Performance evaluation of equity unit trusts in South Africa

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Abstract

Purpose – The purpose of this paper is to evaluate the performance of 191 equity unit trusts in an emerging market, South Africa over the period from February 2006 to January 2016, which captures different market conditions (pre-global financial crisis, crisis and recovery periods). Besides testing for managerial ability, both cross-sectional regression and the non-parametric rank correlation test are used to test whether the performance generated by unit trusts does persist.

Design/methodology/approach – To evaluate the managerial ability of portfolio managers, two widely used methods, the Treynor-Mazuy (1966) model and Henriksson-Merton (1981) model, are employed. Both models test whether portfolio managers have stock selection and market timing ability. The cross-sectional regression and the rank correlation test are implemented which account for both parametric and non-parametric approaches of persistence testing, respectively.

Findings – Weak evidence of stock selection as well as market timing ability was found. Moreover, most of the unit trusts are reported to have insignificant coefficients. When testing for performance persistence using returns, the Sharpe ratio and the Sortino ratio as performance metrics, the overall results also revealed weak evidence of persistence that is equally spread across winning and losing funds.

Originality/value – While research on unit trusts' performance has been conducted in emerging economies, little has been done in testing for managerial ability in general and in South Africa in particular. Moreover, the research tends to focus more on one class – Equity General. This paper extends the performance literature by testing whether portfolio managers in the South African equity unit trusts industry have stock selection and market timing ability.

Keywords Market timing, Unit trusts, Performance persistence, Security selection

Paper type Research paper

1. Introduction

Asset management companies have been growing in both numbers and in size in South Africa, with the unit trust industry[1] recently gaining recognition as a sophisticated platform that offers contractual and discretionary saving methods. These two methods of saving are crucial for securing individual's future financial well-being. Ever since the introduction of unit trusts, there has been a growing debate regarding their performance and the mixed results found. For example, Firer *et al.* (2001) find superior performance of unit trusts over a two-year period while Collinet and Firer (2003) report both positive and negative persistence over a six-month period. Therefore, the performance analysis of unit trust remains an empirical question as there is no clear consensus on whether unit trusts can persistently provide superior performance than the market or peers. For investors as well as potential investors, studying the performance of unit trusts is important because they have entrusted portfolio managers with their hard earned money. To portfolio managers who are in a competitive business environment, knowing the performance of their company against their peers and the benchmark index is important for the growth and sustainability of the company. Furthermore, the performance of asset management companies is beneficial for the development and integration of capital markets (Ong and Sy, 2004), especially in the emerging market like South Africa. For academics and researchers, studying the

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performance of unit trusts/hedge funds is a test of the famous hypothesis that markets are efficient. In effect, while the performance persistence suggests the importance of past information in predicting the future performance, the efficient market hypothesis implies that the future performance of any security cannot be predicted based on its historical prices. Consequently, studying performance persistence amounts to testing stock market efficiency. Evidence against market efficiency would challenge the principles surrounding portfolio theory and risk management.

While research on unit trusts performance has been conducted in South Africa (Oldfield and Page, 1997; Von Wielligh and Smit, 2000; Van Heerden and Botha, 2012), little has been done in testing managerial ability. Moreover, though the unit trust industry consists of six categories[2], existing studies are not only limited but they also tend to focus more on one class – Equity General. Since Equity General differs substantially from other categories in terms of size, as can be seen from the empirical section, results from the general class cannot be generalised to other categories. The aim of this study is twofold. First, it tests whether portfolio managers in the equity unit trusts industry have stock selection and market timing ability over the selected period using the Treynor-Mazuy (1966) and Henriksson-Merton (1981) models. Second, the performance persistence analysis is conducted based on both parametric and non-parametric approaches.

The paper proceeds as follows. Section 2 reviews the literature on the performance of mutual funds in emerging markets including South Africa. Section 3 describes the data and performance metrics used. Section 4 presents the empirical analysis and Section 5 concludes.

2. Literature review

Unlike developed countries where performance and performance persistence has been widely documented (Jegadeesh and Titman, 1993; Carhart, 1997; Jan and Hung, 2004; Friesen and Sapp, 2007; Eling, 2009; Bangassa *et al.*, 2012; Babalos *et al.*, 2015), the evidence from emerging markets and particularly from South Africa remains limited. Moreover, comparing the performance of mutual funds to that of the stock market has long been resulted in unanimous conclusions. Some papers report the superior performance of mutual funds over the stock market while other studies find that mutual funds are unable to outperform the stock market.

Eling and Faust (2010) examine the performance of 243 hedge funds, 629 mutual funds and 25 benchmarks in emerging markets for the period January 1999-August 2008. The results indicate that hedge funds are able to deliver higher returns than the market and more positive αs than mutual funds, and that some of the mutual funds underperform their benchmarks. In a recent study by Basu and Huang-Jones (2015), 498 funds are examined during the period from August 2000 to July 2010 using Jensen's α, Fama-French's (1993) three-factor model and the Henriksson-Merton's (1981) model. First, the findings suggest that about 95 per cent of the funds are unable to beat the market. Second, just 2 per cent of the funds show superior evidence of market timing ability. Third, the evidence of short-term persistence found appears to be driven by past losers. Finally, a large number of funds are reported to have a β that is close to the benchmark index, which may suggest that emerging market funds are good at providing diversification as opposed to generating abnormal returns.

Conversely, Huij and Post (2011) conduct a comprehensive study of 137 mutual funds' performance in 22 emerging countries, from 1993 to 2006. Using the Capital Asset Pricing Model (CAPM), they find that mutual funds are able to beat the market and report a significant persistence in winning funds, which is higher for emerging markets than developed markets.

Consistent with cross-countries studies, conflicting results have also been reported in country-specific applications. Chi (2013) analyses the performance of 342 funds in China from April 1998 to December 2012. Results from the CAPM model, Fama-French (1993) three-factor model and the Carhart (1997) model, suggest that Chinese funds can beat the

benchmark index. Furthermore, the author conclusively reports that fund managers have stock selection ability as well as the skill to cover all costs. While these results substantiate the findings of Li and Lin (2011), Kiymaz (2015), He *et al.* (2015) and Zhou and Wong (2014) focus on the timing ability of fund investors in the Chinese market with a total of 250 mutual funds and find that investors have poor timing abilities. Similarly, Chen *et al.* (2014) make use of parametric and non-parametric methods to investigate the performance persistence of 64 equity funds covering the period from 2002 to 2010. Their results indicate a short-term evidence of persistence, but no performance persistence over a longer horizon.

Shah *et al.* (2005) investigate the performance of 13 equity and balanced funds in Pakistan for the period 1997-2004. Three performance metrics used, namely, the Sharpe ratio, the Treynor ratio and the Jensen's α confirm that Pakistani funds are able to outperform the market by a proxy of 0.86 per cent. Lai and Lau (2010) also assess the performance of 311 mutual funds, including 73 Islamic funds in Malaysia, for the period 1990-2005 and find a superior performance against the benchmark index. However, Murhadi (2010) examines the stock selection and market timing ability in Indonesia and find a weak evidence of managerial ability.

Filip (2011) examines the performance persistence of 65 equity mutual funds in Hungary over a ten-year period spanning from 2000 to 2009 using returns and the Sharpe ratio as performance metrics. Evidence of short-term persistence appears to be strong within the six-month evaluation period compared to the one-year period. Likewise, Berggrun *et al.* (2014) examine the performance persistence of equity mutual funds using a large sample from April 2000 to March 2012 in Brazil. Based on the Carhart's (1997) model, a significant spread between a decile portfolio of top and bottom performing funds is found on a risk adjusted basis. However, this performance is strongly driven by the underperformance of poor performing funds as a result of diseconomies of scale and higher fees.

Ahmad and Samajpati (2010) examine the selectivity and market timing ability of 60 growth and growth income funds in India for the period 2005-2009. They extend the popular performance evaluation models (Jensen's α, Treynor-Mazuy's, 1966 model; Henriksson-Merton's, 1981 model) to the Carhart's (1997) framework in order to capture both macro and micro-forecasting skills. Empirical results point to the evidence of timing and some evidence of selectivity amongst the fund managers; which appears strongly with high-frequency (daily) data. These results are consistent with Kumar (2012), Narayanasamy and Rathnamani (2013) and Kaur (2013) but contrast that of Dhar and Mandal (2014) who use conditional and unconditional Treynor-Mazuy (1966) model and the Henriksson-Merton (1981) model to evaluate 80 mutual funds for the period May 2000-March 2012. As in Gudimetla (2015), they report no evidence of superior market timing ability in India.

In the African context, Dawe *et al.* (2014) investigate the performance of seven equity and blended mutual funds in Kenya from 2006 to 2009. Using Grinblatt and Titman's (1993) method, which regresses the performance at time t against performance at time $t-1$, the results indicate a significant evidence of persistence over a one-year evaluation period.

On the other hand, Musah *et al.* (2014) study the stock selection and market timing ability of eight equity and balanced fund in Ghana for the period 2007-2012. Using Treynor-Mazuy (1966) and Henriksson-Merton (1981) models, the results suggest that 12 per cent of the funds (which is equivalent to a single fund) prove support to timing ability. In terms of stock selection ability, 75 per cent of the funds using Treynor-Mazuy (1966) model report poor performance. Likewise, the Henriksson-Merton (1981) model shows that all funds deliver a negative performance. This finding is consistent with Oduwole (2015) who examines 31 Nigerian mutual funds during the period from December 2011 to November 2014 and find that on average mutual funds fail to deliver risk adjusted returns greater than the market.

Gilbertson and Vermaak (1982) analyse the performance of 11 mutual funds over an eight-year period spanning from 1974 to 1981, against three market indices (JSE All Share

Index, JSE Industrial Index and RDM 100 index). The results show that one, two and four mutual funds manage to outperform the JSE All Share Index, JSE Industrial Index and RDM 100 index, respectively. In contrast to these results obtained using returns as a performance measure, the majority of the funds outperform all three indices when risk adjusted performance metrics such as the Sharpe ratio, the Treynor ratio and Jensen's α are used.

