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Americas CIO View

An active skill metric: Bianco's beta adjusted information ratio

Revisiting the "trinity of alpha" with an encompassing performance metric

Not all alpha is created equally. We have argued in past publications that in order for active portfolio returns to add economic value for investors versus benchmark returns, active returns must be: 1) positive, 2) reliable, and 3) uncorrelated to benchmark.

We refer to this concept as the "trinity of alpha" and we use this concept to guide our performance goals and assess our delivered performance. Typically, we refer to a few performance metrics to assess the full trinity. Our first glance looks for positive Active or Excess return, then for a good Information Ratio and then we see if there was any persistent Beta tilt. Over time, we aim to deliver good Information Ratios with Beta close to one. We briefly discuss how to determine if an Information Ratio is "good" at the end, but the main purpose of this note is to present a performance metric that encompasses direction, consistency and any systematic risk in Active returns. Capturing these three elements of Active returns provides a measure of Active Skill.

Before we present this metric, we want to make it clear upfront that while this measure of Active Skill is better than Alpha alone or an Information Ratio alone, it must be considered along with the volatility of portfolio returns to determine if Active Skill was delivered without exceeding or underutilizing an investor's systematic risk budget (e.g. portfolio volatility / benchmark (BM) volatility). Delivering Active Skill to fit a client's risk budget, as indicated by the risk characteristics of the benchmark or otherwise specified¹, is a hallmark of successful strategy implementation. If an active portfolio's Beta is tight to one over the long-term vs. benchmark, then the Information Ratio (no adjustments required) will be the ultimate indication of Active performance: Active Skill and Implementation.

Measure Active Skill with Beta adj. Information Ratio: Alpha / Standard Deviation of Alpha

The Information Ratio is Excess Return divided by the Tracking Error (TE), with Tracking Error being Standard Deviation (STD) of sub-period Excess Returns that comprise the full period. It measures all active return against all active risk. Its numerator does not distinguish Excess Return caused by Beta deviations vs. the benchmark from that of proper Alpha. Its denominator is STD of Excess Returns, not of proper Alpha. Comparing all active return to all active risk shows what was gained by choosing to differ from the benchmark, but it does not reveal if the return gained from being different changed the long-term volatility or systematic risk of the portfolio, which is a deviation from the target risk budget.

In a nutshell

- Revisiting the "trinity of alpha" with an encompassing performance metric
- Measure Active Skill with Beta adj. Information Ratio: Alpha / Standard Deviation of Alpha
- What constitutes a good Beta adjusted Information Ratio?
- Aim to maximize the Information Ratio, but are there Tracking Error sweet spots for this objective?

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There are two kinds of deviations from a risk budget, tactical and strategic. A tactical deviation is short-term and strategic is long-term. A tactical deviation can add value if the BM produces a different return than usual in the short-term. This is really an asset-allocation decision; best made in a framework suited for such. Strategic deviation from the BM is simply poor implementation as it deviates from the total risk or volatility that the investor chooses to bear. This is why no long-term or persistent Beta tilt vs. BM should exist in an active strategy. In contrast, proper Alpha has zero correlation to BM and thus raises the portfolio's return, through securities selection, without altering the portfolio's total volatility. This added value appears in a Sharpe Ratio, but here the numerator includes the return of Beta plus Alpha, not just Alpha, and it does not address the risk of Alpha (albeit unrelated to the BM). Also, a Sharpe Ratio misses risk budget adherence; portfolio volatility must still be checked separately.

Realizing a higher return without raising portfolio volatility is the value of Alpha, but this does not come without its own risks. Alpha or active strategies are never certain. This is why Tracking Error or the volatility of Excess Returns is an important metric. Gauging active strategy risk is the nature of the Information Ratio, but to gauge the risk of proper Alpha or the reliability of a manager to produce it, i.e. their Active Skill, we use a Beta adjusted Information Ratio. This version of the Information Ratio simply substitutes Alpha for Excess Returns, as Alpha is a Beta adjusted Excess Return and Beta captures correlation to the BM. This Beta adjusted Information Ratio incorporates systematic risk, like Alpha, and the consistency of returns vs. BM, like Tracking Error.

We can use linear regression output to calculate a Beta adjusted Information Ratio:

Beta adjusted Information Ratio = Y-Intercept / Standard Error of Residuals

What constitutes a good Beta adjusted Information Ratio?

A good Information Ratio is a matter of what's available. Compare Beta adjusted Information Ratios across competing active managers to assess Active Skill. Once high Active Skill is found it can be implemented with systematic risk controls, or paired with other investments to control total risk, or employ long-short implementation. We think the long-term expected Beta adjusted Information Ratio should be at least near the long-term expected Sharpe Ratio of BM as these are both returns for risk ratios. But because these are different returns for different risks, a mix of both is optimal.

Portfolios with a high Sharpe Ratio but low volatility (or a high Information Ratio on low TE) can underutilize an investor's chosen risk budget and might require leveraged implementation to properly adhere to chosen target risk. For unlevered long only strategies, it is best to deliver attractive return/risk ratios within a minimum to maximum target risk range.

Tracking Error is the best measure of active risk. It is up to the manager to use this risk budget efficiently in a way that adds

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economic value to investors. When tilts from benchmark consist of risk factor tilts such as Beta, Size, Value, etc. they will add to TE more exponentially than will uncorrelated stock specific tilts. Risk factor tilts are difficult to time and are of no economic value if persistent. We think an interesting metric that helps to convey the nature of active risk efficiency is Active Share / Tracking Error.

