Would You Invest in A Coin Flip?

October 23, 2017

SUMMARY

- For active strategies, investors often focus on the potential outperformance the strategy can create.
- Beyond the potential for outperformance, active strategies also introduce tracking error: extra volatility that comes from active decisions.
- While most view tracking error as a negative, if derived from a unique source, it can actually be a beneficial source of internal diversification within the portfolio.
- In fact, if the tracking error is unique enough, a strategy can justify an allocation within a portfolio even if the expected return is negative.

About Newfound Research

Founded in August 2008, Newfound Research is a quantitative asset management firm based in Boston, MA.

Investing at the intersection of quantitative and behavioral finance, Newfound Research is dedicated to helping investors achieve their long-term goals with research-driven, quantitatively-managed portfolios, while simultaneously acknowledging that the quality of the journey is just as important as the destination.

We work exclusively with financial advisors and institutions to help them manage the wealth of their clients through our suite of investment portfolios and mutual funds.

Portfolios Focused on Risk Management

Our strategies reflect our view that investing is not easy. Emotional decisions can derail even the best laid plan. Therefore, we believe that the optimal investment plan is, first and foremost, one that investors can stick with. Research shows that investors feel the pain of losses more than they feel the joy of gains. This is reflected in a deep desire to protect the capital that they have worked hard to accumulate. Accordingly, we seek to improve risk-adjusted returns and investor experience by prioritizing downside risk management and seeking to avoid large losses.

Our portfolios are available as separately managed accounts, through model manager platforms, and as mutual funds[1].

Multi-Manager Model Allocations

For investors looking to outsource their asset allocation and manager selection decisions, we offer our QuBe ("Quantitative Behavioral") portfolio series, a suite of strategically managed, behavior aware, hybrid active/passive portfolios offered with zero overlay fee[2].

Newfound was awarded 2016 ETF Strategist of the Year by ETF.com[3].

[1] See http://www.thinknewfoundfunds.com
[2] See http://www.thinknewfound.com/qube-managed-portfolios
[3] An ETF Strategist is a firm that builds portfolios primarily using exchange-traded funds.

As investors, we spend a considerable amount of time on the pursuit of *alpha*. While in recent years the notion of alpha has been eroded by the risk-factorization of returns, the pursuit of excess return still looms large.

After all, why else would you bother being an active investor?

Yet the pursuit is not easy. In fact, as we argued in *The Frustrating Law of Active Management*[4], we would say the pursuit, by definition, has to be hard.

And the basic math often works against our expectations. Even an active strategy with an information ratio of 0.5 – meaning that it generates 1% alpha for every 2% of tracking error it takes on – still has a 5% chance of having negative realized alpha after a 10-year period. And this assumes the Information ratio is known and constant: we haven't even considered what happens if it erodes on us!

As it turns out, the proof is not always in the eating of the pudding. You can do everything exactly right and your results can still be wrong. Such is the overwhelming role of randomness in markets.

Yet while the light always shines on alpha, we think tracking error often gets overlooked as a potential source of value within a portfolio.

Investing in a Coin Flip

Pretend, for a moment, that a new mutual fund comes to market: COINX. The strategy behind COINX is simple: at the end of each month, a coin is flipped by the portfolio team. If the coin lands on heads, the investors earn a 3% return for the day. If it lands on tails, the investors receive a -3% return.[5]

Would you allocate to such a fund?

A reminder: this is a fund where there is, by definition, absolutely zero active manager and there is zero expectation of a positive return. A bit hard to imagine what the glossy brochures and pitch deck might look like…

Given the title of this commentary, you can probably guess that the answer is "yes." But why?

The answer is that the value is found in the randomness. In the context of constructing a portfolio, randomness is a diversification opportunity, which can have tremendous value.

