PLEXCROWN FUND RATING METHODOLOGY: DOMESTIC

The PlexCrown Ratings are done in line with guidelines set by ASISA and other criteria set by PlexCrown:

- *Unclassified and varied specialist funds are not rated.*
- *Gold and precious metals funds are also excluded due to the specialist qualities.*
- *A subcategory will be rated only if it consists of at least five funds of five years or older.*
- *Only funds with an official track record of at least five years qualify for a rating.*
- *Pure index-tracking funds that require no skill are excluded from the ratings.*
- *Funds in the Interest-bearing Money Market subcategory and other money market-related funds are not rated.*
- *Only retail funds that have published their performance figures in the public domain are considered in the ratings.*
- *Only retail funds that are open to all retail investors are considered in the ratings.*
- *Only one class of a fund is taken into account in the calculation of the fund's subcategory return averages. Where a fund has more than one class, the higher-cost A fund's returns are used. In the absence of an A class, the R class is used. If a fund has no A or R classes and only a B1 class, for instance, the latter's returns are used.*

How do the PlexCrown ratings work? [1]

In awarding a rating to a fund based on a risk-adjusted return and fund manager's skill, we accept that various quantitative measures to evaluate and rate funds each have their unique drawbacks. The main drawback of all quantitative measures is, however, the interpretation of the raw numbers. In order to overcome this, we compare the results of the measures for a fund with those of its subcategory and thus "apples with apples". We decided to base our process on the following:

1. Total risk-adjusted returns
2. Downside risk-adjusted returns
3. Manager's skill
4. Risk/Reward

1. Minimum acceptable rate of return (MAR)

As risk-free return (the minimum acceptable return or MAR) for all subcategories except the absolute and targeted subcategory we use the three-month BA rate for South Africa as per I-Net.

2. Total risk-adjusted returns

Fund returns: The calculations are based on monthly returns provided by ProfileData and calculated on a NAV-to-NAV basis.

*The **Sharpe Ratio** is currently still the performance measure used by the mainstream to establish the true return of a fund in relation to its risk - up or down.*

The ex post Sharpe Ratio was devised by Professor William Sharpe, one of three economists who received the Nobel Price in Economics in 1990 for their contributions to Modern Portfolio Theory. The ex post Sharpe Ratio is computed as follows:

*Annualised fund return in excess of the applicable MAR **divided by** annualised standard deviation of the fund's return in excess of the applicable MAR.*

A high ex post Sharpe Ratio of fund A compared to fund B indicates that fund A's returns have been higher relative to the amount of risk it has taken compared to fund B.

Although the ratio has been criticised as it may punish a fund for some months of exceptionally high performance, the deviation is not only acceptable but also preferable to many investors, statisticians and others.

3. Downside risk-adjusted returns

*The **Sortino Ratio,** originally introduced by Sortino and Price in 1994, is effectively the return per unit of risk on the downside. This ratio has gained popularity as a performance analysis tool. The proponents of this ratio argue that most investors do not care about the upside risks and are more interested in a fund's return in excess of the required return, whether it be to beat inflation or risk-free returns of money-market investments. It is also viewed as a more appropriate and accurate measure, as a manager might have very volatile upside returns but is capable of limiting downside risks through stringent risk management.*

The Sortino Ratio is calculated in the same way as the Sharpe Ratio, except that the downside deviation from returns is used and not the entire performance record (thus standard deviation). Its simple definition is the measurement of return deviation below a minimum acceptable rate.

The Sortino Ratio is computed as follows:

*Annualised fund return in excess of the applicable MAR **divided by** the annualised downside deviation of the fund's return in excess of the applicable MAR. In the calculation of the annualised downside deviation positive returns in excess of the MAR are changed to zero.*

4. Manager's skill

Manager's skill can be measured by calculating a fund's Alpha. Alpha can be defined as "the return on the portfolio left over after accounting for the level-of-market, or style, risk of the portfolio" (Performance Reporting: The Basics and Beyond, Journal of Financial Planning, October 1995) or plainly the return that may be expected from a fund if the benchmark return is zero. Franklin Templeton Investments defines Alpha as "Excess return over and above what would otherwise come from normal market forces. ... It quantifies the return arising out of factors other than Beta and Correlation".