Oldfield and Page (1997) examine the performance of eight general equity unit trusts and nine specialist funds from September 1987 to September 1994. Using Jensen's α and Elton and Gruber's (1991) methods to test for superior market timing and stock selection ability, the results show weak evidence of market timing ability and stock selection ability consistently with Bradfiled (1998) and Oosthuizen and Smit (2002). Meyer (1998) uses Jensen's α and non-parametric contingency table to study performance persistence of 84 unit trusts from a sample period ranging from 1985 to1995. When persistence is analysed over one, two and four-year periods, the results show a strong repeat loser performance, particularly during the one to two-year period. On the other hand, evidence of repeat winner performance is relatively weak when performance persistence is analysed over the same one to two-year period. Similar results are reported in Von Wielligh and Smit (2000) when CAPM and the Multi-factor Arbitrage Pricing Model are considered. In particular, the evidence of performance persistence across both the short-term and long-term periods; the performance of losers being prominent in the short-term period and the winning funds' performance reported to be stronger in the long term. However, Firer *et al.* (2001) document that the two-year period of investigating performance persistence is the best strategy for investors seeking superior outperformance. Moreover, Wessels and Krige (2005) analyse 32 equity funds from 1988 to 2003 and reveal short-term persistence over a month to month and quarter to quarter period while long-term periods of over one year or more showed weak evidence of persistence.

In contrast, Collinet and Firer (2003) use the largest sample period – close to 20 years covering the period 1980-1999 to study 47 equity general unit trusts. Evidence found using the Sharpe ratio, runs tests, non-parametric contingency table, regression analysis and trading strategy test indicate evidence of persistence in winning and losing funds over a six-month holding and formation period. In addition, Van Heerden and Botha (2012) recently investigate the performance of seven value and three growth funds from March 2006 to March 2010. Using both a traditional approach and a new approach – the portfolio opportunity distribution (POD), the results indicate that the latter provides a better ranking for value managers while both methods provide the same ranking for growth funds. Although different approaches are used, the authors could not statistically test that the POD is the best approach to measuring performance and skill.

In summary, while there exists a wide range of performance metrics in the literature, recent techniques have been developed to test fund managers' selectivity and market timing ability. Since most of the previous performance studies in emerging economies and particularly in South Africa rely on the conventional OLS regressions, the established superior performance of managers might have been driven by luck. However, OLS-based procedures are subject to bias due to the small sample and the non-normality of funds' historical returns. To mitigate these issues, the present study implements a bootstrap estimation using MCMC simulation to test for the managerial ability. This approach is in line with Kosowski *et al.* (2006) as bootstrapping is thought to improve the approximation of the distribution of funds abnormal returns by accommodating heavy tails of individual fund's returns.

Besides testing the managerial ability, this study further investigates whether the performance generated by unit trusts does persist. The literature distinguishes two main approaches of testing performance persistence. The parametric approach led by the cross-sectional regression across subsample periods and the non-parametric method driven by the Kolmogorov-Smirnov and the rank correlation tests. For the sake of comparison, this

study implements both parametric and non-parametric tests based on six subsample periods rather than two to three usually found in previous studies. Moreover, differently from the mostly used non-parametric contingency procedure, the analysis of the performance persistence is based on the Spearman rank correlation implemented in selected performance studies including, Allen and Tan (1999), Harri and Brorsen (2004) and Eling (2009).

3. Data description and performance metrics

3.1 Sample data

A total of 191 equity unit trusts have been sourced from INET BFA. The data set includes six subcategories, namely, Equity General (153), Equity Large Cap (11), Equity Mid and Small Cap (8), Equity Resource (8), Equity Financial (6) and Equity Industrial (5) together with their respective benchmarks (i.e. FTSE/JSE All Share Index, Top 40 Index, Mid Cap Index, Resource Index, Financial Index and Industrial Index). Monthly net asset value and benchmark market prices covering the period from February 2006 to January 2016 are used. The monthly returns are computed by the following formula:

$$R_{it} = \ln \frac{NAV_{it}}{NAV_{it-1}}, \quad R_{jt} = \ln \frac{NAV_{jt}}{NAV_{jt-1}} \text{ and } R_{it} = \ln \frac{P_{it}}{P_{it-1}} \tag{1}$$

where NAV_{it}, NAV_{jt} and P_{it} represent net asset value for each equity unit trust, its benchmark and the market price in month t, respectively. Similarly, NAV_{it-1}, NAV_{jt-1} and P_{it-1} represent net asset value for each equity unit trust, its benchmark and the market price in month $t-1$, respectively. The NAV includes all returns made during each month (i.e. interest and/or dividend) and is net of expenses. The yield on a three-month treasury bill is used as a proxy for the risk free rate of return. The annualised risk free rate of return is recalculated to an equivalent monthly rate of return making it comparable with the monthly unit trusts/benchmark returns (Bello and Janjigian, 1997). To tackle the issue of survivorship bias, this paper includes all the unit trusts that had been in operation since the beginning of the sample period (February 2006).

3.2 Performance metrics

As indicated earlier, to circumvent the bias due to the small sample as well as the non-normal distribution of the funds' returns, the models are estimated using the Bayesian technique-based MCMC simulation.

Bayesian α[3] and risk adjusted returns are used to measure performance persistence. This performance measure is estimated using the Bayesian regression of the following equation where the estimated α is known as Bayesian α:

$$(r_{it} - r_{ft}) = \alpha + \beta(r_{mt} - r_{ft}) + \varepsilon_{it} \tag{2}$$

Besides the Bayesian α, two risk adjusted returns are used, the Sharpe ratio $r_i - r_f/\sigma_i$ and the Sortino ratio $r_i - r_{MAR}/DD$[4]. The Sharpe ratio measures the portfolio's return in excess of the risk free rate per unit of standard deviation. The Sortino ratio is similar to the Sharpe ratio; however, it replaces the risk free rate of return and standard deviation with the minimum acceptable return (MAR) and downside deviation, respectively. The Sortino ratio is incorporated because standard deviation tends to be an inadequate measure of risk (Rom and Ferguson, 1993) and because investors tend to suffer from loss aversion (Kahneman and Tversky, 1979). Table I summarises the descriptive statistics of the selected performance metrics across unit trust categories.

The summary statistics indicate that in general the average monthly performance of portfolio is negative for Bayesian α, Sortino ratio 2 and few cases of Sharpe ratio and

	Mean	Median	SD	Kurtosis	Skewness	Minimum	Maximum
Equity General							
Bayesian α	−0.031	−0.028	0.020	−1.693	−0.043	−0.058	−0.001
Sharpe ratio	0.027	0.028	0.013	−1.395	−0.168	0.001	0.051
Sortino ratio 1	0.165	0.203	0.117	0.263	−0.942	−0.174	0.379
Sortino ratio 2	−0.863	−0.862	0.073	−1.614	−0.008	−0.966	−0.741
Financial							
Bayesian α	−0.004	−0.002	0.003	0.015	−1.094	−0.008	−0.001
Sharpe ratio	−1.236	−1.210	0.059	−0.955	−0.985	−1.328	−1.187
Sortino ratio 1	0.226	0.221	0.019	2.119	1.118	0.204	0.260
Sortino ratio 2	−0.736	−0.729	0.016	−0.295	−1.008	−0.762	−0.721
Industrial							
Bayesian α	−0.008	−0.007	0.002	−1.369	−0.800	−0.012	−0.006
Sharpe ratio	−1.471	−1.445	0.069	3.908	−1.888	−1.591	−1.415
Sortino ratio 1	0.342	0.335	0.031	−2.491	0.335	0.309	0.381
Sortino ratio 2	−0.773	−0.772	0.013	0.636	−0.989	−0.793	−0.761
Resource							
Bayesian α	−0.014	−0.007	0.014	3.233	−1.939	−0.045	−0.005
Sharpe ratio	−1.080	−0.997	0.276	7.147	−2.603	−1.751	−0.864
Sortino ratio 1	0.058	0.074	0.054	2.370	−1.424	−0.055	0.111
Sortino ratio 2	−0.704	−0.688	0.061	6.354	−2.369	−0.848	−0.646
Large Cap							
Bayesian α	−0.024	−0.005	0.026	−2.258	−0.286	−0.058	−0.001
Sharpe ratio	−2.817	−1.322	2.214	2.085	−1.534	−8.068	−1.255
Sortino ratio 1	0.166	0.211	0.085	0.027	−0.911	−0.005	0.276
Sortino ratio 2	−0.829	−0.755	0.098	−2.211	−0.306	−0.959	−0.740
Mid and Small Cap							
Bayesian α	−0.067	0.001	−0.066	1.404	−0.267	−0.070	−0.063
Sharpe ratio	−2.825	0.890	−1.520	0.317	−1.486	−7.385	−1.344
Sortino ratio 1	0.196	0.036	0.230	3.959	−1.818	−0.033	0.310
Sortino ratio 2	−0.820	0.030	−0.789	−0.191	−1.283	−0.957	−0.752

Note: Sortino 1 and Sortino 2 are computed based on the MAR = 0 (Sortino 1) and MAR = risk free rate of return (Sortino 2)

Table I.
Descriptive statistics of performance metrics

positive for Sortino ratio 1. With the exception of the Sharpe ratio metrics in Large Cap category, the volatility of the performance appears to be low across both unit trust classes and performance metrics, suggesting small variation of the funds' performance in either direction. All the performance metrics exhibit negative skewness; indicating that the funds' performance is more concentrated on the right hand side of the performance distribution across fund categories. Positive kurtosis are observed in Resource and Mid and Small Cap categories possibly suggesting an increasing trend in the fund performance for these unit trust categories while the class of Equity General displays negative kurtosis which suggests a declining trend of its performance across time. The remaining categories, however, show mixed cases of positive and negative Kurtosis suggesting either increasing or decreasing trend depending on the performance metric.