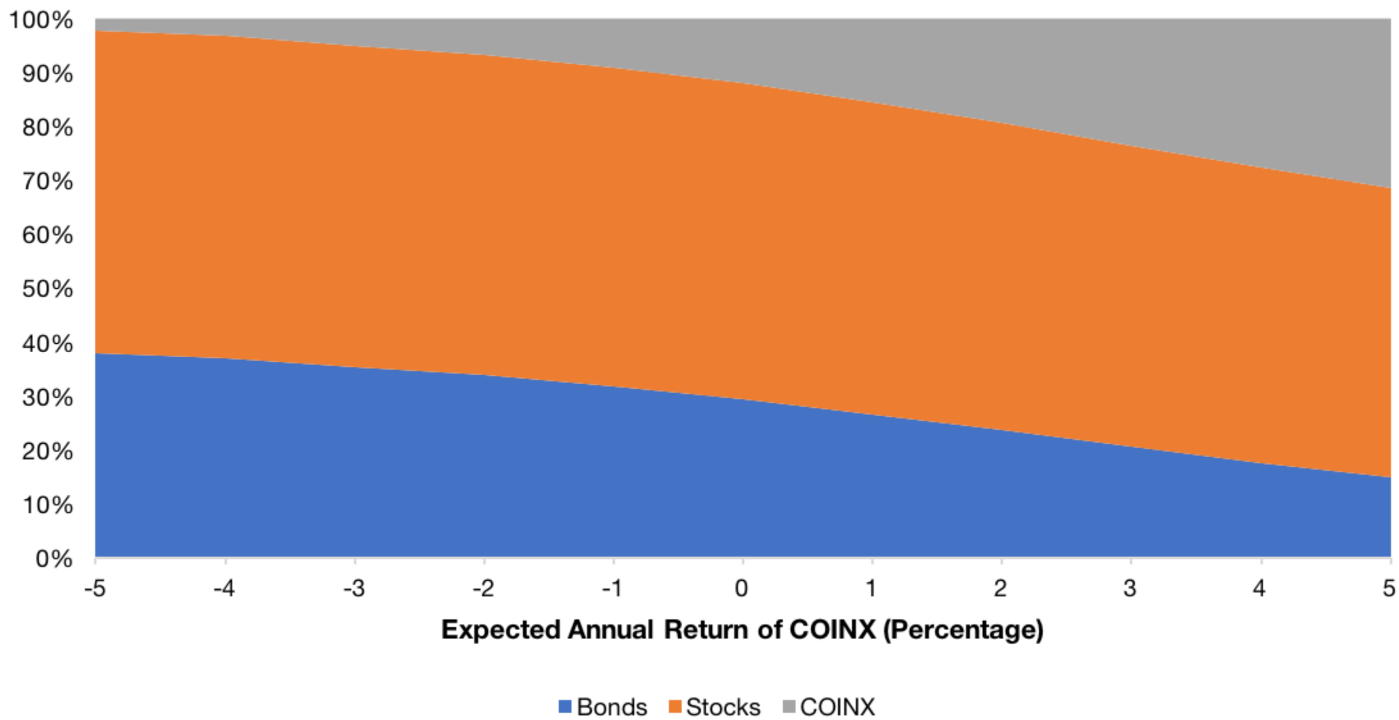
Exactly how much you would allocate would depend on what your existing portfolio looked like as well as your risk budget. To get a sense, however, we can run some simple optimizations.

Below we plot how much we would allocate between Stocks, Bonds, and COINX, assuming that we are constructing a portfolio that targets the same risk profile as a 60/40 stock/bond mix. We use a simulation-based approach and employ J.P. Morgan's 2017 capital market assumptions for U.S. Large-Cap and U.S. Aggregate Bond returns, volatility, and

[4] https://blog.thinknewfound.com/2017/10/frustrating-law-active-management/
[5] Let's ignore, for a moment, the feasibility of being able to implement such a fund in practice.

correlation. We should note that the simulation-based approach taken creates results that are different than a standard mean-variance optimization. However, we believe such an approach helps establish a more robust allocation profile that accounts for parameter uncertainty.

Finally, just to get a better sense of how valuable randomness can be, we vary the annual expected return of COINX between -5% to +5%.



The results may be surprising. With a 0% expected return, we would still allocate close to 12%. Perhaps more surprising: even when the expected return is as low as -3%, we would still allocate 5% of our portfolio. Such is the value of diversification.

This highlights an important distinction that can be hard to grasp. Expected returns are just that: *expected.* The returns that are realized, on the other hand, can be meaningfully different. While we may expect to earn nothing holding COINX, there is a non-zero probability that we do earn a positive return from randomness alone. And there is a non-zero probability that this positive return *offsets* a negative return in either stocks or bonds. Those non-zero probabilities have enough value to justify a positive allocation.

Through the Multi-Asset Looking Glass

Identifying a new asset class with a completely new and unique return source – like COINX – may seem unlikely. In reality, however, the example is not so far-fetched.

Consider that the vast majority of asset classes share exposure to common risk factors like U.S. equities and U.S. fixed income. What is left over may be another risk factor (e.g. credit spreads) or some component that is truly unique to that asset class (e.g. prepayment risk in mortgages).

