406 (101)	132 (32)	4463	503	5525	978
3-month intervals	65 (8)	174 (25)	294 (47)	201 (36)	249 (29)	210 (10)	238 (24)	291 (15)	290 (9)	313 (9)	287 (17)	244 (14)	188 (16)	348 (47)	275 (42)	339 (48)	341 (64)	117 (19)	2012	203	2452	276
6-month intervals	13 (10)	27 (19)	58 (30)	62 (22)	91 (17)	90 (10)	148 (12)	225 (15)	298 (5)	278 (0)	231 (2)	159 (9)	131 (7)	130 (16)	93 (31)	104 (39)	61 (33)	13 (11)	1012	140	1200	148
1-year intervals	1 (1)	4 (4)	13 (7)	23 (5)	53 (11)	24 (3)	59 (3)	117 (9)	204 (3)	193 (0)	128 (4)	80 (11)	41 (10)	74 (39)	34 (26)	36 (35)	2 (2)	2 (2)	498	46	590	129
2-year intervals	0 (0)	2 (2)	4 (4)	3 (1)	28 (10)	29 (10)	49 (2)	110 (12)	209 (8)	155 (0)	93 (3)	82 (16)	61 (28)	67 (55)	30 (29)	14 (13)	2 (2)	0 (0)	434	49	504	146
4-year intervals	0 (0)	0 (0)	2 (2)	3 (3)	2 (1)	1 (1)	11 (9)	73 (4)	189 (13)	119 (0)	107 (16)	54 (25)	44 (40)	48 (48)	11 (11)	1 (1)	0 (0)	0 (0)	281	33	384	141
5-year interval	0 (0)	0 (0)	0 (0)	2 (2)	2 (2)	1 (0)	3 (2)	33 (7)	163 (14)	124 (0)	107 (22)	39 (25)	39 (38)	27 (27)	6 (6)	0 (0)	0 (0)	0 (0)	204	27	342	118
10-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	22 (5)	21 (0)	17 (6)	12 (11)	2 (2)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	22	5	53	20
2001-2010 (5 years)	37 (5)	87 (20)	135 (27)	113 (25)	164 (30)	131 (12)	183 (19)	265 (25)	358 (22)	348 (4)	312 (18)	262 (38)	219 (66)	334 (153)	204 (89)	251 (99)	229 (68)	78 (22)	1473	185	2237	557
3-month intervals	35 (5)	79 (14)	112 (12)	87 (16)	96 (9)	76 (4)	90 (8)	110 (3)	106 (3)	122 (4)	101 (7)	101 (2)	65 (5)	137 (22)	99 (18)	137 (26)	184 (44)	65 (11)	791	74	1011	139
6-month intervals	2 (0)	5 (3)	15 (7)	17 (6)	35 (8)	40 (3)	70 (10)	78 (6)	108 (0)	119 (0)	77 (0)	58 (2)	62 (2)	50 (10)	40 (14)	64 (25)	41 (20)	11 (9)	370	43	522	82
1-year intervals	0 (0)	2 (2)	5 (5)	8 (2)	21 (7)	8 (1)	15 (1)	46 (5)	74 (1)	48 (0)	48 (0)	29 (5)	20 (6)	48 (31)	28 (21)	35 (34)	2 (2)	2 (2)	179	24	260	101
2-year intervals	0 (0)	1 (1)	3 (3)	1 (1)	12 (6)	7 (4)	8 (0)	24 (7)	37 (6)	23 (0)	38 (2)	44 (14)	39 (23)	60 (51)	29 (28)	14 (13)	2 (2)	0 (0)	93	28	249	133
4-year intervals	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (2)	22 (8)	23 (0)	31 (6)	23 (11)	20 (18)	29 (29)	7 (7)	1 (1)	0 (0)	0 (0)	26	10	134	72
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (2)	11 (4)	13 (0)	17 (3)	7 (4)	13 (12)	10 (10)	1 (1)	0 (0)	0 (0)	0 (0)	14	6	61	30
2006-2010 (5 years)	42 (14)	120 (30)	234 (61)	177 (40)	258 (39)	221 (21)	318 (26)	528 (35)	811 (17)	675 (5)	490 (17)	324 (27)	231 (25)	324 (43)	236 (47)	243 (37)	177 (53)	54 (10)	2709	285	2754	244
3-month intervals	30 (3)	95 (11)	182 (35)	114 (20)	153 (20)	134 (6)	148 (16)	181 (12)	184 (6)	191 (5)	186 (10)	143 (12)	123 (11)	211 (25)	176 (24)	202 (22)	157 (20)	52 (8)	1221	129	1441	137
6-month intervals	11 (10)	22 (16)	43 (23)	45 (16)	56 (9)	50 (7)	78 (2)	147 (9)	190 (5)	159 (0)	154 (2)	101 (7)	69 (5)	80 (6)	53 (17)	40 (14)	20 (13)	2 (2)	642	97	678	66
1-year intervals	1 (1)	2 (2)	8 (2)	15 (3)	32 (4)	16 (2)	44 (2)	71 (4)	130 (2)	145 (0)	80 (4)	51 (6)	21 (4)	26 (8)	6 (5)	1 (1)	0 (0)	0 (0)	319	22	330	28
2-year intervals	0 (0)	1 (1)	1 (1)	2 (0)	15 (4)	21 (6)	41 (2)	81 (5)	143 (2)	106 (0)	34 (0)	28 (2)	18 (5)	7 (4)	1 (1)	0 (0)	0 (0)	0 (0)	305	21	194	12
4-year intervals	0 (0)	0 (0)	0 (0)	1 (1)	1 (1)	0 (0)	7 (6)	38 (1)	111 (1)	45 (0)	22 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	158	10	68	0
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	10 (4)	53 (1)	29 (0)	14 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	64	6	43	1

From Table 2.3 and Table B3, which considers only statistically significant alpha observations, it is noted that in almost all instances, more outperformance observations are recorded relative to underperformance observations in the first 5-year period. While the opposite is observed for the most part in the second 5-year period, the margin by which underperformance observations exceeds those of outperformance in this second period is less than that of by which outperformers exceeds underperformers in the first 5-year period. Also over the full 10-year sample, there were more positive alpha observations than negative observations. Two inferences can be made regarding managers that apparently possess some skill or a lack thereof. First, the extent of underperformance is less than the extent of outperformance and second, the outperformance of

the first 5-years acted as a buffer to absorb a large amount of the underperformance over the second 5-year period.

Table 2.3 Outperformance results: Statistically significant alphas as determined by the CAPM Model (Gross of fees)

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
Repeat 'Winner'	29 (9%)	30 (9%)	47 (13%)	20 (5%)	13 (3%)	23 (5%)	12 (2%)	25 (5%)	36 (6%)	41 (7%)	
Repeat 'Loser'	11 (4%)	21 (6%)	3 (1%)	16 (4%)	23 (6%)	24 (5%)	21 (4%)	45 (8%)	22 (4%)	17 (3%)	
Net Repeat 'Winner'	18	9	44	4	-10	-1	-9	-20	14	24	73
6-month Intervals											
Repeat 'Winner'	9 (6%)	11 (6%)	34 (19%)	27 (14%)	1 (1%)	25 (11%)	4 (2%)	16 (6%)	10 (3%)	11 (4%)	
Repeat 'Loser'	29 (19%)	2 (1%)	2 (1%)	6 (3%)	4 (2%)	5 (2%)	3 (1%)	69 (26%)	3 (1%)	17 (6%)	
Net Repeat 'Winner'	-20	9	32	21	-3	20	1	-53	7	-6	8
1-year Intervals											
Repeat 'Winner'	11 (15%)	8 (9%)	25 (28%)	57 (61%)	0 (0%)	2 (2%)	8 (7%)	0 (0%)	1 (1%)	17 (11%)	
Repeat 'Loser'	16 (21%)	1 (1%)	1 (1%)	6 (6%)	0 (0%)	0 (0%)	2 (2%)	11 (8%)	2 (1%)	7 (5%)	
Net Repeat 'Winner'	-5	7	24	51	0	2	6	-11	-1	10	83
2-year Intervals											
Repeat 'Winner'		18 (24%)	20 (24%)	59 (66%)	36 (39%)	1 (1%)	7 (7%)	0 (0%)	0 (0%)	5 (4%)	
Repeat 'Loser'		9 (12%)	3 (4%)	11 (12%)	5 (5%)	0 (0%)	0 (0%)	3 (3%)	11 (8%)	7 (5%)	
Net Repeat 'Winner'		9	17	48	31	1	7	-3	-11	-2	97
4-year Intervals											
Repeat 'Winner'				28 (37%)	44 (52%)	49 (55%)	19 (20%)	1 (1%)	0 (0%)	0 (0%)	
Repeat 'Loser'				5 (7%)	5 (6%)	8 (9%)	2 (2%)	3 (3%)	4 (4%)	6 (5%)	
Net Repeat 'Winner'				23	39	41	17	-2	-4	-6	108
5-year Intervals											
Repeat 'Winner'					30 (40%)	47 (55%)	36 (40%)	3 (3%)	1 (1%)	1 (1%)	
Repeat 'Loser'					6 (8%)	5 (6%)	5 (6%)	1 (1%)	4 (4%)	6 (6%)	
Net Repeat 'Winner'					24	42	31	2	-3	-5	91

However, while evidence to support both outperformance and underperformance has been found, this evidence does not indicate consistency or persistence in performance. At the bottom of Table D3, three sets of summary statistics are presented. First, the proportion of funds recording more positive and statistically significant alpha observations is shown. Second, the proportion of funds with more negative and statistically significant alpha observations is shown. Third, the proportion of funds unable to record any positive or negative significant alphas is shown. The sum of these three rows may not equal 100% as those funds recording an equal number of positive and negative statistically significant alphas are not included here. From the last row in Table D3, it can be deduced that a significant proportion of unit trust managers (with as many

as 53% over the entire 10-year sample period) are able to outperform during more periods than not on a statistically significant basis. While these findings cannot be construed as persistence in performance, it does indicate that some managers are consistent in being able to outperform more often than not. This further supports the notion that unit trust managers do in fact possess some skill with respect to being able to deliver superior performance. It is interesting to note that some 56% of unit trusts are unable to record any statistically significant alpha observations during the 2001 to 2005 period, implying that these funds merely 'coast' along with the market.

Table C3, seems to suggest that the top performing unit trusts, when measured on the basis of the number of 'winner' versus 'loser' observations on a statistically significant basis across all the entire sample period, appear to be better at outperforming than the worst performers are at underperforming. For example, over the 10-year period using 3-month evaluation intervals, 3 funds (namely: Coronation Small Companies, SIM Small Cap R and Coronation Industrial) were able to produce 'winner' observations in 7 out of a possible 40 periods, while 9 funds (examples of which include Select Manager Defensive Equity Fund of Funds and RMB Resources) were able to produce 'loser' observations in 4 out of 40 periods. Moreover, the evidence appears to suggest that on average the number of top performing funds measured on this basis appears to be greater than the number of worst performers.

In summary, managers are more likely to record more 'loser' observations but cumulatively in absolute terms, outperformance is still possible. However, over the 10-year period from 2001 to 2010 and the first 5-year period from 2001 to 2005, it is found on the basis of CAPM alphas that unit trust managers on average were able to 'beat' the market. These findings are consistent with those of Bradfield and Swartz (2001) who found evidence of outperformance over the 1995 to 2001 period when evaluating unit trust performance using the CAPM and also Gilberton and Vermaak (1982), who found evidence of outperformance in the late 1970s. The results produced by this study, however, suggest otherwise for the second five-year period from 2006 to 2010, which is consistent with the findings of Taylor (1977) and Knight and Firer (1989) who found evidence of underperformance when measuring performance using the CAPM in the 1970s and 1980s. The findings of

this study further reiterates the notion that the observation of outperformance is sensitive to the time period over which unit trust performance is evaluated.

Moreover, 'winners' exist even in times of bear markets – that is, we observe statistically significant alpha observations during the 2006 to 2010 period (refer to Table 3.1 and E1). Also the observation of statistically negative alpha observations is strong evidence to suggest that some managers are 'poor' at managing equity investments and to use the words of Jensen (1968:394), this "may very well be due to the generation of too many expenses in unsuccessful forecasting attempts." It also interesting to note that during some periods (for example over the 2001 to 2005 period), many managers are unable to produce statistically significant alpha observations, whether negative or positive.

6.1.5. Fama and French Alphas

Fama and French (1993) did not apply their model directly to the evaluation of mutual fund performance, yet they claimed that their model should be superior to the traditional single-factor CAPM model when doing so. Carhart (1997) and Fama and French (2008) who applied their model to mutual fund performance evaluation found it to be superior to the CAPM. While this study does not find the Fama and French (1993) to be much more superior to the single-factor CAPM in terms of explaining unit trust performance (refer Section 6.1.1), the model is applied nonetheless in an effort to discern whether unit trust managers do exploit common market factors such as the 'size' and book-to-market effects.

Since the Fama and French (1993) model incorporates 3 factors, little reliance can be placed on the alpha values derived from using 3-month evaluation intervals. Moreover, the appropriate t-statistic to test for statistical significant could not be calculated for 3-month alpha observations. As such, mean alphas values observed on the basis of 3-month returns are not shown here. They are still presented for individual funds in the appendices.

Table 1.4

Mean Fama & French 3-factor Alphas

	Mean Alphas (per evaluation interval) as measured by the Fama & French 3-factor Model																		
	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Unit Trust Alphas (Gross)		0.013	0.103	-0.026	-0.052	-0.033	0.044		-0.077	0.040	0.107	0.200	0.178		0.087	0.139	-0.073	-0.161	-0.122
Mean Unit Trust Alphas (Net)		0.010	0.099	-0.030	-0.056	-0.037	0.039		-0.081	0.036	0.103	0.195	0.174		0.084	0.135	-0.078	-0.166	-0.127

From Table 1.4, when using 10-year evaluation intervals it is observed that the mean Fama and French (1993) 3-factor alpha value for all the unit trusts sampled was +0.044 for gross returns (and +0.039 for net returns) over the entire 10-year sample period. For the first 5-year periods, the mean alpha value was +0.178 (+0.174), while for the second 5-year period it was -0.122 (-0.127) when 5-year evaluation intervals are used. Alpha values calculated on the basis of net returns appear to be less than expected, and this is attributable to the manner in which net returns are calculated. For the entire 10-year sample period, depending on the evaluation interval used, both positive and negative mean alpha values are observed. Regardless, with the exception of 1-year evaluation intervals, the alpha values seem insignificantly different from zero over the full 10-year period, thereby implying that on average unit trusts were not able to outperform the market – that is, the outperformance observed is negligible.

Over the first 5-year sample period, more significant positive alphas value are obtained, allowing one to conclude that unit trusts on average were able to outperform the market during that period as a whole. Mixed results are obtained for the second 5-year period. Using 6-month and 1-year evaluation intervals, the mean alpha values are positive, however, using longer intervals, the mean alpha values are negative. No inferences are drawn from these results except that any outperformance in the first 5-year period seems to have been eliminated over the second 5-year period, resulting in near-zero, albeit positive, alphas over the 10-year sample period. When using the Fama and French (1993) model, less evidence in support of outperformance is found – with few exceptions the mean alpha values observed under the CAPM are significantly reduced under the Fama and French (1993) model. These results are similar to the findings of

Carhart (1997), who also observed a decrease in mean alpha values when using the Fama and French (1993) 3-factor model as compared to the single-factor CAPM.

Table A4.1 and Table A4.2 (refer to Section A of the Appendix) show the alpha values calculated for each unit trust. From the bottom of Table A1.4 and Table A1.5, no particular trends are noted. The proportion of funds able to outperform on the basis of Fama and French (1993) alphas versus the proportion of funds able to underperform appears to vary with the sample period and length of evaluation interval used. Overall, however, there appears to be a slight bias towards underperformance.

Table 3.2 Frequency Distribution of Fama & French 3-factor Alpha Observations on the basis of Gross Returns (Statistically Significant Observations in Parentheses)

	Frequency of Alpha Observations																		Neg. Alphas Observed		Pos. Alphas Observed	
	Negative (< 0)									Positive (> 0)									Total	Statistically Significant	Total	Statistically Significant
	<-5	-5 to -3	-3 to -2	-2 to -1.5	-1.5 to -1	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1	1 to 1.5	1.5 to 2	2 to 3	3 to 5	> 5	Total	Statistically Significant	Total	Statistically Significant
2001-2010 (10 years)	22 (11)	40 (12)	94 (27)	122 (21)	258 (62)	213 (38)	410 (53)	747 (60)	1129 (18)	808 (1)	491 (13)	326 (46)	221 (42)	252 (59)	124 (37)	149 (58)	87 (33)	31 (12)	3035	302	2489	301
6-month intervals	16 (6)	33 (8)	82 (19)	87 (9)	164 (14)	111 (5)	189 (8)	216 (13)	279 (1)	240 (1)	160 (0)	120 (7)	109 (5)	141 (14)	84 (15)	94 (20)	63 (17)	24 (7)	1177	83	1035	86
1-year intervals	6 (5)	7 (4)	6 (2)	15 (3)	47 (20)	45 (11)	99 (12)	151 (8)	206 (2)	152 (0)	84 (3)	72 (8)	43 (4)	55 (11)	29 (12)	43 (28)	21 (13)	7 (5)	582	67	506	84
2-year intervals	0 (0)	0 (0)	6 (6)	19 (8)	24 (12)	37 (18)	67 (11)	139 (11)	220 (5)	156 (0)	115 (1)	66 (6)	39 (10)	35 (14)	4 (4)	8 (6)	3 (3)	0 (0)	512	71	426	44
4-year intervals	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	14 (9)	14 (2)	31 (12)	131 (15)	212 (2)	127 (0)	70 (0)	31 (8)	16 (11)	10 (10)	5 (4)	3 (3)	0 (0)	403	41	262	36
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	9 (7)	5 (1)	24 (10)	96 (8)	190 (5)	114 (0)	52 (5)	30 (12)	12 (10)	11 (10)	2 (2)	1 (1)	0 (0)	324	31	222	40
10-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	14 (5)	22 (3)	19 (0)	10 (4)	7 (5)	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	37	9	38	11
2001-2005 (5 years)	10 (6)	25 (7)	40 (7)	65 (14)	116 (34)	74 (9)	131 (11)	185 (16)	349 (6)	241 (1)	191 (2)	135 (12)	100 (14)	108 (32)	54 (20)	46 (21)	25 (11)	13 (8)	995	110	913	121
6-month intervals	10 (6)	20 (5)	35 (4)	45 (7)	76 (6)	35 (1)	73 (2)	74 (4)	117 (0)	105 (1)	74 (0)	49 (2)	44 (1)	47 (4)	32 (6)	26 (4)	19 (7)	11 (6)	485	35	407	31
1-year intervals	0 (0)	5 (2)	2 (0)	9 (2)	23 (13)	23 (2)	32 (0)	55 (2)	86 (0)	54 (0)	44 (0)	26 (0)	26 (1)	29 (2)	12 (5)	8 (7)	3 (1)	2 (2)	235	21	204	18
2-year intervals	0 (0)	0 (0)	3 (3)	11 (5)	7 (6)	7 (5)	14 (2)	37 (5)	90 (1)	49 (0)	46 (1)	34 (1)	16 (1)	14 (8)	3 (3)	8 (6)	3 (3)	0 (0)	169	27	173	23
4-year intervals	0 (0)	0 (0)	0 (0)	0 (0)	6 (5)	7 (1)	6 (3)	14 (5)	36 (1)	24 (0)	20 (0)	19 (6)	10 (8)	10 (10)	5 (4)	3 (3)	0 (0)	0 (0)	69	15	91	31
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	4 (4)	2 (0)	6 (4)	5 (0)	20 (4)	9 (0)	7 (1)	7 (3)	4 (3)	8 (8)	2 (2)	1 (1)	0 (0)	0 (0)	37	12	38	18
2006-2010 (5 years)	12 (5)	15 (5)	54 (20)	57 (7)	131 (23)	129 (26)	245 (34)	406 (25)	521 (9)	377 (0)	208 (3)	147 (18)	105 (17)	141 (25)	70 (17)	103 (37)	62 (22)	18 (4)	1570	154	1231	143
6-month intervals	6 (0)	13 (3)	47 (15)	42 (2)	88 (8)	76 (4)	116 (6)	142 (9)	162 (1)	135 (0)	86 (0)	71 (5)	65 (4)	94 (10)	52 (9)	68 (16)	44 (10)	13 (1)	692	48	628	55
1-year intervals	6 (5)	2 (2)	4 (2)	6 (1)	24 (7)	22 (9)	67 (12)	96 (6)	120 (2)	98 (0)	40 (3)	46 (8)	17 (3)	26 (9)	17 (7)	35 (21)	18 (12)	5 (3)	347	46	302	66
2-year intervals	0 (0)	0 (0)	3 (3)	8 (3)	16 (6)	30 (13)	45 (9)	75 (5)	104 (4)	84 (0)	62 (0)	28 (5)	22 (9)	21 (6)	1 (1)	0 (0)	0 (0)	0 (0)	281	43	218	21
4-year intervals	0 (0)	0 (0)	0 (0)	1 (1)	2 (1)	1 (0)	14 (5)	65 (3)	89 (1)	40 (0)	11 (0)	2 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	172	11	54	1
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	3 (2)	28 (2)	46 (1)	20 (0)	9 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	78	6	29	0

From the frequency distributions presented in Table 3.2 and Table E2 (refer to Section E of the Appendix), it is observed that the -0.25 to 0 class records the highest number of alpha observations. Over the 10-year period from 2001 to 2010, there are 37 negative alpha observations and 38 positive alpha observations. Given that the mean alpha over this period is approximately zero, it may be inferred that the extent of underperformance is roughly equal to the extent of outperformance. For the other evaluation intervals covering the entire 10-year period, the number of negative observations exceeds the number of positive observations, yet the mean alphas for other evaluation periods (Table 1.4) appears to be closely distributed around zero, with some positive mean alphas (e.g. 6-month evaluation intervals: +0.013) and negative mean alphas (4-year evaluation intervals: -0.052). Thus on balance, it appears that the extent of outperformance for

the unit trusts on average may just exceed the extent of underperformance. This relationship appears to hold in the 2001 to 2005 period but does not appear to do so in the 2006 to 2010 period.

From Table 3.2 and E2, it can be observed that fewer statistically significant alphas are recorded when evaluating performance with the Fama and French (1993) model than with the CAPM Model. Depending on the length of the evaluation interval (e.g. 3-month or 1-year), the number of statistically significant negative alphas appears to equal the number of statistically significant positive alphas over the 2001 to 2010, 2001 to 2005 and 2006 to 2010 periods. Over the 2001 to 2010 and the 2006 to 2010 periods, the most observations are recorded in the 2 to 3 frequency class interval when using evaluation intervals of 6-month and 1-year. Over the 2006 to 2010 period, the most observations are recorded in the 1 to 1.5 frequency class when using evaluation intervals of 2-years or longer. This is some evidence that some unit trust managers possessed a high degree of skill with respect to being able to outperform over these periods, albeit when measured over certain evaluation intervals only.

While the inferences that can be drawn from Table 3.2 and Table E2 are limited, two further observations are discussed. First, there is certainly evidence within the industry as a whole that outperformance and underperformance, other than from chance, is possible. Second, and more importantly, the fewer number of statistically significant alpha observations under the Fama and French (1993) model implies that fewer unit trust managers possess skill with respect to being able to deliver superior performance and that fewer unit trust managers appear to be beaten by the market due to a lack of skill after unit trust returns are adjusted for the size and book-to-market factors. Nonetheless, there are still observations falling in the <5 and >5 alpha classes, indicating that some unit trust managers have truly superior skill (or a complete lack thereof).

From Table 2.4 and Table B4 (refer to Section B of the Appendix), ambivalent results are presented. There seems to be an equal number of periods in which there were more statistically significant positive alpha observations than statistically significant negative alpha observations; the 2001 to 2005 period seems to have more occurrences with a greater number of positive alpha observations, while the converse is true for the 2006 to 2010 period. No inferences regarding the extent of outperformance of the 2001 to 2005 year relative

to the underperformance of the 2006 to 2010 can be made. It is worth noting that over the entire 10-year period, and using an evaluation interval of 10-years, it was found that 2 more statistically significant alpha observations were observed than negative alpha observations. These results suggest that on balance, an investor looking back may have been indifferent between investing in the average unit trust and an index-replicating strategy over the sample period used in this study.

Table 2.4 Outperformance results: Statistically significant alphas as determined by the Fama and French 3-factor Model (Gross of fees)

Number of Observations												
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total	
3-month Intervals												
6-month Intervals												
Significant Pos. Alpha	6 (4%)	9 (5%)	12 (7%)	2 (1%)	2 (1%)	3 (1%)	8 (3%)	15 (6%)	6 (2%)	23 (8%)		
Significant Neg. Alpha	12 (8%)	2 (1%)	7 (4%)	13 (7%)	1 (1%)	5 (2%)	2 (1%)	2 (1%)	25 (9%)	14 (5%)		
Net Outperformers	-6	7	5	-11	1	-2	6	13	-19	9	3	
1-year Intervals												
Significant Pos. Alpha	6 (8%)	8 (9%)	4 (4%)	0 (0%)	0 (0%)	2 (2%)	4 (3%)	42 (32%)	0 (0%)	18 (12%)		
Significant Neg. Alpha	8 (11%)	13 (15%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	9 (8%)	9 (7%)	19 (13%)	9 (6%)		
Net Outperformers	-2	-5	4	0	0	2	-5	33	-19	9	17	
2-year Intervals												
Significant Pos. Alpha		16 (21%)	3 (4%)	3 (3%)	1 (1%)	0 (0%)	5 (5%)	1 (1%)	15 (11%)	0 (0%)		
Significant Neg. Alpha		24 (32%)	3 (4%)	0 (0%)	0 (0%)	1 (1%)	3 (3%)	24 (20%)	4 (3%)	12 (8%)		
Net Outperformers		-8	0	3	1	-1	2	-23	11	-12	-27	
4-year Intervals												
Significant Pos. Alpha				18 (24%)	13 (15%)	2 (2%)	1 (1%)	1 (1%)	1 (1%)	0 (0%)		
Significant Neg. Alpha				11 (15%)	4 (5%)	1 (1%)	0 (0%)	14 (14%)	4 (4%)	7 (6%)		
Net Outperformers				7	9	1	1	-13	-3	-7	-5	
5-year Intervals												
Significant Pos. Alpha					18 (24%)	12 (14%)	7 (8%)	1 (1%)	2 (2%)	0 (0%)		
Significant Neg. Alpha					12 (16%)	4 (5%)	0 (0%)	3 (3%)	6 (6%)	6 (6%)		
Net Outperformers					6	8	7	-2	-4	-6	9	
10-year Interval												
Significant Pos. Alpha										11 (15%)		
Significant Neg. Alpha										9 (12%)		
Net Outperformers										2		2

Turning to the performance of individual unit trusts, it is observed from Table D4 that approximately 38% of all unit trusts sampled were able to record more positive alpha observations than negative alpha observations on a statistically significant basis over the 10-year sample period across all the evaluation intervals, falling to 19% and 33% for the 2001 to 2005 and 2006 to 2010 periods respectively. It is also observed that some 40% of unit trusts are able to record more 'winner' observations over the 2001 to 2010 period, while 25% and 34% are able to do the same over the 2001 to 2005 and 2006 to 2010 periods respectively. Given that the proportion of funds recording more 'winner' observations is roughly equal to the proportion of funds recording more 'loser' observations, these results can be reconciled to the mean values observed in Table 1.4.

These observations suggest that in the case of the 10-year period, the extent of outperformance is approximately equal to the extent of underperformance, thereby producing a mean 10-year alpha of +0.044. In the case of the first 5-year period, the extent of outperformance appears to be greater than that of underperformance, while the converse appears to be true for the second 5-year period.

The evidence may not be as strong as the evidence produced from applying the CAPM model but nonetheless it does suggest that a large number of managers appear to possess some skill and are able to 'beat' the market more often than not – that is, save for persistence in performance, there are unit trust managers that are able to consistently outperform. Unlike the results produced by the CAPM model, the results produced by the Fama and French (1993) model (refer to Table C4), suggest that the top performing funds appear to be roughly as good at outperforming the market as the worst performing funds are able to underperform when measured on the basis of the number of periods during which 'winner' observations are recorded versus 'loser' observations.

In summary, inconclusive evidence is produced to support outperformance over the 10-year sample period for the unit trust sample as a whole when evaluating performance using the Fama and French (1993) model and compared to the findings of the CAPM model, fewer unit trust managers appear to possess skill (or lack thereof) with respect to being able to deliver superior performance. Over the 2001 to 2005 period, some evidence of outperformance is found, while inconclusive evidence of performance is found over the 2006 to 2010 period. Last, the top performing funds appear to be as good at outperforming as the worst performing funds are at underperforming. It also appears that after adjusting for the so-called 'small-firm' and 'growth versus value' effects, unit trust managers do not appear to be as skilled at being able to outperform as implied by the CAPM model, implying that unit trust managers exploit persistent observable market trends (for example, that small capitalisation stocks tend to perform better than their large capitalisation counterparts) as opposed to possessing superior inert skill.

6.1.6. Carhart Alphas

Carhart (1997) found that his 4-factor model substantially improved on the average pricing errors of the CAPM and Fama and French (1993) 3-factor model. While the same is not observed in this study (refer to section 6.1.1), the model is still applied to discern whether unit trust managers exploit the 'momentum' effect of stock returns. Due to the addition of a fourth factor, 3-month alphas could not be calculated and the reader is cautioned that 6-month alphas be viewed with care.

From Table 1.5, it is observed that the mean unit trust alpha value for the entire 10-year period on the basis of gross and net returns is +0.046 and +0.041 respectively. For the first 5-year period, the alpha values are +0.169 and +0.164 respectively when performance is evaluated over 5-year evaluation intervals, while for the second 5-year period, values of -0.034 and -0.039 respectively are observed. From these results, the only inference that can be drawn is that unit trusts on average appeared to have outperformed over the first 5-year period, while no evidence to support outperformance or underperformance is found over the second 5-year period and full 10-year period. It is observed that on average, the performance of the unit trusts depends on the length of the evaluation interval used. For example, over the 10-year period the mean alpha value is positive when 1-year evaluation intervals are used and just greater than zero when 2-year and 10-year evaluation intervals are used; however, when 6-month evaluation intervals are used, the mean alpha is strongly negative, while the mean alpha values are just less than zero when 4-year and 5-year evaluation intervals are used. Similarly, positive and negative mean alpha observations are recorded over both 5-year periods depending on the length of the evaluation interval. While convincing evidence of underperformance is found for the sample as a whole when evaluating performance over 6-month evaluation intervals, these results should be viewed with caution. Thus, with the exception of the results obtained from the first 5-year period, which seems to produce some evidence in support of outperformance on average, the results using the Carhart (1997) model are largely inconclusive and do not provide evidence in support of outperformance or underperformance on average.

If the mean sample alphas produced under the Carhart (1997) model are compared to those produced under the Fama and French (1993) model, a marginal increase in mean alpha values – particularly over the full 10-year period and second 5-year sub-period – are observed. Thus it appears that South African domestic equity managers may not exploit the ‘momentum’ effect of stock returns. However, the opposite is observed for the first 5-year sub-period, thereby suggesting that some unit trust managers may have exploited the ‘momentum’ effect found in past stock returns over this period. However, these results imply that, on average, unit trusts were able to outperform during periods dominated by bull markets (i.e. 2001 to 2005). These findings are not similar to those observed by Carhart (1997) who observed a decrease in alpha values (except for the bottom decile of funds) under his model versus Fama and French’s (1993) model. Table A5.1 and Table A5.2 (refer to section A of the appendix) summarise the alpha values for the individual funds on the basis of gross returns and net returns, respectively. From the bottom of Table A5.1 and Table A5.2, much like the results from the Fama and French (1993) model, no clear trends are observed. The proportion of unit trusts able to outperform relative to those unable to outperform appears to vary with the sample period and length of evaluation interval used. Overall, there is a bias – more so than under the Fama and French (1993) model – towards underperformance.

Table 1.5 Mean Carhart 4-factor Alphas

	Mean Alphas (per evaluation interval) as measured by the Carhart 4-factor Model																		
	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Unit Trust Alphas (Gross)	-0.381	0.129	0.030	-0.025	-0.023	0.046		-0.945	0.091	0.062	0.183	0.169		-0.182	0.152	0.045	-0.065	-0.034	
Mean Unit Trust Alphas (Net)	-0.383	0.124	0.025	-0.029	-0.028	0.041		-0.948	0.086	0.057	0.178	0.164		-0.184	0.147	0.040	-0.070	-0.039	

From Table 3.3 and E3 (refer to Section E of the Appendix), it is observed that with little exception, more negative alpha observations are recorded than positive alpha observations, regardless of the sample period and length of evaluation interval used. However, over the full 10-year period and first 5-year period, more positive alpha observations (and equally less negative alpha observations) are recorded when using the Carhart (1997) model compared to the Fama and French (1993) model. This suggests that some unit trust

managers do not exploit the 'momentum' effect in stock returns. In almost every case, the highest number of alpha observations falls in the -0.25 to 0 frequency class; the only exceptions being when 6-month evaluation intervals are used. Even then the >-5 frequency class records the higher number of alpha observations. Even if the alpha observations on the basis of 6-month evaluation intervals are disregarded, these results seem to suggest that on average, unit trusts are likely to underperform more often than they are likely to outperform. The alpha observations for 6-month evaluation intervals explain the significantly negative mean alpha values observed in Table 1.5.

When statistically significant alpha observations are isolated, there does not appear to be any particular frequency class that records the highest number of alpha observations, much like the results from the Fama and French (1993) model. Significantly fewer positive and negative significant alpha observations are recorded when using the Carhart (1997) model compared to the Fama and French (1993) model. Depending on the sample period and the length of the evaluation interval, a greater number of statistically significant positive alpha observations are noted in some cases, while the converse is true in other cases. Overall, the results do suggest that some unit trust managers possess skill with respect to being able to outperform, while others possess poor skill or lack skill altogether and underperform other than due to mere random chance. To further support this claim, attention is drawn to the statistically significant observations that are recorded in the extreme frequency classes. However, depending on the evaluation interval used (and hence the investment horizon of the investor), there is a slight bias towards statistically significant outperformance as opposed to statistically significant underperformance, notwithstanding that these results are somewhat inconclusive.

Table 3.3 Frequency Distribution of Carhart 4-factor Alpha Observations on the basis of Gross Returns (Statistically Significant Observations in Parentheses)

	Frequency of Alpha Observations																			Neg. Alphas Observed		Pos. Alphas Observed	
	Negative (< 0)									Positive (> 0)													
	<-5	-5 to -3	-3 to -2	-2 to -1.5	-1.5 to -1	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1	1 to 1.5	1.5 to 2	2 to 3	3 to 5	> 5	Total	Statistically Significant	Total	Statistically Significant	
2001-2010 (10 years)	208 (57)	125 (42)	121 (32)	113 (22)	192 (41)	151 (28)	273 (39)	623 (53)	1053 (22)	759 (4)	516 (16)	288 (40)	230 (41)	281 (71)	152 (36)	207 (57)	150 (29)	82 (17)	2859	336	2665	311	
6-month intervals	204 (53)	115 (40)	108 (26)	80 (7)	113 (9)	68 (5)	87 (5)	134 (12)	147 (4)	167 (4)	151 (4)	102 (7)	116 (10)	162 (19)	103 (15)	147 (20)	130 (15)	78 (14)	1056	161	1156	108	
1-year intervals	4 (4)	10 (2)	7 (2)	18 (7)	41 (12)	48 (11)	80 (5)	150 (5)	199 (3)	148 (0)	103 (4)	58 (7)	56 (6)	61 (14)	38 (10)	45 (25)	18 (12)	4 (3)	557	51	531	81	
2-year intervals	0 (0)	0 (0)	6 (4)	13 (6)	15 (7)	17 (7)	53 (3)	140 (12)	259 (5)	164 (0)	115 (2)	65 (5)	37 (8)	37 (18)	6 (6)	9 (7)	2 (2)	0 (0)	503	44	435	48	
4-year intervals	0 (0)	0 (0)	0 (0)	2 (2)	14 (6)	11 (3)	30 (13)	102 (11)	227 (2)	146 (0)	76 (0)	29 (6)	10 (8)	10 (10)	4 (4)	4 (3)	0 (0)	0 (0)	386	37	279	31	
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	9 (7)	6 (1)	23 (13)	83 (7)	200 (5)	114 (0)	60 (3)	27 (11)	10 (8)	11 (10)	1 (1)	2 (2)	0 (0)	0 (0)	321	33	225	35	
10-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	14 (6)	21 (3)	20 (0)	11 (3)	7 (4)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	36	10	39	8	
2001-2005 (5 years)	85 (20)	69 (24)	70 (25)	66 (15)	107 (28)	75 (13)	83 (8)	178 (17)	280 (8)	206 (2)	168 (4)	119 (12)	105 (16)	110 (32)	51 (13)	59 (23)	44 (9)	33 (3)	1013	158	895	114	
6-month intervals	85 (20)	63 (23)	64 (21)	46 (5)	62 (6)	38 (3)	23 (0)	46 (7)	62 (1)	79 (2)	72 (2)	35 (3)	41 (3)	46 (4)	27 (3)	34 (4)	38 (3)	31 (2)	489	86	403	26	
1-year intervals	0 (0)	6 (1)	3 (1)	9 (5)	27 (8)	21 (3)	33 (1)	59 (1)	68 (1)	51 (0)	36 (0)	30 (0)	33 (1)	31 (3)	16 (2)	10 (7)	4 (4)	2 (1)	226	21	213	18	
2-year intervals	0 (0)	0 (0)	3 (3)	11 (5)	6 (5)	9 (6)	16 (1)	50 (4)	88 (1)	49 (0)	34 (1)	30 (1)	17 (1)	15 (7)	3 (3)	9 (7)	2 (2)	0 (0)	183	25	159	22	
4-year intervals	0 (0)	0 (0)	0 (0)	0 (0)	8 (5)	5 (1)	6 (3)	17 (4)	40 (1)	20 (0)	18 (0)	18 (5)	10 (8)	10 (10)	4 (4)	4 (3)	0 (0)	0 (0)	76	14	84	30	
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	4 (4)	2 (0)	5 (3)	6 (1)	22 (4)	7 (0)	8 (1)	6 (3)	4 (3)	8 (8)	1 (1)	2 (2)	0 (0)	0 (0)	39	12	36	18	
2006-2010 (5 years)	123 (37)	56 (18)	51 (7)	47 (7)	74 (10)	65 (11)	151 (20)	282 (20)	490 (11)	383 (2)	262 (7)	127 (15)	118 (19)	168 (37)	101 (23)	148 (34)	106 (20)	49 (14)	1339	141	1462	171	
6-month intervals	119 (33)	52 (17)	44 (5)	34 (2)	51 (3)	30 (2)	64 (5)	88 (5)	85 (3)	88 (2)	79 (2)	67 (4)	75 (7)	116 (15)	76 (12)	113 (16)	92 (12)	47 (12)	567	75	753	82	
1-year intervals	4 (4)	4 (1)	4 (1)	9 (2)	14 (4)	27 (8)	47 (4)	91 (4)	131 (2)	97 (0)	67 (4)	28 (7)	23 (5)	30 (11)	22 (8)	35 (18)	14 (8)	2 (2)	331	30	318	63	
2-year intervals	0 (0)	0 (0)	3 (1)	2 (1)	8 (2)	7 (0)	26 (1)	60 (7)	140 (4)	101 (0)	76 (1)	31 (4)	20 (7)	22 (11)	3 (3)	0 (0)	0 (0)	0 (0)	246	16	253	26	
4-year intervals	0 (0)	0 (0)	0 (0)	2 (2)	0 (0)	1 (1)	11 (7)	31 (1)	90 (1)	65 (0)	25 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	135	12	91	0	
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	3 (3)	12 (3)	44 (1)	32 (0)	15 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	60	8	47	0	

Turning to Table 2.5 and B5 (the latter of which can be found in the appendix), much like the results presented under the Fama and French (1993) model, the results presented do not allow any convincing inferences to be drawn. It is observed that more positive significant alphas are observed in the first 5-year period relative to the second 5-year period; 2002 and 2007 are anomalies though. When 6-month evaluation intervals are used to measure performance, there appears to be a tendency to underperform, particularly during the 2001 to 2005 period. No inferences regarding the extent of the general outperformance trend observed during the 2001 to 2005 period relative to the general underperformance trend observed during the 2006 to 2010 can be drawn. It is worth noting that over the entire 10-year period and using 10-year evaluation intervals, 2 more observations of statistically significant and negative observations are recorded relative to the number of statistically significant and positive observations. Also only 24% of all observations over this period are statistically significant. This suggests that on balance an investor looking to invest for a 10-year period at the beginning of 2001 would not have been swayed to invest in unit trusts compared to an index-replicating strategy.

From Table D5 (refer to Section D of the Appendix), it is observed that over the entire 10-year period, 39% of funds recorded a greater number of statistically significant negative alpha observations, compared to 41% that recorded a greater number of statistically significant positive alpha observations. While this may be construed as evidence that a large proportion of funds do outperform more often than not, 11% of funds were not able to record any statistically significant alpha observations over this period regardless of the

evaluation interval used. Given that the mean values in Table 1.1 are approximately zero, the results presented in Table D5 imply that the extent of outperformance is approximately equal to the extent of underperformance over the 10-year period. The results are somewhat different over the two 5-year sub-periods. For example, over the first 5-year period, 16% of all funds recorded more statistically significant positive alpha observations versus 36% that recorded more negative alpha observations, while an overwhelming 45% recorded no significant alpha observations at all. Yet the mean alpha values presented in Table 1.1 were positive except in the case of 6-month evaluation intervals, thereby suggesting that the extent of the outperformance observations over this period was greater than the underperformance observations. Over the second 5-year period, the opposite is observed; 42% of all funds recorded more significant positive observations, 28% recorded more significant negative observations, while 17% recorded no significant observations at all. These results do suggest that in terms of the number of funds, few would have consistently outperformed over the 2001 to 2005 period – a period characterised by bull markets – even though that outperformance would have been fairly significant, while the converse is true for the second 5-year period – a period characterised by bear markets.

Table 2.5

Outperformance results: Statistically significant alphas as determined by the Carhart 4-factor Model (Gross of fees)

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
6-month Intervals											
Significant Pos. Alpha	2 (1%)	4 (2%)	8 (4%)	3 (2%)	9 (5%)	14 (6%)	22 (9%)	16 (6%)	5 (2%)	25 (8%)	
Significant Neg. Alpha	7 (5%)	37 (21%)	8 (4%)	9 (5%)	25 (13%)	45 (20%)	11 (5%)	4 (2%)	7 (2%)	8 (3%)	
Net Outperformers	-5	-33	0	-6	-16	-31	11	12	-2	17	-53
1-year Intervals											
Significant Pos. Alpha	8 (11%)	7 (8%)	2 (2%)	1 (1%)	0 (0%)	2 (2%)	3 (3%)	36 (27%)	1 (1%)	21 (14%)	
Significant Neg. Alpha	8 (11%)	12 (14%)	0 (0%)	1 (1%)	0 (0%)	1 (1%)	2 (2%)	7 (5%)	11 (8%)	9 (6%)	
Net Outperformers	0	-5	2	0	0	1	1	29	-10	12	30
2-year Intervals											
Significant Pos. Alpha		16 (21%)	2 (2%)	3 (3%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)	22 (17%)	3 (2%)	
Significant Neg. Alpha		23 (31%)	2 (2%)	0 (0%)	0 (0%)	3 (3%)	1 (1%)	1 (1%)	4 (3%)	10 (7%)	
Net Outperformers		-7	0	3	1	-3	0	-1	18	-7	4
4-year Intervals											
Significant Pos. Alpha				18 (24%)	12 (14%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Significant Neg. Alpha				11 (15%)	3 (4%)	1 (1%)	0 (0%)	10 (10%)	5 (5%)	7 (6%)	
Net Outperformers				7	9	0	0	-10	-5	-7	-6
5-year Intervals											
Significant Pos. Alpha					18 (24%)	12 (14%)	4 (4%)	0 (0%)	1 (1%)	0 (0%)	
Significant Neg. Alpha					12 (16%)	4 (5%)	0 (0%)	4 (4%)	5 (5%)	8 (7%)	
Net Outperformers					6	8	4	-4	-4	-8	2
10-year Interval											
Significant Pos. Alpha										8 (11%)	
Significant Neg. Alpha										10 (13%)	
Net Outperformers										-2	-2

From Table C5 (refer to Section C of the Appendix), it is observed that the extent of the underperformance on the part of the worst performers is somewhat greater than the extent of the outperformance on the part of the top performing funds when performance is evaluated from the perspective of the most number of periods over which a particular unit trust is able to repeatedly outperform or underperform. However, the number of top and worst performing funds appears to vary with the sample period and the evaluation interval used. For example, over the first 5-year period, with the exception of 1-year evaluation intervals, more top performers are observed, while no trend is observed for the 10-year and second 5-year periods taken as a whole. Overall Table C5 simply demonstrates that individual unit trusts able to outperform or underperform consistently on a statistically significant basis do exist – that is, some unit trust managers do possess skill, while others possess ‘poor’ skill or lack skill altogether. Table C5 also shows that the top and worst performing funds are not able to outperform and underperform respectively more often than not, particularly when shorter evaluation intervals are used. For example only 7 funds were able to outperform during 3 out of 20 six-month

evaluation intervals over the full 10-year period, while 1 fund was able to underperform during 6 out of a possible 20 six-month evaluation intervals. Beyond that, however, Table C5 suggests little else.

In summary, the results produced by the Carhart (1997) model are rather inconclusive. Unlike the findings of Carhart (1997), the 'Momentum' effect of stock returns does not appear to explain more of the cross-sectional variation in unit trust returns, at least in this study. Unit trust performance seems to largely depend on the length of the evaluation interval used and the sample period over which unit trust performance is measured. It is observed, however, that of those unit trusts that are able to perform well, the extent of their outperformance is greater during periods characterised by bull markets. Last, evidence of some skill is found on the part of some unit trust managers but even then, such managers are not able to outperform more often than not.

6.1.7. Conditional Alphas

The conditional performance evaluation model proposed by Ferson and Warther (1996) was developed to take into account the dynamic behaviour of stock returns. As with the results produced by the Fama and French (1993) and Carhart (1997) models, the mean alpha values calculated on the basis of 3-month returns are excluded here.

In contrast to the results produced by the alpha models, the results presented in Table 1.6 convincingly suggest that unit trusts on average do outperform regardless of the sample period and evaluation interval – positive mean alpha values are observed in all instances, albeit the evidence is weak for the second 5-year sub-period from 2006 to 2010. For example, over the entire 10-year sample period, unit trusts on average produced a mean alpha of 0.402 when measured on the basis of gross returns using 10-year evaluation intervals (0.397 on the basis of net returns). Over the first 5-year period, the mean alpha is 0.685 (0.680), while over the last 5-year period, the mean alpha was 0.091 (0.086). Again, the mean alpha values produced by the net returns appear to be greater than expected. The results seem to indicate, similar to the results

produced under the other alpha models, that unit trusts are able to perform relatively better during periods characterized by bull markets – that is, mean the alpha values are greatest during the 2001 to 2005 period regardless of the length of the evaluation interval used. Tables A6.1 and A6.2 (refer to Section A of the Appendix) show the alpha values observed for each fund sampled on the basis of gross returns and net returns, respectively. Unlike the results obtained under the other alpha models, from the bottom of Table 6.1 and Table 6.2, regardless of the evaluation interval used or sample period, a significantly great proportion of funds appear to outperform relative to those unable to do so. These results can be construed as strong evidence that unit trust managers are able to outperform more often than not.

Table 1.6 Mean Conditional Alphas

	Mean Alphas (per evaluation interval) as measured by the Conditional Model																		
	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Unit Trust Alphas (Gross)		0.355	0.261	0.276	0.315	0.334	0.402		0.614	0.613	0.826	0.784	0.685		0.240	0.111	0.056	0.070	0.091
Mean Unit Trust Alphas (Net)		0.352	0.257	0.272	0.311	0.329	0.397		0.611	0.609	0.822	0.779	0.680		0.237	0.107	0.051	0.065	0.086

The mean alphas presented in Table 1.6 are compared to the results of other researchers that make use of conditional performance evaluation models. In their studies, both Ferson and Warther (1996) and Ferson and Schadt (1996) apply traditional measures of performance (including the CAPM and a 4-factor regression model) and conditional measures to the same data set. They found that the traditional measures of average performance tend to be negative more often than positive, which is traditionally interpreted as inferior performance. As is observed here, both studies observed an improvement in mean alpha values when conditional measures are used to evaluate performance. Akinjolare and Smit (2003) also note a similar improvement in alpha value observations when studying unit trust performance in South Africa. Ferson and Warther (1996:20-21) attribute the “more-pessimistic results of the traditional performance measures to the fact that they ignore common dependencies between mutual fund betas and expected market returns”, which are captured by a market dividend yield and a short-term interest rate. This negative correlation, according to them, seems to reflect higher cash holdings when expected market returns are high, as investors

pour money into mutual funds. Thus, when the dynamic nature of stock returns and economic cycles are accounted for, it appears that unit trust managers on average are able to outperform.

