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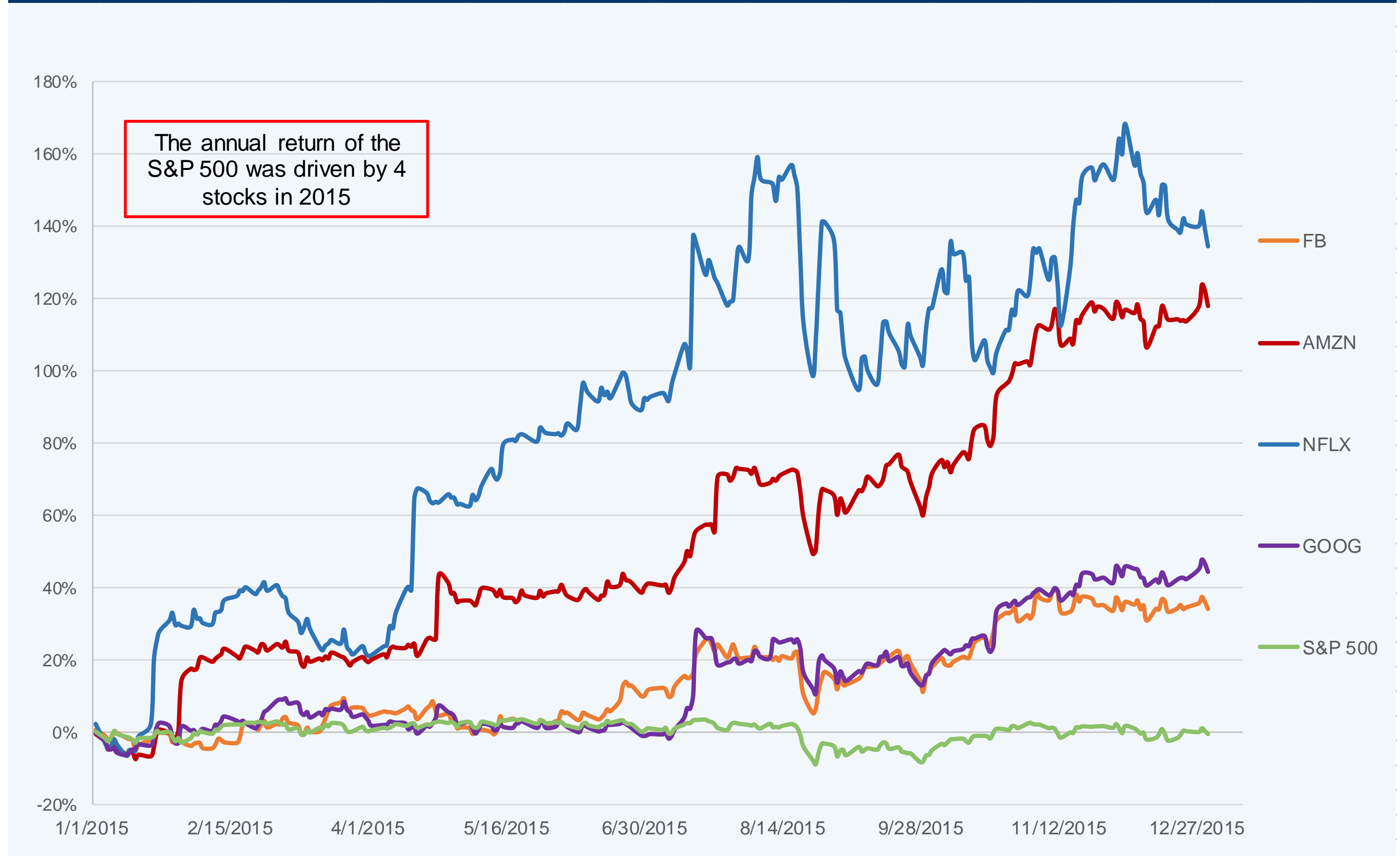
Comparing Apples to Oranges: The Flaws of Benchmarking to the S&P 500

Last year was a puzzling year for investors benchmarking to the S&P 500. The index finished the year +1.38%, yet according to Openfolio, nearly 70% of investors lost money. If the index, which has become almost interchangeable with "the market", was positive, how did so many investors finish the year in the red?

