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Performance evaluation of actively managed mutual funds

Abstract

Motivated by the growing attraction of the mutual fund industry worldwide, this research seeks to explore the economic benefits contributed by the South African equity unit trust managers over the period from 6 January 2002 to 2 September 2012. The performance statistics of selected equity unit trusts are examined for the overall examination period and two sub-periods: 6 January 2002 to 6 May 2007 and 7 May 2007 to 2 September 2012. The first sub-period captures the bullish performance of the unit trusts before the 2008 global financial crisis. The second sub-period captures the global financial crisis and the European debt crisis before the European Central Bank (ECB) subsequently implemented the outright monetary transactions (OMT) to curb the yields in Eurozone. The risk-adjusted performance measures employed by this study include the Sharpe ratio, M-squared, Treynor measure and Jensen's alpha. Regardless of the different applications of risk-return parameters employed to evaluate fund performance, the results reveal that, on average, most of the equity unit trust managers in South Africa do not outperform the market proxy on a consistent basis. The majority of the unit trust managers show good performance before the crisis, with subsequent inferiority in performance in turbulent times.

Keywords: unit trusts, active portfolio management, passive portfolio management, performance evaluation, efficient market hypothesis (EMH).
JEL Classification: G11, G12, G14, G15.

Introduction

The rationale of systematically pooling capital together into one investment vehicle, collected from a group of individual investors who share common investment objectives is known as mutual fund or unit trust investing. The existence of this collective investment scheme is based on the philosophy underlying the potential benefits of the portfolio diversification process formally introduced by Markowitz (1952). According to this framework, investors can efficiently minimize their total portfolio risk by investing in a pool of major asset classes such as equity, fixed-income securities, cash equivalents and real assets. By choosing to invest in mutual funds, investors gain instant access to a more diversified pool of assets, which they would not otherwise have if they had invested in their individual capacities. Another benefit of mutual funds stems from the professional management of capital, claimed to be superiorly offered by managers to individual investors. This is based on the rationale that mutual fund managers possess skills and resources that aid them in identifying good investment opportunities.

Motivated by the growing attraction of the South African unit trust industry¸ this research seeks to explore the performance of the South African equity unit trust managers relative to the performance of the broad equity market index, FTSE/JSE All Share index (ALSI) over the period from 6 January 2002 to 2 September 2012. The sample is, then, examined over two equal sub-periods, namely: 6 January 2002 to 6 May 2007 and 7 May 2007 to 2 September 2012 to compare and contrast the performance of fund managers in the bullish first sub-period versus their performance in the bearish second sub-period. The South African equity market, known as the Johannesburg Stock Exchange (JSE), was under major restructuring prior to 2002 to provide solutions to the prolonged liquidity problem in the market. Since the adoption of the London Stock Exchange (LSE) SETS trading system in 2002 (agreement signed in 2001), the liquidity of the market was boosted drastically by the much improved trading efficiency, which contributed to a strong bull market until the effect of the subprime crisis around mid-2007. The equity market became turbulent and crashed with other major stock markets during the global financial crisis in the second half of 2008. Although the market rebounded from its trough in March 2009, it remained volatile due to the growing threat of the European debt crisis until the European Central Bank (ECB) announced its strong support of sovereign bailout by implementing the Outright Monetary Transaction (OMT) to lower the yields in the Eurozone on 6 September 2012. The outcome of this research contributes to the long standing debate of active versus passive portfolio management in the South African unit trust industry.

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1. Literature review

Gilbertson and Vermaak (1982) are one of the early contributors to the empirical literature underlying the performance of South African unit trust managers. In this study, the performance statistics of 11 South African unit trusts are examined over the period from 1974 to 1981. It is found that although the fund returns are generally below the returns of the broad market proxy and the sector benchmarks, the selected funds generally outperform the benchmarks on a risk-adjusted basis. In addition, some of the funds have demonstrated significant outperformance on a consistent basis. The authors conclude that study results provide evidence against the efficient market hypothesis (EMH) on the JSE over the examination period. Updating the study of Gilbertson and Vermaak (1982), Knight and Firer (1989) examine the performance of 10 South African unit trusts over the period from 1977 to 1986 based on the same performance evaluation measures. The results of the study reveal that 5 of the 10 funds under examination produce statistically significant abnormal returns.