4. Empirical analysis

4.1 Testing managerial ability

To evaluate the managerial ability of portfolio managers, two widely used approaches, namely, the Treynor-Mazuy (1966) and Henriksson-Merton (1981) models, are employed.

Both models test whether portfolio managers have stock selection and market timing ability. The former refers to the manager's ability to pick the right securities and assign different weightings to form a portfolio that will outperform the market. The latter refers to the manager's ability to predict future market movements and adjust the composition of the portfolio accordingly.

The Treynor-Mazuy (1966) (T-M) model is specified as:

$$(r_{it}-r_{ft}) = \alpha+\beta(r_{mt}-r_{ft})+\delta\ (r_{mt}-r_{ft})^2+\varepsilon_{ii} \quad (3)$$

where r_{it}, r_{mt} and r_{ft} denote monthly returns of each fund i, the benchmark index and the risk free asset, respectively. The measure of stock selection and market timing are given by α and δ, respectively. The T-M model extends the CAPM by adding a quadratic term $(r_{mt}-r_{ft})^2$ to measure the portfolio manager's market timing ability. Under the CAPM model the funds excess returns are a linear function of the market excess return. However, Treynor and Mazuy (1966) argue that if market returns are expected to rise, then the portfolio manager will hold a greater proportion of the market portfolio. Likewise, if market returns are expected to decline the portfolio manager will reduce his/her holding of the market portfolio.

The Henriksson-Merton (1981) (H-M) model is expressed as follows:

$$r_{it}-r_{ft} = \alpha+\beta(r_{mt}-r_{ft})+\delta D(r_{mt}-r_{ft})+\varepsilon_{ii} \quad (4)$$

The H-M model is also an extension to the CAPM model. It assumes that the portfolio manager is able to predict a period when the market return will be greater than the risk free rate of return ($r_{mt} > r_{ft}$) and a period when the market return will be less or equal to the risk free rate of return ($r_{mt} \leqslant r_{ft}$). The dummy variable (D) is incorporated to measure market timing ability where $D=0$ when the market excess return is positive and $D=1$ when the market excess return is negative.

Estimation outputs summarised in Tables II and III suggest no evidence of stock selectivity as all coefficients though significant appears to be negative. This is consistent across fund categories irrespective of the specification. With the exception of Financial, Resource and Industrial classes, funds' managers on the other hand show evidence of market timing ability, which is however, not consistent in terms of magnitude across fund categories and across models. More specifically, under the Equity General class, about 54 and 51 per cent of funds display strong timing ability with the Treynor-Mazuy (1966) model and Henriksson-Merton (1981) model, respectively. These percentages are 53 and 44 per cent for the Large Cap class and 44 and 38 per cent for the Mid and Small Cap class across the Treynor-Mazuy (1966) model and Henriksson-Merton (1981) model, respectively.

4.2 Testing for performance persistence

Recall that performance persistence analysis helps identify to what extent funds' performance in one period persists in the subsequent period. To this end, the cross-sectional regression and the rank correlation test are implemented which account for both parametric and non-parametric approaches of persistence testing, respectively.

4.2.1 Cross-sectional regression. In testing performance persistence, this study first groups funds into subsamples (see Table IV) and the cross-sectional regression[5] is implemented on each pair samples (holding period against selection period). Particularly, funds' holding period performance metrics are regressed on the performance metrics of the selection period following the equation below:

$$perf_{it} = \alpha+\beta perf_{it-1}+\varepsilon_{it} \quad (5)$$

Table II.
Testing for stock selection and market timing ability- Equity General funds

Equity General	Treynor-Mazuy (1966) model					Henriksson-Merton (1981) model				
	Selectivity		Timing			Selectivity		Timing		
	α	SE_α	δ	SE_δ	Adj. R^2	α	SE_α	δ	SE_δ	Adj. R^2
27 four Shari'ah Active Eq. Prescient A1	−0.047***	3.56E−05	0.089***	9.05E−04	0.394	−0.040***	3.16E−05	0.301***	2.70E−03	0.405
3 Laws Climate Change Eq Prescient A1	−0.053***	4.31E−05	0.074***	1.09E−03	0.363	−0.047***	3.80E−05	0.252***	3.25E−03	0.378
36 ONE MET Equity	−0.045***	3.16E−05	0.090***	8.03E−04	0.328	−0.038***	2.80E−05	0.304***	2.39E−03	0.343
ABSA BCI Institutional Equity A	−0.059***	2.64E−05	0.065***	6.69E−04	*0.892*	−0.053***	2.33E−05	0.224***	2.00E−03	*0.895*
ABSA Select Equity	−0.014***	3.25E−05	0.054***	8.24E−04	0.338	−0.011***	2.87E−05	0.187***	2.45E−03	0.355
ABSA Smart Alpha Equity A	−0.059***	4.42E−05	0.067***	1.12E−03	0.441	−0.052***	4.05E−05	0.229***	3.46E−03	0.411
Aeon Enhanced Equity Prescient A	−0.039***	3.96E−05	0.092***	1.00E−03	*0.761*	−0.038***	3.45E−05	0.324***	2.95E−03	*0.773*
Afena Equity Prescient A1	−0.021***	3.45E−05	0.078***	8.75E−04	0.336	−0.022***	3.03E−05	0.276***	2.59E−03	0.357
African Alliance Equity Prescient A1	−0.057***	3.30E−05	0.071***	8.37E−04	0.340	−0.051***	2.90E−05	0.243***	2.48E−03	0.362
African Alliance SA S&P GIVI Eq Presc A1	−0.058***	3.27E−05	0.068***	8.29E−04	*0.843*	−0.051***	2.90E−05	0.232***	2.48E−03	*0.845*
Allan Gray Equity A	−0.012***	3.40E−05	0.066***	8.63E−04	0.329	−0.012***	3.00E−05	0.232***	2.57E−03	0.346
Allan Gray SA Equity A	−0.057***	3.63E−05	0.070***	9.21E−04	0.402	−0.051***	3.23E−05	0.240***	2.76E−03	0.409
Ampersand Momentum Equity FoF A	−0.051***	3.60E−05	0.076***	9.14E−04	0.347	−0.046***	3.15E−05	0.258***	2.69E−03	0.376
Analytics Ci Managed Equity A1	−0.055***	4.41E−05	0.075***	1.12E−03	0.300	−0.048***	3.85E−05	0.252***	3.29E−03	0.332
Anchor BCI Equity A	−0.049***	3.34E−05	0.091***	8.48E−04	0.351	−0.040***	2.93E−05	0.308***	2.50E−03	0.376
APS Ci Equity FoF A1	−0.057***	3.22E−05	0.069***	8.17E−04	*0.809*	−0.050***	2.86E−05	0.234***	2.44E−03	*0.812*
Ashburton Multi Manager Equity B1	−0.025***	4.31E−05	0.065***	1.09E−03	0.414	−0.021***	3.82E−05	0.229***	3.26E−03	0.425
Ashburton SA Equity B1	−0.043***	3.65E−05	0.091***	9.25E−04	0.297	−0.036***	3.21E−05	0.305***	2.74E−03	0.318
Autus BCI Equity	−0.057***	3.37E−05	0.075***	8.55E−04	*0.783*	−0.049***	2.97E−05	0.257***	2.54E−03	*0.788*
Aylett Equity Prescient A3	−0.021***	3.19E−05	0.068***	8.09E−04	0.340	−0.019***	2.81E−05	0.238***	2.41E−03	0.357
Bateleur Equity Prescient A2	−0.059***	3.44E−05	0.065***	8.72E−04	0.343	−0.052***	3.00E−05	0.225***	2.56E−03	0.376
BCI Best Blend Specialist Equity C	−0.056***	4.38E−05	0.071***	1.11E−03	*0.784*	−0.048***	3.87E−05	0.240***	3.31E−03	*0.789*
Cadiz Mastermind A	−0.012***	3.92E−05	0.088***	9.96E−04	*0.821*	−0.009***	3.48E−05	0.309***	2.98E−03	*0.823*
Cannon MET Equity R	−0.017***	3.62E−05	0.078***	9.19E−04	*0.829*	−0.010***	3.23E−05	0.279***	2.76E−03	*0.829*
Capstone BCI Equity	−0.012***	4.21E−05	0.073***	1.07E−03	0.426	−0.014***	3.82E−05	0.259***	3.27E−03	0.407
ClucasGray Equity Prescient A1	−0.042***	2.21E−05	0.088***	5.61E−04	*0.939*	−0.040***	1.86E−05	0.305***	1.59E−03	*0.947*
Community Growth Equity	−0.011***	4.08E−05	0.042***	1.04E−03	*0.791*	−0.007***	3.61E−05	0.149***	3.09E−03	*0.795*
Contego B6 MET Value Equity A	−0.017***	3.18E−05	0.080***	8.07E−04	0.335	−0.012***	2.81E−05	0.289***	2.40E−03	0.352
Contego B7 MET Growth Equity A1	−0.059***	3.09E−05	0.065***	7.84E−04	*0.886*	−0.052***	2.74E−05	0.224***	2.34E−03	*0.888*
Coronation Equity R	−0.005***	3.18E−05	0.062***	8.07E−04	0.331	−0.006***	2.81E−05	0.219***	2.40E−03	0.348
Coronation SA Equity A	−0.059***	3.43E−05	0.065***	8.72E−04	*0.865*	−0.052***	3.13E−05	0.224***	2.68E−03	*0.859*

(continued)

Table II.