Alpha has its drawbacks, as the correlation of the fund versus the benchmark against which it is measured has to be high in order to be meaningful. As the correlation between a fund and its subcategory group is normally very high, we use the subcategory group as the benchmark.

We calculate Alpha as the intercept of the regression line in the regression analysis of a fund's excess return above the MAR versus the average excess return above the MAR of its subcategory.

*Another method for quantifying the skills of a specific manager was devised by Jack Treynor (1965). He proposed that a manager's risk-adjusted performance be calculated as the excess portfolio return **divided** by the portfolio's Beta. This is known as the **Treynor Ratio.** The portfolio's Beta is the calculated coefficient of the co-variance of a portfolio with the relevant market portfolio **divided** by the standard deviation of the market portfolio. The Treynor Ratio in retrospect measures the excess performance a manager generates for taking non-market or non-systematic risk.*

5. Risk /Reward

*We have applied the **Omega measure** as suggested by Keating and Shadwick (2002)[2] as an additional measure to the traditional measures of the Sharpe Ratio, Sortino Ratio and Alpha.*

Although funds may have the same mean and variance, their risk-reward characteristics may differ significantly. In the case of hedge funds the returns of flexible and absolute and targeted return funds and to a lesser extent flexible funds are usually not normally distributed. The skewness and kurtosis exhibited may be linked to the fact that the ultimate goal of the managers of these funds is to make money and to protect capital against losses through hedging strategies and investment styles.

In essence the Omega is a gain:loss ratio that measures the upside probability of returns compared to the downside probability, given a minimum acceptable level of return. Put simply, the Omega measure is effectively the ratio of the price of a European call option divided by the price of a European put option.

According to Professor Eon Smit, the Omega risk/reward measure adjusts for heavy-tailed return distributions where standard risk measures lose meaningfulness. Our research and research by Mrs Ronel de Wet in her thesis for the completion of her MBA indicated that Omega can be successfully applied to all subcategories/investment classes.

Where applicable, the Sharpe Ratios, Sortino Ratios, Treynor Ratios, Alphas and Omegas of the funds are calculated over three- and five-year periods. The funds are ranked on a percentile basis over five- and three-year periods according to the Sharpe Ratio, Alpha, Treynor Ratio, Sortino Ratio and Omega.

The funds in a subcategory are then ranked. The top fund is awarded the top position (i.e. 12 out of 12 funds) and the worst fund the bottom position (i.e. 1 out of 12).

Funds within a subcategory will be ranked only if there are at least five funds in that subcategory/peer group with a history of at least five years.

The individual funds in a subcategory group are then classed according to a normal distribution curve.

Our research on the Domestic Equity sector funds indicates that the bulk (34%) of the funds fall within one half of the standard deviation from the mean return of all the funds. This compares with the 35% that is usually the case in a perfectly normal distribution curve. With the funds' performances so close to each other we decided to award a neutral rating to all these funds.

The top 10% of the funds is awarded top ratings whereas, conversely, the bottom 10% is awarded the lowest ratings. Funds falling between the bottom 10% and neutral ratings are awarded two PlexCrowns and those between the neutral ratings and top 10% are awarded four PlexCrowns.

The total rating classification therefore culminates in the following:

The funds are classed in their subcategory according to the normal distribution curve and awarded PlexCrown Ratings as follows:

Top 10% = 5 PlexCrowns

Next 22.5% = 4 PlexCrowns

Next 35% = 3 PlexCrowns

Next 22.5% = 2 PlexCrowns

Bottom 10% = 1 PlexCrown

Bottom 10%	
Next 22.5%	
Next 35%	
Next 22.5%	
Top 10%	

Where a subcategory has only five funds to be rated, the fund in the bottom position is always awarded one PlexCrown and the fund in the top position always five PlexCrowns. Should two funds in a subcategory attain the same weighted overall percentile ranking, both funds will receive the next higher level rating.

