

May 2014

# Investment Rankings Report

Establishing a simple framework for fund selection



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# 1. Introduction

Establishing a simple framework for fund evaluation, comparison and selection is something we all need to take more seriously. Making the wrong fund or investment selection is something that can literally cost you your retirement. In this paper we try and guide you towards setting up a simple framework for evaluating equity investments. It is something we know a fair bit about and since it is the foundation asset class for anyone who is aspirational about their wealth it just makes sense to start here.

The equity investment landscape in South Africa is mostly polarised between the traditional long only funds, think unit trust universe and the alternative (hedge) funds. Both deserve attention.

As you probably know we specialise in the "alternative" form of equity investing, alternative (hedge fund) investments but not exactly...

"In some parts of the world, alternatives will effectively move into the mainstream to the extent that the term 'alternative' may no longer remain in common usage by 2020" (PricewaterhouseCoopers).

We agree, it is not to say that the traditional long only landscape is under threat, however alternative managers and their strategies continue to build impressive track records posting strong returns and quite frankly if you are not already investing in "alternatives" then you're mostly likely swimming slower than the stream.

To too many people, understanding the nature of equity investment management seems beyond their grasp. They hear of extraordinary fund managers and their returns but rarely experience them for themselves and as a result they seem to observe from the sidelines. Mostly this is because they leave it to the so called "experts" and as a result they disintermediate from the decision-making process outsourcing the result and the responsibility until, in so many cases, it is just too late.

Well that just not good enough... so in order to address this we decided to prepare a simple but effective method for identifying, evaluating and growing your understanding of something we know a fair bit about, equity investing.

In doing so we identify the top performing funds (both traditional and alternative) over four investment periods (one; three; five and 10 year) and present a framework that will help you choose the right equity investments from a more informed understanding of risk and return.



## 2. Getting Started

Firstly we need to introduce the concept of risk vs. return across investment asset classes and guide you to a greater understanding of why equities remain the foundation asset for anyone who is aspirational about their wealth.

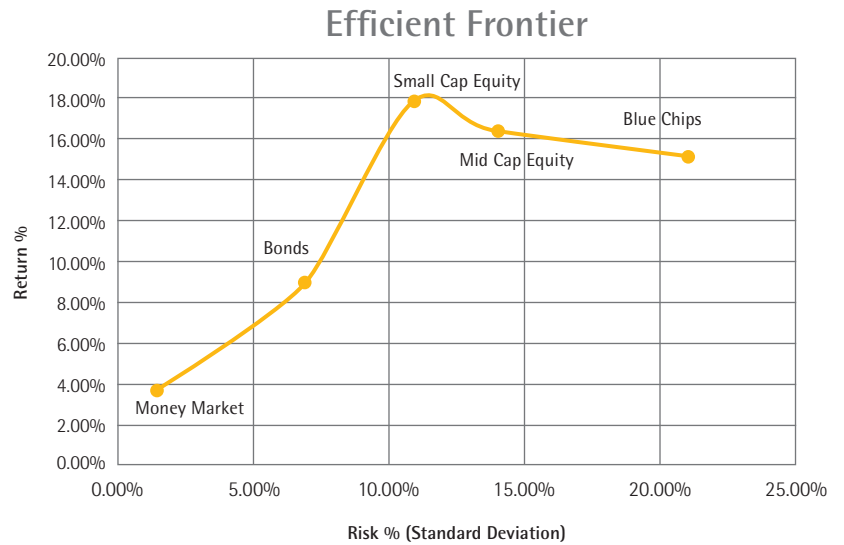
Secondly we build a framework for narrowing the plethora of equity investment down to a digestible universe that clearly highlights investment excellence and narrows your focus with the objective of guiding you towards making the right investment from an informed position.

Finally before you make your investment decision we need to talk risk again, this time through the introduction of the concept of risk-adjusted returns so that as a result you are capable of making the right investment decision from an informed risk position.

1. We identify (from independent public sources) the top 10 performing equity funds over the four investment periods.
2. We evaluate their return data and rank them against their peers.
3. We evaluate their return on investment whilst considering and building our understanding of their risk-adjusted returns.

## A. Risk vs. Return

In investment management there is a very basic concept that states that there is a positive relationship between risk and return, meaning that the larger the return you want the more risk you must be willing to take. In academic circles this is illustrated by the 'Efficient Frontier'.

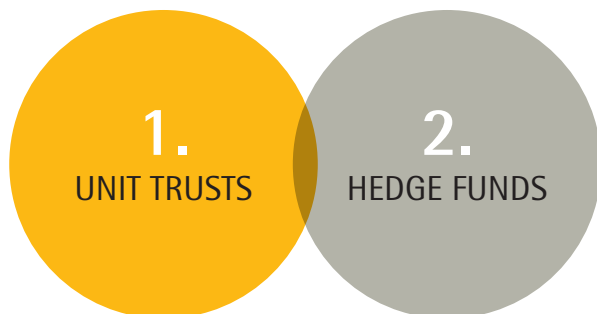


*Efficient Frontier: Data Source Bloomberg*

From the graph above it is evident that equities are leading the hunt for returns on a 10-year annualised basis. It is for this reason that anyone who is aspirational about their wealth has to be invested in equities. Interestingly in South Africa, there is a prevalent perception that "blue chips" offer less risk than the smaller caps. The chart above demonstrates that this is not the case and in fact their higher level of risk is not compensated for by delivering higher returns. The graph above is done over a 10-year annualised period.

## B. Gathering Data

The next step is to rank the top performing funds that invest in SA equities. We split these into two groups:



For unit trusts the task is pretty straight forward, we will make use of Morning Star as a source of information. For hedge funds we needed to cast our net a little wider to ensure we got a more representative sampling of the industry returns.

### WHY COMPARE UNIT TRUSTS WITH HEDGE FUNDS?

Whilst this does not always ensure that we are comparing apples with apples, there are many hedge funds whose primary objective is to deliver equity market beating returns and we have tried to confine our review to this group.