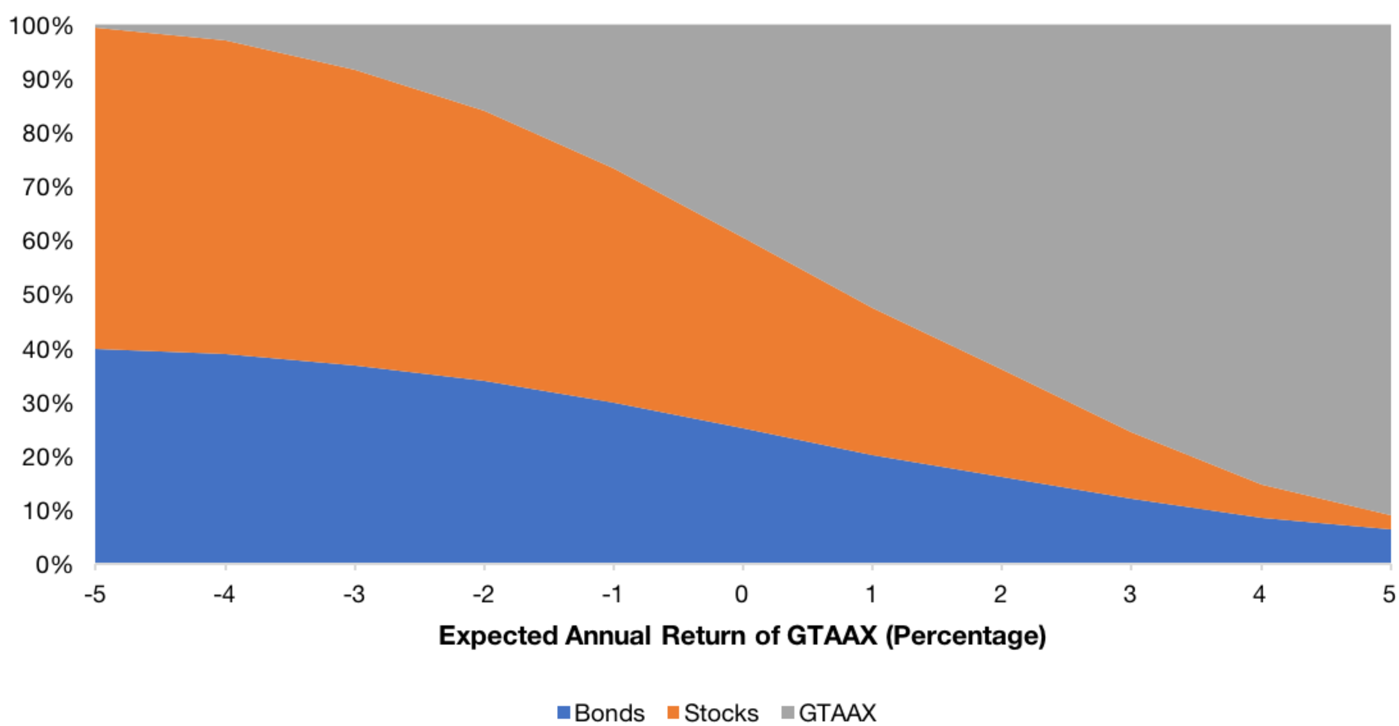
Embracing a simplified view, then, we can think of each asset class as a combination of Stocks, Bonds, and an Other category. Above, COINX played the role of this this *Other* allocation.

This framework applies to both passive allocations to new asset classes as well as active, multi-asset strategies. For example, consider a tactical multi-asset strategy whose benchmark is a 60/40 stock/bond mix, but adds a variety of active tilts. These active tilts introduce their own tracking error – and hopefully potential reward as well – that can be isolated and, again, treated as a COINX-like investment.

As above, we can use an example to demonstrate the value of this diversification opportunity.

We'll use the identical framework, but this time assume that our new global tactical strategy – let's call it GTAAX – is not entirely independent. Rather, we decompose it into a portfolio that is 60% stock return, 40% bond return, and then some added idiosyncratic risk. We'll assume this idiosyncratic risk is normally distributed with a volatility of 3%.

We'll then vary the expected annualized alpha of our strategy to see how much we would ultimately allocate.