The benchmarks used as proxies for the market portfolio in the Beta calculation are as follows:

Subcategory	***JSE Code***	***Benchmark***
SA - Equity - Financial	*j580*	*FTSE/JSE Financial Index*
SA - Equity - General	*j203*	*FTSE/JSE All Share Index*
SA - Equity - Industrial	*j257*	*FTSE/JSE Industrial Index*
SA - Equity - Resources	*j210*	*FTSE/JSE Resources 20 Index*
SA - Equity – Mid and Small Cap	*j201*	*FTSE/JSE Mid Cap Index*
SA - Interest-bearing - Variable Term	*ALBI*	*All Bond Index*
SA - Interest-bearing - Short Term	*ALBI 1-3y*	*All Bond Index 1 - 3 years*
SA - Real Estate - General	*j253*	*FTSE/JSE SA Listed Property Index*
Global - Equity - General	*-*	*MSCI World Index US$ (rand)*
Global - Interest-bearing - Bond	*-*	*JP Morgan Global GB Index US$ (rand)*
Global – Real Estate - General	*-*	*EPRA/NAREIT Developed US$ (rand)*

Funds in Non-multi Asset subcategories and Interest Bearing Variable Term subcategories are ranked on a percentile basis over five- and three-year periods according to the Sharpe Ratio, Alpha, Treynor Ratio, Sortino Ratio and Omega. Funds in the Multi Asset subcategories (excluding Multi Asset Income) are ranked over five- and three-year periods according to the Sharpe Ratio, Alpha, Sortino

Ratio and Omega. Funds in the Multi Asset Income subcategory are ranked over five- and three-year periods according to the Sharpe Ratio, Alpha and Sortino Ratio. Funds in the Interest Bearing Short Term subcategory are ranked over five- and three-year periods according to the Sharpe Ratio, Alpha, Sortino Ratio and Treynor Ratio.

The funds' percentile rankings per measure over three and five years are time-weighted by applying weights of 40% and 60%. The total percentile ranking of funds in Non-multi Asset subcategories and Interest Bearing Variable Term subcategories are then calculated by applying a weight of 20% to each fund's applicable percentile rankings per measure.

In the Multi Asset subcategories (excluding Multi Asset Income), a weighting of 25% is applied to four performance measures: the Sharpe Ratio, the Sortino Ratio, Alpha and Omega, excluding the Treynor Ratio.

In the Multi Asset Income subcategory a weighting of 33.33% is applied to three performance measures: the Sharpe Ratio, the Sortino Ratio and Alpha. In the Interest Bearing Short Term subcategory a weighting of 25.00% is applied to four performance measures: the Sharpe Ratio, the Sortino Ratio, Alpha and the Treynor Ratio.

	Sharpe	**Sortino**	**Alpha**	**Treynor**	**Omega**
Global--Equity--General	**X**	**X**	**X**	**X**	**X**
Global--Interest Bearing--Short Term	**X**	**X**	**X**		**X**
Global--Multi Asset--Flexible	**X**	**X**	**X**		**X**
Global--Multi Asset--High Equity	**X**	**X**	**X**		**X**
Global--Multi Asset--Low Equity	**X**	**X**	**X**		**X**
Global--Real Estate--General	**X**	**X**	**X**	**X**	**X**
South African--Equity--Financial	**X**	**X**	**X**	**X**	**X**
South African--Equity--General	**X**	**X**	**X**	**X**	**X**
South African--Equity--Industrial	**X**	**X**	**X**	**X**	**X**
South African--Equity--Mid and Small Cap	**X**	**X**	**X**	**X**	**X**
South African--Equity--Resource	**X**	**X**	**X**	**X**	**X**
South African--Interest Bearing--Short Term	**X**	**X**	**X**	**X**	
South African--Interest Bearing--Variable Term	**X**	**X**	**X**	**X**	**X**

South African--Multi Asset--Flexible	**X**	**X**	**X**		**X**
South African--Multi Asset--High Equity	**X**	**X**	**X**		**X**
South African--Multi Asset--Income	**X**	**X**	**X**		
South African--Multi Asset--Low Equity	**X**	**X**	**X**		**X**
South African--Multi Asset--Medium Equity	**X**	**X**	**X**		**X**
South African--Real Estate--General	**X**	**X**	**X**	**X**	**X**
Worldwide--Multi Asset--Flexible	**X**	**X**	**X**		**X**