September 2022

Tracking error is for trackers (The risk of risk management).

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Warren Buffet warns investors not to put all of their eggs in the same basket. Harry Markowitz cites diversification is the only free lunch in investing. The notion of risk management has become ubiquitous. University degrees, financial regulations, and computer models have intertwined themselves across every asset class in every faucet of risk. In the midst of all this intense focus, tracking error has become one of the most prevalent measures of risk in active management. We see danger in such a myopic focus.

Introducing tracking error

Tracking error is the fluctuation (standard deviation) of a portfolio's return relative to its benchmark's return. The measure was originally invented to evaluate how well a passive fund "tracks" its index.

Tracking error is affected by two categories of inputs:

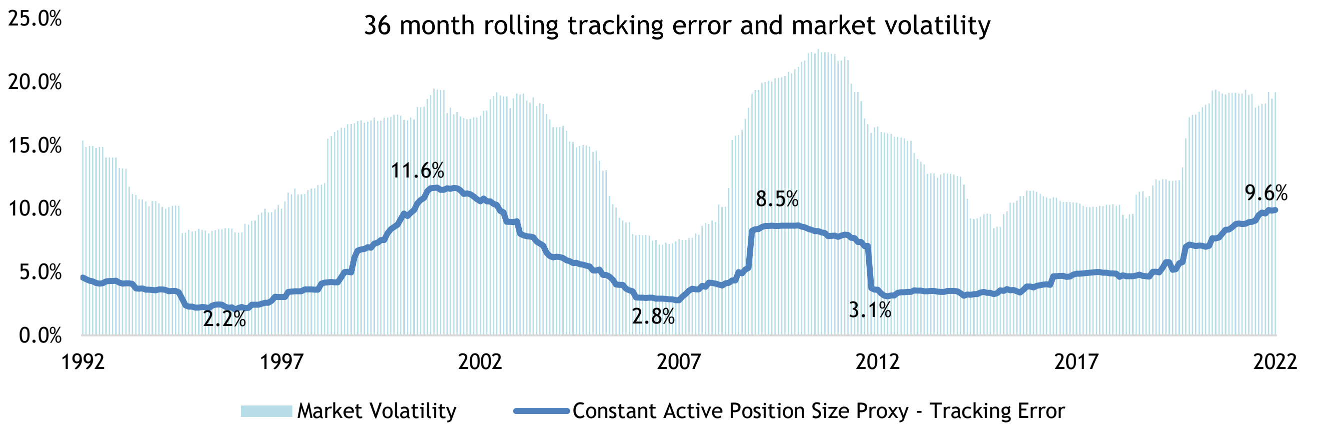
1. How active the portfolios is: the size of active positions against the benchmark (stock, sector, country, and factor level)
2. How volatile the market is: volatility of the benchmark and its components

In other words, the tracking error is affected by portfolio management choices (the size of active positions) and externalities (market volatility):

$$\text{Tracking Error} \sim \text{Active Position} * f(\text{Market Volatility})$$

We illustrate the effect of market volatility on tracking error by keeping the size of active positions constant over the entire period using a proxy portfolio[1], as shown in Exhibit 1:

Exhibit 1: Tracking error tracks market volatility



Source: SEI.

[1] We employ Investable Factor Proxies (unbiased portfolios representing the investable opportunity set available to active managers) in the analysis, choosing the Value Proxy in the U.S. Large Capitalization equity universe. It was constructed by selecting the highest value factor ranked 1/3 of stocks equally on a raw and sector-neutral basis, allocating weights equally on value factor score and capitalization-weighting, limiting the maximum benchmark-relative position size to 2% and rebalancing quarterly.

From the chart, it is evident that overall market volatility has a profound effect on tracking error. Maintaining constant active positions would have produced a miniscule tracking error of just 2%-3% in some times (like 1997 and 2007) and a high tracking error of 7%-10% in others (as in 2001, 2008, and 2022). As such, even when the size of active positions is unchanged, tracking error fluctuates dramatically. The conclusion is hardly surprising-tracking error and market volatility go hand in hand, and the latter is just too variable and unpredictable.

