

David Blitzer on How Indices Work

By Dan Richards

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Dan Richards spoke with Blitzer at the CFA Annual Conference in May.

A video of this interview is available [here](#).

Let's start by talking about how the S&P 500 is composed.

It is 500 companies. We occasionally get phone calls, believe it or not, about how many stocks in the S&P 500. It's overseen and maintained by a committee of nine people, all of whom work for Standard & Poor's and McGraw Hill, our parent company.

We have a series of published guidelines and requirements for a company to be added to the Index. It has to be a US company worth at least \$3.5 billion dollars, trade with adequate liquidity, have at least half the stock available in public float.

We look at what sector or industry it belongs to, to keep the balance of sectors in the Index very close to the balance in the market. And last, but certainly not least, it has to have made money. It has to have four quarters of positive earning using generally accepted accounting principles (GAAP) net income.

Over the years that has proven to be surprisingly important to the whole process.

What happens when someone reads that the S&P is up 10 points or down 10 points. How is that calculated?

The Index is what we call a value-weighted index, or sometimes called market-cap or market capitalization-weighted index. You take the market value of each company in the Index, and you add it all together, and you will get a number that is probably about \$9 trillion right now.



Well, \$9 trillion is sort of a big number to report every 15 seconds. In fact, by the time you get to the end of the number you've used your 15 seconds.

We divide it by a scaling factor called the divisor, and that gives you the value of the Index, 1,142 or whatever it happens to be. When you say the index is up, you take the value of all those companies – some go up, some go down at any given moment – the ones that went up outweigh the ones that went down, and after you scale it to a number that's easy to handle, you come out with say 10 points, and maybe the Index has moved from 1,140 to 1,150.

You say that the companies are market weighted. What would be the biggest company in the Index right now, the most important company today?

The biggest one is most likely Exxon Mobile which is a giant US or global oil company.

So you have a company like Exxon at the top of the list, and they are up 3% in a day, and then you have one at the bottom of the list not nearly as important, and they are down 3%. So you've got two members, one's up, one's down, but they are not of equal importance to the index as a whole?

That's right. Let's assume the other 498 stocks didn't move, just to make it simple. Exxon mobile goes up 3%, and the number 500th company goes down 3%. The Index overall will be up, because Exxon Mobil's weight in the Index is going to be much larger. Its weight is probably 3, 3.5, or maybe 4%. The one at the bottom we're talking about is a very small fraction of a percentage point.

You mentioned the S&P is the most widely followed the Index, but probably not the best known. The best known would probably still be the Dow Jones. Can we talk a little bit about how the Dow Jones differs from the S&P 500?

There are two big ways. The obvious one is the Dow has 30 stocks. We have 500. Quantity is not the answer, but with 500 stocks one gets much broader coverage of the overall market. And you know, you cover more, you're more likely to include stocks that either went way up, or way down, or did something else somewhat unusual.

The other way is the calculation. The Dow uses the same calculation method that they started using in 1896 when they did this on the back of an envelope, probably with a pencil and paper. They take the prices of the 30 stocks – not the value, but just the price – and they add up the number, and then they divide by a scale factor which gets them to their number.

So you can have two companies in the Dow, one may be worth 10 times the other one, but a one point rise in either company will have the exact same impact on the Index.



The other thing about the Dow, just because the way the arithmetic works out, is the number they divide by turns out to be very small. It's actually a little less than 1/5. So a one point move in the Dow by a stock, any stock, will be a five point move in that Index.

Or maybe more to the point, if 10 of the Dow stocks do nothing, and the other 20 each go up say two points, those 40 points are going to echo into a 200 point move in the Dow Jones. And a 200 point move in almost any Index is going to hit the news wires in a big way, and get people probably more excited than they really should be.

The Dow is equally weighted, unlike the S&P which is weighted by the actual market value of the company. Let's suppose a stock in the Dow has a price of \$150, and another one with a price of \$15, and you have a two dollar movement in each of those, does that two dollars have a different impact on the Dow overall?

Yes. If the \$150 stock went to \$152 which is a tiny little fraction of a percentage, and the other stock at \$15 went to \$17, this is a big move in percentage terms. Those two moves have the exact same impact on the Dow. Two points on the stock would be about 10 points in the Dow.

So you're getting movements that just depend on whether a stock is priced at \$15 or \$150, which really has nothing to do with the underlying value of the company.