In an attempt to evaluate the economic contribution of South African fund managers through their acclaimed skills, Oldfield and Page (1997) investigate whether South African equity unit trust managers are able to earn abnormal returns consistently through their asset selection and market timing activities. Oldfield and Page (1997) assert that unit trusts would indeed be attractive investment vehicles if fund managers are proven to add value through their skills in addition to pure asset allocation for diversification purposes. The study examines the performance of a sample consisting of 8 general equity funds and 9 specialist funds over the period from 1987 to 1994. The results indicate that South African managers do not add significant value through their asset selection and market timing activities. Similarly, Bradfield (1998) evaluates the contributions of the managers' asset selection ability and market timing ability for 13 South African unit trusts over the period from 1985 to 1995. The results reveal that none of the unit trust managers under examination exhibit significant asset selection ability. With regard to the managers' market timing ability, while 6 funds in the sample significantly destroy value through their market timing activities, only 1 fund in the sample exhibits significantly positive market timing ability. Thus, it can be concluded that South African unit trust managers do not add any significant value through their ability to select superior assets or their ability to time the market movements.

Brink (2004) examines the performance of South African equity unit trusts over the period from 1984 to 2003. In order to evaluate the consistency of fund performance throughout the examination period, studies are conducted over four 5-year periods, two 10-year periods and the 20-year overall examination period. The results indicate that South African unit trusts do not deliver significant superior performance compared to the market proxy over various examination periods. On the other hand, Oldham and Kroeger (2005) evaluate the performance of 20 South African unit trusts over the period from 1998 to 2002. Similar to the results obtained by Brink (2004), Oldham and Kroeger (2005) find that South African fund managers, in general, are unable to deliver consistent superior performance for any length of sub-periods in the examination period.

Wessels and Krige (2005) investigate the performance persistence of South African equity unit trusts over the period from 1988 to 2003. More specifically, the authors attempt to determine whether the performance of winning funds in the prior periods persist in the upcoming periods; and whether funds that previously underperform remain underperformers in the following periods. The existence of performance persistence in the South African unit trust industry is discovered over the short-term on a month-to-month and quarter-to-quarter basis. However, such tendency is not found on a year-to-year basis or over longer periods.

If performance persistence exists in the unit trust industry, the impact of survivorship bias in unit trust studies would be significant, as funds that underperform over time would most likely to be delisted eventually. With this argument in mind, Pawley (2006) examines the impact of survivorship bias on the performance of South African unit trusts over different sub-periods with varying intervals from 1972 to 2004. It is found that the impact of survivorship bias is directly proportional to the length of the time period under examination. This result implies that poor historical fund performance tends to persist in the South African unit trust industry. To conclude, Pawley (2006) suggests that the survivorship bias is likely to significantly overstate the average performance in unit trust studies in South Africa.

Meyer-Pretorius and Wolmarans (2006) evaluate the performance of South African unit trusts, inclusive and exclusive of transaction costs over the period from 1988 to 2005. The authors find that the funds, on average, deliver better annual returns (19.46%) relative to the market proxy (17.97%). However, the funds, on average, only deliver annual returns of 12.37% over the examination period when transaction costs are taken into account.

Nana (2012) investigates whether average active unit trust managers are able to deliver superior risk-

adjusted returns on a consistent basis. A sample of 151 South African domestic equity unit trusts are examined over the period from 2001 to 2010. Study results do not provide convincing evidence to support the superiority of South African equity unit trust managers. The author also finds the performance evaluation results to be sensitive to the methodology and the types of performance measures employed in the study, as well as the timing and the length of the evaluation periods. Contrary to the evidence of performance persistence discovered by Wessels and Krige (2005) and Pawley (2006), the study conducted by Nana (2012) does not provide conclusive evidence on the performance persistence in the South African unit trust industry.

Hsieh, Hodnett and van Rensburg (2012) investigate whether 6 South African-domiciled global equity funds are able to outperform the hypothetical benchmarks of their respective investment styles based on their asset selection ability over the period from 1996 to 2008. Study results reveal that the stock-picking activities of the fund managers are proven to destroy rather than create value for their clients. In addition, only 2 out of 6 funds succeeded in delivering superior risk-adjusted performance over the examination period. Based on the study results, it is recommended that investors are better off investing in passive investment vehicles. The authors, nevertheless, find that the majority of the fund managers are able to minimize fund risks during turbulent times.