### 3. Fund Returns

In all instances we have included our RFS fund performance, this just makes for simple comparison purposes especially for our clients.

#### Unit Trust Defined

An unincorporated mutual fund structure that allows funds to hold assets and pass profits through to the individual owners, rather than reinvesting them back into the fund.

The investment fund is set up under a trust deed. The investor is effectively the beneficiary under the trust. Much of their investment strategy is dictated to them by the Collective Investment Schemes Control Act and yet they still manage to produce attractive returns. The only downside on these types of funds is that during a bear market they often take a beating as subtle as a kick in the teeth.

#### Industry Returns (Top South African Unit Trusts)

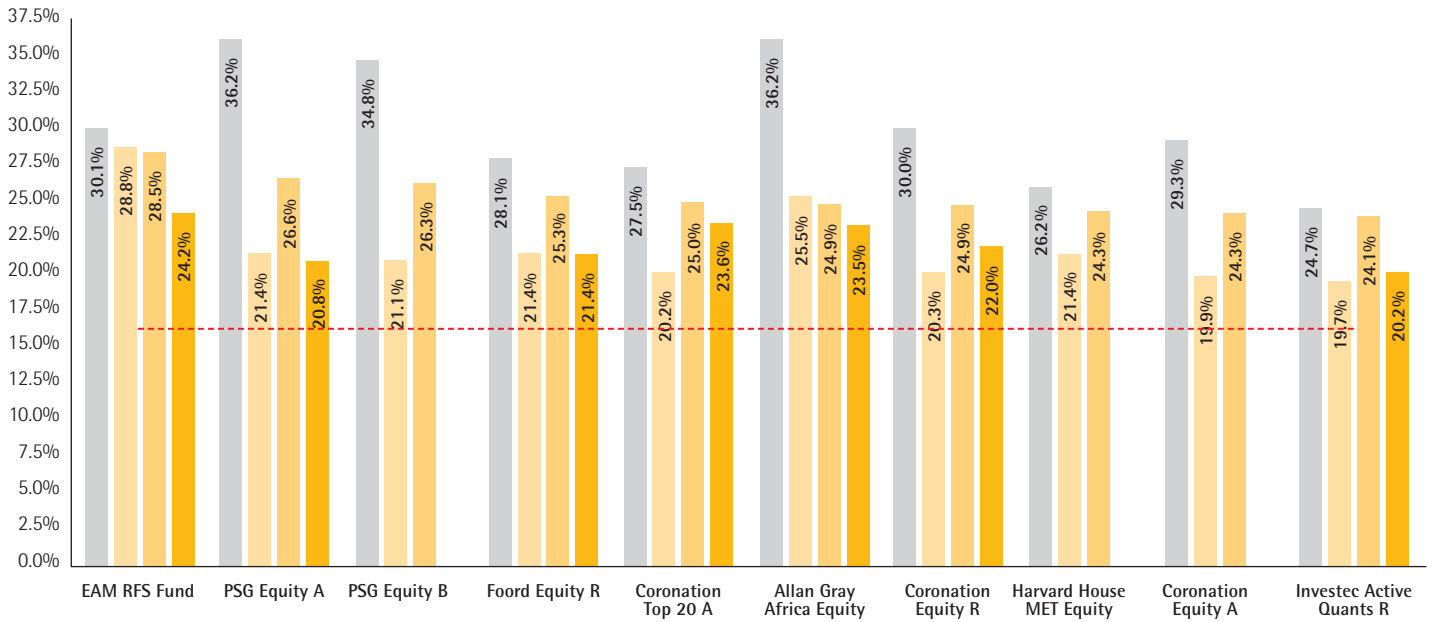
The table below highlights the returns of the top performing unit trusts, ranked by five-year annualised returns from left to right, over one, three, five and 10-year annualised return periods (note a more comprehensive comparison table which will allow you to rank funds over any of these above return periods is available on request).

The red dotted line represents the benchmark five-year annualised return, being the FTSE/JSE Top 40. In the search for equity investment return it is a reported fact that 80% to 90% of fund managers fail to beat the benchmark and if you happen to be invested in such a fund it would be our recommendation to very acutely review your current fund selection.

Further to this I would go as far as to say that if you have been invested in equities for the last five years and our fund does not rank here then you have lost considerable ground towards achieving your retirement goals.

1 Yr Return %    3 Yr Annualised %    5 Yr Annualised %    10 Yr Annualised %    - - - - - Benchmark returns

**Notes:** The % on the Y axis represents Return on Investment (ROI).

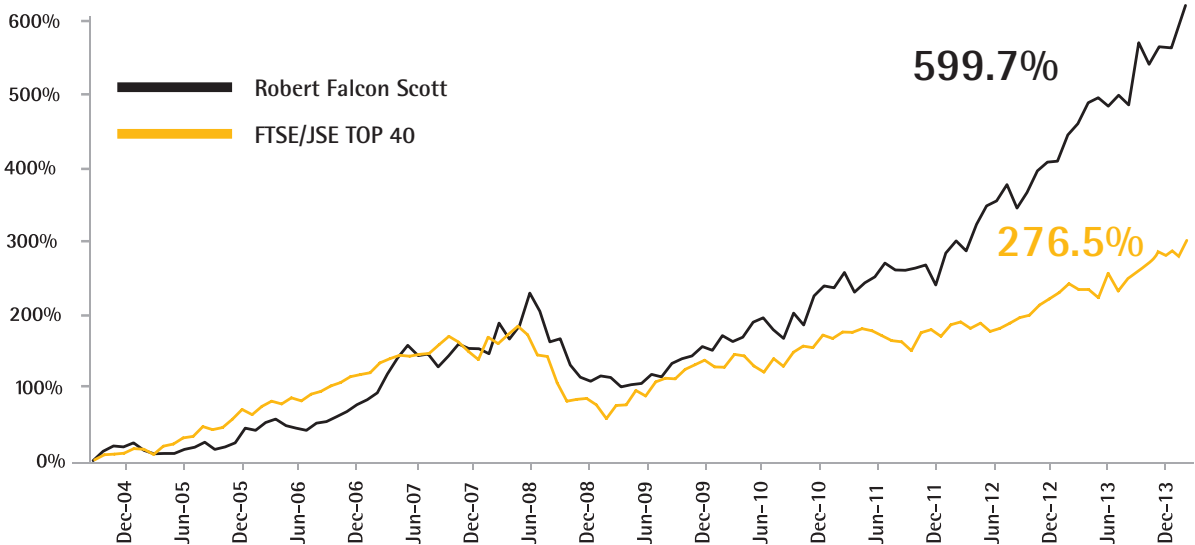


Data Source: Morning Star. Ranked from highest to lowest returns  
\* as at December 2013

