THE PERSISTENCE OF RISK LEVELS OF GENERAL EQUITY FUNDS IN AN EMERGING MARKET ECONOMY

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Abstract

The persistence of risk levels of local General Equity unit trusts is evaluated. Variations in absolute and market-adjusted returns are measured to determine whether investors can use historical risk as a proxy for future risk levels. The General Equity funds are fairly homogenous, and different funds should exhibit stable risk levels if the fund managers' investment mandates and investment styles remain stable over time. The results indicate a degree of absolute and market-adjusted risk stability over time. The market-adjusted risk and return relationship remained stable through the 2008 global crises, indicating that, on average, the fund managers maintained their benchmark-related risk exposures. Both the absolute and market-adjusted results indicate no statistically significant relationship between risk and return for the 2000 to 2012 period.

Keywords: Risk Levels, General Equity Funds, Emerging market Economy

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1. Introduction

Individual investors who do not possess the expertise or time to analyse and choose stocks themselves often consider equity unit trusts. These unit trusts are managed by investment professionals and provide exposure to market risk and the associated return. The unitised investment space offers investors a wide variety funds; from straightforward replication of indices and low cost exchange traded funds, through to actively managed funds with higher costs and larger tracking error. One such fund classification is General Equity unit trusts, representing a group of fairly homogenous funds with the market index as a typical benchmark (Oldert, 2011).

Each unit trust available to investors has unique characteristics. These unique traits range from investment styles and investment house characteristics, to performance track record, risk profile, costs and total assets under management. Although some of the aforementioned qualities can be measured, explained, controlled and often predicted, the unit trusts are exposed to systematic market risks that are not diversifiable or under the control of the underlying fund manager. These risks can be influenced by a variety of risks; from country specific risks through to international economic risks and natural disasters.

Investors have historically not displayed the ability to make investments in products that subsequently delivered superior performance, both internationally (Zheng, 1999) or in South Africa (Oosthuizen and Smit, 2002). Scher and Muller (2005) did provide evidence that investors will move funds to from one unit trust to another if that unit trust maintained superior performance over time. Sustained performance persistence is unfortunately not predictable, as past performance may only show short term predictive abilities (Gopi, Bradfield and Maritz, 2004, Wessels and Krige, 2005).

When an investor considers a performance track record, the historical performance might be a better indicator of the unit trust's risk characteristics than the fund manager's stock or industry selection abilities (Goetzmann and Ibbotson, 1994). This paper aims to quantify the absolute and market-adjusted risk dynamics of General Equity unit trusts, especially the relation of risk to performance persistence and relative risk levels of similarly classified funds.

2. Theoretical Framework

Fund managers introduce absolute- and active risk into their portfolios when they select a combination of individual risky assets. Any risky asset in the portfolio will have a level of absolute risk, while active decisions to deviate away from a benchmark weight for any asset will add to the portfolio's tracking error or benchmark-adjusted risk. The choice of these assets is influenced by the risk appetite and ability of the portfolio managers (Golec, 2001), and the assets are brought into the portfolio because the fund manager believes the introduction of the assets into the portfolio will help the fund track or

outperform a benchmark over time (Raubenheimer, 2012).

Some fund managers are very cognisant of the benchmark, and will only position the individual assets with small over- or under-weights. Other managers may introduce large deviations from benchmark weights if allowed so by the fund's mandate. Sharpe (1966) was one of the first academics to predicate that these active decisions will not generate superior performance over time because of fees and expenses; while Ippolito (1989) and Grindblatt and Titman (1992) postulated that some managers do add positive risk adjusted returns after costs.

Although all managers charge a fee as compensation for their skill in selecting stocks (Muller and Ward, 2011), some of the managers charge higher fees than other managers for their supposed superior stock-selecting skill. Investors who entrust these managers with their funds will expect sustained superior performance over time as compensation for their above-average fee. Unfortunately, Massa and Patgiri (2009) found that managers are "induced" to take on risk to such an extent that the fund's probability of survival is reduced if the incentives are high enough. Fund managers should therefore be aware of the potential danger of adding too much risk to the portfolios over time to earn a higher fee.

The ability to control risk is juxtaposed with the ability to persistently convert the active risk in the portfolio into returns. Investors have been found to move their funds to managers who deliver superior investment performance over time (Scher and Muller, 2005), although the flows often only occur after good performance and not as a precursor to outperformance Zheng (1999).