Equity General	Treynor-Mazuy (1966) model Selectivity α	SE_α	Timing δ	SE_δ	Adj. R^2	Henriksson-Merton (1981) model Selectivity α	SE_α	Timing δ	SE_δ	Adj. R^2
Coronation Top 20 A	−0.003***	3.50E−05	0.069***	8.88E−04	0.387	−0.007***	3.07E−05	0.251***	2.63E−03	0.409
Counterpoint MET High Yield Equity R	−0.052***	4.16E−05	0.073***	1.06E−03	0.436	−0.045***	3.73E−05	0.246***	3.19E−03	0.434
Counterpoint MET Value A1	−0.043***	3.06E−05	0.088***	7.77E−04	0.344	−0.038***	2.70E−05	0.298***	2.31E−03	0.363
Cratos BCI Equity A	−0.059***	4.04E−05	0.063***	1.03E−03	0.386	−0.053***	3.59E−05	0.216***	3.07E−03	0.394
Discovery Dynamic Equity	−0.048***	5.04E−05	0.084***	1.28E−03	*0.639*	−0.042***	4.43E−05	0.287***	3.78E−03	*0.652*
Discovery Equity	−0.020***	3.16E−05	0.100***	8.02E−04	0.341	−0.027***	2.78E−05	0.354***	2.37E−03	0.363
Dolberg Spencer BCI Equity A	−0.058***	4.19E−05	0.065***	1.06E−03	0.498	−0.051***	3.91E−05	0.222***	3.34E−03	0.452
Dynasty Ci Wealth Accumulator FoF A2	−0.038***	2.53E−05	0.089***	6.41E−04	*0.921*	−0.037***	2.17E−05	0.313***	1.85E−03	*0.927*
Efficient BCI Equity	−0.011***	3.69E−05	0.048***	9.37E−04	0.388	−0.006***	3.28E−05	0.173***	2.81E−03	0.394
Efficient BCI Equity FoF	−0.051***	3.88E−05	0.077***	9.84E−04	*0.754*	−0.046***	3.45E−05	0.263***	2.95E−03	*0.756*
Element Earth Equity A	−0.025***	3.66E−05	0.079***	9.28E−04	*0.784*	−0.022***	3.20E−05	0.276***	2.74E−03	*0.793*
Element Islamic Equity A	−0.023***	3.74E−05	0.073***	9.50E−04	0.292	−0.022***	3.29E−05	0.256***	2.81E−03	0.317
Emperor IP Momentum Equity A	−0.057***	4.60E−05	0.077***	1.17E−03	0.408	−0.049***	4.10E−05	0.263***	3.50E−03	0.414
Fairtree MET Equity A1	−0.041***	2.98E−05	0.098***	7.55E−04	*0.875*	−0.034***	2.64E−05	0.328***	2.26E−03	*0.877*
FG IP Mercury Equity FoF A1	−0.015***	4.52E−05	0.061***	1.15E−03	0.418	−0.010***	4.12E−05	0.211***	3.52E−03	0.393
First Avenue SCI Equity B1	−0.040***	3.23E−05	0.094***	8.20E−04	*0.871*	−0.038***	2.84E−05	0.330***	2.43E−03	*0.875*
FNB Momentum Growth	−0.013***	3.34E−05	0.064***	8.48E−04	*0.855*	−0.007***	2.95E−05	0.227***	2.52E−03	*0.859*
Foord Equity R	−0.011***	4.27E−05	0.067***	1.08E−03	0.301	−0.006***	3.71E−05	0.236***	3.17E−03	0.341
Grindrod Equity Income Growth	−0.052***	1.70E−05	0.088***	4.30E−04	*0.971*	−0.043***	1.08E−05	0.296***	9.25E−04	*0.987*
Gryphon All Share Tracker	−0.002***	3.48E−05	0.024***	8.84E−04	*0.844*	−0.001***	3.09E−05	0.087***	2.64E−03	*0.847*
Harvard House BCI Equity	−0.014***	3.53E−05	0.069***	8.95E−04	0.347	−0.007***	3.06E−05	0.247***	2.62E−03	0.383
Hollard Prime Equity B	−0.055***	2.87E−05	0.073***	7.29E−04	*0.895*	−0.047***	2.39E−05	0.245***	2.04E−03	*0.909*
Huysamer Equity Prescient A1	−0.011***	3.41E−05	0.054***	8.66E−04	*0.849*	−0.011***	3.03E−05	0.191***	2.59E−03	*0.852*
IFM Technical	−0.012***	4.07E−05	0.069***	1.03E−03	*0.706*	−0.007***	3.62E−05	0.242***	3.10E−03	*0.709*
Imara MET Equity A	−0.021***	3.04E−05	0.082***	7.72E−04	*0.872*	−0.022***	2.70E−05	0.290***	2.30E−03	*0.874*
Inv Solutions Equity FoF A	−0.014***	2.54E−05	0.062***	6.43E−04	*0.934*	−0.012***	2.12E−05	0.216***	1.82E−03	*0.942*
Investec Active Quants A	−0.005***	2.70E−05	0.047***	6.85E−04	*0.911*	0.000***	2.38E−05	0.170***	2.04E−03	*0.914*
Investec Equity R	−0.009***	7.68E−05	0.055***	1.95E−03	0.456	−0.004***	6.89E−05	0.190***	5.89E−03	0.451
Investec Value R	−0.016***	4.15E−05	0.156***	1.05E−03	0.375	−0.018***	3.68E−05	0.551***	3.14E−03	0.386
IP Equity	−0.047***	3.55E−05	0.086***	9.01E−04	*0.833*	−0.040***	3.11E−05	0.294***	2.66E−03	*0.840*
Kagiso Equity Alpha	−0.012***	4.27E−05	0.071***	1.08E−03	*0.512*	−0.010***	4.03E−05	0.249***	3.44E−03	0.456

(*continued*)

Table II.

Equity General	Treynor-Mazuy (1966) model: Selectivity α	SE_α	Timing δ	SE_δ	Adj. R^2	Henriksson-Merton (1981) model: Selectivity α	SE_α	Timing δ	SE_δ	Adj. R^2
Kagiso Islamic Equity	−0.036***	3.70E−05	0.090***	9.39E−04	0.329	−0.037***	3.23E−05	0.322***	2.76E−03	0.361
Laurium Equity Prescient A1	−0.055***	3.61E−05	0.076***	9.16E−04	*0.807*	−0.047***	3.05E−05	0.258***	2.61E−03	*0.827*
Lion of Africa MET Equity	−0.021***	3.75E−05	0.069***	9.53E−04	*0.692*	−0.022***	3.54E−05	0.244***	3.03E−03	*0.655*
Lynx SCI Opportunities FoF A1	−0.022***	3.54E−05	0.076***	8.98E−04	0.325	−0.031***	3.11E−05	0.283***	2.66E−03	0.349
M1 Capital Prescient Equity A2	−0.056***	3.60E−05	0.073***	9.14E−04	*0.841*	−0.049***	3.20E−05	0.248***	2.73E−03	*0.844*
Maestro Equity Prescient A	−0.014***	5.35E−05	0.072***	1.36E−03	*0.527*	−0.008***	4.82E−05	0.256***	4.12E−03	*0.520*
Marriott Dividend Growth R	−0.024***	2.90E−05	0.111***	7.35E−04	0.334	−0.019***	2.56E−05	0.386***	2.18E−03	0.352
Matrix NCIS Equity A	−0.061***	4.61E−05	0.059***	1.17E−03	0.449	−0.053***	4.22E−05	0.204***	3.61E−03	0.422
Mazi Capital Prime Equity A1	−0.035***	4.49E−05	0.097***	1.14E−03	0.429	−0.032***	4.07E−05	0.337***	3.48E−03	0.411
Melville Douglas STANLIB High Alpha A	−0.039***	4.44E−05	0.094***	1.13E−03	0.446	−0.036***	4.07E−05	0.326***	3.48E−03	0.416
Mergence Equity Prescient A1	−0.038***	3.19E−05	0.093***	8.09E−04	*0.882*	−0.036***	2.75E−05	0.326***	2.35E−03	*0.890*
MET General Equity	−0.009***	2.30E−05	0.062***	5.84E−04	*0.932*	−0.005***	1.97E−05	0.220***	1.68E−03	*0.939*
MI-PLAN IP Beta Equity B2	−0.011***	4.01E−05	0.045***	1.02E−03	0.392	−0.007***	3.56E−05	0.157***	3.04E−03	0.399
MitonOptimal IP High Conviction Equity A	−0.048***	3.98E−05	0.084***	1.01E−03	0.405	−0.042***	3.58E−05	0.285***	3.06E−03	0.398
MitonOptimal IP Smart Equity A	−0.048***	3.72E−05	0.083***	9.45E−04	*0.810*	−0.044***	3.31E−05	0.286***	2.83E−03	*0.812*
Momentum Best Blend Multifocus FoF A	−0.017***	3.63E−05	0.076***	9.22E−04	*0.809*	−0.011***	3.21E−05	0.265***	2.74E−03	*0.814*
Momentum Best Blend Specialist Eq A	−0.019***	3.16E−05	0.072***	8.01E−04	*0.882*	−0.014***	2.72E−05	0.257***	2.32E−03	*0.891*
Momentum Equity A	−0.010***	4.21E−05	0.061***	1.07E−03	0.407	−0.007***	3.76E−05	0.217***	3.21E−03	0.409
Momentum Factor Equity FoF A	−0.045***	4.43E−05	0.089***	1.12E−03	0.407	−0.039***	3.91E−05	0.301***	3.34E−03	0.423
Momentum Top 25 A	−0.043***	5.31E−05	0.094***	1.35E−03	0.727	−0.036***	4.64E−05	0.312***	3.97E−03	0.739
Momentum Value A	−0.014***	4.06E−05	0.105***	1.03E−03	*0.650*	−0.011***	3.62E−05	0.371***	3.10E−03	*0.651*
Naviga BCI SA Equity A	−0.028***	3.49E−05	0.082***	8.85E−04	*0.831*	−0.031v	3.18E−05	0.290***	2.72E−03	*0.824*
Nedgroup Inv Growth R	−0.019***	2.58E−05	0.070***	6.55E−04	*0.929*	−0.010***	2.11E−05	0.254***	1.81E−03	*0.941*
Nedgroup Inv Private Wealth Equity A	−0.003***	2.70E−05	0.047***	6.86E−04	*0.894*	0.000***	2.35E−05	0.169***	2.01E−03	*0.900*
Nedgroup Inv Rainmaker A	−0.013***	3.35E−05	0.054***	8.51E−04	*0.830*	−0.010***	3.02E−05	0.188***	2.58E−03	*0.828*
Nedgroup Inv Value R	−0.016***	4.46E−05	0.070***	1.13E−03	*0.715*	−0.011***	3.88E−05	0.241***	3.32E−03	*0.730*
NeFG BCI Equity	−0.021***	4.50E−05	0.088***	1.14E−03	*0.639*	−0.022***	3.93E−05	0.311***	3.36E−03	*0.655*
NFB Ci Equity B1	−0.024***	3.16E−05	0.089***	8.03E−04	*0.851*	−0.031***	2.81E−05	0.315***	2.40E−03	*0.853*
Oasis Crescent Equity D	−0.019***	2.84E−05	0.063***	7.22E−04	*0.887*	−0.013***	2.52E−05	0.225***	2.16E−03	*0.889*
Oasis General Equity D	−0.013***	2.96E−05	0.058***	7.51E−04	0.330	−0.010***	2.61E−05	0.202***	2.23E−03	0.350
Obsidian SCI Equity B1	−0.061***	3.20E−05	0.060***	8.13E−04	*0.871*	−0.053***	2.94E−05	0.209***	2.51E−03	*0.864*