The top three performing funds over an average of one, three, five, and 10-year annualised are:

1. Emperor Asset Management Robert Falcon Scott Fund
2. Allan Gray Africa Equity (Rand)
3. PSG Equity A

### Fund Performance



The above fund performance gives you a snap shot of our own performance since the funds inception.

\* as at December 2013



## 4. Hedge Funds

### Hedge Fund Defined

A hedge fund is a private investment vehicle that markets to only a few select institutions and or high net worth individuals, which it then charges a performance fee and an administrative fee, traditionally 20% and 2% respectively, to leverage its trade ideas.

Hedge funds may make use of short selling, leverage and derivatives to assist in developing an alternative investment strategy, to generate absolute returns that should in essence be uncorrelated to the markets.

Recently, shortly after 2013 there has been a shift in asset management leaning towards providing retail clients with alternative investment strategies.

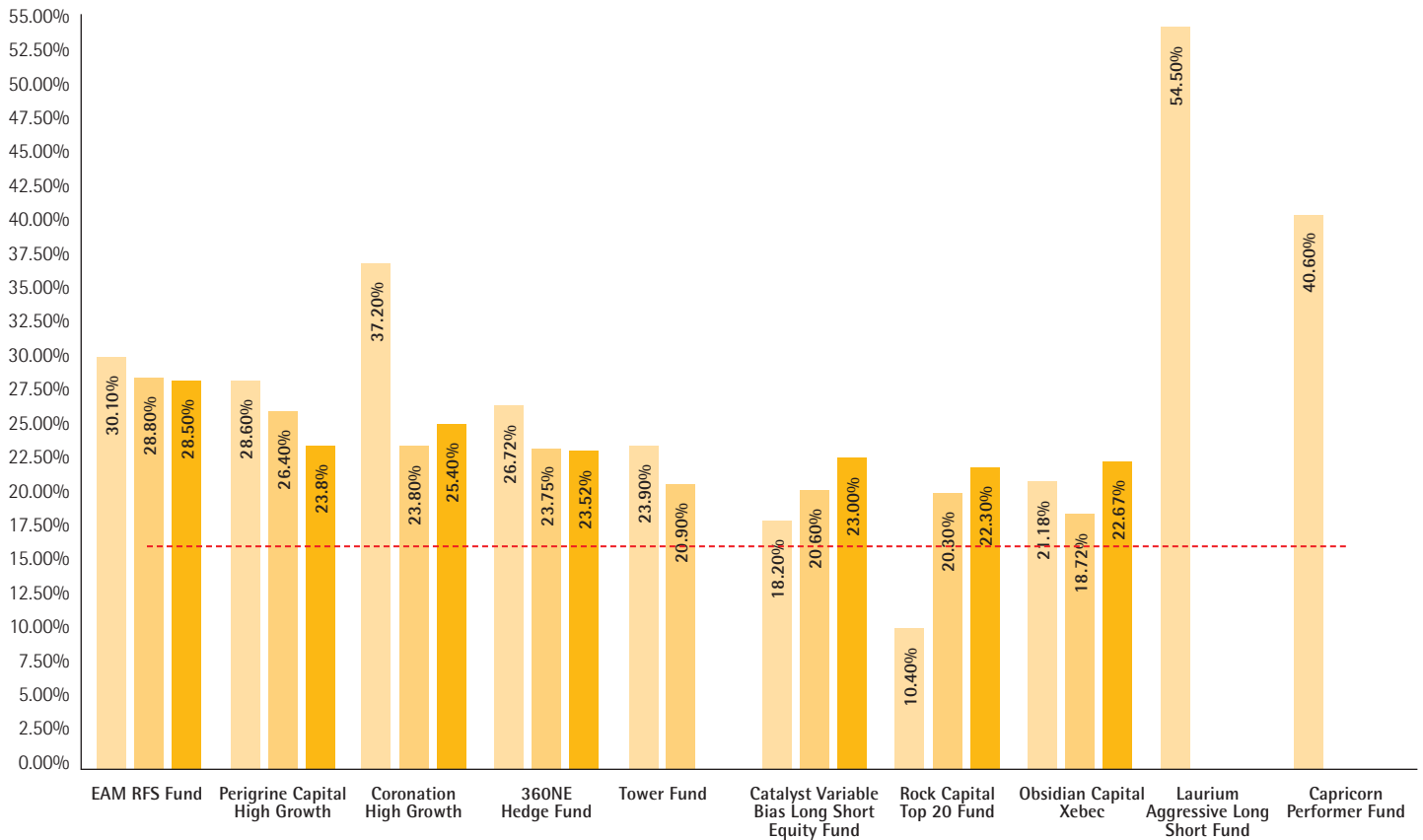


# Industry Returns (Top South African Hedge Funds)

1 Yr Return %    3 Yr Annualised %    5 Yr Annualised %

----- Benchmark returns

**Notes:** The % on the Y axis represents Return on Investment (ROI).



Data Source: Hedge News Africa & The Symmetry Hedge Fund Survey  
\* as at December 2013

## The top five performers (based on the three years annualised returns) in the South African industry are:

1. EAM RFS Fund
2. Peregrine Capital High Growth
3. Coronation's Presidio Fund
4. 36ONE Hedge Fund
5. Tower Fund

The alternative/ hedge fund industry in South Africa remains a relatively small and emerging sector of the equity investment landscape.