Prudent investors should therefore not only analyse the returns of funds over time, but also the historical active risk and tracking error of a benchmarked fund, as indicated by Goetzmann and Ibbotson (1994).

3. Methodology

The risk dynamics of General Equity unit trusts were assessed using a quantitative research methodology and an ex-post facto design. The retrospective study provides insight into several General Equity unit trust risk dynamics relevant to individual investors. All domestic South African General Equity unit trusts that were registered with ASISA from January 2000 to June 2013 were considered in this study. The secondary data source utilised is I-Net Bridge (www.inet.co.za). Funds were included and excluded from calculations as they were added or taken off the I-Net database from 2000 to keep the study unbiased towards unit trusts with a long track record.

The primary research question asks whether the relative risk levels of the unit trusts within the General Equity group was consistent over time. Related secondary research questions were formulated to address and support the primary research question.

The standard deviation and market adjusted standard deviation were calculated on a daily basis for each of the General Equity unit trusts for three, six and 12 months respectively. The risk measures are presented in daily terms throughout. The All Share market index (ALSI) was used as benchmark as it represents the expected benchmark for an individual investor who would invest in the funds in the sample (Oldert, 2011).

The rolling three, six and 12 month median standard deviations were calculated and graphed as a visual depiction of risk stability over the sample period. The different periods were used to indicate the divergence between volatility over different periods. The market adjusted standard deviation for the 12 month rolling period was calculated, and the 5^{th}, 50^{th} and 95^{th} percentiles graphed to show the dispersion of active deviations and to compare the market adjusted risk to the absolute risk adjusted levels. The 12 month market adjusted risk was subtracted from the absolute risk levels as an indication of the active risk introduced to the funds by the portfolio managers.

A performance ranking transition table was constructed in order to measure the average risk of funds in the various ranking categories. The three, six and 12 month performances were ranked into quartiles at the end of every quarter.

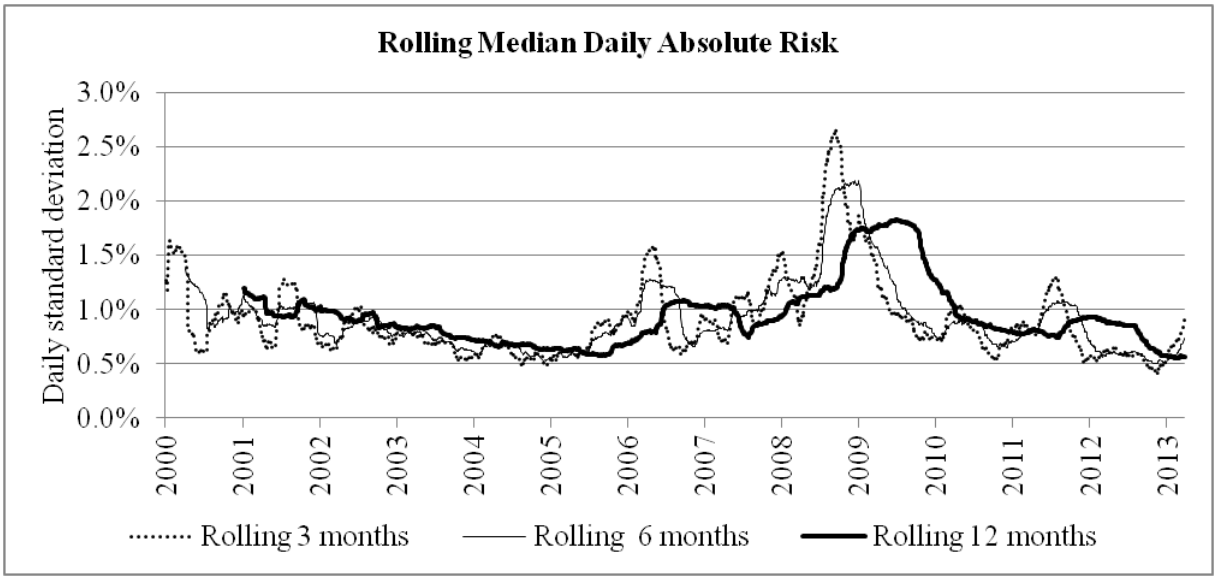
Risk-return graphs of the raw return versus the absolute risk, and the active return versus the market adjusted risk were composed to indicate the risk-return relationship over the sample period. A straight line was fitted through the data, and the R-squared coefficient of determination calculated for goodness-of-fit evaluation.