Whereas in the S&P 500, it's how much the value of the company has moved that determines the impact on the Index, and that's one of the reasons why we believe that market weighting gives you a much better door to understanding what's going on in the stock market. A big reason to follow indices is to understand what's happening in the stock market overall.

Some of the media coverage you hear occasionally says that we should buy a company, because it might be added to the Index. So could we talk a little bit about the underlying thinking to that?

Look at the S&P 500 and the amount of money that's managed to track the Index, in exchange trade of funds, Index funds, pension funds, and other institutions whose investment strategy is to replicate the Index.

If a stock is added to the Index or taken off it, do they have to replicate that change?

That's right. They have a commitment to replicate the Index. The totality of that money is something well over a trillion dollars. If you go through the arithmetic of what that means, then for any stock in the Index, about 10% of the outstanding shares are going to be held by this collection of Index replicators.



So if we add a stock to the Index, and let's assume for a moment it's not in any other Index we run at the present time, over a period of a week between when we announce it is going in and when it actually goes in (because we make announcements five trading days in advance), about 10% of the stock is going to get bought up.

It has to happen. This is a very large buyback program. To give you some frame of reference, a corporation running a buyback program buying back its own stock will buy back a half percent to 1% of the outstanding shares in a quarter of a year, 13 weeks.

So these replicators are doing 10% in a week versus 1% in 13 weeks. The stock goes up. Typically it will gain 5, 6 or 7% over a week maybe two-week period. It will gradually give that back over the next three to six months, so this is not a permanent all-time rise, although it is very exciting. If you knew in advance what we were going to do, and we play this very, very close to the vest for obvious reasons, and you traded options, it would be even more exciting, but it would probably be trading on inside information unless it was just a lucky guess.

That's the case when you add a stock to the Index, just buying pressure from institutions and ETFs forces the price up short-term. Does the same apply when you take a stock off the Index that the price gets pressed down?

It does, but it's much harder to calculate. The data are much thinner for a couple reasons.

First of all, something like two thirds of the exits from the Index are caused by M&A activity. So the stock that's coming out and being acquired in a merger, the price is predetermined by the terms of that merger.

And has already been pushed up?

It's already had its run up at the very beginning of the transaction process. There are other cases where when we take it out because it has fallen on very, very hard times. It clearly no longer makes any sense in the Index, and the selling happened months ago, not right now.

So while there probably is a short-term decline in a stock when it comes out, it's much, much harder to measure and gauge. There are much less data. There are a lot of special circumstances that would be very hard to disentangle.

If someone is online and they see that you've just announced that you are adding a stock to the Index, should they rush to their broker to buy it?

First of all, we make our announcements at 5:15 PM Eastern time so the markets are officially closed. These days you can trade anything, anytime, anywhere, but the markets are very thin when it comes to 5:30, 6:00, or 6:30 in the evening. So it would be a little bit



dicey to do that. But more so, this is a short-term play, and if you are into fast and furious short-term trading, you place your bets and take your chances.

If you're a long-term investor, and if you look at the long-term history of the US stock market and indeed of most developed stock markets, they have sideways periods. They have sustained periods where they don't seem to advance, and we are unfortunately in one, though hopefully coming to the end of one.

But over the long haul, markets do very well. As a long-term investor, the strategy to replicate an Index turns out to be very successful, in large part because it's incredibly cheap.

I want to talk about some of the sectors in the S&P, where they've been in the past, and where they are today.

Let's start with the financial sector. What's the average importance over time for the financial sector in the US stock market?

The average importance has probably grown over the long term over the last three or four decades. Currently it's in the high teens. At its peak it was probably 20 to 25%, in roughly 2007. Clearly it came down very sharply with the financial crisis, as a huge number of large banks cut their dividends and a couple of very large public companies literally disappeared.

But what surprises many people is that the past decade, from the market bottom in 2002 to the peak in 2007, while financials are very important, they weren't incredibly dominant. It was not a financial repeat of the Tech boom. It was a broad-based improvement in the market over those five or six years.

Talking about the Tech boom, where did the Tech sector peak in terms of its importance in the US stock market?

The Tech sector was almost a once in history event. If you go back to about 1994 when it started, technology was around 8% of the Index. At its peak it was probably a third, 30 to 35% of the Index.

Today it's down to 15 or 16%. It's been moving up lately, and doing somewhat better. Probably in the long-term it will have a strong position. I'm not sure it will get back to the one-third level though.

One of the debates when it comes to investing is value versus growth. Those tend to be the two alternative approaches. What does your track record show in terms of the investor experience using a value approach versus a growth approach over the long term?



