THE WISDOMTREE U.S. MULTIFACTOR INDEX: WATCH YOUR WEIGHT

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When reading through your daily dose of smart beta literature, you will find some who believe equally weighting an index is a smart beta approach and some who don't. We believe the necessary question is, "Does equal weighting provide exposure to a factor or an academically proven source of excess return?" The answer to that question is a resounding yes.

Size, or the idea that smaller companies provide excess return compared with larger companies over time, was one of the core tenets of Fama and French's original research. Below we see how the S&P 500 Equal Weight Index, since its first full month of live data, flipped the size factor loading of these 500 stocks from negative to positive, indicating a now positive movement with Fama and French's size premium. This result is intuitive, as equal weighting reduces the weight of the higher market cap stocks while simultaneously increasing it to smaller-cap stocks, relative to market cap weighting.

Figure 1

Index	2/1/03–5/31/17				
	Mkt-RF (Beta)	SMB (Size)	HML (Value)	RMW (Quality)	CMA (Investment)
S&P 500 Equal Weight	1.08	0.13	0.08	-0.02	0.02
S&P 500	1.01	-0.15	0.02	0.04	0.03

Sources: WisdomTree, Kenneth French Data Library, Zephyr StyleADVISOR, as of 5/31/17. Mkt-RF: Represents the market equity risk premium. SMB: Premium representing small companies minus big companies. HML: Premium representing high book-to-market companies minus low book-to-market companies. RMW: Premium representing robust operating profitability companies minus weak operating profitability companies. CMA: Premium representing conservative investing companies minus aggressively investing companies. You cannot invest directly in an index. Past performance is not indicative of future results.

Because equal weighting provides access to size, the question then becomes, what do the results look like versus the S&P 500 Index market cap weighted over a full market cycle or longer?

Figure 2

Index	Summary Statistics, 2/1/03–5/31/17						
	Return (%)	Std Dev (%)	Beta	Sharpe Ratio	Tracking Error (%)	Information Ratio	Correlation
S&P 500 Equal Weight	12.00	16.07	1.16	0.67	4.35	0.52	0.97
S&P 500	9.73	13.51	1.00	0.63	0.00	0.00	1.00

Source: WisdomTree, Zephyr StyleADVISOR, as of 5/31/17. You cannot invest directly in an index. Past performance is not indicative of future results.

The S&P 500 Equal Weight Index outperformed the S&P 500 Index by an average of more than

200 [basis points (bps)](#) per year, over almost 15 years. And while it did have higher [volatility](#) compared to the S&P 500, it did so with a higher [Sharpe ratio](#). Similarly, while it experienced meaningful [tracking error](#) compared to the S&P 500, it did so with a meaningfully high [information ratio](#). In short, through the lens of smart beta exposures and the size factor, equal weighting worked.

The [WisdomTree U.S. Multifactor Index](#) and Modified Equal Weighting

Our new WisdomTree U.S. Multifactor Index selects companies based on four factors: [quality](#), [value](#), [momentum](#) and [low correlation](#). One may wonder why we excluded size. Well, in our view, we didn't. We gain exposure to the size factor by virtue of how we weight constituents.

The chart below shows aggregated constituent weights of the S&P 500, the WisdomTree U.S. Multifactor Index, and the S&P 500 Equal Weight Index as of June 27, 2017. We broke the data into [deciles](#), so the first decile represents the index weight that is allocated to the largest 10% of constituents. For the S&P indexes, this is roughly the top 50 stocks, while for the WisdomTree Index, which consists of 200 stocks, the first decile represents the top 20.