Table 3.4 Frequency Distribution of Conditional Alpha Observations on the basis of Gross Returns (Statistically Significant Observations in Parentheses)

	Frequency of Alpha Observations																		Neg. Alphas Observed		Pos. Alphas Observed	
	Negative (< 0)									Positive (> 0)									Total	Statistically Significant	Total	Statistically Significant
	<-5	-5 to -3	-3 to -2	-2 to -1.5	-1.5 to -1	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1	1 to 1.5	1.5 to 2	2 to 3	3 to 5	>5				
2001-2010 (10 years)	20 (14)	50 (21)	74 (19)	81 (19)	141 (24)	141 (12)	198 (11)	416 (54)	784 (29)	864 (0)	688 (47)	518 (135)	377 (115)	469 (225)	294 (160)	265 (123)	116 (43)	28 (4)	1905	203	3619	852
6-month intervals	19 (13)	38 (10)	59 (11)	60 (9)	86 (8)	86 (5)	119 (5)	168 (15)	231 (3)	233 (0)	198 (5)	154 (8)	156 (19)	175 (27)	138 (27)	165 (34)	101 (30)	26 (2)	866	79	1346	152
1-year intervals	1 (1)	7 (6)	10 (4)	15 (5)	36 (8)	29 (1)	42 (4)	99 (12)	147 (0)	174 (0)	132 (5)	101 (6)	82 (7)	95 (24)	51 (28)	56 (45)	9 (8)	2 (2)	386	41	702	125
2-year intervals	0 (0)	5 (5)	1 (0)	4 (3)	15 (7)	22 (4)	28 (1)	101 (16)	150 (3)	183 (0)	110 (0)	88 (14)	54 (20)	88 (63)	44 (44)	39 (39)	6 (5)	0 (0)	326	39	612	185
4-year intervals	0 (0)	0 (0)	4 (4)	0 (0)	1 (1)	3 (2)	8 (1)	29 (7)	146 (8)	134 (0)	110 (7)	86 (52)	42 (32)	61 (61)	38 (38)	3 (3)	0 (0)	0 (0)	191	23	474	193
5-year interval	0 (0)	0 (0)	0 (0)	2 (2)	3 (0)	1 (0)	1 (0)	19 (4)	99 (11)	122 (0)	118 (20)	80 (46)	30 (24)	46 (46)	23 (23)	2 (2)	0 (0)	0 (0)	125	17	421	161
10-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	11 (4)	18 (0)	20 (10)	9 (9)	13 (13)	4 (4)	0 (0)	0 (0)	0 (0)	0 (0)	11	4	64	36
2001-2005 (5 years)	4 (1)	12 (6)	19 (7)	25 (9)	50 (15)	55 (7)	77 (4)	152 (31)	214 (10)	179 (0)	168 (9)	175 (44)	123 (37)	218 (121)	161 (105)	181 (101)	73 (25)	22 (3)	608	90	1300	445
6-month intervals	4 (1)	6 (0)	16 (4)	18 (3)	26 (4)	36 (4)	56 (0)	77 (5)	113 (1)	98 (0)	76 (2)	52 (1)	44 (3)	56 (7)	52 (8)	84 (13)	58 (12)	20 (1)	352	22	540	47
1-year intervals	0 (0)	2 (2)	3 (3)	5 (4)	15 (5)	12 (1)	13 (3)	39 (8)	55 (0)	46 (0)	37 (1)	32 (2)	29 (3)	50 (16)	36 (24)	54 (45)	9 (8)	2 (2)	144	26	295	101
2-year intervals	0 (0)	4 (4)	0 (0)	2 (2)	9 (6)	7 (2)	8 (1)	27 (10)	24 (3)	19 (0)	19 (0)	41 (9)	26 (14)	70 (56)	41 (41)	39 (39)	6 (5)	0 (0)	81	28	261	164
4-year intervals	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (6)	15 (4)	10 (0)	19 (2)	35 (23)	19 (12)	29 (29)	24 (24)	3 (3)	0 (0)	0 (0)	21	10	139	93
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (2)	7 (2)	6 (0)	17 (4)	15 (9)	5 (5)	13 (13)	8 (8)	1 (1)	0 (0)	0 (0)	10	4	65	40
2006-2010 (5 years)	16 (13)	38 (15)	51 (8)	54 (8)	88 (9)	82 (3)	115 (7)	238 (21)	429 (6)	511 (0)	357 (10)	218 (16)	186 (27)	182 (35)	104 (26)	83 (21)	43 (18)	6 (1)	1111	90	1690	154
6-month intervals	15 (12)	32 (10)	43 (7)	42 (6)	60 (4)	50 (1)	63 (5)	91 (10)	118 (2)	135 (0)	122 (3)	102 (7)	112 (16)	119 (20)	86 (19)	81 (21)	43 (18)	6 (1)	514	57	806	105
1-year intervals	1 (1)	5 (4)	7 (1)	10 (1)	21 (3)	17 (0)	29 (1)	60 (4)	92 (0)	128 (0)	95 (4)	69 (4)	53 (4)	45 (8)	15 (4)	2 (0)	0 (0)	0 (0)	242	15	407	24
2-year intervals	0 (0)	1 (1)	1 (0)	2 (1)	5 (1)	14 (2)	20 (0)	69 (6)	112 (0)	133 (0)	65 (0)	36 (4)	20 (6)	18 (7)	3 (3)	0 (0)	0 (0)	0 (0)	224	11	275	20
4-year intervals	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	1 (0)	3 (1)	12 (0)	75 (2)	79 (0)	47 (1)	8 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	92	4	134	2
5-year interval	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	6 (1)	32 (2)	36 (0)	28 (2)	3 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	39	3	68	3

From Table 3.4 and E4 (the latter of which can be found in the appendix), it is observed that the majority of the alpha observations fall in the 0 to 0.25 frequency classes in the case of the full 10-year period and second 5-year period. In the first 5-year sub-period, no one particular frequency class dominates. Unlike the results obtained from any of the other alpha models, a significantly greater number of positive alpha observations are recorded, with almost two-thirds of all alpha observations being positive. These findings largely support the positive mean alpha values observed in Table 1.6. From a statistically significant perspective, an even greater ratio of statistically significant and positive alphas relative to statistically significant and negative alphas are observed, particularly for the full 10-year period and first 5-year sub-period. While no particular frequency class dominates when statistically significant alpha observations are evaluated, in almost every case the frequency class recording the highest number of observations is greater than +1.0. These results suggest that unit trust managers on average are more likely to outperform due to possessing some skill as opposed to underperforming due to a possible lack of skill. However, a number of observations falling in the <-5 frequency class are observed, indicating that some managers are quite ‘poor’ at equity portfolio management. Fewer observations are noted in the >5 frequency class, suggesting that some ‘star’ performances do occur.

Table 2.6

Outperformance results: Statistically significant alphas as determined by the Conditional Model (Gross of fees)

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
6-month Intervals											
Significant Pos. Alpha	5 (3%)	7 (4%)	25 (14%)	7 (4%)	3 (2%)	31 (14%)	15 (6%)	12 (5%)	16 (6%)	31 (10%)	73
Significant Neg. Alpha	6 (4%)	1 (1%)	4 (2%)	10 (5%)	1 (1%)	4 (2%)	13 (5%)	27 (10%)	1 (0%)	12 (4%)	
Net Outperformers	-1	6	21	-3	2	27	2	-15	15	19	
1-year Intervals											
Significant Pos. Alpha	10 (13%)	14 (16%)	46 (52%)	31 (33%)	0 (0%)	2 (2%)	2 (2%)	0 (0%)	2 (1%)	18 (12%)	84
Significant Neg. Alpha	11 (15%)	0 (0%)	4 (4%)	11 (12%)	0 (0%)	0 (0%)	1 (1%)	8 (6%)	1 (1%)	5 (3%)	
Net Outperformers	-1	14	42	20	0	2	1	-8	1	13	
2-year Intervals											
Significant Pos. Alpha		19 (25%)	29 (34%)	69 (78%)	47 (51%)	1 (1%)	5 (5%)	0 (0%)	0 (0%)	15 (11%)	146
Significant Neg. Alpha		8 (11%)	4 (5%)	11 (12%)	5 (5%)	0 (0%)	0 (0%)	1 (1%)	4 (3%)	6 (4%)	
Net Outperformers		11	25	58	42	1	5	-1	-4	9	
4-year Intervals											
Significant Pos. Alpha				38 (51%)	55 (65%)	64 (72%)	33 (35%)	1 (1%)	1 (1%)	1 (1%)	170
Significant Neg. Alpha				5 (7%)	5 (6%)	7 (8%)	2 (2%)	0 (0%)	0 (0%)	4 (3%)	
Net Outperformers				33	50	57	31	1	1	-3	
5-year Intervals											
Significant Pos. Alpha					40 (53%)	55 (65%)	53 (60%)	7 (8%)	3 (3%)	3 (3%)	144
Significant Neg. Alpha					4 (5%)	5 (6%)	5 (6%)	0 (0%)	0 (0%)	3 (3%)	
Net Outperformers					36	50	48	7	3	0	
10-year Interval											
Significant Pos. Alpha										36 (48%)	32
Significant Neg. Alpha										4 (5%)	
Net Outperformers										32	

From Table 2.6 and Table E6 (refer to Section E of the Appendix), it is observed that with few exceptions, more statistically significant positive alpha observations compared to statistically significant negative ones are recorded in each year regardless of the evaluation interval used. Over the entire 10-year period from 2001 to 2010, an overwhelming 36 positive alpha observations are made (that is, 48% of all funds) when 10-year returns are evaluated, while 4 negative observations (that is, 5% of all funds) are made on the basis of statistically significant alphas. This is convincing evidence that, on average, more unit trusts are able to deliver superior performance than those able to deliver inferior performance on a statistically significant basis once publicly available information such as market dividend yields and the term structure of interest rates have been adjusted for. However, the extent of this gap as well as the proportion of statistically significant alpha observations that are recorded does vary depending on the sample period and evaluation interval used. For example, 78% of all observations are statistically significant and positive when 2-year evaluation intervals ending in 2004 are used versus 12% of observations that are statistically significant and negative, while in

2005 using 1-year evaluation intervals, no statistically significant alpha observations (whether positive or negative) are made.

When analysing the performance of individual unit trusts, it is observed from Table D6 that a mere 94 or 62% of all unit trusts sampled were able to record more positive alpha observations than negative ones over the full 10-year period compared to 25 or 17% of unit trust that recorded more 'loser' observations than 'winner' observations. 50% of all funds sampled versus 11% were able to record more 'winner' observations in the first 5-year period, while 42% versus 17% were able to do so in the second 5-year period. These findings support the positive mean alpha values observed in Table 1.6. Two inferences can be drawn from these results. First, performance evaluation is sensitive to the sample period selected and the length of the sample period. Second, on the basis of this study, it appears that managers were more successful during bull market periods versus bear market periods. However, these results strongly suggest that unit trust managers are likely to outperform on a statistically significant basis more often than not. It is worth noting that a significant proportion of funds are unable to record any statistically significant alpha values (whether positive or negative) during both 5-year sub-periods – 39% of funds in the first 5-year period and 32% of funds in the second 5-year period.

From Table C6, it is observed that except when using 6-month evaluation intervals both the top and worst performing funds – measured on the basis of the number of periods during which individual funds are able to deliver 'winner' or 'loser' performance – are able to repeatedly deliver superior performance in the case of the top performing funds and inferior performance in the case of the worst performing funds. This trend is slightly weaker over the second 5-year period. There is slight bias towards the top performing funds, in that the top performing funds tend to deliver outperformance in at least the same number of periods as the worst performing funds are able to deliver underperformance, if not more. However, a significantly greater number of top performing funds are observed relative to the worst performing ones. For example, using 4-year intervals over the entire 10-year period from 2001 to 2010, 21 funds are found to deliver statistically significant and positive alpha observations during 4 out of 7 periods, while only 2 funds are found to deliver statistically significant and negative alpha observations during 4 out of 7 periods. These findings support the

results presented thus far and suggest that there are more top performing funds and these are able to consistently deliver outperformance, more so than the worst performing funds are able to deliver underperformance.

In summary, as with previous researchers, the performance evaluation results paint a brighter picture when performance is evaluated using a conditional model which explicitly adjusts for the dynamic behaviour of share returns and economic cycles, as opposed to traditional performance measures which assume that these are constant over time. It appears that unit trusts, on average, are able to outperform, albeit the extent of that outperformance is sensitive to the sample period and underlying state of the market – for example, in this study it is found that unit trust managers appear to outperform more so during periods characterised by bull markets and over longer sample periods (such as 10-years).

6.1.8. The ‘Best’ and ‘Worst’ Performing Funds

Table F1 through to Table F6 (refer to Section F of the Appendix) rank funds according to an overall score calculated from the average of a fund’s Sharpe Ratio, CAPM alpha, Fama and French (1993) 3-factor alpha, Carhart (1997) 4-factor alpha and conditional alpha ranks. The overall score does not consider the rank of a unit trust on the basis of its nominal return as nominal returns do not explicitly adjust for risk. Ranks are shown for the last quarter (i.e. 31 October 2010 to 31 December 2010; half-year (01 July 2010 to 31 December 2010); one-year (01 January 2010 to 31 December 2010); 2-years (01 January 2009 to 31 December 2010); and 5-years (01 January 2006 to 31 December 2010) as well as for the entire 10-year period from 01 January 2001 to 31 December 2010. Only funds that were existence for the full duration of a particular period are ranked. Thus, only 75 funds appear in the 10-year ranking, while 151 funds appear in the last quarter’s ranking. The first 5 funds in each rank table are classed as the ‘best’ performing funds for that period, while the last 5 classified as the ‘worst’ performing funds. For each unit trust, the nominal return, Sharpe Ratio and alpha values are also shown.

It is observed that regardless of the evaluation period, the 'best' funds outperform or 'beat' the market on the basis of all the performance measures used in this study – that is, these funds have nominal returns and Sharpe Ratios that are greater than the JSE ALSI TR and they have positive alpha values. The 'worst' performing funds underperform or are 'beaten' by the market on the basis of all the performance measures as well. The 'best' and performing funds are able to record statistically significant alpha values in at least 3 of the 4 alpha measures, indicating that the 'best' unit trust managers do indeed possess some skill with respect to being able to outperform, while the 'worst' performing seem to possess 'poor' skill or lack skill altogether. It is interesting to note that 'best' and 'worst' performing vary according to the evaluation period used. While this, in part, can be explained by the fact that not all funds existed for the full duration of the 10-year sample, it does indicate that the top performing funds are easily dethroned from period to period, while the worst performing funds are able to redeem their poor performance in subsequent periods. Also it appears that the rankings are sensitive to the length of the evaluation period. Regardless, evidence is found that some managers are able to outperform the market on a nominal basis as well as a statistically significant basis after the consideration of fees and after adjusting for risk, implying that some managers may possess some skill in doing so.

6.1.9. Summary Discussion

Table S1 summarises the findings of the outperformance tests detailed in the preceding sections. The proportion of funds that recorded a greater number of 'winner' observations as well the proportion of funds that recorded a greater number of 'loser' funds on a statistically significant basis is also shown for each period.

Immediately it is observed that over the 5-years from 2001 to 2005 – a period characterised by bull markets – there is strong evidence to support that unit trusts on average outperform regardless of the length of the evaluation period used. Most of the evidence supports the premise that a greater proportion of unit trusts

over this period were able to outperform on an absolute basis – that is, produce a nominal return or Sharpe Ratio greater than that of the market, or produce a positive alpha value. Only the results produced by the Carhart (1997) model when using 6-month evaluation intervals suggest otherwise but this is an isolated observation. For the most part, the proportion of funds able to record more ‘winner’ or outperformance observations was nearly 50%. When viewed on this basis – that is, in terms of the number of periods during which a unit trust is able to outperform versus underperform – the evidence seems less convincing as investors would have only been better off by investing in unit trusts approximately half of the time. However, strong evidence of outperformance is produced for unit trusts on average over the 2001 to 2005 period.

Table S1 – Summary of Outperformance Tests

Performance Measure	2001 - 2010 Period			2001 to 2005 Period			2006 to 2010 Period		
	Industry as a whole (based on mean alpha values and results in Table A)	More 'Winner' Observations	More 'Loser' Observations	Industry as a whole (based on mean alpha values and results in Table A)	More 'Winner' Observations	More 'Loser' Observations	Industry as a whole (based on mean alpha values and results in Table A)	More 'Winner' Observations	More 'Loser' Observations
Nominal Returns	Underperformance (weak); More 'losing' funds	38%	58%	Outperformance (strong); More 'winning' funds	48%	19%	Underperformance (strong); More 'losing' funds	23%	70%
Sharpe Ratios	Outperformance (weak); More 'winning' funds	50%	48%	Outperformance (strong); More 'winning' funds	50%	17%	Underperformance (strong); More 'losing' funds	35%	61%
CAPM Alphas	Outperformance (strong); More 'winning' funds	53%	31%	Outperformance (strong); More 'winning' funds	45%	15%	Underperformance (weak); More 'losing' funds	35%	44%
Fama and French Alphas	No conclusions; More 'losing' funds by and large	38%	40%	Outperformance (weak); Roughly same proportion of 'winning' and 'losing' funds	19%	25%	No Conclusion; Proportion of 'winning' versus 'losing' funds varies	33%	34%
Carhart Alphas	No conclusions; More 'losing' funds by and large	41%	39%	Outperformance (weak); Roughly same proportion of 'winning' and 'losing' funds	16%	36%	No conclusions; Proportion of 'winning' versus 'losing' funds varies	42%	28%
Conditional Alphas	Outperformance (strong); More 'winning' funds	62%	17%	Outperformance (strong); More 'winning' funds	50%	11%	Outperformance (weak); More 'winning' funds	42%	17%

The summary findings covering the 2006 to 2010 period – a period largely characterised by bear markets – paint a very different picture. Overall, while the results were largely inconclusive for the performance of unit trusts on average, the evidence appears to be somewhat biased towards underperformance. With little exception, it also appears that a greater proportion of funds underperformed the market on an absolute basis. In terms of the number of ‘winner’ and ‘loser’ observations recorded, in most cases a significantly

greater proportion of funds produced more 'loser' observations than those able to produce more 'winner' observations over this period. More often than not, investors would have experienced inferior performance had they been invested in a unit trust on this basis. Thus over the 2006 to 2010 period, little evidence to support outperformance or underperformance is found, and at best there appears to be a slight bias towards underperformance.

Over the entire 10-year period from 2001 to 2010, some evidence is found to support that unit trusts on average are able to outperform, albeit the evidence is much weaker than that which was found over the 5-year period from 2001 to 2005. Three of the performance measures (namely: Sharpe Ratios, CAPM alphas and conditional alphas) seem to suggest that there was a greater proportion of funds able to 'beat' the market, while the other performance measures seem to suggest otherwise. When measured in terms of the number of periods of outperformance versus underperformance, between approximately 40% and 50% of funds record more 'winner' observations while approximately the same proportions of funds record more 'loser' observations, implying that investors would have been better off roughly half of the time. Thus, evidence to support that unit trusts on average do outperform is produced over the entire 10-year period.

In terms of the above evidence, the null hypothesis that South African domestic equity unit trust managers on average are not able to produce superior returns relative to the market cannot be rejected. Even though strong evidence of outperformance was found over the 2001 to 2005 period and some evidence of outperformance was found over the 2001 to 2010, it appears that the observation of outperformance appears to be sensitive to the time period evaluated and possibly the underlying market cycle. This appears to be the case even when unit trust performance is evaluated on the basis of nominal returns – strong evidence of outperformance is found over the 2001 to 2005 period; some evidence of outperformance is found over the 2001 to 2010 period; while inconclusive evidence is found over the 2006 to 2010. Thus, the null hypothesis that South African domestic equity unit trust managers on average are not able to produce superior total returns on the basis of nominal returns as well as on a risk-adjusted basis cannot be rejected. Moreover, like with previous researchers, it appears that unit trust performance is sensitive to the length of the evaluation period used to measure unit trust performance and the performance measure used.

While no distinction is made between stock-picking skills and market-timing skills in this study, convincing evidence is found that some unit trust managers do possess superior skills, while others appear to possess 'poor' skill or lack skill altogether. Thus, the null hypothesis that some South African domestic equity unit trust managers do not possess some 'skill' with respect to being able to deliver superior total return performance and are merely lucky can be rejected. Similarly the null hypothesis that some South African domestic equity unit trust managers are not able to deliver inferior total returns that are statistically significantly can also be rejected.

Overall, the evidence does not change when unit trust performance is evaluated net of fees. This is attributed to the manner in which net returns have been estimated, and the evaluation of unit trust performance on a net of fees basis is an area for future research since most researchers observe meaningful changes in the inferences drawn on the basis of net returns versus gross returns. However, the null hypothesis that South African domestic equity unit trust managers are not on average able to produce superior total return performance gross of fees and expenses as well as net of fees and expenses cannot be rejected. However, given that unit trust managers on average are unable to produce superior total returns gross of fees and expenses, it is unlikely that they may be able to do so after the consideration of fees and expenses.

It is interesting to note that the mean alpha values decrease over all periods when performance is evaluated using the Fama and French (1993) model, implying that South African Domestic Equity Unit Trust managers do exploit the 'small-firm' and 'book-to-market' effects when constructing and managing their equity portfolios. On the other hand, when the Carhart (1997) model is used to evaluate unit trust performance, the mean alpha values do not appear to change much as compared to the mean Fama and French (1993) alphas, suggesting that South African Domestic Equity Unit trust managers do not exploit the 'momentum' stock effect. However, when unit trust performance is evaluated using a conditional model that explicitly adjusts for the dynamic behaviour of stock returns and changing market conditions, unit trust managers on average appear to outperform most of the time.

A comment on the ETFs included in the sample is necessary. Many researchers advocate that investors should not invest in actively managed unit trusts or mutual funds. Instead, they advocate that investors should invest in passive index-replicating strategies such as ETFs. While South Africa only has a handful of listed ETFs, most of which have been in existence for less than 10 years (refer to Section F of the Appendix), it is observed that ETFs tend to rank poorly on average relative to their actively managed peers. These results may suggest why the emergence of passive index-tracking funds as a prominent investment class in South Africa remains muted relative to global trends. However, Stewart (2011) comments that this trend may be explained by a combination of bad marketing and the large variety of index configurations and variants. He also adds that perhaps this inaction illustrates the old adage that “investment products are sold and not bought” (Stewart, 2011:4). Moreover, none of the exchange traded funds sampled in this study (or that are currently in existence for that matter) track the JSE ALSI and thus, evaluating these exchange traded funds relative to the market as a whole may be unfair and inappropriate. Further research relating to the performance of ETFs is therefore needed.

6.2.Persistence in Performance Tests

6.2.1. Contingency Tables

Using the results from the construction of the contingency tables described in Section 5.2.2.2, evidence for the persistence in the performance of unit trusts in general (as opposed to individual unit trusts) is considered. Contingency tables are constructed on the basis of relative rankings. For example, to construct 4 x 4 contingency tables, unit trusts are ranked into quartiles over adjacent periods according to their relative performance. For example, a unit trust recording the highest CAPM alpha (whether negative or positive) relative to its peers for a particular period will be ranked in the first quartile for performance for that period. Therefore, even if a fund is repeatedly able to rank in the upper most quartile over adjacent periods, the

results from analysing contingency tables will not indicate whether that fund is able to 'beat' the market or even produce a positive alpha for that matter. From an investor's perspective, even if a unit trust is unable to outperform, it can be argued that such an investor may prefer to remain invested in the top performing unit trust relative to its peers. Spearman's Rank Correlations and Chi-square statistics are calculated and presented in the sub-sections that follow so that inferences regarding persistence in performance may be drawn from the results of constructing contingency tables.

6.2.1.1. *Spearman's Rank Correlations*

Table 4.1 shows the frequency distribution of the Spearman's Rank Correlation Coefficients ("Spearman Coefficient") calculated on the basis of CAPM Alphas across adjacent formation and holding periods of varying but equal lengths. Only CAPM alphas on the basis of gross returns are used to calculate the Spearman Coefficients. Values in bold refer to the frequency class with the greatest number of observations. The sum of the number of possible observations for the first 5-year period from 2001 to 2005 and the second 5-year period from 2006 to 2010 does not equal the number of possible observations over the full 10-year period from 2001 to 2010 since only evaluation intervals that fall entirely in either the first 5-year or second 5-year period are considered in those 5-year periods. For example, the adjacent periods comprising the one-year formation period from 01 January 2001 to 31 December 2005 and the one-year holding period from 01 January 2006 to 31 December 2006 are considered only in the evaluation of the full 10-year period.

Table 4.1 Frequency Distribution of Spearman Rank Correlations using CAPM alphas across Adjacent Formation and Holding Periods (using Gross Returns)

	Frequency Distribution of Spearman Rank Correlations										
	Negative (< 0)				Positive (> 0)				Mean Value	Negative Observations	Positive Observations
	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1			
2001-2010 (10 years)											
3-month intervals	2	6	3	14	6	5	2	1	-0.080	25	14
6-month intervals	0	3	0	4	3	6	3	0	0.118	7	12
1-year intervals	0	0	0	4	2	1	1	1	0.175	4	5
2-year intervals	0	3	1	1	1	1	0	0	-0.252	5	2
4-year intervals	0	1	2	0	0	0	0	0	-0.394	3	0
5-year interval	0	0	0	1	0	0	0	0	-0.205	1	0
2001-2005 (5 years)											
3-month intervals	0	3	2	7	3	2	2	0	-0.059	12	7
6-month intervals	0	1	0	1	1	3	3	0	0.277	2	7
1-year intervals	0	0	0	2	0	0	1	1	0.342	2	2
2-year intervals	0	0	1	0	1	0	0	0	-0.141	1	1
2006-2010 (5 years)											
3-month intervals	2	3	1	6	3	3	0	1	-0.097	12	7
6-month intervals	0	2	0	3	1	3	0	0	-0.037	5	4
1-year intervals	0	0	0	2	1	1	0	0	0.004	2	2
2-year intervals	0	2	0	0	0	0	0	0	-0.588	2	0

From Table 4.1, it is observed that the mean Spearman Co-efficients are positive in only 5 out of 14 cases, with merely one observation having a value of greater than 0.3 and no observations of values greater than 0.5 are made. Moreover, it appears that more often than not, negative Spearman Co-efficients are recorded. Looking at the tails of the frequency distribution, it is observed that few observations are recorded in the frequency classes: -1 to -0.75; -0.75 to -0.5; 0.5 to 0.75; and 0.75 to 1, with the majority of the observations falling in the -0.25 to 0 and 0 to 0.25 classes. Over the entire 10-year sample period and the first 5-year period, limited evidence, albeit extremely weak, of persistence can be found when 6-month and one-year formation and holding periods are used. No evidence of persistence is found over the second five-year period. Isolated instances of persistence appear when 3-month formation and holding periods are used across the 10-year period and second five-year period.

Table 4.2 Frequency Distribution of Spearman Rank Correlations using Fama & French 3-factor alphas across Adjacent Formation and Holding Periods (Gross Returns)

	Frequency Distribution of Spearman Rank Correlations										
	Negative (< 0)				Positive (> 0)				Mean Value	Negative Observations	Positive Observations
	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1			
2001-2010 (10 years)											
6-month intervals	0	0	4	3	6	3	3	0	0.105	7	12
1-year intervals	0	1	1	1	3	2	1	0	0.064	3	6
2-year intervals	1	0	0	3	3	0	0	0	-0.102	4	3
4-year intervals	0	0	1	0	2	0	0	0	-0.053	1	2
5-year interval	0	0	0	1	0	0	0	0	-0.023	1	0
2001-2005 (5 years)											
6-month intervals	0	0	1	1	3	2	2	0	0.233	2	7
1-year intervals	0	0	0	0	1	2	1	0	0.351	0	4
2-year intervals	0	0	0	1	1	0	0	0	0.086	1	1
2006-2010 (5 years)											
6-month intervals	0	0	3	2	3	1	0	0	-0.068	5	4
1-year intervals	0	1	1	1	1	0	0	0	-0.267	3	1
2-year intervals	1	0	0	1	0	0	0	0	-0.494	2	0

From Table 4.2, which shows the frequency distribution of Spearman Co-efficients on the basis of Fama and French (1993) 3-factor alphas, it is observed that the mean Spearman Co-efficients are positive in only 5 out of 11 cases – with merely one observation being greater than 0.3 and no observations in excess of 0.5. Due to the limitations of calculating 3-month Fama and French (1993) 3-factor alphas (as described in section 6.1.5), results using 3-month formation and holding periods are not shown. No values falling in the 0.75 to 1 frequency class are observed; however more often than not positive Spearman co-efficient values are observed – unlike the results obtained when CAPM alphas are used. As with the CAPM alphas, no evidence of performance persistence is found over the second 5-year period from 2006 to 2010. However, some evidence is found, somewhat stronger than that produced by the CAPM alphas, of persistence in performance over the 10-year period and the first 5-year period from 2001 to 2005 using formation and holding periods of 6-months and one-year.

Table 4.3 Frequency Distribution of Spearman Rank Correlations using Carhart 4-factor alphas across Adjacent Formation and Holding Periods (Gross Returns)

	Frequency Distribution of Spearman Rank Correlations										
	Negative (< 0)				Positive (> 0)				Mean Value	Negative Observations	Positive Observations
	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1			
2001-2010 (10 years)											
6-month intervals	1	0	2	5	4	4	3	0	0.097	8	11
1-year intervals	0	0	3	2	2	1	1	0	-0.008	5	4
2-year intervals	0	0	3	2	1	1	0	0	-0.168	5	2
4-year intervals	0	0	2	0	1	0	0	0	-0.173	2	1
5-year interval	0	1	0	0	0	0	0	0	-0.561	1	0
2001-2005 (5 years)											
6-month intervals	0	0	1	2	2	2	2	0	0.195	3	6
1-year intervals	0	0	1	0	1	1	1	0	0.215	1	3
2-year intervals	0	0	0	0	1	1	0	0	0.145	0	2
2006-2010 (5 years)											
6-month intervals	1	0	1	3	2	1	1	0	-0.040	5	4
1-year intervals	0	0	2	1	1	0	0	0	-0.200	3	1
2-year intervals	0	0	2	0	0	0	0	0	-0.394	2	0

Table 4.3 shows the frequency distribution of Spearman's Rank co-efficients as calculated from Carhart (1997) 4-factor alphas. Observations using 3-month formation and holding periods are not shown due to the reasons mentioned in Section 6.1.6. It is observed that the mean Spearman Co-efficients are positive in only 4 out of 11 cases – with no observations being greater than 0.2. No values falling in the 0.75 to 1 frequency class are observed. Over the 2001 to 2005 period, more positive observations are recorded over all evaluation intervals, while the opposite is true for the 2001 to 2010 and 2006 to 2010 periods. As with the CAPM and Fama and French (1993) alphas, almost no evidence of performance persistence is found over the second 5-year period from 2006 to 2010; all the mean Spearman Co-efficients are negative and the frequency classes recording the greatest number of observations are all negative. However, some evidence is found, albeit weaker than that produced by the Fama and French (1993) alphas, of persistence in performance over the first 5-year period from 2001 to 2005, particularly when 1-year formation and holding periods are used.

Table 4.4 Frequency Distribution of Spearman Rank Correlations using Conditional alphas across Adjacent Formation and Holding Periods (Gross Returns)

	Frequency Distribution of Spearman Rank Correlations										
	Negative (< 0)				Positive (> 0)				Mean Value	Negative Observations	Positive Observations
	-1 to -0.75	-0.75 to -0.5	-0.5 to -0.25	-0.25 to 0	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1			
2001-2010 (10 years)											
6-month intervals	0	2	2	3	5	5	2	0	0.068	7	12
1-year intervals	1	0	1	0	3	2	1	1	0.160	2	7
2-year intervals	0	3	1	0	1	2	0	0	-0.181	4	3
4-year intervals	0	0	1	1	1	0	0	0	-0.100	2	1
5-year interval	0	0	0	0	1	0	0	0	0.005	0	1
2001-2005 (5 years)											
6-month intervals	0	0	0	2	3	3	1	0	0.186	2	7
1-year intervals	0	0	0	0	2	0	1	1	0.391	0	4
2-year intervals	0	0	1	0	0	1	0	0	-0.049	1	1
2006-2010 (5 years)											
6-month intervals	0	2	2	1	2	1	1	0	-0.080	5	4
1-year intervals	1	0	1	0	0	2	0	0	-0.072	2	2
2-year intervals	0	2	0	0	0	0	0	0	-0.611	2	0

Table 4.4 shows the frequency distribution of the Spearman rank co-efficients calculated from rankings based on Conditional Alphas. For the reasons outlined in Section 6.1.7, results formed on the basis of 3-month formation and holding periods are not shown. Out of the 11 mean value observations, 4 are positive, with only one observation having a value greater than 0.3 and no observations of values in excess of 0.5 are made. Overall, positive observations are made more often than not, but only 2 observations falling in the 0.75 to 1 frequency class are recorded, while a handful of observations falling in the 0.5 to 0.75 frequency class are noted. Very weak evidence of persistence in performance is found over the entire 10-year period and second 5-year period when formation and holding periods of one-year are used. No evidence of persistence is found in the second 5-year period.

In summary, conclusive evidence to support the persistence of unit trust performance on average could not be found. Limited evidence of persistence, albeit weak, is found over the 10-year period and first 5-year period using formation and holding periods of 6-months and 1-year; however some evidence of persistence may be inferred on the basis of Conditional alphas when 1-year periods are used over the 10-year period and the first 5-year period.

6.2.1.2. Chi-Squared Statistics

Table 5.1 Summary of Chi-Square Test Statistics on the basis of Nominal Returns (using Gross Returns)

	2 x 2 Contingency Tables				4 x 4 Contingency Tables				Total Number of Observations
	Min. Value	Max. Value	Statistically Significant Observations		Min. Value	Max. Value	Statistically Significant Observations		
			Total	%			Total	%	
2001-2010 (10 years)									
3-month intervals	0.007	52.584	26	67%	9.913	143.545	32	82%	39
6-month intervals	0.000	42.220	16	84%	9.008	110.957	17	89%	19
1-year intervals	0.371	24.319	7	78%	11.930	71.824	7	78%	9
2-year intervals	0.099	11.260	5	63%	11.114	58.119	7	88%	8
4-year intervals	0.951	1.896	0	0%	10.704	15.491	0	0%	3
5-year interval	4.802		1	100%	20.601		1	100%	1
2001-2005 (5 years)									
3-month intervals	0.011	30.388	10	53%	12.631	99.857	15	79%	19
6-month intervals	0.944	27.965	8	89%	15.388	107.227	8	89%	9
1-year intervals	3.845	22.747	4	100%	28.878	71.824	4	100%	4
2-year intervals	0.329	7.348	1	50%	30.558	38.526	2	100%	2
2006-2010 (5 years)									
3-month intervals	0.007	52.584	16	84%	14.676	143.545	17	89%	19
6-month intervals	0.000	42.220	7	78%	9.008	110.957	8	89%	9
1-year intervals	0.371	24.319	2	50%	11.930	68.349	2	50%	4
2-year intervals	4.437	4.437	1	50%	17.072	17.072	1	50%	2

Table 5.1 shows summarises the results of the Chi-Square tests that were applied to 2x2 and 4x4 contingency tables on the basis of adjacent period unit trust rankings formed from nominal unit trust returns. Only non-overlapping formation and holding periods are considered, since overlapping periods do not constitute real-world investment possibilities from the perspective of the investor. Similarly, Table 5.2; Table 5.3; Table 5.4; Table 5.5; and Table 5.6 show the results from contingency tables constructed rankings based on Sharpe Ratios, CAPM Alphas, Fama and French (1993) 3-factor Alphas, Carhart (1997) 4-factor Alphas and Conditional Alphas.

Table 5.2

Summary of Chi-Square Test Statistics on the basis of Sharpe Ratios (using Gross Returns)

	2 x 2 Contingency Tables				4 x 4 Contingency Tables				Total Number of Observations
	Min. Value	Max. Value	Statistically Significant Observations		Min. Value	Max. Value	Statistically Significant Observations		
			Total	%			Total	%	
2001-2010 (10 years)									
3-month intervals	0.007	42.935	23	59%	2.978	109.021	24	62%	39
6-month intervals	0.026	26.266	14	74%	3.987	87.469	13	68%	19
1-year intervals	0.077	22.747	6	67%	11.623	63.850	7	78%	9
2-year intervals	0.239	6.439	4	50%	10.001	37.047	6	75%	8
4-year intervals	0.000	0.000	0	0%	0.000	0.000	0	0%	3
5-year interval	4.802		1	100%	12.997		0	0%	1
2001-2005 (5 years)									
3-month intervals	0.244	26.381	10	53%	3.996	72.136	11	58%	19
6-month intervals	1.250	26.053	7	78%	7.760	56.006	7	78%	9
1-year intervals	4.802	22.747	4	100%	31.002	63.850	4	100%	4
2-year intervals	1.601	5.184	1	50%	15.519	37.047	2	100%	2
2006-2010 (5 years)									
3-month intervals	0.007	42.935	13	68%	8.491	109.021	13	68%	19
6-month intervals	0.026	26.266	6	67%	3.987	87.469	5	56%	9
1-year intervals	0.077	10.158	1	25%	11.623	21.795	2	50%	4
2-year intervals	3.044	3.044	0	0%	10.001	10.001	0	0%	2

On their own, the results of the Chi-Square tests reveal little about the direction of persistence of unit performance save that, almost without exception unit trust returns in one period are related to the returns observed in a previous period when funds are ranked into quartiles (in the case of 4x4 tables) and medians (in the case of 2x2 tables) – that is, more often than not statistically significant Chi-Square statistics were observed over the full 10-year period and both 5-year periods from 2001 to 2005 and 2006 to 2010, regardless of the length of the formation and holding periods and regardless of the performance measure used to generate the performance rankings. There were a handful of exceptions. For example, from Table 5.2 no statistically significant chi-square statistics were observed when 2x2 or 4x4 contingency tables were constructed from Sharpe Ratios over 4-year formation and holding periods over the 10-year period from 2001 to 2010. Also, from Table 5.5, in the cases of the results produced under the Fama and French (1993) 3-factor and the Carhart (1997) 4-factor alphas, this trend did not hold as strongly when using 2x2 tables. However, beyond inferring that adjacent period unit trust returns are related in a statistically significant manner, the results do not say whether superior (or inferior) performance persists or whether superior (inferior)

performance in one period is followed by inferior (superior) performance in the next period. The results from the Chi-square tests do however add some credibility to the findings from the Spearman's rank correlations in support of the persistence of unit trust performance.

Table 5.3 Summary of Chi-Square Test Statistics on the basis of CAPM Alphas (using Gross Returns)

	2 x 2 Contingency Tables				4 x 4 Contingency Tables				Total Number of Observations
	Min. Value	Max. Value	Statistically Significant Observations		Min. Value	Max. Value	Statistically Significant Observations		
			Total	%			Total	%	
2001-2010 (10 years)									
3-month intervals	0.007	47.638	20	51%	4.258	115.868	25	64%	39
6-month intervals	0.009	26.292	11	58%	2.825	65.221	12	63%	19
1-year intervals	0.415	18.882	5	56%	15.396	81.624	7	78%	9
2-year intervals	0.091	10.788	4	50%	15.526	35.430	5	63%	8
4-year intervals	0.104	2.259	0	0%	7.692	18.883	1	33%	3
5-year interval	12.818		1	100%	30.401		1	100%	1
2001-2005 (5 years)									
3-month intervals	0.011	26.381	10	53%	5.873	77.137	13	68%	19
6-month intervals	0.178	26.292	7	78%	2.825	56.045	7	78%	9
1-year intervals	2.412	18.882	2	50%	16.752	81.624	3	75%	4
2-year intervals	1.072	6.259	1	50%	33.963	35.430	2	100%	2
2006-2010 (5 years)									
3-month intervals	0.007	47.638	10	53%	4.907	115.868	12	63%	19
6-month intervals	0.009	17.318	4	44%	7.560	65.221	5	56%	9
1-year intervals	0.415	8.131	2	50%	15.396	42.276	3	75%	4
2-year intervals	1.138	10.365	1	50%	19.693	33.610	2	100%	2

Taken together, the results of the Spearman Co-efficients and Chi-Square tests, indicated that some persistence in performance does occur. However, it is re-iterated that performance up to this point is measured in terms of relative performance – that is, even the best performing funds may not be able to outperform. The following sections identifies whether ‘winning’ unit trust performance from the perspective of being able to beat the market – or ‘losing’ performance can persist.

Table 5.4 Summary of Chi-Square Test Statistics on the basis of Fama & French 3-factor Alphas (using Gross Returns)

	2 x 2 Contingency Tables				4 x 4 Contingency Tables				Total Number of Observations
	Min. Value	Max. Value	Statistically Significant Observations		Min. Value	Max. Value	Statistically Significant Observations		
			Total	%			Total	%	
2001-2010 (10 years)									
3-month intervals									
6-month intervals	0.008	26.292	7	37%	4.747	63.959	9	47%	19
1-year intervals	0.256	12.807	5	56%	12.981	66.867	7	78%	9
2-year intervals	0.072	11.260	3	38%	10.027	25.999	5	63%	8
4-year intervals	0.902	3.396	0	0%	15.646	32.810	2	67%	3
5-year interval	8.321		1	100%	30.462		1	100%	1
2001-2005 (5 years)									
3-month intervals									
6-month intervals	0.011	26.292	3	33%	9.003	63.959	4	44%	9
1-year intervals	0.529	12.807	2	50%	12.981	66.867	2	50%	4
2-year intervals	0.644	6.326	1	50%	10.976	23.918	1	50%	2
2006-2010 (5 years)									
3-month intervals									
6-month intervals	0.008	6.082	3	33%	4.747	28.743	4	44%	9
1-year intervals	0.256	12.807	2	50%	17.265	40.371	4	100%	4
2-year intervals	0.072	6.833	1	50%	10.027	25.999	1	50%	2

Table 5.5 Summary of Chi-Square Test Statistics on the basis of Carhart 4-factor Alphas (using Gross Returns)

	2 x 2 Contingency Tables				4 x 4 Contingency Tables				Total Number of Observations
	Min. Value	Max. Value	Statistically Significant Observations		Min. Value	Max. Value	Statistically Significant Observations		
			Total	%			Total	%	
2001-2010 (10 years)									
3-month intervals									
6-month intervals	0.011	44.515	7	37%	5.894	113.803	11	58%	19
1-year intervals	0.008	18.273	4	44%	10.774	77.346	6	67%	9
2-year intervals	0.010	10.026	2	25%	9.359	21.337	2	25%	8
4-year intervals	0.288	1.889	0	0%	9.296	19.896	1	33%	3
5-year interval	3.845		1	100%	14.481		0	0%	1
2001-2005 (5 years)									
3-month intervals									
6-month intervals	0.011	26.292	3	33%	5.894	48.796	5	56%	9
1-year intervals	2.638	18.273	3	75%	18.815	77.346	4	100%	4
2-year intervals	1.601	10.026	1	50%	11.078	18.422	1	50%	2
2006-2010 (5 years)									
3-month intervals									
6-month intervals	0.123	44.515	3	33%	7.817	113.803	5	56%	9
1-year intervals	0.008	7.351	1	25%	12.051	31.783	2	50%	4
2-year intervals	0.010	0.462	0	0%	9.359	11.504	1	50%	2

Table 5.6

Summary of Chi-Square Test Statistics on the basis of Conditional Alphas (using Gross Returns)

	2 x 2 Contingency Tables				4 x 4 Contingency Tables				Total Number of Observations
	Min. Value	Max. Value	Statistically Significant Observations		Min. Value	Max. Value	Statistically Significant Observations		
			Total	%			Total	%	
2001-2010 (10 years)									
3-month intervals									
6-month intervals	0.008	22.409	12	63%	12.858	62.278	17	89%	19
1-year intervals	0.869	29.298	8	89%	15.289	84.244	8	89%	9
2-year intervals	1.574	22.747	4	50%	12.687	38.165	6	75%	8
4-year intervals	4.048	11.241	3	100%	13.859	20.831	2	67%	3
5-year interval	22.747		1	100%	32.197		1	100%	1
2001-2005 (5 years)									
3-month intervals									
6-month intervals	0.102	22.409	5	56%	18.627	45.820	9	100%	9
1-year intervals	0.869	26.972	3	75%	15.289	84.244	3	75%	4
2-year intervals	2.987	4.261	1	50%	37.888	38.165	2	100%	2
2006-2010 (5 years)									
3-month intervals									
6-month intervals	0.008	16.895	6	67%	14.624	62.278	8	89%	9
1-year intervals	9.407	29.298	4	100%	24.038	57.200	4	100%	4
2-year intervals	1.574	2.464	0	0%	12.687	24.378	1	50%	2

6.2.2. Repeat Performance Rank Tests

It may also be argued that while an investor would prefer to invest in a fund that is able to persistently appear in the top quartile of performance when ranked on the basis of relative performance, some investors may prefer to invest in a unit trust that is able to persistently 'beat' the market and produce repeat 'winning' performance on this basis. Thus, under these tests, 'winning' performance occurs where a unit trust has a performance measure that is either greater than that of the market (in the case of nominal returns and Sharpe Ratios) or positive (in the case of the alphas), while the converse is true for 'losing' performance.

Table 6.1 shows the proportion of repeat 'loser' and repeat 'winner' observations over adjacent formation and holding periods of equal length for the unit trust sample as a whole when performance is measured using each of the six performance measures used in this study. The results are shown for the entire 10-year period and two 5-year sub-periods from 2001 to 2005 and 2006 to 2010 respectively. The following inferences are made from Table 6. Over the period 2001 to 2005, regardless of the length of the formation and holding

period and with the exception of results derived from the use of Conditional alphas, the proportion of repeat ‘loser’ performance dominates the proportion of repeat ‘winner’ performance – that is, on average, losers were more likely to remain losers in the following period than winners were likely to remain winners. With the exception of the results from the Carhart (1997) model and to a lesser extent, the Fama and French (1993) model, this trend appears to largely reverse over the 2001 to 2005 period during which a greater proportion of repeat ‘winner’ observations are recorded. Thus, winners over the 2001 to 2005 time frame were more likely to remain winners in the following period when performance is measured over adjacent formation and holding periods. The results for the full 10-year period seem to suggest that the repeat ‘loser’ phenomenon was more likely than the repeat ‘winner’ phenomenon, albeit this trend was only supported by 4 of the 6 performance measures, with the exceptions being the CAPM alphas and Conditional (1997) alphas. Regardless of the sample period or length of the formation and holding periods, the results from the Conditional Model seem to suggest that the repeat ‘Winner’ phenomenon is far more likely to occur than the repeat ‘Loser’ phenomenon – the evidence is more convincing over the full 10-year period and first 5-year period.

Table 6.1 Performance Persistence Results: Number of Observations of Repeat Performance across Adjacent Formation and Holding Periods

Proportion of Observations																					
	2001-2010 (10 years)									2001-2005 (5 years)						2006-2010 (5 years)					
	3-months	6-months	1-year	2-year (Overlapping periods)	2-year (Non-Overlapping periods)	4-year (Overlapping periods)	4-year (Non-Overlapping periods)	5-year (Overlapping periods)	5-year (Non-Overlapping periods)	3-months	6-months	1-year	2-year (Overlapping periods)	2-year (Non-Overlapping periods)	4-year (Overlapping periods)	3-months	6-months	1-year	2-year (Overlapping periods)	2-year (Non-Overlapping periods)	4-year (Overlapping periods)
Nominal Returns																					
Repeat 'Winner'	24%	22%	23%	30%	19%	33%	18%	32%	21%	30%	35%	42%	61%	48%	71%	18%	14%	17%	20%	11%	20%
Repeat 'Loser'	28%	29%	35%	40%	32%	47%	24%	47%	32%	26%	28%	15%	16%	11%	15%	29%	26%	55%	52%	43%	71%
Sharpe Ratios																					
Repeat 'Winner'	25%	27%	25%	31%	23%	38%	19%	38%	29%	29%	40%	44%	67%	55%	69%	21%	20%	15%	17%	12%	20%
Repeat 'Loser'	19%	28%	32%	36%	28%	41%	18%	41%	25%	17%	27%	15%	15%	9%	12%	21%	26%	52%	49%	40%	66%
CAPM Alphas																					
Repeat 'Winner'	28%	31%	34%	38%	31%	50%	26%	54%	43%	30%	39%	48%	66%	53%	77%	25%	27%	19%	14%	11%	25%
Repeat 'Loser'	18%	22%	24%	31%	21%	31%	13%	26%	17%	17%	22%	18%	16%	9%	9%	19%	22%	44%	48%	33%	65%
Fama & French Alphas																					
Repeat 'Winner'	24%	23%	19%	28%	21%	30%	18%	31%	24%	21%	24%	29%	39%	27%	49%	26%	22%	22%	20%	15%	16%
Repeat 'Loser'	22%	30%	27%	34%	32%	49%	40%	47%	43%	26%	37%	30%	31%	27%	35%	20%	25%	33%	29%	29%	68%
Carhart Alphas																					
Repeat 'Winner'		28%	22%	29%	19%	31%	22%	26%	25%		23%	30%	33%	24%	48%		34%	30%	34%	23%	34%
Repeat 'Loser'		25%	25%	35%	31%	47%	36%	45%	31%		30%	24%	30%	32%	41%		16%	33%	27%	22%	52%
Conditional Alphas																					
Repeat 'Winner'	27%	38%	45%	50%	43%	63%	52%	72%	63%	27%	39%	58%	71%	60%	84%	24%	39%	35%	27%	24%	50%
Repeat 'Loser'	20%	17%	14%	20%	12%	18%	7%	16%	9%	19%	18%	16%	14%	9%	9%	22%	15%	26%	29%	15%	31%

In summary, it seems that investors should avoid ‘losing’ funds more so than chasing ‘winning’ funds when attempting to predict future performance and select funds on the basis of past returns. However, looking at the values of the proportions of repeat ‘winner’ performance, even when repeat ‘winning’ performance (i.e. persistence) is present, it appears that an investor is – more often than not – unlikely to achieve ‘winning’ performance in the following period when past ‘winners’ are selected.

Table 6.2 Summary Statistics relating to Industry Persistence Observations

	Number of Observations											
	High Repeat 'Loser'			High Repeat 'Winner'			Low Repeat 'Loser'			Low Repeat 'Winner'		
	2001 to 2010 (10 years)	2001 to 2005 (5 years)	2006 to 2010 (5 years)	2001 to 2010 (10 years)	2001 to 2005 (5 years)	2006 to 2010 (5 years)	2001 to 2010 (10 years)	2001 to 2005 (5 years)	2006 to 2010 (5 years)	2001 to 2010 (10 years)	2001 to 2005 (5 years)	2006 to 2010 (5 years)
Nominal Returns	6	0	4	2	6	0	0	4	0	2	0	6
Sharpe Ratios	4	0	4	3	5	0	2	5	0	1	0	4
CAPM Alphas	2	0	4	7	5	0	3	5	1	0	0	3
Fama & French Alphas	7	3	2	2	2	0	0	0	1	2	0	3
Carhart Alphas	6	4	2	1	2	4	0	0	1	1	0	0
Conditional Alphas	0	0	1	8	5	3	7	6	2	0	0	0

Table 6.2 shows the number of ‘high’ and ‘low’ repeat ‘winning’ and ‘losing’ performance. High repeat performance can be said to occur where the proportion of repeat performance observations exceeds 30% and low repeat performance can be said to occur where the proportion of such observations falls below 20% - should repeat performance occur merely due to random chance, one would expect that the proportion of repeat performance observations should be 25%. Thus, Table 6.2 allows the reader to discern – to an extent – whether repeat performance is due to mere random chance or whether there is some statistical relationship between the performance in one period and the performance in a following adjacent period of equal length. In short, Table 6.2, read together with Table 6.1, suggests that – on balance – investors should have avoided investing in past ‘losers’ over the entire 2001 to 2010 period and 2006 to 2010 sub-period, while investing in

past 'winners' over the 2001 to 2005 and 2001 to 2010 period could have proved to be a profitable investment strategy, particularly when using investment horizons of one-year or more. Investing in past 'losers' over the 2001 to 2005 period may not have proved too disadvantageous in the following period, while investing in past 'winners' over the 2006 to 2010 period would have probably not resulted in repeat 'winner' performance. Evidence of persistence in 'winning' performance is strongest when using Conditional Alphas. Also, according to the results from the Conditional alphas, 'losing' performance is less likely to persist.

Table G1 (refer to Section G of the Appendix) shows for each unit trust sample the number of repeat 'winner' and 'loser' performance observations recorded over adjacent formation and holding periods of varying but equal lengths on the basis of nominal returns. To ensure that funds that were not in existence over the entire 10-year sample period are not prejudiced, the maximum number of observable adjacent period pairs over which those unit trusts were in existence is also shown. Moreover, at the bottom of Table G1, a summary of the number of funds that displayed a greater proportion of more repeat 'winning' and 'losing' performance observations over adjacent formation and holding periods is shown. The most number of repeat 'winner' and repeat 'loser' observations recorded across all funds is shown, as well as the number of funds able to achieve this many repeat observations. An example (of no particular importance) is shown in each category, if available.

In the case of formation and holding periods that are greater than 1-year in length, the results are shown for both overlapping and non-overlapping adjacent periods. It should be noted that while the use of overlapping periods increases the number of observations, overlapping periods do not represent realistic investment strategies. For example, an investor cannot observe performance over the 5-year period from 2001 to 2005 and invest in the 5-year period from 2002 to 2006 on the basis of that observation. Similarly, Table G2, Table G3, Table G4, Table G5 and G6 (all of which can be found in the appendix) show the results of the repeat performance rank tests using Sharpe Ratios, CAPM Alphas, Fama and French (1993) 3-factor alphas, Carhart (1997) 4-factor alphas and Conditional Alphas respectively.