From the chart above it is clear that the top funds are delivering strong returns and as such they warrant closer review and greater investor understanding.

Considering the relative age of the industry there are very few funds with a track record longer than eight years and those that were established pre 2008 either survived and continue today or were shut down. There is little doubt that the industry is breeding investor excellence and attracting the best talent today. As such it is worth noting the track records of the new top performing funds.

# 5. Understanding Risk

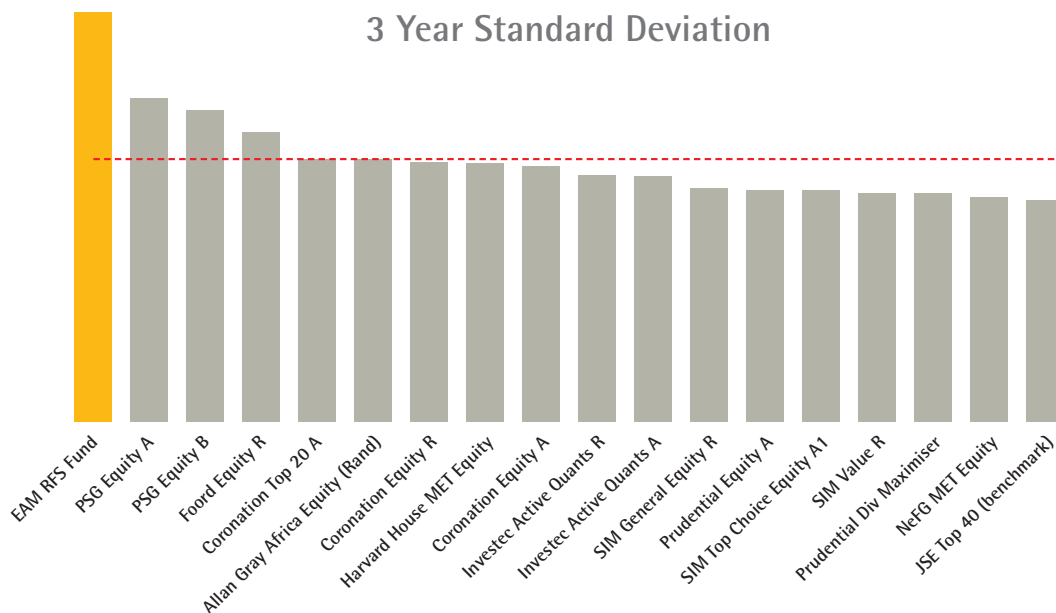
The measure of investment risk is unfortunately not a simple exercise as the evaluation is not as objective as you would like it to be. In fact the topic is multidimensional and requires much greater understanding than pure observation of the output numbers.

Each measure has its own attributes that need to be considered and understood so that you might draw the right conclusions. In this next section we try to explore the industry measures of risk and

explain them in consideration of our own fund so that you have a better understanding of exactly what they are measuring and can better apply them in your own evaluation.

## Fluctuations of Returns

Standard deviation of a fund's return measures how much a fund's total returns have fluctuated in the past. The term volatility is often used to mean standard deviation (Morning Star).



Data Source: Morning Star  
\* as at December 2013

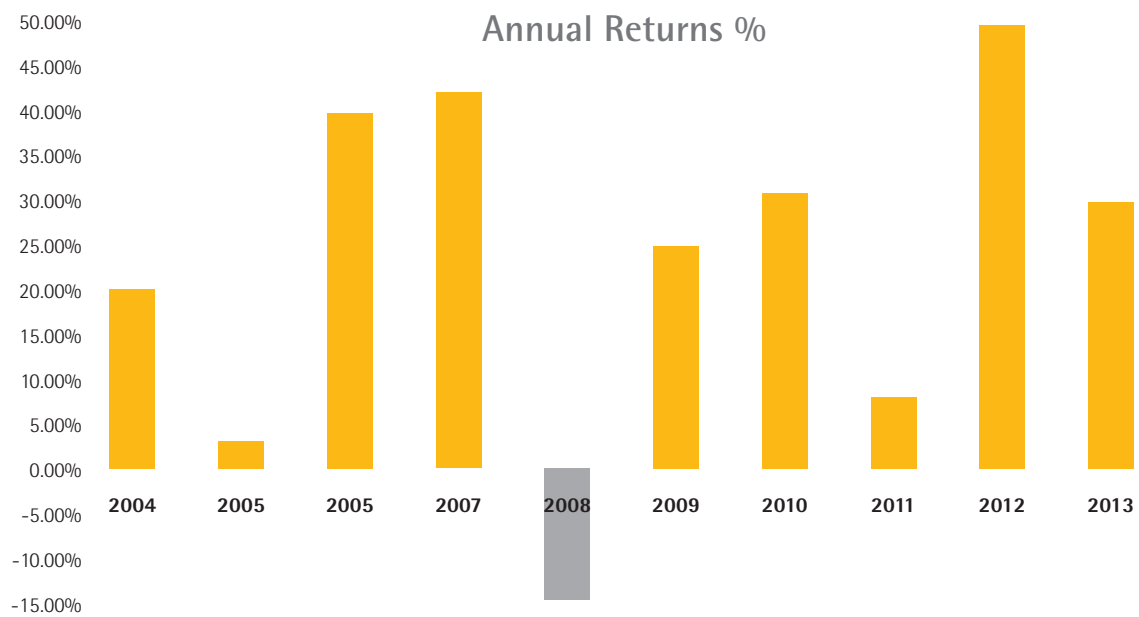
**Note:** The Red dotted line is the average standard deviation between these top funds.

On the face of the numbers illustrated in the chart above the EAM RFS Fund has a higher than average standard deviation and on first review you might conclude with it a higher degree of risk?

Naturally we should expect this to be true as we are all taught that there is a strong positive correlation between risk and return, that is to say that we should expect that the greater returns

generated by the fund must have come with a higher risk profile.