4. Results

The persistence of absolute risk levels and market adjusted risk levels for General Equity unit trusts were investigated over the 2000 to 2012 period.

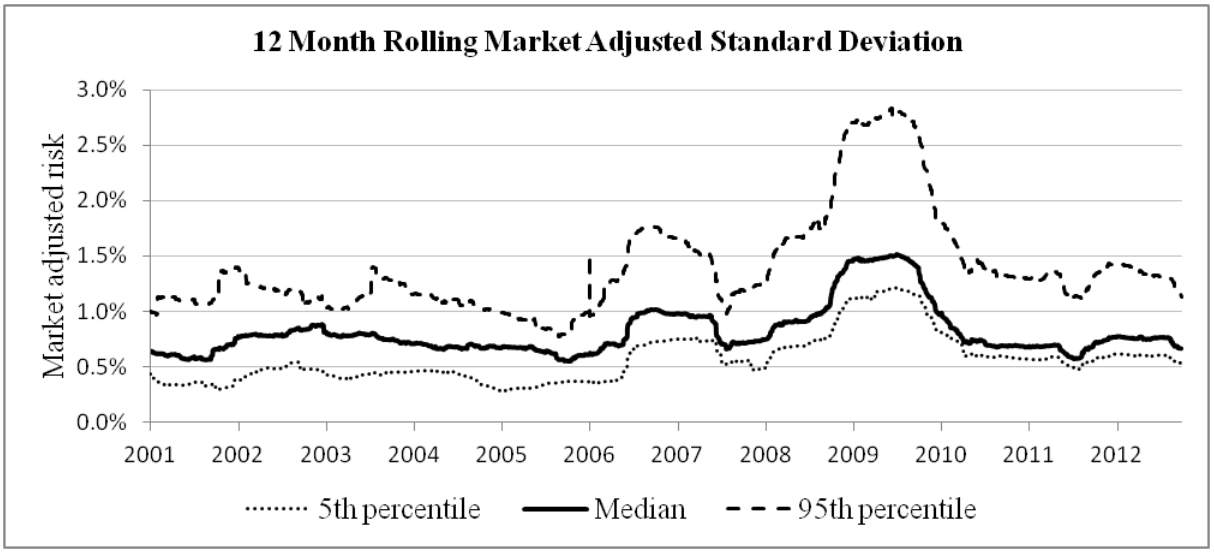
Goetzmann and Ibbotson (1994) indicated that historical risk is an indication of expected risk. The first test investigated if absolute risk levels for the General Equity unit trusts remained constant over the 2000 to 2012 period. Figure I contains the absolute daily standard deviation for three, six and 12 month rolling periods. The absolute standard deviation indicates the total risk, encapsulating both systematic and unsystematic risk. It is evident from Figure I that the median daily standard deviation over three, six and 12 month rolling periods did not remain constant.

Figure 1. Median Daily Absolute Standard Deviation over Rolling Periods



The median daily standard deviation of the 12 month rolling market adjusted standard deviation is depicted in Figure II. The distance between the median and the 5th percentile fund's active risk decreases markedly over the period of analysis, while the range between the 95th percentile risky fund's standard deviation increases.

Figure 2. Daily Market Adjusted 12 Month Standard Deviation



The difference between the median absolute standard deviation and the median market-adjusted standard deviation is indicated in Figure III. Note that the market adjusted standard deviation is not always less than the absolute risk, indicating periods in the market cycle when the some fund managers might have deviated from the benchmark more than usual to find sources of alpha.

Figure 3. Median Absolute and Market-Adjusted Standard Deviation

The transition matrix in Table I indicates the average annualised absolute risk associated with the quartile performance ranking stability of the various General Equity funds. The best performing funds in quartile one also incurred the lowest absolute risk of all the categories, while funds falling from quartile one to quartile four had the highest risk associated with their funds on average. Funds that remained in quartile one and quartile two also exhibited the lowest amount of absolute risk compared to all the movements categories from an initial ranking in quartile one or quartile two.