(*continued*)

	Treynor-Mazuy (1966) model					Henriksson-Merton (1981) model				
	Selectivity		Timing			Selectivity		Timing		
Equity General	α	SE_α	δ	SE_δ	Adj. R^2	α	SE_α	δ	SE_δ	Adj. R^2
Old Mutual Albaraka Equity A	−0.017***	3.50E−05	0.064***	8.87E−04	*0.849*	−0.007***	3.02E−05	0.235***	2.58E−03	*0.859*
Old Mutual Growth R	−0.012***	4.81E−05	0.068***	1.22E−03	*0.710*	−0.009***	4.30E−05	0.241***	3.67E−03	*0.711*
Old Mutual High Yield Opp A	−0.017***	2.75E−05	0.098***	6.98E−04	*0.910*	−0.014***	2.31E−05	0.344***	1.98E−03	*0.921*
Old Mutual Investors R	−0.006***	2.70E−05	0.053***	6.85E−04	*0.908*	−0.006***	2.34E−05	0.185***	2.00E−03	*0.914*
Old Mutual Managed Alpha Equity A	−0.009***	2.61E−05	0.053***	6.63E−04	*0.903*	−0.006***	2.30E−05	0.187***	1.97E−03	*0.905*
Old Mutual Multi-Managers Equity FoF A	−0.015***	3.57E−05	0.053***	9.07E−04	*0.860*	−0.011***	2.90E−05	0.184***	2.48E−03	*0.885*
Old Mutual RAFI 40 Tracker A	−0.008***	3.16E−05	0.066***	8.01E−04	*0.876*	−0.014***	2.71E−05	0.232***	2.32E−03	*0.885*
Old Mutual Top Companies R	−0.012***	3.15E−05	0.061***	7.98E−04	0.327	−0.009***	2.78E−05	0.217***	2.38E−03	0.342
Optimum BCI Equity A	−0.059***	3.51E−05	0.064***	8.92E−04	0.331	−0.052***	3.09E−05	0.222***	2.64E−03	0.352
Perpetua MET Equity A	−0.058***	4.01E−05	0.072***	1.02E−03	*0.537*	−0.051***	3.78E−05	0.247***	3.23E−03	0.485
Personal Trust Equity	−0.038***	3.42E−05	0.086***	8.67E−04	0.338	−0.036***	2.99E−05	0.302***	2.56E−03	0.365
PortfolioMetrix BCI Equity FoF B1	−0.057***	3.21E−05	0.070***	8.16E−04	*0.885*	−0.049***	2.57E−05	0.239***	2.20E−03	*0.909*
PPS Equity A	−0.010***	3.29E−05	0.059***	8.35E−04	*0.870*	−0.012***	2.79E−05	0.206***	2.39E−03	*0.884*
Prescient Equity A1	−0.011***	4.25E−05	0.063***	1.08E−03	0.383	−0.009***	3.72E−05	0.223***	3.18E−03	0.409
Prescient Equity Income A1	−0.047***	4.31E−05	0.089***	1.09E−03	*0.536*	−0.039***	4.07E−05	0.297***	3.48E−03	0.482
Prime General Equity B	−0.032***	2.64E−05	0.092***	6.69E−04	*0.896*	−0.032***	2.26E−05	0.326***	1.93E−03	*0.905*
Prudential Dividend Maximiser A	−0.010***	3.00E−05	0.051***	7.62E−04	*0.874*	−0.012***	2.62E−05	0.181***	2.24E−03	*0.880*
Prudential Equity A	−0.009***	4.36E−05	0.059***	1.11E−03	*0.796*	−0.010***	3.80E−05	0.209***	3.25E−03	*0.806*
PSG Equity A	−0.009***	3.70E−05	0.086***	9.40E−04	*0.802*	−0.007***	3.30E−05	0.304***	2.82E−03	*0.803*
PSG MM Equity FoF A	−0.019***	4.33E−05	0.075***	1.10E−03	*0.556*	−0.013***	4.13E−05	0.264***	3.53E−03	0.493
PSG Wealth Creator FoF D	−0.029***	4.37E−05	0.091***	1.11E−03	0.256	−0.033***	3.89E−05	0.331***	3.33E−03	0.262
RECM Equity B	−0.058***	3.50E−05	0.090***	8.87E−04	0.323	−0.053***	3.06E−05	0.311***	2.61E−03	0.352
Rezco Equity A	−0.057***	4.11E−05	0.072***	1.04E−03	0.414	−0.048***	3.67E−05	0.245***	3.14E−03	0.413
Saffron MET Top 20 Fund A	−0.046***	2.87E−05	0.086***	7.27E−04	*0.885*	−0.040***	2.47E−05	0.294***	2.11E−03	*0.893*
Sanlam Multi Mgd Equity FoF A	−0.014***	3.11E−05	0.056***	7.91E−04	*0.888*	−0.012***	2.60E−05	0.198***	2.23E−03	*0.902*
Sanlam Select Optimised Equity B4	−0.006***	4.32E−05	0.059***	1.10E−03	*0.758*	−0.006***	3.86E−05	0.208***	3.30E−03	*0.758*
Sanlam Select Thematic Equity B10	−0.020***	5.19E−05	0.087***	1.32E−03	*0.706*	−0.013***	4.71E−05	0.308***	4.03E−03	*0.697*
Sasfin MET Equity A	−0.017***	4.08E−05	0.106***	1.04E−03	0.406	−0.003***	3.67E−05	0.377***	3.14E−03	0.399
Satrix Alsi Index A1	−0.047***	4.78E−05	0.085***	1.21E−03	0.366	−0.042***	4.31E−05	0.293***	3.68E−03	0.355
Satrix Dividend Plus Index A1	−0.045***	4.02E−05	0.100***	1.02E−03	0.310	−0.041***	3.52E−05	0.344***	3.01E−03	0.341
Satrix Momentum Index A1	−0.053***	3.28E−05	0.083***	8.33E−04	0.314	−0.045***	2.90E−05	0.281***	2.48E−03	0.330

(*continued*)

Table II.

Table II.

Equity General	Treynor-Mazuy (1966) model Selectivity α	SE_α	Timing δ	SE_δ	Adj. R^2	Henriksson-Merton (1981) model Selectivity α	SE_α	Timing δ	SE_δ	Adj. R^2
Satrix Quality Index A1	−0.059***	4.58E−05	0.067***	1.16E−03	0.470	−0.053***	4.30E−05	0.232***	3.68E−03	0.415
Satrix Rafi 40 Index A1	−0.038***	4.27E−05	0.097***	1.08E−03	0.346	−0.038***	3.70E−05	0.344***	3.16E−03	0.387
Seed Equity A1	−0.051***	2.91E−05	0.090***	7.39E−04	*0.894*	−0.042***	2.49E−05	0.296***	2.13E−03	*0.904*
SIM General Equity R	−0.007***	3.83E−05	0.057***	9.71E−04	*0.812*	−0.006***	3.37E−05	0.199***	2.88E−03	*0.818*
SIM Top Choice Equity A1	−0.009***	4.22E−05	0.076***	1.07E−03	*0.770*	−0.010***	3.76E−05	0.270***	3.21E−03	*0.772*
SIM Value R	−0.014***	4.36E−05	0.086***	1.11E−03	0.431	−0.011***	3.98E−05	0.300***	3.40E−03	0.406
SPI Equity A1	−0.040***	4.17E−05	0.091***	1.06E−03	*0.821*	−0.038***	3.75E−05	0.318***	3.20E−03	*0.818*
STANLIB Capital Growth R	−0.014***	3.00E−05	0.085***	7.60E−04	*0.897*	−0.004***	2.65E−05	0.300***	2.27E−03	*0.899*
STANLIB Equity R	−0.012***	1.96E−05	0.056***	4.98E−04	*0.960*	−0.005***	1.33E−05	0.212***	1.14E−03	*0.979*
STANLIB Index R	−0.003***	3.19E−05	0.030***	8.08E−04	*0.854*	−0.002***	2.71E−05	0.106***	2.32E−03	*0.868*
STANLIB MM All Stars Eq FoF B1	−0.014***	2.58E−05	0.062***	6.54E−04	*0.907*	−0.013***	2.28E−05	0.217***	1.95E−03	*0.909*
STANLIB MM Equity B1	−0.014***	2.81E−05	0.053***	7.14E−04	*0.922*	−0.011***	2.59E−05	0.183***	2.21E−03	*0.917*
STANLIB SA Equity R	−0.010***	4.00E−05	0.053***	1.01E−03	*0.782*	0.000***	3.63E−05	0.207***	3.10E−03	*0.775*
STANLIB Shari'ah Equity A	−0.028***	4.27E−05	0.078***	1.08E−03	*0.767*	−0.021***	3.78E−05	0.290***	3.23E−03	*0.772*
STANLIB Value A	−0.016***	4.18E−05	0.085***	1.06E−03	*0.763*	−0.012***	3.78E−05	0.302***	3.23E−03	*0.757*
Stewart MET Macro Equity FoF A	−0.023***	3.55E−05	0.082***	9.01E−04	0.338	−0.016***	3.10E−05	0.302***	2.65E−03	0.369
Sygnia Active Equity A	−0.056***	4.36E−05	0.073***	1.11E−03	0.305	−0.048***	3.83E−05	0.248***	3.27E−03	0.328
Sygnia Divi Index A	−0.053***	3.81E−05	0.091***	9.68E−04	0.364	−0.046***	3.29E−05	0.306***	2.81E−03	0.409
Sygnia Equity A	−0.051***	3.70E−05	0.080***	9.39E−04	0.345	−0.043***	3.22E−05	0.263***	2.75E−03	0.380
Sygnia SWIX Index A	−0.054***	3.26E−05	0.077***	8.27E−04	0.339	−0.046***	2.85E−05	0.258***	2.44E−03	0.366
Sygnia Value A	−0.058***	2.90E−05	0.067***	7.36E−04	0.329	−0.050***	2.56E−05	0.228***	2.19E−03	0.345
Third Circle MET Protected General Eq A	−0.061***	3.53E−05	0.059***	8.97E−04	0.318	−0.053***	3.09E−05	0.205***	2.64E−03	0.348
Tower Capital Equity Prescient A1	−0.057***	3.71E−05	0.073***	9.42E−04	0.319	−0.048***	3.21E−05	0.247***	2.74E−03	0.364
Trillian IP FCF Equity	−0.055***	4.53E−05	0.077***	1.15E−03	0.451	−0.045***	4.16E−05	0.257***	3.55E−03	0.422
Truffle MET General Equity A	−0.037***	2.91E−05	0.095***	7.39E−04	0.341	−0.034***	2.56E−05	0.332***	2.19E−03	0.362
Truffle MET Institutional Equity A	−0.061***	3.48E−05	0.060***	8.83E−04	0.341	−0.053***	3.04E−05	0.205***	2.60E−03	0.372
Visio BCI General Equity A	−0.056***	3.71E−05	0.072***	9.41E−04	0.324	−0.048***	3.24E−05	0.243***	2.77E−03	0.355
Vunani IP Accelerated Growth A	−0.055***	3.17E−05	0.076***	8.04E−04	0.345	−0.048***	2.79E−05	0.259***	2.39E−03	0.363
Warwick MET Equity A	−0.059***	1.27E−05	0.065***	3.22E−04	*0.986*	−0.053***	4.89E-06	0.224***	4.18E−04	*0.999*