Active Share

Active share, with or without modifications to account for the number and size of benchmark constituents, has been studied by many academics and practitioners and high Active Share by itself is not a meaningful indicator of likely outperformance. This is not surprising to us because there are many ways to be different from a benchmark (BM), but outperforming requires being different in the right places. Even research by advocates of high Active Share, point to the importance of considering other portfolio traits like turnover, concentration, tracking error (where sweet spots appear to exist), and also fees. It's clear that Active Share is not a return or return/risk performance metric and thus there is no value in maximizing Active Share as a deliverable. High active share is simply achieved by not owning high BM weight securities and concentrating a portfolio with small or zero BM weight securities. We aim to maximize Information Ratios, which is to maximize Alpha with reliable risk controlled strategies.

Concentration

There are many measures of concentration, such as simply the number of portfolio positions, or average position weight, or concentration ratios of top 3, 5, 10, etc. holdings. More elaborate Herfindahl² methods of squaring position weights also exist. In our view, concentration is a very important portfolio characteristic. When successful it leads to significant outperformance, but significant underperformance when not. Concentration is risky and such risk requires careful management both quantitatively and qualitatively. Concentration is a strategy where great diligence must be used to make up for the lesser diversification. Some studies show good performance from portfolios concentrated within an industry, suggesting portfolio managers with industry expertise could offset concentration risk with an information advantage. We think concentration strategies have a place for investors that fully understand the risks and managers that fully understand their abilities and also their limitations. Because concentration is risky we think portfolio construction should be very rigorous and include the use or consultation of portfolio optimization tools.

We think Concentration and Contrarianism are two strategies that can and often overlap, but we think it is important that if both strategies are used that they are used in balance and not too much of both. Contrarianism is more difficult to quantify than concentration, but we think it basically means looking for highly mispriced securities, which means looking for issues where the market or consensus view is very wrong. As should be obvious, a highly concentrated and a highly contrarian strategy is very risky. We leave it to the thoughtful consideration of others to find the right balance. Because concentrated strategies have greater single

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stock risk, it is important to have a robust buy as well as sell discipline. A challenge with evaluating concentration strategies is that it is difficult to discern skill from luck even over fairly long periods of time given the less cross-sectional diversification and greater possibility of exceptionally positive or negative outcomes at a few stocks skewing portfolio returns.

Time diversification

An investor with a long-time horizon tends to have a better chance of earning the expected return on an investment because they have more opportunities to be exposed to the probable outcome. This notion of time or linear diversification, which is an extension of cross-sectional diversification, relies on independent outcomes between periods and mean reversion in returns over time rather than mean aversion. Yet mean aversion can occur when positive or negative developments feed upon themselves. That said, the ability to use time diversification puts an investor in a better position to take risk and helps determine their appropriate risk budget, but this doesn't change the inherent risk of the underlying investment. How an investor chooses to allocate or spend their risk budget should still maximize expected return vs. risk taken or uncertainty endured. At the asset class level, we think longer-term observed volatility of total returns is a good approximate of uncertainty.

It's true that the risk of initial investment loss diminishes the higher the expected return and the longer the investment time period, but this is because the higher return is earned each period by being exposed to the higher volatility. A higher return from higher volatility is not a free lunch. Volatility that occurs along the way, even when the expected return is achieved over the longer-term, represents the possibility of not achieving the expected return. This is a real risk and the experience of confronting this risk and making decisions through such volatility and uncertainty is how the expected risk premium is indeed earned.

Aim to maximize the Information Ratio, but are there Tracking Error sweet spots for this objective?

Outperformance requires a process for identifying mispriced securities and it takes patience. Risk adjusted outperformance is not generated like clockwork, it is often lumpy and tends to require a careful balance between conviction and humility. We often think of it as similar to a tree. If it doesn't bend it breaks and if it bends too much it never stands. Because of this mindset we think that Alpha is likely to require some tolerance of tracking error, similar to how risk premiums earned come with volatility. The ideal expected return for risk ratio or alpha for Tracking Error ratio is hard to know and will differ by investor types, but there are probably some sweet spot ranges in Tracking Error that will allow an active manager to express conviction while still adhering to risk controls and the reality of never knowing everything and also a level of Tracking Error that maintains the confidence of investors in the strategy.

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Glossary

Alpha

Alpha refers to returns in excess of a benchmark's return.

Benchmark

A **benchmark** is an index or other value against which an investment's performance is measured.

Beta

Beta is a measure of volatility that captures a security's systematic risk according to the capital asset pricing model.

Correlation

Correlation is a measure of how closely two variables move together over time.

Information Ratio

Information Ratio is excess return (Alpha) divided by Tracking Error. It is a measure of a portfolio manager's ability to generate excess returns and the consistency of such.

Sharpe ratio

The **Sharpe ratio** puts an asset's excess return (the return above the risk-free rate) in relation to the asset's risk as measured by its standard deviation.

Standard deviation

Standard deviation is often used to represent the volatility of an investment. It depicts how widely an investment's returns vary from the investment's average return over a certain period.

Systemic risk

Systemic risk describes the possibility that an event at the company level could trigger severe instability or make an entire industry or economy collapse.

Tracking Error

Tracking error is an unwanted deviation between, for example, an index fund and a portfolio.

Volatility

Volatility is the degree of variation of a trading-price series over time. It can be used as a measure of an asset's risk.

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