Over the long term, value tends to outperform, not year-by-year by any means, but over the long sweep of time. Value builds and maintains what appears to be a sustainable lead on a totally long-term basis. Value stocks tend to have higher dividends and are more likely to have dividends than growth stocks, and that's a big part of their long-term benefit.

But really the only time that growth seemed to suddenly surge ahead briefly was at the very end of the 1990s. At the peak of the technology boom, growth stocks were heavily dominating technology and appeared to be unstoppable. We know as a result of what happened shortly after the beginning of 2000, they were stoppable.

You mentioned dividends just a moment ago. Can you point to long-term data in terms of the investor experience focusing on companies that pay dividends compared to those that don't?

Yes. We put together a list a number of years ago which we continue to maintain, and what we nicknamed Dividend Aristocrats. These are companies in the S&P 500 with a record of at least 25 years of increasing their cash payout to investors.

So not only were they paying dividends or maintaining their dividends year-by-year, they were actually increasing their payout. There are not too many of them, and we've lost a lot in the last few years to other issues, but over the long term on a total-return basis, these stocks do very nicely.

Last fall I had a chance to interview Jeremy Siegel at Wharton. In his most recent book, *Why the Tried and the True Beats the Bold and the New*, one of his suggestions was that new companies get added to the Index after they've had the best period of their run-up, and investors actually are often not served by buying companies after they are added to the Index. What is your perspective on that?

Two things stand out, one particularly regarding Jeremy Siegel and his research.

He did some work a few years back for which we provided a lot of the background data, looking at the companies that were in the S&P 500 in March of 1957. This was when the Index moved from being 90 stocks, as it had been in ancient days, to being 500 stocks as it is now.

He studied how those companies did. His argument was that the original 500 actually outperform some of the ones that went in and out of the Index. There were a lot of particular stories in that period of time. So I'm not sure it's a general result, but it was a fascinating piece of work.



More to the focus of investors today, the S&P 500 is the large-cap stocks at the top of the market. Below that in size is a mid-cap Index of 400 stocks, and below that is a small-cap Index of 600 stocks.

The small-caps tend to be very exciting. There are some wonderful stocks there. There are some less wonderful stocks. They're a little more volatile, and because they are small they are a little bit riskier typically.

The 500, as Jeremy Siegel suggests, are solid long-term good ideas, but they may have passed some of their high-speed growth.

Sitting in the middle turns out to be the mid-cap Index, and while obviously the past is no indication of the future, over the long haul since the mid-cap Index was created in the early 1990s, it does seem to have this attractive balance between the more rapid growing, more exciting, more dynamic smaller stocks, and the more secure larger stocks. It seems to get the best of both worlds.

For an investor who listens to Professor Siegel and doesn't want to own just the biggest stocks there are, but wants a little more interest and excitement, I would poke around and look at the mid-cap 400 among other things.

That sounds like an interesting idea, and one I think that many people hadn't thought of.

Is there a risk that of that the 400 mid-cap companies you'll get the 20 or so that excel, that really become home runs, and then they grow to the point that they move off the mid-cap Index onto the 500? So will investors lose the growth once they've met that threshold and are no longer in the mid-cap Index?

Looking at the three indices, a large proportion of the stocks going to the S&P 500 come out of the mid-cap.

The way we maintain the indices, a stock can only be in one Index of the three at a time. It can't be in multiple indices. A company that outperforms or grows faster than most other companies will move up in size, and if it continues to do so, it will move to the top of the mid-cap and it will become a reasonably good candidate to be moved to the 500.

There's certainly no guarantee. Number one in the mid-cap by size is no more likely than number five, or number 10, or number 15, to be moved into the 500, although clearly the top 50 to 100 are probably more likely than the bottom hundred.

The one aspect that makes it very intriguing is the following.



I mentioned earlier that a stock going in the S&P 500 gets a short-term bump up. So let's say we announced tonight at 5:15 that a stock is going to come out of the mid-cap and go into the 500 after the market closes a week from today, which is the typical time frame.

For this week, which is when it gets a lot of that bump, it is in the mid-cap Index. It is not in the 500. At the end of this week it will get moved into the 500. So if you were sitting on the mid-cap, you got the bump. It goes into the 500, and over the next two, three, or six months it gradually drifts down and gives back what we're calling an "artificial bump." It's already in the S&P 500, which is another reason why the mid-cap might be an interesting thing to take a look at.

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