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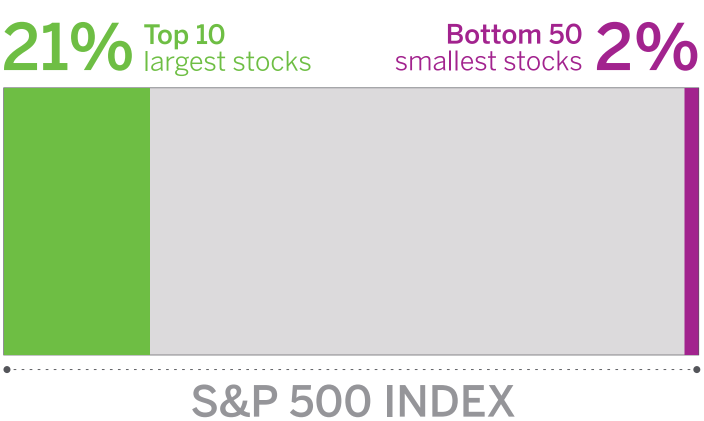
Cap-weighting: A wolf in sheep's clothing

Beware the false sense of diversification offered by market-cap-weighted indexes.

"For years investors have flocked to ETFs that track market-cap-weighted[1] indexes," says Mannik Dhillon, president of VictoryShares and Solutions. "But this herd mentality may be dangerous, particularly with regard to the perceived diversification benefits. I think it's time we acknowledge that there may be severe limitations to cap-weighting."

That's a strong warning for these popular passive investments. Still, it's hard to blame investors for their allegiance to cap-weighted products given that the iconic S&P 500® Index[2] has evolved into the de facto barometer for large-cap equities. This market-cap-weighted index is omnipresent, and the lure of ETFs and mutual funds built to track it is understandable.

S&P 500 INDEX: WEIGHT OF TOP 10 VS. BOTTOM 50 STOCKS *(Based on market capitalization as of June 30, 2018)*



Source: FactSet.

For a handful of basis points, investors are offered a seamless way to allocate across roughly 500 of the largest U.S. companies. In theory, this sounds like a fine way to invest capital earmarked for large-cap equities. But before hitting the buy button, investors just might want to consider if they are being lulled into a false sense of security by overestimating the true diversification benefits of market-cap-weighted indexes. In reality, investors are getting stock exposure that's skewed toward mega-caps.

When the largest companies that dominate this broad market index rise steadily, market-cap-weighted products will follow suit. But investors may soon find that there's also a downside to market-cap weighting, given that size and sector concentrations are extremely high.

"Contrary to popular belief, cap-weighting is not an all-weather strategy," Dhillon asserts. "I think there are better index construction methodologies that can deliver the benefits that passive investors crave, especially considering where we are in the cycle."

Excessive influence

Market-capitalization indexes are built by weighting individual constituents by their total size. In other words, the price of each component times the total outstanding shares equals its market cap (or market value). The larger a company becomes, the larger its percentage of the overall index. Herein lies the issue.

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In a cap-weighted index like the S&P 500, the mega-caps have a significant impact on overall performance. So while products that track it offer access to approximately 500 different securities, performance can be skewed heavily given that the top 10 stocks equal roughly 20 percent of the index.

Apple already sports a market cap in excess of $1 trillion, and Amazon has been flirting with that valuation as well. These two tech heavyweights are disproportionately larger than the smallest constituents in the S&P 500 by a wide margin. As a result, their price performance matters plenty, while the smallest companies in the index, News Corp and Under Armour, are virtually irrelevant.

"This concentration risk is acute in the S&P 500, and it has been exacerbated given the stellar performance and strong momentum of a handful of mega-cap stocks over the past several years," explains Dhillon. "Sure, the index has enjoyed this recent tailwind, but what happens when the tech-heavy mega-caps stumble?"

A stark example is Facebook's second quarter 2018 earnings report. Investors certainly didn't "like" the report, probably due to slower-than-expected user growth and the specter of decelerating revenue growth. The share price plummeted more than 20 percent, a market cap loss of more than $120 billion, in a single day (July 26, 2018). At its peak before the report, Facebook represented more than two percent of the S&P 500, so the resulting performance drag from this single constituent was significant. Is this the type of diversification a passive investor really wants?

Buy high, sell low?