Note: ***Significant at the 1 per cent level

Table III.
Testing for stock selection and market timing ability – other funds categories

Equity category	Treynor-Mazuy (1966) model					Henriksson-Merton (1981) model				
	Selectivity		Timing			Selectivity		Timing		
	α	SE_α	δ	SE_δ	Adj. R^2	α	SE_α	δ	SE_δ	Adj. R^2
Financial										
Coronation Financial A	0.001***	1.98E−05	0.050***	2.63E−03	*0.947*	−0.002***	2.08E−05	0.181***	1.91E−03	*0.944*
Momentum Financials A	−0.001***	2.22E−05	0.056***	2.96E−03	*0.934*	0.000***	2.24E−05	0.195***	2.06E−03	*0.936*
Nedgroup Inv Financials R	−0.004***	2.50E−05	0.064***	3.34E−03	*0.912*	0.000***	2.56E−05	0.223***	2.35E−03	*0.912*
Old Mutual Financial Servs R	−0.002***	2.29E−05	0.058***	3.05E−03	*0.926*	−0.002***	2.34E−05	0.204***	2.15E−03	*0.926*
SIM Financial A	−0.006***	2.23E−05	0.056***	2.96E−03	*0.925*	−0.003***	2.24E−05	0.195***	2.06E−03	*0.928*
STANLIB Financials A	−0.006***	2.29E−05	0.058***	3.05E−03	*0.917*	−0.007***	2.38E−05	0.207***	2.19E−03	*0.914*
Industrial										
Coronation Industrial	−0.008***	2.30E−05	0.060***	3.42E−03	*0.900*	−0.004***	2.34E−05	0.183***	1.95E−03	*0.899*
Momentum Industrial A	−0.013***	2.35E−05	0.061***	3.49E−03	*0.885*	−0.011***	2.40E−05	0.188***	2.00E−03	*0.883*
Old Mutual Industrial A	−0.009***	1.92E−05	0.050***	2.86E−03	*0.932*	−0.006***	1.99E−05	0.156***	1.66E−03	*0.929*
SIM Industrial R	−0.009***	2.46E−05	0.064***	3.65E−03	*0.883*	−0.005***	2.51E−05	0.197***	2.09E−03	*0.881*
STANLIB Industrial R	−0.012***	2.71E−05	0.071***	4.02E−03	*0.853*	−0.008***	2.79E−05	0.219***	2.33E−03	*0.849*
Resource										
Coronation Resources	−0.007***	3.10E−05	0.053***	2.39E−03	*0.871*	−0.007***	4.08E−05	0.153***	1.73E−03	*0.871*
Investec Commodity R	−0.005***	2.46E−05	0.042***	1.90E−03	*0.916*	−0.004***	3.26E−05	0.122***	1.38E−03	*0.915*
Momentum Resources	−0.006***	2.85E−05	0.049***	2.20E−03	*0.896*	−0.005***	3.78E−05	0.141***	1.60E−03	*0.895*
Nedgroup Inv Mining & Res R	−0.008***	1.86E−05	0.032***	1.44E−03	*0.947*	−0.007***	2.46E−05	0.092***	1.05E−03	*0.947*
Old Mutual Gold R	−0.026***	8.23E−05	0.142***	6.36E−03	0.326	−0.020***	1.08E−04	0.405***	4.59E−03	0.329
Old Mutual Mining & Res R	−0.008***	3.32E−05	0.057***	2.57E−03	*0.850*	−0.011***	4.36E−05	0.163***	1.85E−03	*0.851*
SIM Resources	−0.044***	4.30E−05	0.074***	3.32E−03	0.422	−0.041***	5.69E−05	0.213***	2.42E−03	0.417
STANLIB Resources R	−0.008***	2.67E−05	0.046***	2.06E−03	*0.909*	−0.005***	3.56E−05	0.133***	1.51E−03	*0.906*
Large Cap										
ABSA Large Cap	−0.005***	1.78E−05	0.041***	2.26E−03	*0.942*	−0.007***	2.01E−05	0.124***	1.36E−03	*0.943*
Integre Large Cap Prescient A1	−0.047***	3.55E−05	0.082***	4.51E−03	0.337	−0.043***	3.95E−05	0.244***	2.66E−03	0.364
Kagiso Top 40 Tracker	−0.001***	4.54E-06	0.011***	5.77E−04	*0.999*	−0.001***	5.15E-06	0.032***	3.47E−04	*0.999*
Momentum Top 40 Index A	−0.004***	1.21E−05	0.028***	1.54E−03	*0.978*	−0.002***	1.41E−05	0.087***	9.48E−04	*0.977*
Old Mutual Top 40 A	−0.002***	8.95E-06	0.021***	1.14E−03	*0.990*	−0.002***	1.04E−05	0.064***	6.99E−04	*0.989*
Prescient Equity Top 40 A1	−0.002***	9.09E-06	0.021***	1.16E−03	*0.989*	−0.002***	1.03E−05	0.064***	6.97E−04	*0.989*

(*continued*)

Table III.

Equity category	Treynor-Mazuy (1966) model					Henriksson-Merton (1981) model				
	Selectivity		Timing			Selectivity		Timing		
	α	SE_α	δ	SE_δ	Adj. R^2	α	SE_α	δ	SE_δ	Adj. R^2
Satrix Equally Weighted Top 40 Index A1	−0.040***	3.65E−05	0.084***	4.64E−03	0.423	−0.038***	4.12E−05	0.255***	2.78E−03	0.429
Satrix Swix Top 40 Index A1	−0.059***	2.55E−05	0.059***	3.25E−03	0.292	−0.053***	2.85E−05	0.177***	1.92E−03	0.314
Satrix Top 40 Index A1	−0.055***	2.94E−05	0.068***	3.75E−03	0.311	−0.047***	3.19E−05	0.198***	2.15E−03	0.374
STANLIB ALSI 40 A	−0.003***	1.13E−05	0.026***	1.44E−03	*0.981*	−0.002***	1.31E−05	0.081***	8.85E−04	*0.980*
Sygnia Top 40 Index A	−0.055***	2.97E−05	0.069***	3.78E−03	0.308	−0.047***	3.22E−05	0.200***	2.17E−03	0.371
Mid and Small Cap										
Alpha Wealth Prime Small and Mid Cap A	−0.063***	2.37E−05	0.000***	7.07E-07	0.116	−0.057***	3.12E−05	0.001***	1.50E−05	0.146
Coronation Smaller Companies	−0.058***	3.33E−05	0.001***	9.94E-07	*0.587*	−0.051***	4.50E−05	0.001***	2.16E−05	*0.582*
Investec Emerging Companies R	−0.058***	3.72E−05	0.001***	1.11E-06	*0.586*	−0.050***	4.95E−05	0.001***	2.38E−05	*0.595*
Momentum Small/Mid Cap A	−0.061***	3.48E−05	0.001***	1.04E-06	*0.544*	−0.056***	4.65E−05	0.001***	2.24E−05	*0.548*
Nedgroup Inv Entrepreneur R	−0.056***	3.33E−05	0.001***	9.96E-07	*0.627*	−0.048***	4.41E−05	0.001***	2.12E−05	*0.638*
NGI Private Wealth Small and Mid Cap Eq A2	−0.066***	2.22E−05	0.000***	6.62E-07	0.130	−0.060***	2.91E−05	0.001***	1.40E−05	0.171
Old Mutual Mid and Small Cap R	−0.059***	3.31E−05	0.001***	9.88E-07	*0.646*	−0.051***	4.35E−05	0.001***	2.09E−05	*0.660*
SIM Small Cap R	−0.058***	3.61E−05	0.001***	1.08E-06	*0.549*	−0.051***	4.82E−05	0.001***	2.32E−05	*0.554*

Note: ***Significant at the 1 per cent level

Subsamples	Equity General	Financial	Industrial	Resource	Large Cap	Mid and Small Cap	Total
February 2006-September 2007	66	6	5	7	6	6	
October 2007-May 2009	78	6	5	7	6	6	
June 2009-January 2011	86	6	5	7	7	6	
February 2011-September 2012	103	6	5	7	8	6	
October 2012-May 2014	127	6	5	8	10	6	
June 2014-January 2016	153	6	5	8	11	8	
Total	153	6	5	8	11	8	191

Table IV. Number of funds across subsamples

where $perf_{it}$ is the performance of the holding period and $perf_{it-1}$ is the performance of the selection period. Testing the null hypothesis of the slope coefficient ($H0$: $\beta = 0$) amounts to testing the null hypothesis that subsequent period performance is independent of the prior period performance. Hence, a positive and significant slope coefficient would imply that past performance predicts the future performance, while negative and significant slope coefficient would suggest the evidence of performance reversal; the adjusted R^2 reflecting the explanatory power of the future performance (Table V).