Table 1. Average Absolute Risk (Based on Performance Ranking)

	To Quartile Ranking			
From Quartile Ranking	**1**	**2**	**3**	**4**
1	0.78%	0.94%	0.91%	1.10%
2	0.95%	0.86%	0.94%	0.96%
3	1.02%	0.92%	0.88%	0.84%
4	0.95%	1.00%	1.01%	0.95%

The risk quartile rankings of the fund's absolute standard deviations are indicated in Table II. Panel A, B and C indicate that most unit trusts remained in the same quartile ranking. The funds with the worst and best absolute risk ranking were very likely to remain in the same quartile ranking category. A fund in quartile one and quartile four was more than 50% likely to retain the quartile ranking, while a fund in fund in quartile two and quartile three remained in the same quartile between 40 per cent and 50 per cent of the time. A one quartile ranking move only occurred 22 to 29 percent of the time.

Table 2. Absolute Standard Deviations Ranking Table

Panel A

Ranking Change of Daily Standard Deviation over Three Months (Measured Quarterly)

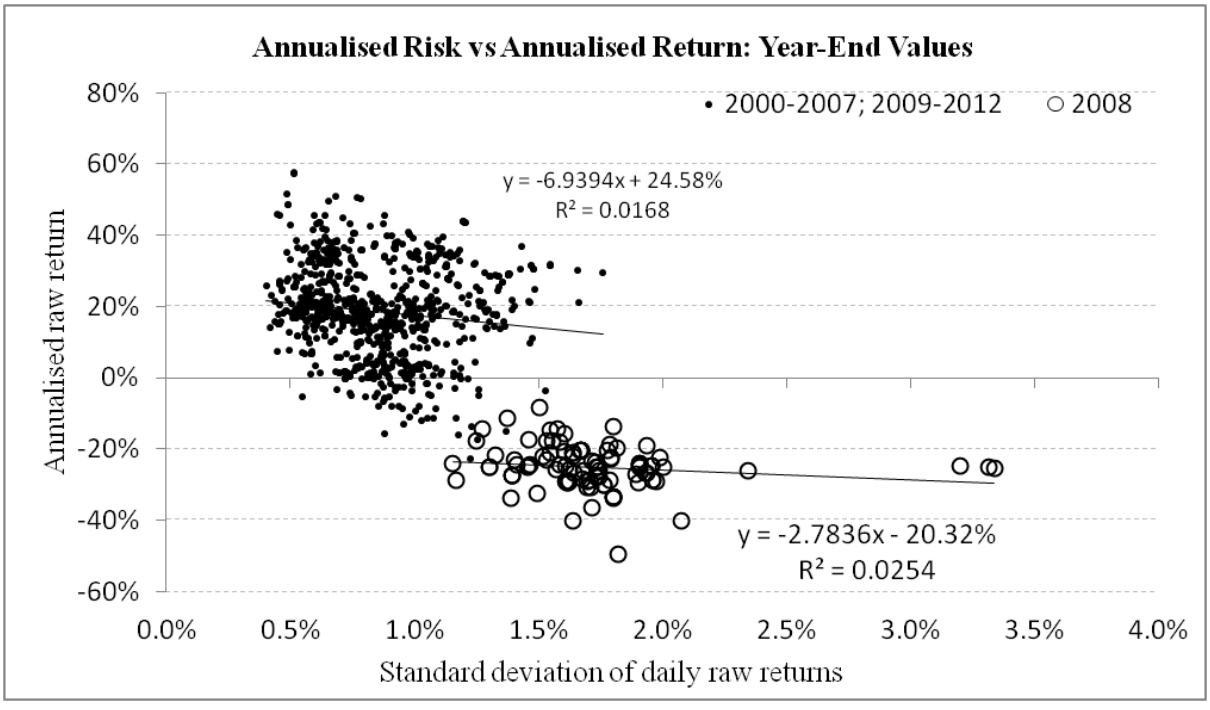
		To Quartile Ranking				
		1	**2**	**3**	**4**	**Total**
From Quartile Ranking	**1**	625	295	76	28	1024
	2	300	442	271	41	1054
	3	81	263	465	231	1040
	4	15	66	238	745	1064

Table 2 (continued)

Panel B						
Ranking Change of Daily Standard Deviation over Six Months (Measured Quarterly)						
		To Quartile Ranking				
		1	**2**	**3**	**4**	**Total**
From Quartile Ranking	**1**	600	253	56	28	937
	2	269	429	226	46	970
	3	68	227	455	207	957
	4	12	63	216	685	976
Panel C						
Ranking Change of Daily Standard Deviation over Twelve Months (Measured Quarterly)						
		To Quartile Ranking				
		1	**2**	**3**	**4**	**Total**
From Quartile Ranking	**1**	529	207	56	20	812
	2	222	341	201	79	843
	3	63	214	378	170	825
	4	16	75	207	555	853

