Understanding common portfolio statistics for an equity income fund

First Sentier Investors

Equity Income

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The Colonial First State Equity Income Fund (the 'Fund') seeks to deliver equity returns with a lower level of volatility than the broader equity market. This note provides a discussion of some of the issues to consider in selecting an appropriate risk measure, and also a summary of some of the more common risk measure and their applicability to the Fund.

Reports provided by consultants often contain an abundance of risk measures representing different aspects of risk. This is a reflection of the fact that the concept of "risk" is somewhat dependent on how people interpret the concept of risk and the nature and objective of the fund. For any particular investment, some risk measures will be more appropriate whilst other risk measures may be misleading.

Benchmark relative or absolute risk measures

Some risk measures are referenced relative to a benchmark and are important for benchmark aware investors who are expecting that the final investment outcome will be similar to that of a particular benchmark. On the other hand, absolute risk measures are measures of total risk and are not tied to a particular benchmark.

For the CFS Equity Income Fund, absolute risk measures are more appropriate. While in the long run the Fund is expected to provide similar returns as the market, the short and medium term risk dynamics and performance behaviours are likely to be significantly different to any market benchmark due to the presence of option strategies in the fund. The Fund is expected to outperform when the markets are flat or lower and underperform when markets are higher. Therefore, when assessing the Fund's shorter term performance, absolute risk measures will be more relevant.

What aspect of risk is being measured?

Risk is an intangible concept; unlike returns it cannot be directly observed. Risk is broadly defined as the uncertainty around achieving an expected return; a difficult concept to define explicitly. The abundance of risk measures reflects the difficulty in identifying a comprehensive number to denote risk. Instead different risk measures reflect different aspects of risk, and it highlights the importance of understanding precisely how the risk measure is applied and what it is measuring. Given the Fund aims to deliver smoother equity returns over time, absolute dispersion (standard deviation), downside risk (semi-deviation) and tail risk (maximum drawdown) are the most informative risk aspects to assess.

Time frame

The measurement time period is an important aspect of any risk measure and how the risk measure is interpreted. For example, delta is a measure how a fund is expected to move relative to a benchmark in the short term, while beta is a similar concept over longer time frames. In terms of which measure is more relevant depends on the investment horizon of the investor. Given the equity nature of the Fund, longer term risk measures are more appropriate in assessing the risk characteristics.

Final point

You can never focus on any risk measure in isolation. Every risk measure must be considered in the context of the strategies total return. This is particularly important when assessing strategies that promote 'volatility management' as a key element of the offering.

Statistic	Type of Risk Measure	Aspect of Risk	Time Frame	Application for the CFS Equity Income Fund
Standard Deviation	Absolute	Dispersion around average	Long term	Highly informative
	– Measures variability of return over a time period. – Will be lower for the CFS Equity Income Fund compared to typical long only funds or market indices. Given the Fund aims to provide equity returns with greater consistency, standard deviation is an appropriate risk measure. – Provides an indication of the degree of cushion provided by the options component of the strategy.			
Tracking Error	Relative to benchmark	Dispersion from benchmark	Long term	Not informative
	– Tracking error is widely used in the industry as a measure of active risk for long only equity funds. – For an equity income fund the presence of options will result in fund performance deviating significantly from the benchmark over the short-medium term, resulting in a high reported tracking error. – The Fund is expected to underperform in strongly rising markets, while outperforming flat or falling markets – Given the purpose of the Fund is to reduce absolute return variability, standard deviation is a much more appropriate risk measure than tracking error.			
Maximum Draw-down	Absolute	Tail Risk	Long term	Highly informative
	– Measures worse absolute loss that an investor experiences during the period of analysis. – Good measure of absolute loss and tail risk in terms of the worst experience of the fund. – The Fund should have a lower maximum drawdown compared to the benchmark – Weakness - Highlights solely the worse performing period of a fund, thus hiding how a fund behaves at every other point.			
Maximum Relative Drawdown	Relative to benchmark	Relative Tail Risk	Long term	Not informative
	– Measures the worse level of cumulative underperformance vs the market experienced by the fund. – For the Equity Income Fund, underperformance tends to result from a rising market, hence maximum relative drawdown can simply be a function of large positive market movements			
Semideviation/ Semistandard deviation	Absolute	Downside risk	Long term	Highly Informative
	– Semi-deviation measures the dispersion of returns below either zero or a fixed level. – Focuses on the absolute downside risk experienced by the Fund. – Interpreted similarly to standard deviation, with additional benefit of the focus being on only negative outcomes. – The semi-deviation for the CFS Equity Income Fund is expected to be lower than a long only fund (and the market) due to the cushion provided by option premium income generated from the sold call options			
Downside risk/ deviation	Relative to benchmark	Downside risk relative to benchmark	Long Term	Not informative
	– Effectively a tracking error measure using only the underperforming months; so it has the same problems as the tracking error metric. – Not a relevant measure for the Fund as the strategy is likely to underperform simply because the market is rising sharply, but absolute performance is attractive. Conversely, in a year in which the market has been falling, the Fund may outperform over all periods and hence report a downside deviation of zero, even though absolute performance is negative.			
Beta	Relative to benchmark	Correlation to benchmark	Long Term	Informative
	– For equity income funds that utilise options this concept is often confused with the concept of 'delta' (see below) – Beta is a measure of how a fund is expected to perform as compared to the benchmark over the long term. – As the Fund is fully invested in shares, over the long run the Fund is expected to achieve the same level of returns as an equity reference index, and as such should have a beta close to one. – But, reported beta's from regression reports such as provided by Morningstar are measured using short term data points (monthly) and is therefore more reflective of short term relationships rather than long term. It is actually indicating what we would term the 'delta'. – More informative to assess the beta of the underlying stock portfolio for this Fund.			
Delta	Relative to benchmark	Correlation to benchmark	Short Term	Informative
	– Options market concept measuring the short term relationship between the expected returns of the Fund and market. – We term 'delta' as the measure of how we expect the equity income fund to perform relative to the benchmark. – Similar concept to beta, but measured over short periods. – Can vary quickly based on market movements – Managing the delta is an important component of the active investment process for the Fund; Fund delta expected to deviate between 0.6 and 0.9			