Mibiola (2013) evaluates the performance of 64 South African general equity unit trusts over a 20-year period from 1992 to 2011. The examination period is further divided into 7 sub-periods of different lengths and intervals. The study does not find significant outperformance by the South African unit trusts for any of the examination periods.

2. Data and methodology

The weekly total returns of the South African equity unit trusts, ALSI and the South African 3-month Treasury bill (risk-free proxy) are extracted from the I-Net Bridge database over the period from 6 January 2002 to 2 September 2012. The studies are conducted over the entire examination period and two equal sub-periods, namely, 6 January 2002 to 6 May 2007 and 7 May 2007 to 2 September 2012. The unit trust sample selection process is based on the following criteria:

- The fund must exhibit a consistent investment objective throughout the examination period.
- From the period of inception, the fund has to be in existence or operational throughout the examination period. This is done to keep track of the funds that might have ceased operation or funds that might have merged with other funds during this period. This selection criterion inevitably introduces a survivorship bias in the study with an upward bias in the evaluation of fund performance.
- Funds with insufficient information or missing data at any given time in the examination period are excluded from the sample.
- Only unit trusts that are classified as equity by the I-Net Bridge database are included in the sample. Additionally, all the funds are required to primarily invest a substantial proportion of their total assets in the South African financial markets.
- In order to avoid double counting of the funds in the dataset, funds of funds are excluded from the sample. To ensure the integrity of the fund information, the fund profiles together with their investment objectives are extracted and compared with from both the Moneyweb and the Morningstar database.

Based on the above sample selection criteria, the resulting sample of the research is comprised of 20 South African equity unit trusts over the examination period. The 20 actively-managed domestic equity funds (with their corresponding I-Net Bridge code) for this study include Allan Gray Equity Fund (AGEF), SIS Equity Fund (BAAF), Community Growth Equity Fund (CGMG), Coronation Equity Fund (CORG), Analytics Managed Equity Fund (FEWS), FNB Growth Fund (FNBG), Coris Capital General Equity Fund (GIGE), Investec Equity Fund-A (INAQ), Stanlib Equity Fund-B1 (LIWC), MET General Equity Fund (MTLE), Oasis Crescent Equity Fund (OCEF), Prudential Equity Fund (PRUO), PSG Equity Fund A (PSGG), Gryphon All Share Tracker Fund (PTST), Momentum Industrial Fund (RMCF), Momentum Equity Fund (RMEF), SIM Resources Fund (SNFT), SIM General Equity Fund-R (SNTR), Old Mutual Albaraka Equity Fund (STPF) and IP Equity Fund (TREF).

The performance statistics of the selected funds are evaluated relative to other funds in the sample, as well as the broad market index represented by ALSI. The basic risk-return statistics of the funds and the market proxy are evaluated by computing their weekly arithmetic returns, cumulative returns, standard deviations and beta coefficients. The returns are calculated gross of fees and inclusive of dividends distributed to the investors. The arithmetic return of fund K over T weeks is computed in Equation 1:

$$R_K = \frac{\sum_{t=1}^{T} r_{K,t}}{T} \quad (1)$$

where:

R_K is the weekly arithmetic return of fund K;

$r_{K,t}$ is the return of fund K in week t; and

T is the number of weeks in the evaluation period.

Once the weekly arithmetic returns of the funds are computed, the cumulative return for fund K over T weeks can be computed using Equation 2:

$$CR_K = \prod_{t=1}^{T}\left(1 + r_{K,t}\right) \quad (2)$$

The fund's arithmetic returns are subsequently annualized using Equation 3:

$$R_{K(p.a.)} = (1 + R_K)^{52}\text{-}1 \quad (3)$$

To examine the total risk associated with the funds, the weekly standard deviation for fund K is calculated and annualized using Equation 4:

$$\sigma_{K(p.a.)} = \sqrt{\frac{\sum_{t=1}^{T}(r_{K,t}-R_K)^2}{T-1}} \times \sqrt{52} \quad (4)$$

"In the recognition that investment management is an on-going process, the performance of actively-managed portfolios need to be monitored and evaluated to ensure that funds under management are efficiently invested in order to satisfy the mandate specified in the policy statement" (Hsieh, 2013, p.815). The risk-adjusted performance measures employed by this study include the Sharpe ratio, M-squared, Treynor measure and Jensen's alpha.