If you begin peeling back the layers of the S&P 500 the answer becomes apparent – the average US stock struggled more than the total return of the index indicates. In fact, if you use the Value Line Geometric Composite, which is a measure of the median stock's performance of 1,700 US companies, the average US stock fell by nearly -11% in 2015.

The positive return of the S&P 500 was driven by the banner years of four large technology companies – Facebook, Amazon, Netflix, and Alphabet (Google). All of these F.A.N.G stocks were up over +30% in 2015 and because of their larger weightings within the S&P 500, the overall return of the index was skewed to the upside.



2015's disparate returns amongst US equity stocks demonstrates some of the pitfalls of benchmarking with the S&P 500. The S&P 500 is one of the most commonly used benchmarks, especially for US investors. However, it is important to understand the shortcomings of benchmarking against the S&P 500 and how it can lead to vulnerabilities in your portfolio.

Myth Busting the S&P 500

The S&P 500 has a long-track record dating back to 1928, which is why the index is often used as a proxy for the historical performance of US equities. Yet the index has evolved over its history and how it looks today is very different than how it looked even just 10 years ago. Here are a few widely accepted myths about the S&P 500:

Myth: The S&P 500 has always consisted of 500 stocks

The original S&P index, called the “Composite Index”, was created in 1928 and consisted of only 90 stocks - 50 industrial, 20 railroad, and 20 utility stocks whose prices were updated hourly. The index didn’t contain 500 stocks until 1957 when it included 425 industrial, 60 utility, and 15 railroad companies. Remarkably, these 500 companies covered roughly 90% of the total market capitalization of the US market, whereas today the index spans approximately 80% of the US market.

Myth: The S&P 500 has been top heavy with financial stocks

Surprisingly, financial stocks were not part of the S&P 500 for the first 48 years of its existence. It wasn’t until 1976 that the S&P 500 included stocks in the financial sector. Today, however, the financial sector is the second largest constituent of the index, trailing only the technology sector.

Myth: The S&P 500 has been a purely US index

Perhaps the most widespread fallacy is that the S&P 500 is a pure US index. On the contrary, foreign companies have actually been a part of the index for the majority of its history. It wasn’t until 2002 when the index removed two European companies (Unilever and Royal Dutch Petroleum) and five Canadian companies (Nortel Networks, Placer Dome, Alcan, Inco, and Barrick) that the index consisted entirely of US based companies. However, the international legacy of the S&P 500 still lives on as 48% of the revenue generated by S&P 500 companies in 2014 came from abroad.

Index Construction Biases

The S&P 500, just like any other index, is a theoretical tool that is managed by a set of rules. These rules can lead to certain biases, which can affect and misrepresent the return of the index.

Weighting Bias:

The S&P 500 Index is a market capitalization weighted index, which means that a stock’s weight within the index is proportional to its market value. This weighting system has a natural bias towards large companies, such as Apple and Exxon Mobil. In fact, the 10 largest companies in the index represent nearly 20% of its value and the top 50 account for about half of the value. This weighting system makes the return of the index susceptible to the movements of its larger constituents. For example, a 1% decline in Apple has the same effect on the index as its 100 smallest stocks all declining 1%.

While market cap weighting is a common method of index construction and is generally favored over price-weighted indexes, such as the Dow Jones Industrial Average, it does have its own inherent biases. The weighting bias of the market capitalization method was a major reason why in 2015 the index was positive, but most of its stocks were in the red.

Survivorship Bias:

Another construction bias of the S&P 500 is that a stock has to qualify for inclusion in the S&P 500 and once in the index, it has to maintain a specific set of criteria. Stocks that underperform or even worse are faced with bankruptcy are kicked out of the index. This leaves the index with the 500 strongest companies, resulting in an upward performance bias because the failed companies are no longer included in performance of the index going forward.