Figure 3: Index Weight Distribution as of 6/27/17
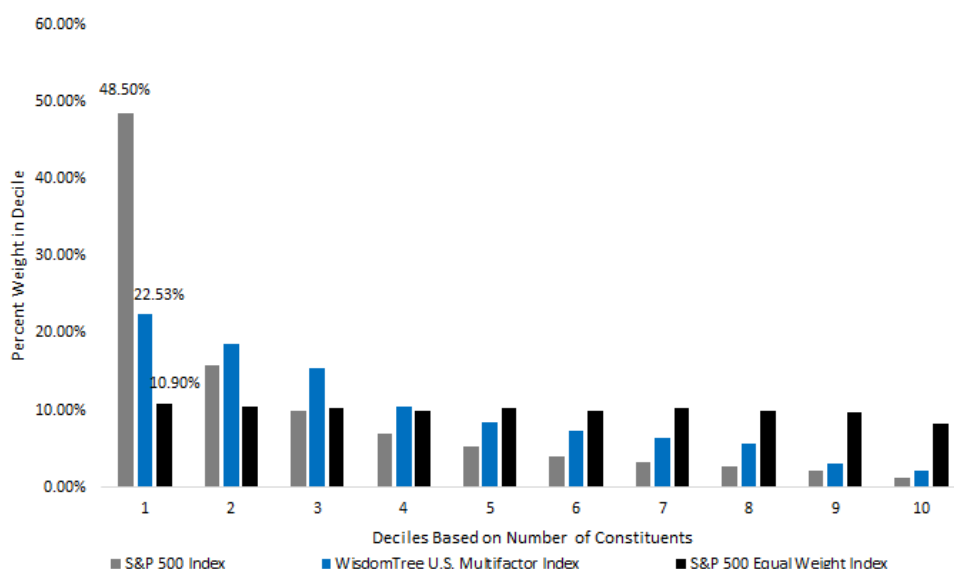
Sources: WisdomTree, Bloomberg, as of 6/27/17. The S&P 500 Equal Weight Index may experience drift between quarterly rebalances and unique stock classifications (such as the numerous share classes of Alphabet) which may cause slightly unequal weight distributions. You cannot invest directly in an index. Past performance is not indicative of future results.

The largest difference in the chart above is in the first decile, where the S&P holds almost half of its entire weight. The WisdomTree U.S. Multifactor Index, however, looks and feels much more like equal weighting; that is, it more evenly distributes weight among the different deciles. This relationship provides our Index with size exposure and leads us to believe that while not being equal weighted exactly, it achieves a form of modified equal weighting. To put that into greater perspective, as of this writing, the new WisdomTree Index encompasses nearly $8 trillion of combined market cap, with about 41% of the Index weight belonging to mid-cap companies. Let's explore how exactly it's modified and why we think it adds value to the WisdomTree U.S. Multifactor Index beyond just providing size exposure.

How the WisdomTree U.S. Multifactor Index Weights

To frame our discussion, let's begin with acknowledging that the WisdomTree U.S. Multifactor Index weights each stock based on two metrics:

- Half Composite Factor Score (CFS)

- Half Volatility Score

Let's first investigate the half CFS weighting, the cornerstone of the modified equal-weighting approach.

WisdomTree ranks 800 stocks by each factor and then assigns a CFS to each, measuring a stock's combined exposure to value, quality, momentum and low correlation. Using this system, 1 would be the best CFS while 0 would be the worst. From there, we select the top 200 stocks by this score to be included in the Index.

We consider a higher CFS to mean stronger and more diversified factor exposure and thus a higher probability to generate alpha. Due to our high conviction in our alpha signals, we naturally wanted to go beyond using it as just a selection, also incorporating it into stock weighting. Therefore, we tilt to stocks with higher Composite Factor Scores and tilt away from stocks with lower Composite Factor Scores.

As an example, let's use a universe of 8 stocks instead of 800, and select 2 stocks instead of 200.

# of Stocks	Composite Factor Scores
1	0.10
2	0.30
3	0.23
4	0.98
5	0.76
6	0.52
7	0.55
8	0.44

When you select only the top 200 Composite Factor Scores between 0 and 1, you end up with stocks that have similar, high Composite Factor Scores. Looking at our example, stocks 4 and 5 both have scores over .75, well above the rest of the universe. If we used 200 stocks instead of 2, numbers like .98, .95 or .93 would receive little weight differences, leading to the equal-weighted feel shown in figure 3.

This CFS weighting system accounts for only half of the weight, however.

The other half of weighting considers each of these stocks trailing 12-month volatility, tilting this alpha-oriented basket more to those companies that we believe may provide higher risk-adjusted returns going forward.