The Sharpe ratio (1966) is the most widely used risk-adjusted performance measure to evaluate mutual fund performance. The Sharpe ratio is calculated as the fund's annualized excess return (above the risk-free rate, R_f) per unit of annualized standard deviation as shown in Equation 5:

$$SR_{K(p.a.)} = \frac{R_{K(p.a.)}-R_{f(p.a.)}}{\sigma_{K(p.a.)}} \quad (5)$$

Treynor measure (1965), on the other hand, standardizes the fund's excess returns per unit of systematic risk measured by the beta coefficient, β as depicted in Equation 6:

$$TM_{K(p.a.)} = \frac{R_{K(p.a.)}-R_{f(p.a.)}}{\beta_{K,M}} \quad (6)$$

The systematic risk measure, beta coefficient, for fund K is estimated through the regression of the capital asset pricing model (CAPM) expressed in Equation 7:

$$r_{K,t} - r_{f,t} = \alpha_K + \beta_{K,M} \times \left(r_{M,t} - r_{f,t}\right) + \varepsilon_{K,t} \quad (7)$$

The regression intercept in Equation 7 is termed Jensen's alpha (1968) that measures the abnormal return of the fund as depicted in Equation 8:

$$\alpha_{K(p.a.)} = (R_{K(p.a.)} - R_{f(p.a.)}) - \beta_{K,M} \times (R_{M(p.a.)} - R_{f(p.a.)}) \quad (8)$$

Derived from the framework of the Sharpe ratio, the M-squared (M^2), introduced by Graham and Harvey (1977), measures the Sharpe ratio derived from the fund in excess of the Sharpe ratio of the market proxy, adjusted by the total risk of the market proxy as shown in Equation 9 (Hsieh, 2013):

$$M^2_{K(p.a.)} = \sigma_{M(p.a.)} \times (SR_{K(p.a.)} - SR_{M(p.a.)}) \quad (9)$$

Hsieh (2013) argues that the growing number of performance measures may cause confusion in the evaluation process as inconsistent results could be derived from different performance measures. Eling (2008) investigates the consistency of performance rankings of mutual funds obtained from different performance measures. The study results indicate that the choice of performance measures does not lead to inconsistent performance rankings. On the contrary, Razafitombo (2010) examines the ranking consistency amongst various performance measures and recommends that a multi-criteria approach should be adopted when evaluating mutual fund performance as different performance measures often lead to different results. Taking this argument into account, the consistency of the fund performance obtained from the evaluation of different performance measures employed by this study will be analyzed.

3. Empirical findings

The annualized performance statistics of the selected South African domestic equity funds over the two sub-periods and the overall examination period are presented in Table 1, Table 2 and Table 3, respectively. In order to demonstrate the performance of the selected funds relative to that of the ALSI, funds with superior risk-adjusted performance to the ALSI are shaded in grey. In addition, Jensen's alphas that are statistically significant at a 5% level are highlighted in bold. The cross-examination of the performance statistics between sub-period 1 and sub-period 2 reveals that funds perform much better in the first sub-period compared to the second sub-period as sub-period 2 covers the negative impact of the 2008 global financial crisis. An interesting observation is that despite the fact that the standard deviation for the ALSI has increased from 17.11% in sub-period 1 to 22.80% in sub-period 2, the standard deviations for most of the funds are higher in the first sub-period compared to the second sub-period. This concurs with the finding of Hsieh, Hodnett and van Rensburg (2012) that active fund managers are good at managing risk during turbulent times.

Table 1. Fund performance (Sub-period 1: 6 Jan 2002 to 6 May 2007)