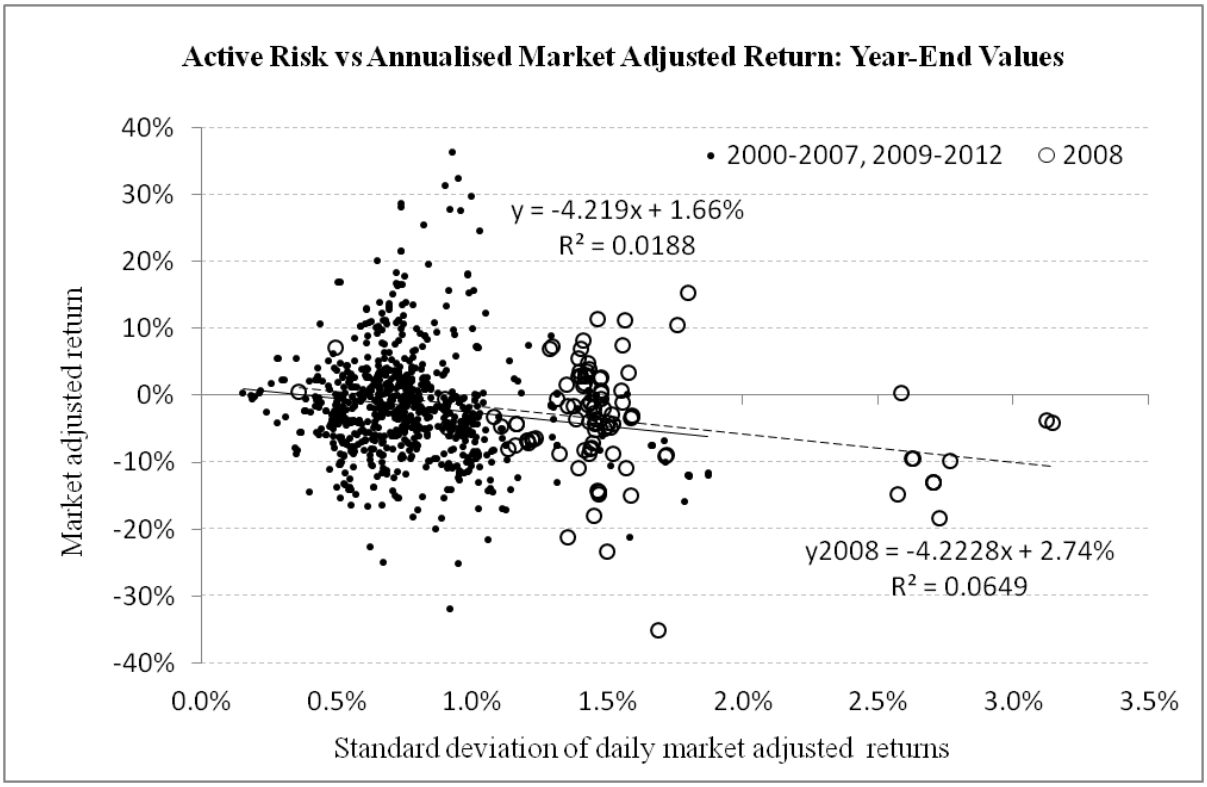
The absolute risk versus raw return relationship for each unit trust per calendar year is indicated in Figure IV. The resultant absolute risk and return measures for 2008 is plotted separately to isolate the effect of the 2008 international market crises on the funds in the sample. The scatterplot does not present any discernible visual pattern or relationship between the absolute risk and return, only the extreme deviation away from the normal grouping during 2008. The R-squared values for the straight lines representing both ordinary least squares regressions are insignificantly low, further indicating no relationship between the absolute risk levels and return generated by the funds. The negative slope values also show that an increase in risk did not translate into higher return overall.

Figure 4. Absolute Standard Deviation versus Absolute Return



The market-adjusted risk and market-adjusted return relationship for each unit trust per calendar year is shown in Figure V. The 2008 results are again separated from the rest of the sample.

Figure 5. Market-Adjusted Standard Deviation versus Market-Adjusted Return



Contrary to the results in Figure IV, the slope for the market adjusted risk and market adjusted returns are almost identical for the 2008 period and the rest of the sample, indicating that the risk-return pay-off for the fund managers remained roughly the same during the 2008 period as before. Visually the scatterplot does not present any discernible pattern for the relative risk and return measures, supporting the absolute risk and return result from Figure IV.