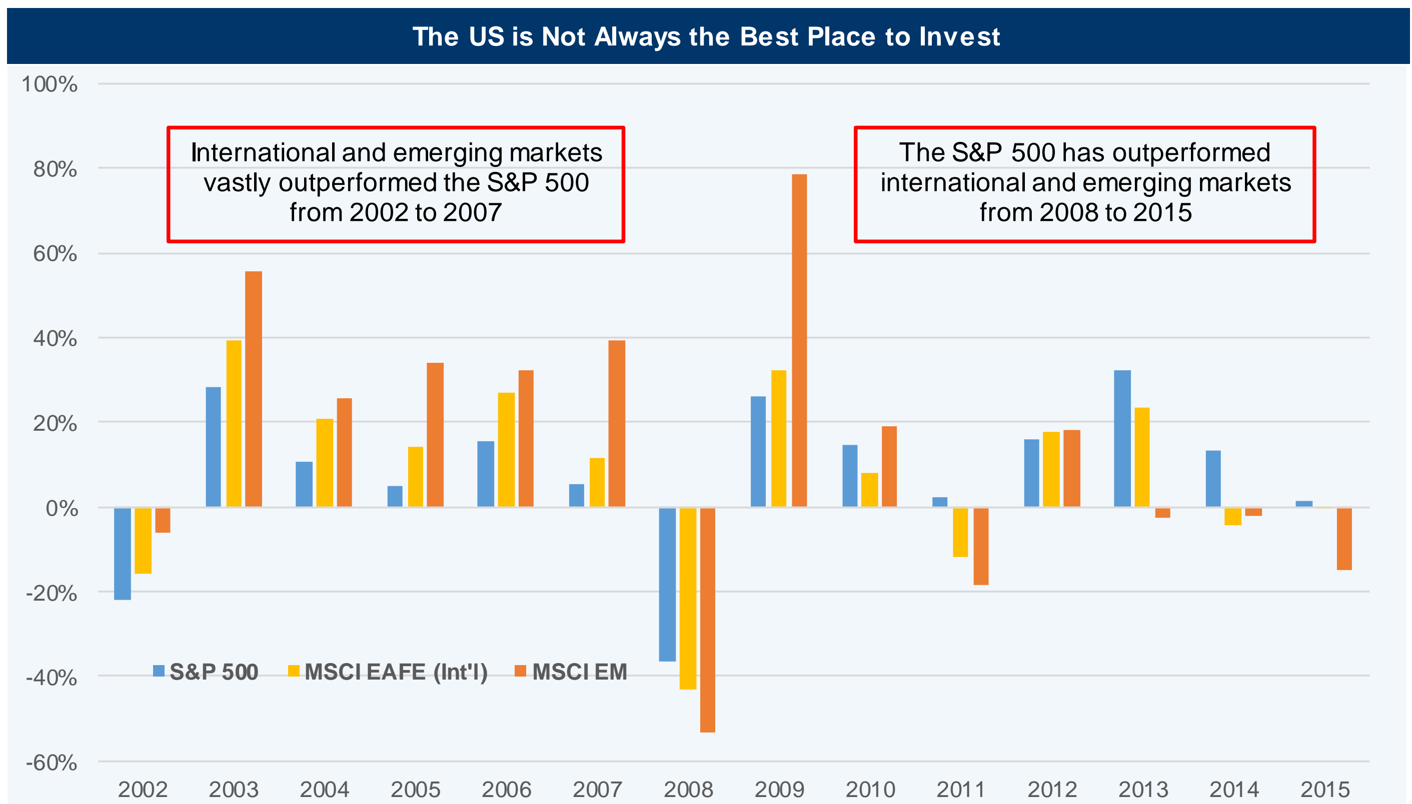
Chasing Returns while Taking on Risk

For many investors, trying to replicate the returns of the S&P 500 is tempting. Since its inception, the S&P 500 has an average annual return of 11.41%, which trumps almost every other asset class over the same time period. Yet benchmarking your portfolio to the S&P 500 will probably lead to disappointment and could lead to taking additional risks in the portfolio.

Geography Risk:

The S&P 500 is a reflection of just a slice of the overall global equity markets. While the index does a fair representation of the performance of the largest US companies, it does not reflect the performance of a globally diversified portfolio. In fact, the S&P 500 makes up just about a quarter of the world's market cap, so an investor replicating the S&P 500 would be seriously limiting the geographical scope of their portfolio.