Fund code	ALSI	AGEF	BAAF	CGMG	CORG	FEWS	FNBG	GIGE	INAQ	LIWC	MTLE
Basic											
Return	26.42%	36.79%	29.15%	29.92%	33.38%	29.62%	32.03%	24.80%	35.57%	27.01%	26.28%
Cum. return	3.253	5.077	3.682	3.839	4.441	3.802	4.245	3.069	4.837	3.279	3.917
Std. deviation	17.11%	15.76%	17.41%	17.72%	17.73%	16.52%	16.15%	17.27%	17.00%	17.10%	18.58%
Beta coefficient	1.000	0.710	0.855	0.730	0.701	0.780	0.611	0.840	0.780	0.772	0.820
Risk-Adj.											
Sharpe ratio	0.964	1.705	1.105	1.129	1.323	1.192	1.369	0.862	1.509	0.999	0.881
M-squared	0.00%	12.67%	2.40%	2.81%	6.14%	3.90%	6.92%	-1.76%	9.32%	0.60%	-1.43%
Treynor measure	0.165	0.378	0.225	0.274	0.335	0.253	0.362	0.177	0.329	0.222	0.200
Jansen's α	0.00%	**15.16%**	**5.12%**	**7.96%**	**11.91%**	**6.83%**	**12.05%**	**1.02%**	12.78%	4.39%	2.83%
[p-value of α]	--------	**[0.001]**	**[0.149]**	**[0.066]**	**[0.065]**	**[0.027]**	**[0.004]**	**[0.738]**	[0.858]	[0.180]	[0.403]
Fund code	ALSI	OCEF	PRUO	PSGG	PTST	RMCF	RMEF	SNFT	SNTR	STPF	TREF
Basic											
Return	26.42%	29.77%	32.51%	34.77%	24.20%	32.77%	34.58%	16.22%	38.55%	34.44%	28.98%
Cum. return	3.253	3.917	4.229	4.713	2.961	4.421	4.690	2.067	5.040	4.660	3.687
Std. deviation	17.11%	12.91%	15.69%	16.55%	20.23%	13.35%	16.76%	21.26%	17.05%	14.98%	16.91%
Beta coefficient	1.000	0.538	0.694	0.659	0.931	0.444	0.628	0.829	0.755	0.642	0.541
Risk-Adj.											
Sharpe ratio	0.964	1.538	1.440	1.502	0.706	1.712	1.471	0.296	1.679	1.637	1.127
M-Squared	0.00%	9.81%	8.13%	9.19%	-4.42%	12.79%	8.67%	-11.43%	12.23%	11.51%	2.79%
Treynor measure	0.165	0.369	0.326	0.377	0.153	0.515	0.393	0.076	0.379	0.382	0.352
Jansen's α	0.00%	**10.97%**	**11.14%**	**13.98%**	-1.08%	**15.52%**	**14.30%**	-7.38%	**16.17%**	**13.93%**	10.13%
[p-value of α]		**[0.001]**	**[0.005]**	**[0.001]**	[0.761]	**[0.001]**	**[0.001]**	[0.172]	**[0.000]**	**[0.001]**	[0.106]

During the bullish sub-period 1, only 4 out of 20 domestic equity funds (GIGE, MTLE, PTST and SNFT) deliver lower returns compared to the ALSI. With similar standard deviations to the ALSI and lower than average beta coefficients, most of the funds achieve better risk-adjusted performance compared to the ALSI in the first sub-period. It is also noted that although most of the funds exhibit positive Jensen's alpha in sub-period 1, only 10 of the 20 funds have their alphas statistically significant at a 5% level.

The comparative analysis on the fund performance in sub-period 2 relative to the ALSI reveals that most of the funds earn lower returns than the ALSI with the exception of 6 funds, AGEF, CORG, INAQ, PRUO, RMCF and SNTR. With substantially lower standard deviations and beta coefficients compared to the ALSI, the 6 funds that earn higher returns than the ALSI also outperform the ALSI in terms of their risk-adjusted performance in sub-period 2. However, the majority of the funds underperform the ALSI on a risk-adjusted basis in sub-period 2 even when the values of their risk parameters are much lower relative to the ALSI. Since the risk-adjusted performance measures employed by this study are related to excess returns in one way or another, the negative performance statistics for most of the funds indicate that the majority of the funds earn returns that are less than the risk-free rate in turbulent times. In addition, only INAQ manages to earn statistically significant positive alpha at a 5% level in sub-period 2. By contrast, TREF exhibits statistically significantly negative alpha and the rest of the funds earn negative or insignificantly positive abnormal returns in sub-period 2.