It is true that a characteristic of the EAM RFS fund is to actively seek out larger returns. This introduces the concept of risk-adjusted returns which we will discuss later; however for the moment let us take a closer look at the year-to-year returns driving the result so that we can understand this higher degree of standard deviation.



*\* as at December 2013*

The chart above clearly illustrates that our standard deviation score is being driven higher because of the volatility of our positive returns from the norm. Our range of annual returns over the period is set between down 15% to up 50% in a single year. Altogether eight/nine of the periods recorded positive returns, however even the distribution of these positive returns is volatile ranging from around +5% to +50%.

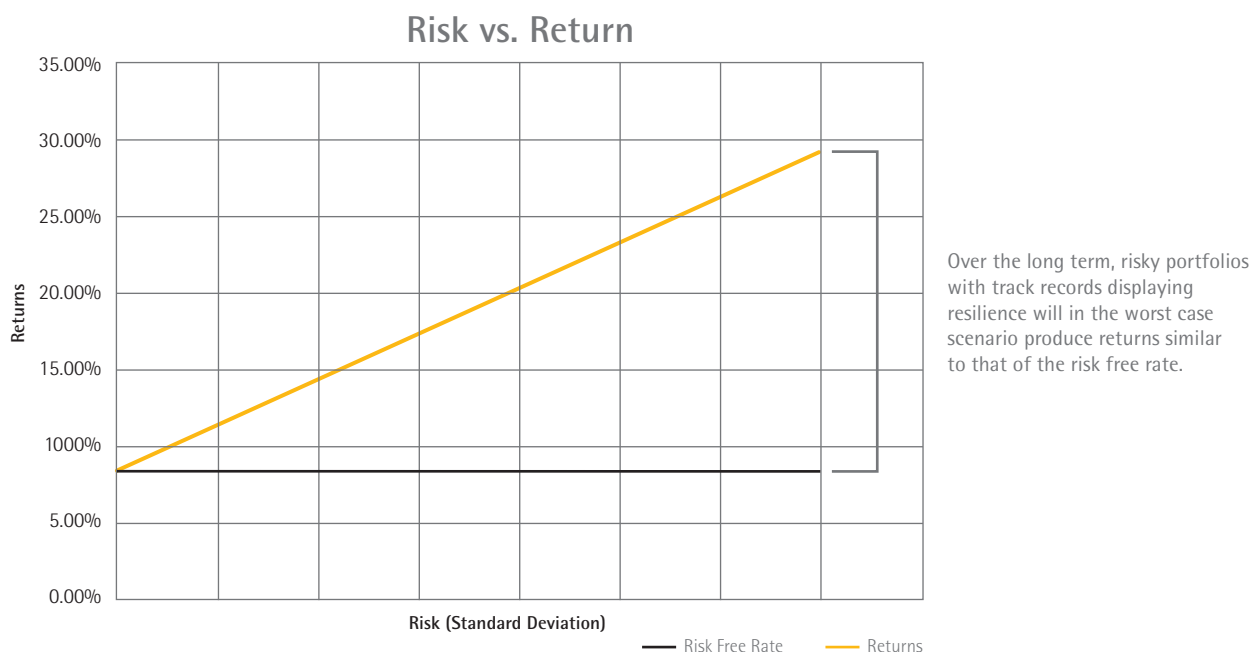
It is our objective to seek out investment excellence and as such we expect that our standard deviation would naturally be high, if it was not we would not be doing our job. However it is also our objective to do this whilst preserving capital, or in other words demonstrating a lower downside capture rate than the benchmark, this is a risk measure that standard deviation fails to consider and whilst we concede that our return profile is more volatile than the average we would argue that it's not necessarily more risky.

**Now we open a new door to the “identifying risk” paradigm by introducing you to the following idea:**

Popular demand stipulates that investors' risk be determined using standard deviation, a measure of short-term volatility. A matter of importance is overlooked, however, when we consider investments in portfolios with long-term track records using standard deviation.

Before we continue it is important to understand that when looking at portfolios with long-term track records we can assume that funds/portfolios which have failed in the past will not appear in the list of possible investments.

Now what people often overlook is that when analysing the returns and standard deviation of risky portfolios vs. less risky portfolios over a five-year period, we find that riskier portfolio's possess a minimum return approximately around that of the risk-free rate or the least risky portfolio. In other words, the more risky portfolios which have displayed an ability to survive large market swings and black swans should deliver similar returns to that of the risk-free rate in the worst case scenario. While there is a minimum return over a long-term period; the maximum return rises as one invests in portfolios further along a typical risk/return curve. Shown in the graph below:



Discrepancies arise from the current mindset of analysing risk using standard deviation. When analysing investments in portfolios, investors tend to lean towards the investment with the lowest standard deviation which results in the selection of a portfolio with low returns and little standard deviation in returns over a short-term period.

The investor fails to see that an investment in portfolios with long-term track records and a higher standard deviation offer increased returns with a minimum return approximately around that of the less risky portfolios, thus, giving the investor what they need opposed to what they want.

# Introducing upside and downside capture

## Upside Capture Defined

A statistical measure of an investment manager's overall performance in up-markets. The up-market capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen.<sup>1</sup>

An investment manager who has an up-market ratio greater than 100 has outperformed the index during the up-market. For example, a manager with an up-market capture ratio of 120 indicates that the manager outperformed the market by 20% during the specified period. Many analysts use this simple calculation in their broader assessments of individual investment managers.<sup>1</sup>

## Downside Capture Defined

A statistical measure of an investment manager's overall performance in down-markets. The down-market capture ratio is used to evaluate how well or poorly an investment manager performed relative to an index during periods when that index has dropped.<sup>1</sup>

An investment manager who has a down-market ratio less than 100 has outperformed the index during the down-market. For example, a manager with a down-market capture ratio of 80 indicates that the manager's portfolio declined only 80% as much as the index during the period in question. Many analysts use this simple calculation in their broader assessments of individual investment managers.<sup>1</sup>

When you add the observation of these two measures to your assessment of our funds risk profile, given a upside capture of 118.4% and a downside capture rate of 92.2%, you could conclude that whilst our returns may be more volatile our volatility is biased to the upside and in fact as far as the evaluation relates to the downside we are in fact less risky than the investing in the broader market.