Being a US-biased investor has been a successful strategy over the last seven years as US stocks have outperformed both international and emerging market stocks. However, this is not always the case, as these trends tend to run in long cycles.



The US is Not Always the Best Place to Invest			
The relative performance of different global equity asset classes tends to run in long cycles.		**2002-2007**	**2008-2015**
	S&P 500	43.05%	69.22%
	MSCI EAFE (Int'l)	96.72%	22.20%
	MSCI EM	180.76%	24.15%

Market Cap Risk:

Another shortcoming of the S&P 500 is that it is a collection of only 500 of the largest companies. There are about 3,500 publicly traded companies in the US and the S&P 500 covers only about 14%. Smaller companies tend to outperform larger companies over the long run because of their greater growth potential. It is easy to double revenue when a company is small and growing, but hard for large conglomerates to grow at this rapid rate. Investors focused on the S&P 500 will miss out on allocating capital to these high growth rate companies.

Asset Class Risk:

Not only is the S&P 500 limited geographically and in market cap, but it also represents only a sliver of the investment world. It does not reflect the returns of other asset classes that should be considered in a diversified portfolio including bonds, commodities, real estate, and other non-equity asset classes.

While equities tend to outperform in bull markets as we have seen over the past seven years, they also tend to massively underperform other asset classes in bear markets, such as in 2008. Using the S&P 500 as a portfolio benchmark is not appropriate for a diversified portfolio because it only represents a portion of the portfolio's assets and forces investors to increase the risk of their portfolio to keep up with the benchmark.

Past Performance does not Guarantee Future Results

The S&P 500 has enjoyed a meteoric rise over the past seven years as the US economy has been able to get back on track following the Great Recession. However, as the historical asset class performance chart below demonstrates, past performance is not indicative of future performance as winners become losers and losers become winners.

Historical Asset Class Performance

While US large cap stocks (S&P 500) have been one of the top performers over the last 3 years, over the long run it pays to have a diversified portfolio.

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
REIT 26.4%	EM 56.3%	REIT 31.6%	EM 34.5%	REIT 35.1%	EM 39.8%	US Bond 5.2%	EM 79.0%	REIT 28.0%	REIT 8.3%	REIT 19.7%	US SC 38.8%	REIT 28.0%	REIT 2.8%
Com 25.9%	US SC 47.3%	EM 26.0%	Com 21.4%	EM 32.6%	Com 16.2%	Cash 1.4%	High Yield 57.5%	US SC 26.9%	US Bond 7.8%	EM 18.6%	US LC 32.4%	US LC 13.7%	US LC 1.38%
US Bond 11.6%	Int'l 39.2%	Int'l 20.7%	Int'l 14.0%	Int'l 26.9%	Int'l 11.6%	High Yield -26.4%	Int'l 32.5%	EM 19.2%	High Yield 4.4%	Int'l 17.9%	Int'l 23.3%	US Bond 6.9%	US Bond 0.6%
Cash 5.8%	REIT 37.1%	US SC 18.3%	REIT 12.2%	US SC 18.4%	US Bond 7.0%	US SC -33.8%	REIT 28.0%	Com 16.8%	US LC 2.1%	US SC 16.4%	High Yield 7.4%	US SC 4.9%	Cash 0.1%
US SC -3.0%	US LC 28.7%	US LC 10.9%	US LC 4.9%	US LC 15.8%	US LC 5.5%	Com -35.7%	US SC 27.2%	High Yield 15.2%	Cash 0.1%	US LC 16.0%	REIT 2.9%	High Yield 2.5%	Int'l -0.8%
High Yield -5.1%	High Yield 28.2%	High Yield 10.9%	US SC 4.6%	High Yield 11.8%	Cash 4.4%	US LC -37.0%	US LC 26.5%	US LC 15.1%	US SC -4.2%	High Yield 15.6%	Cash 0.1%	Cash 0.0%	US SC -4.4%
US LC -9.1%	Com 23.9%	Com 9.2%	Cash 3.2%	Cash 4.7%	High Yield 2.2%	REIT -37.7%	Com 18.9%	Int'l 8.2%	Int'l -11.7%	US Bond 4.2%	US Bond -2.0%	EM -1.8%	High Yield -4.5%
Int'l -14.0%	US Bond 4.1%	US Bond 4.3%	High Yield 2.7%	US Bond 4.3%	US SC -1.6%	Int'l -43.1%	US Bond 5.9%	US Bond 6.5%	Com -13.3%	Cash 0.1%	EM -2.3%	Int'l -4.5%	EM -14.9%
EM -30.6%	Cash 1.0%	Cash 1.4%	US Bond 2.4%	Com 2.0%	REIT -15.7%	EM -53.2%	Cash 0.2%	Cash 0.2%	EM -18.2%	Com -1.1%	Com -9.5%	Com -17.0%	Com -24.7%