Mannik S. Dhillon, CFA, CAIA
President of VictoryShares and Solutions

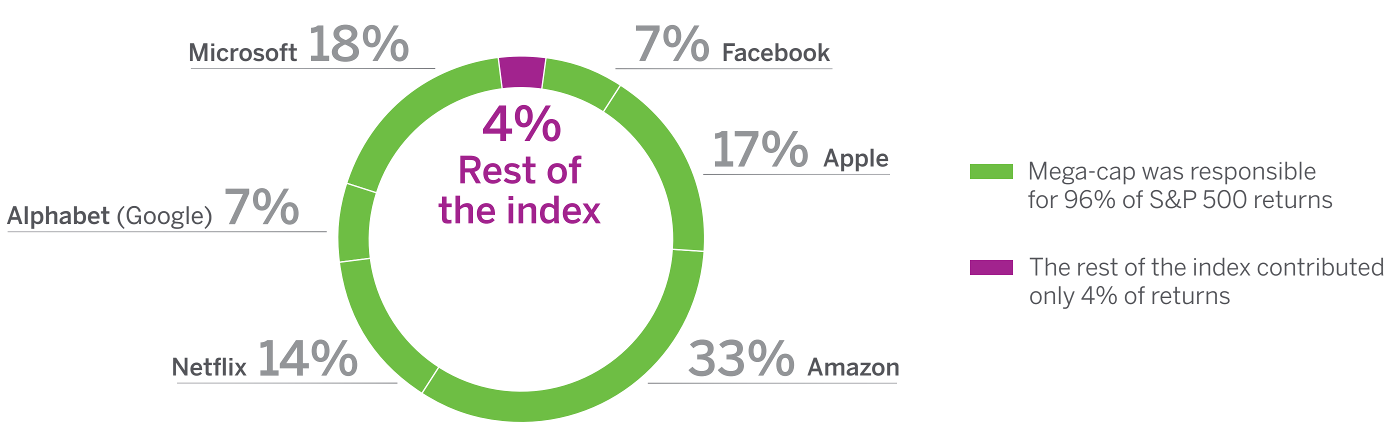
A market-cap-weighted fund by its very design increases investment in an appreciating stock and decreases investment in a falling stock. The bigger a company gets, the more it costs to buy that stock. But of course the converse is also true. So as more and more money flows into cap-weighted products, the top stocks may get overbought or oversold. That's just inherent to the methodology. What investors may not fully grasp, however, is that a cap-weighted index like the S&P 500 is long momentum as a factor,[3] and that could have adverse ramifications in turbulent markets.

"When momentum is working, cap-weighting strategies look great," Dhillon continues. "But no single factor works all the time. The forced buying at higher prices is not a particularly good way to invest. We all want to buy low and sell high, but cap-weighting by its very construct does the exact opposite. It boggles the mind. Why should investors settle for that?"

There's also the issue of reconstituting the index. It's intuitive that a large-cap index will add names when they have reached a critical mass and are more expensive, and it removes names that have fallen below the large-cap threshold. That's another example of how the index essentially buys high and sells low.

CONTRIBUTIONS TO S&P 500 RETURNS *(First half of 2018)*

Contribution to return measures the impact individual portfolio constituents have on the portfolio's overall return.



Source: FactSet, as of June 30, 2018.
VictoryShares US 500 Volatility Wtd ETF (CFA) held a 0.22% position in AAPL, a 0.19% position in AMZN, a 0.20% position in FB, and a 0.15% position in NFLX, as of June 30, 2018.

VictoryShares US 500 Enhanced Volatility Wtd ETF (CFO) held a 0.22% position in AAPL, a 0.19% position in AMZN, a 0.20% position in FB, and a 0.15% position in NFLX, as of June 30, 2018.

Past performance does not guarantee future performance results.Indexes are unmanaged and it is not possible to invest directly in an index.

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PICK YOUR PASSIVE: WHICH INDEXING METHODOLOGY IS RIGHT FOR YOU? *(Five years as of June 30, 2018)*

	S&P 500 Index	S&P 500 Equal Weight Index[9]	Nasdaq Victory U.S. Large Cap 500 Volatility Weighted Index[10]
Return	13.42%	12.76%	13.60%
Standard deviation[4]	9.81%	10.13%	9.79%
Sharpe ratio[5]	1.33	1.22	1.35
Up capture[6]	100.00%	96.96%	96.59%
Down capture[7]	100.00%	100.40%	91.54%
Beta[8]	1.00	1.00	0.96
	The market-cap-weighted S&P 500 has become extremely concentrated in its top holdings and a single sector, tech. Is this enough diversification?	The equal-weighted methodology attempts to diversify concentration risk but ends up with more risk than the S&P 500, as measured by standard deviation.	The volatility-weighted index addresses concentration risk and seeks to provide broad diversification benefits, while maintaining a risk profile similar to a mega-cap index. Does this approach offer better risk-adjusted returns?

Source: Zephyr, as of June 30, 2018.

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Ultimately, a market-cap-weighted benchmark like the S&P 500 may not be the best way to gain diverse exposure to the market, especially over the longer term. One only needs to step back to consider the price performance of GE or Exxon at their peak market value relative to where they are today. Will the winners in the top-heavy S&P 500 continue to hold their lofty status? When the largest company in the index falls, it will more than offset any benefits of a much smaller constituent going up. That's just how cap-weighting works.