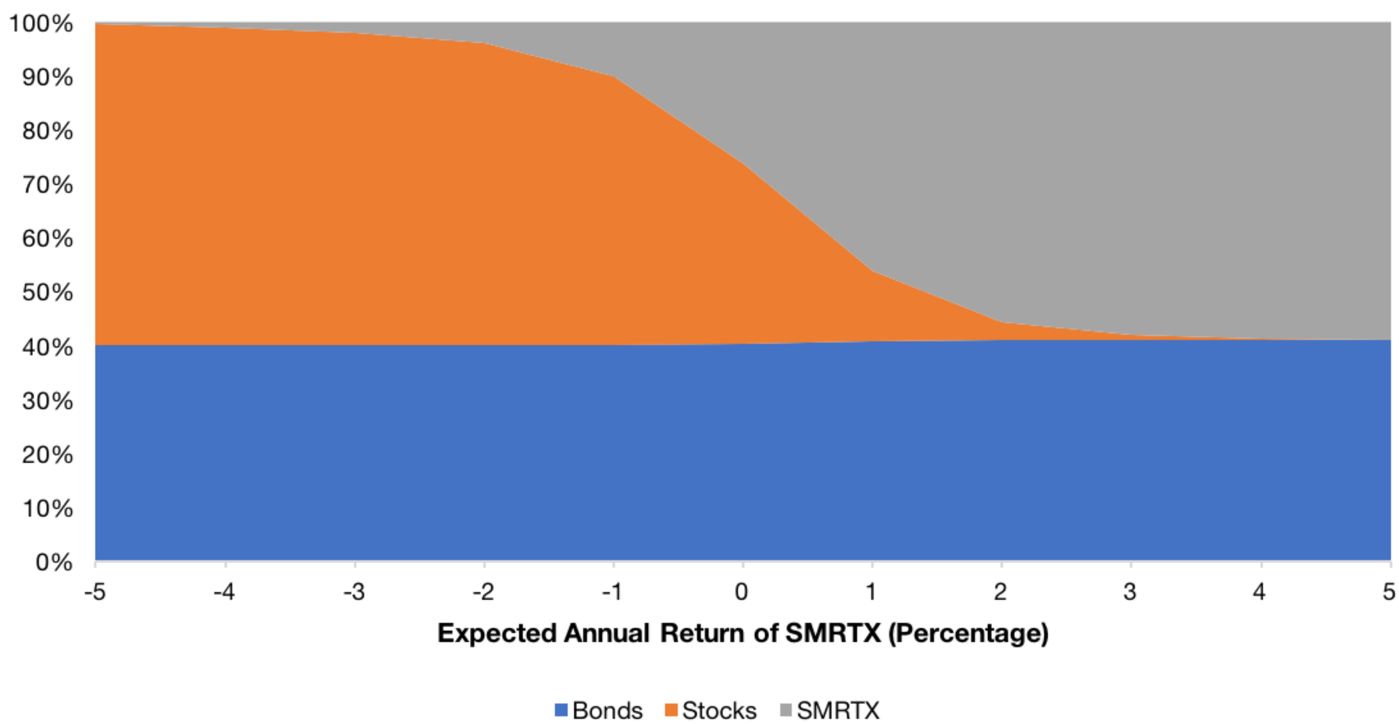
Again, we find that even when the strategy offers *zero excess return* potential, we still would have a sizable allocation to it purely for the diversification potential it brings to the portfolio. Indeed, even with a -2% expected alpha, the strategy still justifies a 16% allocation.

Allocating to Less-Than Smart-Beta

This "underlying plus other stuff" framework is perhaps most applicable in the realm of smart-beta strategies today. We can easily think of the return of such strategies as simply being "stocks plus other stuff." Ideally, that "other stuff" piece adds value.

Again, however, we find that even if it does not, it can still justify an allocation.

Consider, now, a 3rd fund: SMRTX, an undisclosed smart-beta strategy. To simulate it, we assume its returns are equal to the return of Stocks, but with random added volatility of 3% tacked on top. Once again, we vary the expected alpha for the strategy to determine how valuable the diversification truly is.



Perhaps this is the most intuitive case. When the expected alpha of SMRTX is 0%, it is given just north of a 26% allocation, while Stocks is given a 34% allocation.

That's a near fifty-fifty split. Which is, when we think about it, rather intuitive. Just adding random noise on top of the Stocks return means that SMRTX should out-perform Stocks 50% of the time, and underperform 50% of the time. However, without any compensated for the excess volatility, we end up allocating slightly less than 50% of the equity sleeve.

We can see that even if we have an expected alpha of -1%, SMRTX still ends up with 10% of the portfolio.

In other words, even if we expect our active stock strategy to be a long-term drag on performance, it might still be worth allocating to for the diversification benefit that the active bets introduce.

Conclusion

The discussion of active investment approaches predominately revolves around the excess return potential they may render. Given both the philosophical and the mathematical pressures *against* consistent alpha, we believe that investors basing their decisions solely upon this expectation are bound to be disappointed.

As it turns out, however, *randomness* has value. Or, said better: *diversification* has value. The tracking error introduced by many active strategies can actually be beneficial to a portfolio, and can justify an allocation to a strategy or asset class that has a negative expected return.

This may be odd to consider, but almost everyone already does it: it's *exactly* what insurance is. While insurance has a negative expected return (insurance companies are not charities, after all), we still pay the premium to offset risk in catastrophic scenarios.

Similarly, we believe investors would do well to evaluate strategies not only for their potential value-add, but also for added internal diversification benefit they may be able to introduce.

Corey Hoffstein & Justin Sibears

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