Table 2. Fund performance (Sub-period 2: 7 May 2007 to 2 Sep 2012)

Fund Code	ALSI	AGEF	BAAF	CGMG	CORG	FEWS	FNBG	GIGE	INAQ	LIWC	MTLE
Basic											
Return	9.76%	10.93%	6.07%	6.77%	13.35%	8.48%	8.47%	4.18%	10.08%	8.93%	8.06%
Cum. return	1.435	1.616	1.250	1.276	1.759	1.415	1.407	1.137	1.518	1.431	1.344
Std. deviation	22.80%	14.52%	16.06%	14.90%	14.90%	14.54%	13.02%	15.86%	14.54%	14.60%	15.52%
Beta coefficient	1.000	0.631	0.762	0.827	0.790	0.740	0.735	0.736	0.778	0.770	0.856
Risk-Adj.											
Sharpe ratio	0.053	0.163	-0.155	-0.120	0.321	-0.006	-0.007	-0.276	0.105	0.025	-0.032
M-Squared	0.00%	2.52%	-4.73%	-3.94%	6.13%	-1.33%	-1.36%	-7.50%	1.18%	-0.62%	-1.93%
Treynor measure	0.012	0.038	-0.033	-0.022	0.061	-0.001	-0.001	-0.060	0.020	0.005	-0.006
Jansen's α	0.00%	1.61%	-3.40%	-2.78%	3.84%	-0.97	-0.97	-5.26%	0.59%	-0.55%	-1.53%

Table 2 (cont.). Fund performance (Sub-period 2: 7 May 2007 to 2 Sep 2012)

[p-value of α]	--------	[0.698]	[0.275]	[0.393]	[0.356]	[0.772]	[0.805]	[0.330]	**[0.004]**	[0.884]	[0.696]
Fund code	ALSI	OCEF	PRUO	PSGG	PTST	RMCF	RMEF	SNFT	SNTR	STPF	TREF

Basic											
Return	9.76%	4.91%	11.20%	6.95%	9.41%	12.36%	9.13%	4.15%	12.30%	4.14%	0.33%
Cum. return	1.435	1.223	1.631	1.303	1.407	1.756	1.442	1.060	1.697	1.159	0.930
Std. deviation	22.80%	11.10%	13.95%	13.77%	17.02%	11.39%	13.44%	17.44%	15.20%	13.54%	3.54%
Beta coefficient	1.000	0.559	0.697	0.720	0.969	0.477	0.774	0.956	0.737	0.633	0.522
Risk-Adj.											
Sharpe ratio	0.053	-0.329	0.189	-0.117	0.050	0.334	0.042	-0.253	0.246	-0.326	-2.325
M-squared	0.00%	-8.70%	3.11%	-3.87%	-0.06%	6.41%	-0.23%	-6.97%	4.41%	-8.64%	-54.21%
Treynor measure	0.012	-0.065	0.038	-0.022	0.009	0.080	0.007	-0.046	0.051	-0.070	-0.158
Jansen's α	0.00%	-4.32%	1.80%	-2.47%	-0.31%	3.23%	-0.36%	-5.56%	2.86%	-5.18%	**-8.86%**
[p-value of α]	--------	[0.163]	[0.567]	[0.569]	[0.920]	[0.517]	[0.926]	[0.284]	[0.463]	[0.123]	**[0.007]**

Evaluating the overall fund performance of the entire examination period displayed in Table 3 indicates that only 4 of the 20 funds, GIGE, PTST, SNFT and TREF underperform the ALSI on a risk-adjusted basis. The observation of the 4 underperforming funds reveals that all these funds underperform the ALSI in the bearish second sub-period. On the other hand, out of 16 funds that outperform the ALSI, 6 funds, AGEF, CORG, INAQ, PRUO, RMCF and SNTR demonstrate statistically significant abnormal returns over a decade-long examination period. The consistent outperformance of these 6 funds could be attributed to their superior performance to the ALSI in both sub-period 1 and sub-period 2. In addition, 4 of these 6 funds, AGEF, PRUO, RMCF and SNTR deliver significant abnormal returns in the bullish first sub-period; and 1 of them, INAQ delivers significant abnormal returns in the bearish second sub-period.