From the summary statistics at the bottom of Table G1, it is observed that over the 10-year period from 2001 to 2010 – on the basis of nominal returns – the proportion of funds able to record more repeat ‘winning’ and ‘losing’ performance observations is greatest for the industry as a whole over 3-month formation and holding periods – 43% of funds record more repeat ‘winner’ observations than repeat ‘loser’ observations, while 50% of funds record more ‘loser’ observations. As the length of the formation and holding periods increase the number of funds displaying repeat performance observations (whether more ‘winning’ or ‘losing’) decreases. For example, over 5-year non-overlapping formation and holding periods, of the funds that existed over the entire 10 years only 11% of funds are able to record more repeat ‘winning’ performance, while 16% record more repeat ‘losing’ performance. The results also seem to suggest that funds, on average, are more likely to record more repeat ‘losing’ performance observations than more repeat ‘winning’ performance ones across formation and holding periods of all lengths.

These patterns are similar for the second five-year period from 2006 to 2010 with the exception that the proportion of funds recording more repeat ‘loser’ observations remains approximately constant across all formation and holding periods. However, during the first 5-year period, a significantly greater proportion of funds recording more repeat ‘winner’ performance are noted. For example, using 2-year non-overlapping formation and holding periods, 35% of funds record more repeat ‘winner’ performance observations, while 7% of funds record more repeat ‘loser’ observations. Also, the proportion of such funds remains roughly constant across formation and holding periods of all lengths.

Table 7 summarises the key trends observed in Table G1 through to Table G6 (refer to Section G of the appendix) relating to persistence in unit trust performance on the basis of repeat performance observations for all six performance measures.

Table 7. Summary trends observed when repeat unit trust performance is evaluated over adjacent formation and holding periods on the basis of different performance measures.

Performance Measure	2001 to 2010 (10 years)	2001 to 2005 (5 years)	2006 to 2010 (5 years)
Nominal Returns and Sharpe Ratios	Proportion of funds with repeat performance (whether more 'winner' or 'loser' observations decreases as formation and holding period lengths increase. Greater proportion of funds with more repeat 'loser' performance observations across all formation and holding period lengths.	Proportion of funds with more repeat 'winner' performance observations remains roughly constant as formation and holding period lengths increase, while the proportion of funds with repeat 'loser' performance observations decreases. Greater proportion of funds with more repeat 'winner' performance observations.	Proportion of funds with more repeat 'loser' performance observations remains roughly constant as formation and holding period lengths increase, while the proportion of funds with more repeat 'winner' performance observations decreases. Greater proportion of funds with more repeat 'loser' performance observations.
CAPM Alphas	Proportion of funds with repeat performance (whether more 'winner' or 'loser' observations decreases as formation and holding period lengths increase. Significantly greater proportion of funds with more repeat 'winner' performance observations.	Proportion of funds with more repeat 'winner' performance observations remains roughly constant as formation and holding period lengths increase, while the proportion of funds with more repeat 'loser' performance observations decreases. Significantly greater proportion of funds with more repeat 'winner' performance observations.	Fluctuating proportion of funds with more repeat performance observations are made across formation and holding periods of different lengths. Significantly higher proportion of funds with more repeat 'winner' performance observations for formation and holding periods of 3-month and 6-months. The converse is observed all other formation and holding period lengths.
Fama and French (1993) 3-factor Alphas	Proportion of funds with repeat performance (whether more 'winner' or 'loser' observations decreases as formation and holding period lengths increase. This trend is clear for more repeat 'winner' performance but less so for more repeat 'loser' performance. Significantly greater proportion of funds with more repeat 'loser' performance observations except when 3-month formation and holding periods are used.	Proportion of funds with more repeat 'winner' performance observations remains roughly constant as formation and holding period lengths increase, while the proportion of funds while more repeat 'loser' performance decreases. With 3-month and 6-month formation and holding periods, significantly greater proportion of funds display more repeat 'losing' performance but for other formation and holding period lengths, this trend reverses, albeit only just.	Proportion of funds with more repeat 'winner' performance observations decreases as the lengths of the formation and holding periods increase. No trend is observed in the case of the proportion of funds recording repeat 'loser' performance. Significantly greater proportion of funds with more repeat 'loser' performance observations except when 3-month formation and holding periods are used.
Carhart (1997) 4-factor Alphas	Proportion of funds with repeat performance (whether more 'winner' or 'loser' observations decreases as formation and holding period lengths increase. This trend is clear for more repeat 'winner'	Proportion of funds with more repeat 'winner' performance observations remains roughly constant as formation and holding period lengths increase, while the proportion of funds while more	Proportion of funds with more repeat 'winner' performance observations decreases as the lengths of the formation and holding periods increase, while the proportion of funds recording

	performance but less so for more repeat 'loser' performance. Greater proportion of funds with more repeat 'loser' performance observations except when 6-month formation and holding periods are used.	repeat 'loser' performance decreases somewhat. No trend is observed with respect to proportion of repeat 'winner' observations versus the proportion of repeat 'loser' performance. The relative proportions appear to vary depending on the evaluation interval used.	repeat 'loser' performance remains roughly constant. No trend is observed with respect to proportion of repeat 'winner' observations versus the proportion of repeat 'loser' performance. The relative proportions appear to vary depending on the evaluation interval used.
Conditional Alphas	Proportion of funds with repeat performance (both 'winner' and 'loser') observations decreases as the length of formation and holding periods increase. Proportion of repeat 'winner' performance increases first before displaying a decreasing trend. Significantly greater proportion of funds with more repeat 'winner' performance observations.	Proportion of funds with more repeat 'winner' performance observations remains constant as formation and holding period lengths increase, while the proportion of funds with more repeat 'loser' performance observations displaying a decreasing trend. Significantly greater proportion of funds with more repeat 'winner' performance observations. Low proportion of funds with repeat 'loser' observations.	Fluctuating proportion of funds with more repeat performance observations are made across formation and holding periods of different lengths. Greater proportion of funds with more repeat 'winner' performance observations.

In summary, Table 7 produces mixed results. Over the 10-year period from 2001 to 2010, it is clear that the proportion of funds recording more repeat 'winner' or 'loser' performance observations decreases as the lengths of the formation and holding period increase. With the exception of the results produced on the basis of CAPM alphas and Conditional alphas, a greater proportion of funds with more repeat 'loser' performance are observed across formation and holding periods of all lengths. For the most part, it appears that the persistence in unit trust performance decreases as the investment horizon increases and 'losing' performance seems to be more persistent.

Over the 5-year period from 2001 to 2005, contrasting results are obtained. It appears that as the lengths of the formation and holding periods increase, the proportion of funds displaying more repeat 'winner' performance remains approximately constant, while the proportion of funds with more repeat 'loser' performance decreases. In almost all cases, it appears that there is a greater proportion of funds with more repeat 'winner' performance observations than those with more repeat 'loser' performance observations, and this gap widens as the formation and holding period lengths increase. Thus, it seems that over 2001 to 2005,

persistence in 'winner' performance is found. Investors could have profited in the following period by investing in 'winners' of a previous period of equal length, notwithstanding that the proportion of funds recording repeat 'winner' performance is mostly below 50% - that is, the evidence to support the persistence of 'winning' performance is not strong. Moreover, as the investment horizon increases, investors would have had a decreasing chance of 'loser' performance going forward by investing in previous period 'losers'.

Over the 5-year period from 2006 to 2010, results similar to those observed over the 10-year period are produced. While the trends are less clear than for the entire 2001 to 2010 and 2001 to 2005 periods, it appears that, for the most part, as the lengths of the formation and holding periods increase, the proportion of funds observed with more repeat 'winner' performance decreases, while the proportion of funds with more repeat 'loser' performance displays no trend as such. In most of the cases, the proportion of funds recording more repeat 'loser' performance is greater than those recording more repeat 'winner' performance. Overall, these results imply that investors would have been disappointed by investing in past 'losers', and that persistence in the performance of past period 'winning' performance was weak at best and decreased as investors investment horizons increase.

In short, some evidence of persistence in unit trust performance is found, albeit more so for 'losing' performance. Persistence in performance (whether 'winner' or 'loser') seems to decrease on average as the investment horizon increases. Yet examples of funds may be provided that would have proven profitable in the following period if they were chosen on the basis of their past 'winning' performance. For example, when using nominal returns and Sharpe Ratios (refer to Table G1 through to G6) the Nedgroup Investments Value R unit trust produced repeat 'winner' observations over all 4-year and 5-year non-overlapping adjacent periods over the 2001 to 2010 sample period. The same unit trust shows up over 4-year non-overlapping adjacent periods over the 2001 to 2010 sample period when evaluated on the basis of CAPM alphas. Still using CAPM alphas, the Coronation Industrial fund was able to deliver repeat 'winner' performance over five out of seven 2-year non-overlapping adjacent periods over the 2001 to 2010 period. Further examples of funds able to deliver persistent positive and negative repeat performance can be found in the appendices. The point is that,

even though isolated, examples demonstrating strong evidence of persistence in performance do exist. However, whether investors would have been able to profit from this observation remains questionable.

6.2.3. Regression Analysis

Table H1 (refer to Section H of the Appendix) provides the summary statistics for each unit trust relating to the time series regressions performed on the basis of CAPM alphas of adjacent period pairs. Similarly, the results from the time regressions performed on the basis of Fama and French (1993) 3-factor alphas, Carhart (1997) 4-factor alphas and Conditional Alphas can be found in Table H2, Table H3, and Table H4 respectively (refer to Section H of the Appendix). As regression analyses require a reasonable number of observations to produce valid results, where the length of formation and holding periods are greater than one-year, overlapping periods are used. As apprised earlier, these results should be viewed with caution as overlapping adjacent periods do not represent realistic investment possibilities from the perspective of the investor.

In interpreting the results of the time series regression, little emphasis is placed on the mean values for the sample as a whole. As the other persistence tests have indicated, naturally some unit trusts will be repeat 'winners' more often than not, while others will be repeat 'losers' more often than not. Thus on balance, the mean values of the sample as a whole cannot be expected to say much about performance persistence. Instead, evidence of persistence is sought by examining the number of funds that recorded a positive and statistically significant slope-co-efficient. The Co-efficients of determination (R^2 value) for each regression model are also examined and the R^2 values are presented in the appendix as well.

Persistence on the basis of CAPM alphas is considered first. From Table H1, over the 10-year period from 2001 to 2010, some evidence to support persistence seems greatest when 6-month formation and holding periods are used with almost 29% of (or 44) funds recording a statistically significant and positive slope co-efficient. These results should be viewed with some caution as the co-efficients of determination for the regression models exceeds 0.3 in only 10 of these 44 funds. Some evidence of performance persistence is also found

when 2-year formation and holding periods are used; however, despite higher R^2 values being observed, the regressions are performed over adjacent overlapping periods. Limited evidence of performance persistence is found when formation and holding periods of other lengths are used. Surprisingly, almost no evidence of performance persistence can be found when returns are analysed over the two 5-year periods from 2001 to 2005 and 2006 to 2010 respectively.

Next persistence of performance is considered on the basis of Fama & French (1993) 3-factor Alphas. From Table H2, almost no evidence of persistence can be found. One exception is when 4-year and 5-year overlapping formation and holding periods are used over the 10-year period from 2001 to 2010. However, even though the R^2 values for the regression models are significant, the regressions were performed over overlapping periods and must be viewed with caution.

When persistence of performance is tested using Carhart (1997) 4-factor alphas, again almost no evidence of persistence in performance can be found. Over the 10-year period from 2001 to 2010, slight evidence of performance persistence is found when overlapping formation and holding periods of 2-years, 4-years and 5-years are used. As is the case with Fama and French (1993) alphas, even though the R^2 values are significant, overlapping periods do not constitute realistic investment opportunities from the viewpoint of the investor. Almost no evidence of performance persistence can be found when returns are analysed over the two 5-year periods from 2001 to 2005 and 2006 to 2010 respectively.

From Table H4, it is observed that when conditional alphas are used to test for persistence in performance, some evidence – albeit stronger than that produced by the Fama and French (1993) and Carhart (1997) alphas – to support the persistence in performance is found over the entire 10-year period when formation and holding periods of all lengths (except 3-months) are used. The evidence becomes stronger – that is, the proportion of funds recording positive and statistically significant regression slope co-efficients – increases as the length of the formation and holding periods increase. As with the other models, the reader is cautioned to view the results with caution in the case of formation and holding period lengths of 2-years, 4-years and 5-

years as overlapping periods are used. Again, relatively no evidence of persistence is found over the two 5-year sub-periods.

For the most part, the results of the time-series regressions, reveal that persistence of unit performance is a rare occurrence among unit trusts, notwithstanding that some evidence to support persistence is found when 6-month formation and holding periods are used and when persistence is tested over the full 10-year period. Limited evidence of persistence is found when overlapping formation and holding periods of 4-years and 5-years are used and persistence is tested over the entire 10-year period. However, this evidence must be viewed with caution due to the use of overlapping periods. Surprisingly, almost no evidence to support the persistence of unit trust performance can be found when formation and holding periods of any length are studied over the two 5-year sub-periods – no explanation can be provided for this. It is pointed out that the observations made for funds not in existence for the entire 10-year sample period could have slope-coefficients that are biased upwards (for example, due to ‘freak’ repeat performance over short periods) but this may, in part, be cancelled by the higher t-statistic required to test for statistical significance – the fewer the number of regression estimates, the lower the degrees of freedom and the higher the t-statistic value required to achieve statistical significance. Last, even though minimal evidence in support of persistence in performance is found, a limitation of the results from the time series regression is that it does not distinguish between repeat ‘loser’ or ‘winner’ performance. The results merely suggest whether performance in general persists.

6.2.4. Summary Discussion

Some evidence of persistence is found for the unit trust sample as a whole when persistence in performance is tested over adjacent formation and holding period pairs. However, the evidence is sensitive to both the length of the formation and holding periods and the time period over which performance is evaluated. More specifically, evidence of short-term persistence (using 6-month and 1-year formation and holding period

lengths) is found mainly over the 10-year period from 2001 to 2010, and 5-year period from 2001 to 2005. Minimal evidence of performance persistence is found over the 2006 to 2010 year. Almost no evidence of performance persistence is found when time series regression analyses are used to test for persistence.

In general, over the 10-year period, it appears that persistence in performance decreases as the lengths of the formation and holding period increase and the evidence, albeit weak, suggests that repeat 'loser' performance is likely to be more persistent than repeat 'winner' performance. However, over the five year period from 2001 to 2005, repeat 'winner' persistence appears to remain constant as the formation and holding period lengths increase, while the same is observed for repeat 'loser' performance over the five-year period from 2006 to 2010. Also, over the 2001 to 2005 period, the proportion of funds able to record more repeat 'winner' performance is greater than the proportion of funds that record more repeat 'loser' performance. Beyond formation and holding period lengths of 1-year, it seems that an investor may be disappointed more often than not by investing in a past 'winner' fund and the likelihood of achieving repeat 'loser' performance is greater. Most importantly, even where persistence is found, the evidence seems to suggest that the performance of the same funds do not persist on a regular basis. Thus, it appears that investors are better off using past performance rankings to avoid 'losers', but choosing past 'winners' may lead to disappointment, and then too, this may have only proved viable over certain time periods and when investors have shorter investment horizons. Moreover, it appears that investors may need to repeat this process every so often as persistence beyond adjacent periods for the same fund is rare.

The results produced here are consistent with the findings of previous unit trust researchers studying persistence in performance. For example, Wessels and Krige (2005), Collinet and Firer (2003) and Firer (2001) all find weak evidence of short-term persistence. Overall, like this study, all these studies found that the results proved to be highly sensitive to the holding period and formation period lengths and to the time period evaluated. In contrast, some researchers (for example, Meyer (1998) and Von Wielligh and Smit (2000)) also found weak evidence of long-term persistence in the performance of unit trusts. This is consistent with the pockets of isolated evidence found in this study that suggest extremely weak persistence exists when longer formation and holding periods are used. In short, this study produces consistent findings with those of

Wessels and Krige (2000:80) "that no infallible method exists to identify those active managers in advance that will substantially outperform" in the future. Thus, the null hypothesis that past South African domestic equity unit trust performance – whether superior or inferior – does not contain predictive (informational) value with respect to the future performance of those funds cannot be rejected. Also the null hypothesis that investors of South African domestic equity unit trusts are not able to profit from strategies that choose unit trust on the basis of past returns cannot be rejected.

7. Limitations and Assumptions

“We must accept that investing with real money is harder than paper investing” (Grinold and Kahn, 2000:2)

As with any study, this study is subject to a number of limitations and assumptions. These are discussed next. The sample selected in this study is limited to South African Domestic Equity Unit Trusts. Thus, the results of this study should not be extrapolated to the other categories of unit trusts found within the South African unit trust industry (for example, asset allocation funds, fixed-income funds, and foreign funds). The sample period over which unit trust performance is evaluated covered the 10-year period from 01 January 2001 to 31 December 2010 is nevertheless short by statistical standards. Also this study evaluated performance using monthly returns, with the result that when performance is evaluated over 3-month and to a lesser extent, 6-month periods, the validity of the results from applying regression models, particularly the multiple regression models, becomes somewhat questionable. While it is not the norm to report weekly returns, using weekly unit trust returns could be a future avenue for research.

While the number of domestic equity funds in South African has grown significantly over the past 13 years, the sample selected included only 151 unit trusts (including the ETFs) up to the end of the sample period, with only 75 funds being in existence over the full 10-year period. Compared to the much larger sample sizes used in the USA, for example, the relatively limited sample size may call into question the validity of the findings. The sample period covered a period where the share market was extremely volatile. If persistence of performance depends on the time period studied and its length the results found here may be unique to this particular time period (Oldham and Kroeger, 2005:89). However, given the extreme volatility experienced particularly over the 2006 to 2010 period, one may argue that if unit trust managers are able to demonstrate any skill over such a trying period, then unit trust managers are truly skilled.

Moreover, as only data relating to surviving funds could be obtained from Morningstar database, the results produced in Section 6 of this study are subject to survivorship bias. While the effect of survivorship bias in the context of South African unit trust performance evaluation has not been extensively researched, the presence of survivorship bias in the dataset used in this study remains a limitation, of which the reader must be made aware. Further, this study remains reliant on the credibility of the databases used.

According to the ASISA, South African domestic equity unit trusts, by their very definition, can invest up to 15% of their assets under management into other asset classes and/or foreign equities. While the individual portfolio holdings will not be scrutinised, there exists the possibility that one or more unit trusts may invest (at some point or another during the sample period) in securities other than South African domestic equities. Moreover, some unit trust returns may suffer from ‘cash drag’ – a term used to describe a decrease in returns due to the lower return earned on the cash (if any) held by the unit trust manager in his or her portfolio – whether due to liquidity needs, a lack of investment opportunities, market downturns or other reasons. This questions the appropriateness of an all-equity benchmark such as the JSE ALSI TR. For example, a portion of a particular unit trust’s return may be attributable to cash, other domestic securities and/or foreign securities and may not be captured or explained by the JSE ALSI TR. It need not be said that if an inappropriate target is set, “extraneous economic events” may cause managerial performance to be misjudged (Oldham and Kroeger, 2005:81). While there is a fair amount of research (such as Meyer (1998)) that specifically addresses benchmark appropriateness in a South African context, this study has assumed, like some of the studies preceding it (for example, Oldham and Kroeger (2005)), that the JSE ALSI TR is appropriate for evaluating South African Domestic Equity Unit Trust performance.

As noted from Section 6.1, the manner in which the net unit trust returns are calculated in this study is subject to a number of limitations. First, annual expense ratios obtained from Morningstar as at 31 December 2010 were obtained and applied retrospectively, thereby assuming that they were constant over time. However, Oldham and Kroeger (2005) recently commented that the fees and expenses charged by South African unit trusts appear to remain stable over time so the retrospective application of the annual fee ratios may not prejudice the results significantly, if at all. Second as unit trust net asset values were not obtained, an

approximation of net returns is used. It seems that this may have biased the net returns upwards. Thus, testing unit trust returns for outperformance on the basis of net returns may be an avenue for further research.

In the words of Daniel et al. (1997:1056), this study uses benchmarks based on “purely mechanical, specifications based on general stock market characteristics like book-to-market, size and momentum” as opposed to a benchmark that directly matches the characteristics of the component stocks of the portfolio or unit trust being evaluated. Moreover, throughout this study, as is the case with most studies, performance is attributed to ‘fund managers’, but no attempt is made to “find out to what extent the management team has changed during the period under evaluation” (Oldham and Kroege, 2005:81).

Absolute performance for the unit trust sample as a whole is inferred on the basis of mean returns, Sharpe ratios and alpha values. Sharpe (1991:3) warns that “Looking at the mean return or median return is all well and good but investing equal amounts with many managers is not a practical alternative. Nor is investing with the median manager whose identity is not even known in advance.” Moreover, previous researchers (such as Sharpe (1991) and Carhart (1997)) calculate that value-weighted mean values for their mutual fund samples as a whole when testing for outperformance or for the persistence in performance. While there is no consensus on how the weights should be calculated, this too represents an avenue for future research. This study also does not test the statistical significance of the mean values observed for the unit trust sample as a whole; statistical significance is only tested at the individual fund level.

The reader should be reminded that “This is an economic investigation. We are dealing with spotty data. We should expect our models to point us in the correct direction, but not with laser-like accuracy” (Grinold and Kahn, 2000:4). In testing for outperformance, this study has assumed that the linear regression models proposed by Jensen (1968), Fama and French (1993), Carhart (1997) and Ferson and Warther (1996) are appropriate given the nature and composition of the sample data. As Meyer (1998) did, this study makes no adjustments for the problems (if any) arising due to the non-stationarity of returns. However, Firer (2001) warns that studies using CAPM models and other multiple regression models should be treated with caution

since, if not specifically adjusted for, the slope-coefficients in the various regression models may not be stable or stationary. Moreover, the assumptions of capital market theory are assumed to hold in the real world, specifically the assumption that the target risk profile of the mutual funds in the sample remains approximately constant over time – a requirement that Jensen (1968) stated all the way back in his seminal paper.

Regardless of the limitations assumptions cited in this section, it is still believed that the results of this study are credible and that valid inferences may be drawn.

8. Conclusion

“The art of investing is [increasingly] evolving into the science of investing. This evolution has been happening slowly and will continue for some time. The direction is clear; the pace varies. As new generations of increasingly scientific investment managers come to the task, they will rely more and more on analysis, process, and structure than on intuition, advice and whim. This does not mean that heroic personal investment insights are a thing of the past. It means that managers will increasingly capture and apply those insights in a systematic fashion.” (Grinold and Kahn, 2000:1)

As the active management industry seemingly becomes more advanced in terms of sophistication, complexity and size, one would expect that active investors would become even better at delivering superior performance. Yet, this study was unable to produce conclusive evidence that South African domestic equity unit trust managers, on average, are able to deliver superior performance. While evidence of both outperformance and underperformance was found, the direction of the results appears to depend on the methodology and the performance model employed, as well as on the time period examined and the length of the evaluation interval. Overall, on the basis of nominal and risk-adjusted returns, convincing evidence of outperformance was found for the 2001 to 2005 period over all the performance models. The period 2006 to 2010 yielded largely inconclusive results, with a slight bias towards underperformance. Some evidence of outperformance was found over the entire 10-year period from 2001 to 2010, with three out of the six performance measures producing evidence to support outperformance.

The results of this study are supported by the following statement given by Benjamin Graham⁷ during an interview:

“I am no longer an advocate of elaborate techniques of security analysis in order to find superior value opportunities. This was a rewarding activity, say, 40 years ago, when Graham and Dodd⁸ was

⁷ Benjamin Graham as quoted in the Financial Analysts Journal, 1976 – see Malkiel (2005:9)

first published; but the situation has changed [Today] I doubt whether such extensive efforts will generate sufficiently superior selections to justify their cost...”

On the debate of unit trust performance persistence, which has been “beaten to death” by academics and practitioners for over forty years (Grinold and Kahn, 2000:567), this study is unable to produce conclusive evidence supporting the persistence in the performance of South African domestic equity unit trust returns. As with the results of the outperformance tests, the results of the persistence tests appear to be sensitive to the time periods examined, the methodology, and performance models employed. Also, the lengths of the formation and holding periods affect the results. Some evidence of short-term persistence is found over the 2001 to 2010 and 2001 to 2005 periods, while minimal evidence of persistence is found over the 2006 to 2010 year. Over the longer-term, however, the strength of the evidence decreases, disappearing almost entirely in some cases. Moreover, it appears that ‘losers’ persist more than ‘winners’. Given that active management requires expenditure on research and trading activities, this result is not surprising. Also, Brown et al. (1992) explains that negative performance can persist where a subset of managers are immune from periodic performance review, and where it is difficult to short sell unit trusts; the latter being a common feature of most unit trust markets, including South Africa.

While evidence of short-run persistence is evident, such short-run persistence may not translate into viable investment strategies for investors of unit trusts and mutual funds. The shorter the holding period (which effectively translates into a shorter investment horizon for the investor), the more difficult it is to economically benefit from performance persistence, due to the increasing costs of more frequent rebalancing. The high initial and exit fees charged by unit trust managers makes this strategy even less appealing. In addition, there is hardly any evidence that picking only the best-performing fund over the formation period would result in superior performance in the subsequent holding period. At best, the odds to achieve better-than-average performance during the holding period may be somewhat increased by selecting

⁸ Referring to the book *Security Analysis* published by Benjamin Graham and David Dodd – First edition published during the 1930s.

a portfolio of funds on the basis of past performance (Patari, 2009). On the other hand, while taking advantage of past superior performance may be “cumbersome” for the unit trust investor, Patari (2009:134) notes that investors may still at least be able “to benefit from the findings of the persistence literature by avoiding repetitive underperforming funds that have high expense ratios.” Thus, it is unlikely that investors can profit from pursuing strategies of investing in the top-performing funds of prior periods, and even where this may be possible, it may be prohibitively expensive to do so.

Given that the 2001 to 2005 was a period largely characterised by bull markets, and that the 2006 to 2010 was largely a period of bear markets, the results suggest that unit trust managers on average perform better during bull markets. This is also when the evidence of performance persistence is strongest. This is contrary to the findings of Kosowski (2006) who asserted that investors may be willing to give up some average performance during periods of rising markets because mutual funds provide a partial hedge during unfavourable phases of the market cycle.

On the matter of individual performance, evidence of both outperformance and underperformance was found. A contentious issue among previous researchers is whether the observation of outperformance or underperformance is due to skill or luck. While evidence of skill is found, as with Cuthbertson et al. (2008), it was found that for the majority of funds yielding superior performance, that performance can be attributed to ‘good’ luck. Also, evidence of ‘poor’ skill (or stated differently, a lack of skill) was also found among underperforming funds. Moreover, the number of outperformers relative to underperformers varies with the time period examined and performance model used. Thus, to use the words of Cuthbertson et al (2008:632), “it may be difficult for the average investor to pinpoint individual active funds that demonstrate genuine skill, based on their complete track records.” It is therefore concluded that this study was unable to produce convincing evidence of superior skill among unit trust managers.

While the dataset used in this study is not free from survivorship bias, it is asserted that the conclusions reached in this study are unaffected since survivorship bias tends to bias mean unit trust returns upwards.

That is, if non-surviving funds were included in the sample, the mean return unit trust returns would have probably been lower and even less persistent, thereby further supporting the conclusions reached.

The findings of this study are largely consistent with the arithmetic-of-asset-management theory proposed by Sharpe (1991), and the equilibrium accounting theory proposed by Fama and French (2008), both of which assert that the active management industry as a whole is a zero-sum game before costs. Just as both of these theories do not preclude the observation of superior or inferior performance at the individual fund level, evidence of 'star' performers and 'lemons' are found in this study. Furthermore, the findings of this study also seem to be consistent with the EMH, which implies that successful active management should not be possible, and that past performance is no guarantee of future performance. However, although many researchers have attempted to prove that active management and efficient markets are not complementary, Mabhunu (2004:86) asserts that "there is not enough proof that these two are exclusive." The conclusion that active management is inconsistent with the EMH seems to be premised on the assumption that fund managers try to predict future prices and beat the market. But modern portfolio theory and behavioural finance acknowledge that prices can move up as much as they can drop, sometimes more pronounced than rationally expected, so managers do not necessarily predict the likely future prices, but construct well-diversified portfolios that are hedged against risk. Of course, managers will pounce on every bit of information that can help them make better estimates of future prices, but it appears that there may be more to asset management than predicting stock prices and/or searching for mispriced securities (Mabhunu, 2004).

Although the performance of individual unit trusts may differ, as an investment vehicle, unit trusts seem to offer a small investor an acceptable, inflation-beating return over the medium to long-term, while the "excitement of the upside potential" of the stock market makes this type of investment attractive (Pretorius and Wolmarans, 2006:51). Moreover investors have successfully used unit trusts and mutual funds to supplement retirement funds. While, Krell (2005) found that an increasing number of investors worldwide are investing in mutual funds in order to provide for retirement, as the performance of companies' retirement funds often fall short of expectations, Rusconi (2005) found evidence for a similar trend in South Africa. Rusconi (2005) also found that unit trusts are on average offer a more cost-effective way to provide for

retirement funding than individual life insurance products. Furthermore, many investors looking for exposure to equity investments lack the knowledge, acumen and time required to successfully manage their own share portfolios, while many investors fear investing directly into the stock market. Thus, it appears that unit trusts serve a necessary function in society and provide a channel for such investors to gain exposure to equity securities.

Perhaps the main objective of unit trusts is not to outperform. Unit trusts, for the most part, tend to hold large diversified portfolios, and it appears that they do an “excellent job of minimising the insurable risk borne by shareholders” (Jensen, 1966:415). This would, in part, explain what Gruber (1996:784) described as the “puzzling” behaviour of investors, many of whom “continue to pour money” into actively managed funds. Thus, even though convincing evidence of outperformance could not be found in this study, the results reported should not be construed as indicating that mutual funds are not providing a socially desirable service to investors. The evidence does indicate, however, a need on the part of the funds themselves to evaluate both the costs and the benefits of their research and trading activities in order to provide investors with maximum possible returns for the level of risk assumed (Jensen, 1966).

8.1.Future Avenues for Research

Given the inherent scope limitations and assumptions of this study, the following future avenues for research are suggested.

First, weekly returns could be evaluated to further increase the number of observations, thereby enhancing the credibility and robustness of the regression analyses (see Oldham and Kroeger (2005) for example). Second, even though it is asserted that the impact of survivorship bias would not have affected the findings of this study, a sample free of survivorship bias could be examined. Third, the value-weighted mean values for the unit trust sample as a whole could be calculated to evaluate the performance of the unit trust sample as a

whole. Value-weighted returns of the sample as a whole could also be used to: (1) establish the robustness and appropriateness of the statistical models used in this study relative to the sample data being evaluated; (2) test the statistical significance of the value-weighted mean values for the unit trust sample as a whole. Fourth, more thorough data relating to the expense ratios charged by the unit trusts could be obtained so that more accurate net returns can be calculated. Fifth, the results of the regression slope co-efficients could be tested for stationarity and stability as Knight and Firer (1989) did. Sixth, a more detailed style-specific analysis could be performed using style-specific benchmarks. For example, South African domestic equity value funds could be evaluated relative to the JSE Value Index.

Seventh, an updated study on benchmark appropriateness and alternative benchmarks in a South African context is required. Further research is needed to determine the quality of management performance, particularly where an absolute benchmark is adopted. Not all unit trust investors are happy to follow the ebb and flow of the market but may prefer a return that on average beats the risk-free rate, the return on bonds, inflation or some similar target for a given holding period. This might prove to be a much stronger test of management performance than the JSE ALSI benchmark. "There is not really much satisfaction for an investor in knowing that, in a bear market, the fund manager 'beat' the market when in fact real returns were negative" (Oldham and Kroeger, 2005:89).

Eighth, the performance of other categories of unit trusts could be evaluated (for example, asset allocation funds, fixed income funds and hedge funds). Ninth, a more thorough study of the performance of ETFs could be performed using benchmarks that are more appropriate relative to the underlying mandates of those ETFs. Tenth, when testing for persistence, formation and holding periods of varying and unequal lengths could be used. Elton et al. (1996) assert that formation periods and holding periods which are not always equal in length can be useful for identifying performance. Eleventh, other performance measures (such as market-timing models, Bayesian alphas, Bootstrapping) that have already been developed as well as newly developed ones could be applied to evaluate unit trust performance. Last, additional research could be performed relating to the extent to which unit trusts and mutual funds in general provide socially desirable services to investors.

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Domestic EQ Res & Basic Ind	STANLIB Resources R	5.63	12.07	23.66	48.61	112.24	168.65	507.09	7.25	14.53	30.22	52.86	121.64	245.16	4.01	9.62	17.11	28.76	42.13	75.89
Domestic EQ Res & Basic Ind	Metropolitan Resources	5.49	11.48	23.17	45.71	101.87	156.66	503.12	6.44	12.67	27.34	38.30	80.56	193.57	4.54	10.30	19.00	33.30	63.57	105.44
Domestic EQ Smaller Compan	RMB Small/Mid-Cap A	6.64	13.88	29.50	66.61	189.64	276.40	1,001.89	8.28	17.23	35.83	87.47	246.11	353.14	5.01	10.52	23.17	40.24	76.36	143.17
Domestic EQ Smaller Compan	SIM Small Cap R	5.96	12.63	26.96	62.35	184.75	268.76	707.40	7.77	16.29	33.52	84.32	225.51	307.95	4.15	8.96	20.40	31.98	44.93	97.92
Domestic EQ Smaller Compan	Nedgroup Inv Entrepreneur R	5.94	12.48	26.56	61.76	181.70	262.42	749.82	7.90	16.57	34.74	87.27	237.74	328.37	3.98	8.38	18.39	28.10	45.76	98.38
Domestic EQ Smaller Compan	Investec Emerging Companies R	5.57	11.60	24.85	56.75	162.56	233.29	613.15	7.40	15.21	31.66	78.22	206.92	283.53	3.74	7.99	18.04	27.04	38.05	85.95
Domestic EQ Smaller Compan	Old Mutual Small Companies R	5.43	11.17	23.83	54.65	156.30	221.51	556.98	7.04	14.37	29.91	75.09	189.55	251.30	3.81	7.97	17.75	26.00	37.04	87.01
Domestic EQ Smaller Compan	Coronation Smaller Companies	5.14	10.70	22.76	50.30	131.88	187.74	514.46	6.43	13.19	27.01	64.84	168.67	224.67	3.84	8.21	18.51	27.14	38.16	89.25
Domestic EQ Smaller Compan	STANLIB Small Cap A	3.62	7.94	17.99	41.98	131.75	178.84	187.25	6.84	14.18	28.95	71.06	178.46	239.45	0.39	1.70	7.03	2.66	-31.62	-15.38
Domestic EQ Value	Investec Value R	7.20	14.97	31.81	72.58	205.19	301.60	1,272.75	10.06	21.16	45.57	110.11	341.50	544.67	4.33	8.78	18.06	30.52	62.47	112.94
Domestic EQ Value	Nedgroup Inv Value R	6.21	12.92	26.93	58.67	149.78	223.73	894.51	7.88	16.50	34.39	72.94	198.17	333.05	4.53	9.33	19.46	34.56	74.41	129.65
Domestic EQ Value	RMB Value	6.02	12.68	26.41	57.92	156.28	222.66	779.50	8.00	16.59	35.14	80.73	221.71	340.15	4.03	8.76	17.68	30.57	58.57	99.82
Domestic EQ Value	SIM Value R	5.82	11.99	25.20	57.26	163.71	233.23	700.64	7.46	15.45	32.12	75.76	192.20	282.53	4.18	8.53	18.28	31.89	62.97	109.30
Domestic EQ Value	STANLIB Value A	5.51	11.43	24.36	53.13	149.06	213.10	636.27	7.06	14.55	30.36	69.14	179.52	267.19	3.97	8.31	18.36	31.97	58.57	100.51
Domestic EQ Value	Prudential Dividend Maximiser A	5.25	10.81	22.78	50.98	145.91	210.56	576.16	6.14	12.63	26.54	56.36	128.17	203.89	4.36	9.00	19.01	32.78	69.89	122.50
Domestic EQ Value	Old Mutual Value R	5.16	10.54	22.23	48.74	132.22	185.78	529.87	6.83	14.00	29.27	66.37	167.56	248.61	3.49	7.09	15.18	24.73	45.11	80.68
Domestic EQ Value	Metropolitan High Dividend	4.43	9.26	19.31	37.96	68.11	82.79	N/A	7.57	15.89	33.29	77.02	N/A	N/A	3.18	6.61	13.72	21.89	39.23	71.95
Domestic EQ Value	Cadiz Mastermind A	3.44	8.25	11.33	17.20	41.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.44	8.25	11.33	17.20	41.04	N/A
Domestic EQ Value	Dynamic Wealth Value	1.76	3.42	8.23	26.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.76	3.42	8.23	26.52	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R	5.24	10.61	22.60	46.34	64.55	109.04	423.00	8.09	16.67	36.84	67.17	114.40	263.64	2.39	4.56	8.37	11.06	20.73	43.82
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	4.89	9.74	20.20	40.93	55.63	92.61	337.88	7.23	14.90	31.91	56.50	88.91	206.48	2.55	4.57	8.50	10.86	19.22	42.88
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	2.86	5.93	12.36	19.10	35.17	66.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.86	5.93	12.36	19.10	35.17	66.14
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	8.34	17.44	27.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.34	17.44	27.34	N/A	N/A	N/A
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIV	6.86	14.68	11.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.86	14.68	11.34	N/A	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	6.78	13.95	28.23	63.76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.78	13.95	28.23	63.76	N/A	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	6.30	13.43	13.51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.30	13.43	13.51	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	5.87	11.63	12.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.87	11.63	12.10	N/A	N/A	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE	5.37	11.11	22.11	48.63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.37	11.11	22.11	48.63	N/A	N/A
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	5.21	10.94	21.27	46.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.21	10.94	21.27	46.62	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	4.66	10.15	23.93	54.47	131.67	176.02	N/A	4.95	11.49	31.78	79.25	N/A	N/A	4.45	9.22	19.22	33.47	68.97	123.02
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	4.40	9.02	18.34	38.80	102.29	148.90	351.31	5.03	9.90	20.32	33.33	69.49	135.21	3.76	8.14	16.35	27.14	51.83	91.87
Exchange Traded Fund	BBET40 - BETTABETA CIS	4.02	20.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.02	20.42	N/A	N/A	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	3.76	7.49	17.61	39.41	83.83	100.58	N/A	5.69	11.55	30.52	76.09	N/A	N/A	2.31	4.65	9.87	11.81	17.17	43.87
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	3.74	8.62	17.88	46.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.74	8.62	17.88	46.48	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	3.36	7.06	26.15	58.91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.36	7.06	26.15	58.91	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	3.09	7.27	11.22	11.77	36.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.09	7.27	11.22	11.77	36.10	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INV	3.02	6.49	9.50	12.24	34.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.02	6.49	9.50	12.24	34.11	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		60 (40%)	60 (40%)	60 (40%)	67 (47%)	53 (45%)	47 (44%)	38 (51%)	73 (70%)	72 (70%)	65 (67%)	77 (83%)	69 (81%)	50 (67%)	39 (26%)	40 (26%)	44 (29%)	40 (28%)	25 (21%)	23 (21%)
Number of 'Loser' Funds		91 (60%)	91 (60%)	90 (60%)	75 (53%)	66 (55%)	60 (56%)	37 (49%)	31 (30%)	31 (30%)	32 (33%)	16 (17%)	16 (19%)	25 (33%)	112 (74%)	111 (74%)	106 (71%)	102 (72%)	94 (79%)	84 (79%)

Domestic EQ Res & Basic Ind	Metropolitan Resources	0.68	1.84	2.50	5.17	9.62	15.09	49.99	0.13	1.18	2.32	2.56	4.77	18.52	1.22	2.50	2.67	3.82	2.68	7.25
Domestic EQ Res & Basic Ind	Nedgroup Inv Mining & Res R	0.43	1.94	3.02	6.37	14.08	21.33	71.64	-0.49	1.21	2.68	3.30	5.98	20.73	1.35	2.67	3.36	5.16	5.89	13.12
Domestic EQ Smaller Compan	RMB Small/Mid-Cap A	3.83	3.31	5.20	11.72	34.10	50.45	182.26	3.08	3.34	5.69	14.62	43.58	63.92	4.58	3.29	4.72	6.76	6.48	18.68
Domestic EQ Smaller Compan	Old Mutual Small Companies R	2.97	2.80	3.86	8.70	25.17	35.39	79.94	1.96	3.10	4.69	12.29	29.32	38.66	3.99	2.51	3.03	3.10	-1.18	6.24
Domestic EQ Smaller Compan	Nedgroup Inv Entrepreneur R	2.60	2.83	4.87	11.32	34.14	49.36	129.35	1.71	3.34	6.06	16.02	45.57	65.20	3.49	2.32	3.67	4.22	0.38	8.70
Domestic EQ Smaller Compan	SIM Small Cap R	2.54	3.06	4.57	10.74	32.84	47.52	113.67	2.30	3.55	5.39	14.17	38.65	54.39	2.78	2.58	3.75	4.97	0.22	8.37
Domestic EQ Smaller Compan	Investec Emerging Companies R	2.42	2.79	4.52	10.13	28.96	40.60	90.62	2.92	3.38	5.65	14.40	37.90	50.00	1.92	2.20	3.40	3.89	-0.92	5.59
Domestic EQ Smaller Compan	STANLIB Small Cap A	1.84	2.24	2.57	6.36	21.35	28.07	7.22	2.01	2.56	3.95	10.44	28.00	37.92	1.66	1.91	1.19	0.10	-10.91	-10.62
Domestic EQ Smaller Compan	Coronation Smaller Companies	1.62	2.30	3.85	8.47	22.31	31.86	79.39	1.67	2.60	4.31	10.69	28.95	37.44	1.58	2.00	3.39	3.93	-1.10	7.27
Domestic EQ Value	Nedgroup Inv Value R	2.87	3.07	4.74	10.62	28.41	43.98	183.10	3.37	4.12	6.71	14.29	41.09	74.44	2.38	2.02	2.77	3.93	6.83	17.08
Domestic EQ Value	Metropolitan High Dividend	2.13	2.36	3.56	6.33	7.70	5.97	N/A	3.17	5.49	9.64	22.32	N/A	N/A	1.72	1.11	1.14	0.82	-0.79	3.46
Domestic EQ Value	Investec Value R	1.82	3.12	6.01	13.64	40.37	59.15	236.89	2.42	4.51	9.45	23.52	78.44	126.33	1.21	1.73	2.58	2.85	3.27	10.93
Domestic EQ Value	STANLIB Value A	1.80	2.35	4.17	9.03	26.80	38.41	107.23	2.12	2.96	5.30	12.43	32.03	50.20	1.47	1.75	3.04	4.22	2.88	9.40
Domestic EQ Value	SIM Value R	1.76	2.19	3.51	8.36	26.33	38.16	114.52	1.96	2.60	4.66	11.63	30.85	47.08	1.56	1.79	2.37	3.23	3.77	11.22
Domestic EQ Value	RMB Value	1.66	3.03	4.54	10.11	29.01	41.06	130.91	1.96	3.29	6.19	15.08	44.11	69.21	1.37	2.77	2.89	3.73	2.67	8.39
Domestic EQ Value	Old Mutual Value R	1.27	2.02	3.16	7.25	21.53	30.06	78.84	1.46	2.55	4.63	10.93	28.25	44.18	1.08	1.50	1.70	1.83	0.27	4.98
Domestic EQ Value	Prudential Dividend Maximiser A	1.22	2.06	3.65	8.54	26.18	37.55	95.98	1.09	2.41	4.22	9.16	17.75	30.88	1.34	1.70	3.08	4.01	6.08	15.92
Domestic EQ Value	Cadiz Mastermind A	0.87	1.95	0.33	-0.68	-0.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	1.95	0.33	-0.68	-0.26	N/A
Domestic EQ Value	Dynamic Wealth Value	0.37	0.23	0.44	2.22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.37	0.23	0.44	2.22	N/A	N/A
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	1.19	0.59	1.21	2.23	1.24	3.90	22.52	0.78	1.02	2.15	3.24	4.32	15.29	1.61	0.15	0.26	-0.76	-3.20	-1.49
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	0.87	1.20	1.46	0.89	-1.82	2.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	1.20	1.46	0.89	-1.82	2.81
Domestic EQ Varied Specialist	Old Mutual Gold R	0.46	0.75	1.51	2.86	2.21	5.82	33.50	0.66	1.33	2.94	4.45	7.02	21.81	0.26	0.16	0.09	-0.86	-3.17	-1.42
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIV	100.40	2.25	0.78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.40	2.25	0.78	N/A	N/A	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	1.33	3.20	4.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.33	3.20	4.62	N/A	N/A	N/A
Exchange Traded Fund	STXSXW - SATRIX COLLECTIVE IN	1.22	1.24	0.49	-1.09	-1.46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.22	1.24	0.49	-1.09	-1.46	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	0.91	2.26	3.47	8.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.91	2.26	3.47	8.26	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	0.89	2.16	3.57	7.93	19.25	24.66	N/A	0.53	2.47	4.91	12.55	N/A	N/A	1.17	1.94	2.76	3.72	4.81	13.44
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	0.87	1.85	2.09	4.95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	1.85	2.09	4.95	N/A	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIV	0.74	1.76	2.39	5.65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.74	1.76	2.39	5.65	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	0.71	1.32	2.21	5.03	12.60	17.41	34.15	0.49	1.16	2.14	3.20	3.87	12.25	0.92	1.48	2.28	2.79	1.39	6.43
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	0.50	1.61	1.06	-0.39	-0.78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.50	1.61	1.06	-0.39	-0.78	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	0.46	2.41	1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46	2.41	1.25	N/A	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	0.45	1.04	3.19	7.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.45	1.04	3.19	7.56	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	0.41	1.55	1.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.41	1.55	1.02	N/A	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	0.39	1.00	2.17	5.18	9.57	9.11	N/A	0.37	1.87	4.79	12.37	N/A	N/A	0.40	0.40	0.60	-0.73	-4.02	-1.60
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	0.27	1.15	2.02	5.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.27	1.15	2.02	5.49	N/A	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	-0.06	3.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	3.80	N/A	N/A	N/A	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		109 (72%)	101 (67%)	76 (51%)	74 (52%)	62 (52%)	58 (54%)	43 (57%)	76 (73%)	81 (79%)	81 (84%)	80 (86%)	67 (79%)	54 (72%)	88 (58%)	62 (41%)	47 (31%)	45 (32%)	29 (24%)	32 (30%)
Number of 'Loser' Funds		42 (28%)	50 (33%)	74 (49%)	68 (48%)	57 (48%)	49 (46%)	32 (43%)	28 (27%)	22 (21%)	16 (16%)	13 (14%)	18 (21%)	21 (28%)	63 (42%)	89 (59%)	103 (69%)	97 (68%)	90 (76%)	75 (70%)

Domestic EQ Smaller Company	RMB Small/Mid-Cap A	1.43	1.04	0.99	1.02	0.97	0.92	0.92	2.00	1.43	1.32	1.63	1.58	1.37	0.86	0.65	0.66	0.45	0.33	0.49
Domestic EQ Smaller Company	SIM Small Cap R	1.16	0.76	0.65	0.75	0.80	0.77	0.64	1.32	1.20	1.06	1.44	1.45	1.20	0.99	0.33	0.25	0.04	-0.09	0.12
Domestic EQ Smaller Company	Old Mutual Small Companies R	1.00	0.57	0.45	0.56	0.61	0.59	0.47	1.16	0.87	0.75	1.19	1.21	0.94	0.84	0.26	0.15	-0.10	-0.19	0.04
Domestic EQ Smaller Company	Investec Emerging Companies R	0.86	0.68	0.67	0.71	0.67	0.62	0.51	0.91	1.01	0.97	1.36	1.32	1.06	0.81	0.35	0.36	0.05	-0.18	0.00
Domestic EQ Smaller Company	Coronation Smaller Companies	0.80	0.53	0.36	0.47	0.50	0.50	0.44	0.79	0.81	0.62	1.02	1.03	0.75	0.82	0.26	0.09	-0.14	-0.14	0.13
Domestic EQ Smaller Company	STANLIB Small Cap A	0.79	0.08	-0.14	-0.04	0.11	0.09	-0.21	1.44	0.84	0.75	1.12	1.12	0.88	0.14	-0.69	-1.02	-1.37	-1.59	-1.25
Domestic EQ Smaller Company	Nedgroup Inv Entrepreneur R	0.70	0.84	0.75	0.79	0.80	0.79	0.69	0.75	1.28	1.16	1.53	1.55	1.31	0.65	0.40	0.34	0.04	-0.08	0.12
Domestic EQ Value	RMB Value	1.02	0.81	0.71	0.67	0.58	0.51	0.59	1.50	1.17	1.13	1.34	1.36	1.23	0.54	0.45	0.29	0.18	0.04	0.01
Domestic EQ Value	Investec Value R	1.00	0.76	0.84	0.89	0.93	0.93	1.10	1.82	1.65	1.71	1.96	2.09	1.98	0.19	-0.13	-0.04	0.02	0.17	0.25
Domestic EQ Value	Nedgroup Inv Value R	0.85	0.77	0.70	0.66	0.60	0.62	0.79	1.06	1.21	1.16	1.18	1.23	1.27	0.64	0.34	0.24	0.18	0.27	0.34
Domestic EQ Value	SIM Value R	0.75	0.51	0.47	0.57	0.65	0.61	0.54	1.07	0.94	0.88	1.15	1.12	0.93	0.43	0.08	0.05	0.09	0.13	0.17
Domestic EQ Value	STANLIB Value A	0.68	0.40	0.46	0.51	0.57	0.52	0.50	1.03	0.89	0.85	1.06	1.09	0.96	0.32	-0.08	0.07	0.11	0.06	0.08
Domestic EQ Value	Old Mutual Value R	0.35	0.32	0.26	0.36	0.36	0.31	0.31	0.58	0.73	0.68	0.95	0.94	0.79	0.12	-0.09	-0.17	-0.13	-0.13	-0.12
Domestic EQ Value	Metropolitan High Dividend	0.30	0.04	0.03	-0.02	-0.13	-0.18	N/A	0.56	0.83	0.90	1.00	N/A	N/A	0.20	-0.28	-0.32	-0.28	-0.19	-0.17
Domestic EQ Value	Cadiz Mastermind A	0.24	0.21	-0.30	-0.12	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.24	0.21	-0.30	-0.12	-0.02	N/A
Domestic EQ Value	Prudential Dividend Maximiser A	0.20	0.26	0.33	0.39	0.49	0.49	0.36	0.24	0.51	0.47	0.59	0.55	0.47	0.16	0.00	0.20	0.13	0.19	0.26
Domestic EQ Value	Dynamic Wealth Value	0.18	0.11	-0.02	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.18	0.11	-0.02	-0.02	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R	0.15	0.51	0.15	-0.15	-0.47	-0.30	0.36	-0.04	0.72	0.75	0.27	0.50	0.76	0.34	0.30	-0.44	-0.42	-0.27	-0.14
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	-0.21	0.39	-0.05	-0.32	-0.59	-0.43	0.17	-0.87	0.36	0.33	-0.02	0.25	0.47	0.44	0.41	-0.43	-0.41	-0.31	-0.20
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	-0.24	-0.35	-0.24	-0.30	-0.29	-0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.24	-0.35	-0.24	-0.30	-0.29	-0.24
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	0.89	0.68	0.40	0.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.89	0.68	0.40	0.57	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	0.50	0.25	0.04	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.50	0.25	0.04	0.05	N/A	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	0.40	0.26	0.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.40	0.26	0.71	N/A	N/A	N/A
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE	0.30	0.19	-0.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.30	0.19	-0.62	N/A	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	0.14	0.04	0.18	0.19	0.24	0.25	N/A	-0.09	0.31	0.38	0.64	N/A	N/A	0.31	-0.15	0.06	0.11	0.22	0.28
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	0.14	0.69	0.30	0.19	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14	0.69	0.30	0.19	0.01	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	0.05	-0.31	-0.16	-0.08	-0.14	-0.16	N/A	0.69	0.06	0.62	0.83	N/A	N/A	-0.43	-0.57	-0.62	-0.64	-0.47	-0.37
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INV	0.05	-0.16	-0.17	-0.16	-0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	-0.16	-0.17	-0.16	-0.14	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	-0.04	-0.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.04	-0.20	N/A	N/A	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	-0.05	0.00	0.18	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.00	0.18	0.17	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVEST	-0.18	-0.13	-0.11	-0.11	-0.13	-0.15	-0.16	-0.21	-0.15	-0.12	-0.19	-0.23	-0.21	-0.14	-0.11	-0.09	-0.06	-0.07	-0.11
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE	-0.29	-0.35	-0.27	-0.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.29	-0.35	-0.27	-0.27	N/A	N/A
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGER	-0.31	-0.36	-0.42	-0.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.31	-0.36	-0.42	-0.42	N/A	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	-0.52	-0.29	-0.44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.52	-0.29	-0.44	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	-0.91	-1.07	-0.41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.91	-1.07	-0.41	N/A	N/A	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		117 (77%)	93 (62%)	76 (51%)	80 (56%)	76 (64%)	72 (67%)	53 (71%)	80 (77%)	81 (79%)	75 (77%)	78 (84%)	73 (86%)	61 (81%)	115 (76%)	69 (46%)	54 (36%)	47 (33%)	36 (30%)	43 (40%)
Number of 'Loser' Funds		34 (23%)	58 (38%)	74 (49%)	62 (44%)	43 (36%)	35 (33%)	22 (29%)	24 (23%)	22 (21%)	22 (23%)	15 (16%)	12 (14%)	14 (19%)	36 (24%)	82 (54%)	96 (64%)	95 (67%)	83 (70%)	64 (60%)