"A rising tide lifts all boats. It's not until the tide goes out that you realize who's swimming naked."  
Warren Buffett

This observation of downside capture illustrates that you will find that in the case of our fund when the tide does go out our Emperor still has his clothes.

## Understanding Risk-Adjusted Returns

### Risk-Adjusted Returns Defined

A concept that refines an investment's return by measuring how much risk is involved in producing that return, which is generally expressed as a number or rating. Risk-adjusted returns are applied to individual securities and investment funds and portfolios.<sup>1</sup>

There are five principal risk measures: alpha (0.68%), beta (0.94), r-squared, standard deviation and the Sharpe Ratio. Each risk measure is unique in how it measures risk. When comparing two or more potential investments, an investor should always compare the same risk measures to each different investment in order to get a relative performance perspective.<sup>1</sup>

### Performance & Risk Ratios

Performance Ratios	RFS Fund	FTSE/JSE Top 40
Upside Capture	118.4%	100.0%
Downside Capture	92.2%	100.0%

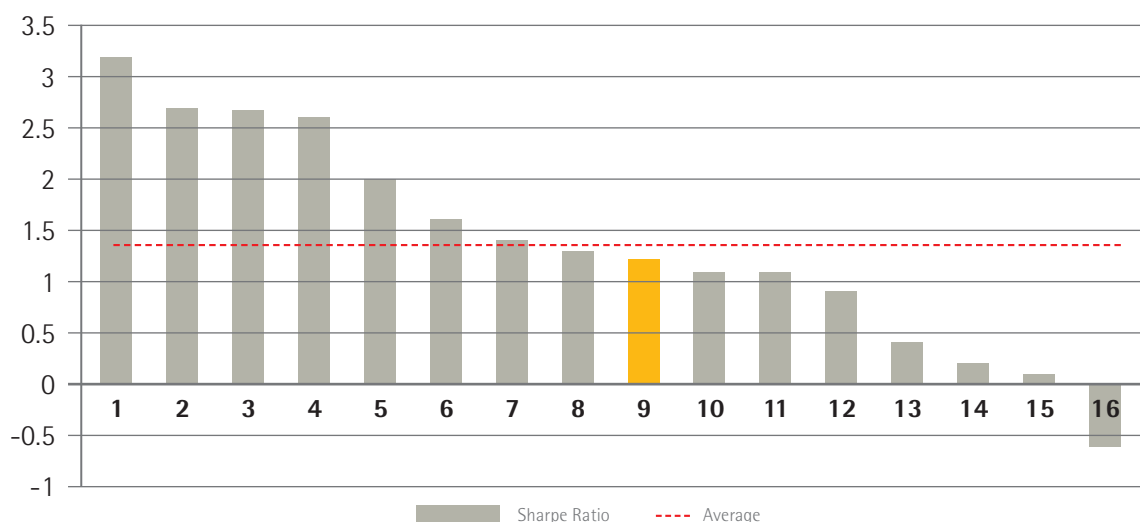
\* as at December 2013

## The Sharpe Ratio

Developed in 1966, by Nobel laureate William F. Sharpe, the Sharpe Ratio provides a measure of risk adjusted performance which gives a way to assess whether a fund manager's returns are due to intelligent investment decisions or just excessive risk.

**EAM RFS is ranked at 9th place based on the June 2012 Symmetry Survey.**

### 3 Year Sharpe Ratio



Data Source: Symmetry Survey June 2012  
\* as at December 2013

#### FORMULA:

Sharpe Ratio = (Return on investment – Risk-free rate) / standard deviation  
(of the portfolios returns)

#### Example 1:

A small cap fund manager named Captain Awesome has the following variables:

1. ROI: 15%
2. Risk-free rate: 6%
3. Standard deviation: 4%
4. Therefore:  $(0.15 - 0.06) / 0.04 = 2.25$

A high Sharpe Ratio indicates that good risk-adjusted performance was implemented and a low ratio points to too much risk being used.

Alternatively a negative Sharpe Ratio would indicate that the manager in question is a worse investment than investing in assets that provide a risk-free rate like treasury bills or government bonds.

The Sharpe Ratio is often calculated on a monthly basis and is useful when comparing different fund managers by using an industry standard as a benchmark.

#### Example 2:

The industry standard for small cap fund managers is a Sharpe Ratio of 1 but as we previously calculated in Example 1 Captain Awesome has a Sharpe Ratio of 2.25. Therefore Captain Awesome is outperforming the industry standard.



## 6. Return Comparison

The following charts are relatively simple. We use them to illustrate the opportunity cost of choosing an investment that has a lower return than another over a period of time.

Importantly a relatively small change in the rate of return over a long period of time (10 years+) can be the difference in retiring wealthy or not at all.

### Using the Chart - Examples:

1. The EAM RFS fund returned 28.8% over the last three years annualised and the third place competitor fund returned 23.8%. Over a three-year period, all other things being equal, the difference in total return would have been approximately 24%.

SEE THE NEXT PAGE FOR THE CHART

2. The EAM RFS fund returned 28.5% over the last five years annualised and the third place competitor fund returned 25.4%. Over a five-year period, all other things being equal, the difference in return would have been 41%.

SEE THE NEXT PAGE FOR THE CHART

3. The EAM RFS fund returned 24.25% in the last 10 years annualised and the third place competitor fund returned 22.58%. Over a 10-year period, all other things being equal, the difference in return would have been 111%.

SEE THE NEXT PAGE FOR THE CHART

4. For interest sake we have included a 20 and 30-year total return matrix, assuming that the annualised 10-year rate is maintained, all other things being equal.

SEE THE NEXT PAGE FOR THE CHART

1.