Table 3. Fund performance (Overall period: 6 Jan 2002 to 2 Sep 2012)

Fund code	ALSI	AGEF	BAAF	CGMG	CORG	FEWS	FNBG	GIGE	INAQ	LIWC	MTLE
Basic											
Return	17.82%	23.22%	17.07%	17.81%	22.98%	18.61%	19.70%	14.05%	22.20%	17.65%	16.84%
Cum. Return	4.667	8.205	4.604	4.899	7.810	5.378	5.971	3.489	7.343	4.876	4.406
Std. Deviation	20.16%	16.81%	18.60%	20.09%	20.09%	18.24%	18.70%	18.52%	19.06%	21.18%	14.36%
Beta coefficient	1.000	0.659	0.797	0.792	0.760	0.754	0.690	0.775	0.766	0.770	0.842
Risk-Adj.											
Sharpe ratio	0.427	0.833	0.422	0.428	0.685	0.515	0.561	0.261	0.681	0.398	0.531
M-Squared	0.00%	8.19%	-0.09%	0.02%	5.21%	1.78%	2.70%	-3.34%	5.13%	-0.58%	2.10%
Treynor measure	0.086	0.212	0.098	0.108	0.181	0.125	0.152	0.062	0.169	0.109	0.090
Jansen's α	0.00%	**8.33%**	1.00%	1.78%	**7.22%**	2.91%	4.55%	-1.84%	**6.39%**	1.81%	0.38%
[p-value of α]	--------	**[0.006]**	[0.659]	[0.503]	**[0.015]**	[0.201]	[0.118]	[0.494]	**[0.013]**	[0.470]	[0.875]
Fund code	ALSI	OCEF	PRUO	PSGG	PTST	RMCF	RMEF	SNFT	SNTR	STPF	TREF
Basic											
Return	17.82%	16.72%	21.42%	20.09%	16.59%	22.16%	21.22%	10.04%	24.78%	18.37%	13.80%
Cum. Return	4.667	4.790	7.013	6.140	4.166	7.762	6.764	2.190	9.177	5.400	3.428
Std. Deviation	20.16%	14.36%	17.21%	18.83%	23.01%	15.00%	19.45%	24.52%	18.64%	16.12%	18.43%
Beta coefficient	1.000	0.553	0.697	0.700	0.955	0.467	0.723	0.910	0.745	0.639	0.567
Risk-Adj.											
Sharpe ratio	0.427	0.522	0.709	0.577	0.320	0.863	0.617	0.033	0.835	0.568	0.249
M-Squared	0.00%	1.93%	5.69%	3.04%	-2.14%	8.79%	3.84%	-7.93%	8.23%	2.84%	-3.59%
Treynor measure	0.086	0.136	0.175	0.155	0.077	0.277	0.166	0.009	0.209	0.143	0.081
Jansen's α	0.00%	2.74%	**6.21%**	4.85%	-0.84%	**8.92%**	5.78%	-7.01%	**9.15%**	3.65%	-0.30%
[p-value of α]	--------	[0.219]	**[0.013]**	[0.115]	[0.713]	**[0.010]**	[0.051]	[0.061]	**[0.02]**	[0.172]	[0.494]

Conclusion

This research evaluates the performance of 20 South African domestic equity unit trusts over a decade-long examination period from 6 January 2002 through 2 September 2012. The overall examination period is further broken down into two sub-periods with sub-period 1 (6 January 2002 to 6 May 2007) being more bullish compared to sub-period 2 (7 May 2007 to 2 September 2012) that covers the devastation of fund performance during and after the 2008 global financial crisis.

In summary, study results indicate that the majority of the funds show good performance before the 2008 global financial crisis, with subsequent inferiority in performance during and after the crisis. Although 16 out of 20 funds outperform the ALSI in the overall examination period, only 6 of these funds manage to obtain statistically significant Jen-

sen's alpha. This implies that most of the funds do not outperform the market proxy on a consistent basis. Study results also suggest that managers who are able to deliver superior performance in poor market conditions have a better chance of delivering consistent performance over time. This is evident in that all 4 funds that outperform the market proxy in the bearish second sub-period exhibit significantly positive abnormal returns in the overall examination period. By contrast, the 4 funds that underperform the market in the overall examination period all deliver inferior performance in the bearish second sub-period.

In line with the finding of Hsieh, Hodnett and van Rensburg (2012) that active managers are able to minimize fund risks during turbulent times, it is observed that the standard deviations and beta coefficients of the selected funds are substantially lower than the market proxy during the turbulent second sub-period. However, the fact that only 6 out of 20 funds deliver superior performance compared to the market proxy during this period suggests that South African equity managers might have been over-conservative in bearish markets, leading to inferior performance during poor market conditions. Overall, study results support the argument of Eling (2008) that the choice of performance measures does not result in inconsistent performance rankings as different performance measures employed by this study lead to more or less consistent results regarding fund performance relative to the market proxy across different examination periods.

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