While the persistence results appear to be inconsistent across performance metrics, it is worth nothing that the Bayesian α shows positive and significant slope coefficients in a number of cases within the Equity General category and only few cases in other categories. More interestingly, with the Sharpe ratio as performance metric, no evidence of performance persistence is found in the Resource and Financial categories and only few positive and significant slope coefficients are reported in other categories. The Sortino ratios on the other hand, depict selected cases of performance persistence and/or reversal across fund categories. This pattern is inconsistent with the panel cross-sectional output which pooled the cross-sectional regression across all the subsamples (see Table VI). Unlike the Bayesian α which depicts an evidence of persistence for four fund categories, the Sharpe ratio and the Sortino display evidence of performance reversal. However, the adjusted R^2 remain very low in all cases; indicating rather weak evidence of performance persistence and/or reversal.

4.2.2 Spearman rank correlation test. The non-parametric approach of assessing persistence based of the rank correlation test relies on the correlation coefficient computed across holding and selection periods funds' performance metric as follows:

$$\rho_s = 1 - \frac{6 \sum D^2}{n(n-1)} \tag{6}$$

where ρ_s is the rank correlation coefficient, D is the difference between fund's selection period and holding period ranks and n is the number of funds.

This test is asymptotically t-Student distributed and its significance reveals the dependence between holding period and the selection period performance. Table VII displays the empirical results using different performance metrics.

In line with the cross-sectional results, the general pattern that emerges from the non-parametric results suggest very few cases of performance persistence and/or reversal which are moreover, inconsistent across different performance metrics. Particularly, the Equity General and the Mid and Small Cap, Industrial and Large Cap categories display no significant rank correlation coefficients across performance metrics while two

Table V. Cross-sectional regression for subsamples

Equity category		Bayesian α Slope	SE	Adj. R^2	Sharpe ratio Slope	SE	Adj. R^2	Sortino ratio 1 Slope	SE	Adj. R^2	Sortino ratio 2 Slope	SE	Adj. R^2
Equity General													
Selection sample	Holding sample												
February 2006-September 2007	October 2007-May 2009	−0.150	0.102	0.009	*−0.042***	0.014	0.008	0.089	0.057	0.003	−0.135	0.096	0.006
October 2007-May 2009	June 2009-January 2011	*0.127**	0.075	0.009	0.100	0.194	−0.013	0.132	0.156	−0.005	*0.544***	0.184	0.005
June 2009-January 2011	February 2011-September 2012	*0.174**	0.100	0.066	*0.002**	0.020	−0.012	−0.046	0.101	−0.010	*0.257***	0.089	0.177
February 2011-September 2012	October 2012-May 2014	*0.096**	0.053	0.022	0.007	0.010	−0.009	*0.450****	0.102	0.245	0.161	0.099	0.011
October 2012-May 2014	June 2014-January 2016	0.061	0.058	0.001	0.002	0.011	−0.008	*0.491***	0.161	0.104	0.036	0.046	0.002
Financial													
Selection sample	Holding sample												
February 2006-September 2007	October 2007-May 2009	0.145	0.793	−0.243	0.409	0.566	−0.120	*−0.334****	0.073	0.385	0.502	0.631	−0.166
October 2007-May 2009	June 2009-January 2011	0.355	0.230	0.179	0.532	0.251	0.375	−1.876	1.006	0.341	1.039	0.530	0.272
June 2009-January 2011	February 2011-September 2012	−0.512	0.328	0.138	−1.357	0.770	0.324	0.365	0.217	−0.079	−0.585	0.337	0.278
February 2011-September 2012	October 2012-May 2014	−0.321	0.268	0.028	−0.135	0.120	−0.071	0.867	0.571	0.081	−0.406	0.332	−0.010
October 2012-May 2014	June 2014-January 2016	*1.276***	0.366	0.519	1.047	0.386	0.450	*0.471***	0.132	0.546	*0.470**	0.188	0.447
Industrial													
Selection sample	Holding sample												
February 2006-September 2007	October 2007-May 2009	0.383	0.308	−0.193	*0.311***	0.055	0.232	−0.277	0.155	0.212	*0.354***	0.110	0.133
October 2007-May 2009	June 2009-January 2011	*0.275***	0.068	0.677	0.425	0.182	0.567	−0.636	0.746	−0.014	1.072	0.462	0.529
June 2009-January 2011	February 2011-September 2012	−0.567	0.472	0.143	−1.764	1.284	−0.004	−0.227	0.719	−0.310	−0.729	0.604	−0.064
February 2011-September 2012	October 2012-May 2014	−0.605	0.391	−0.181	0.095	0.226	−0.293	0.392	0.512	−0.149	0.307	0.652	−0.278
October 2012-May 2014	June 2014-January 2016	*1.593***	0.415	0.777	*2.261***	0.617	0.471	*1.069***	0.332	0.719	*0.577***	0.139	0.535
Resource													
Selection sample	Holding sample												
February 2006-September 2007	October 2007-May 2009	*1.531****	0.175	0.133	−0.161	0.221	−0.106	*−0.132***	0.038	0.046	−0.123	0.328	−0.162
October 2007-May 2009	June 2009-January 2011	*1.076****	0.073	0.529	1.217	0.820	−0.033	−0.512	1.034	−0.125	*2.023**	0.984	0.284
June 2009-January 2011	February 2011-September 2012	*0.098**	0.039	−0.064	−0.692	0.360	0.425	*−0.599****	0.135	0.633	−0.619	0.452	0.334
February 2011-September 2012	October 2012-May 2014	0.514	0.370	−0.278	0.030	0.090	−0.154	−1.061	0.980	0.178	0.038	0.135	−0.160
October 2012-May 2014	June 2014-January 2016	*−2.244**	0.952	0.535	0.729	1.572	−0.152	*−0.987****	0.155	0.790	0.329	0.977	−0.162

(*continued*)

Table V.

Equity category		Bayesian α Slope	SE	Adj. R^2	Sharpe ratio Slope	SE	Adj. R^2	Sortino ratio 1 Slope	SE	Adj. R^2	Sortino ratio 2 Slope	SE	Adj. R^2
Large Cap													
Selection sample	Holding sample												
February 2006-September 2007	October 2007-May 2009	0.404	0.281	−0.108	−0.181	0.266	−0.084	0.100	0.823	−0.248	−0.224	0.399	−0.133
October 2007-May 2009	June 2009-January 2011	0.231	0.118	−0.013	0.241	0.184	−0.133	0.087	0.074	−0.156	0.717	0.420	−0.060
June 2009-January 2011	February 2011-September 2012	*0.091****	0.008	0.712	0.050***	*0.005*	0.720	*0.610****	0.060	0.787	*0.122****	0.015	0.630
February 2011-September 2012	October 2012-May 2014	*0.756****	0.041	0.853	0.175	0.406	−0.153	*0.103**	0.043	0.107	*1.197****	0.124	0.731
October 2012-May 2014	June 2014-January 2016	0.365	0.241	0.405	*0.341****	0.087	0.734	*0.375***	0.131	0.314	0.096	0.074	0.304
Mid and Small Cap													
Selection sample	Holding sample												
February 2006-September 2007	October 2007-May 2009	−0.113	0.759	−0.241	0.212	0.345	−0.207	0.182	0.554	−0.224	0.133	0.225	−0.215
October 2007-May 2009	June 2009-January 2011	−0.208	0.293	−0.091	−0.307	0.147	0.189	−0.204	0.257	−0.096	*−0.602**	0.258	0.192
June 2009-January 2011	February 2011-September 2012	−1.126	1.368	−0.045	−2.240	1.254	0.203	−0.953	2.571	−0.224	−1.438	0.764	0.312
February 2011-September 2012	October 2012-May 2014	−0.345	0.280	0.108	*0.208**	0.086	0.233	−0.343	0.249	0.160	*0.282***	0.091	0.256
October 2012-May 2014	June 2014-January 2016	*1.407***	0.481	0.453	0.340	0.632	−0.163	*1.176***	0.354	0.367	0.205	0.256	−0.106

Notes: This table displays the slope coefficients of cross-sectional regression with heteroscedasticity standard errors (SE). *,**,***Significant at the 10, 5 and 1 per cent levels, respectively

	Equity General	Financial	Industrial	Resource	Large CAP	Mid and Small Cap
Bayesian α						
Slope	*0.145***	*0.249**	*0.094*	*0.666***	*0.284***	0.051
SE	0.032	0.128	0.220	0.300	0.156	0.093
Adj. R^2	0.045	0.031	−0.035	0.330	0.355	−0.033
Sharpe ratio						
Slope	*−0.037***	*−0.246**	*−0.514***	*−0.596****	0.143	−0.505***
SE	0.018	0.143	0.233	0.190	0.164	0.171
Adj. R^2	0.006	0.062	0.163	0.228	0.020	0.150
Sortino ratio 1						
Slope	*−0.517****	*−0.283****	*−0.203**	*−0.566****	*−0.401****	*−0.511****
SE	0.029	0.098	0.105	0.098	0.067	0.097
Adj. R^2	0.238	0.040	0.000	0.372	0.220	0.205
Sortino ratio 2						
Slope	*−0.239****	*−0.353***	*−0.499****	*−0.505***	−0.058	*−0.400***
SE	0.037	0.133	−2.980	0.222	0.156	0.178
Adj. R^2	0.070	0.136	0.205	0.149	−0.024	0.096

Notes: The SE are Newey-West (1987) standard errors. *,**,***Significant at the 10, 5 and 1 per cent levels, respectively

Table VI. Cross-sectional regression for the panel subsample periods

contrasting cases (positive and negative correlation coefficient) are reported for Financial and Resource categories, namely, with the Sortino ratios. This confirms the rather weak evidence of performance persistence and/or reversal of South African unit trusts.