Total Return			EAM RFS
3 Year			28.80%
Competitor Return	No Investment	0.00%	114%
	JSE Top 40 (benchmark)	17.37%	52%
	SIM Top Choice Equity A1	18.33%	48%
	Prudential Equity A	18.96%	45%
	Coronation Top 20 A	20.24%	40%
	Coronation Equity R	20.26%	40%
	Rock Capital Top 20 Fund	20.30%	40%
	Catalyst Variable Bias Long Short Equity Fund	20.60%	38%
	Tower Fund	20.90%	37%
	36 ONE Hedge Fund	23.57%	25%
	Coronation Presidio Fund	23.80%	24%
	Allan Gray Africa Equity (Rand)	25.53%	16%
	Peregrine Capital High Growth	26.40%	12%

Data Source: Morning Star, Hedge News Africa, Symmetry Hedge Fund Survey

2.

Total Return			EAM RFS
5 Year			28.52%
Competitor Return	No Investment	0.00%	251%
	JSE Top 40 (benchmark)	16.40%	137%
	Laurium Long Short Fund	16.70%	134%
	Rock Capital Top 20 Fund	22.30%	77%
	Obsidian Capital Xebec	22.67%	73%
	Catalyst Variable Bias Long Short Equity Fund	23.00%	69%
	36 ONE Hedge Fund	23.52%	63%
	Peregrine Capital High Growth	23.80%	60%
	Allan Gray Africa Equity (Rand)	24.91%	47%
	Coronation on Top 20 A	24.97%	46%
	Foord Equity R	25.31%	42%
	Coronation on Presidio Fund	25.40%	41%
	PSG Equity B	26.26%	30%
	PSG Equity A	26.60%	25%

Data Source: Morning Star, Hedge News Africa, Symmetry Hedge Fund Survey

3.

Total Return			EAM RFS
10 Year			24.25%
Competitor Return	No Investment	0.00%	777%
	FTSE / JSE Top 40 (benchmark)	15.70%	447%
	Investec Active Quants R	20.17%	249%
	SIM General Equity R	20.41%	236%
	PSG Equity A	20.80%	215%
	Foord Equity R	21.37%	183%
	SIM Value R	21.73%	162%
	Coronation Presidio Fund	22.00%	146%
	Prudential Dividend Maximiser A	22.19%	135%
	Prudential Equity A	22.58%	111%
	Allan Gray Africa Equity (Rand)	23.46%	54%
	Coronation Top 20 A	26.56%	47%

Data Source: Morning Star, Hedge News Africa, Symmetry Hedge Fund Survey

4.

Total Return			EAM RFS
20 Year			24.25%
Competitor Return	No Investment	0%	7588%
	FTSE / JSE Top 40 (benchmark)	16%	5840%
	Investec Active Quants R	20%	3744%
	SIM General Equity R	20%	3584%
	PSG Equity A	21%	3309%
	Foord Equity R	21%	2877%
	SIM Value R	22%	2583%
	Coronation Presidio Fund	22%	2352%
	Prudential Dividend Maximiser A	22%	2184%
	Prudential Equity A	23%	1821%
	Allan Gray Africa Equity (Rand)	23%	919%
	Coronation Top 20 A	24%	808%

Data Source: Morning Star, Hedge News Africa, Symmetry Hedge Fund Survey

Note: Make sure you select the chart with the timeframe that you are looking for, top right-hand corner of the chart.

Total Return			EAM RFS
30 Year			24.25%
Competitor Return	No Investment	0%	67309%
	FTSE / JSE Top 40 (benchmark)	16%	59465%
	Investec Active Quants R	20%	42641%
	SIM General Equity R	20%	41114%
	PSG Equity A	21%	38435%
	Foord Equity R	21%	34040%
	SIM Value R	22%	30939%
	Coronation Presidio Fund	22%	28433%
	Prudential Dividend Maximiser A	22%	26570%
	Prudential Equity A	23%	22473%
	Allan Gray Africa Equity (Rand)	23%	11717%
	Coronation Top 20 A	24%	10348%

Data Source: Morning Star, Hedge News Africa, Symmetry Hedge Fund Survey





## 7. Conclusion

A lot has transpired in the world of asset management since the 2008 financial crisis. Our research teams have analysed the investment landscape concerning the future of alternative investments. What we found is that alternatives are moving towards the main stream.

There are more components to take into consideration when looking for the best fund to invest in, for example: alpha, beta, r-squared and a group of other financial ratios.

We are in no way implying that the EAM RFS is the best fund, in fact this paper highlights both our weaknesses and our strengths. We may be the best performing fund in terms of returns; however our competitors outrank us on other metrics, such as risk-adjusted returns. Competition brings out the best in all of us and we welcome the challenge to raise our game.

Importantly though we all have a finite period of time to get our investments right and inherit the retirement we deserve. In order to achieve this you need to seek out and find investment excellence and it is not good enough that your fund ranks in the top 20 it need to be in the top five.

### **Notes:**

1. The EAM RFS fund started operations in October 2004, a total of 9.25 years. This is mentioned as we talk about 10 year's annualised returns and we assume our returns will not vary drastically from February 2014 to October.

## 8. Ratio Analysis

### What is Ratio Analysis?

#### Comparing returns and other financial data:

By comparing different funds' performance ratios at the same point in time you are able to create a benchmark which forms the basis of cross-sectional analysis.

**A benchmark in terms of funds is a standard or level of performance that you compare your fund to, in order to identify if the fund is better or worse off than the industry standard.**

**Example 1:** Assume that the industry standard for unit trusts is a standard deviation of two and the fund you want to select has a corresponding value of 1.5. By comparing the two ratios you will notice that yours is below the industry standard, indicating prima facie that you have selected a more risk averse fund.

**Example 2:** Alternatively an investor may want to compare his/her options by performing cross-sectional analysis on two different hedge funds to determine which one will suit his/her needs more appropriately.

### Top Tips when using Ratio Analysis

Ratios that display large deviations from normal activity or the industry benchmark are an indication that something is wrong. Usually this requires further investigation to isolate the problem.

One ratio cannot be used on its own. Ratios need to be grouped together to get a better picture of the system as a whole. Only then can judgements be passed and interpretations made.