Label	Description	Label	Description
US LC	US Large Cap Equity - S&P 500 Index	Com	Commodities - Bloomberg Commodity Index
US SC	US Small Cap Equity - Russell 2000 Index	US Bond	US High Grade Bond - Barclay's Agg Bond Index
Int'l	International Developed Equity - MSCI EAFE Index	High Yield	High Yield Bond - BofAML US High Yield Master II
EM	Emerging Market Equity - MSCI EM Index	Cash	Cash - BofAML 3-Month T-bill
REIT	REITs - FTSE NAREIT All Equity Index		

Active Indexing

Looking forward, we see some of yesterday's worst performers being some of the top dogs going forward. Emerging markets is one asset class that has underperformed over the past two years, -1.8% in 2014 and -14.9% in 2015. A strong US dollar and deteriorating commodity prices were two of the major factors that led to the emerging markets

decline and both of these catalysts appear to be subsiding so far in 2016, paving the way for emerging markets to outperform over the next few years.

Finding the Right Benchmark for your Portfolio

As a US based investor, it is easy to get sucked into the S&P 500 trap, especially in an environment where the index has outperformed in recent history. However, benchmarking to the S&P 500 can lead to a concentration in one asset class, therefore detracting from the portfolio's long-term performance.

When selecting a benchmark for your portfolio, it is important to use one that covers all of the bases of the portfolio. For portfolios with diversified equity exposure, the MSCI All Country World Index (MSCI ACWI) is a market capitalization weighted index that captures large and mid-cap representation across 23 developed markets and 23 emerging market countries. Whereas the S&P 500 covers only about 25% of the global markets, the MSCI ACWI covers approximately 85%.

Yet even the MSCI ACWI falls short of being an accurate representation of a portfolio diversified across different non-equity asset classes. For investors with real estate, commodities, and bonds, using a policy benchmark is the best way to monitor a portfolio's risk adjusted return performance.

When selecting a policy benchmark for a portfolio it is important to compare apples to apples and not apples to oranges. For example, a simple policy benchmark for a portfolio that is 70% equities and 30% fixed income would be a blended benchmark of 70% MSCI ACWI Index and 30% Barclay's Aggregate Bond Index.

Once you have a policy benchmark, you can either add on risk relative to the benchmark or decrease risk depending on your market outlook. As you increase the risk, you should see a corresponding increase in performance relative to the benchmark and vice versa. The key is not always to try to beat the benchmark on a pure return basis, but instead focus on risk-adjusted returns.

The S&P 500's familiarity and presence in the news makes it a convenient benchmark. However, investors should be aware of the shortcomings of the index and the downfalls of trying to replicate its return. Instead, using a policy benchmark and comparing returns on a risk-adjusted basis will more accurately measure your portfolio's performance.

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Annual Return of FANG Stocks & S&P 500 Chart: Actual price returns of Facebook (FB), Amazon (AMZN), Netflix (NFLX), Alphabet (GOOG), and S&P 500 from 1/1/2015 to 12/31/2015. Source – Morningstar.
The US is Not Always the Best Place to Invest: Annual returns of S&P 500, MSCI EAFE (net) and MSCI EM (Emerging Markets) Net. Source – MSCI & Morningstar.
Historical Asset Class Performance: Annual returns from asset classes listed. Source - Morningstar, Russell indices, MSCI indices, Envestnet, Barclays, Bloomberg.