Conclusion: Four Factors through Selection, but Six through Weighting

The equal-weighted nature of selecting only the top 200 companies with the highest CFS and attributing half of each stock's weight to that CFS exposes the WisdomTree U.S. Multifactor Index to an additional factor: size, which is an important long-term driver of excess return. Weighting by half low volatility then takes these alpha-selected stocks and tilts toward those with less volatility historically, thus providing higher potential for superior risk-adjusted returns.

An important final step, which will not be discussed at length in this post, is that we then adjust these final weights one more time to be sector neutral compared to the market, helping to ensure potential alpha is achieved through diversified factor-based selection and weighting rather than large sector bets.

In short, we believe in equal weighting but we also believe in our diversified factor signal and in risk-adjusted returns. In this way, we believe WisdomTree has managed to have its cake and eat it too, maintaining both a return/risk-focused weighting system while also capitalizing on the benefits of an equally weighted approach.

Important Risks Related to this Article

Diversification does not eliminate the risk of experiencing investment losses.

For standardized performance and the most recent month-end performance click here NOTE, this material is intended for electronic use only. Individuals who intend to print and physically deliver to an investor must print the monthly performance report to accompany this blog.

For more investing insights, check out our Economic & Market Outlook

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DEFINITIONS

Smart Beta : A term for rules-based investment strategies that don't use conventional market-cap weightings.

Fama-French : Refers to a factor-based model to describe stock returns developed by Eugene Fama and Kenneth French. Their original three-factor model breaks down the components of stock returns to market risk, company size and book to market ratio, or value.   .

S&P 500 Equal Weight Index : Designed to track the equally weighted performance of the 500 constituents in the S&P 500 Index.

Market Capitalization : Market cap = share prices x number of shares outstanding. Firms with the highest values receive the highest weights in approaches designed to weight firms by market cap.

Small caps : new or relatively young companies that typically have a market capitalization between $200 million to $2 billion.

S&P 500 Index : Market capitalization-weighted benchmark of 500 stocks selected by the Standard and Poor's Index Committee designed to represent the performance of the leading industries in the United States economy.

Basis point : 1/100th of 1 percent.

Volatility : A measure of the dispersion of actual returns around a particular average level. .

Sharpe ratio : Measure of risk-adjusted return. Higher values indicate greater return per unit of risk, specifically standard deviation, which is viewed as being desirable.

Tracking Error : Can be discussed as both the standard deviation of excess return relative to a specific benchmark, or absolute excess return relative to a specific benchmark.

Quality : Characterized by higher efficiency and profitability. Typical measures include earnings, return on equity, return on assets, operating profitability as well as others. This term is also related to the Quality Factor, which associates these stock characteristics with excess returns vs the market over tim.

Value : Characterized by lower price levels relative to fundamentals, such as earnings or dividends. Prices are lower because investors are less certain of the performance of these fundamentals in the future. This term is also related to the Value Factor, which associates these stock characteristics with excess returns vs the market over tim.

Momentum Factor : Characterized by assets with recent price increase trends over time. This term is also associated with the Momentum Factor which associates these stock characteristics with excess return vs the market over time.

Low Correlation : Characterized by assets that have a relatively lower correlation vs the market over time. This term is also associated with the Low Correlation Factor which associates these stock characteristics with excess returns vs the market over time.

Decile : each of ten equal groups into which a data set can be divide.

Composite Factor Score (CFS) : Taking individual measurements of factor exposures, and combining them into a single measure meant to represent multifactor exposure for a certain asset. For example, in the case of the WisdomTree U.S. Multifactor Index, the composite factor score aims to measure factor exposures to Value, Quality, Momentum and Low Correlation as they relate to a single asset..

Alpha : Can be discussed as both risk-adjusted excess return relative to a specific benchmark, or absolute excess return relative to a benchmark. It is sometimes more generally referred to as excess returns in general.

Risk-adjusted returns : Returns measured in relation to their own variability. High returns with a high level of risk indicate a lower probability that actual returns were close to average returns. High returns with a low level of risk would be more desirable, as they indicate a higher probability that actual returns were close to average returns.