Domestic EQ Smaller Company	RMB Small/Mid-Cap A	1.89	0.97	0.73	0.55	0.47	0.44	0.57	1.89	0.50	0.50	0.60	0.83	0.79	1.90	1.44	0.96	0.57	0.23	0.36
Domestic EQ Smaller Company	SIM Small Cap R	1.28	0.53	0.31	0.31	0.32	0.29	0.23	1.36	0.30	0.09	0.43	0.64	0.52	1.20	0.76	0.54	0.20	-0.17	-0.01
Domestic EQ Smaller Company	Coronation Smaller Companies	1.24	0.68	0.46	0.10	-0.02	-0.01	0.04	1.07	0.39	0.08	0.16	0.42	0.31	1.42	0.97	0.84	0.02	-0.33	-0.07
Domestic EQ Smaller Company	Old Mutual Small Companies R	1.13	0.65	0.40	0.07	0.05	0.04	0.05	1.45	0.27	-0.05	0.10	0.27	0.19	0.81	1.03	0.84	0.04	-0.33	-0.13
Domestic EQ Smaller Company	Nedgroup Inv Entrepreneur R	1.11	0.70	0.46	0.31	0.28	0.30	0.32	0.85	0.21	0.20	0.48	0.61	0.53	1.36	1.19	0.72	0.12	-0.18	-0.01
Domestic EQ Smaller Company	STANLIB Small Cap A	0.86	0.32	-0.35	-0.44	-0.45	-0.48	-0.77	0.96	0.57	-0.03	0.07	0.23	0.19	0.76	0.06	-0.67	-1.08	-1.65	-1.43
Domestic EQ Smaller Company	Investec Emerging Companies R	0.86	0.75	0.68	0.29	0.16	0.11	0.10	0.94	0.32	0.42	0.49	0.60	0.50	0.77	1.18	0.94	0.10	-0.34	-0.19
Domestic EQ Value	Investec Value R	1.27	0.48	1.02	0.47	0.37	0.43	0.77	1.71	0.80	0.97	1.16	1.42	1.39	0.82	0.16	1.07	-0.02	-0.12	0.01
Domestic EQ Value	SIM Value R	1.20	0.10	0.37	0.13	0.12	0.13	0.23	1.22	-0.15	0.19	0.30	0.42	0.36	1.18	0.34	0.54	0.09	-0.04	0.00
Domestic EQ Value	Nedgroup Inv Value R	1.17	0.68	0.75	0.46	0.38	0.40	0.62	1.13	0.74	0.85	0.83	1.03	1.10	1.21	0.63	0.65	0.16	0.15	0.23
Domestic EQ Value	Dynamic Wealth Value	0.97	0.17	0.29	0.29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.97	0.17	0.29	0.29	N/A	N/A
Domestic EQ Value	Old Mutual Value R	0.66	0.10	0.17	0.00	-0.08	-0.07	0.07	0.57	-0.26	-0.01	0.20	0.24	0.22	0.75	0.45	0.36	-0.08	-0.26	-0.26
Domestic EQ Value	Cadiz Mastermind A	0.66	0.77	0.44	0.02	-0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.66	0.77	0.44	0.02	-0.13	N/A
Domestic EQ Value	Prudential Dividend Maximiser A	0.52	-0.11	0.27	0.08	0.17	0.21	0.21	0.80	-0.18	-0.07	-0.05	-0.05	0.02	0.24	-0.03	0.61	0.14	0.14	0.19
Domestic EQ Value	RMB Value	0.48	0.34	0.25	0.28	0.21	0.20	0.40	0.45	0.03	0.41	0.60	0.75	0.74	0.51	0.64	0.09	0.15	0.01	-0.05
Domestic EQ Value	Metropolitan High Dividend	0.37	0.37	0.45	-0.19	-0.39	-0.43	N/A	0.16	-0.21	0.38	0.27	N/A	N/A	0.46	0.60	0.48	-0.23	-0.34	-0.31
Domestic EQ Value	STANLIB Value A	0.20	0.02	0.26	0.12	0.12	0.10	0.19	0.23	-0.30	-0.05	0.17	0.31	0.34	0.16	0.34	0.56	0.22	-0.02	-0.04
Domestic EQ Varied Specialist	Old Mutual Gold R	2.49	0.44	0.01	0.52	0.36	0.39	0.74	5.54	3.24	2.52	1.85	2.59	2.33	-0.56	-2.36	-2.49	-0.53	-0.02	0.05
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	2.11	0.17	-0.12	0.33	0.24	0.25	0.59	5.35	2.77	2.16	1.44	2.25	1.97	-1.13	-2.43	-2.40	-0.42	0.06	0.07
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	0.05	-0.10	0.23	-0.28	-0.37	-0.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	-0.10	0.23	-0.28	-0.37	-0.32
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE	4.98	0.13	-0.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.98	0.13	-0.55	N/A	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	1.19	0.02	-0.16	-0.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.19	0.02	-0.16	-0.10	N/A	N/A
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	1.12	1.19	2.08	1.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.12	1.19	2.08	1.07	N/A	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	0.56	-0.59	0.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.56	-0.59	0.80	N/A	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	0.25	-0.46	0.45	-0.05	0.00	0.06	N/A	-1.37	-1.30	-0.41	-0.26	N/A	N/A	1.47	0.13	0.96	0.18	0.10	0.17
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	-0.15	-0.16	-0.30	-0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.15	-0.16	-0.30	-0.33	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	-0.22	-0.27	-0.04	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.22	-0.27	-0.04	-0.01	N/A	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE IN	-0.25	-0.56	-0.33	-0.20	-0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.25	-0.56	-0.33	-0.20	-0.15	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	-0.28	-0.02	-0.12	-0.09	-0.08	-0.09	-0.12	-0.31	-0.01	-0.08	-0.14	-0.19	-0.18	-0.25	-0.04	-0.15	-0.06	-0.04	-0.08
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIV	-0.58	-0.32	-0.26	-0.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.58	-0.32	-0.26	-0.32	N/A	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	-0.67	-0.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.67	-0.52	N/A	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	-0.71	-1.71	-0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.71	-1.71	-0.30	N/A	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	-0.88	-1.19	-0.26	-0.61	-0.69	-0.59	N/A	-0.77	-2.02	-0.73	-0.45	N/A	N/A	-0.96	-0.60	0.02	-0.79	-0.90	-0.71
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIV	-0.90	0.05	-0.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.90	0.05	-0.49	N/A	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	-0.93	0.19	-0.99	0.13	0.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.93	0.19	-0.99	0.13	0.16	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		107 (71%)	74 (49%)	80 (53%)	57 (40%)	44 (37%)	43 (40%)	38 (51%)	56 (54%)	39 (38%)	40 (41%)	47 (51%)	46 (54%)	38 (51%)	115 (76%)	91 (60%)	92 (61%)	50 (35%)	26 (22%)	29 (27%)
Number of 'Loser' Funds		44 (29%)	77 (51%)	70 (47%)	85 (60%)	75 (63%)	64 (60%)	37 (49%)	48 (46%)	64 (62%)	57 (59%)	46 (49%)	39 (46%)	37 (49%)	36 (24%)	60 (40%)	58 (39%)	92 (65%)	93 (78%)	78 (73%)

Table A5.1

Mean Carhart 4-factor Alphas on the basis of Gross Returns

		2001-2010 (10 years)							2001-2005 (5 years)					2006-2010 (5 years)						
		3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Carhart Mean Alphas																				
Mean Alpha Value			-0.38	0.13	0.03	-0.02	-0.02	0.05		-0.94	0.09	0.06	0.18	0.17		-0.18	0.15	0.04	-0.06	-0.03
Domestic EQ Financial	Old Mutual Financial Servs R		-1.72	-0.55	-0.44	-0.43	-0.36	-0.37		-4.23	-1.26	-1.11	-1.05	-1.07		0.78	0.15	0.16	0.00	-0.02
Domestic EQ Financial	RMB Financial Services A		-1.80	-0.56	-0.43	-0.58	-0.52	-0.44		-4.00	-1.24	-1.09	-1.19	-1.11		0.41	0.11	0.19	-0.05	-0.04
Domestic EQ Financial	Nedgroup Inv Financials R		-1.85	-0.26	-0.33	-0.46	-0.41	-0.30		-4.35	-1.12	-1.02	-1.08	-1.02		0.65	0.59	0.41	0.10	0.14
Domestic EQ Financial	SIM Financial A		-2.19	-0.56	-0.52	-0.57	-0.49	-0.39		-4.63	-1.46	-1.28	-1.10	-0.99		0.24	0.33	0.21	-0.04	-0.06
Domestic EQ Financial	Coronation Financial A		-2.27	-0.23	-0.34	-0.38	-0.34	-0.27		-3.65	-1.05	-0.82	-0.83	-0.82		-0.89	0.60	0.16	0.03	0.02
Domestic EQ Financial	STANLIB Financials A		-2.39	-0.51	-0.50	-0.51	-0.44	-0.40		-3.87	-1.30	-1.16	-1.13	-1.14		-0.90	0.29	0.14	0.03	0.02
Domestic EQ General	Afena Equity A1		1.89	-0.14	-0.08	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.89	-0.14	-0.08	N/A	N/A
Domestic EQ General	Stewart Macro Equity FoF A		1.29	0.36	-0.07	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.29	0.36	-0.07	N/A	N/A
Domestic EQ General	Huysamer Equity A1		1.08	0.04	-0.10	-0.03	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.08	0.04	-0.10	-0.03	N/A
Domestic EQ General	PSG Konsult Creator FoF A		1.04	0.87	0.28	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.04	0.87	0.28	N/A	N/A
Domestic EQ General	Element Islamic Equity A		0.81	-0.26	-0.11	-0.09	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.81	-0.26	-0.11	-0.09	N/A
Domestic EQ General	Interneuron Capital Equity		0.77	-0.09	-0.51	-0.49	-0.49	N/A		-0.56	-0.25	N/A	N/A	N/A		1.17	-0.06	-0.47	-0.52	-0.50
Domestic EQ General	Personal Trust SA Equity		0.76	0.40	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.76	0.40	N/A	N/A	N/A
Domestic EQ General	Old Mutual RAFI 40 Tracker A		0.67	0.16	0.16	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.67	0.16	0.16	N/A	N/A
Domestic EQ General	Oasis Crescent Equity		0.61	0.50	0.25	0.22	0.20	0.26		-0.15	0.59	0.51	0.74	0.83		1.36	0.41	0.00	-0.19	-0.12
Domestic EQ General	Kagiso Islamic Equity		0.53	0.83	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.53	0.83	N/A	N/A	N/A
Domestic EQ General	Kagiso Equity Alpha		0.52	0.49	0.24	0.16	0.15	N/A		0.79	-0.41	N/A	N/A	N/A		0.44	0.67	0.38	0.28	0.29
Domestic EQ General	Allan Gray Equity A		0.33	0.70	0.40	0.31	0.35	0.44		-0.82	0.61	0.56	0.76	0.68		1.47	0.79	0.33	0.13	0.19
Domestic EQ General	Prescient Eqty Quant A1		0.31	-0.16	-0.06	0.01	0.01	N/A		0.08	-0.08	-0.02	N/A	N/A		0.40	-0.19	-0.07	0.01	0.00
Domestic EQ General	MI-PLAN IP Beta Equity B2		0.30	0.19	-0.01	-0.11	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.30	0.19	-0.01	-0.11	N/A
Domestic EQ General	SIM Top Choice Equity A1		0.30	0.73	0.45	0.39	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.30	0.73	0.45	0.39	N/A
Domestic EQ General	Oasis General Equity		0.26	0.50	0.19	0.13	0.13	N/A		-1.03	0.35	0.20	0.51	N/A		1.30	0.61	0.22	0.02	0.06
Domestic EQ General	Old Mutual Albaraka Equity		0.20	0.45	0.23	0.08	0.07	0.22		1.45	1.19	0.97	1.01	1.12		-1.05	-0.29	-0.43	-0.61	-0.49
Domestic EQ General	Cannon Equity A		0.20	-0.09	-0.08	-0.17	-0.12	N/A		-0.49	N/A	N/A	N/A	N/A		0.27	-0.09	-0.08	-0.17	-0.12
Domestic EQ General	Element Earth Equity A		0.16	0.26	0.10	0.08	0.14	N/A		-0.67	0.38	0.25	0.43	N/A		0.82	0.17	0.03	-0.02	0.02
Domestic EQ General	PSG Alphen Equity FoF A		0.15	0.25	-0.18	-0.27	-0.24	N/A		-0.79	0.37	-0.03	N/A	N/A		0.80	0.18	-0.21	-0.39	-0.29
Domestic EQ General	Prescient Eqty Active Quant A1		-0.02	0.39	0.19	0.07	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.02	0.39	0.19	0.07	N/A
Domestic EQ General	Ayllett Equity A3		-0.12	0.52	0.46	0.28	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.12	0.52	0.46	0.28	N/A
Domestic EQ General	ABSA Growth FoF		-0.13	-0.07	-0.34	-0.25	-0.24	-0.29		-1.07	-0.28	-0.34	-0.17	-0.33		0.82	0.15	-0.33	-0.55	-0.47
Domestic EQ General	Discovery Equity		-0.16	1.13	0.91	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.16	1.13	0.91	N/A	N/A
Domestic EQ General	Community Growth Equity		-0.21	-0.10	-0.09	-0.05	-0.06	-0.06		-1.15	-0.21	-0.14	-0.03	-0.11		0.73	0.02	0.02	-0.03	-0.10
Domestic EQ General	Old Mutual High Yield Opp A		-0.25	0.37	0.19	0.00	-0.02	0.20		-0.24	0.40	0.43	0.62	0.52		-0.26	0.34	0.17	-0.03	0.06
Domestic EQ General	NFB Equity A2		-0.27	-0.49	-0.28	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.27	-0.49	-0.28	N/A	N/A
Domestic EQ General	ABSA Select Equity		-0.28	0.43	0.31	0.26	0.30	N/A		-1.69	0.36	N/A	N/A	N/A		0.15	0.45	0.34	0.31	0.34
Domestic EQ General	STANLIB Index R		-0.29	-0.24	-0.11	-0.06	-0.05	-0.09		-0.87	-0.21	-0.26	-0.24	-0.24		0.29	-0.28	0.00	0.07	0.05
Domestic EQ General	Nedgroup Inv Rainmaker A		-0.29	0.47	0.34	0.33	0.33	0.47		-0.18	0.58	0.63	0.84	0.88		-0.41	0.35	0.12	0.01	0.07
Domestic EQ General	Alphen Equity Builder		-0.33	-0.23	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.33	-0.23	N/A	N/A	N/A
Domestic EQ General	SMMI Equity FoF A		-0.36	0.20	-0.09	-0.18	-0.21	N/A		-1.61	-0.07	-0.28	N/A	N/A		0.14	0.31	0.01	-0.12	-0.09
Domestic EQ General	FNB Growth		-0.37	0.24	0.09	0.02	0.00	0.07		-0.91	0.14	0.26	0.33	0.27		0.17	0.35	0.00	-0.19	-0.14
Domestic EQ General	Momentum MultiFocus FoF		-0.40	0.04	-0.12	-0.17	-0.16	-0.13		-1.40	-0.27	-0.22	-0.06	-0.06		0.60	0.35	-0.01	-0.24	-0.16
Domestic EQ General	FG Mercury Equity FoF A1		-0.42	0.32	-0.09	-0.33	-0.24	N/A		N/A	N/A	N/A	N/A	N/A		-0.42	0.32	-0.09	-0.33	-0.24
Domestic EQ General	SIM General Equity R		-0.42	0.16	0.01	-0.03	-0.04	-0.09		-1.68	-0.29	-0.25	-0.20	-0.30		0.84	0.60	0.32	0.19	0.20
Domestic EQ General	Inv Solutions MM Equity A		-0.44	0.02	-0.13	-0.21	-0.17	N/A		-0.81	-0.08	-0.10	-0.18	N/A		-0.14	0.09	-0.10	-0.21	-0.13
Domestic EQ General	Momentum Aggressive Equity FoF B1		-0.44	0.16	-0.03	-0.16	-0.15	N/A		-1.60	-0.08	0.04	0.00	N/A		0.48	0.35	-0.03	-0.27	-0.18
Domestic EQ General	Investec Active Quants A		-0.45	-0.07	-0.11	-0.18	-0.21	N/A		-4.50	N/A	N/A	N/A	N/A		-0.05	-0.07	-0.11	-0.18	-0.21
Domestic EQ General	Momentum Mod Equity FoF B1		-0.45	0.12	-0.04	-0.15	-0.14	N/A		-1.39	-0.07	0.02	-0.02	N/A		0.30	0.27	-0.02	-0.22	-0.14
Domestic EQ General	STANLIB MM All Stars Eq FoF A		-0.47	0.41	0.09	-0.11	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.47	0.41	0.09	-0.11	N/A
Domestic EQ General	Valugro General Equity		-0.48	-0.07	-0.14	-0.13	-0.14	N/A		-0.75	N/A	N/A	N/A	N/A		-0.46	-0.07	-0.14	-0.13	-0.14
Domestic EQ General	Metropolitan Multi-Manager Equity		-0.50	0.65	0.36	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.50	0.65	0.36	N/A	N/A
Domestic EQ General	Nedgroup Inv Quants Core Eq A		-0.51	0.13	-0.03	-0.08	-0.07	-0.03		-1.10	-0.11	-0.12	-0.05	-0.10		0.08	0.37	0.14	0.04	0.07
Domestic EQ General	Coris Capital General Equity		-0.52	-0.10	-0.26	-0.33	-0.32	-0.30		-1.44	-0.58	-0.63	-0.63	-0.65		0.39	0.39	0.16	0.04	0.02
Domestic EQ General	Coronation Equity R		-0.52	0.29	0.10	0.05	0.03	0.05		-0.78	0.00	0.06	0.08	0.01		-0.27	0.59	0.23	0.14	0.16
Domestic EQ General	SYmmETRY Equity FoF A		-0.54	0.09	-0.08	-0.19	-0.17	N/A		-1.17	-0.17	-0.20	-0.16	N/A		0.02	0.29	0.05	-0.10	-0.06

Domestic EQ Smaller Companies	RMB Small/Mid-Cap A		0.38	0.64	0.46	0.41	0.39	0.56		0.38	0.42	0.50	0.79	0.78		0.37	0.86	0.52	0.18	0.33
Domestic EQ Smaller Companies	STANLIB Small Cap A		0.31	-0.31	-0.49	-0.50	-0.53	-0.75		0.78	0.00	-0.04	0.19	0.20		-0.17	-0.62	-1.03	-1.61	-1.34
Domestic EQ Smaller Companies	SIM Small Cap R		-0.05	0.30	0.32	0.29	0.25	0.22		0.34	0.08	0.31	0.61	0.50		-0.43	0.53	0.39	-0.09	0.09
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R		-0.20	0.46	0.25	0.21	0.24	0.30		0.00	0.29	0.38	0.58	0.50		-0.39	0.62	0.12	-0.28	-0.06
Domestic EQ Smaller Companies	Coronation Smaller Companies		-0.21	0.46	0.16	0.00	-0.02	0.04		-0.07	0.05	0.03	0.37	0.27		-0.35	0.87	0.35	0.00	0.26
Domestic EQ Smaller Companies	Old Mutual Small Companies R		-0.24	0.37	0.10	0.03	0.02	0.07		0.59	0.00	0.02	0.23	0.19		-1.08	0.74	0.23	-0.19	-0.01
Domestic EQ Smaller Companies	Investec Emerging Companies R		-0.73	0.60	0.21	0.08	0.04	0.09		-0.08	0.36	0.44	0.57	0.51		-1.38	0.84	0.04	-0.45	-0.23
Domestic EQ Value	Cadiz Mastermind A		1.29	0.36	0.41	0.22	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.29	0.36	0.41	0.22	N/A
Domestic EQ Value	SIM Value R		0.35	0.57	0.27	0.19	0.16	0.24		-0.76	0.42	0.21	0.38	0.33		1.47	0.72	0.53	0.31	0.30
Domestic EQ Value	Investec Value R		0.33	1.07	0.75	0.52	0.52	0.82		0.34	1.06	1.14	1.41	1.39		0.33	1.08	0.66	0.42	0.47
Domestic EQ Value	Nedgroup Inv Value R		-0.04	0.73	0.54	0.40	0.41	0.64		-0.19	0.94	0.83	1.03	1.12		0.11	0.53	0.36	0.26	0.32
Domestic EQ Value	Old Mutual Value R		-0.31	0.27	0.07	-0.01	-0.04	0.09		-0.73	0.12	0.14	0.22	0.20		0.11	0.42	0.18	0.07	0.03
Domestic EQ Value	RMB Value		-0.70	0.34	0.24	0.16	0.16	0.38		-0.75	0.49	0.54	0.73	0.72		-0.64	0.18	0.13	-0.08	-0.11
Domestic EQ Value	Prudential Dividend Maximiser A		-0.86	0.26	0.05	0.15	0.18	0.19		-1.07	-0.02	-0.13	-0.08	-0.02		-0.65	0.54	0.19	0.20	0.22
Domestic EQ Value	Metropolitan High Dividend		-0.96	0.62	0.05	-0.20	-0.30	N/A		-0.01	0.82	0.14	N/A	N/A		-1.33	0.55	0.19	0.03	0.01
Domestic EQ Value	STANLIB Value A		-1.38	0.25	0.03	0.09	0.07	0.18		-1.63	0.00	0.10	0.28	0.31		-1.12	0.49	0.12	0.02	0.02
Domestic EQ Value	Dynamic Wealth Value		-2.11	0.35	0.40	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-2.11	0.35	0.40	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R		2.44	-0.01	0.38	0.26	0.35	0.74		3.98	2.75	2.08	2.67	2.40		0.89	-2.77	-1.13	-0.60	-0.43
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R		1.36	-0.16	0.21	0.17	0.24	0.59		3.11	2.43	1.65	2.32	2.02		-0.39	-2.75	-0.92	-0.36	-0.28
Domestic EQ Varied Specialist	Select Manager Defensive Equity FoF		-0.38	0.28	-0.05	-0.23	-0.20	N/A		N/A	N/A	N/A	N/A	N/A		-0.38	0.28	-0.05	-0.23	-0.20
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE INVEST		3.67	-0.54	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		3.67	-0.54	N/A	N/A	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE INVEST		3.60	-0.47	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		3.60	-0.47	N/A	N/A	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE INVEST		1.14	-0.25	-0.35	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.14	-0.25	-0.35	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INVESTMENT		0.46	-0.03	0.00	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.46	-0.03	0.00	N/A	N/A
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGERS PTY		0.33	-0.28	-0.31	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.33	-0.28	-0.31	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVESTMENT		0.07	-0.13	-0.10	-0.08	-0.09	-0.12		-0.33	-0.12	-0.14	-0.19	-0.19		0.47	-0.15	-0.09	-0.04	-0.09
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE INVEST		-0.22	-0.05	-0.01	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.22	-0.05	-0.01	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INVESTMENT		-0.38	0.69	0.12	0.10	0.13	N/A		-1.15	-0.16	-0.45	N/A	N/A		0.16	1.20	0.59	0.41	0.43
Exchange Traded Fund	BBET40 - BETTABETA CIS		-0.48	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.48	N/A	N/A	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INVESTMENT		-0.55	-1.27	-0.28	-0.11	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.55	-1.27	-0.28	-0.11	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE INVEST		-0.56	0.82	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.56	0.82	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE INVEST		-0.74	-0.38	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.74	-0.38	N/A	N/A	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INVESTMENT		-1.47	-0.19	-0.04	-0.05	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-1.47	-0.19	-0.04	-0.05	N/A
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INVESTMENT		-1.52	1.86	1.24	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-1.52	1.86	1.24	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT		-1.99	-0.18	-0.27	-0.47	-0.45	N/A		-4.77	-0.39	-0.55	N/A	N/A		-0.04	-0.06	-0.15	-0.40	-0.35
Total Number of Funds		0	151	150	142	119	107	75	0	103	97	93	85	75	0	151	150	142	119	107
Number of 'Winner' Funds			41 (27%)	86 (57%)	66 (46%)	51 (43%)	47 (44%)	39 (52%)		19 (18%)	46 (47%)	43 (46%)	43 (51%)	36 (48%)		64 (42%)	96 (64%)	75 (53%)	49 (41%)	47 (44%)
Number of 'Loser' Funds			110 (73%)	64 (43%)	76 (54%)	68 (57%)	60 (56%)	36 (48%)		84 (82%)	51 (53%)	50 (54%)	42 (49%)	39 (52%)		87 (58%)	54 (36%)	67 (47%)	70 (59%)	60 (56%)

Table A6.1

Mean Conditional Alphas on the basis of Gross Returns

		2001-2010 (10 years)							2001-2005 (5 years)					2006-2010 (5 years)						
		3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Conditional Mean Alphas																				
Mean Alpha Value		-0.04	0.35	0.26	0.28	0.31	0.33	0.40	0.49	0.61	0.61	0.83	0.78	0.68	-0.22	0.24	0.11	0.06	0.07	0.09
Domestic EQ Financial	Nedgroup Inv Financials R	0.26	0.70	0.41	0.39	0.49	0.49	0.35	1.39	1.06	0.55	0.78	0.66	0.49	-0.86	0.35	0.27	0.04	0.19	0.19
Domestic EQ Financial	Coronation Financial A	-0.07	0.31	0.34	0.36	0.48	0.48	0.30	1.75	1.02	0.74	0.84	0.72	0.52	-1.90	-0.40	-0.06	-0.14	0.08	0.02
Domestic EQ Financial	STANLIB Financials A	-0.14	0.36	0.17	0.23	0.36	0.38	0.21	1.08	0.75	0.26	0.45	0.46	0.25	-1.35	-0.03	0.08	-0.04	0.15	0.09
Domestic EQ Financial	SIM Financial A	-0.15	0.44	0.32	0.32	0.38	0.38	0.24	0.84	0.81	0.50	0.63	0.61	0.44	-1.14	0.07	0.13	0.00	0.11	0.04
Domestic EQ Financial	Old Mutual Financial Servs R	-0.27	0.43	0.24	0.35	0.47	0.47	0.20	0.60	0.77	0.35	0.66	0.57	0.34	-1.14	0.09	0.14	-0.04	0.08	0.05
Domestic EQ Financial	RMB Financial Services A	-0.27	0.34	0.14	0.19	0.28	0.27	0.10	0.69	0.60	0.17	0.40	0.31	0.15	-1.24	0.09	0.10	-0.09	0.08	0.05
Domestic EQ General	Element Islamic Equity A	0.87	0.50	0.13	0.25	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	0.50	0.13	0.25	0.15	N/A
Domestic EQ General	Element Earth Equity A	0.78	0.69	0.52	0.50	0.46	0.47	N/A	1.20	0.89	0.81	1.01	1.21	N/A	0.44	0.53	0.29	0.21	0.22	0.29
Domestic EQ General	Hermes Equity A	0.66	0.69	0.42	0.20	0.23	0.26	N/A	2.74	1.63	N/A	N/A	N/A	N/A	0.45	0.59	0.42	0.20	0.23	0.26
Domestic EQ General	Valugro General Equity	0.50	0.21	0.00	0.01	0.02	-0.09	N/A	0.40	0.08	N/A	N/A	N/A	N/A	0.51	0.23	0.00	0.01	0.02	-0.09
Domestic EQ General	STANLIB Shari'ah Equity A	0.46	0.51	0.02	-0.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46	0.51	0.02	-0.08	N/A	N/A
Domestic EQ General	FNB Growth	0.43	0.78	0.68	0.63	0.60	0.54	0.44	1.26	1.40	1.15	1.34	1.20	0.99	-0.40	0.17	0.22	-0.03	-0.06	-0.04
Domestic EQ General	ABSA Select Equity	0.42	0.76	0.46	0.47	0.48	0.49	N/A	0.86	1.20	0.47	N/A	N/A	N/A	0.27	0.63	0.46	0.46	0.49	0.47
Domestic EQ General	Interneuron Capital Equity	0.38	0.12	-0.27	-0.29	-0.30	-0.24	N/A	0.16	0.77	-0.49	N/A	N/A	N/A	0.46	-0.07	-0.22	-0.26	-0.28	-0.24
Domestic EQ General	Old Mutual Albaraka Equity	0.37	0.69	0.53	0.41	0.34	0.37	0.64	0.62	1.40	1.36	1.32	1.47	1.52	0.13	-0.02	-0.30	-0.41	-0.46	-0.40
Domestic EQ General	ABSA General R	0.35	0.45	0.35	0.38	0.40	0.39	0.32	0.50	0.59	0.48	0.62	0.57	0.46	0.20	0.31	0.23	0.14	0.15	0.19
Domestic EQ General	Community Growth Equity	0.31	0.30	0.29	0.33	0.38	0.36	0.29	0.59	0.38	0.48	0.68	0.69	0.55	0.04	0.22	0.10	0.06	0.09	0.01
Domestic EQ General	Investec Equity R	0.30	0.36	0.48	0.50	0.51	0.48	0.46	0.59	0.90	1.02	1.29	1.23	1.06	0.01	-0.17	-0.05	-0.09	-0.18	-0.17
Domestic EQ General	Old Mutual Growth R	0.28	0.50	0.50	0.52	0.56	0.53	0.45	0.52	0.52	0.64	0.92	0.89	0.64	0.04	0.47	0.37	0.23	0.28	0.24
Domestic EQ General	SIM General Equity R	0.24	0.39	0.23	0.31	0.38	0.37	0.24	0.33	0.35	0.17	0.48	0.46	0.24	0.15	0.43	0.29	0.15	0.24	0.23
Domestic EQ General	RMB Equity R	0.23	0.67	0.58	0.60	0.60	0.55	0.40	0.93	1.29	1.01	1.29	1.18	0.93	-0.48	0.06	0.15	-0.05	-0.07	-0.09
Domestic EQ General	Coronation Equity R	0.22	0.43	0.46	0.49	0.54	0.53	0.45	1.27	0.88	0.73	0.87	0.78	0.63	-0.83	-0.01	0.19	0.16	0.25	0.24
Domestic EQ General	Alphen Equity Builder	0.22	0.48	-0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.22	0.48	-0.23	N/A	N/A	N/A
Domestic EQ General	Foord Equity R	0.18	0.53	0.44	0.40	0.32	0.31	N/A	0.73	0.56	0.63	0.74	N/A	N/A	-0.18	0.51	0.33	0.22	0.20	0.24
Domestic EQ General	PSG Equity A	0.17	0.29	0.31	0.33	0.37	0.36	0.24	0.98	0.70	0.54	0.74	0.80	0.47	-0.63	-0.12	0.07	-0.06	-0.11	-0.03
Domestic EQ General	Allan Gray Equity A	0.16	0.50	0.68	0.59	0.55	0.60	0.82	0.25	1.04	1.19	1.13	1.28	1.22	0.07	-0.03	0.17	0.11	0.19	0.33
Domestic EQ General	Kagiso Equity Alpha	0.16	0.62	0.20	0.22	0.28	0.37	N/A	1.56	1.70	-0.31	N/A	N/A	N/A	-0.26	0.29	0.30	0.29	0.39	0.46
Domestic EQ General	Old Mutual Top Companies R	0.12	0.30	0.29	0.33	0.35	0.31	0.27	0.34	0.40	0.45	0.77	0.70	0.44	-0.10	0.20	0.12	0.06	0.12	0.11
Domestic EQ General	Gryphon All Share Tracker	0.12	-0.10	-0.24	-0.16	-0.06	-0.06	-0.16	-0.12	-0.33	-0.48	-0.35	-0.22	-0.29	0.35	0.13	-0.01	-0.02	-0.04	-0.07
Domestic EQ General	Prudential Equity A	0.10	0.46	0.56	0.60	0.67	0.66	0.52	0.56	0.68	0.73	0.95	0.85	0.70	-0.36	0.25	0.39	0.26	0.28	0.29
Domestic EQ General	Old Mutual Active Quant Equity A	0.09	0.21	0.19	0.21	0.26	0.24	0.22	0.27	0.34	0.33	0.54	0.52	0.39	-0.08	0.09	0.04	-0.06	-0.02	-0.02
Domestic EQ General	Analytics Managed Equity A	0.09	0.31	0.25	0.26	0.20	0.18	N/A	0.57	0.44	0.40	0.59	0.39	N/A	-0.31	0.20	0.13	0.04	0.05	0.05
Domestic EQ General	Nedgroup Inv Rainmaker A	0.09	0.69	0.93	0.90	0.87	0.83	0.88	0.53	1.09	1.50	1.67	1.63	1.53	-0.35	0.29	0.36	0.22	0.21	0.26
Domestic EQ General	Huysamer Equity A1	0.09	0.31	0.00	-0.11	-0.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.09	0.31	0.00	-0.11	-0.08	N/A
Domestic EQ General	Indequity Technical	0.08	-0.30	-0.10	-0.07	-0.11	-0.05	N/A	0.33	0.04	0.03	N/A	N/A	N/A	0.03	-0.36	-0.13	-0.16	-0.16	-0.14
Domestic EQ General	Prescient Eqty Quant A1	0.05	-0.07	-0.12	-0.09	-0.06	-0.06	N/A	-0.23	-0.21	-0.21	-0.23	N/A	N/A	0.17	-0.02	-0.08	-0.04	-0.04	-0.06
Domestic EQ General	Oasis Crescent Equity	0.05	0.58	0.57	0.64	0.64	0.64	0.72	0.49	0.74	0.94	1.15	1.24	1.27	-0.39	0.42	0.21	0.14	0.12	0.15
Domestic EQ General	STANLIB Index R	0.04	0.02	-0.02	-0.02	0.01	-0.01	-0.04	-0.66	-0.28	-0.17	-0.13	-0.10	-0.11	0.74	0.32	0.13	0.07	0.05	0.02
Domestic EQ General	Inv Solutions MM Equity A	0.02	0.29	0.28	0.27	0.20	0.20	N/A	0.72	0.73	0.64	0.85	0.54	N/A	-0.57	-0.07	-0.01	-0.08	-0.08	-0.01
Domestic EQ General	Coris Capital General Equity	0.02	-0.02	-0.07	-0.01	0.05	0.04	-0.03	0.13	-0.10	-0.22	-0.01	0.01	-0.10	-0.10	0.05	0.08	-0.01	0.04	0.01
Domestic EQ General	STANLIB SA Equity R	0.01	0.31	0.12	0.13	0.12	0.09	0.03	0.32	0.62	0.47	0.69	0.65	0.50	-0.30	0.01	-0.23	-0.34	-0.50	-0.47
Domestic EQ General	Aylett Equity A3	0.01	0.75	0.35	0.39	0.44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01	0.75	0.35	0.39	0.44	N/A
Domestic EQ General	Old Mutual Investors R	0.01	0.20	0.20	0.29	0.32	0.30	0.26	0.43	0.46	0.44	0.73	0.68	0.51	-0.41	-0.07	-0.03	-0.06	0.01	-0.02
Domestic EQ General	Oasis General Equity	-0.03	0.53	0.53	0.60	0.59	0.59	N/A	0.86	0.92	0.87	1.18	1.24	N/A	-0.78	0.23	0.26	0.21	0.22	0.22
Domestic EQ General	SymmENTRY Equity FoF A	-0.05	0.19	0.17	0.15	0.11	0.11	N/A	0.00	0.23	0.29	0.39	0.34	N/A	-0.10	0.16	0.08	-0.01	0.00	0.04
Domestic EQ General	Sasfin Equity	-0.06	0.01	-0.25	-0.35	-0.26	-0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	0.01	-0.25	-0.35	-0.26	-0.24
Domestic EQ General	Afena Equity A1	-0.07	0.57	0.19	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.07	0.57	0.19	0.05	N/A	N/A
Domestic EQ General	Nedgroup Inv Quants Core Eq A	-0.07	0.27	0.25	0.31	0.35	0.34	0.31	0.06	0.34	0.39	0.62	0.60	0.45	-0.19	0.20	0.11	0.07	0.13	0.15
Domestic EQ General	Personal Trust SA Equity	-0.09	0.86	0.70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.09	0.86	0.70	N/A	N/A	N/A
Domestic EQ General	STANLIB MM Equity A1	-0.10	0.22	0.12	0.13	0.12	0.11	0.10	0.22	0.43	0.26	0.43	0.36	0.24	-0.43	0.01	-0.03	-0.13	-0.13	-0.06
Domestic EQ General	Momentum Aggressive Equity FoF B	-0.11	0.32	0.39	0.40	0.33	0.33	N/A	0.79	0.72	0.73	0.99	0.80	N/A	-0.87	-0.01	0.11	-0.02	-0.05	0.02
Domestic EQ General	Old Mutual RAFI 40 Tracker A	-0.12	-0.06	-0.02	0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.12	-0.06	-0.02	0.07	N/A	N/A
Domestic EQ General	Marriott Dividend Growth R	-0.13	0.37	0.31	0.34	0.42	0.44	0.36	0.62	0.58	0.46	0.69	0.56	0.27	-0.87	0.17	0.17	0.05	0.22	0.43

Domestic EQ Smaller Company	SIM Small Cap R	0.87	1.32	1.15	1.05	1.12	1.09	1.00	1.22	1.60	1.81	1.92	1.82	1.56	0.51	1.04	0.50	0.19	0.20	0.37
Domestic EQ Smaller Company	STANLIB Small Cap A	0.51	0.80	0.34	0.31	0.48	0.44	0.16	1.57	1.30	1.37	1.66	1.53	1.26	-0.55	0.30	-0.68	-1.16	-1.24	-1.05
Domestic EQ Smaller Company	Old Mutual Small Companies R	0.41	1.04	0.97	0.88	0.96	0.93	0.82	1.09	1.22	1.44	1.65	1.62	1.32	-0.26	0.85	0.50	0.13	0.13	0.32
Domestic EQ Smaller Company	Coronation Smaller Companies	0.38	0.81	0.83	0.89	0.86	0.83	0.78	0.81	0.77	1.20	1.60	1.50	1.17	-0.06	0.85	0.46	0.14	0.17	0.43
Domestic EQ Smaller Company	RMB Small/Mid-Cap A	0.27	1.54	1.40	1.38	1.36	1.31	1.28	1.05	1.74	1.92	2.16	2.01	1.78	-0.51	1.35	0.88	0.70	0.67	0.84
Domestic EQ Smaller Company	Nedgroup Inv Entrepreneur R	0.16	1.08	1.08	1.12	1.18	1.16	1.10	0.86	1.30	1.66	1.95	1.96	1.72	-0.53	0.87	0.51	0.33	0.25	0.39
Domestic EQ Smaller Company	Investec Emerging Companies R	-0.09	0.98	1.12	1.09	1.09	1.03	0.88	0.55	1.03	1.61	1.84	1.74	1.46	-0.74	0.94	0.62	0.38	0.22	0.28
Domestic EQ Value	STANLIB Value A	0.66	0.88	0.73	0.75	0.84	0.81	0.83	1.54	1.41	1.33	1.53	1.50	1.35	-0.22	0.35	0.14	0.15	0.27	0.25
Domestic EQ Value	SIM Value R	0.51	0.90	0.73	0.84	0.90	0.86	0.78	1.11	1.12	1.13	1.61	1.46	1.22	-0.10	0.68	0.34	0.20	0.36	0.38
Domestic EQ Value	RMB Value	0.39	1.08	0.98	0.97	0.91	0.84	0.85	1.05	1.57	1.55	1.79	1.75	1.60	-0.27	0.58	0.40	0.37	0.30	0.13
Domestic EQ Value	Nedgroup Inv Value R	0.34	1.19	1.05	0.98	0.87	0.89	1.11	0.74	1.69	1.65	1.64	1.66	1.68	-0.06	0.69	0.46	0.40	0.41	0.48
Domestic EQ Value	Investec Value R	0.31	0.89	1.21	1.19	1.17	1.18	1.45	1.78	1.99	2.19	2.47	2.55	2.41	-1.17	-0.20	0.22	0.19	0.38	0.51
Domestic EQ Value	Prudential Dividend Maximiser A	0.13	0.37	0.57	0.60	0.67	0.67	0.54	0.23	0.43	0.71	0.89	0.79	0.69	0.02	0.32	0.42	0.28	0.31	0.36
Domestic EQ Value	Old Mutual Value R	-0.15	0.67	0.57	0.60	0.62	0.58	0.58	0.51	1.02	1.07	1.32	1.25	1.09	-0.81	0.32	0.07	0.02	0.12	0.10
Domestic EQ Value	Metropolitan High Dividend	-0.20	0.31	0.28	0.11	0.05	0.08	N/A	1.01	1.34	1.00	1.34	N/A	N/A	-0.69	-0.11	-0.01	-0.20	-0.05	-0.08
Domestic EQ Value	Cadiz Mastermind A	-0.92	0.47	0.00	-0.10	0.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.92	0.47	0.00	-0.10	0.12	N/A
Domestic EQ Value	Dynamic Wealth Value	-1.05	0.66	0.38	0.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.05	0.66	0.38	0.32	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R	2.15	0.34	0.42	0.13	-0.57	-0.46	0.49	-0.28	0.02	1.08	0.50	0.49	0.68	4.58	0.66	-0.23	0.04	-0.07	0.30
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	1.41	-0.16	0.17	-0.11	-0.70	-0.60	0.28	-1.40	-0.69	0.68	0.18	0.26	0.41	4.21	0.36	-0.33	-0.07	-0.15	0.14
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	-0.59	-0.29	-0.07	-0.16	-0.11	-0.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.59	-0.29	-0.07	-0.16	-0.11	-0.07
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	1.56	-0.34	-0.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.56	-0.34	-0.48	N/A	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	1.47	0.27	-0.01	0.17	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.47	0.27	-0.01	0.17	-0.05	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	0.29	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.29	-0.05	N/A	N/A	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	0.21	-0.14	-0.21	-0.15	-0.16	-0.17	-0.21	0.29	-0.11	-0.27	-0.22	-0.30	-0.28	0.13	-0.17	-0.15	-0.12	-0.10	-0.13
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	0.10	-0.50	-0.47	-0.47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.10	-0.50	-0.47	-0.47	N/A	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE IN	0.08	-0.06	-0.07	-0.05	-0.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.08	-0.06	-0.07	-0.05	-0.11	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIV	0.05	-0.39	-0.34	-0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	-0.39	-0.34	-0.30	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	0.05	0.01	0.14	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	0.01	0.14	0.15	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	-0.05	0.22	0.20	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.22	0.20	0.05	N/A	N/A
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	-0.08	1.06	0.87	0.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.08	1.06	0.87	0.89	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	-0.26	0.22	0.34	0.30	0.22	0.25	N/A	-0.21	0.39	0.49	1.07	N/A	N/A	-0.29	0.09	0.25	0.08	0.24	0.34
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	-0.30	0.91	0.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.30	0.91	0.75	N/A	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	-0.61	0.15	0.02	0.25	0.10	0.03	N/A	1.32	0.76	0.46	1.24	N/A	N/A	-2.05	-0.28	-0.25	-0.31	-0.20	-0.15
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIV	-0.96	-0.17	-0.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.96	-0.17	-0.80	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	-1.85	-0.96	-0.47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.85	-0.96	-0.47	N/A	N/A	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		76 (50%)	125 (83%)	114 (76%)	109 (77%)	94 (79%)	86 (80%)	64 (85%)	82 (79%)	86 (83%)	81 (84%)	80 (86%)	75 (88%)	65 (87%)	50 (33%)	112 (74%)	100 (67%)	81 (57%)	72 (61%)	68 (64%)
Number of 'Loser' Funds		75 (50%)	26 (17%)	36 (24%)	33 (23%)	25 (21%)	21 (20%)	11 (15%)	22 (21%)	17 (17%)	16 (16%)	13 (14%)	10 (12%)	10 (13%)	101 (67%)	39 (26%)	50 (33%)	61 (43%)	47 (39%)	39 (36%)

Domestic EQ Res & Basic Ind	RMB Resources	6.36	13.85	28.03	54.39	124.63	190.78	730.62	7.42	15.26	32.91	50.92	116.19	264.08	5.31	12.44	23.15	40.94	76.44	128.15
Domestic EQ Res & Basic Ind	Nedgroup Inv Mining & Res R	5.86	12.21	24.81	50.89	125.15	190.26	621.48	6.55	13.08	27.65	40.33	86.85	202.04	5.17	11.35	21.98	40.44	83.12	138.87
Domestic EQ Res & Basic Ind	STANLIB Resources R	5.61	12.04	23.58	48.43	111.73	167.83	503.14	7.23	14.49	30.13	52.67	121.09	244.05	4.00	9.58	17.04	28.60	41.74	75.30
Domestic EQ Res & Basic Ind	Metropolitan Resources	5.47	11.44	23.07	45.48	101.25	155.66	498.14	6.42	12.62	27.23	38.08	79.98	192.34	4.52	10.25	18.91	33.09	63.02	104.61
Domestic EQ Smaller Companies	RMB Small/Mid-Cap A	6.63	13.84	29.41	66.38	188.83	275.08	993.87	8.26	17.19	35.73	87.20	245.10	351.51	4.99	10.48	23.08	40.03	75.81	142.27
Domestic EQ Smaller Companies	SIM Small Cap R	5.95	12.60	26.89	62.18	184.17	267.82	703.23	7.76	16.26	33.45	84.13	224.84	306.93	4.14	8.94	20.34	31.84	44.61	97.39
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	5.93	12.45	26.51	61.61	181.19	261.58	745.87	7.89	16.54	34.68	87.11	237.15	327.45	3.97	8.36	18.33	27.97	45.45	97.88
Domestic EQ Smaller Companies	Investec Emerging Companies R	5.55	11.57	24.79	56.60	162.04	232.47	609.51	7.39	15.18	31.60	78.05	206.35	282.61	3.72	7.96	17.98	26.91	37.73	85.44
Domestic EQ Smaller Companies	Old Mutual Small Companies R	5.41	11.14	23.77	54.50	155.78	220.69	553.57	7.03	14.34	29.85	74.91	188.97	250.41	3.80	7.94	17.69	25.87	36.74	86.51
Domestic EQ Smaller Companies	Coronation Smaller Companies	5.12	10.68	22.71	50.17	131.49	187.12	511.75	6.42	13.17	26.96	64.70	168.21	223.96	3.83	8.19	18.46	27.03	37.91	88.83
Domestic EQ Smaller Companies	STANLIB Small Cap A	3.60	7.89	17.90	41.76	131.03	177.75	184.91	6.82	14.13	28.86	70.82	177.67	238.24	0.37	1.65	6.95	2.49	-31.88	-15.77
Domestic EQ Value	Investec Value R	7.18	14.94	31.75	72.42	204.64	300.69	1,266.33	10.05	21.13	45.50	109.93	340.76	543.29	4.32	8.75	18.00	30.38	62.12	112.40
Domestic EQ Value	Nedgroup Inv Value R	6.20	12.89	26.88	58.54	149.38	223.09	890.43	7.87	16.48	34.34	72.80	197.71	332.20	4.52	9.31	19.41	34.45	74.11	129.16
Domestic EQ Value	RMB Value	6.00	12.64	26.34	57.74	155.72	221.78	774.36	7.99	16.56	35.07	80.54	221.03	338.97	4.01	8.73	17.61	30.40	58.15	99.19
Domestic EQ Value	SIM Value R	5.80	11.95	25.11	57.03	162.95	232.04	694.86	7.44	15.41	32.02	75.50	191.36	281.13	4.16	8.49	18.20	31.70	62.50	108.55
Domestic EQ Value	STANLIB Value A	5.50	11.39	24.28	52.93	148.40	212.08	631.34	7.05	14.51	30.28	68.93	178.82	266.03	3.95	8.27	18.28	31.79	58.10	99.80
Domestic EQ Value	Prudential Dividend Maximiser A	5.22	10.77	22.67	50.72	145.09	209.26	570.27	6.11	12.57	26.43	56.08	127.36	202.49	4.33	8.96	18.91	32.56	69.33	121.58
Domestic EQ Value	Old Mutual Value R	5.15	10.52	22.17	48.60	131.80	185.14	526.93	6.82	13.97	29.22	66.23	167.11	247.86	3.48	7.07	15.13	24.60	44.81	80.22
Domestic EQ Value	Metropolitan High Dividend	4.42	9.24	19.26	37.83	67.81	82.36	N/A	7.56	15.87	33.24	76.90	N/A	N/A	3.17	6.58	13.67	21.77	38.95	71.52
Domestic EQ Value	Cadiz Mastermind A	3.41	8.19	11.23	16.96	40.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.41	8.19	11.23	16.96	40.50	N/A
Domestic EQ Value	Dynamic Wealth Value	1.74	3.38	8.15	26.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.74	3.38	8.15	26.33	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R	5.22	10.57	22.51	46.11	64.06	108.25	419.16	8.07	16.62	36.72	66.86	113.65	262.10	2.38	4.53	8.30	10.92	20.42	43.38
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	4.87	9.70	20.11	40.70	55.14	91.86	334.53	7.21	14.85	31.79	56.21	88.25	205.14	2.53	4.54	8.43	10.70	18.89	42.41
Domestic EQ Varied Specialist	Select Manager Defensive Equity FoF	2.83	5.88	12.24	18.84	34.58	65.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.83	5.88	12.24	18.84	34.58	65.25
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	8.34	17.44	27.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.34	17.44	27.34	N/A	N/A	N/A
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE	6.86	14.68	11.34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.86	14.68	11.34	N/A	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	6.78	13.95	28.23	63.76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.78	13.95	28.23	63.76	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	5.87	11.63	12.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.87	11.63	12.10	N/A	N/A	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	6.30	13.43	13.51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.30	13.43	13.51	N/A	N/A	N/A
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	5.21	10.94	21.27	46.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.21	10.94	21.27	46.62	N/A	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE	5.37	11.11	22.11	48.63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.37	11.11	22.11	48.63	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	4.66	10.15	23.93	54.47	131.67	176.02	N/A	4.95	11.49	31.78	79.25	N/A	N/A	4.45	9.22	19.22	33.47	68.97	123.02
Exchange Traded Fund	BBET40 - BETTABETA CIS	4.02	20.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.02	20.42	N/A	N/A	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	4.40	9.02	18.34	38.80	102.29	148.90	351.31	5.03	9.90	20.32	33.33	69.49	135.21	3.76	8.14	16.35	27.14	51.83	91.87
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	3.36	7.06	26.15	58.91	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.36	7.06	26.15	58.91	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	3.76	7.49	17.61	39.41	83.83	100.58	N/A	5.69	11.55	30.52	76.09	N/A	N/A	2.31	4.65	9.87	11.81	17.17	43.87
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	3.74	8.62	17.88	46.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.74	8.62	17.88	46.48	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	3.09	7.27	11.22	11.77	36.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.09	7.27	11.22	11.77	36.10	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE IN	3.02	6.49	9.50	12.24	34.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.02	6.49	9.50	12.24	34.11	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		60 (40%)	59 (39%)	57 (38%)	66 (46%)	53 (45%)	47 (44%)	38 (51%)	73 (70%)	71 (69%)	65 (67%)	77 (83%)	69 (81%)	50 (67%)	38 (25%)	39 (26%)	43 (29%)	39 (27%)	24 (20%)	23 (21%)
Number of 'Loser' Funds		91 (60%)	92 (61%)	93 (62%)	76 (54%)	66 (55%)	60 (56%)	37 (49%)	31 (30%)	32 (31%)	32 (33%)	16 (17%)	16 (19%)	25 (33%)	113 (75%)	112 (74%)	107 (71%)	103 (73%)	95 (80%)	84 (79%)