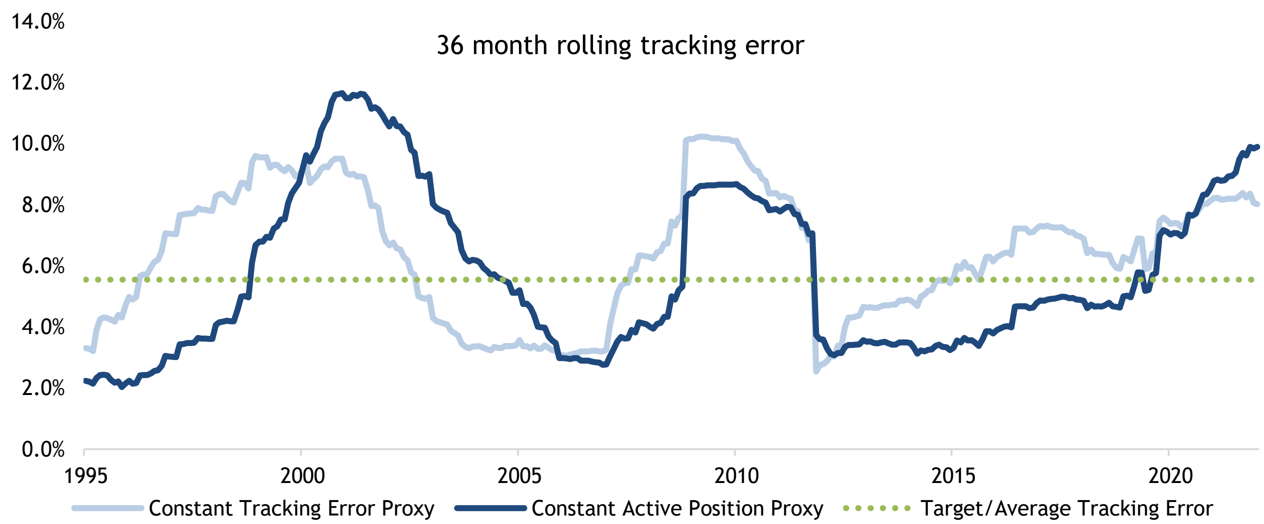
De-risking in the rear view mirror

Taking the experiment a step further, whenever the observed tracking error of the Proxy portfolio deviates from the target, we mix it with the benchmark at the exact proportion so the combined past tracking error matches the target[2] (which we will refer to as the Constant Tracking Error Proxy). The future tracking error will depend on future market volatility and, therefore, remains unknown.

The first obvious observation, as shown in Exhibit 2, is that the Constant Tracking Error Proxy is far from constant. In fact, it is as variable as the base case Constant Active Position Proxy. It turns out, perhaps not surprisingly, that reacting to past risk does little to mitigate future risk, particularly when such risk is out of our control, such as market volatility. Portfolio managers cannot control market volatility, so the only way to de-risk is to reduce the size of active positions.

Far more worrying is the return impact of such risk management efforts. As the chart shows, the Constant Tracking Error Proxy consistently and significantly lagged the Constant Active Position Proxy portfolio.

Exhibit 2: Not so constant



Source: SEI.

Volatility is cyclical and it drives the cyclicality of tracking error. It's that cyclicality that long-term investors need to look beyond. Taking too much risk during times of calm overexposes one to the next crisis. Panicking during a crisis results in the portfolio failing to recover. Shutting the stable door after the horse has bolted does little to reduce future risk, but severely damages future performance. Over a 30-year period, the Constant Tracking Error Proxy portfolio lowered the information ratio[3] by 58% (as shown in Exhibit 3).

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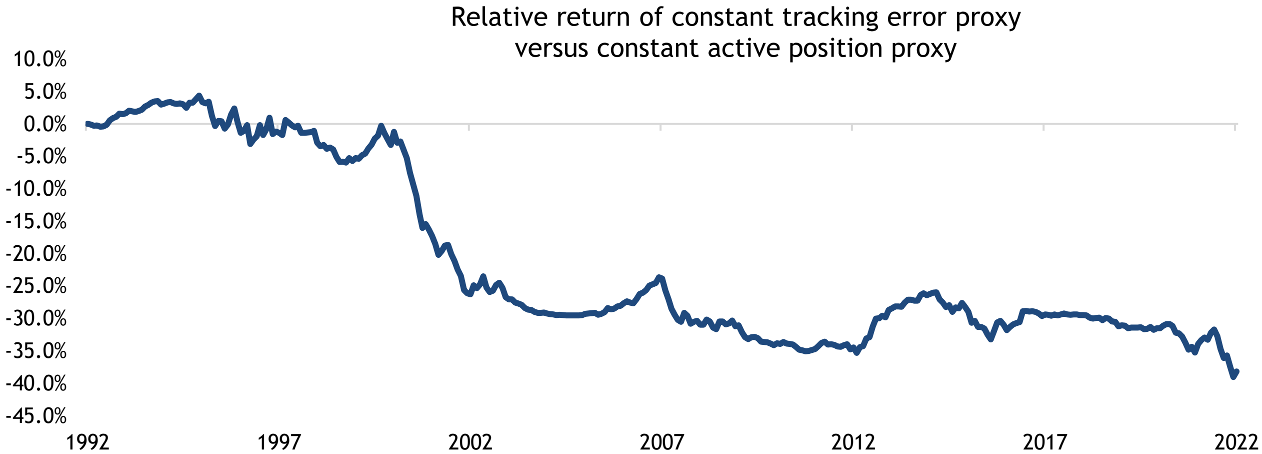
[2] The Constant Tracking Error Proxy is constructed by evaluating the rolling 36-month tracking error versus the target. If the realized tracking error is above target, for the next period the portfolio is diluted by the ratio of realized-to-target volatility, or scaled up (if tracking error runs below target). The measure is evaluated every month, with a 36-month rolling look back.

[3] Information ratio is a measure of risk-adjusted return, where a portfolio's relative return is divided by the volatility of this active return (the tracking error).

Exhibit 3: Lower returns over time



Source: SEI.

Buyer beware

Tracking error is useful in assessing how closely an index fund tracks its benchmark. As part of the information ratio, it helps to evaluate past performance of an active manager in a relevant context: 2% alpha with 6% tracking error over the same period is well within randomness bounds, but the same alpha with 2% tracking error becomes noteworthy (albeit as elusive as ever).

Over the long-term (decades) and several market cycles, tracking error helps to form a reasonable range of expectations on relative return volatility. When this range is exceeded, it can serve as useful flag to spur deeper analysis: has the fund manager increased the size of active positions, or is it simply a more volatile market environment?

As a risk management tool, however, tracking error is dangerous. It preys on "recency" biases and breeds backward-looking mentality. It can lead to excessive risk taking at times of complacency and fuel panic during crisis episodes. Unfortunately, calculating and extrapolating it under “predicted” labels has developed into a highly profitable business line for financial systems vendors. Buyer beware!

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