<table>
<tr><th>Statistic</th><th>Type of Risk Measure</th><th>Aspect of Risk</th><th>Time Frame</th><th>Application for the CFS Equity Income Fund</th></tr>
<tr><td rowspan="2">R-Squared / Correlation</td><td>Relative to benchmark</td><td>Correlation to benchmark</td><td>Long Term</td><td>Not informative</td></tr>
<tr><td colspan="4">– This measure will report a similar value for long only funds and the Equity Income Fund. This is because both strategies are expected to rise when markets rise and fall when markets fall.
– But, the measure makes no allowance for the magnitude of the movement up or down. The magnitude of the move is what differentiates the Fund from typical long only funds</td></tr>
<tr><td rowspan="2">Sharpe Ratio</td><td>Absolute</td><td>Trade-off between return and standard deviation</td><td>Long Term</td><td>Some relevance</td></tr>
<tr><td colspan="4">– Calculated as the Fund return above cash divided by the standard deviation.
– The Sharpe ratio should be higher for the Fund than a long only fund, as the degree of risk reduction from options will be greater than the reduction in expected returns.
– Important: When using the Sharpe Ratio, we need to pay particular attention whether a high Sharpe ratio results from an overly low standard deviation number inflating the reported Sharpe ratio, rather than a proper trade-off between return and risk.</td></tr>
<tr><td rowspan="2">Sortino Ratio / Calmar Ratio</td><td>Absolute</td><td>Trade-off between return and downside deviation</td><td>Long Term</td><td>Some relevance</td></tr>
<tr><td colspan="4">– Calculated similarly to the Sharpe ratio but with the standard deviation replaced by semi-deviation / maximum drawdown.
– Equally as relevant as the Sharpe ratio, with similar shortcomings.</td></tr>
<tr><td rowspan="2">Treynor Ratio</td><td>Absolute</td><td>Trade-off between return and Beta</td><td>Long Term</td><td>Not informative</td></tr>
<tr><td colspan="4">– Calculated similarly to the Sharpe ratio but with the standard deviation replaced by beta or delta.
– Beta does not sufficiently take into account the impact of the options and will distort the Treynor ratio measure.
– Replacing Beta with Delta does not improve the relevance of the measure since delta is an instantaneous measure and can vary significantly over the measurement period.</td></tr>
<tr><td rowspan="2">Information Ratio</td><td>Relative to benchmark</td><td>Trade-off between alpha and tracking error</td><td>Long Term</td><td>Not informative</td></tr>
<tr><td colspan="4">– Given the low relevance of tracking error as a risk measure, the information ratio will likewise be an insufficient risk measure.</td></tr>
<tr><td rowspan="2">Omega</td><td>Absolute</td><td>Upside probability compared to downside probability</td><td>Long Term</td><td>Not informative</td></tr>
<tr><td colspan="4">– Measures the probability of achieving returns above a threshold as compared to the probability of not returning below the threshold. Similar to batting average (see below).
– An equity income fund's return is highly correlated with market movements, and hence the probability of return above a threshold will depend on market conditions. For example a fund will have a high omega when measured over a period in which the equity market is performing strongly. As such omega must be used while being mindful of the context of the prevailing market conditions.</td></tr>
<tr><td rowspan="2">Batting Average</td><td>Relative to benchmark</td><td>Consistency of outperformance</td><td>Long Term</td><td>Not informative</td></tr>
<tr><td colspan="4">– Measures the percentage of periods in which the fund outperforms the benchmark.
– The Fund is likely to underperform in rising markets and outperform in flat or down markets; hence the batting average depends on market conditions over the measurement period. If measured over a strongly rising market, the Fund will report a low batting average.
– Make no allowance for the magnitude of outperformance or underperformance</td></tr>
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