Domestic EQ Res & Basic Ind	Investec Commodity R	0.95	2.10	3.56	7.51	17.73	26.87	97.07	0.53	1.67	3.63	5.60	13.13	36.04	1.38	2.54	3.49	5.41	4.37	10.13		
Domestic EQ Res & Basic Ind	Coronation Resources	0.90	2.07	3.55	7.77	18.17	27.06	91.81	0.52	1.69	3.37	5.68	13.77	30.79	1.29	2.44	3.73	5.68	4.48	11.62		
Domestic EQ Res & Basic Ind	Metropolitan Resources	0.67	1.83	2.48	5.14	9.53	14.95	49.30	0.13	1.17	2.31	2.53	4.68	18.36	1.22	2.49	2.66	3.79	2.61	7.13		
Domestic EQ Res & Basic Ind	Nedgroup Inv Mining & Res R	0.43	1.94	3.01	6.35	14.00	21.20	70.99	-0.49	1.20	2.67	3.28	5.92	20.59	1.35	2.67	3.35	5.14	5.82	13.01		
Domestic EQ Smaller Companie	RMB Small/Mid-Cap A	3.83	3.31	5.19	11.68	33.94	50.19	180.61	3.08	3.34	5.67	14.57	43.39	63.60	4.58	3.28	4.70	6.72	6.37	18.49		
Domestic EQ Smaller Companie	Old Mutual Small Companies R	2.97	2.80	3.85	8.67	25.07	35.23	79.28	1.95	3.10	4.68	12.26	29.21	38.49	3.99	2.50	3.02	3.07	-1.24	6.14		
Domestic EQ Smaller Companie	Nedgroup Inv Entrepreneur R	2.60	2.83	4.86	11.30	34.04	49.19	128.53	1.71	3.34	6.05	15.99	45.46	65.01	3.49	2.31	3.66	4.19	0.32	8.60		
Domestic EQ Smaller Companie	SIM Small Cap R	2.54	3.06	4.56	10.71	32.73	47.34	112.84	2.30	3.55	5.38	14.13	38.52	54.19	2.78	2.57	3.74	4.94	0.16	8.27		
Domestic EQ Smaller Companie	Investec Emerging Companies R	2.42	2.78	4.51	10.10	28.85	40.43	89.92	2.92	3.38	5.63	14.37	37.78	49.81	1.92	2.19	3.39	3.87	-0.97	5.50		
Domestic EQ Smaller Companie	STANLIB Small Cap A	1.83	2.23	2.56	6.33	21.22	27.87	6.81	2.01	2.56	3.94	10.40	27.84	37.68	1.66	1.91	1.18	0.07	-10.94	-10.68		
Domestic EQ Smaller Companie	Coronation Smaller Companies	1.62	2.30	3.84	8.45	22.23	31.73	78.82	1.67	2.59	4.30	10.66	28.86	37.29	1.58	2.00	3.38	3.91	-1.15	7.19		
Domestic EQ Value	Nedgroup Inv Value R	2.87	3.07	4.73	10.60	28.33	43.84	182.16	3.37	4.12	6.70	14.26	40.99	74.25	2.37	2.02	2.76	3.91	6.77	16.98		
Domestic EQ Value	Metropolitan High Dividend	2.13	2.36	3.55	6.30	7.63	5.88	N/A	3.17	5.49	9.63	22.29	N/A	N/A	1.72	1.11	1.13	0.79	-0.84	3.38		
Domestic EQ Value	Investec Value R	1.82	3.11	6.01	13.61	40.26	58.98	235.60	2.42	4.50	9.44	23.49	78.30	126.06	1.21	1.72	2.57	2.82	3.21	10.83		
Domestic EQ Value	STANLIB Value A	1.79	2.35	4.15	8.99	26.66	38.19	106.18	2.12	2.95	5.28	12.39	31.88	49.95	1.47	1.74	3.03	4.18	2.79	9.26		
Domestic EQ Value	SIM Value R	1.75	2.19	3.50	8.31	26.19	37.93	113.36	1.95	2.59	4.64	11.59	30.69	46.80	1.55	1.78	2.35	3.20	3.68	11.07		
Domestic EQ Value	RMB Value	1.66	3.02	4.53	10.07	28.89	40.88	129.88	1.96	3.29	6.17	15.04	43.96	68.95	1.37	2.76	2.88	3.70	2.59	8.27		
Domestic EQ Value	Old Mutual Value R	1.27	2.02	3.15	7.22	21.44	29.93	78.24	1.46	2.54	4.61	10.90	28.16	44.02	1.08	1.49	1.69	1.81	0.21	4.90		
Domestic EQ Value	Prudential Dividend Maximiser A	1.21	2.05	3.63	8.49	26.00	37.27	94.72	1.09	2.40	4.20	9.11	17.59	30.59	1.34	1.70	3.06	3.97	5.96	15.71		
Domestic EQ Value	Cadiz Mastermind A	0.87	1.94	0.31	-0.72	-0.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	1.94	0.31	-0.72	-0.36	N/A		
Domestic EQ Value	Dynamic Wealth Value	0.37	0.22	0.43	2.19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.37	0.22	0.43	2.19	N/A	N/A		
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	1.19	0.58	1.20	2.21	1.18	3.82	22.13	0.78	1.02	2.14	3.21	4.25	15.16	1.60	0.14	0.25	-0.78	-3.25	-1.56		
Domestic EQ Varied Specialist	Select Manager Defensive Equity FoF	0.86	1.19	1.44	0.83	-1.95	2.60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.86	1.19	1.44	0.83	-1.95	2.60		
Domestic EQ Varied Specialist	Old Mutual Gold R	0.46	0.74	1.50	2.83	2.16	5.73	33.05	0.65	1.33	2.93	4.42	6.95	21.65	0.26	0.16	0.08	-0.88	-3.21	-1.49		
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE	100.40	2.25	0.78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.40	2.25	0.78	N/A	N/A	N/A		
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	1.33	3.20	4.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.33	3.20	4.62	N/A	N/A	N/A		
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INV	1.22	1.24	0.49	-1.09	-1.46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.22	1.24	0.49	-1.09	-1.46	N/A		
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	0.91	2.26	3.47	8.26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.91	2.26	3.47	8.26	N/A	N/A		
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	0.89	2.16	3.57	7.93	19.25	24.66	N/A	0.53	2.47	4.91	12.55	N/A	N/A	1.17	1.94	2.76	3.72	4.81	13.44		
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	0.87	1.85	2.09	4.95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	1.85	2.09	4.95	N/A	N/A		
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE	0.74	1.76	2.39	5.65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.74	1.76	2.39	5.65	N/A	N/A		
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	0.71	1.32	2.21	5.03	12.60	17.41	34.15	0.49	1.16	2.14	3.20	3.87	12.25	0.92	1.48	2.28	2.79	1.39	6.43		
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	0.50	1.61	1.06	-0.39	-0.78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.50	1.61	1.06	-0.39	-0.78	N/A		
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	0.46	2.41	1.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46	2.41	1.25	N/A	N/A	N/A		
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	0.45	1.04	3.19	7.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.45	1.04	3.19	7.56	N/A	N/A		
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	0.41	1.55	1.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.41	1.55	1.02	N/A	N/A	N/A		
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	0.39	1.00	2.17	5.18	9.57	9.11	N/A	0.37	1.87	4.79	12.37	N/A	N/A	0.40	0.40	0.60	-0.73	-4.02	-1.60		
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	0.27	1.15	2.02	5.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.27	1.15	2.02	5.49	N/A	N/A		
Exchange Traded Fund	BBET40 - BETTABETA CIS	-0.06	3.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	3.80	N/A	N/A	N/A	N/A		
Total Number of Funds		151	151	150	142	119	107	75		104	103	97	93	85	75		151	151	150	142	119	107
Number of 'Winner' Funds		109 (72%)	101 (67%)	76 (51%)	74 (52%)	62 (52%)	58 (54%)	43 (57%)		76 (73%)	81 (79%)	81 (84%)	80 (86%)	66 (78%)	54 (72%)		88 (58%)	62 (41%)	46 (31%)	45 (32%)	28 (24%)	32 (30%)
Number of 'Loser' Funds		42 (28%)	50 (33%)	74 (49%)	68 (48%)	57 (48%)	49 (46%)	32 (43%)		28 (27%)	22 (21%)	16 (16%)	13 (14%)	19 (22%)	21 (28%)		63 (42%)	89 (59%)	104 (69%)	97 (68%)	91 (76%)	75 (70%)

Table A3.2

Mean CAPM Alphas on the basis of Net Returns (Values in Bold indicate Positive Values)

Unit Trust Sub-Category	Unit Trust Name	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
		3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Alpha Value		0.25	0.12	0.06	0.09	0.14	0.17	0.21	0.43	0.45	0.37	0.55	0.55	0.47	0.20	-0.01	-0.07	-0.10	-0.10	-0.04
Domestic EQ Financial	Nedgroup Inv Financials R	0.42	-0.07	-0.06	0.07	0.20	0.19	0.06	0.49	0.02	0.07	0.29	0.30	0.16	0.34	-0.17	-0.20	-0.19	-0.09	0.00
Domestic EQ Financial	Coronation Financial A	0.39	-0.19	-0.11	0.10	0.24	0.23	0.07	0.87	0.23	0.20	0.48	0.47	0.25	-0.10	-0.62	-0.42	-0.33	-0.13	-0.09
Domestic EQ Financial	Old Mutual Financial Servs R	0.17	-0.22	-0.20	0.02	0.19	0.20	-0.05	0.19	-0.10	-0.02	0.26	0.27	0.06	0.15	-0.35	-0.39	-0.36	-0.19	-0.14
Domestic EQ Financial	SIM Financial A	0.17	-0.20	-0.20	-0.01	0.10	0.11	-0.02	0.28	-0.01	-0.04	0.22	0.27	0.12	0.06	-0.39	-0.35	-0.29	-0.17	-0.14
Domestic EQ Financial	STANLIB Financials A	0.12	-0.34	-0.29	-0.08	0.09	0.10	-0.08	0.20	-0.25	-0.20	0.09	0.12	-0.08	0.04	-0.43	-0.39	-0.34	-0.13	-0.06
Domestic EQ Financial	RMB Financial Services A	0.10	-0.28	-0.28	-0.11	0.00	0.00	-0.14	0.07	-0.18	-0.19	0.05	0.04	-0.12	0.12	-0.37	-0.37	-0.37	-0.22	-0.15
Domestic EQ General	FNB Growth	0.87	0.40	0.30	0.33	0.31	0.28	0.24	1.34	0.85	0.71	0.93	0.88	0.70	0.39	-0.05	-0.12	-0.25	-0.29	-0.21
Domestic EQ General	RMB Equity R	0.71	0.34	0.25	0.32	0.32	0.29	0.20	1.12	0.78	0.66	0.91	0.87	0.66	0.29	-0.10	-0.16	-0.27	-0.29	-0.24
Domestic EQ General	Hermes Equity A	0.70	0.41	0.12	-0.01	-0.04	0.06	N/A	2.19	1.76	N/A	N/A	N/A	N/A	0.56	0.27	0.12	-0.01	-0.04	0.06
Domestic EQ General	PSG Equity A	0.69	-0.01	-0.02	0.15	0.23	0.24	0.05	1.30	0.15	0.14	0.53	0.59	0.29	0.09	-0.17	-0.18	-0.24	-0.25	-0.17
Domestic EQ General	Aylett Equity A3	0.65	0.28	0.00	0.13	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.65	0.28	0.00	0.13	0.17	N/A
Domestic EQ General	Verso LT SA Equity R	0.64	0.40	0.29	0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.64	0.40	0.29	0.30	N/A	N/A
Domestic EQ General	Kagiso Equity Alpha	0.62	0.36	0.09	0.16	0.19	0.22	N/A	1.65	1.65	-0.27	N/A	N/A	N/A	0.32	-0.03	0.16	0.21	0.25	0.28
Domestic EQ General	Foord Equity R	0.59	0.29	0.25	0.20	0.16	0.17	N/A	0.59	0.44	0.47	0.54	N/A	N/A	0.60	0.20	0.11	0.00	0.02	0.13
Domestic EQ General	Imara Equity	0.52	0.16	0.15	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.52	0.16	0.15	0.15	N/A	N/A
Domestic EQ General	Old Mutual High Yield Opp A	0.51	0.36	0.34	0.44	0.47	0.45	0.52	0.94	1.01	0.99	1.32	1.37	1.16	0.07	-0.29	-0.31	-0.30	-0.19	-0.07
Domestic EQ General	ABSA Select Equity	0.50	0.45	0.31	0.28	0.33	0.36	N/A	0.48	0.97	0.40	N/A	N/A	N/A	0.50	0.29	0.29	0.25	0.31	0.35
Domestic EQ General	Oasis General Equity	0.47	0.35	0.38	0.37	0.35	0.35	N/A	1.03	0.74	0.74	0.86	0.91	N/A	0.00	0.03	0.10	0.03	0.01	0.07
Domestic EQ General	Old Mutual Albaraka Equity	0.47	0.40	0.33	0.23	0.15	0.16	0.33	0.93	1.04	1.01	1.05	1.11	1.16	0.00	-0.24	-0.36	-0.52	-0.58	-0.46
Domestic EQ General	Coronation Equity R	0.44	0.21	0.20	0.29	0.36	0.34	0.26	0.82	0.51	0.37	0.54	0.51	0.39	0.06	-0.09	0.04	0.07	0.14	0.16
Domestic EQ General	Old Mutual Growth R	0.42	0.22	0.13	0.27	0.33	0.31	0.21	0.35	0.31	0.29	0.60	0.63	0.41	0.50	0.14	-0.03	0.00	0.02	0.03
Domestic EQ General	Harvard House General Equity	0.41	0.02	-0.15	-0.25	-0.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.41	0.02	-0.15	-0.25	-0.16	N/A
Domestic EQ General	Allan Gray Equity A	0.40	0.36	0.38	0.40	0.43	0.48	0.53	0.82	0.86	0.73	0.85	1.00	0.98	-0.02	-0.13	0.03	-0.02	0.00	0.10
Domestic EQ General	Element Earth Equity A	0.39	0.29	0.20	0.23	0.23	0.26	N/A	0.65	0.60	0.49	0.74	0.86	N/A	0.18	0.05	-0.03	-0.10	-0.08	-0.01
Domestic EQ General	Alphen Equity Builder	0.34	0.15	-0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.34	0.15	-0.23	N/A	N/A	N/A
Domestic EQ General	Sasfin Twenty Ten	0.33	0.01	-0.14	-0.31	-0.31	-0.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33	0.01	-0.14	-0.31	-0.31	-0.10
Domestic EQ General	Prudential Equity A	0.33	0.25	0.33	0.39	0.50	0.49	0.36	0.46	0.47	0.48	0.64	0.60	0.48	0.20	0.03	0.18	0.12	0.17	0.23
Domestic EQ General	SIM General Equity R	0.29	0.10	0.04	0.16	0.22	0.21	0.08	0.26	0.06	0.01	0.25	0.24	0.05	0.32	0.15	0.07	0.06	0.08	0.12
Domestic EQ General	Investec Active Quants A	0.28	0.12	0.03	0.04	0.00	-0.03	N/A	1.26	1.01	N/A	N/A	N/A	N/A	0.13	0.04	0.03	0.04	0.00	-0.03
Domestic EQ General	Afena Equity A1	0.28	0.20	-0.04	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.28	0.20	-0.04	-0.05	N/A	N/A
Domestic EQ General	STANLIB Shari'ah Equity A	0.28	0.07	-0.33	-0.56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.28	0.07	-0.33	-0.56	N/A	N/A
Domestic EQ General	ABSA General R	0.28	0.23	0.14	0.18	0.20	0.20	0.14	0.32	0.37	0.23	0.37	0.33	0.24	0.24	0.09	0.06	-0.04	-0.03	0.03
Domestic EQ General	SIM Top Choice Equity A1	0.27	-0.01	-0.08	-0.09	0.13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.27	-0.01	-0.08	-0.09	0.13	N/A
Domestic EQ General	Cannon Equity A	0.27	0.00	-0.11	-0.15	-0.15	-0.10	N/A	0.79	0.49	N/A	N/A	N/A	N/A	0.22	-0.05	-0.11	-0.15	-0.15	-0.10
Domestic EQ General	Nedgroup Inv Rainmaker A	0.26	0.64	0.59	0.61	0.60	0.57	0.62	0.39	1.24	1.09	1.29	1.29	1.20	0.14	0.04	0.09	0.00	-0.02	0.06
Domestic EQ General	Metropolitan Multi-Manager Equity	0.26	0.10	-0.02	0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.26	0.10	-0.02	0.03	N/A	N/A
Domestic EQ General	Analytics Managed Equity A	0.26	0.13	0.07	0.08	0.06	0.06	N/A	0.27	0.31	0.26	0.36	0.25	N/A	0.24	-0.01	-0.08	-0.13	-0.11	-0.05
Domestic EQ General	Old Mutual Top Companies R	0.25	0.07	-0.01	0.12	0.17	0.14	0.08	0.18	0.19	0.17	0.48	0.49	0.26	0.32	-0.05	-0.18	-0.12	-0.08	-0.08
Domestic EQ General	Lynx Opportunities FoF A1	0.25	0.01	0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.25	0.01	0.25	N/A	N/A	N/A
Domestic EQ General	Discovery Equity	0.24	-0.09	-0.06	0.41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.24	-0.09	-0.06	0.41	N/A	N/A
Domestic EQ General	Valugro General Equity	0.24	0.03	-0.04	-0.06	-0.11	-0.11	N/A	0.19	0.07	N/A	N/A	N/A	N/A	0.25	0.02	-0.04	-0.06	-0.11	-0.11
Domestic EQ General	Investec Equity R	0.24	0.24	0.28	0.29	0.35	0.34	0.29	0.59	0.76	0.76	0.95	0.96	0.83	-0.12	-0.29	-0.21	-0.24	-0.26	-0.23
Domestic EQ General	Momentum Aggressive Equity FoF B1	0.22	0.12	0.12	0.13	0.10	0.10	N/A	0.51	0.50	0.45	0.67	0.55	N/A	-0.03	-0.19	-0.14	-0.27	-0.30	-0.19
Domestic EQ General	STANLIB SA Equity R	0.21	0.09	-0.06	-0.07	-0.06	-0.07	-0.12	0.28	0.25	0.25	0.40	0.43	0.31	0.13	-0.08	-0.38	-0.52	-0.61	-0.50
Domestic EQ General	Momentum Mod Equity FoF B1	0.21	0.13	0.11	0.11	0.07	0.07	N/A	0.40	0.48	0.39	0.60	0.46	N/A	0.04	-0.15	-0.11	-0.24	-0.26	-0.16
Domestic EQ General	Momentum MultiFocus FoF	0.20	0.11	0.07	0.12	0.14	0.14	0.08	0.28	0.29	0.19	0.41	0.44	0.34	0.12	-0.06	-0.04	-0.20	-0.26	-0.16
Domestic EQ General	Nedgroup Inv Quants Core Eq A	0.19	0.11	0.05	0.12	0.17	0.17	0.12	0.16	0.23	0.16	0.35	0.36	0.23	0.22	-0.01	-0.06	-0.08	-0.03	0.03
Domestic EQ General	Inv Solutions MM Equity A	0.19	0.04	0.01	0.02	0.03	0.03	N/A	0.53	0.44	0.32	0.47	0.31	N/A	-0.10	-0.27	-0.23	-0.28	-0.24	-0.16
Domestic EQ General	Element Islamic Equity A	0.19	-0.05	-0.13	-0.11	-0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.19	-0.05	-0.13	-0.11	-0.15	N/A
Domestic EQ General	Old Mutual Active Quant Equity A	0.19	0.03	0.01	0.05	0.10	0.09	0.05	0.18	0.16	0.13	0.30	0.30	0.18	0.19	-0.10	-0.11	-0.16	-0.13	-0.08
Domestic EQ General	Plexus RAFI® Enhanced SA Strategy	0.19	-0.12	-0.21	-0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.19	-0.12	-0.21	-0.04	N/A	N/A
Domestic EQ General	Old Mutual Investors R	0.17	0.00	0.05	0.12	0.16	0.14	0.09	0.32	0.24	0.27	0.45	0.45	0.31	0.02	-0.23	-0.17	-0.15	-0.12	-0.11

Domestic EQ Res & Basic Ind	Metropolitan Resources	0.08	0.52	0.18	0.08	-0.11	-0.10	0.10	-0.33	0.44	0.12	-0.10	-0.04	0.19	0.49	0.60	0.24	0.26	0.13	0.02
Domestic EQ Res & Basic Ind	Coronation Resources	0.07	0.55	0.45	0.46	0.32	0.31	0.44	-0.35	0.72	0.64	0.55	0.57	0.63	0.48	0.38	0.25	0.36	0.30	0.26
Domestic EQ Smaller Companies	RMB Small/Mid-Cap A	1.42	1.04	0.98	1.01	0.96	0.92	0.91	1.99	1.42	1.31	1.62	1.58	1.36	0.86	0.65	0.65	0.45	0.32	0.48
Domestic EQ Smaller Companies	SIM Small Cap R	1.16	0.76	0.65	0.74	0.80	0.77	0.64	1.32	1.19	1.05	1.44	1.44	1.20	0.99	0.32	0.25	0.03	-0.09	0.12
Domestic EQ Smaller Companies	Old Mutual Small Companies R	1.00	0.56	0.44	0.55	0.61	0.59	0.47	1.16	0.87	0.74	1.19	1.20	0.93	0.84	0.25	0.14	-0.11	-0.20	0.03
Domestic EQ Smaller Companies	Investec Emerging Companies R	0.86	0.68	0.66	0.70	0.66	0.61	0.50	0.90	1.01	0.97	1.35	1.31	1.05	0.81	0.35	0.36	0.04	-0.19	-0.01
Domestic EQ Smaller Companies	Coronation Smaller Companies	0.80	0.53	0.35	0.47	0.49	0.49	0.44	0.78	0.80	0.62	1.02	1.02	0.74	0.82	0.25	0.09	-0.14	-0.15	0.13
Domestic EQ Smaller Companies	STANLIB Small Cap A	0.78	0.07	-0.14	-0.05	0.10	0.08	-0.22	1.43	0.84	0.74	1.12	1.11	0.88	0.14	-0.69	-1.03	-1.38	-1.60	-1.26
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	0.70	0.83	0.74	0.78	0.80	0.78	0.69	0.75	1.27	1.16	1.53	1.55	1.31	0.65	0.39	0.33	0.04	-0.09	0.12
Domestic EQ Value	RMB Value	1.01	0.81	0.70	0.67	0.57	0.51	0.59	1.49	1.16	1.12	1.33	1.35	1.23	0.53	0.45	0.28	0.17	0.04	0.00
Domestic EQ Value	Investec Value R	1.00	0.76	0.83	0.88	0.92	0.92	1.09	1.82	1.65	1.71	1.96	2.09	1.98	0.19	-0.13	-0.04	0.02	0.17	0.25
Domestic EQ Value	Nedgroup Inv Value R	0.85	0.77	0.70	0.66	0.60	0.62	0.78	1.06	1.21	1.16	1.17	1.22	1.27	0.64	0.34	0.23	0.18	0.27	0.33
Domestic EQ Value	SIM Value R	0.74	0.51	0.46	0.57	0.65	0.61	0.54	1.06	0.94	0.87	1.14	1.12	0.92	0.42	0.08	0.05	0.09	0.13	0.17
Domestic EQ Value	STANLIB Value A	0.67	0.40	0.46	0.51	0.56	0.52	0.49	1.03	0.88	0.85	1.06	1.08	0.95	0.32	-0.08	0.07	0.10	0.05	0.07
Domestic EQ Value	Old Mutual Value R	0.35	0.31	0.26	0.35	0.36	0.31	0.31	0.58	0.73	0.68	0.94	0.94	0.79	0.12	-0.10	-0.17	-0.13	-0.13	-0.13
Domestic EQ Value	Metropolitan High Dividend	0.30	0.03	0.03	-0.03	-0.14	-0.19	N/A	0.56	0.82	0.90	0.99	N/A	N/A	0.20	-0.28	-0.32	-0.28	-0.20	-0.18
Domestic EQ Value	Cadiz Mastermind A	0.23	0.20	-0.31	-0.13	-0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.23	0.20	-0.31	-0.13	-0.03	N/A
Domestic EQ Value	Prudential Dividend Maximiser A	0.19	0.25	0.33	0.38	0.48	0.48	0.36	0.24	0.50	0.46	0.58	0.54	0.46	0.15	0.00	0.19	0.12	0.18	0.25
Domestic EQ Value	Dynamic Wealth Value	0.18	0.11	-0.03	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.18	0.11	-0.03	-0.02	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R	0.14	0.50	0.15	-0.16	-0.47	-0.30	0.35	-0.04	0.72	0.74	0.27	0.49	0.76	0.33	0.29	-0.44	-0.42	-0.27	-0.14
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	-0.22	0.38	-0.05	-0.33	-0.60	-0.43	0.17	-0.88	0.35	0.33	-0.03	0.24	0.46	0.44	0.41	-0.43	-0.42	-0.32	-0.21
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	-0.25	-0.36	-0.25	-0.30	-0.30	-0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.25	-0.36	-0.25	-0.30	-0.30	-0.25
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	0.89	0.68	0.40	0.57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.89	0.68	0.40	0.57	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	0.50	0.25	0.04	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.50	0.25	0.04	0.05	N/A	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	0.40	0.26	0.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.40	0.26	0.71	N/A	N/A	N/A
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE	0.30	0.19	-0.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.30	0.19	-0.62	N/A	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	0.14	0.04	0.18	0.19	0.24	0.25	N/A	-0.09	0.31	0.38	0.64	N/A	N/A	0.31	-0.15	0.06	0.11	0.22	0.28
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	0.14	0.69	0.30	0.19	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.14	0.69	0.30	0.19	0.01	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	0.05	-0.31	-0.16	-0.08	-0.14	-0.16	N/A	0.69	0.06	0.62	0.83	N/A	N/A	-0.43	-0.57	-0.62	-0.64	-0.47	-0.37
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INV	0.05	-0.16	-0.17	-0.16	-0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	-0.16	-0.17	-0.16	-0.14	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	-0.04	-0.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.04	-0.20	N/A	N/A	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	-0.05	0.00	0.18	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.00	0.18	0.17	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	-0.18	-0.13	-0.11	-0.11	-0.13	-0.15	-0.16	-0.21	-0.15	-0.12	-0.19	-0.23	-0.21	-0.14	-0.11	-0.09	-0.06	-0.07	-0.11
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE	-0.29	-0.35	-0.27	-0.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.29	-0.35	-0.27	-0.27	N/A	N/A
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAG	-0.31	-0.36	-0.42	-0.42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.31	-0.36	-0.42	-0.42	N/A	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	-0.52	-0.29	-0.44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.52	-0.29	-0.44	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	-0.91	-1.07	-0.41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.91	-1.07	-0.41	N/A	N/A	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		116 (77%)	93 (62%)	75 (50%)	80 (56%)	75 (63%)	71 (66%)	53 (71%)	80 (77%)	81 (79%)	74 (76%)	78 (84%)	73 (86%)	61 (81%)	112 (74%)	68 (45%)	54 (36%)	45 (32%)	35 (29%)	42 (39%)
Number of 'Loser' Funds		35 (23%)	58 (38%)	75 (50%)	62 (44%)	44 (37%)	36 (34%)	22 (29%)	24 (23%)	22 (21%)	23 (24%)	15 (16%)	12 (14%)	14 (19%)	39 (26%)	83 (55%)	96 (64%)	97 (68%)	84 (71%)	65 (61%)

Domestic EQ Res & Basic Ind	STANLIB Resources R	0.30	0.68	-0.03	0.41	0.39	0.29	0.25	1.19	1.15	0.94	0.89	1.34	1.30	-0.59	0.21	-1.01	0.05	0.04	-0.13
Domestic EQ Res & Basic Ind	Metropolitan Resources	0.18	0.74	-0.04	0.45	0.44	0.36	0.34	1.12	1.76	0.92	0.63	0.98	1.09	-0.75	-0.29	-1.00	0.24	0.32	0.17
Domestic EQ Smaller Companies	RMB Small/Mid-Cap A	1.89	0.97	0.73	0.54	0.47	0.44	0.56	1.89	0.50	0.50	0.60	0.82	0.79	1.89	1.44	0.96	0.56	0.22	0.35
Domestic EQ Smaller Companies	SIM Small Cap R	1.27	0.53	0.31	0.31	0.32	0.28	0.22	1.35	0.30	0.09	0.43	0.64	0.52	1.19	0.76	0.53	0.19	-0.17	-0.01
Domestic EQ Smaller Companies	Coronation Smaller Companies	1.24	0.68	0.46	0.10	-0.02	-0.01	0.03	1.06	0.38	0.08	0.16	0.42	0.31	1.42	0.97	0.84	0.02	-0.34	-0.07
Domestic EQ Smaller Companies	Old Mutual Small Companies R	1.13	0.64	0.39	0.07	0.04	0.04	0.05	1.45	0.27	-0.05	0.09	0.27	0.19	0.80	1.02	0.84	0.04	-0.33	-0.13
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	1.11	0.69	0.46	0.31	0.28	0.30	0.31	0.85	0.20	0.20	0.48	0.60	0.53	1.36	1.19	0.71	0.11	-0.19	-0.02
Domestic EQ Smaller Companies	STANLIB Small Cap A	0.86	0.31	-0.35	-0.45	-0.45	-0.49	-0.77	0.96	0.57	-0.03	0.06	0.23	0.19	0.76	0.05	-0.67	-1.08	-1.66	-1.44
Domestic EQ Smaller Companies	Investec Emerging Companies R	0.86	0.75	0.68	0.28	0.16	0.11	0.10	0.94	0.32	0.42	0.49	0.60	0.50	0.77	1.18	0.93	0.10	-0.34	-0.19
Domestic EQ Value	Investec Value R	1.26	0.48	1.02	0.46	0.36	0.42	0.77	1.71	0.79	0.97	1.16	1.42	1.39	0.81	0.16	1.06	-0.02	-0.13	0.01
Domestic EQ Value	SIM Value R	1.19	0.09	0.36	0.13	0.11	0.12	0.22	1.21	-0.15	0.19	0.30	0.41	0.36	1.18	0.34	0.54	0.09	-0.05	-0.01
Domestic EQ Value	Nedgroup Inv Value R	1.17	0.68	0.75	0.46	0.38	0.40	0.62	1.13	0.73	0.85	0.82	1.03	1.10	1.21	0.63	0.65	0.16	0.15	0.23
Domestic EQ Value	Dynamic Wealth Value	0.96	0.16	0.29	0.28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.96	0.16	0.29	0.28	N/A	N/A
Domestic EQ Value	Old Mutual Value R	0.66	0.10	0.17	-0.01	-0.08	-0.08	0.06	0.57	-0.26	-0.02	0.20	0.24	0.22	0.75	0.45	0.35	-0.08	-0.26	-0.27
Domestic EQ Value	Cadiz Mastermind A	0.65	0.77	0.43	0.01	-0.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.65	0.77	0.43	0.01	-0.14	N/A
Domestic EQ Value	Prudential Dividend Maximiser A	0.52	-0.11	0.26	0.07	0.16	0.20	0.20	0.80	-0.19	-0.08	-0.06	-0.06	0.01	0.23	-0.03	0.61	0.13	0.13	0.19
Domestic EQ Value	RMB Value	0.48	0.33	0.25	0.28	0.20	0.19	0.40	0.45	0.03	0.41	0.59	0.74	0.73	0.51	0.64	0.08	0.15	0.00	-0.05
Domestic EQ Value	Metropolitan High Dividend	0.37	0.37	0.44	-0.20	-0.39	-0.43	N/A	0.16	-0.21	0.37	0.27	N/A	N/A	0.45	0.60	0.47	-0.23	-0.34	-0.32
Domestic EQ Value	STANLIB Value A	0.19	0.01	0.25	0.12	0.12	0.09	0.19	0.23	-0.31	-0.06	0.17	0.30	0.33	0.15	0.34	0.56	0.21	-0.03	-0.05
Domestic EQ Varied Specialist	Old Mutual Gold R	2.48	0.43	0.01	0.51	0.36	0.38	0.74	5.53	3.23	2.51	1.84	2.58	2.33	-0.56	-2.37	-2.50	-0.54	-0.03	0.05
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	2.11	0.16	-0.13	0.32	0.24	0.25	0.58	5.35	2.76	2.16	1.43	2.24	1.96	-1.13	-2.43	-2.41	-0.42	0.05	0.06
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	0.05	-0.10	0.23	-0.29	-0.38	-0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	-0.10	0.23	-0.29	-0.38	-0.33
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE	4.98	0.13	-0.55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.98	0.13	-0.55	N/A	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	1.19	0.02	-0.16	-0.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.19	0.02	-0.16	-0.10	N/A	N/A
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	1.12	1.19	2.08	1.07	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.12	1.19	2.08	1.07	N/A	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	0.56	-0.59	0.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.56	-0.59	0.80	N/A	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	0.25	-0.46	0.45	-0.05	0.00	0.06	N/A	-1.37	-1.30	-0.41	-0.26	N/A	N/A	1.47	0.13	0.96	0.18	0.10	0.17
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	-0.15	-0.16	-0.30	-0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.15	-0.16	-0.30	-0.33	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	-0.22	-0.27	-0.04	-0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.22	-0.27	-0.04	-0.01	N/A	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE IN	-0.25	-0.56	-0.33	-0.20	-0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.25	-0.56	-0.33	-0.20	-0.15	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	-0.28	-0.02	-0.12	-0.09	-0.08	-0.09	-0.12	-0.31	-0.01	-0.08	-0.14	-0.19	-0.18	-0.25	-0.04	-0.15	-0.06	-0.04	-0.08
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE	-0.58	-0.32	-0.26	-0.32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.58	-0.32	-0.26	-0.32	N/A	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	-0.67	-0.52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.67	-0.52	N/A	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	-0.71	-1.71	-0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.71	-1.71	-0.30	N/A	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	-0.88	-1.19	-0.26	-0.61	-0.69	-0.59	N/A	-0.77	-2.02	-0.73	-0.45	N/A	N/A	-0.96	-0.60	0.02	-0.79	-0.90	-0.71
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	-0.90	0.05	-0.49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.90	0.05	-0.49	N/A	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	-0.93	0.19	-0.99	0.13	0.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.93	0.19	-0.99	0.13	0.16	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		107 (71%)	74 (49%)	80 (53%)	56 (39%)	43 (36%)	42 (39%)	38 (51%)	56 (54%)	39 (38%)	40 (41%)	47 (51%)	46 (54%)	38 (51%)	115 (76%)	91 (60%)	92 (61%)	49 (35%)	26 (22%)	27 (25%)
Number of 'Loser' Funds		44 (29%)	77 (51%)	70 (47%)	86 (61%)	76 (64%)	65 (61%)	37 (49%)	48 (46%)	64 (62%)	57 (59%)	46 (49%)	39 (46%)	37 (49%)	36 (24%)	60 (40%)	58 (39%)	93 (65%)	93 (78%)	80 (75%)

Table A5.2

Mean Carhart 4-factor Alphas on the basis of Net Returns (Values in Bold indicate Positive Values)

Unit Trust Sub-Category	Unit Trust Name	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
		3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Alpha Value			-0.38	0.12	0.03	-0.03	-0.03	0.04		-0.95	0.09	0.06	0.18	0.16		-0.18	0.15	0.04	-0.07	-0.04
Domestic EQ Financial	Old Mutual Financial Servs R		-1.73	-0.56	-0.44	-0.43	-0.36	-0.37		-4.23	-1.26	-1.11	-1.05	-1.07		0.78	0.15	0.15	-0.01	-0.03
Domestic EQ Financial	RMB Financial Services A		-1.80	-0.57	-0.44	-0.58	-0.52	-0.44		-4.01	-1.24	-1.10	-1.19	-1.11		0.40	0.11	0.18	-0.05	-0.04
Domestic EQ Financial	Nedgroup Inv Financials R		-1.85	-0.27	-0.34	-0.46	-0.41	-0.31		-4.35	-1.12	-1.03	-1.09	-1.02		0.65	0.58	0.40	0.10	0.14
Domestic EQ Financial	SIM Financial A		-2.20	-0.57	-0.53	-0.57	-0.50	-0.40		-4.63	-1.46	-1.29	-1.10	-0.99		0.24	0.32	0.21	-0.05	-0.07
Domestic EQ Financial	Coronation Financial A		-2.27	-0.23	-0.34	-0.38	-0.35	-0.28		-3.65	-1.05	-0.82	-0.84	-0.82		-0.89	0.59	0.16	0.02	0.01
Domestic EQ Financial	STANLIB Financials A		-2.39	-0.51	-0.50	-0.51	-0.45	-0.40		-3.87	-1.31	-1.16	-1.13	-1.14		-0.91	0.28	0.13	0.02	0.01
Domestic EQ General	Afena Equity A1		1.88	-0.15	-0.09	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.88	-0.15	-0.09	N/A	N/A
Domestic EQ General	Stewart Macro Equity FoF A		1.29	0.35	-0.08	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.29	0.35	-0.08	N/A	N/A
Domestic EQ General	Huysamer Equity A1		1.08	0.04	-0.10	-0.04	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.08	0.04	-0.10	-0.04	N/A
Domestic EQ General	PSG Konsult Creator FoF A		1.03	0.85	0.27	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.03	0.85	0.27	N/A	N/A
Domestic EQ General	Element Islamic Equity A		0.80	-0.26	-0.11	-0.10	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.80	-0.26	-0.11	-0.10	N/A
Domestic EQ General	Interneuron Capital Equity		0.77	-0.10	-0.51	-0.50	-0.49	N/A		-0.57	-0.26	N/A	N/A	N/A		1.17	-0.07	-0.48	-0.52	-0.51
Domestic EQ General	Personal Trust SA Equity		0.76	0.40	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.76	0.40	N/A	N/A	N/A
Domestic EQ General	Old Mutual RAFI 40 Tracker A		0.67	0.16	0.15	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.67	0.16	0.15	N/A	N/A
Domestic EQ General	Oasis Crescent Equity		0.61	0.50	0.25	0.22	0.20	0.26		-0.15	0.59	0.51	0.74	0.83		1.36	0.41	0.00	-0.19	-0.12
Domestic EQ General	Kagiso Islamic Equity		0.52	0.83	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.52	0.83	N/A	N/A	N/A
Domestic EQ General	Kagiso Equity Alpha		0.52	0.48	0.23	0.16	0.15	N/A		0.79	-0.41	N/A	N/A	N/A		0.44	0.66	0.38	0.28	0.29
Domestic EQ General	Allan Gray Equity A		0.32	0.69	0.40	0.30	0.34	0.43		-0.82	0.60	0.55	0.75	0.67		1.47	0.78	0.32	0.12	0.18
Domestic EQ General	Prescient Eqty Quant A1		0.31	-0.16	-0.06	0.01	0.01	N/A		0.08	-0.08	-0.03	N/A	N/A		0.40	-0.19	-0.07	0.01	-0.01
Domestic EQ General	MI-PLAN IP Beta Equity B2		0.30	0.19	-0.01	-0.12	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.30	0.19	-0.01	-0.12	N/A
Domestic EQ General	SIM Top Choice Equity A1		0.29	0.73	0.45	0.39	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.29	0.73	0.45	0.39	N/A
Domestic EQ General	Oasis General Equity		0.26	0.49	0.18	0.13	0.12	N/A		-1.03	0.35	0.19	0.50	N/A		1.30	0.61	0.22	0.02	0.06
Domestic EQ General	Old Mutual Albaraka Equity		0.20	0.44	0.23	0.07	0.07	0.21		1.45	1.18	0.97	1.01	1.12		-1.05	-0.29	-0.44	-0.62	-0.49
Domestic EQ General	Cannon Equity A		0.20	-0.09	-0.09	-0.18	-0.13	N/A		-0.50	N/A	N/A	N/A	N/A		0.27	-0.09	-0.09	-0.18	-0.13
Domestic EQ General	Element Earth Equity A		0.15	0.26	0.10	0.08	0.14	N/A		-0.67	0.37	0.24	0.42	N/A		0.81	0.16	0.02	-0.03	0.02
Domestic EQ General	PSG Alphen Equity FoF A		0.14	0.24	-0.18	-0.28	-0.25	N/A		-0.80	0.37	-0.03	N/A	N/A		0.80	0.17	-0.22	-0.40	-0.30
Domestic EQ General	Prescient Eqty Active Quant A1		-0.02	0.38	0.18	0.06	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.02	0.38	0.18	0.06	N/A
Domestic EQ General	Aylett Equity A3		-0.12	0.52	0.46	0.28	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.12	0.52	0.46	0.28	N/A
Domestic EQ General	ABSA Growth FoF		-0.13	-0.08	-0.35	-0.26	-0.25	-0.30		-1.08	-0.29	-0.35	-0.18	-0.34		0.81	0.14	-0.34	-0.56	-0.48
Domestic EQ General	Discovery Equity		-0.16	1.12	0.90	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.16	1.12	0.90	N/A	N/A
Domestic EQ General	Community Growth Equity		-0.21	-0.10	-0.10	-0.05	-0.07	-0.06		-1.15	-0.22	-0.14	-0.03	-0.11		0.73	0.02	0.01	-0.03	-0.10
Domestic EQ General	Old Mutual High Yield Opp A		-0.25	0.36	0.18	-0.01	-0.03	0.20		-0.24	0.40	0.43	0.62	0.51		-0.26	0.33	0.17	-0.04	0.05
Domestic EQ General	NFB Equity A2		-0.28	-0.49	-0.28	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.28	-0.49	-0.28	N/A	N/A
Domestic EQ General	ABSA Select Equity		-0.28	0.43	0.30	0.26	0.29	N/A		-1.69	0.35	N/A	N/A	N/A		0.15	0.45	0.34	0.30	0.34
Domestic EQ General	STANLIB Index R		-0.29	-0.25	-0.11	-0.06	-0.05	-0.09		-0.87	-0.21	-0.26	-0.25	-0.24		0.29	-0.28	0.00	0.07	0.05
Domestic EQ General	Nedgroup Inv Rainmaker A		-0.30	0.46	0.34	0.33	0.33	0.46		-0.18	0.58	0.63	0.83	0.87		-0.42	0.34	0.12	0.00	0.06
Domestic EQ General	Alphen Equity Builder		-0.34	-0.23	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.34	-0.23	N/A	N/A	N/A
Domestic EQ General	SMMI Equity FoF A		-0.36	0.20	-0.09	-0.18	-0.22	N/A		-1.61	-0.07	-0.28	N/A	N/A		0.14	0.30	0.01	-0.13	-0.09
Domestic EQ General	FNB Growth		-0.37	0.24	0.09	0.01	0.00	0.07		-0.91	0.13	0.25	0.32	0.27		0.16	0.34	-0.01	-0.20	-0.15
Domestic EQ General	Momentum MultiFocus FoF		-0.41	0.03	-0.13	-0.18	-0.17	-0.13		-1.41	-0.28	-0.22	-0.06	-0.07		0.59	0.34	-0.02	-0.25	-0.17
Domestic EQ General	SIM General Equity R		-0.42	0.15	0.01	-0.04	-0.04	-0.09		-1.68	-0.29	-0.25	-0.21	-0.31		0.84	0.59	0.32	0.19	0.19
Domestic EQ General	FG Mercury Equity FoF A1		-0.42	0.31	-0.10	-0.34	-0.24	N/A		N/A	N/A	N/A	N/A	N/A		-0.42	0.31	-0.10	-0.34	-0.24
Domestic EQ General	Inv Solutions MM Equity A		-0.44	0.01	-0.14	-0.21	-0.18	N/A		-0.81	-0.08	-0.11	-0.18	N/A		-0.15	0.09	-0.11	-0.21	-0.14
Domestic EQ General	Momentum Aggressive Equity FoF B1		-0.44	0.15	-0.03	-0.17	-0.16	N/A		-1.60	-0.09	0.04	0.00	N/A		0.48	0.35	-0.03	-0.27	-0.18
Domestic EQ General	Investec Active Quants A		-0.45	-0.07	-0.12	-0.19	-0.21	N/A		-4.50	N/A	N/A	N/A	N/A		-0.05	-0.07	-0.12	-0.19	-0.21
Domestic EQ General	Momentum Mod Equity FoF B1		-0.45	0.12	-0.04	-0.16	-0.14	N/A		-1.39	-0.07	0.01	-0.02	N/A		0.30	0.27	-0.02	-0.23	-0.14
Domestic EQ General	STANLIB MM All Stars Eq FoF A		-0.47	0.41	0.08	-0.12	N/A	N/A		-0.47	N/A	N/A	N/A	N/A		-0.47	0.41	0.08	-0.12	N/A
Domestic EQ General	Valugro General Equity		-0.49	-0.07	-0.15	-0.13	-0.14	N/A		-0.76	N/A	N/A	N/A	N/A		-0.46	-0.07	-0.15	-0.13	-0.14
Domestic EQ General	Metropolitan Multi-Manager Equity		-0.50	0.65	0.35	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.50	0.65	0.35	N/A	N/A
Domestic EQ General	Nedgroup Inv Quants Core Eq A		-0.51	0.13	-0.03	-0.08	-0.08	-0.04		-1.10	-0.11	-0.12	-0.05	-0.10		0.08	0.37	0.14	0.03	0.06
Domestic EQ General	Coronation Equity R		-0.53	0.29	0.10	0.04	0.03	0.05		-0.78	0.00	0.06	0.08	0.01		-0.27	0.58	0.22	0.14	0.16
Domestic EQ General	Coris Capital General Equity		-0.53	-0.10	-0.27	-0.34	-0.33	-0.31		-1.44	-0.59	-0.63	-0.63	-0.66		0.39	0.38	0.15	0.04	0.01