When comparing ratios across different systems it is important that the ratios all be taken at the same point in time. Otherwise there will be other variables affecting the calculations.

### Return Rate/Return on Investment

The amount of accumulated profits over the starting capital generated by a trading system. This ratio is normally expressed in percentage.

#### FORMULA:

Return rate =  $[\text{equity value}/\text{starting equity}] * 100$

Example: Suppose you invested in the RFS fund, January, with a starting capital of R3 000 and had an ending equity amount of R3 300 in December. The return rate would be 10% as you had an accumulated profit of R300.

**Note:** The return rate can either be positive or negative. This ratio cannot be used as the bottom line because a good fund has to generate profit at reasonable risk.

# Variance

Variance is a statistical tool used to measure how widely dispersed ones data is (in this paper we are looking at the dispersion of returns). The more loosely dispersed the greater the risk, the probability of your results become more unlikely as it has a wider area to cover. For example, when you drop a needle in a hay stack and the hay stack only covers one square metre of the barn; you know that the chances of you finding the needle is greater when you know you only have to look in the hay stack and not the entire barn. Therefore the variance of the barn compared to the hay stack will be greater as it covers a larger area.

This in turn gives you a measure of how "large" your risk is. The larger your variance the larger the size of your risk, because the area of error is larger.

**Note:** When talking about variance as a measure of risk we are not looking at the probability of losing money but rather how closely grouped the return on investment is accumulated profit of R300.

# Standard Deviation

In order to calculate standard deviation, one must first calculate variance as standard deviation is merely the square root of variance. In many ways standard deviation is similar to variance as the formula is only a square root difference, but the standard deviation is a measure of approximately how far off your expected result is from the actual result. (Analysts use this when trying forecast returns.)

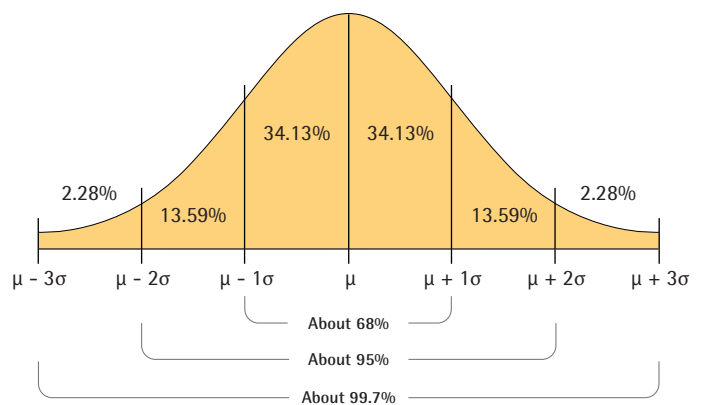
**FORMULA:**

Standard deviation = square root of variance

For example, when you go to a shooting range and you are aiming at the bull's eye (your expected result), but you miss several times, by only a few centimetres. We then do some basic calculations to get the standard deviation to approximate how far off future shots will be from the bull's eye.

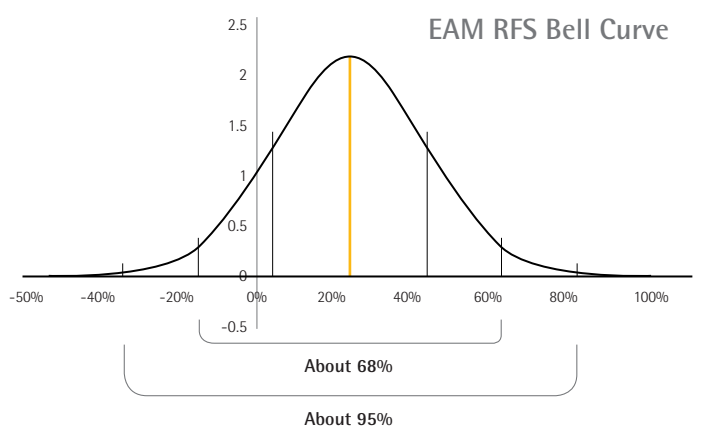
# The Empirical Rule

In statistics, we have developed an empirical rule to predict final outcomes, like assigning a probability. The rule states that 68% of the data (shots fired) will fall within the first standard deviation, 95% will fall within two standard deviations and 99.7% will fall within three standard deviations of the mean (AKA: average); which can be shown in a normal bell curve.



**From the EAM RFS fund point of view:**

1. 68% of our returns lay between 4.74% and 43.74%
2. 95% of our returns lay between -14.26% and 62.74%
3. 99.7% of our returns lay between -33% and 82%
4. With an average annual return of 23.85%



# 9. General Definitions

## Benchmark

A benchmark in terms of funds is a standard or level of performance or other variable that you compare your fund to, in order to identify if the fund is better or worse off than the industry standard. It is this level that you strive to outperform, example: we use the JSE All Share Index as the benchmark that our fund strives to outperform.

## Leverage

The use of various financial instruments or borrowed capital, such as margin, to increase the potential return of an investment.

**1 Example:** when buying a house you put down a 10% deposit (margin) and then take out a bond for the remaining 90%. Thereby leveraging your initial investment by a ratio of 1:10. To go further let us point out that if the value of the property went up by 10% you would have made 100% ROI vs. if you put down a 100% deposit and then only reaped 10%.

## Risk

The chance that an investment's actual return will be different than expected. Risk includes the possibility of losing some or all of the original investment. Different versions of risk are usually measured by calculating the standard deviation of the historical returns or average returns of a specific investment. A high standard deviation indicates a high degree of risk.<sup>1</sup>

To determine what value of risk is too high we must turn to the empirical rule.

### THE FOLLOWING IS A GUIDELINE ONLY:

Taking the industry mean we can make the following assumptions:

- Values within a one standard deviation = normal levels of risk.
- Values within a one and two standard deviation = above average levels of risk.
- Values within a two and three standard deviation = high levels of risk.
- Anything above three standard deviations is abnormally risky investments.

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