Cliff's Perspective

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SNAFU: Situation Normal, All-FANGed Up

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One common story making the rounds about stock market performance in 2015 is that it was very "narrow." In particular that it was driven by the "FANG" stocks (Facebook, Amazon, Netflix and Google). This is sometimes mentioned simply as an interesting observation. But other times in exasperation. As in, "How can active management work in such a 'narrow' environment?" As in, "Sure, the capitalization weighted indices were flattish but it was so 'narrow' that the average stock was down and therefore most people didn't do so well."

I could (and do) take issue with the theory behind these statements. For instance, sorry, the cap-weighted indices are what really matter. They are what we all own when you add us all up. Big stocks matter more because they represent more of our collective wealth. But theoretical dispute won't be the thrust of this post. Rather this post is even simpler. It is true that a few stocks bailed out the cap-weighted index last year. But it's also true in most years. It's always directionally true, that's just math, and in 2015 it was true by just about the average amount.

This won't be an exhaustive study. I will only look at the S&P 500, and only look at the impact of individual stocks not, for instance, industries (it might indeed be abnormal for four stocks like the FANGs that are from arguably the same broadly defined industry, the internet, to matter so much). I've only done it back to 1995. There's room to explore this all further in other dimensions. But, considering the hype I think it's surprising how **not** surprising 2015 was.

Here's the exercise.[1] Imagine every year since 1995 you looked at each stock in the S&P 500 and determined which had the biggest impact on the calendar year's index return (so both starting market cap and annual return compared to the universe matter). If you removed the *N* stocks with the biggest positive impact on the S&P 500 each year (and re-weighted the index over the remaining 500 minus *N* stocks) of course you always get a lower return. For instance, if in 2015 you removed the five stocks with the biggest positive impact, the S&P 500 would have performed 2.8% worse. If you removed the 10 stocks with the biggest positive impact, it would've been 3.7% worse. Removing 20 stocks it would've been a whopping 5.0% worse (notice of course the impact of removing more stocks gets smaller per stock as, by definition, we're removing those with the biggest impact first).

Of course, and you probably know what's coming, those figures make 2015 staggeringly normal. The following table shows the impact in 2015 of removing the *N* biggest contributing stocks, the average impact of doing this same exercise each year over the 1995-2014 period, and, just because we are geeks, the "standard deviation event" of the 2015 result (the impact in 2015 minus the average impact over 1995-2014 divided by the volatility of the annual impacts).

Result of Removing *N* Stocks With the Highest Return Impact

N	Impact on 2015 Returns	Average (1994-2014)	STD Event
1	0.8%	0.8%	-0.1
2	1.6%	1.4%	0.2
3	2.0%	1.8%	0.2
4	2.4%	2.2%	0.2
5	2.8%	2.6%	0.1
6	3.0%	3.0%	0.0
7	3.2%	3.3%	-0.1
8	3.4%	3.6%	-0.1
9	3.6%	3.9%	-0.2
10	3.7%	4.1%	-0.2
11	3.9%	4.4%	-0.2
12	4.0%	4.6%	-0.3
13	4.1%	4.9%	-0.3
14	4.3%	5.1%	-0.3
15	4.4%	5.3%	-0.3
16	4.6%	5.5%	-0.3
17	4.7%	5.7%	-0.3
18	4.8%	5.9%	-0.3
19	4.9%	6.1%	-0.4
20	5.0%	6.3%	-0.4

Sources: AQR, S&P 500. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index. Past performance is not a guarantee of future performance.

The impact in 2015 of removing the Top 5 stocks was only slightly above average. The impact of removing anywhere between the Top 6 and the Top 20 biggest contributors was average to very slightly below average. If you want to restate it in terms of ranks it gets a tad more impressive (since the distribution is somewhat right-skewed, being bounded on the left, the median impact is below the mean impact). If we remove the Top 5 then 2015 saw the 14th biggest impact out of 21 years (so the very high end of the middle third). That's about as extreme as you can get it (i.e., using ranks and removing precisely four or five stocks) and still nobody writes breathless stories about how "only 1/3 of the years see such a large effect!" The impact of removing the Top 10 in 2015 was dead on median, ranking the year 11th out of 21. If this is a news story so is the fact that I'm 5' 9½" (5' 10" in thick socks).

If you're curious, the FANGs were indeed all in the Top 10 (though not all in the Top 5 — Microsoft and GE were biggies). If you really want to look at an abnormal year then try 1999. That was the year the index would've been most harmed if you removed its Top 5 and Top 10 contributors (by 6.7% and 11.0%, respectively). The tech bubble, unlike 2015, really was an outlier.

The bottom line is to be wary of anecdotes even when (maybe especially when) they're repeated again and again as conventional wisdom. In this case, some pundits actually scored a rare double bogey. They got the reasoning behind the anecdote wrong. Again, while not my focus here, it's still the cap weighted indices that count and not the number of stocks that go up versus down. But, in this case, they even seemed to have gotten the anecdote itself wrong! Two wrongs here definitely don't make a right, and since Boeing unfortunately didn't make the Top 20 in 2015, two wrongs don't even make an airplane.

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[1] A more precise description of the methodology: For each day within a given year, I first computed the (approximate) total return of the S&P 500 using constituent weights and constituent total returns. On any day where I am missing the total return for any index constituent, I re-weight returns among those constituents for which I have returns. As a result, these "bottom up" historical total returns will differ (very) slightly from the official returns reported by S&P due to small imperfections matching backfilled index weights to

returns. Then, on each day, I compute the impact on return from removing each stock in the index and re-weighting among the remaining constituents. Finally, I add up these daily impacts by individual constituent over the entire year, and rank them in decreasing order of impact. I then re-compute the index during the year removing the *N* stocks with the highest return impacts.

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