Domestic EQ Res & Basic Ind	STANLIB Resources R		0.65	0.02	0.19	0.25	0.19	0.19		1.30	1.04	0.89	1.36	1.29		0.00	-1.00	-0.43	-0.37	-0.44
Domestic EQ Res & Basic Ind	Metropolitan Resources		0.47	-0.19	0.27	0.34	0.29	0.30		2.12	0.76	0.65	1.00	1.08		-1.18	-1.14	-0.16	0.08	-0.02
Domestic EQ Smaller Companies	RMB Small/Mid-Cap A		0.37	0.64	0.45	0.40	0.38	0.55		0.38	0.42	0.49	0.79	0.78		0.37	0.85	0.52	0.17	0.32
Domestic EQ Smaller Companies	STANLIB Small Cap A		0.30	-0.31	-0.50	-0.51	-0.54	-0.76		0.77	0.00	-0.04	0.19	0.19		-0.17	-0.62	-1.04	-1.62	-1.34
Domestic EQ Smaller Companies	SIM Small Cap R		-0.05	0.30	0.32	0.29	0.25	0.22		0.33	0.08	0.31	0.60	0.50		-0.43	0.53	0.39	-0.09	0.08
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R		-0.20	0.45	0.24	0.20	0.24	0.30		0.00	0.29	0.38	0.57	0.50		-0.40	0.62	0.11	-0.28	-0.07
Domestic EQ Smaller Companies	Coronation Smaller Companies		-0.21	0.46	0.16	0.00	-0.02	0.04		-0.07	0.04	0.03	0.37	0.26		-0.35	0.87	0.35	-0.01	0.25
Domestic EQ Smaller Companies	Old Mutual Small Companies R		-0.25	0.37	0.09	0.03	0.02	0.07		0.59	0.00	0.02	0.23	0.19		-1.08	0.74	0.22	-0.20	-0.01
Domestic EQ Smaller Companies	Investec Emerging Companies R		-0.73	0.60	0.21	0.07	0.04	0.09		-0.08	0.36	0.44	0.56	0.51		-1.38	0.83	0.04	-0.45	-0.24
Domestic EQ Value	Cadiz Mastermind A		1.29	0.35	0.40	0.21	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.29	0.35	0.40	0.21	N/A
Domestic EQ Value	SIM Value R		0.35	0.56	0.26	0.18	0.15	0.24		-0.77	0.41	0.20	0.38	0.32		1.46	0.71	0.52	0.30	0.30
Domestic EQ Value	Investec Value R		0.33	1.07	0.74	0.51	0.52	0.82		0.34	1.06	1.14	1.41	1.39		0.32	1.08	0.66	0.42	0.46
Domestic EQ Value	Nedgroup Inv Value R		-0.04	0.73	0.54	0.39	0.41	0.63		-0.20	0.93	0.82	1.03	1.11		0.11	0.52	0.36	0.26	0.32
Domestic EQ Value	Old Mutual Value R		-0.31	0.27	0.07	-0.01	-0.04	0.08		-0.73	0.12	0.14	0.22	0.20		0.11	0.42	0.17	0.06	0.03
Domestic EQ Value	RMB Value		-0.70	0.33	0.24	0.16	0.16	0.38		-0.76	0.48	0.53	0.72	0.72		-0.64	0.18	0.13	-0.08	-0.11
Domestic EQ Value	Prudential Dividend Maximiser A		-0.86	0.25	0.05	0.14	0.18	0.18		-1.07	-0.03	-0.13	-0.08	-0.03		-0.65	0.54	0.18	0.19	0.22
Domestic EQ Value	Metropolitan High Dividend		-0.96	0.62	0.04	-0.20	-0.30	N/A		-0.02	0.81	0.14	N/A	N/A		-1.33	0.54	0.19	0.02	0.00
Domestic EQ Value	STANLIB Value A		-1.38	0.24	0.03	0.09	0.06	0.17		-1.63	0.00	0.09	0.27	0.30		-1.13	0.49	0.11	0.01	0.02
Domestic EQ Value	Dynamic Wealth Value		-2.11	0.34	0.39	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-2.11	0.34	0.39	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R		2.43	-0.02	0.37	0.25	0.34	0.74		3.97	2.74	2.07	2.67	2.39		0.89	-2.78	-1.13	-0.60	-0.43
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R		1.35	-0.17	0.21	0.17	0.23	0.58		3.10	2.42	1.64	2.32	2.01		-0.39	-2.76	-0.92	-0.37	-0.29
Domestic EQ Varied Specialist	Select Manager Defensive Equity FoF		-0.39	0.27	-0.06	-0.24	-0.21	N/A		N/A	N/A	N/A	N/A	N/A		-0.39	0.27	-0.06	-0.24	-0.21
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE INVEST		3.67	-0.54	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		3.67	-0.54	N/A	N/A	N/A
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE INVEST		3.60	-0.47	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		3.60	-0.47	N/A	N/A	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE INVEST		1.14	-0.25	-0.35	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		1.14	-0.25	-0.35	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INVESTMEN		0.46	-0.03	0.00	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.46	-0.03	0.00	N/A	N/A
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGERS PTY		0.33	-0.28	-0.31	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		0.33	-0.28	-0.31	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVESTMENT		0.07	-0.13	-0.10	-0.08	-0.09	-0.12		-0.33	-0.12	-0.14	-0.19	-0.19		0.47	-0.15	-0.09	-0.04	-0.09
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE INVEST		-0.22	-0.05	-0.01	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.22	-0.05	-0.01	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INVESTMENT		-0.38	0.69	0.12	0.10	0.13	N/A		-1.15	-0.16	-0.45	N/A	N/A		0.16	1.20	0.59	0.41	0.43
Exchange Traded Fund	BBET40 - BETTABETA CIS		-0.48	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.48	N/A	N/A	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INVESTMEN		-0.55	-1.27	-0.28	-0.11	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.55	-1.27	-0.28	-0.11	N/A
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE INVEST		-0.56	0.82	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.56	0.82	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE INVEST		-0.74	-0.38	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-0.74	-0.38	N/A	N/A	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INVESTMEN		-1.47	-0.19	-0.04	-0.05	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-1.47	-0.19	-0.04	-0.05	N/A
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INVESTMENT		-1.52	1.86	1.24	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A		-1.52	1.86	1.24	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT		-1.99	-0.18	-0.27	-0.47	-0.45	N/A		-4.77	-0.39	-0.55	N/A	N/A		-0.04	-0.06	-0.15	-0.40	-0.35
Total Number of Funds		0	151	150	142	119	107	75	0	103	97	93	85	75	0	151	150	142	119	107
Number of 'Winner' Funds			41 (27%)	86 (57%)	66 (46%)	51 (43%)	47 (44%)	39 (52%)		19 (18%)	42 (43%)	42 (45%)	41 (48%)	36 (48%)		63 (42%)	96 (64%)	75 (53%)	48 (40%)	47 (44%)
Number of 'Loser' Funds			110 (73%)	64 (43%)	76 (54%)	68 (57%)	60 (56%)	36 (48%)		84 (82%)	55 (57%)	51 (55%)	44 (52%)	39 (52%)		88 (58%)	54 (36%)	67 (47%)	71 (60%)	60 (56%)

Table A6.2

Mean Conditional Alphas on the basis of Net Returns (Values in Bold indicate Positive Values)

Unit Trust Sub-Category	Unit Trust Name	2001-2010 (10 years)							2001-2005 (5 years)						2006-2010 (5 years)					
		3-months	6-months	1-year	2-year	4-year	5-year	10-year	3-months	6-months	1-year	2-year	4-year	5-year	3-months	6-months	1-year	2-year	4-year	5-year
Mean Alpha Value		-0.04	0.35	0.26	0.27	0.31	0.33	0.40	0.48	0.61	0.61	0.82	0.78	0.68	-0.22	0.24	0.11	0.05	0.07	0.09
Domestic EQ Financial	Nedgroup Inv Financials R	0.26	0.70	0.41	0.39	0.49	0.48	0.35	1.39	1.05	0.55	0.77	0.66	0.48	-0.87	0.35	0.26	0.04	0.18	0.19
Domestic EQ Financial	Coronation Financial A	-0.08	0.30	0.33	0.35	0.47	0.47	0.29	1.75	1.01	0.74	0.84	0.72	0.52	-1.90	-0.41	-0.07	-0.15	0.07	0.01
Domestic EQ Financial	STANLIB Financials A	-0.14	0.36	0.16	0.22	0.36	0.38	0.21	1.07	0.75	0.25	0.45	0.45	0.25	-1.35	-0.03	0.07	-0.05	0.14	0.08
Domestic EQ Financial	SIM Financial A	-0.16	0.43	0.31	0.31	0.38	0.37	0.24	0.83	0.80	0.50	0.63	0.60	0.43	-1.14	0.06	0.12	-0.01	0.11	0.04
Domestic EQ Financial	Old Mutual Financial Servs R	-0.27	0.42	0.24	0.35	0.47	0.46	0.20	0.60	0.76	0.34	0.66	0.57	0.33	-1.15	0.08	0.13	-0.05	0.08	0.05
Domestic EQ Financial	RMB Financial Services A	-0.28	0.34	0.13	0.19	0.27	0.27	0.09	0.68	0.59	0.17	0.40	0.31	0.15	-1.24	0.09	0.10	-0.10	0.08	0.05
Domestic EQ General	Element Islamic Equity A	0.87	0.50	0.13	0.25	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.87	0.50	0.13	0.25	0.15	N/A
Domestic EQ General	Element Earth Equity A	0.78	0.69	0.52	0.50	0.46	0.47	N/A	1.20	0.89	0.81	1.00	1.20	N/A	0.44	0.53	0.29	0.21	0.22	0.29
Domestic EQ General	Hermes Equity A	0.66	0.68	0.42	0.19	0.23	0.26	N/A	2.74	1.63	N/A	N/A	N/A	N/A	0.45	0.59	0.42	0.19	0.23	0.26
Domestic EQ General	Valugro General Equity	0.49	0.21	-0.01	0.00	0.01	-0.09	N/A	0.40	0.08	N/A	N/A	N/A	N/A	0.51	0.22	-0.01	0.00	0.01	-0.09
Domestic EQ General	STANLIB Shari'ah Equity A	0.46	0.50	0.01	-0.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46	0.50	0.01	-0.08	N/A	N/A
Domestic EQ General	FNB Growth	0.43	0.78	0.68	0.62	0.59	0.54	0.44	1.26	1.39	1.14	1.34	1.19	0.98	-0.40	0.17	0.21	-0.03	-0.07	-0.04
Domestic EQ General	ABSA Select Equity	0.42	0.76	0.46	0.46	0.48	0.48	N/A	0.86	1.20	0.47	N/A	N/A	N/A	0.26	0.62	0.46	0.45	0.49	0.47
Domestic EQ General	Interneuron Capital Equity	0.37	0.12	-0.27	-0.30	-0.30	-0.25	N/A	0.15	0.76	-0.49	N/A	N/A	N/A	0.45	-0.07	-0.23	-0.26	-0.29	-0.24
Domestic EQ General	Old Mutual Albaraka Equity	0.37	0.68	0.52	0.41	0.34	0.36	0.64	0.62	1.40	1.35	1.32	1.46	1.52	0.12	-0.03	-0.30	-0.42	-0.46	-0.41
Domestic EQ General	ABSA General R	0.35	0.45	0.35	0.37	0.40	0.38	0.32	0.50	0.59	0.48	0.62	0.57	0.45	0.20	0.31	0.22	0.13	0.15	0.19
Domestic EQ General	Community Growth Equity	0.31	0.30	0.29	0.33	0.38	0.36	0.29	0.58	0.38	0.48	0.68	0.69	0.54	0.04	0.22	0.10	0.06	0.09	0.01
Domestic EQ General	Investec Equity R	0.30	0.36	0.48	0.50	0.50	0.48	0.45	0.59	0.89	1.01	1.28	1.23	1.05	0.00	-0.17	-0.05	-0.09	-0.19	-0.17
Domestic EQ General	Old Mutual Growth R	0.28	0.49	0.50	0.52	0.56	0.53	0.44	0.52	0.52	0.64	0.92	0.89	0.64	0.04	0.47	0.36	0.22	0.27	0.24
Domestic EQ General	SIM General Equity R	0.24	0.39	0.23	0.31	0.38	0.37	0.23	0.33	0.35	0.17	0.47	0.45	0.23	0.15	0.43	0.29	0.15	0.24	0.23
Domestic EQ General	RMB Equity R	0.23	0.67	0.58	0.59	0.60	0.54	0.39	0.93	1.29	1.01	1.29	1.17	0.93	-0.48	0.05	0.15	-0.06	-0.08	-0.09
Domestic EQ General	Alphen Equity Builder	0.22	0.48	-0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.22	0.48	-0.23	N/A	N/A	N/A
Domestic EQ General	Coronation Equity R	0.22	0.43	0.45	0.49	0.54	0.52	0.45	1.27	0.87	0.72	0.87	0.78	0.62	-0.83	-0.01	0.18	0.16	0.24	0.24
Domestic EQ General	Foord Equity R	0.17	0.52	0.44	0.40	0.31	0.30	N/A	0.72	0.56	0.63	0.73	N/A	N/A	-0.19	0.50	0.32	0.22	0.19	0.23
Domestic EQ General	PSG Equity A	0.17	0.28	0.30	0.32	0.37	0.36	0.23	0.98	0.69	0.54	0.74	0.79	0.46	-0.63	-0.13	0.07	-0.06	-0.12	-0.04
Domestic EQ General	Kagiso Equity Alpha	0.16	0.61	0.19	0.22	0.28	0.36	N/A	1.56	1.70	-0.31	N/A	N/A	N/A	-0.26	0.29	0.29	0.28	0.39	0.46
Domestic EQ General	Allan Gray Equity A	0.16	0.50	0.67	0.58	0.55	0.60	0.81	0.24	1.03	1.19	1.12	1.27	1.22	0.07	-0.04	0.16	0.10	0.18	0.32
Domestic EQ General	Old Mutual Top Companies R	0.12	0.30	0.28	0.33	0.34	0.30	0.27	0.34	0.40	0.45	0.76	0.69	0.43	-0.10	0.20	0.12	0.06	0.12	0.11
Domestic EQ General	Gryphon All Share Tracker	0.12	-0.10	-0.24	-0.16	-0.06	-0.07	-0.16	-0.12	-0.33	-0.48	-0.35	-0.23	-0.29	0.35	0.13	-0.01	-0.02	-0.05	-0.07
Domestic EQ General	Prudential Equity A	0.09	0.46	0.56	0.59	0.66	0.65	0.52	0.56	0.67	0.72	0.94	0.84	0.70	-0.37	0.24	0.39	0.26	0.28	0.28
Domestic EQ General	Old Mutual Active Quant Equity A	0.09	0.21	0.18	0.21	0.25	0.24	0.21	0.27	0.34	0.33	0.54	0.52	0.38	-0.08	0.08	0.04	-0.07	-0.03	-0.02
Domestic EQ General	Analytics Managed Equity A	0.09	0.30	0.25	0.25	0.19	0.18	N/A	0.57	0.43	0.40	0.58	0.39	N/A	-0.32	0.20	0.13	0.03	0.04	0.04
Domestic EQ General	Nedgroup Inv Rainmaker A	0.08	0.68	0.93	0.89	0.87	0.83	0.88	0.52	1.08	1.49	1.66	1.63	1.52	-0.36	0.29	0.36	0.21	0.21	0.25
Domestic EQ General	Huysamer Equity A1	0.08	0.31	-0.01	-0.12	-0.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.08	0.31	-0.01	-0.12	-0.09	N/A
Domestic EQ General	Indequity Technical	0.08	-0.30	-0.11	-0.08	-0.12	-0.06	N/A	0.33	0.03	0.03	N/A	N/A	N/A	0.03	-0.36	-0.13	-0.16	-0.16	-0.15
Domestic EQ General	Oasis Crescent Equity	0.05	0.58	0.57	0.64	0.64	0.64	0.72	0.49	0.74	0.94	1.15	1.24	1.27	-0.39	0.41	0.21	0.14	0.11	0.15
Domestic EQ General	Prescient Eqty Quant A1	0.05	-0.07	-0.12	-0.10	-0.06	-0.07	N/A	-0.23	-0.21	-0.21	-0.23	N/A	N/A	0.17	-0.02	-0.08	-0.04	-0.04	-0.06
Domestic EQ General	STANLIB Index R	0.04	0.02	-0.02	-0.02	0.01	-0.01	-0.04	-0.66	-0.28	-0.17	-0.13	-0.10	-0.11	0.74	0.32	0.13	0.06	0.05	0.02
Domestic EQ General	Inv Solutions MM Equity A	0.02	0.28	0.27	0.27	0.20	0.19	N/A	0.72	0.72	0.63	0.85	0.54	N/A	-0.58	-0.07	-0.02	-0.09	-0.08	-0.02
Domestic EQ General	Coris Capital General Equity	0.02	-0.03	-0.08	-0.01	0.04	0.03	-0.04	0.13	-0.11	-0.23	-0.02	0.00	-0.11	-0.10	0.05	0.07	-0.02	0.04	0.01
Domestic EQ General	STANLIB SA Equity R	0.01	0.31	0.12	0.13	0.12	0.08	0.03	0.32	0.62	0.47	0.69	0.65	0.50	-0.30	0.00	-0.23	-0.35	-0.51	-0.48
Domestic EQ General	Aylett Equity A3	0.01	0.74	0.34	0.39	0.43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.01	0.74	0.34	0.39	0.43	N/A
Domestic EQ General	Old Mutual Investors R	0.00	0.19	0.20	0.29	0.32	0.30	0.25	0.42	0.46	0.44	0.73	0.67	0.51	-0.42	-0.08	-0.03	-0.06	0.01	-0.03
Domestic EQ General	Oasis General Equity	-0.03	0.53	0.53	0.60	0.58	0.59	N/A	0.85	0.91	0.87	1.18	1.24	N/A	-0.78	0.22	0.26	0.21	0.22	0.22
Domestic EQ General	SYmmETRY Equity FoF A	-0.06	0.19	0.17	0.15	0.11	0.11	N/A	-0.01	0.22	0.29	0.39	0.34	N/A	-0.10	0.15	0.07	-0.02	-0.01	0.04
Domestic EQ General	Sasfin Equity	-0.06	0.01	-0.25	-0.35	-0.26	-0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.06	0.01	-0.25	-0.35	-0.26	-0.24
Domestic EQ General	Afena Equity A1	-0.07	0.56	0.19	0.04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.07	0.56	0.19	0.04	N/A	N/A
Domestic EQ General	Nedgroup Inv Quants Core Eq A	-0.07	0.27	0.25	0.31	0.34	0.33	0.31	0.05	0.34	0.39	0.61	0.60	0.45	-0.19	0.19	0.10	0.07	0.13	0.14
Domestic EQ General	Personal Trust SA Equity	-0.09	0.86	0.70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.09	0.86	0.70	N/A	N/A	N/A
Domestic EQ General	STANLIB MM Equity A1	-0.10	0.22	0.11	0.12	0.12	0.10	0.09	0.22	0.43	0.26	0.43	0.35	0.23	-0.43	0.00	-0.04	-0.14	-0.13	-0.07
Domestic EQ General	Momentum Aggressive Equity FoF B1	-0.11	0.31	0.38	0.39	0.33	0.33	N/A	0.79	0.72	0.73	0.99	0.80	N/A	-0.87	-0.01	0.10	-0.03	-0.05	0.01
Domestic EQ General	Old Mutual RAFI 40 Tracker A	-0.12	-0.06	-0.02	0.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.12	-0.06	-0.02	0.06	N/A	N/A

Domestic EQ Res & Basic Ind	Coronation Resources	0.22	0.27	0.31	0.39	0.28	0.28	0.40	-0.27	0.14	0.55	0.59	0.59	0.61	0.72	0.41	0.08	0.18	0.21	0.28
Domestic EQ Res & Basic Ind	RMB Resources	0.21	0.39	0.45	0.42	0.18	0.14	0.33	-0.64	0.08	0.54	0.27	0.33	0.58	1.06	0.70	0.35	0.63	0.38	0.13
Domestic EQ Smaller Companies	SIM Small Cap R	0.86	1.31	1.15	1.04	1.12	1.09	1.00	1.22	1.59	1.81	1.92	1.82	1.56	0.51	1.03	0.49	0.18	0.20	0.37
Domestic EQ Smaller Companies	STANLIB Small Cap A	0.50	0.79	0.34	0.31	0.47	0.43	0.15	1.56	1.29	1.37	1.66	1.52	1.26	-0.56	0.30	-0.69	-1.16	-1.25	-1.06
Domestic EQ Smaller Companies	Old Mutual Small Companies R	0.41	1.04	0.97	0.88	0.95	0.92	0.82	1.09	1.22	1.44	1.64	1.61	1.32	-0.26	0.85	0.49	0.12	0.13	0.31
Domestic EQ Smaller Companies	Coronation Smaller Companies	0.38	0.81	0.82	0.88	0.86	0.83	0.78	0.81	0.77	1.19	1.60	1.50	1.17	-0.06	0.85	0.45	0.14	0.17	0.42
Domestic EQ Smaller Companies	RMB Small/Mid-Cap A	0.27	1.54	1.39	1.38	1.35	1.31	1.28	1.05	1.73	1.91	2.15	2.00	1.78	-0.51	1.34	0.88	0.70	0.66	0.83
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	0.16	1.08	1.08	1.11	1.18	1.16	1.09	0.85	1.30	1.65	1.94	1.95	1.72	-0.54	0.87	0.51	0.33	0.25	0.39
Domestic EQ Smaller Companies	Investec Emerging Companies R	-0.10	0.98	1.11	1.08	1.08	1.03	0.88	0.55	1.02	1.60	1.83	1.74	1.46	-0.74	0.94	0.62	0.38	0.22	0.27
Domestic EQ Value	STANLIB Value A	0.66	0.88	0.73	0.75	0.83	0.81	0.82	1.53	1.41	1.32	1.53	1.49	1.34	-0.22	0.35	0.14	0.15	0.27	0.25
Domestic EQ Value	SIM Value R	0.50	0.89	0.73	0.83	0.89	0.85	0.77	1.11	1.11	1.12	1.60	1.45	1.21	-0.10	0.67	0.33	0.19	0.35	0.38
Domestic EQ Value	RMB Value	0.39	1.08	0.97	0.97	0.90	0.83	0.85	1.05	1.57	1.54	1.79	1.75	1.59	-0.27	0.58	0.40	0.37	0.29	0.12
Domestic EQ Value	Nedgroup Inv Value R	0.33	1.19	1.05	0.98	0.86	0.88	1.10	0.73	1.68	1.65	1.64	1.65	1.68	-0.06	0.69	0.45	0.40	0.41	0.47
Domestic EQ Value	Investec Value R	0.30	0.89	1.20	1.18	1.17	1.17	1.44	1.78	1.98	2.19	2.46	2.55	2.41	-1.17	-0.20	0.22	0.19	0.37	0.50
Domestic EQ Value	Prudential Dividend Maximiser A	0.12	0.37	0.56	0.59	0.66	0.67	0.53	0.23	0.42	0.71	0.88	0.78	0.69	0.02	0.32	0.41	0.27	0.30	0.35
Domestic EQ Value	Old Mutual Value R	-0.15	0.67	0.57	0.60	0.62	0.58	0.58	0.51	1.01	1.06	1.31	1.25	1.09	-0.81	0.32	0.07	0.02	0.11	0.09
Domestic EQ Value	Metropolitan High Dividend	-0.21	0.30	0.27	0.10	0.05	0.08	N/A	1.01	1.34	1.00	1.34	N/A	N/A	-0.69	-0.11	-0.02	-0.21	-0.06	-0.09
Domestic EQ Value	Cadiz Mastermind A	-0.92	0.47	0.00	-0.11	0.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.92	0.47	0.00	-0.11	0.11	N/A
Domestic EQ Value	Dynamic Wealth Value	-1.05	0.66	0.37	0.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.05	0.66	0.37	0.31	N/A	N/A
Domestic EQ Varied Specialist	Old Mutual Gold R	2.14	0.33	0.42	0.12	-0.58	-0.47	0.48	-0.29	0.01	1.07	0.49	0.48	0.67	4.57	0.66	-0.23	0.04	-0.08	0.30
Domestic EQ Varied Specialist	STANLIB Gold & Prec Metals R	1.40	-0.17	0.17	-0.11	-0.71	-0.60	0.28	-1.41	-0.69	0.67	0.17	0.26	0.40	4.21	0.35	-0.34	-0.07	-0.16	0.13
Domestic EQ Varied Specialist	Select Manager Defensive Equity Fof	-0.59	-0.30	-0.08	-0.17	-0.12	-0.08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.59	-0.30	-0.08	-0.17	-0.12	-0.08
Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE	1.56	-0.34	-0.48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.56	-0.34	-0.48	N/A	N/A	N/A
Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INV	1.47	0.27	-0.01	0.17	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.47	0.27	-0.01	0.17	-0.05	N/A
Exchange Traded Fund	BBET40 - BETTABETA CIS	0.29	-0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.29	-0.05	N/A	N/A	N/A	N/A
Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVE	0.21	-0.14	-0.21	-0.15	-0.16	-0.17	-0.21	0.29	-0.11	-0.27	-0.22	-0.30	-0.28	0.13	-0.17	-0.15	-0.12	-0.10	-0.13
Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANA	0.10	-0.50	-0.47	-0.47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.10	-0.50	-0.47	-0.47	N/A	N/A
Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE IN	0.08	-0.06	-0.07	-0.05	-0.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.08	-0.06	-0.07	-0.05	-0.11	N/A
Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIV	0.05	-0.39	-0.34	-0.30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	-0.39	-0.34	-0.30	N/A	N/A
Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INV	0.05	0.01	0.14	0.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.05	0.01	0.14	0.15	N/A	N/A
Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE	-0.05	0.22	0.20	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.05	0.22	0.20	0.05	N/A	N/A
Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INV	-0.08	1.06	0.87	0.89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.08	1.06	0.87	0.89	N/A	N/A
Exchange Traded Fund	STXIND - SATRIX COLLECTIVE INV	-0.26	0.22	0.34	0.30	0.22	0.25	N/A	-0.21	0.39	0.49	1.07	N/A	N/A	-0.29	0.09	0.25	0.08	0.24	0.34
Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE	-0.30	0.91	0.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.30	0.91	0.75	N/A	N/A	N/A
Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INV	-0.61	0.15	0.02	0.25	0.10	0.03	N/A	1.32	0.76	0.46	1.24	N/A	N/A	-2.05	-0.28	-0.25	-0.31	-0.20	-0.15
Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIV	-0.96	-0.17	-0.80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.96	-0.17	-0.80	N/A	N/A	N/A
Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE	-1.85	-0.96	-0.47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.85	-0.96	-0.47	N/A	N/A	N/A
Total Number of Funds		151	151	150	142	119	107	75	104	103	97	93	85	75	151	151	150	142	119	107
Number of 'Winner' Funds		76 (50%)	125 (83%)	112 (75%)	109 (77%)	94 (79%)	86 (80%)	64 (85%)	82 (79%)	86 (83%)	81 (84%)	80 (86%)	75 (88%)	65 (87%)	50 (33%)	112 (74%)	98 (65%)	81 (57%)	72 (61%)	68 (64%)
Number of 'Loser' Funds		75 (50%)	26 (17%)	38 (25%)	33 (23%)	25 (21%)	21 (20%)	11 (15%)	22 (21%)	17 (17%)	16 (16%)	13 (14%)	10 (12%)	10 (13%)	101 (67%)	39 (26%)	52 (35%)	61 (43%)	47 (39%)	39 (36%)

Outperformance results: Unit Trust Nominal Total Returns (Net of Fees*) versus JSE All Share Index Total Returns

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
Outperformed	145 (47%)	234 (67%)	222 (62%)	229 (60%)	97 (24%)	231 (51%)	223 (46%)	232 (43%)	232 (40%)	265 (44%)	-244
Underperformed	166 (53%)	115 (33%)	136 (38%)	151 (40%)	307 (76%)	219 (49%)	267 (54%)	303 (57%)	352 (60%)	338 (56%)	
Net Outperformers	-21	119	86	78	-210	12	-44	-71	-120	-73	
6-month Intervals											
Outperformed	43 (28%)	110 (64%)	107 (60%)	153 (81%)	42 (21%)	101 (45%)	98 (40%)	128 (48%)	88 (30%)	128 (43%)	-216
Underperformed	109 (72%)	63 (36%)	71 (40%)	36 (19%)	158 (79%)	121 (55%)	144 (60%)	137 (52%)	202 (70%)	173 (57%)	
Net Outperformers	-66	47	36	117	-116	-20	-46	-9	-114	-45	
1-year Intervals											
Outperformed	19 (25%)	68 (80%)	68 (76%)	74 (80%)	13 (13%)	25 (23%)	47 (39%)	59 (45%)	37 (26%)	55 (37%)	-158
Underperformed	56 (75%)	17 (20%)	21 (24%)	19 (20%)	84 (87%)	82 (77%)	72 (61%)	72 (55%)	105 (74%)	95 (63%)	
Net Outperformers	-37	51	47	55	-71	-57	-25	-13	-68	-40	
2-year Intervals											
Outperformed		36 (48%)	71 (84%)	71 (80%)	56 (60%)	11 (11%)	31 (29%)	46 (39%)	46 (35%)	39 (27%)	-124
Underperformed		39 (52%)	14 (16%)	18 (20%)	37 (40%)	86 (89%)	76 (71%)	73 (61%)	85 (65%)	103 (73%)	
Net Outperformers		-3	57	53	19	-75	-45	-27	-39	-64	
4-year Intervals											
Outperformed				56 (75%)	69 (81%)	55 (62%)	38 (41%)	14 (14%)	23 (21%)	30 (25%)	-95
Underperformed				19 (25%)	16 (19%)	34 (38%)	55 (59%)	83 (86%)	84 (79%)	89 (75%)	
Net Outperformers				37	53	21	-17	-69	-61	-59	
5-year Intervals											
Outperformed					50 (67%)	63 (74%)	47 (53%)	31 (33%)	14 (14%)	23 (21%)	-90
Underperformed					25 (33%)	22 (26%)	42 (47%)	62 (67%)	83 (86%)	84 (79%)	
Net Outperformers					25	41	5	-31	-69	-61	
10-year Interval											
Outperformed										38 (51%)	1
Underperformed										37 (49%)	
Net Outperformers										1	

Outperformance results: Unit Trust Sharpe Ratios (Using Returns Net of fees) versus the Sharpe Ratio for the JSE All Share Index

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
Outperformed	139 (45%)	200 (57%)	274 (77%)	212 (56%)	175 (43%)	251 (56%)	228 (47%)	220 (41%)	303 (52%)	366 (61%)	
Underperformed	172 (55%)	149 (43%)	84 (23%)	168 (44%)	229 (57%)	199 (44%)	262 (53%)	315 (59%)	281 (48%)	237 (39%)	
Net Outperformers	-33	51	190	44	-54	52	-32	-95	22	127	272
Negative Observations	134 (43%)	230 (66%)	100 (28%)	100 (26%)	54 (13%)	91 (20%)	186 (38%)	473 (88%)	145 (25%)	166 (28%)	1679 (38%)
6-month Intervals											
Outperformed	56 (37%)	101 (58%)	133 (75%)	147 (78%)	45 (23%)	104 (47%)	94 (39%)	135 (51%)	112 (39%)	146 (49%)	
Underperformed	96 (63%)	72 (42%)	45 (25%)	42 (22%)	155 (78%)	118 (53%)	148 (61%)	130 (49%)	178 (61%)	155 (51%)	
Net Outperformers	-40	29	88	105	-110	-14	-54	5	-66	-9	-66
	36 (24%)	133 (77%)	89 (50%)	52 (28%)	6 (3%)	7 (3%)	92 (38%)	235 (89%)	84 (29%)	137 (46%)	871 (39%)
1-year Intervals											
Outperformed	25 (33%)	62 (73%)	70 (79%)	75 (81%)	15 (15%)	21 (20%)	45 (38%)	38 (29%)	69 (49%)	80 (53%)	
Underperformed	50 (67%)	23 (27%)	19 (21%)	18 (19%)	82 (85%)	86 (80%)	74 (62%)	93 (71%)	73 (51%)	70 (47%)	
Net Outperformers	-25	39	51	57	-67	-65	-29	-55	-4	10	-88
	16 (21%)	64 (75%)	10 (11%)	5 (5%)	0 (0%)	0 (0%)	12 (10%)	131 (100%)	1 (1%)	1 (1%)	240 (22%)
2-year Intervals											
Outperformed		35 (47%)	71 (84%)	72 (81%)	73 (78%)	16 (16%)	35 (33%)	38 (32%)	35 (27%)	70 (49%)	
Underperformed		40 (53%)	14 (16%)	17 (19%)	20 (22%)	81 (84%)	72 (67%)	81 (68%)	96 (73%)	72 (51%)	
Net Outperformers		-5	57	55	53	-65	-37	-43	-61	-2	-48
		42 (56%)	46 (54%)	7 (8%)	0 (0%)	0 (0%)	0 (0%)	119 (100%)	129 (98%)	1 (1%)	344 (37%)
4-year Intervals											
Outperformed				58 (77%)	68 (80%)	69 (78%)	48 (52%)	14 (14%)	26 (24%)	31 (26%)	
Underperformed				17 (23%)	17 (20%)	20 (22%)	45 (48%)	83 (86%)	81 (76%)	88 (74%)	
Net Outperformers				41	51	49	3	-69	-55	-57	-37
				2 (3%)	0 (0%)	1 (1%)	0 (0%)	8 (8%)	24 (22%)	84 (71%)	88 (19%)
5-year Intervals											
Outperformed					54 (72%)	64 (75%)	61 (69%)	35 (38%)	17 (18%)	32 (30%)	
Underperformed					21 (28%)	21 (25%)	28 (31%)	58 (62%)	80 (82%)	75 (70%)	
Net Outperformers					33	43	33	-23	-63	-43	-20
					0 (0%)	0 (0%)	2 (2%)	2 (2%)	1 (1%)	8 (7%)	13 (2%)
10-year Interval											
Outperformed										43 (57%)	
Underperformed										32 (43%)	
Net Outperformers										11	11
										0 (0%)	0 (0%)

Table B3

Outperformance results: Statistically significant Alphas as determined by the CAPM Model (Net Returns)

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
Significant Pos. Alpha	29 (9%)	30 (9%)	47 (13%)	20 (5%)	13 (3%)	23 (5%)	12 (2%)	25 (5%)	36 (6%)	41 (7%)	73
Significant Neg. Alpha	11 (4%)	21 (6%)	3 (1%)	16 (4%)	23 (6%)	24 (5%)	21 (4%)	45 (8%)	22 (4%)	17 (3%)	
Net Outperformers	18	9	44	4	-10	-1	-9	-20	14	24	
6-month Intervals											
Significant Pos. Alpha	9 (6%)	11 (6%)	34 (19%)	27 (14%)	1 (1%)	25 (11%)	4 (2%)	16 (6%)	10 (3%)	11 (4%)	8
Significant Neg. Alpha	29 (19%)	2 (1%)	2 (1%)	6 (3%)	4 (2%)	5 (2%)	3 (1%)	69 (26%)	3 (1%)	17 (6%)	
Net Outperformers	-20	9	32	21	-3	20	1	-53	7	-6	
1-year Intervals											
Significant Pos. Alpha	11 (15%)	8 (9%)	24 (27%)	57 (61%)	0 (0%)	2 (2%)	8 (7%)	0 (0%)	1 (1%)	17 (11%)	81
Significant Neg. Alpha	16 (21%)	1 (1%)	2 (2%)	6 (6%)	0 (0%)	0 (0%)	2 (2%)	11 (8%)	2 (1%)	7 (5%)	
Net Outperformers	-5	7	22	51	0	2	6	-11	-1	10	
2-year Intervals											
Significant Pos. Alpha		18 (24%)	20 (24%)	59 (66%)	34 (37%)	1 (1%)	7 (7%)	0 (0%)	0 (0%)	5 (4%)	95
Significant Neg. Alpha		9 (12%)	3 (4%)	11 (12%)	5 (5%)	0 (0%)	0 (0%)	3 (3%)	11 (8%)	7 (5%)	
Net Outperformers		9	17	48	29	1	7	-3	-11	-2	
4-year Intervals											
Significant Pos. Alpha				28 (37%)	44 (52%)	47 (53%)	19 (20%)	1 (1%)	0 (0%)	0 (0%)	106
Significant Neg. Alpha				5 (7%)	5 (6%)	8 (9%)	2 (2%)	3 (3%)	4 (4%)	6 (5%)	
Net Outperformers				23	39	39	17	-2	-4	-6	
5-year Intervals											
Significant Pos. Alpha					29 (39%)	47 (55%)	36 (40%)	3 (3%)	1 (1%)	1 (1%)	88
Significant Neg. Alpha					6 (8%)	5 (6%)	6 (7%)	1 (1%)	4 (4%)	7 (7%)	
Net Outperformers					23	42	30	2	-3	-6	
10-year Interval											
Significant Pos. Alpha										20 (27%)	15
Significant Neg. Alpha										5 (7%)	
Net Outperformers										15	

Table B4

Outperformance results: Statistically significant alphas as determined by the Fama and French 3-factor Model (Net Returns)

Year-Ending	Number of Observations										Total
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
3-month Intervals											
6-month Intervals											
Significant Pos. Alpha	6 (4%)	9 (5%)	12 (7%)	2 (1%)	2 (1%)	3 (1%)	8 (3%)	15 (6%)	6 (2%)	23 (8%)	2
Significant Neg. Alpha	12 (8%)	2 (1%)	7 (4%)	13 (7%)	1 (1%)	5 (2%)	2 (1%)	2 (1%)	26 (9%)	14 (5%)	
Net Outperformers	-6	7	5	-11	1	-2	6	13	-20	9	
1-year Intervals											
Significant Pos. Alpha	6 (8%)	8 (9%)	4 (4%)	0 (0%)	0 (0%)	2 (2%)	4 (3%)	42 (32%)	0 (0%)	18 (12%)	16
Significant Neg. Alpha	9 (12%)	13 (15%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	9 (8%)	9 (7%)	19 (13%)	9 (6%)	
Net Outperformers	-3	-5	4	0	0	2	-5	33	-19	9	
2-year Intervals											
Significant Pos. Alpha		16 (21%)	3 (4%)	3 (3%)	1 (1%)	0 (0%)	5 (5%)	1 (1%)	14 (11%)	0 (0%)	-29
Significant Neg. Alpha		24 (32%)	3 (4%)	0 (0%)	0 (0%)	1 (1%)	3 (3%)	25 (21%)	4 (3%)	12 (8%)	
Net Outperformers		-8	0	3	1	-1	2	-24	10	-12	
4-year Intervals											
Significant Pos. Alpha				18 (24%)	12 (14%)	2 (2%)	1 (1%)	1 (1%)	1 (1%)	0 (0%)	-7
Significant Neg. Alpha				11 (15%)	4 (5%)	1 (1%)	0 (0%)	15 (15%)	4 (4%)	7 (6%)	
Net Outperformers				7	8	1	1	-14	-3	-7	
5-year Intervals											
Significant Pos. Alpha					18 (24%)	12 (14%)	7 (8%)	1 (1%)	2 (2%)	0 (0%)	9
Significant Neg. Alpha					12 (16%)	4 (5%)	0 (0%)	3 (3%)	6 (6%)	6 (6%)	
Net Outperformers					6	8	7	-2	-4	-6	
10-year Interval											
Significant Pos. Alpha										11 (15%)	1
Significant Neg. Alpha										10 (13%)	
Net Outperformers										1	

Outperformance results: Statistically significant alphas as determined by the Carhart 4-factor Model (Net Returns)

Number of Observations											
Year-Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
3-month Intervals											
6-month Intervals											
Significant Pos. Alpha	2 (1%)	4 (2%)	8 (4%)	3 (2%)	9 (5%)	14 (6%)	22 (9%)	16 (6%)	5 (2%)	25 (8%)	
Significant Neg. Alpha	7 (5%)	37 (21%)	8 (4%)	9 (5%)	25 (13%)	45 (20%)	11 (5%)	4 (2%)	7 (2%)	8 (3%)	
Net Outperformers	-5	-33	0	-6	-16	-31	11	12	-2	17	-53
1-year Intervals											
Significant Pos. Alpha	8 (11%)	6 (7%)	2 (2%)	1 (1%)	0 (0%)	2 (2%)	3 (3%)	36 (27%)	1 (1%)	21 (14%)	
Significant Neg. Alpha	8 (11%)	12 (14%)	0 (0%)	1 (1%)	0 (0%)	1 (1%)	3 (3%)	7 (5%)	11 (8%)	9 (6%)	
Net Outperformers	0	-6	2	0	0	1	0	29	-10	12	28
2-year Intervals											
Significant Pos. Alpha		16 (21%)	2 (2%)	3 (3%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)	22 (17%)	3 (2%)	
Significant Neg. Alpha		24 (32%)	2 (2%)	0 (0%)	0 (0%)	3 (3%)	1 (1%)	1 (1%)	4 (3%)	10 (7%)	
Net Outperformers		-8	0	3	1	-3	0	-1	18	-7	3
4-year Intervals											
Significant Pos. Alpha				18 (24%)	12 (14%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
Significant Neg. Alpha				11 (15%)	4 (5%)	1 (1%)	0 (0%)	11 (11%)	5 (5%)	7 (6%)	
Net Outperformers				7	8	0	0	-11	-5	-7	-8
5-year Intervals											
Significant Pos. Alpha					18 (24%)	11 (13%)	4 (4%)	0 (0%)	1 (1%)	0 (0%)	
Significant Neg. Alpha					12 (16%)	4 (5%)	0 (0%)	4 (4%)	6 (6%)	9 (8%)	
Net Outperformers					6	7	4	-4	-5	-9	-1
10-year Interval											
Significant Pos. Alpha										8 (11%)	
Significant Neg. Alpha										11 (15%)	
Net Outperformers										-3	-3

Table B6

Outperformance results: Statistically significant alphas as determined by the Conditional Model (Net Returns)

Year-Ending	Number of Observations										Total
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
3-month Intervals											
6-month Intervals											
Significant Pos. Alpha	5 (3%)	7 (4%)	25 (14%)	7 (4%)	3 (2%)	31 (14%)	15 (6%)	12 (5%)	16 (6%)	31 (10%)	73
Significant Neg. Alpha	6 (4%)	1 (1%)	4 (2%)	10 (5%)	1 (1%)	4 (2%)	13 (5%)	27 (10%)	1 (0%)	12 (4%)	
Net Outperformers	-1	6	21	-3	2	27	2	-15	15	19	
1-year Intervals											
Significant Pos. Alpha	10 (13%)	14 (16%)	46 (52%)	31 (33%)	0 (0%)	2 (2%)	2 (2%)	0 (0%)	2 (1%)	17 (11%)	82
Significant Neg. Alpha	11 (15%)	0 (0%)	4 (4%)	11 (12%)	0 (0%)	0 (0%)	1 (1%)	8 (6%)	2 (1%)	5 (3%)	
Net Outperformers	-1	14	42	20	0	2	1	-8	0	12	
2-year Intervals											
Significant Pos. Alpha		19 (25%)	29 (34%)	69 (78%)	47 (51%)	1 (1%)	5 (5%)	0 (0%)	0 (0%)	15 (11%)	145
Significant Neg. Alpha		8 (11%)	4 (5%)	11 (12%)	6 (6%)	0 (0%)	0 (0%)	1 (1%)	4 (3%)	6 (4%)	
Net Outperformers		11	25	58	41	1	5	-1	-4	9	
4-year Intervals											
Significant Pos. Alpha				38 (51%)	55 (65%)	64 (72%)	32 (34%)	1 (1%)	1 (1%)	1 (1%)	168
Significant Neg. Alpha				5 (7%)	5 (6%)	7 (8%)	3 (3%)	0 (0%)	0 (0%)	4 (3%)	
Net Outperformers				33	50	57	29	1	1	-3	
5-year Intervals											
Significant Pos. Alpha					40 (53%)	55 (65%)	53 (60%)	7 (8%)	2 (2%)	3 (3%)	142
Significant Neg. Alpha					4 (5%)	5 (6%)	5 (6%)	0 (0%)	1 (1%)	3 (3%)	
Net Outperformers					36	50	48	7	1	0	
10-year Interval											
Significant Pos. Alpha										35 (47%)	31
Significant Neg. Alpha										4 (5%)	
Net Outperformers										31	

Table C1 Consistency of Performance - Top (Worst) Performers in terms of the Number of Periods of Outperformance (Underperformance) on the basis of Nominal Gross Returns

	Nominal Return in Excess of JSE All Share Index			Nominal Return Less than JSE All Share Index		
	Most Number of Periods in which Larger Nominal Return Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)	Most Number of Periods in which Lower Nominal Return Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)
2001-2010 (10 years)						
3-month intervals (max. 40)	27	1	RMB Value; ;	32	1	SIM Index R; ;
6-month intervals (max. 20)	14	4	RMB Value; RMB Small/Mid-Cap A; Coronation Resources	18	1	SIM Index R; ;
1-year intervals (max. 10)	8	3	RMB Small/Mid-Cap A; Coronation Top 20 A; STANLIB Industrial R	10	3	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2-year intervals (max. 9)	8	1	Coronation Top 20 A; ;	9	6	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
4-year intervals (max. 7)	7	3	Prudential Dividend Maximiser A; Coronation Top 20 A; Prudential Equity A	7	10	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
5-year interval (max. 6)	6	6	Prudential Dividend Maximiser A; Coronation Resources; Investec Commodity R	1	37	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
10-year interval (max. 1)	1	38	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	1	37	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
2001-2005 (5 years)						
3-month intervals (max. 20)	14	3	Investec Value R; RMB Value; Old Mutual High Yield Opp A	18	1	SIM Index R; ;
6-month intervals (max. 10)	9	2	Investec Value R; Coronation Top 20 A; Coronation Top 20 A; Allan Gray Equity A;	10	1	SIM Index R; ;
1-year intervals (max. 5)	5	2	Investec Value R; Old Mutual Value R; RMB Value	5	5	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2-year intervals (max. 4)	4	23	Coronation Financial A; Old Mutual Gold R; Investec Value R	4	7	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
4-year intervals (max. 2)	2	53	Old Mutual Gold R; STANLIB Gold & Prec Metals R; Investec Value R	2	11	RMB Financial Services A; Kagiso Top 40 Tracker; RMB Top 40 Index
5-year interval (max. 1)	1	50		1	25	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
2006-2010 (5 years)						
3-month intervals (max. 20)	14	1	SIM Industrial R; ;	16	3	ABSA Growth FoF; Sasfin Equity; STANLIB Equity R
6-month intervals (max. 10)	7	4	RMB Small/Mid-Cap A; Coronation Resources; Old Mutual Mining & Res R	9	2	Old Mutual Albaraka Equity; Sasfin Equity;
1-year intervals (max. 5)	5	1	STANLIB Industrial R; ;	5	17	Kagiso Top 40 Tracker; Old Mutual Top 40 A; RMB Top 40 Index
2-year intervals (max. 4)	4	4	Old Mutual Mining & Res R; STANLIB Industrial R; Kagiso Equity Alpha	4	37	SIM Financial A; Select Manager Defensive Equity FoF; STANLIB Gold & Prec Metals R
4-year intervals (max. 2)	2	21	Investec Value R; Nedgroup Inv Value R; Prudential Dividend Maximiser A	2	76	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
5-year interval (max. 1)	1	23	Investec Value R; Nedgroup Inv Value R; Prudential Dividend Maximiser A	1	84	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R

Table C2 Consistency of Performance - Top (Worst) Performers in terms of the Number of Periods of Outperformance (Underperformance) on the basis of Sharpe Ratios using Gross Returns

	Sharpe Ratio in Excess of JSE All Share Index			Sharpe Ratio Less than JSE All Share Index		
	Most Number of Periods in which Larger Sharpe Ratio Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)	Most Number of Periods in which Lower Sharpe Ratio Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)
2001-2010 (10 years)						
3-month intervals (max. 40)	28	1	RMB Value; ;	29	1	SIM Index R; ;
6-month intervals (max. 20)	15	3	RMB Value; SIM Value R; Oasis Crescent Equity	18	1	SIM Index R; ;
1-year intervals (max. 10)	9	1	Coronation Top 20 A; ;	9	4	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2-year intervals (max. 9)	8	2	Nedgroup Inv Value R; Coronation Top 20 A;	9	3	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
4-year intervals (max. 7)	7	3	Prudential Dividend Maximiser A; Coronation Top 20 A; Prudential Equity A	7	7	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
5-year interval (max. 6)	6	9	Nedgroup Inv Value R; Prudential Dividend Maximiser A; RMB Small/Mid-Cap A	1	32	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
10-year interval (max. 1)	1	43	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	1	32	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
2001-2005 (5 years)						
3-month intervals (max. 20)	15	6	Nedgroup Inv Value R; RMB Value; STANLIB Value A	17	2	RMB Top 40 Index; SIM Index R;
6-month intervals (max. 10)	9	3	Coronation Top 20 A; Oasis Crescent Equity; Old Mutual Albaraka Equity	10	1	SIM Index R; ;
1-year intervals (max. 5)	5	4	Nedgroup Inv Value R; Coronation Top 20 A; Allan Gray Equity A	5	4	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2-year intervals (max. 4)	4	26	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	4	6	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
4-year intervals (max. 2)	2	52	Coronation Financial A; Investec Value R; Nedgroup Inv Value R	2	9	RMB Financial Services A; Kagiso Top 40 Tracker; RMB Top 40 Index
5-year interval (max. 1)	1	54	Old Mutual Gold R; Investec Value R; Nedgroup Inv Value R	1	21	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
2006-2010 (5 years)						
3-month intervals (max. 20)	14	1	Nedgroup Inv Growth R; ;	14	3	STANLIB Gold & Prec Metals R; Indequity Technical; Investec Equity R
6-month intervals (max. 10)	8	1	RMB Resources; ;	9	1	Sasfin Equity; ;
1-year intervals (max. 5)	4	7	Coronation Smaller Companies; Nedgroup Inv Entrepreneur R; RMB Small/Mid-Cap A	5	6	Old Mutual Financial Servs R; Select Manager Defensive Equity FoF; Gryphon All Share Tracker
2-year intervals (max. 4)	4	2	RMB Resources; Kagiso Equity Alpha;	4	23	SIM Financial A; Select Manager Defensive Equity FoF; Kagiso Top 40 Tracker
4-year intervals (max. 2)	2	21	Investec Value R; Nedgroup Inv Value R; Prudential Dividend Maximiser A	2	71	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R
5-year interval (max. 1)	1	32	Investec Value R; Nedgroup Inv Value R; Prudential Dividend Maximiser A	1	75	Coronation Financial A; Nedgroup Inv Financials R; Old Mutual Financial Servs R

Table C3 Consistency of Performance - Top (Worst) Performers in terms of the Number of Periods of Outperformance (Underperformance) on the basis of CAPM Alphas using Gross Returns

	Positive Significant Alphas			Negative Significant Alphas		
	Most Number of Periods in which Pos. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)	Most Number of Periods in which Neg. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)
2001-2010 (10 years)						
3-month intervals (max. 40)	7	3	Coronation Smaller Companies; SIM Small Cap R; Coronation Industrial	4	9	Select Manager Defensive Equity FoF; Nedgroup Inv Mining & Res R; RMB Resources
6-month intervals (max. 20)	5	2	RMB Small/Mid-Cap A; RMB Resources;	4	2	Kagiso Top 40 Tracker; SIM Index R;
1-year intervals (max. 10)	5	1	Investec Value R; ;	2	7	Kagiso Top 40 Tracker; SIM Index R; SIM Growth R
2-year intervals (max. 9)	5	1	RMB Small/Mid-Cap A; ;	4	2	Kagiso Top 40 Tracker; SIM Index R;
4-year intervals (max. 7)	4	13	SIM Value R; STANLIB Value A; Coronation Smaller Companies	4	1	SIM Index R; ;
5-year interval (max. 6)	4	2	Prudential Dividend Maximiser A; Prudential Equity A;	5	1	SIM Index R; ;
10-year interval (max. 1)	1	20	Investec Value R; Nedgroup Inv Value R; Prudential Dividend Maximiser A	1	5	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2001-2005 (5 years)						
3-month intervals (max. 20)	5	2	STANLIB Value A; Coronation Smaller Companies;	3	1	STANLIB Financials A; ;
6-month intervals (max. 10)	3	3	RMB Small/Mid-Cap A; RMB Resources; Allan Gray Equity A	2	3	SIM Index R; STANLIB Index R; STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME
1-year intervals (max. 5)	4	1	Investec Value R; ;	2	1	Metropolitan General Equity; ;
2-year intervals (max. 4)	4	5	Investec Value R; RMB Value; Investec Equity R	3	2	Kagiso Top 40 Tracker; SIM Index R;
4-year intervals (max. 2)	2	26	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	2	3	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
5-year interval (max. 1)	1	30	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	1	6	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2006-2010 (5 years)						
3-month intervals (max. 20)	4	1	SIM Small Cap R; ;	4	1	Select Manager Defensive Equity FoF; ;
6-month intervals (max. 10)	2	13	RMB Value; Old Mutual Small Companies R; RMB Small/Mid-Cap A	3	1	Kagiso Top 40 Tracker; ;
1-year intervals (max. 5)	1	28	Investec Value R; RMB Value; STANLIB Value A	2	2	Tri-Linear Equity; BIPS40 - BIPS INVESTMENT MANAGERS PTY LTD ;
2-year intervals (max. 4)	2	1	RMB Small/Mid-Cap A; ;	2	2	PSG Alphen Equity FoF A; Tri-Linear Equity;
4-year intervals (max. 2)	0	N/A	;;	2	4	STANLIB Small Cap A; Old Mutual Albaraka Equity; STANLIB Equity R
5-year interval (max. 1)	1	1	ABSA Select Equity; ;	1	6	STANLIB Small Cap A; SIM Index R; Old Mutual Albaraka Equity

Table C4 Consistency of Performance - Top (Worst) Performers in terms of the Number of Periods of Outperformance (Underperformance) on the basis of Fama & French 3-factor Alphas using Gross Returns