Equally deceiving

While products tracking market-cap-weighted indexes have captured the bulk of passive allocations, there have been updated approaches aimed at combating some of their limitations. An equal-weighted stock index, for example, allocates the same amount to all constituents, giving no regard to size or risk. In the S&P 500® Equal Weight Index, every company's allocation is fixed at 0.20 percent (quarterly).

This feeble attempt at diversification does mitigate some of the sector and large-company biases of traditional cap-weighting. Mission accomplished. But unfortunately it also ratchets up the risk. Beware the unintended consequences.

"I believe equal-weighting index construction is just a naive attempt to address cap-weighting's limitations," says Dhillon. "Sure, it prevents the largest stocks from dominating the portfolio, but at what cost? Equal weighting overallocates to smaller companies, which historically tend to be more volatile over time. So in the end you're just trading one risk for another in an effort to chase marginally better performance."

Of course there's nothing wrong with small stocks. But if investors are using an equal-cap-weighting methodology for broad market allocation, they might consider if they want the inherent small-cap risk that comes with it. Such an equal-weight approach might be great in up markets, but it might also run into trouble in turbulent times given the volatility profile of small caps.

"On performance, equal weighting may look pretty good, but it's important to understand the true risks intrinsic to this equal-weighting methodology," Dhillon points out.

Risk weighting: Evolution, not revolution

Popular as they may be, both traditional cap-weighting and equal-weighting methodologies have limitations. But is there a better way that solves for the diversification needs of passive investors?

"We prefer an indexing methodology based on risk," explains Dhillon. "A volatility-weighted index de-emphasizes concentration risk and seeks to equalize the risk contribution among all constituents. I maintain that volatility-weighted indexes have the potential to perform more consistently in a variety of environments, which is particularly important where we are in the cycle today."

The goal of risk weighting isn't simply to lower volatility. Rather, it's to provide a better, broader index and to offer enhanced diversification potential.

A common criticism of non-cap-weighted strategies is that they skew "down cap," similar to equal-weighted products. In other words, both methodologies allocate more heavily to smaller companies versus mega-caps. But adding in a screen to focus on higher quality companies and then using risk—as measured by standard deviation—to weight the constituents should result in a portfolio with a potentially lower overall risk profile.

VictoryShares offers a suite of ETFs that track volatility-weighted indexes. These products were built to address the limitations of cap-weighting. They aim to offer broad market exposure and enhanced diversification, while seeking higher returns and lower risk compared to traditional market-cap weighting. Moreover, the universe of stocks eligible for inclusion in these volatility-weighted indexes is limited to companies that show consistent profitability. Incorporating such a fundamental component introduces an element of quality to the portfolio, with the goal of outperforming market-cap indexes on a risk-adjusted basis over complete market cycles. VS

1 **Market capitalization**, commonly referred to as "market cap," is a figure used to determine a company's size. It is calculated by multiplying a company's outstanding shares by the current market price of one share. Companies can be ranked by their market capitalizations, and are typically ranked as large-cap, mid-cap or small-cap companies.

2 The **S&P 500® Index** is a market-capitalization-weighted index generally considered to be representative of U.S. equity market activity. The index consists of 500 stocks representing leading industries of the U.S. economy.

3 **Factors** are isolated components of investments that influence performance and risk. Momentum is one of the six widely accepted academic factors. It suggests that stocks that have outperformed in the recent past may deliver strong returns in the near future. Momentum strategies are also considered to carry higher levels of risk and volatility.

4 **Standard deviation** is a statistical measure of volatility and is often used as an indicator of risk.

5 **Sharpe ratio** uses standard deviation to measure a fund's risk-adjusted returns. The higher a fund's Sharpe ratio, the better a fund's returns have been relative to the risk it has taken on.

6 **Up capture** is the statistical measure of an investment manager's overall performance in up-markets.

7 **Down capture** is the statistical measure of an investment manager's overall performance in down-markets.

8 **Beta** is a measure of the volatility, or systematic risk, of a security or portfolio in comparison to the market as a whole.

9 The **S&P 500® Equal Weight Index** (EWI) is the equal-weight version of the widely used S&P 500. The index includes the same constituents as the capitalization-weighted S&P 500, but each company in the S&P 500 EWI is allocated a fixed weight (0.2% of the index total) at each quarterly rebalance.

10 The **Nasdaq Victory U.S. Large Cap 500 Volatility Weighted Index** contains the 500 largest publicly traded stocks within the Nasdaq Global Index universe that have a Nasdaq country definition as United States and that have four consecutive quarters of net positive earnings.

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Investing involves risk, including the potential loss of principal. There is no guarantee that dividends will be paid. The value of the equity securities in which the Fund invests may decline in response to developments affecting individual companies and/or general economic conditions.

You may lose money by investing in the Fund. There is no guarantee that the Fund will achieve its objective or the index strategies will be successful. The Fund has the same risks as the underlying securities traded on the exchange throughout the day.

There can be no assurance that an active trading market for the ETFs shares will develop or be maintained. Diversification does not guarantee a profit or protect against loss in a declining market.

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