The R-squared for both straight lines are again insignificantly small, indicating no relationship between the market-adjusted risk and return levels of the General Equity funds. The negative slope values also show that an increase in market adjusted risk did not translate into higher return overall.

5. Conclusion and Implications

The primary research questions addressed the stability of absolute and market adjusted risk of General Equity funds in an emerging market economy. Although the risk levels were relatively stable over the sample period, the 2008 global market crises doubled the absolute and market-adjusted risk associated with the equity funds. The "September 11" events in 2001 only had short term effects on risk levels. The risk stability ranking in Table II indicate a very strong chance of a fund remaining in the same risk grouping, and a 22 to 29 percent occurrence of a one-quartile ranking upgrade or downgrade.

The managers around the 95th risk-percentile deviated further away from the ALSI benchmark's risk levels after 2006 than before. The volatility and uncertainty in the emerging market economies after 2008 could have played a role in the excess deviation. Some managers might have deviated on purpose with, for instance, longer term deep-value strategies, while others might have been under exposed to certain shares in time of high market performance concentration.

The return quartile rankings indicate that the consistently top performing funds also had the lowest average risk of all the ranking categories. Funds persisting in their quartile ranking had lower than average risk relative to funds experiencing a quartiles ranking change. A large negative performance quartile ranking change from quartile 1 to quartile 4 was coincided with the highest risk, again indicating a larger than normal deviation away from the benchmark.

Overall, above-average absolute and market adjusted risk did not translate into a higher return. Investors can take note that the General Equity unit trust managers exhibited very similar benchmark-adjusted results during 2008's economic turmoil and the years surrounding the crisis. The fund managers

therefore controlled the benchmark-related risk exposures well.

Future research building on this theoretical foundation can include measuring the risk exposure in terms of Beta or other risk factors. The factors driving the risk can also be explored further, and the sensitivity of the General Equity unit trusts to these factors measured individually.

References

1. Golec, J. H. (1996), "The effects of mutual fund managers' characteristics on their portfolio performance, risk and fees", *Financial Services Review*, Vol. 5 No. 2, pp. 133-147.
2. Gopi, Y., Bradfield, D. and Maritz, J. (2004), "*Has persistence persisted? Evidence from unit trusts*", Cadiz Quantitative Research Report, June 2004. Available: www.cadiz.co.za [Accessed: April 2011].
3. Grinblatt, M. and Titman, S. (1992), "The persistence of mutual fund performance", *The Journal of Finance*, Vol. 47 No. 5, 1977-1984.
4. Ippolito, R. A. (1989), "Efficiency with costly information: A study of mutual fund performance, 1965–1984", *The Quarterly Journal of Economics*, Vol. 104 No. 1, pp. 1-23.
5. Massa, M. and Patgiri, R. (2009), "Incentives and Mutual Fund Performance: Higher Performance or Just Higher Risk Taking? ", *Review of Financial Studies*, Vol. 22 No. 5, pp. 1777-1815.
6. Muller, C. and Ward, M. (2011), "Active share on the JSE", *Investment Analyst Journal*, Vol. 74, pp. 19-28.
7. Oldert, N. (ed.). (2011), *Profile's unit trusts & collective investments*. Johannesburg: Profile Media.
8. Oosthuizen, H.R. and Smit, E.v.d.M. (2002), "South African unit trusts: Selection ability and information effects", *Journal for Studies in Economics and Econometrics*, Vol. 26 No. 3, pp. 19-41.
9. Raubenheimer, H. (2012), "*Managing Portfolio Managers: The Impact of Market Concentration, Cross-Sectional Return Dispersion and Restrictions on Short Sales*", Doctoral dissertation, University of Stellenbosch.
10. Scher, N. and Muller, C. (2005), "Equity style and performance persistence in South African unit trusts", *Investments Analyst Journal*, Vol. 61, pp. 5-15.
11. Sharpe, W. F. (1966), "Mutual fund performance", *The Journal of Business,* Vol. 39 No. 1, pp.119-138.
12. Wessels, D.R. and Krige, J.D. (2005), "The persistence of active fund management performance", *South African Journal of Business Management*, Vol. 36 No. 2, pp. 71-82.
13. Zheng, L. (1999), "Is money smart? A study of mutual fund investors' fund selection ability", *The Journal of Finance*, Vol. 54 No. 3, pp. 901-933.