	Positive Significant Alphas			Negative Significant Alphas		
	Most Number of Periods in which Pos. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)	Most Number of Periods in which Neg. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)
2001-2010 (10 years)						
3-month intervals (max. 40)						
6-month intervals (max. 20)	4	2	Investec Value R; Old Mutual Albaraka Equity;	4	1	SIM Financial A; ;
1-year intervals (max. 10)	4	1	Investec Value R; ;	3	3	SIM Index R; Marriott Dividend Growth R; Metropolitan General Equity
2-year intervals (max. 9)	3	3	Old Mutual Mining & Res R; STANLIB Resources R; PSG Equity A	3	4	STANLIB Small Cap A; Kagiso Top 40 Tracker; SIM Index R
4-year intervals (max. 7)	5	1	Old Mutual Mining & Res R; ;	3	6	RMB Financial Services A; STANLIB Small Cap A; Coris Capital General Equity
5-year interval (max. 6)	3	2	Old Mutual Mining & Res R; Nedgroup Inv Rainmaker A;	3	3	STANLIB Small Cap A; STANLIB Equity R; STANLIB SA Equity R
10-year interval (max. 1)	1	11	Investec Value R; Nedgroup Inv Value R; RMB Value	1	9	STANLIB Small Cap A; Kagiso Top 40 Tracker; SIM Index R
2001-2005 (5 years)						
3-month intervals (max. 20)						
6-month intervals (max. 10)	4	1	Old Mutual Albaraka Equity; ;	3	1	STANLIB Index R; ;
1-year intervals (max. 5)	2	4	Investec Value R; Investec Commodity R; RMB Resources	2	6	ABSA Growth FoF; Coris Capital General Equity; Gryphon All Share Tracker
2-year intervals (max. 4)	2	4	Investec Value R; Old Mutual Mining & Res R; STANLIB Resources R	2	3	Coris Capital General Equity; Gryphon All Share Tracker; STANLIB Index R
4-year intervals (max. 2)	2	12	Old Mutual Gold R; Investec Value R; Nedgroup Inv Value R	2	3	RMB Financial Services A; Coris Capital General Equity; Gryphon All Share Tracker
5-year interval (max. 1)	1	18	Old Mutual Gold R; STANLIB Gold & Prec Metals R; Investec Value R	1	12	Nedgroup Inv Financials R; Old Mutual Financial Servs R; RMB Financial Services A
2006-2010 (5 years)						
3-month intervals (max. 20)						
6-month intervals (max. 10)	2	7	SIM Small Cap R; STANLIB Industrial R; Aylett Equity A3	2	4	RMB Financial Services A; SIM Financial A; SIM Index R
1-year intervals (max. 5)	2	11	Investec Value R; Investec Emerging Companies R; Old Mutual Small Companies R	2	5	STANLIB Resources R; Kagiso Top 40 Tracker; SIM Index R
2-year intervals (max. 4)	1	21	Cadiz Mastermind A; Nedgroup Inv Value R; Old Mutual Value R	3	1	STANLIB Small Cap A; ;
4-year intervals (max. 2)	1	1	Old Mutual Mining & Res R; ;	2	4	STANLIB Small Cap A; STANLIB Equity R; STANLIB SA Equity R
5-year interval (max. 1)	0	N/A	;;	1	6	STANLIB Small Cap A; SIM Index R; Old Mutual Albaraka Equity

Table C5 Consistency of Performance - Top (Worst) Performers in terms of the Number of Periods of Outperformance (Underperformance) on the basis of Carhart 4-factor Alphas using Gross Returns

	Positive Significant Alphas			Negative Significant Alphas		
	Most Number of Periods in which Pos. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)	Most Number of Periods in which Neg. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)
2001-2010 (10 years)						
3-month intervals (max. 40)						
6-month intervals (max. 20)	3	7	Investec Emerging Companies R; Metropolitan Resources; RMB Strategic Opportunities R	6	1	SIM Index R; ;
1-year intervals (max. 10)	3	1	Investec Value R; ;	3	1	SIM Index R; ;
2-year intervals (max. 9)	4	1	PSG Equity A; ;	3	2	Kagiso Top 40 Tracker; SIM Index R; STANLIB Small Cap A; Coris Capital General Equity; Old Mutual Albaraka Equity
4-year intervals (max. 7)	2	12	Old Mutual Gold R; Investec Value R; Nedgroup Inv Value R	3	5	STANLIB Small Cap A; Old Mutual Albaraka Equity; STANLIB Equity R
5-year interval (max. 6)	3	1	Old Mutual Mining & Res R; ;	3	4	STANLIB Small Cap A; Kagiso Top 40 Tracker; SIM Index R
10-year interval (max. 1)	1	8	Investec Value R; Nedgroup Inv Value R; RMB Value	1	10	
2001-2005 (5 years)						
3-month intervals (max. 20)						
6-month intervals (max. 10)	3	2	Metropolitan Resources; Oasis Crescent Equity;	4	1	SIM Index R; ;
1-year intervals (max. 5)	2	3	Old Mutual Gold R; Investec Commodity R; RMB Resources	2	5	Coris Capital General Equity; Gryphon All Share Tracker; Marriott Dividend Growth R
2-year intervals (max. 4)	2	3	Investec Value R; STANLIB Resources R; PSG Equity A	2	2	Coris Capital General Equity; Gryphon All Share Tracker;
4-year intervals (max. 2)	2	11	Old Mutual Gold R; Investec Value R; Nedgroup Inv Value R	2	2	RMB Financial Services A; Coris Capital General Equity;
5-year interval (max. 1)	1	18	Old Mutual Gold R; STANLIB Gold & Prec Metals R; Investec Value R	1	12	Nedgroup Inv Financials R; Old Mutual Financial Servs R; RMB Financial Services A
2006-2010 (5 years)						
3-month intervals (max. 20)						
6-month intervals (max. 10)	3	4	Investec Emerging Companies R; Foord Equity R; Huysamer Equity A1	3	1	Old Mutual Top 40 A; ;
1-year intervals (max. 5)	2	9	Investec Value R; Investec Emerging Companies R; Coronation Industrial	2	2	Kagiso Top 40 Tracker; SIM Index R;
2-year intervals (max. 4)	2	2	Coronation Industrial; PSG Equity A; ;	2	2	Kagiso Top 40 Tracker; SIM Index R;
4-year intervals (max. 2)	0	N/A	;;	2	4	STANLIB Small Cap A; Old Mutual Albaraka Equity; STANLIB Equity R
5-year interval (max. 1)	0	N/A	;;	1	8	STANLIB Small Cap A; SIM Index R; ABSA Growth FoF

Table C6 Consistency of Performance - Top (Worst) Performers in terms of the Number of Periods of Outperformance (Underperformance) on the basis of Conditional Alphas using Gross Returns

	Positive Significant Alphas			Negative Significant Alphas		
	Most Number of Periods in which Pos. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)	Most Number of Periods in which Neg. Sig Alphas Observed by a Particular Fund	Number of Such Funds observed	Examples of Such Funds (In No Particular Order)
2001-2010 (10 years)						
3-month intervals (max. 40)						
6-month intervals (max. 20)	4	3	Old Mutual Small Companies R; SIM Small Cap R; Coronation Equity R	4	3	Kagiso Top 40 Tracker; SIM Index R; STANLIB Index R
1-year intervals (max. 10)	5	2	Investec Value R; RMB Value;	4	1	SIM Index R; ;
2-year intervals (max. 9)	6	1	RMB Small/Mid-Cap A; ;	4	2	Kagiso Top 40 Tracker; SIM Index R;
4-year intervals (max. 7)	4	21	Prudential Dividend Maximiser A; RMB Value; SIM Value R	4	2	Kagiso Top 40 Tracker; SIM Index R;
5-year interval (max. 6)	5	3	Prudential Dividend Maximiser A; RMB Small/Mid-Cap A; Coronation Top 20 A	4	2	Kagiso Top 40 Tracker; SIM Index R;
10-year interval (max. 1)	1	36	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	1	4	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2001-2005 (5 years)						
3-month intervals (max. 20)						
6-month intervals (max. 10)	2	9	Investec Value R; Nedgroup Inv Value R; Coronation Smaller Companies	3	1	STANLIB Index R; ;
1-year intervals (max. 5)	4	3	Investec Value R; RMB Value; Nedgroup Inv Rainmaker A	3	2	RMB Top 40 Index; SIM Index R;
2-year intervals (max. 4)	4	8	Investec Value R; Nedgroup Inv Value R; RMB Value	3	3	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
4-year intervals (max. 2)	2	38	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	2	4	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
5-year interval (max. 1)	1	40	Investec Value R; Nedgroup Inv Value R; Old Mutual Value R	1	4	Kagiso Top 40 Tracker; RMB Top 40 Index; SIM Index R
2006-2010 (5 years)						
3-month intervals (max. 20)						
6-month intervals (max. 10)	3	3	Old Mutual Small Companies R; SIM Small Cap R; Capstone Active Equity FoF	3	2	Kagiso Top 40 Tracker; SIM Index R;
1-year intervals (max. 5)	2	1	SIM Industrial R; ;	2	1	BIPS40 - BIPS INVESTMENT MANAGERS PTY LTD ; ;
2-year intervals (max. 4)	2	1	RMB Small/Mid-Cap A; ;	1	11	STANLIB Small Cap A; Kagiso Top 40 Tracker; Old Mutual Top 40 A
4-year intervals (max. 2)	2	1	ABSA Select Equity; ;	1	4	STANLIB Small Cap A; Kagiso Top 40 Tracker; SIM Index R
5-year interval (max. 1)	1	3	RMB Small/Mid-Cap A; ABSA Select Equity; Kagiso Equity Alpha	1	3	Kagiso Top 40 Tracker; SIM Index R; STANLIB SA Equity R

Domestic EQ Large Cap	Cannon Core Companies	9	10	3	6	1	3	1	2	0	1	0	0	0	0	14	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	10	3	6	1	3	1	2	0	1	0	0	14	22
Domestic EQ Large Cap	RMB Top 40 Index	9	31	6	14	0	10	0	9	0	7	0	1	0	1	15	73	3	17	2	8	0	5	0	4	0	2	0	1	5	37	6	14	4	6	0	5	0	4	0	2	0	1	10	32			
Domestic EQ Large Cap	SIM Index R	8	32	2	18	0	10	0	9	0	7	0	1	0	1	10	78	2	18	0	10	0	5	0	4	0	2	0	1	2	40	6	14	2	8	0	5	0	4	0	2	0	1	8	34			
Domestic EQ Res & Basic Ind	Coronation Resources	24	16	14	6	7	3	6	3	6	1	6	0	1	0	64	29	11	9	7	3	3	2	2	2	2	0	1	0	26	16	13	7	7	3	4	1	3	1	2	0	1	0	30	12			
Domestic EQ Res & Basic Ind	Old Mutual Mining & Res R	24	16	13	7	6	4	7	2	6	1	6	0	1	0	63	30	12	8	6	4	3	2	2	2	2	0	1	0	26	16	12	8	7	3	3	2	4	0	2	0	1	0	29	13			
Domestic EQ Res & Basic Ind	Investec Commodity R	23	17	12	8	6	4	5	4	6	1	6	0	1	0	59	34	12	8	6	4	3	2	2	2	2	0	1	0	26	16	11	9	6	4	3	2	2	2	0	1	0	25	17				
Domestic EQ Res & Basic Ind	RMB Resources	22	18	14	6	6	4	5	4	6	1	4	0	1	0	58	33	10	10	7	3	3	2	2	2	2	0	1	0	25	17	12	8	7	3	3	2	2	2	0	1	0	27	15				
Domestic EQ Res & Basic Ind	STANLIB Resources R	21	19	9	11	4	6	5	4	4	3	2	0	1	0	46	43	11	9	5	5	2	3	2	2	2	0	1	0	23	19	10	10	4	6	2	3	2	2	0	2	0	1	18	24			
Domestic EQ Res & Basic Ind	Nedgroup Inv Mining & Res R	20	20	12	8	6	4	6	3	5	2	4	0	1	0	54	37	10	10	6	4	3	2	2	2	2	1	1	1	0	23	19	10	10	6	4	3	2	3	1	2	0	1	0	25	17		
Domestic EQ Res & Basic Ind	Metropolitan Resources	18	22	11	9	6	4	5	4	3	4	3	0	1	0	47	43	9	11	6	4	3	2	2	2	1	1	1	0	22	20	9	11	5	5	3	2	2	2	1	1	1	0	21	21			
Domestic EQ Smaller Companie	SIM Small Cap R	25	15	12	8	6	4	6	3	4	3	4	0	1	0	58	33	13	7	6	4	3	2	4	0	2	0	1	0	29	13	12	8	6	4	3	2	2	2	0	2	0	1	23	19			
Domestic EQ Smaller Companie	Nedgroup Inv Entrepreneur R	25	15	10	10	6	4	6	3	4	3	4	0	1	0	56	35	13	7	6	4	3	2	4	0	2	0	1	0	29	13	12	8	4	6	3	2	2	2	0	2	0	1	21	21			
Domestic EQ Smaller Companie	Old Mutual Small Companies R	24	16	9	11	6	4	5	4	4	3	4	0	1	0	53	38	12	8	5	5	3	2	3	1	2	0	1	0	26	16	12	8	4	6	3	2	2	2	0	2	0	1	21	21			
Domestic EQ Smaller Companie	RMB Small/Mid-Cap A	23	17	14	6	8	2	7	2	6	1	5	0	1	0	64	28	12	8	7	3	4	1	4																								

Domestic EQ Large Cap	Cannon Core Companies	9	10	2	7	1	3	1	2	0	1	0	0	0	13	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	10	2	7	1	3	1	2	0	1	0	0	13	23
Domestic EQ Res & Basic Ind	Investec Commodity R	22	18	12	8	5	5	6	3	6	1	5	0	1	0	57	35	10	10	6	4	3	2	2	2	2	0	1	0	24	18	12	8	6	4	2	3	3	1	2	0	1	0	26	16
Domestic EQ Res & Basic Ind	STANLIB Resources R	21	19	9	11	4	6	4	5	1	6	1	1	0	1	40	49	10	10	4	6	2	3	2	2	1	1	1	0	20	22	11	9	5	5	2	3	2	2	0	2	0	1	20	22
Domestic EQ Res & Basic Ind	Old Mutual Mining & Res R	20	20	13	7	6	4	6	3	6	1	6	0	1	0	58	35	9	11	6	4	3	2	2	2	2	0	1	0	23	19	11	9	7	3	3	2	3	1	2	0	1	0	27	15
Domestic EQ Res & Basic Ind	Coronation Resources	20	20	12	8	6	4	6	3	6	1	5	0	1	0	56	36	9	11	5	5	3	2	2	2	2	0	1	0	22	20	11	9	7	3	3	2	3	1	2	0	1	0	27	15
Domestic EQ Res & Basic Ind	Nedgroup Inv Mining & Res R	20	20	14	6	6	4	6	3	4	3	3	0	1	0	54	36	9	11	7	3	3	2	2	2	1	1	1	0	23	19	11	9	7	3	3	2	3	1	2	0	1	0	27	15
Domestic EQ Res & Basic Ind	RMB Resources	20	20	13	7	6	4	6	3	3	4	3	0	1	0	52	38	10	10	5	5	3	2	2	2	1	1	1	0	22	20	10	10	8	2	3	2	4	0	2	0	1	0	28	14
Domestic EQ Res & Basic Ind	Metropolitan Resources	19	21	14	6	6	4	5	4	3	4	2	1	0	1	49	41	8	12	7	3	3	2	2	2	1	1	1	0	22	20	11	9	7	3	3	2	3	1	1	1	0	1	25	17
Domestic EQ Smaller Companie	Nedgroup Inv Entrepreneur R	27	13	11	9	7	3	6	3	4	3	4	0	1	0	60	31	15	5	6	4	3	2	4	0	2	0	1	0	31	11	12	8	5	5	4	1	2	2	0	2	0	1	23	19
Domestic EQ Smaller Companie	SIM Small Cap R	26	14	12	8	7	3	6	3	4	3	4	0	1	0	60	31	14	6	6	4	3	2	4	0	2	0	1	0	30	12	12	8	6	4	4	1	2	2	0	2	0	1	24	18
Domestic EQ Smaller Companie	Investec Emerging Companies R	26	14	14	6	6	4	6	3	4	3	3	0	1	0	60	30	13	7	7	3	3	2	4	0	2	0	1	0	30	12	13	7	7	3	3	2	2	2	0	2	0	1	25	17
Domestic EQ Smaller Companie	Old Mutal Small Companies R	26	14	12	8	5	5	4	5	4	3	3	0	1	0	55	35	13	7	6	4	3	2	3	1	2	0	1	0	28	14	13	7	6	4	2	3	1	3	0	2	0	1	22	20
Domestic EQ Smaller Companie	RMB Small/Mid-Cap A	25	15	14	6	8	2	7	2	6	1	6	0	1	0	67	26	13	7	7	3	4	1	4	0	2	0	1	0	31	11	12	8	6	4	1	3	1	2	0	1	0	29	13	
Domestic EQ Smaller Companie	STANLIB Small Cap A	25	15	7	13	4	6	5	4	4	3	3	1	0	1	48	43	14	6	4	6	3	2	4	0																				

Number of Outperformance and Underperformance Observations for each Unit Trust on the basis of Fama and Factor 3-factor Alphas using Gross Returns

[illegible]

Domestic EQ General	Hermes Equity A			0	0	1	1	0	0	0	0	0	0	0	1	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Domestic EQ General	Sasfin Equity			0	0	0	1	0	1	0	0	0	0	0	0	2			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Domestic EQ General	STANLIB MM All Stars Eq FoF A			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Domestic EQ General	STANLIB Shar'ah Equity A			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Domestic EQ General	Stewart Macro Equity FoF A			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Domestic EQ General	Metropolitan General Equity			0	0	0	3	0	2	0	2	0	2	0	1	10			0	0	0	2	0	1	0	1	0	1	0	5		0	0	2	
Domestic EQ General	ABSA Growth FoF			0	0	2	0	1	0	0	0	0	0	0	0	3			0	0	0	2	0	1	0	0	0	0	3		0	0	0		
Domestic EQ General	Huysamer Equity A1			0	0	0	1	0	1	0	0	0	0	0	0	2			0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
Domestic EQ General	RMB Equity R			0	0	0	0	1	0	0	0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	SYmmETRY Equity FoF A			0	0	0	0	1	0	0	0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	Inv Solutions MM Equity A			0	0	0	0	0	1	0	1	0	0	0	0	2			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	Cannon Equity A			0	0	0	0	1	0	0	0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	Lion of Africa General Equity			0	0	0	1	0	1	0	0	0	0	0	0	2			0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
Domestic EQ General	NFB Equity A2			0	0	0	1	0	0	0	0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	FNB Growth			0	0	0	0	1	0	0	0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	Indequity Technical			0	0	0	1	0	0	0	0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
Domestic EQ General	Element Islamic Equity A			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Domestic EQ General	Community Growth Equity			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Domestic EQ General	Analytics Managed Equity A			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Domestic EQ General	SIM Top Choice Equity A1			0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0												

[illegible]

Number of Outperformance and Underperformance Observations for each Unit Trust on the basis of Conditional Alphas using Gross Returns

[illegible]

[illegible]

[illegible]

100	Domestic EQ Res & Basic Ind	Investec Commodity R	6	97	92	77	139	82.2	101.3	102.7	13.9	2.4	0.17	0.33	-0.63
101	Domestic EQ Value	Dynamic Wealth Value	109	98	102	101	104	102.8	101.3	102.3	7.3	2.4	0.01	0.01	0.15
102	Domestic EQ General	NeFG Equity	110	102	105	107	98	104.4	103.0	103.3	7.2	2.3	-0.03	-0.08	0.26
103	Exchange Traded Fund	RAFIND - NEWFUNDS COLLECTIVE INVEST SCHEME	100	128	107	120	60	103.0	103.8	95.7	7.5	1.8	-0.07	-0.31	0.87
104	Domestic EQ General	Nedgroup Inv Rainmaker A	128	107	98	92	120	109.0	104.3	103.3	6.5	2.2	0.07	0.17	-0.14
105	Domestic EQ General	FNB Growth	134	103	104	100	110	110.2	104.3	104.7	6.2	2.3	-0.02	0.03	-0.01
106	Domestic EQ General	Gryphon All Share Tracker	29	99	103	102	115	89.6	104.8	106.7	10.0	2.4	0.00	0.01	-0.09
107	Domestic EQ General	STANLIB MM All Stars Eq FoF A	91	101	106	103	111	102.4	105.3	106.7	7.8	2.3	-0.04	-0.02	-0.02
108	Domestic EQ General	Prudential Equity A	97	104	108	108	109	105.2	107.3	108.3	7.5	2.3	-0.10	-0.10	-0.01
109	Domestic EQ General	Afena Equity A1	125	110	110	110	103	111.6	108.3	107.7	6.6	2.2	-0.12	-0.15	0.15
110	Exchange Traded Fund	BBET40 - BETTABETA CIS	130	123	111	119	85	113.6	109.5	105.0	6.4	1.9	-0.13	-0.27	0.51
111	Domestic EQ Value	Prudential Dividend Maximiser A	121	109	109	105	116	112.0	109.8	110.0	6.7	2.2	-0.10	-0.06	-0.11
112	Domestic EQ Large Cap	Old Mutual Top 40 A	37	105	113	111	117	96.6	111.5	113.7	9.6	2.3	-0.16	-0.18	-0.12
113	Domestic EQ General	Old Mutual Top Companies R	75	106	112	109	122	104.8	112.3	114.3	8.2	2.2	-0.14	-0.11	-0.19
114	Domestic EQ General	Allan Gray Equity A	140	131	115	121	92	119.8	114.8	109.3	5.2	1.8	-0.21	-0.32	0.42
115	Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INVESTMENT SCHEME	19	119	122	127	97	96.8	116.3	115.3	10.8	2.0	-0.27	-0.47	0.32
116	Domestic EQ General	Old Mutual Growth R	69	113	114	112	127	107.0	116.5	117.7	8.4	2.2	-0.21	-0.18	-0.26
117	Domestic EQ General	Investec Active Quants A	76	115	117	115	119	108.4	116.5	117.0	8.1	2.2	-0.22	-0.23	-0.13
118	Domestic EQ General	Community Growth Equity	111	116	119	114	118	115.6	116.8	117.0	7.2	2.1	-0.23	-0.23	-0.13
119	Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGERS PTY LTD	43	111	116	113	128	102.2	117.0	119.0	9.4	2.2	-0.21	-0.21	-0.28
120	Domestic EQ Large Cap	Kagiso Top 40 Tracker	36	112	118	116	126	101.6	118.0	120.0	9.6	2.2	-0.22	-0.23	-0.25
121	Domestic EQ General	Inv Solutions MM Equity A	101	117	120	117	121	115.2	118.8	119.3	7.5	2.1	-0.25	-0.24	-0.19
122	Domestic EQ General	Hermes Equity A	81	121	124	125	106	111.4	119.0	118.3	8.0	2.0	-0.35	-0.46	0.05
123	Domestic EQ Value	Old Mutual Value R	116	120	123	122	114	119.0	119.8	119.7	7.0	2.0	-0.30	-0.35	-0.04
124	Domestic EQ Large Cap	SIM Index R	39	114	121	118	131	104.6	121.0	123.3	9.6	2.2	-0.26	-0.26	-0.29
125	Domestic EQ General	Element Earth Equity A	139	125	125	123	112	124.8	121.3	120.0	5.7	1.9	-0.36	-0.40	-0.03
126	Domestic EQ Industrial	STANLIB Industrial R	141	138	126	124	108	127.4	124.0	119.3	4.3	1.6	-0.39	-0.44	0.01
127	Domestic EQ General	Efficient General Equity	142	140	127	126	113	129.6	126.5	122.0	3.9	1.5	-0.42	-0.46	-0.04
128	Domestic EQ Large Cap	Cannon Core Companies	59	122	128	128	132	113.8	127.5	129.3	8.7	2.0	-0.50	-0.56	-0.33
129	Domestic EQ General	RMB Equity R	129	130	129	129	123	128.0	127.8	127.0	6.4	1.8	-0.51	-0.57	-0.20
130	Domestic EQ General	Cannon Equity A	108	127	130	132	134	126.2	130.8	132.0	7.3	1.8	-0.57	-0.61	-0.40
131	Domestic EQ General	Coronation Equity R	49	124	132	133	136	114.8	131.3	133.7	9.1	1.9	-0.59	-0.62	-0.55
132	Domestic EQ General	STANLIB Nationbuilder A	87	126	134	131	140	123.6	132.8	135.0	7.8	1.8	-0.62	-0.61	-0.64
133	Domestic EQ General	Old Mutual Investors R	133	135	131	130	135	132.8	132.8	132.0	6.2	1.7	-0.58	-0.61	-0.40
134	Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INVESTMENT SCHEME	84	132	135	137	130	123.6	133.5	134.0	7.9	1.8	-0.65	-0.75	-0.28
135	Domestic EQ General	Oasis General Equity	119	133	133	135	133	130.6	133.5	133.7	6.8	1.7	-0.61	-0.67	-0.36
136	Domestic EQ Financial	Nedgroup Inv Financials R	144	143	142	142	107	135.6	133.5	130.3	1.9	0.2	-1.06	-1.30	0.05
137	Domestic EQ General	Kagiso Equity Alpha	120	137	136	138	124	131.0	133.8	132.7	6.7	1.7	-0.65	-0.76	-0.23
138	Domestic EQ Growth	Investec Growth R	62	129	139	136	141	121.4	136.3	138.7	8.6	1.8	-0.77	-0.75	-0.93
139	Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE INVEST SCHEME	94	134	138	139	138	128.6	137.3	138.3	7.6	1.7	-0.73	-0.78	-0.58
140	Domestic EQ General	Tri-Linear Equity	150	151	137	134	129	140.2	137.8	133.3	-1.8	-5.0	-0.67	-0.63	-0.28
141	Domestic EQ General	Old Mutual RAFI 40 Tracker A	90	136	140	141	137	128.8	138.5	139.3	7.8	1.7	-0.83	-0.91	-0.57
142	Domestic EQ General	Investec Equity R	127	139	141	140	142	137.8	140.5	141.0	6.6	1.6	-0.89	-0.86	-0.99
143	Domestic EQ Large Cap	Coronation Top 20 A	74	141	143	143	148	129.8	143.8	144.7	8.2	1.4	-1.44	-1.45	-1.57
144	Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE INVEST SCHEME	123	142	144	144	145	139.6	143.8	144.3	6.7	1.2	-1.54	-1.67	-1.19
145	Domestic EQ Financial	STANLIB Financials A	145	146	145	145	143	144.8	144.8	144.3	0.1	-0.4	-2.05	-2.28	-1.04
146	Domestic EQ Financial	RMB Financial Services A	146	145	146	147	144	145.6	145.5	145.7	0.0	-0.4	-2.35	-2.64	-1.17
147	Domestic EQ Financial	Coronation Financial A	143	144	147	146	147	145.4	146.0	146.7	2.0	0.2	-2.37	-2.59	-1.56
148	Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT SCHEME	148	148	149	150	146	148.2	148.3	148.3	-1.7	-0.9	-2.72	-3.01	-1.49
149	Domestic EQ Financial	SIM Financial A	151	150	148	148	149	149.2	148.8	148.3	-2.1	-1.4	-2.60	-2.80	-1.69
150	Domestic EQ Financial	Old Mutual Financial Servs R	147	149	150	149	150	149.0	149.5	149.7	-1.3	-0.9	-2.84	-3.00	-2.15
151	Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE INVEST SCHEME	149	147	151	151	151	149.8	150.0	151.0	-1.8	-0.7	-3.68	-3.99	-2.56

100	Domestic EQ General	Momentum MultiFocus FoF	124	124	111	96	99	59	102.2	97.8	91.3	17.7	3.7	-0.16	-0.17	-0.19	0.37
101	Domestic EQ General	STANLIB SA Equity R	38	80	86	111	124	101	90.0	100.4	105.5	23.0	4.1	-0.03	-0.28	-0.36	0.04
102	Domestic EQ General	Valugro General Equity	34	106	116	110	88	89	90.5	101.8	100.8	23.2	3.9	-0.19	-0.27	-0.08	0.12
103	Domestic EQ General	MI-PLAN IP Beta Equity B2	74	95	101	114	111	93	98.0	102.8	104.8	21.3	4.0	-0.11	-0.33	-0.25	0.10
104	Domestic EQ Large Cap	ABSA Rand Protector	58	114	122	108	89	83	95.7	103.2	100.5	22.1	3.9	-0.23	-0.25	-0.08	0.16
105	Domestic EQ General	Aylett Equity A3	132	116	100	118	119	67	108.7	104.0	101.0	16.8	3.8	-0.10	-0.34	-0.32	0.28
106	Domestic EQ General	27Four Active Equity A1	72	86	96	117	126	96	98.8	104.2	108.8	21.3	4.1	-0.06	-0.34	-0.40	0.09
107	Domestic EQ General	Metropolitan General Equity	71	88	91	125	125	97	99.5	105.2	109.5	21.4	4.0	-0.05	-0.41	-0.39	0.09
108	Domestic EQ General	Cannon Top A	70	99	113	98	100	119	99.8	105.8	107.5	21.4	4.0	-0.17	-0.18	-0.19	-0.16
109	Domestic EQ General	SIM Top Choice Equity A1	93	113	114	109	112	81	103.7	106.8	104.0	20.2	3.9	-0.18	-0.25	-0.26	0.17
110	Domestic EQ General	NeFG Equity	92	100	107	115	109	105	104.7	107.2	109.0	20.2	4.0	-0.14	-0.34	-0.25	0.01
111	Domestic EQ General	Prescient Eqty Active Quant A1	55	104	104	121	118	91	98.8	107.6	108.5	22.2	4.0	-0.13	-0.38	-0.32	0.11
112	Domestic EQ Large Cap	Kagiso Top 40 Tracker	20	93	117	102	107	129	94.7	109.6	113.8	24.0	4.0	-0.19	-0.21	-0.24	-0.29
113	Domestic EQ General	Alphen Equity Builder	49	108	118	116	114	94	99.8	110.0	110.5	22.6	3.9	-0.20	-0.34	-0.26	0.10
114	Domestic EQ Large Cap	Old Mutual Top 40 A	21	91	115	103	115	128	95.5	110.4	115.3	24.0	4.0	-0.18	-0.22	-0.27	-0.27
115	Domestic EQ General	Prescient Eqty Quant A1	27	96	106	123	120	109	96.8	110.8	114.5	23.6	4.0	-0.14	-0.39	-0.34	0.00
116	Exchange Traded Fund	RAFISA - NEWFUNDS COLLECTIVE INVEST SCHEME	48	103	119	104	105	125	100.7	111.2	113.3	22.7	4.0	-0.20	-0.22	-0.22	-0.26
117	Domestic EQ Large Cap	RMB Top 40 Index	26	97	108	124	123	107	97.5	111.8	115.5	23.6	4.0	-0.14	-0.40	-0.35	0.00
118	Domestic EQ General	Kagiso Equity Alpha	116	117	112	83	122	126	112.7	112.0	110.8	18.9	3.8	-0.16	-0.09	-0.35	-0.26
119	Domestic EQ General	Investec Equity R	120	118	110	122	92	121	113.8	112.6	111.3	18.6	3.8	-0.16	-0.39	-0.10	-0.18
120	Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGERS PTY LTD	43	107	125	94	108	130	101.2	112.8	114.3	22.8	3.9	-0.24	-0.14	-0.24	-0.32
121	Domestic EQ General	Investec Active Quantis A	66	112	126	100	106	123	105.5	113.4	113.8	21.7	3.9	-0.26	-0.19	-0.24	-0.19
122	Domestic EQ General	Plexus RAFI® Enhanced SA Strategy A	59	109	121	120	121	104	105.7	115.0	116.5	22.0	3.9	-0.20	-0.38	-0.35	0.01
123	Domestic EQ General	Efficient General Equity	119	134	129	132	101	80	115.8	115.2	110.5	18.6	3.4	-0.35	-0.55	-0.19	0.19
124	Domestic EQ Large Cap	SIM Index R	23	101	123	107	116	131	100.2	115.6	119.3	23.8	4.0	-0.24	-0.24	-0.28	-0.33
125	Domestic EQ General	Oasis Crescent Equity	139	132	124	119	110	113	122.8	119.6	116.5	14.6	3.5	-0.24	-0.35	-0.25	-0.07
126	Domestic EQ General	NFB Equity A2	142	127	92	133	137	110	123.5	119.8	118.0	13.7	3.6	-0.05	-0.55	-0.71	-0.03
127	Exchange Traded Fund	BBET40 - BETTABETA CIS	88	120	120	131	129	112	116.7	122.4	123.0	20.4	3.8	-0.20	-0.52	-0.48	-0.05
128	Domestic EQ Large Cap	Coronation Top 20 A	25	122	131	105	117	140	106.7	123.0	123.3	23.6	3.7	-0.37	-0.24	-0.29	-0.66
129	Domestic EQ General	Afena Equity A1	114	126	130	130	127	118	124.2	126.2	126.3	19.0	3.6	-0.36	-0.50	-0.42	-0.15
130	Domestic EQ Value	STANLIB Value A	128	133	132	138	130	115	129.3	129.6	128.8	17.5	3.4	-0.38	-0.70	-0.53	-0.10
131	Domestic EQ General	Indequity Technical	112	128	127	140	135	120	127.0	130.0	130.5	19.2	3.6	-0.31	-0.77	-0.68	-0.18
132	Domestic EQ General	Old Mutual RAFI 40 Tracker A	44	125	133	126	132	136	116.0	130.4	131.8	22.8	3.7	-0.40	-0.44	-0.54	-0.54
133	Exchange Traded Fund	STXDIV - SATRIX COLLECTIVE INVESTMENT SCHEME	106	140	141	128	128	127	128.3	132.8	131.0	19.3	3.2	-0.72	-0.46	-0.44	-0.27
134	Domestic EQ General	STANLIB Nationbuilder A	104	129	135	134	131	135	128.0	132.8	133.8	19.5	3.5	-0.45	-0.63	-0.53	-0.54
135	Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INVESTMENT SCHEME	8	119	128	136	141	142	112.3	133.2	136.8	26.1	3.8	-0.34	-0.65	-1.00	-0.81
136	Domestic EQ General	Oasis General Equity	125	130	134	137	134	133	132.2	133.6	134.5	17.7	3.5	-0.40	-0.66	-0.61	-0.47
137	Domestic EQ Res & Basic Ind	Metropolitan Resources	73	136	136	127	133	138	123.8	134.0	133.5	21.3	3.4	-0.48	-0.45	-0.55	-0.59
138	Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	65	131	138	135	136	134	123.2	134.8	135.8	21.8	3.5	-0.57	-0.63	-0.70	-0.53
139	Domestic EQ Res & Basic Ind	STANLIB Resources R	41	137	137	129	138	141	120.5	136.4	136.3	22.9	3.3	-0.52	-0.46	-0.73	-0.71
140	Domestic EQ General	RMB Equity R	111	138	140	141	139	137	134.3	139.0	139.3	19.2	3.3	-0.69	-0.88	-0.82	-0.57
141	Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE INVEST SCHEME	68	135	139	139	140	143	127.3	139.2	140.3	21.6	3.4	-0.63	-0.73	-0.86	-0.93
142	Domestic EQ Financial	Nedgroup Inv Financials R	133	141	142	143	142	132	138.8	140.0	139.8	16.8	2.7	-0.75	-1.21	-1.09	-0.42
143	Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INVESTMENT SCHEME	77	139	143	142	143	144	131.3	142.2	143.0	21.1	3.2	-0.87	-1.04	-1.18	-1.00
144	Domestic EQ Financial	Coronation Financial A	135	142	144	144	145	146	142.7	144.2	144.8	16.0	2.2	-1.57	-1.70	-1.85	-1.63
145	Domestic EQ Financial	STANLIB Financials A	143	143	145	146	146	145	144.7	145.0	145.5	13.6	1.8	-1.82	-1.95	-2.03	-1.51
146	Domestic EQ General	Tri-Linear Equity	150	151	146	145	144	139	145.8	145.0	143.5	7.2	0.9	-1.87	-1.77	-1.36	-0.63
147	Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT SCHEME	144	144	147	147	147	147	146.0	146.4	147.0	12.4	1.5	-2.02	-2.05	-2.24	-1.74
148	Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE INVEST SCHEME	145	145	148	148	148	151	147.5	148.0	148.8	12.1	1.4	-2.09	-2.31	-2.44	-2.19
149	Domestic EQ Financial	RMB Financial Services A	146	146	149	150	151	149	148.5	149.0	149.8	11.5	1.4	-2.23	-2.55	-2.74	-2.14
150	Domestic EQ Financial	SIM Financial A	147	149	150	151	149	148	149.0	149.4	149.5	9.8	1.1	-2.36	-2.57	-2.45	-1.92
151	Domestic EQ Financial	Old Mutual Financial Servs R	148	150	151	149	150	150	149.7	150.0	150.0	9.5	1.1	-2.42	-2.53	-2.48	-2.15

100	Domestic EQ General	Gryphon All Share Tracker	65	95	98	100	101	107	94.3	100.2	101.5	18.7	2.3	-0.06	-0.07	-0.06	-0.10
101	Exchange Traded Fund	STXRAF - SATRIX COLLECTIVE INVESTMENT SCHEME	46	93	96	94	93	125	91.2	100.2	102.0	20.0	2.3	-0.02	-0.03	-0.01	-0.25
102	Domestic EQ General	Element Islamic Equity A	131	101	99	122	121	58	105.3	100.2	100.0	13.2	2.1	-0.06	-0.23	-0.19	0.23
103	Domestic EQ Growth	Investec Growth R	85	102	106	90	90	121	99.0	101.8	101.8	17.6	2.1	-0.11	-0.01	0.02	-0.22
104	Domestic EQ Value	Cadiz Mastermind A	106	100	100	112	106	97	103.5	103.0	103.8	16.2	2.2	-0.07	-0.18	-0.10	-0.03
105	Domestic EQ General	STANLIB Index R	84	98	102	108	107	106	100.8	104.2	105.8	17.6	2.2	-0.08	-0.12	-0.10	-0.07
106	Exchange Traded Fund	STXSXW - SATRIX COLLECTIVE INVESTMENT SCHEME	96	106	108	93	92	126	103.5	105.0	104.8	17.0	2.1	-0.12	-0.02	0.01	-0.26
107	Domestic EQ Value	Metropolitan High Dividend	87	99	103	111	112	103	102.5	105.6	107.3	17.4	2.2	-0.09	-0.17	-0.15	-0.06
108	Domestic EQ General	Coris Capital General Equity	111	108	111	116	114	104	110.7	110.6	111.3	15.9	2.0	-0.14	-0.21	-0.17	-0.07
109	Domestic EQ General	Lion of Africa General Equity	114	105	107	118	122	102	111.3	110.8	112.3	15.5	2.1	-0.11	-0.22	-0.19	-0.06
110	Domestic EQ General	Oasis Crescent Equity	135	113	110	121	117	96	115.3	111.4	111.0	13.0	1.9	-0.12	-0.22	-0.17	0.01
111	Domestic EQ General	Valugro General Equity	105	112	114	107	105	120	110.5	111.6	111.5	16.3	1.9	-0.16	-0.12	-0.08	-0.22
112	Domestic EQ General	BJM Core Equity B1	143	126	118	110	113	92	117.0	111.8	108.3	11.3	1.6	-0.18	-0.17	-0.15	0.02
113	Domestic EQ Financial	STANLIB Financials A	117	125	117	97	109	112	112.8	112.0	108.8	15.2	1.7	-0.18	-0.05	-0.12	-0.18
114	Domestic EQ Large Cap	STANLIB ALSI 40 A	94	109	112	117	115	114	110.2	113.4	114.5	17.1	2.0	-0.15	-0.21	-0.17	-0.19
115	Domestic EQ General	Old Mutual RAFI 40 Tracker A	90	111	115	109	120	117	110.3	114.4	115.3	17.2	2.0	-0.17	-0.16	-0.18	-0.21
116	Domestic EQ General	STANLIB Nationbuilder A	100	103	105	131	134	100	112.2	114.6	117.5	16.6	2.1	-0.11	-0.29	-0.28	-0.04
117	Domestic EQ General	NeFG Equity	120	116	119	114	118	109	116.0	115.2	115.0	14.9	1.9	-0.19	-0.20	-0.18	-0.12
118	Domestic EQ General	Prescient Eqty Quant A1	95	110	113	119	116	119	112.0	115.4	116.8	17.0	2.0	-0.15	-0.22	-0.17	-0.22
119	Domestic EQ Financial	SIM Financial A	125	131	121	105	119	110	118.5	117.2	113.8	14.1	1.5	-0.19	-0.11	-0.18	-0.13
120	Domestic EQ General	Interneuron Capital Equity	126	114	116	133	137	89	119.2	117.8	118.8	14.0	1.9	-0.17	-0.30	-0.31	0.05
121	Domestic EQ General	STANLIB Shar'ah Equity A	146	139	130	104	95	129	123.8	119.4	114.5	10.4	1.2	-0.29	-0.11	-0.02	-0.29
122	Domestic EQ General	RMB Equity R	115	118	123	120	123	115	119.0	119.8	120.3	15.3	1.8	-0.20	-0.22	-0.21	-0.20
123	Domestic EQ General	Afena Equity A1	123	123	124	124	127	108	121.5	121.2	120.8	14.3	1.7	-0.23	-0.24	-0.24	-0.12
124	Domestic EQ General	Alphen Equity Builder	113	121	125	127	124	123	122.2	124.0	124.8	15.7	1.8	-0.23	-0.25	-0.23	-0.23
125	Domestic EQ Growth	STANLIB Growth R	127	130	131	113	108	140	124.8	124.4	123.0	13.8	1.5	-0.29	-0.19	-0.10	-0.43
126	Domestic EQ Res & Basic Ind	RMB Resources	78	117	122	132	125	128	117.0	124.8	126.8	17.9	1.8	-0.20	-0.30	-0.23	-0.29
127	Domestic EQ Large Cap	Kagiso Top 40 Tracker	104	119	126	125	126	131	121.8	125.4	127.0	16.3	1.8	-0.24	-0.24	-0.23	-0.30
128	Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT SCHEME	140	143	140	96	111	139	128.2	125.8	121.5	11.9	1.0	-0.37	-0.04	-0.13	-0.41
129	Domestic EQ Res & Basic Ind	Nedgroup Inv Mining & Res R	91	115	120	137	132	127	120.3	126.2	129.0	17.2	1.9	-0.19	-0.32	-0.28	-0.27
130	Domestic EQ Large Cap	Old Mutual Top 40 A	108	120	128	126	128	132	123.7	126.8	128.5	16.2	1.8	-0.25	-0.25	-0.24	-0.31
131	Domestic EQ Large Cap	RMB Top 40 Index	109	122	127	136	130	130	125.7	129.0	130.8	16.0	1.8	-0.24	-0.31	-0.26	-0.29
132	Domestic EQ Res & Basic Ind	Old Mutual Mining & Res R	133	136	141	115	110	146	130.2	129.6	128.0	13.2	1.3	-0.41	-0.20	-0.13	-0.62
133	Domestic EQ Large Cap	SIM Index R	112	124	129	130	131	135	126.8	129.8	131.3	15.7	1.7	-0.29	-0.28	-0.28	-0.35
134	Domestic EQ General	Community Growth Equity	129	134	135	128	135	122	130.5	130.8	130.0	13.4	1.5	-0.33	-0.26	-0.28	-0.22
135	Domestic EQ General	Investec Equity R	132	132	132	142	139	113	131.7	131.6	131.5	13.2	1.5	-0.30	-0.42	-0.38	-0.18
136	Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE INVEST SCHEME	119	127	133	129	136	138	130.3	132.6	134.0	15.2	1.6	-0.31	-0.28	-0.28	-0.39
137	Domestic EQ Smaller Companies	STANLIB Small Cap A	148	146	136	140	129	118	136.2	133.8	130.8	8.9	0.8	-0.33	-0.34	-0.24	-0.21
138	Domestic EQ Financial	Old Mutual Financial Servs R	136	137	134	138	141	124	135.0	134.8	134.3	12.8	1.3	-0.32	-0.32	-0.39	-0.25
139	Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGERS PTY LTD	122	128	138	135	138	136	132.8	135.0	136.8	14.6	1.5	-0.34	-0.30	-0.31	-0.36
140	Domestic EQ Large Cap	ABSA Rand Protector	124	133	137	139	133	137	133.8	135.8	136.5	14.2	1.5	-0.34	-0.32	-0.28	-0.39
141	Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	121	129	139	141	142	134	134.3	137.0	139.0	14.9	1.5	-0.35	-0.39	-0.41	-0.34
142	Exchange Traded Fund	RAFFIN - NEWFUNDS COLLECTIVE INVEST SCHEME	137	144	142	134	140	143	140.0	140.6	139.8	12.1	1.0	-0.41	-0.30	-0.38	-0.47
143	Exchange Traded Fund	NFSH40 - NEWFUNDS COLLECTIVE INVEST SCHEME	128	138	144	143	143	144	140.0	142.4	143.5	13.5	1.3	-0.44	-0.49	-0.47	-0.48
144	Domestic EQ General	Indequity Technical	138	140	143	145	144	141	141.8	142.6	143.3	12.0	1.1	-0.44	-0.57	-0.52	-0.44
145	Domestic EQ Res & Basic Ind	Investec Commodity R	139	142	145	146	145	145	143.7	144.6	145.3	12.0	1.0	-0.47	-0.62	-0.53	-0.58
146	Domestic EQ Res & Basic Ind	Metropolitan Resources	142	145	146	147	147	147	145.7	146.6	146.8	11.4	0.9	-0.59	-0.72	-0.64	-0.74
147	Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INVESTMENT SCHEME	145	147	147	148	149	142	146.3	146.8	146.5	11.1	0.8	-0.60	-0.97	-0.96	-0.44
148	Exchange Traded Fund	RAFRES - NEWFUNDS COLLECTIVE INVEST SCHEME	144	148	148	144	146	148	146.3	146.8	146.5	11.3	0.8	-0.62	-0.55	-0.54	-0.80
149	Domestic EQ Res & Basic Ind	STANLIB Resources R	149	149	149	149	148	150	149.0	149.0	149.0	8.2	0.3	-0.91	-1.00	-0.91	-1.13
150	Domestic EQ General	Tri-Linear Equity	150	150	150	150	150	149	149.8	149.8	149.8	1.0	-1.3	-1.17	-1.12	-1.19	-0.89

100	Domestic EQ General	Community Growth Equity	97	92	96	95	109	97	97.7	97.8	99.3	48.4	6.9	-0.03	-0.18	-0.17	0.06
101	Domestic EQ Large Cap	Cannon Core Companies	83	99	97	112	84	100	95.8	98.4	98.3	49.7	6.4	-0.04	-0.26	-0.06	0.03
102	Domestic EQ General	Metropolitan General Equity	78	91	92	113	107	95	96.0	99.6	101.8	50.7	6.9	-0.01	-0.26	-0.16	0.07
103	Domestic EQ Large Cap	RMB Top 40 Index	65	98	112	87	89	121	95.3	101.4	102.3	52.6	6.5	-0.13	-0.15	-0.08	-0.14
104	Domestic EQ General	Gryphon All Share Tracker	61	96	110	86	101	120	95.7	102.6	104.3	53.4	6.6	-0.12	-0.14	-0.13	-0.13
105	Domestic EQ Large Cap	STANLIB ALSI 40 A	68	104	116	91	93	122	99.0	105.2	105.5	52.1	6.3	-0.16	-0.17	-0.10	-0.17
106	Domestic EQ General	RMB Equity R	75	93	100	115	114	105	100.3	105.4	108.5	51.1	6.7	-0.05	-0.27	-0.20	0.00
107	Domestic EQ General	Prescient Eqty Quant A1	63	106	118	90	95	125	99.5	106.8	107.0	52.9	6.3	-0.18	-0.16	-0.11	-0.21
108	Domestic EQ General	Efficient General Equity	129	122	111	104	106	92	110.7	107.0	103.3	36.8	5.4	-0.13	-0.21	-0.16	0.08
109	Domestic EQ General	Hermes Equity A	112	102	105	118	111	102	108.3	107.6	109.0	45.2	6.4	-0.10	-0.27	-0.18	0.03
110	Domestic EQ General	Sasfin Equity	113	108	115	102	103	113	109.0	108.2	108.3	45.2	6.1	-0.14	-0.20	-0.14	-0.05
111	Domestic EQ General	ABSA Growth FoF	134	123	113	101	118	87	112.7	108.4	104.8	34.3	5.3	-0.14	-0.20	-0.22	0.10
112	Domestic EQ Financial	Coronation Financial A	56	105	83	130	132	94	100.0	108.8	109.8	54.6	6.3	0.04	-0.41	-0.41	0.07
113	Domestic EQ Growth	Investec Growth R	86	100	106	109	117	114	105.3	109.2	111.5	49.3	6.4	-0.10	-0.23	-0.21	-0.06
114	Domestic EQ General	SIM Top Choice Equity A1	94	103	108	121	108	109	107.2	109.8	111.5	48.5	6.3	-0.11	-0.30	-0.17	-0.04
115	Domestic EQ General	Old Mutual Investors R	89	101	107	119	116	111	107.2	110.8	113.3	49.1	6.4	-0.10	-0.29	-0.20	-0.04
116	Exchange Traded Fund	STXRES - SATRIX COLLECTIVE INVESTMENT SCHEME	92	129	135	72	86	138	108.7	112.0	107.8	48.8	4.8	-0.36	-0.05	-0.06	-0.43
117	Domestic EQ Financial	STANLIB Financials A	102	113	91	133	135	89	110.5	112.2	112.0	47.3	5.9	-0.01	-0.46	-0.47	0.10
118	Domestic EQ Large Cap	Kagiso Top 40 Tracker	70	110	123	98	112	128	106.8	114.2	115.3	51.8	6.0	-0.23	-0.19	-0.19	0.27
119	Exchange Traded Fund	STXSWX - SATRIX COLLECTIVE INVESTMENT SCHEME	100	115	121	111	104	124	112.5	115.0	115.0	48.2	5.8	-0.22	-0.25	-0.14	-0.21
120	Domestic EQ Large Cap	Old Mutual Top 40 A	73	111	125	103	115	129	109.3	116.6	118.0	51.5	6.0	-0.24	-0.20	-0.20	-0.28
121	Domestic EQ General	STANLIB SA Equity R	103	107	114	128	127	115	115.7	118.2	121.0	47.2	6.1	-0.14	-0.35	-0.30	-0.08
122	Domestic EQ General	STANLIB Shar'ah Equity A	138	134	126	127	99	108	121.7	118.4	114.5	30.6	4.2	-0.26	-0.34	-0.13	-0.01
123	Domestic EQ General	Oasis Crescent Equity	132	126	122	120	119	107	121.0	118.8	117.0	35.0	5.0	-0.22	-0.30	-0.21	-0.01
124	Domestic EQ General	BJM Core Equity B1	137	130	124	122	122	101	122.7	119.8	117.3	31.4	4.8	-0.23	-0.31	-0.26	0.03
125	Domestic EQ General	STANLIB Equity R	121	117	119	123	125	117	120.3	120.2	121.0	42.3	5.7	-0.20	-0.32	-0.29	-0.08
126	Domestic EQ Large Cap	SIM Index R	80	116	127	108	120	134	114.2	121.0	122.3	50.2	5.7	-0.28	-0.23	-0.23	-0.32
127	Domestic EQ General	NeFG Equity	122	120	120	125	123	118	121.3	121.2	121.5	41.8	5.6	-0.21	-0.33	-0.27	-0.10
128	Domestic EQ Financial	Old Mutual Financial Servs R	108	124	109	137	138	112	121.3	124.0	124.0	46.5	5.2	-0.12	-0.61	-0.58	-0.04
129	Exchange Traded Fund	STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	79	121	130	117	126	137	118.3	126.2	127.5	50.7	5.6	-0.31	-0.27	-0.29	-0.38
130	Exchange Traded Fund	NEWFSA - NEWFUNDS COLLECTIVE INVEST SCHEME	93	119	128	124	130	133	121.2	126.8	128.8	48.6	5.6	-0.27	-0.32	-0.35	-0.30
131	Domestic EQ General	Interneuron Capital Equity	125	125	129	129	129	123	126.7	127.0	127.5	38.5	5.0	-0.30	-0.36	-0.35	-0.18
132	Domestic EQ General	NFB Equity A2	135	133	131	134	124	119	129.3	128.2	127.0	34.4	4.3	-0.32	-0.50	-0.28	-0.11
133	Domestic EQ General	Indequity Technical	131	131	132	131	136	126	131.2	131.2	131.3	35.2	4.4	-0.34	-0.43	-0.49	-0.22
134	Exchange Traded Fund	BIPS40 - BIPS INVESTMENT MANAGERS PTY LTD	109	127	137	126	128	139	127.7	131.4	132.5	46.6	5.0	-0.42	-0.33	-0.31	-0.47
135	Domestic EQ General	Huysamer Equity A1	123	128	134	136	134	132	131.2	132.8	134.0	41.2	4.9	-0.35	-0.53	-0.43	-0.30
136	Domestic EQ General	Lion of Africa General Equity	128	132	136	135	133	131	132.5	133.4	133.8	37.0	4.4	-0.39	-0.51	-0.42	-0.29
137	Domestic EQ General	Valugro General Equity	130	135	138	132	131	135	133.5	134.2	134.0	35.4	4.1	-0.44	-0.44	-0.39	-0.36
138	Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT SCHEME	124	136	133	139	140	130	133.7	135.6	135.5	40.9	4.0	-0.34	-0.74	-0.74	-0.28
139	Domestic EQ General	STANLIB Nationbuilder A	133	137	139	140	139	136	137.3	138.2	138.5	34.5	3.3	-0.46	-0.93	-0.67	-0.37
140	Domestic EQ Res & Basic Ind	STANLIB Resources R	136	138	140	138	137	142	138.5	139.0	139.3	31.7	2.5	-0.79	-0.65	-0.55	-0.85
141	Domestic EQ General	Tri-Linear Equity	141	141	141	141	141	141	141.0	141.0	141.0	21.7	1.3	-0.83	-1.11	-1.10	-0.71
142	Domestic EQ Smaller Companies	STANLIB Small Cap A	142	142	142	142	142	140	141.7	141.6	141.5	5.3	-2.1	-1.00	-1.47	-1.12	-0.69