5. Conclusion

The purpose of this study is to evaluate the performance of six subcategories equity unit trusts in South Africa over the period from February 2006 to January 2016 covering different market conditions. Results from managerial ability test over the entire sample period using Treynor-Mazuy (1966) and Henriksson-Merton (1981) models suggest no evidence of stock selection and relatively strong evidence of market timing ability across all categories. Stock selection is an important managerial skill that helps managers to select good performing investments by taking either a long position (to make profit when the stock price is expected to increase) or a short position (to make profit when the stock price is expected to decrease). Similarly, a unit trust manager with market timing skill is able to predict the best time to buy and sell stocks. Previous studies (Filippas and Psoma, 2001; Christensen, 2005; Dhar and Mandal, 2014; Swinkels and Rzezniczak, 2009) have shown that when properly employed these two managerial skills can significantly lead to the overall persistence in performance of money managers. The results found in this study are not different; they show that the ability to time the market cannot alone lead to the overall persistence in performance of South African unit trust managers. Given tight financial regulations; one would expect market timing ability to have a negative effect on long-term investors as they will be subjected to higher fees due to transaction costs involved in short-term trading activities. The lack of stock selection ability in South African unit trust industry considerably suggests that most managers employ the buy-and-hold strategy to limits frequent trading activities and avoid stock-picking.

Moreover, poor persistence in performance found in South African unit trust industry might be a result of slowing economic growth in major emerging markets including China, Mexico, Russia, Indonesia and Brazil amid broader concerns about the health of the global economy. Unlike in South Africa, Murhadi (2010) and Dhar and Mandal (2014) find that unit

Equity category		Bayesian α ρ	Bayesian α p-value	Sharpe ratio ρ	Sharpe ratio p-value	Sortino ratio 1 ρ	Sortino ratio 1 p-value	Sortino ratio 2 ρ	Sortino ratio 2 p-value
Equity General									
Selection sample	Holding sample								
February 2006-September 2007	October 2007-May 2009	0.177	0.154	0.135	0.280	−0.018	0.885	0.126	0.311
October 2007-May 2009	June 2009-January 2011	0.076	0.506	0.088	0.442	0.168	0.141	0.100	0.382
June 2009-January 2011	February 2011-September 2012	−0.097	0.372	−0.118	0.280	0.070	0.519	−0.120	0.272
February 2011-September 2012	October 2012-May 2014	0.039	0.692	0.107	0.283	*−0.174**	0.078	0.109	0.270
October 2012-May 2014	June 2014-January 2016	−0.042	0.642	−0.058	0.515	0.037	0.678	−0.061	0.498
Financial									
Selection sample	Holding sample								
February 2006-September 2007	October 2007-May 2009	0.257	0.658	0.257	0.658	−0.657	0.175	0.143	0.803
October 2007-May 2009	June 2009-January 2011	0.771	0.103	*0.829**	0.058	*−0.886***	0.033	0.771	0.103
June 2009-January 2011	February 2011-September 2012	−0.086	0.919	−0.257	0.658	−0.029	1.000	−0.257	0.658
February 2011-September 2012	October 2012-May 2014	−0.314	0.564	−0.543	0.297	0.429	0.419	−0.543	0.297
October 2012-May 2014	June 2014-January 2016	0.771	0.103	0.771	0.103	0.600	0.242	*0.886***	0.033
Industrial									
Selection sample	Holding sample								
February 2006-September 2007	October 2007-May 2009	0.100	0.950	0.700	0.233	−0.500	0.450	0.700	0.233
October 2007-May 2009	June 2009-January 2011	0.700	0.233	0.700	0.233	−0.100	0.950	0.700	0.233
June 2009-January 2011	February 2011-September 2012	−0.700	0.233	−0.600	0.350	−0.100	0.950	−0.600	0.350
February 2011-September 2012	October 2012-May 2014	−0.300	0.683	0.100	0.950	0.100	0.950	0.100	0.950
October 2012-May 2014	June 2014-January 2016	0.800	0.133	0.700	0.233	*0.900**	0.083	0.600	0.350
Resource									
Selection sample	Holding sample								
February 2006-September 2007	October 2007-May 2009	0.107	0.840	−0.357	0.444	−0.393	0.396	−0.357	0.444
October 2007-May 2009	June 2009-January 2011	*0.750**	0.066	0.607	0.167	−0.321	0.498	*0.786***	0.048
June 2009-January 2011	February 2011-September 2012	0.214	0.662	−0.393	0.396	*−0.857***	0.024	−0.393	0.396
February 2011-September 2012	October 2012-May 2014	0.500	0.216	0.024	0.977	0.143	0.752	0.024	0.977
October 2012-May 2014	June 2014-January 2016	−0.619	0.115	−0.024	0.977	−0.095	0.840	−0.071	0.882

(*continued*)

Table VII.
Spearman rank correlation test

Table VII.

Equity category		Bayesian α		Sharpe ratio		Sortino ratio 1		Sortino ratio 2	
		ρ	p-value	ρ	p-value	ρ	p-value	ρ	p-value
Large Cap									
Selection sample	Holding sample								
February 2006-September 2007	October 2007-May 2009	0.486	0.356	0.486	0.356	−0.029	1.000	−0.257	0.658
October 2007-May 2009	June 2009-January 2011	0.371	0.497	0.371	0.497	0.029	1.000	0.429	0.419
June 2009-January 2011	February 2011-September 2012	0.214	0.662	0.214	0.662	0.000	1.000	0.643	0.139
February 2011-September 2012	October 2012-May 2014	0.452	0.268	0.452	0.268	−0.095	0.840	0.214	0.619
October 2012-May 2014	June 2014-January 2016	0.430	0.218	0.430	0.218	0.321	0.368	*0.673***	0.039
Mid and Small Cap									
Selection sample	Holding sample								
February 2006-September 2007	October 2007-May 2009	−0.029	1.000	0.029	1.000	0.143	0.803	0.029	1.000
October 2007-May 2009	June 2009-January 2011	−0.029	1.000	−0.771	0.103	−0.086	0.919	−0.714	0.136
June 2009-January 2011	February 2011-September 2012	−0.257	0.658	−0.714	0.136	−0.143	0.803	−0.771	0.103
February 2011-September 2012	October 2012-May 2014	−0.600	0.242	0.429	0.419	−0.771	0.103	0.657	0.175
October 2012-May 2014	June 2014-January 2016	0.314	0.564	0.314	0.564	0.371	0.497	0.543	0.297

Notes: This table displays the spearman correlation coefficients and the p-values of the correlation test. *,**Significant at the 10 and 5 per cent levels, respectively

trust managers in similar emerging markets such as Mexico, India and Indonesia performed relatively well during the same period compared to South Africa, thanks to strong demand from USA, and to accommodative regulations aimed at attracting foreign investors.

Therefore recent falling prices of oil and commodities, political uncertainty in South Africa, and the prospect of weaker interest rates in the USA and Europe observed during the period under investigation might be able to explain poor persistence in performance of most South African unit trust managers.

Overall, the results point to strong signs of performance reversal for the full sample period, particularly with the Sharpe ratio and the Sortino ratios. Therefore, it seems that the degree and existence of persistence is not only time varying but mostly depend on the performance metrics used and to a lesser extent on the methodology employed.

Past information may have some value for investors, but superior investment strategy across fund categories might not be necessarily improved based on top performers from the selection period.

Notes

1. The term unit trusts will be used interchangeably with "fund" and "mutual fund".
2. Besides the Equity General, the unit trusts industry includes five more categories, namely, Equity Large Cap, Equity Mid and Small Cap, Equity Resource, Equity Financial and Equity Industrial.
3. This performance measure is estimated using the Bayesian regression of the equation.
4. The *MAR* is the minimum return that an investor can accept. Any return that is below the *MAR* exposes an investor to risks. The *MAR* used in this paper is 0 (Sortino 1) and the risk free rate of return (Sortino 2); $DD = \sqrt{\frac{1}{T}\sum_{t=0}^{T}(r_i - r_{MAR})^2}$
5. Recently, Fama and French (2010) emphasise that cross-sectional approach of testing performance persistence might be misleading if the costs are not taken into account. Particularly, using alpha measure to obtain cross-sectional distribution of managerial skill for the aggregate US equity mutual funds, they find no evidence that managers have enough skill to cover costs. When they add cost, their bootstrapping procedure indicates evidence of inferior and superior performance in the extreme tails. While the most obvious limitation of the bootstrapping method relates to the size of the original sample since it relies on random sampling, this approach is, however, not compatible with the present study as the sample sizes are relatively small across all unit trust categories. Moreover, the use of non-parametric approach is believed to alleviate the potential correction issues (Fama and French, 2010) encountered in parametric estimation using cross-sectional alphas.

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