100	Domestic EQ General	Momentum MultiFocus FoF	95	101	98	97	99	83	95.5	95.6	94.3	26.6	-3.5	-0.27	-0.32	-0.24	-0.08
101	Domestic EQ General	Metropolitan General Equity	97	94	100	95	88	102	96.0	95.8	96.3	26.5	-3.0	-0.27	-0.31	-0.16	-0.18
102	Domestic EQ General	Indequity Technical	96	96	99	75	104	110	96.7	96.8	97.0	26.8	-3.1	-0.27	-0.22	-0.31	-0.24
103	Domestic EQ General	FNB Growth	101	97	101	100	89	100	98.0	97.4	97.5	25.5	-3.2	-0.29	-0.33	-0.17	-0.17
104	Domestic EQ General	STANLIB MM Equity A1	98	103	102	99	95	93	98.3	98.4	97.3	26.3	-3.6	-0.29	-0.33	-0.22	-0.12
105	Domestic EQ General	Momentum Aggressive Equity FoF B1	103	107	104	104	100	82	100.0	99.4	97.5	24.9	-4.0	-0.30	-0.35	-0.25	-0.07
106	Domestic EQ Varied Specialist	Select Manager Defensive Equity FoF	99	105	103	101	98	94	100.0	100.2	99.0	25.5	-3.7	-0.30	-0.34	-0.23	-0.12
107	Domestic EQ General	Investec Equity R	102	102	105	89	109	105	102.0	102.0	102.0	25.0	-3.6	-0.31	-0.29	-0.42	-0.19
108	Domestic EQ General	RMB Equity R	104	104	107	105	96	109	104.2	104.2	104.3	23.4	-3.6	-0.32	-0.37	-0.22	-0.23
109	Domestic EQ General	Sasfin Twenty Ten	107	106	108	110	106	103	106.7	106.6	106.8	20.6	-3.9	-0.34	-0.43	-0.35	-0.18
110	Domestic EQ General	Interneuron Capital Equity	108	108	109	103	112	111	108.5	108.6	108.8	19.6	-4.1	-0.37	-0.35	-0.48	-0.26
111	Domestic EQ General	ABSA Growth FoF	109	112	111	109	114	108	110.5	110.8	110.5	19.1	-5.0	-0.40	-0.40	-0.51	-0.23
112	Domestic EQ General	PSG Alphen Equity FoF A	110	116	113	112	107	107	110.8	111.0	109.8	16.6	-6.0	-0.45	-0.48	-0.39	-0.21
113	Domestic EQ Growth	STANLIB Growth R	111	111	112	114	111	112	111.8	112.0	112.3	14.8	-4.8	-0.44	-0.53	-0.48	-0.37
114	Domestic EQ General	STANLIB Equity R	112	113	114	113	115	115	113.7	114.0	114.3	13.8	-5.2	-0.49	-0.50	-0.56	-0.40
115	Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT SCHEME	118	115	116	118	108	114	114.8	114.2	114.0	5.8	-5.6	-0.55	-0.79	-0.39	-0.39
116	Domestic EQ General	STANLIB SA Equity R	115	114	115	116	118	118	116.0	116.2	116.8	9.3	-5.4	-0.55	-0.58	-0.65	-0.52
117	Domestic EQ General	Old Mutual Albaraka Equity	114	117	117	115	116	117	116.0	116.4	116.3	9.4	-6.5	-0.57	-0.56	-0.57	-0.44
118	Domestic EQ General	Tri-Linear Equity	117	118	118	117	117	116	117.2	117.2	117.0	8.3	-6.6	-0.59	-0.69	-0.63	-0.44
119	Domestic EQ Smaller Companies	STANLIB Small Cap A	119	119	119	119	119	119	119.0	119.0	119.0	-41.1	###	-1.74	-1.83	-1.69	-1.49

100	Domestic EQ General	Interneuron Capital Equity	97	97	101	93	103	100	98.5	98.8	99.3	60.1	1.2	-0.34	-0.35	-0.51	-0.24
101	Domestic EQ Growth	STANLIB Growth R	95	96	99	102	99	101	98.7	99.4	100.3	61.8	1.4	-0.30	-0.46	-0.43	-0.26
102	Exchange Traded Fund	STXFIN - SATRIX COLLECTIVE INVESTMENT SCHEME	104	106	102	106	96	95	101.5	101.0	99.8	43.9	-1.6	-0.37	-0.71	-0.35	-0.15
103	Domestic EQ General	Old Mutual Albaraka Equity	102	102	103	101	102	105	102.5	102.6	102.8	47.2	-1.3	-0.46	-0.46	-0.49	-0.41
104	Domestic EQ General	STANLIB Equity R	100	100	104	103	105	103	102.5	103.0	103.8	50.3	-0.7	-0.46	-0.48	-0.55	-0.36
105	Domestic EQ General	Tri-Linear Equity	103	103	105	105	104	102	103.7	103.8	104.0	46.3	-1.5	-0.48	-0.61	-0.54	-0.34
106	Domestic EQ General	STANLIB SA Equity R	101	101	106	104	106	106	104.0	104.6	105.5	48.8	-0.9	-0.50	-0.55	-0.63	-0.48
107	Domestic EQ Smaller Companies	STANLIB Small Cap A	107	107	107	107	107	107	107.0	107.0	107.0	-15.8	-10.7	-1.26	-1.44	-1.34	-1.06

Number of Repeat Performance (i.e. Winner followed by Winner or Loser followed by Loser) Observations over adjacent periods on the basis of Nominal Returns (using Gross Returns)

		2001-2010 (10 years)																2001-2005 (5 years)																2006-2010 (5 years)																	
		3-months		6-months		1-year		2-year (Non-Overlapping periods)		4-year (Overlapping g periods)		4-year (Non-Overlapping periods)		5-year (Overlapping g periods)		5-year (Non-Overlapping periods)		3-months		6-months		1-year		2-year (Overlapping g periods)		2-year (Non-Overlapping periods)		4-year (Overlapping g periods)		3-months		6-months		1-year		2-year (Overlapping g periods)		2-year (Non-Overlapping periods)		4-year (Overlapping g periods)											
Unit Trust Category	Unit Trust Name	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs	Repeat 'Winner'	Max Possible Obs											
Domestic EQ Value	RMB Value	11	7	39	6	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3					
Domestic EQ Value	Nedgroup Inv Value R	11	7	39	6	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3					
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	14	5	39	6	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3					
Domestic EQ Growth	Nedgroup Inv Growth R	13	8	39	6	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3	1	5	0	0	1	6	3	19	5	2	1	9	3	1	8	3					
Domestic EQ Value	STANLIB Value A	16	8	39	7	3	19	3	2	2	9	4	1	8	3	0	7	3	1	6	1	0	3	3	1	5	0	0	1	10	4	19	4	2	9	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3
Domestic EQ Smaller Companies	SIM Small Cap R	15	6	39	7	3	19	3	1	9	3	1	8	3	1	5	0	0	1	10	4	19	4	2	9	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3				
Domestic EQ Smaller Companies	Old Mutual Small Companies R	14	6	39	5	6	19	3	1	9	3	1	8	2	1	7	3	2	6	0	0	3	3	1	5	0	0	1	9	4	19	4	3	9	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3	
Domestic EQ Industrial	Coronation Industrial	12	7	39	6	19	5	2	1	9	3	1	8	3	0	7	4	0	6	2	0	3	3	0	5	1	0	1	7	4	19	4	3	9	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3	
Domestic EQ Smaller Companies	Investec Emerging Companies R	13	7	39	7	4	19	3	1	9	3	1	8	3	1	7	3	2	6	0	0	3	3	2	5	0	0	1	9	4	19	5	2	9	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3	
Domestic EQ Value	SIM Value R	14	5	39	7	2	19	3	1	9	3	1	8	3	0	7	4	0	6	2	0	3	3	2	5	0	0	1	8	2	19	4	2	9	2	0	4	3	0	3	2	0	4	3	0	3	2	0	4	3	
Domestic EQ General	Old Mutual High Yield Opp A	12	7	39	6	19	5	2	1	9	3	1	8	3	0	7	4	0	6	2	0	3	3	2	5	0	0	1	10	4	19	4	2	9	2	0	4	3	0	3	2	0	4	3	0	3	2</				

Total Funds with More Repeat 'Winner' Observations	65	43%	54	36%	41	27%	50	33%	42	28%	39	26%	23	15%	33	22%	16	11%	57	38%	56	37%	60	40%	65	43%	53	35%	53	35%	43	28%	41	27%	31	21%	36	24%	20	13%	21	14%		
Total Funds with More Repeat 'Loser' Observations	76	50%	82	54%	79	52%	68	45%	60	40%	62	41%	30	20%	47	31%	24	16%	35	23%	32	21%	12	8%	11	7%	11	7%	11	7%	87	58%	90	60%	84	56%	80	53%	61	40%	76	50%		
Maximum Observations across all Unit Trusts	17	25	10	15	6	9	6	8	5	7	6	6	3	3	5	5	1	1	10	15	7	9	4	4	3	3	2	2	1	1	9	14	5	7	4	4	3	3	2	2	1	1		
Number of funds with Max. Observations	1	1	2	1	2	3	1	1	1	1	3	10	4	10	6	15	16	24	6	1	4	1	2	5	23	7	23	7	53	11	1	1	1	2	1	32	4	37	4	37	4	37	21	76
Example of Such (with no particular importance)	RMB Value SIM Index R		RMB Value SIM Index R		Coronation Top 20 A SIM Index R		Coronation Top 20 A STX40 - SATRIX COLLECTIVE INVESTMENT SCHEM		Coronation Top 20 A STX40 - SATRIX COLLECTIVE INVESTMENT SCHEM		Prudential Equity A RMB Strategic Opportunities R		Nedgroup Inv Value R RMB Strategic Opportunities R		Prudential Equity A STANLIB MM Equity A1		Nedgroup Inv Value R Old Mutual Active Quant Equity A		RMB Value SIM Index R		RMB Value SIM Index R		Allian Gray Equity A STANLIB Index R		RMB Value STANLIB Index R		RMB Value STANLIB Index R		RMB Value RMB Strategic Opportunities R		Coronation Resources Sasfin Equity		RMB Small/Mid-Cap A Old Mutual Albaraka Equity		Old Mutual Mining & Res R Old Mutual Active Quant Equity A		STANLIB Industrial R Old Mutual Active Quant Equity A		STANLIB Industrial R Old Mutual Active Quant Equity A		Nedgroup Inv Value R Nedgroup Inv Entrepreneur R			

Number of Repeat Performance (i.e. Winner followed by Winner or Loser followed by Loser) Observations over adjacent periods on the basis of Sharpe Ratios (using Gross Returns)

		2001-2010 (10 years)																				2001-2005 (5 years)																2006-2010 (5 years)																											
		3-months		6-months		1-year		2-year (Overlap g periods)		2-year Non- Overlap g periods)		4-year (Overlap g periods)		4-year Non- Overlap g periods)		5-year (Overlap g periods)		5-year Non- Overlap g periods)		3-months		6-months		1-year		2-year (Overlap g periods)		2-year Non- Overlap g periods)		4-year (Overlap g periods)		3-months		6-months		1-year		2-year (Overlap g periods)		2-year Non- Overlap g periods)		4-year (Overlap g periods)																							
Unit Trust Category	Unit Trust Name	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs	Repeat 'Winner'	Repeat 'Loser'	Max Possible Obs																									
Domestic EQ Value	RMB Value	17	2	39	12	2	19	4	2	9	4	2	8	1	7	3	1	0	3	2	2	5	0	0	1	10	1	19	4	2	0	0	9	4	3	0	3	2	0	2	1	0	1	6	1	13	5	0	9	1	2	4	1	1	3	0	0	2	0	1					
Domestic EQ Value	Nedgroup Inv Value R	16	5	39	8	1	19	6	1	9	6	0	8	5	0	7	4	0	6	3	0	3	5	0	1	0	1	10	1	19	4	5	1	0	9	4	4	3	0	3	0	3	2	0	2	1	0	1	5	4	1	9	3	1	9	2	0	4	2	0	0	1	0	1	
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	16	3	39	6	5	19	4	0	9	3	1	8	3	1	7	3	2	6	0	0	3	3	1	5	0	0	1	10	1	19	4	2	0	2	0	4	3	0	3	2	0	2	1	0	1	5	2	19	2	2	9	0	1	4	0	1	3	0	0	2	0	1		
Domestic EQ Growth	Nedgroup Inv Growth R	18	4	39	8	4	19	3	3	2	3	8	1	2	7	3	2	6	0	0	3	3	1	5	0	0	1	10	1	19	4	2	2	9	2	0	4	2	2	0	3	1	0	2	1	0	1	9	2	3	4	0	2	3	0	1	2	0	1	1					
Domestic EQ Value	SANLIB Value A	14	4	39	8	3	19	4	1	9	3	1	8	3	1	7	3	2	6	0	0	3	3	0	1	0	1	10	1	19	4	2	2	9	2	0	4	2	2	0	3	1	0	2	1	0	1	9	2	3	4	0	2	3	0	1	2	0	1	1					
Domestic EQ Smaller Companies	SIM Small Cap R	14	4	39	8	5	19	4	0	9	3	1	8	3	1	7	3	2	6	0	0	3	3	0	1	0	1	10	2	19	4	2	2	9	2	0	4	3	0	3	2	0	2	1	0	1	5	2	19	4	2	9	0	1	4	0	1	3	0	0	2	0	1		
Domestic EQ Smaller Companies	Old Mutual Small Companies R	15	3	39	7	3	19	2	2	9	2	3	8	1	2	7	3	2	6	0	0	3	2	2	5	0	0	1	8	1	19	4	2	2	9	2	0	4	2	2	0	3	1	0	2	1	0	1	7	2	19	3	1	9	0	3	4	0	2	3	0	1	2	0	1
Domestic EQ Industrial	Coronation Industrial	14	4	39	6	6	19	4	2	9	4	2	8	2	1	7	4	0	6	2	0	3	3	0	5	1	0	1	7	1	19	4	3	2	2	0	4	3	0	3	2	0	2	1	0	1	6	3	19	2	2	9	1	2	4	1	1	3	0	0	2	1	0	1	
Domestic EQ Smaller Companies	Investec Emerging Companies R	15	3	39	10	2	19	3	1	9	3	1	8	3	1	7	3	2	6	0	0	3	2	2	5	0	0	1	7	1	19	4	6	1	9	2	0	4	3	0	3	2	0	2	1	0	1	9	2	3	4	0	0	1	3	0	0	2	1	0	1				
Domestic EQ Value	SIM Value R	15	3	39	9	0	19	4	1	9	3	3	8	2	2	7	4	0	6	2	0	3	3	0	5	1	0	1	9	1	19	5	0	9	3	0	4	3	0	3	2	0	2	1	0	1	5	2	19	4	0	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ General	Old Mutual High Yield Opp A	16	4	39	7	4	19	4	3	9	3	3	8	2	2	7	2	3	6	0	0	3	2	2	5	0	1	0	9	1	19	5	1	9	3	0	4	3	0	3	2	0	2	1	0	1	6	3	19	2	2	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ General	PSG Equity A	13	7	39	7	7	19	4	2	9	3	3	8	2	1	7	3	2	6	0	0	3	2	2	5	0	0	1	10	2	19	6	2	9	2	0	4	3	0	3	2	0	2	1	0	1	2	5	0	2	4	0	2	3	0	1	2	0	1	1					
Domestic EQ General	Old Mutual Active Quant Equity A	14	6	39	5	6	19	2	4	9	2	3	8	1	2	7	2	3	6	0	0	3	2	2	5	0	0	1	5	2	19	4	3	3	9	2	0	4	2	2	0	3	1	0	2	1	0	1	7	4	19	1	5	9	0	2	4	0	2	3	0	1	2	0	1
Domestic EQ General	Nedgroup Inv Rainmaker A	11	3	39	8	3	19	2	3	9	4	3	8	1	2	7	0	5	1	3	0	1	3	2	5	0	0	1	8	1	19	5	1	9	3	0	4	2	2	0	3	1	0	2	1	0	1	7	4	19	1	2	9	0	3	4	0	2	3	0	1	2	0	1	
Domestic EQ Smaller Companies	RMB Small/Mid-Cap A	14	4	39	9	4	19	5	0	9	4	0	8	4	0	7	4	0	6	2	0	3	5	0	1	0	1	9	2	19	5	1	9	3	0	4	3	0	3	2	0	2	1	0	1	5	2	19	4	0	9	1	0	4	0	3	1	0	2	0	1				
Domestic EQ General	ABSA General R	13	9	39	6	3	19	2	2	9	3	3	8	2	1	7	3	0	6	1	0	3	3	0	5	1	0	1	8	4	19	4	1	9	1	1	4	2	0	3	1	0	2	1	0	1	4	5	19	2	2	9	0	2	4	0	2	3	0	1	2	0	1		
Domestic EQ General	Allan Gray Equity A	13	7	39	5	3	19	5	0	9	4	1	8	4	1	7	5	0	6	2	0	3	5	0	1	0	1	8	3	19	5	0	9	4	0	4	3	0	3	2	0	2	1	0	1	4	4	19	0	3	9	0	1	4	0	1	3	0	1	2	0	1			
Domestic EQ General	STANLIB MM Equity A1	10	6	39	5	7	19	2	4	9	2	3	8	1	2	7	2	3	6	0	0	3	1	3	5	0	0	1	5	3	19	3	4	9	1	1	4	2	0	3	1	0	2	1	0	1	4	4	19	2	2	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ General	FNB Growth	13	4	39	7	4	19	3	1	9	3	3	8	2	2	7	2	3	6	0	0	3	2	2	5	0	0	1	10	0	19	6	1	9	2	0	4	3	0	3	2	0	2	1	0	1	2	4	19	1	2	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ Smaller Companies	STANLIB Small Cap A	15	5	39	4	4	19	2	3	9	3	3	8	3	2	7	3	2	6	0	0	3	2	2	5	0	0	1	11	2	19	2	3	9	2	0	4	3	0	3	2	0	2	1	0	1	4	4	19	2	5	9	0	2	4	0	2	3	0	1	2	0	1		
Domestic EQ General	Coronation Equity R	11	4	39	7	5	19	4	2	9	4	1	8	2	0	7	4	0	6	2	0	3	5	0	1	0	1	6	0	19	5	2	3	9	2	0	4	2	0	3	1	0	2	1	0	1	4	4	19	2	2	9	1	4	2	0	3	1	0	2	0	1			
Domestic EQ Financial	Nedgroup Inv Financials R	11	4	39	3	6	19	3	3	9	1	4	8	0	2	7	1	3	6	0	0	1	3	1	2	5	0	0	1	4	2	19	5	2	3	9	2	0	4	1	3	0	0	2	0	1	6	2	19	1	2	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ General	STANLIB SA Equity R	12	6	39	6	3	19	2	2	9	3	4	8	2	6	0	3	2	6	0	0	3	2	2	5	0	0	1	8	2	19	4	3	9	2	0	4	3	0	3	2	0	2	1	0	1	4	4	19	3	0	9	1	4	3	0	2	3	0	1	2	0	1		
Domestic EQ General	Old Mutual Top Companies R	14	5	39	6	4	19	3	3	9	2	3	8	1	2	7	2	3	6	0	0	3	2	2	5	0	0	1	8	3	19	4	3	9	2	0	4	2	0	3	1	0	2	1	0	1	6	2	19	2	0	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ Smaller Companies	Coronation Smaller Companies	11	7	39	5	5	19	4	0	9	3	3	1	8	3	1	7	3	2	6	0	0	3	2	2	5	0	0	1	7	4	19	3	2	9	2	0	4	3	0	3	2	0	2	1	0	1	4	4	19	2	2	9	0	1	4	0	1	3	0	0	2	0	1	
Domestic EQ Growth	SIM Growth R	11	5	39	3	4	19	2	3	9	2	2	8	2	2	7	2	2	6	0	1	3	1	2	5	0	1	1	3	3	19	1	3	9	1	1	4	2	0	3	1	0	2	0	1	7	2	19	2	1	9	0	2	4	0	2	3	0	1	2	0	1			
Domestic EQ General	Nedgroup Inv Quants Core Eq A	14	4	39	5	7	19	3	3	9	2	3	8	1	2	7	3	1	6	1	0	3	3	0	5	1	0	1	6	2	19	4	3	9	2	0	4	2	0	3	1	0	2	1	0	1	7	2	19	1	3	9	0	3	4	0	2	3	0	1	2	0	1		
Domestic EQ Value	Investec Value R	13	8	39	9	4	19	3	2	9	5	1	8	3	0	7	4	0	6	2	0	3	3	0	5	1	0	1	10	4	19	7	1	9	3	0	4	3	0	3	2	0	2	1	0	1	3	4	19	2	2	9	0	2	3	1	0	2	1	0	1				
Domestic EQ General	Prudential Equity A	13	4	39	4	4	19	4	0	9	5	0	8	5	0	7	6	0	6	3	0	3	5	0	1	0	1	8	2	19	3	2	9	2	0	4	2	0	3	1	0	2	1	0	1	4	2	19	1	2	9	0	2	4	1	0	3	1	0	2	1	0	1		
Domestic EQ Industrial	Old Mutual Industrial A	10	4	39	6	6	19	2	2	9	5	1	8	3																																																			

Total Funds with More Repeat 'Winner' Observations	84 56%	61 40%	44 29%	40 26%	34 23%	46 30%	26 17%	36 24%	22 15%	67 44%	60 40%	58 38%	65 43%	62 41%	52 34%	71 47%	54 36%	28 19%	29 19%	23 15%	21 14%
Total Funds with More Repeat 'Loser' Observations	49 32%	76 50%	66 44%	65 43%	59 39%	50 33%	21 14%	40 26%	19 13%	27 18%	30 20%	14 9%	9 6%	9 6%	9 6%	61 40%	74 49%	86 57%	81 54%	66 44%	71 47%
Maximum Observations across all Unit Trusts	18 21	12 15	7 7	6 8	5 7	6 6	3 3	5 5	1 1	11 14	7 9	4 4	3 3	2 2	1 1	9 9	5 7	3 4	3 3	2 2	1 1
Number of funds with Max. Observations	1 1	1 1	1 4	3 3	4 3	3 7	4 7	9 13	22 19	2 2	6 1	4 4	26 6	26 6	52 9	1 4	6 1	5 20	2 23	2 23	21 71
Example of Such (with no particular importance)	Nedgroup Inv Growth R SIM Index R	RMB Value SIM Index R	Coronation Top 20 A Gryphon All Share Tracker	Nedgroup Inv Value R SIM Index R	Nedgroup Inv Value R SIM Index R	Prudential Equity A STANLIB Index R	Nedgroup Inv Value R STANLIB Index R	Nedgroup Inv Value R STANLIB Index R	Nedgroup Inv Value R Nedgroup Inv Financials R	STANLIB Small Cap A SIM Index R	RMB Value SIM Index R	Nedgroup Inv Value R STANLIB ALSI 40 A	RMB Value STANLIB Index R	RMB Value STANLIB Index R	RMB Value RMB Strategic Opportunities R	Nedgroup Inv Growth R Investec Equity R	RMB Value Sasfin Equity	Old Mutual Mining & Res R STANLIB SA Equity R	RMB Resources STANLIB SA Equity R	RMB Resources STANLIB SA Equity R	Nedgroup Inv Value R Nedgroup Inv Entrepreneur R

Total Funds with More Repeat +ve Alphas	102 68%	92 61%	74 49%	61 40%	56 37%	67 44%	31 21%	62 41%	32 21%	71 47%	62 41%	58 38%	62 41%	58 38%	91 60%	78 52%	23 15%	25 17%	18 12%	27 18%	
Total Funds with More Repeat -ve Alphas	40 26%	47 31%	43 28%	55 36%	40 26%	26 17%	16 11%	23 15%	13 9%	27 18%	20 13%	13 9%	9 6%	9 6%	7 5%	41 27%	48 32%	69 46%	91 60%	57 38%	70 46%
Maximum Observations across all Unit Trusts	21 20	12 15	7 9	6 8	5 7	6 6	3 3	5 5	1 1	12 13	7 9	4 4	3 3	2 2	1 1	10 9	6 6	4 4	3 3	2 2	1 1
Number of funds with Max. Observations	1 1	1 1	5 1	2 3	3 3	11 5	11 6	17 6	32 13	2 2	4 1	10 4	27 6	27 6	58 7	1 2	1 1	5 11	6 17	6 17	27 70
Example of Such (with no particular importance)	RMB Value SIM Index R	Metropolitan Resources SIM Index R	Nedgroup Inv Value R Kagiso Top 40 Tracker	Coronation Industrial SIM Index R	Coronation Industrial SIM Index R	Nedgroup Inv Value R STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	Nedgroup Inv Value R STANLIB Index R	Nedgroup Inv Value R STANLIB Index R	RMB Value SIM Growth R	STANLIB Value A SIM Index R	RMB Value SIM Index R	Nedgroup Inv Value R STANLIB ALSI 40 A	RMB Value STANLIB Index R	RMB Value STANLIB Index R	RMB Value STANLIB Index R	RMB Value Investec Equity R	STANLIB Gold & Prec Metals R SIM Index R	Old Mutual Mining & Res R Old Mutual Albaraka Equity	Old Mutual Mining & Res R Old Mutual Financial Servs R	Old Mutual Mining & Res R Old Mutual Financial Servs R	RMB Value Nedgroup Inv Entrepreneur R

Number of Repeat Performance (i.e. Pos. Alpha followed by Pos. Alpha or Neg. Alpha followed by Neg. Alpha) Observations over adjacent periods on the basis of Fama & French 3-factor Alphas (using Gross Returns)

[illegible]

Total Funds with More Repeat +ve Alphas	76	50%	45	30%	47	31%	49	32%	38	25%	41	27%	21	14%	28	19%	18	12%	37	25%	30	20%	39	26%	42	28%	32	21%	37	25%	91	60%	50	33%	40	26%	33	22%	25	17%	17	11%
Total Funds with More Repeat -ve Alphas	61	40%	84	56%	71	47%	61	40%	65	43%	60	40%	43	28%	50	33%	32	21%	60	40%	57	38%	37	25%	29	19%	29	19%	26	17%	43	28%	75	50%	64	42%	50	33%	52	34%	73	48%
Maximum Observations across all Unit Trusts	20	27	15	14	7	7	8	8	7	7	6	6	3	3	5	5	1	1	11	13	9	8	4	4	3	3	2	2	1	1	11	13	7	7	4	4	3	3	2	2	1	1
Number of funds with Max. Observations	1	1	1	1	1	3	1	1	1	1	7	17	8	18	9	16	18	32	2	1	1	1	6	9	11	14	11	14	37	26	1	1	1	1	1	5	2	7	2	7	17	73
Example of Such (with no particular importance)	RMB Small/Mid-Cap A Kagiso Top 40 Tracker		Old Mutual Mining & Res R SIM Index R		Coronation Resources STANLIB Financials A		RMB Resources STANLIB Equity R		RMB Resources STANLIB Equity R		Prudential Equity A Old Mutual Active Quant Equity A		Nedgroup Inv Value R Old Mutual Active Quant Equity A		Nedgroup Inv Value R STANLIB MM Equity A1		Nedgroup Inv Value R Nedgroup Inv Growth R		RMB Small/Mid-Cap A Kagiso Top 40 Tracker		Old Mutual Gold R STANLIB Financials A		Nedgroup Inv Value R Coronation Financial A		Nedgroup Inv Value R Nedgroup Inv Financials R		Nedgroup Inv Value R Nedgroup Inv Financials R		RMB Value Old Mutual Active Quant Equity A		RMB Strategic Opportunities R Kagiso Top 40 Tracker		Old Mutual Mining & Res R SIM Index R		RMB Resources STANLIB SA Equity R		STANLIB Value A STANLIB SA Equity R		STANLIB Value A STANLIB SA Equity R		Nedgroup Inv Value R Nedgroup Inv Entrepreneur R	

Number of Repeat Performance (i.e. Pos. Alpha followed by Pos. Alpha or Neg. Alpha followed by Neg. Alpha) Observations over adjacent periods on the basis of Carhart 4-factor Alphas (using Gross Returns)

[illegible]

[illegible]

Total Funds with More Repeat +ve Alphas		81 54%	52 34%	53 35%	39 26%	44 29%	26 17%	27 18%	19 13%		31 21%	40 26%	39 26%	27 18%	36 24%		92 61%	52 34%	57 38%	40 26%	36 24%
Total Funds with More Repeat -ve Alphas		48 32%	61 40%	57 38%	61 40%	59 39%	40 26%	48 32%	23 15%		50 33%	26 17%	35 23%	37 25%	31 21%		37 25%	55 36%	42 28%	36 24%	56 37%
Maximum Observations across all Unit Trusts		11 12	7 9	8 8	7 7	6 6	3 3	5 5	1 1		7 7	4 4	3 3	2 2	1 1		8 6	4 4	3 3	2 2	1 1
Number of funds with Max. Observations		1 1	4 1	2 2	2 2	4 15	5 16	5 14	19 23		1 2	6 7	11 14	11 14	36 31		1 2	2 8	10 11	10 11	36 56
Example of Such (with no particular importance)		Oasis Crescent Equity Gryphon All Share Tracker	Allan Gray Equity A Gryphon All Share Tracker	Allan Gray Equity A Gryphon All Share Tracker	Allan Gray Equity A Gryphon All Share Tracker	Allan Gray Equity A Old Mutual Active Quant Equity A	Nedgroup Inv Value R Old Mutual Active Quant Equity A	Nedgroup Inv Value R Old Mutual Active Quant Equity A	Nedgroup Inv Value R PSG Equity A		STANLIB Gold & Prec Metals R Old Mutual Financial Servs R	Nedgroup Inv Value R Coronation Financial A	Nedgroup Inv Value R Nedgroup Inv Financials R	Nedgroup Inv Value R Nedgroup Inv Financials R	RMB Value Old Mutual Active Quant Equity A		SIM Value R Tri-Linear Equity	Allan Gray Equity A STANLIB SA Equity R	SIM Value R STANLIB SA Equity R	SIM Value R STANLIB SA Equity R	Nedgroup Inv Value R RMB Value

Total Funds with More Repeat +ve Alphas	87 58%	114 75%	101 67%	89 59%	79 52%	78 52%	58 38%	73 48%	47 31%	66 44%	66 44%	68 45%	67 44%	63 42%	63 42%	77 51%	115 76%	53 35%	50 33%	43 28%	54 36%
Total Funds with More Repeat -ve Alphas	54 36%	23 15%	24 16%	32 21%	20 13%	19 13%	8 5%	15 10%	7 5%	26 17%	24 16%	13 9%	8 5%	8 5%	7 5%	63 42%	20 13%	42 28%	60 40%	26 17%	33 22%
Maximum Observations across all Unit Trusts	18 18	12 12	9 7	8 8	7 7	6 6	3 3	5 5	1 1	12 12	8 7	4 4	3 3	2 2	1 1	10 9	6 6	4 4	3 3	2 2	1 1
Number of funds with Max. Observations	1 1	2 2	1 2	4 2	4 2	27 3	27 3	41 5	47 7	2 2	1 1	16 6	33 6	33 6	63 7	6 2	5 2	9 5	11 6	11 6	54 33
Example of Such (with no particular importance)	Old Mutual Mining & Res R SIM Index R	Nedgroup Inv Growth R SIM Index R	Prudential Equity A STANLIB Resources R	RMB Value SIM Index R	RMB Value SIM Index R	RMB Value SIM Index R	RMB Value SIM Index R	RMB Value STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	RMB Value Metropolitan General Equity	PSG Equity A STANLIB ALSI 40 A	FNB Growth SIM Index R	Nedgroup Inv Value R STANLIB Index R	RMB Value STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	RMB Value STX40 - SATRIX COLLECTIVE INVESTMENT SCHEME	RMB Value STANLIB Index R	Old Mutual Gold R Tri-Linear Equity	RMB Small/Mid-Cap A Old Mutual Top 40 A	RMB Value Investec Growth R	RMB Value Investec Growth R	RMB Value Investec Growth R	RMB Value PSG Equity A

Summary Statistics from Time Series Regression of CAPM Alphas across multiple periods (using Gross Returns)

[illegible]

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Table H4

Summary Statistics from Time Series Regression of Conditional Alphas across multiple periods (using Gross Returns)

		2001-2010 (10 years)																		2001-2005 (5 years)																		2006-2010 (5 years)																	
		3-months			6-months			1-year			2-year (Overlapping periods)			4-year (Overlapping periods)			5-year (Overlapping periods)			3-months			6-months			1-year			2-year (Overlapping periods)			3-months			6-months			1-year			2-year (Overlapping periods)														
Unit Trust Sub-Category	Unit Trust Name	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic	Slope Co-Efficient	R ²	Significant T-Statistic																		
Mean Values		-0.114	0.038		-0.003	0.065		0.031	0.119		0.336	0.246		0.460	0.379		0.484	0.382		-0.136	0.087		-0.228	0.126		-0.071	0.127		0.132	0.232		-0.166	0.055		-0.023	0.104		-0.306	0.207		-0.052	0.296													
Maximum Slope Co-efficient (with corresponding R2 and T-stat)		1.938	0.714	N/A	0.964	0.482	N/A	1.266	0.620	N/A	4.842	0.843	N/A	3.111	0.992	N/A	1.465	0.696	N/A	2.474	0.860	N/A	0.519	0.255	N	3.017	0.451	N	2.674	0.222	N	1.906	0.698	N	0.894	0.448	N/A	1.608	0.658	N	4.350	0.862	N												
Domestic EQ Value	Dynamic Wealth Value	-0.269	0.072	N	0.603	0.364	Y	-0.175	0.029	N/A	2.672	0.879	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A												
Domestic EO General	Gryphon All Share Tracker	-0.338	0.131	Y	0.395	0.179	Y	0.463	0.620	Y	0.411	0.660	Y	0.159	0.262	N	0.065	0.034	N	-0.421	0.203	Y	0.402	0.176	N	0.405	0.448	N	0.497	0.761	N	-0.203	0.043	N	-0.490	0.217	N	0.436	0.200	N	0.564	0.276	N												
Domestic EO General	BJM Core Equity B1	-0.163	0.026	N	0.178	0.012	N	-0.112	0.012	N/A	-0.338	0.104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A											
Domestic EO General	Harvard House General Equity	-0.160	0.025	N	0.485	0.235	Y	-0.496	0.239	N	-0.161	0.006	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A											
Domestic EO General	STANLIB MM All Stars Eq FoF A	-0.108	0.012	N	0.157	0.024	N	-0.191	0.033	N	-0.020	0.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A											
Domestic EQ General	Inequity Technical	-0.213	0.045	N	-0.078	0.006	N	0.186	0.027	N	0.299	0.085	N	3.111	0.992	N/A	-3.687	0.935	N/A	-0.053	0.003	N	-0.871	0.435	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A											
Domestic EQ General	Prescient Eqty Quant A1	-0.189	0.035	N	-0.038	0.001	N	0.007	0.000	N	0.221	0.039	N	-0.184	0.037	N	0.631	0.428	N/A	-0.185	0.033	N	-0.180	0.032	N	0.278	0.080	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A											
Domestic EQ General	PSG Equitay A	0.109	0.013	N	0.418	0.191	Y	-0.006	0.000	N	0.286	0.114	N	0.605	0.333	N	0.536	0.248	N	0.181	0.044	N	0.500	0.327	N	0.127	0.077	N	0.042	0.022	N	-0.094	0.009	N	0.212	0.044	N	-0.553	0.310	N	0.2														

Domestic EQ Large Cap	Old Mutual Top 40 A	0.032	0.001	N	0.043	0.002	N	0.036	0.001	N	0.331	0.112	N	-0.018	0.001	N	-0.269	0.276	N	0.087	0.007	N	-0.178	0.037	N	-0.054	0.004	N	-0.171	0.229	N	-0.356	0.125	N	-0.019	0.000	N	-0.479	0.216	N	1.582	0.730	N	
Domestic EQ General	FNB Growth	-0.009	0.000	N	0.064	0.004	N	0.320	0.103	N	0.646	0.404	Y	0.916	0.725	Y	0.826	0.728	Y	-0.115	0.015	N	-0.230	0.047	N	-0.030	0.001	N	-0.074	0.014	N	-0.099	0.011	N	-0.257	0.066	N	-0.145	0.037	N	-0.478	0.314	N	
Domestic EQ Smaller Companies	Old Mutual Small Companies R	-0.087	0.008	N	0.030	0.001	N	0.083	0.007	N	0.433	0.192	N	0.762	0.506	N	0.768	0.514	N	-0.039	0.002	N	-0.488	0.243	N	-0.080	0.009	N	0.180	0.084	N	-0.207	0.047	N	0.278	0.080	N	-0.211	0.044	N	-0.485	0.249	N	
Domestic EQ Growth	Nedgroup Inv Growth R	-0.170	0.036	N	0.015	0.000	N	0.081	0.010	N	0.362	0.171	N	0.737	0.416	N	0.840	0.318	N	-0.132	0.027	N	-0.083	0.010	N	0.116	0.036	N	0.287	0.275	N	-0.356	0.152	Y	0.142	0.023	N	-0.260	0.081	N	-0.370	0.240	N	
Domestic EQ Smaller Companies	Investec Emerging Companies R	-0.153	0.025	N	0.018	0.000	N	-0.005	0.000	N	0.462	0.199	N	0.855	0.580	Y	0.888	0.606	N	-0.311	0.021	N	-0.371	0.161	N	-0.082	0.011	N	0.179	0.111	N	-0.248	0.066	N	0.304	0.098	N	-0.387	0.154	N	-0.422	0.240	N	
Domestic EQ Value	STANLIB Value A	-0.068	0.005	N	0.082	0.003	N	0.071	0.005	N	0.495	0.245	N	0.681	0.542	Y	0.771	0.574	N	-0.080	0.006	N	-0.420	0.159	N	-0.473	0.075	N	-0.268	0.102	N	-0.295	0.100	N	0.187	0.039	N	-0.599	0.354	N	-0.340	0.217	N	
Domestic EQ General	Prudential Equity A	-0.154	0.024	N	-0.016	0.000	N	0.164	0.027	N	0.413	0.181	N	0.875	0.503	Y	0.989	0.517	N	-0.200	0.041	N	-0.002	0.000	N	-0.021	0.000	N	0.253	0.122	N	-0.180	0.036	N	-0.166	0.028	N	0.421	0.329	N	-0.120	0.045	N	
Domestic EQ General	Valuog General Equity	0.094	0.009	N	-0.187	0.035	N	0.301	0.083	N	0.344	0.091	N	-0.892	0.453	N/A	N/A	N/A	N/A	0.237	0.056	N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.078	0.006	N	-0.260	0.070	N	0.328	0.113	N	0.526	0.067	N
Domestic EQ Value	Investec Value R	0.080	0.005	N	0.063	0.004	N	0.631	0.498	Y	0.760	0.751	Y	0.705	0.560	Y	0.708	0.586	Y	0.051	0.003	N	-0.142	0.017	N	0.317	0.451	N	0.274	0.222	N	-0.189	0.034	N	-0.349	0.115	N	-0.085	0.008	N	0.538	0.239	N	
Domestic EQ Growth	STANLIB Growth R	-0.090	0.009	N	0.015	0.000	N	-0.187	0.040	N	0.460	0.233	N	0.954	0.592	Y	0.839	0.423	N	0.177	0.035	N	-0.383	0.159	N	0.06	0.000	N	0.096	0.059	N	0.084	0.038	N	0.346	0.121	N	-0.652	0.427	N	-0.346	0.209	N	
Domestic EQ General	SYMMETRY Equity FoF A	-0.180	0.032	N	-0.030	0.001	N	-0.220	0.049	N	0.382	0.139	N	0.298	0.088	N	0.075	0.006	N	-0.215	0.046	N	-0.233	0.054	N	-0.255	0.061	N	0.239	0.122	N	-0.176	0.033	N	0.060	0.004	N	-0.339	0.115	N	-0.278	0.028	N	
Domestic EQ General	ABSA Select Equity	-0.144	0.021	N	0.052	0.003	N	0.284	0.085	N	0.863	0.410	N	0.754	0.535	N/A	0.886	0.335	N/A	-0.511	0.209	Y	0.103	0.010	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.125	0.016	N	0.011	0.000	N	-0.183	0.035	N	0.548	0.361	N	
Domestic EQ Large Cap	RMB Top 40 Index	-0.034	0.001	N	-0.098	0.010	N	0.203	0.043	N	0.611	0.421	Y	0.369	0.235	N	0.439	0.427	N	0.015	0.000	N	-0.396	0.145	N	-0.697	0.145	N	-1.722	0.375	N	-0.305	0.093	N	-0.335	0.118	N	-0.664	0.380	N	-0.343	0.317	N	
Domestic EQ General	Inv Solutions MM Equity A	-0.181	0.033	N	-0.017	0.000	N	0.287	0.084	N	0.838	0.298	N	0.481	0.219	N	0.253	0.063	N	-0.393	0.155	Y	-0.295	0.088	N	-0.094	0.007	N	0.101	0.031	N	-0.199	0.041	N	0.007	0.000	N	-0.313	0.094	N	-0.584	0.069	N	
Domestic EQ General	Afena Equity A1	-0.115	0.013	N	0.587	0.336	Y	-0.346	0.109	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.116	0.013	N	0.492	0.230	N	-0.554	0.257	N/A	N/A	N/A	N/A	
Domestic EQ General	Marriott Dividend Growth R	-0.167	0.029	N	-0.009	0.000	N	0.325	0.172	N	0.345	0.160	N	0.375	0.142	N	-0.032	0.001	N	-0.204	0.054	N	0.063	0.005	N	0.232	0.134	N	0.298	0.357	N	-0.245	0.062	N	-0.081	0.007	N	0.616	0.254	N	0.972	0.794	N	
Domestic EQ Value	RMB Equity R	-0.029	0.001	N	0.015	0.000	N	0.300	0.091	N	0.614	0.362	N	0.941	0.692	Y	0.981	0.712	Y	-0.072	0.005	N	-0.240	0.034	N	0.040	0.002	N	-0.002	0.000	N	-0.167	0.030	N	-0.314	0.094	N	-0.210	0.090	N	-0.486	0.571	N	
Domestic EQ Value	Old Mutual Value R	-0.243	0.059	N	-0.005	0.000	N	0.113	0.012	N	0.580	0.326	N	0.749	0.648	Y	0.905	0.858	Y	-0.221	0.049	N	-0.206	0.038	N	-0.448	0.107	N	-0.021	0.001	N	-0.391	0.177	Y	-0.004	0.000	N	-0.622	0.391	N	-0.444	0.142	N	
Domestic EQ General	ABSA General R	-0.147	0.022	N	-0.115	0.013	N	0.061	0.004	N	0.427	0.204	N	0.861	0.572	Y	0.839	0.480	N	-0.176	0.033	N	-0.152	0.024	N	-0.009	0.000	N	0.320	0.189	N	-0.161	0.029	N	-0.149	0.022	N	-0.389	0.300	N	-0.077	0.003	N	
Domestic EQ General	Old Mutual Investors R	-0.274	0.077	Y	-0.030	0.001	N	0.154	0.024	N	0.625	0.366	N	0.823	0.636	Y	0.974	0.725	Y	-0.322	0.109	N	-0.320	0.086	N	-0.347	0.113	N	0.037	0.004	N	-0.361	0.160	Y	-0.125	0.017	N	-0.669	0.435	N	-0.546	0.311	N	
Domestic EQ Large Cap	STANLIB ALSI 40 A	0.003	0.000	N	-0.146	0.021	N	0.122	0.019	N	0.466	0.277	N	0.218	0.087	N	-0.034	0.007	N	0.033	0.001	N	-0.580	0.345	Y	-0.869	0.532	N	-0.338	0.174	N	-0.357	0.128	N	-0.388	0.152	N	-0.596	0.276	N	2.556	0.912	N	
Domestic EQ Smaller Companies	Nedgroup Inv Entrepreneur R	-0.236	0.055	N	-0.060	0.004	N	0.228	0.053	N	0.571	0.326	N	0.926	0.754	Y	0.899	0.683	Y	-0.233	0.055	N	-0.537	0.289	N	-0.369	0.102	N	0.117	0.031	N	-0.343	0.130	N	0.558	0.307	N	-0.162	0.029	N	0.615	0.255	N	
Domestic EQ Value	Metropolitan High Dividend	-0.125	0.015	N	-0.075	0.006	N	-0.281	0.079	N	0.123	0.015	N	-0.397	0.150	N	-0.053	0.002	N/A	-0.195	0.038	N	0.030	0.001	N	-0.297	0.090	N/A	N/A	N/A	N/A	-0.191	0.040	N	-0.200	0.046	N	-0.601	0.363	N	-0.049	0.001	N	
Domestic EQ General	27Four Active Equity A1	-0.075	0.005	N	-0.589	0.346	N	0.927	0.466	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.111	0.012	N	-0.606	0.367	N	-0.179	0.368	N/A	N/A	N/A	N/A		
Domestic EQ General	PSG Alphen Equity FoF A	-0.193	0.037	N	-0.092	0.009	N	0.048	0.002	N	0.359	0.132	N	0.299	0.081	N	0.837	0.001	N	-0.264	0.069	N	-0.393	0.156	N	-0.133	0.016	N	0.176	0.040	N	-0.255	0.074	N	0.187	0.034	N	-0.148	0.028	N	-0.481	0.253	N	
Domestic EQ Industrial	Old Mutual Industrial A	-0.148	0.023	N	-0.023	0.001	N	0.288	0.083	N	0.568	0.318	N	0.801	0.659	Y	0.855	0.703	Y	-0.134	0.022	N	-0.431	0.199	N	-0.145	0.014	N	0.034	0.004	N	-0.302	0.098	N	-0.245	0.058	N	-0.202	0.043	N	-0.501	0.202	N	
Domestic EQ Value	RMB Value	-0.159	0.040	N	-0.040	0.000	N	0.283	0.076	N	0.659	0.447	Y	0.777	0.757	Y	0.922	0.914	Y	0.178	0.032	N	-0.432	0.151	N	-1.081	0.172	N	-0.648	0.344	N	-0.529	0.313	Y	-0.013	0.000	N	-0.607	0.374	N	0.898	0.724	N	
Domestic EQ General	Momentum Aggressive Equity FoF B1	-0.171	0.029	N	0.107	0.012	N	0.112	0.013	N	0.505	0.268	N	0.416	0.164	N	0.173	0.031	N	0.457	0.209	Y	-0.464	0.223	N	0.023	0.001	N	0.304	0.138	N	-0.149	0.023	N	-0.149	0.023	N	-0.337	0.112	N	-0.249	0.216	N	
Domestic EQ General	Plexus RAFi® Enhanced SA Strategy A	-0.045	0.002	N	0.017	0.000	N	-0.434	0.186	N/A	0.531	0.224	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-0.094	0.009	N	0.003	0.000	N	-0.435	0.187	N	0.174	0.039	N/A		
Domestic EQ General	Old Mutual High Yield Opp A	-0.198	0.039	N	-0.061	0.004	N	0.259	0.088	N	0.886	0.500	Y	0.734	0.717	Y	0.749	0.731	Y	-0.209	0.044	N	-0.382	0.138	N	-1.521	0.692	N	-0.316	0.126	N	-0.286	0.094	N	-0.051	0.003	N	-0.218	0.040	N	0.433	0.034	N	
Domestic EQ General	Old Mutual Top Companies R	-0.199	0.046	N	-0.047	0.002	N	0.073	0.007	N	0.674	0.154	N	0.686	0.488	N	0.674	0.419	N	-0.183	0.042	N	-0.051	0.003	N	-0.015	0.000	N	-0.030	0.003	N	-0.286	0.096	N	-0.175	0.037	N	-0.778	0.747	N	1.958	0.771	N	
Domestic EQ General	Old Mutual Active Quant Equity A	-0.314	0.104	Y	-0.144	0.021	N	0.220	0.055	N	0.472	0.237	N	0.790	0.579	Y	0.903	0.625	N	-0.426	0.199	Y	-0.347	0.123	N	-0.004	0.000	N	0.203	0.107	N	-0.159	0.030	N	0.093	0.009	N	-0.062	0.003	N	1.060	0.127	N	
Domestic EQ Growth	Investec Growth R	-0.215	0.055	N	-0.036	0.002	N	0.098	0.011	N	0.544	0.293	N	0.847	0.564	Y	0.921	0.637	N	-0.379	0.209	Y	-0.115	0.023	N	-0.018	0.001	N	-0.293	0.225	N	-0.114	0.013	N	-0.394	0.203	N	-0.761	0.654	N	-0.565	0.286	N	
Domestic EQ Industrial	STANLIB Industrial R	-0.240	0.061	N	-0.103	0.011	N	-0.024	0.001	N	0.226	0.071	N	0.428	0.170	N																												