



# The Weighting Game, and Other Puzzles of Indexing

By John Rekenhaler

Our experts discuss the state of passive investing.

If we had hosted a panel discussion about active and passive investing 15 years ago, we would have titled it: "Indexing, Does It Make Sense, and If So, Why?" The burden of proof would have lain at the feet of the indexers. That's not the case anymore. The indexing community has built a compelling case in favor of the strategy, arguing that low costs, tax efficiency, and low turnover increase the odds that passive investments will outperform active vehicles. Investors have responded in droves.

To discuss the growth of passive investing, where it stands today, and whether investors, who now have immediate access to hundreds of different types of indexes, are benefiting, we invited two academics and one practitioner to participate in the Morningstar Conversation. Lubos Pastor and John Heaton are professors of finance at the University of Chicago Booth School of Business. They both helped develop the new CRSP family of indexes, which will debut this year, under the auspices of Chicago Booth's Center for Research in Security Prices. John Montgomery develops quantitative

models to manage mutual funds for Bridgeway Capital Management, a firm he founded in 1993. The conversation was held Dec. 20 and has been edited for clarity and length.

**John Rekenhaler:** Now that indexing is accepted as a standard way of investing, is there any place where it shouldn't be accepted?

**John Montgomery:** From a practitioner's standpoint, where the case for indexing becomes less clear is in less-liquid markets.

Bridgeway launched a fund in 1997 called the Ultra-Small Company Index Fund. About five years later, we took *index* out of the name so we didn't have to follow the quarterly rebalancing of our primary market benchmark. The same issue probably would be true in small emerging-markets stocks—anywhere liquidity is an issue.

**Lubos Pastor:** Just think about the S&P 500 or Russell 2000 reconstitutions. These are all events in which index managers and index investors lose money. Imagine a scenario in which half of the world does indexing with respect to the same index, and half of the world are active managers who do nothing but exploit the reconstitution effects. In a world like that, passive would be active, because the passive managers would have to reconstitute. They'd all have price impact in the same direction, and that would be exploited by the active managers on the other side. It is possible to cook up scenarios like this in which indexing wouldn't work as well as active management, but I think it's a little far-fetched.

## Minimizing Reconstitution Effect

**Rekenthaler:** Lubos, you've been involved with the new CRSP indexes that are coming out. Are reconstitution effects something that you've been addressing in your new set of indexes?

**Pastor:** Yes. John Heaton and I have been involved in the design of the CRSP indexes, which will soon be in a position to compete with the Russell and S&P indexes. We've paid a lot of attention to reconstitution effects and to the migration of securities from one index to another. We're trying to minimize the transaction costs that John was talking about.

One important thing we've done is slow down the migration process between the indexes. We have this so-called "packeting" approach. Suppose a security that was small

cap crosses the line into the mid-cap territory. We don't migrate it immediately. We have a band between the small- and mid-cap indexes. If the security crosses into the band, we do nothing. If it crosses the outer part of the band, way into the mid-cap territory, we migrate 50% of that security, a "packet," into the index. That reduces transaction costs that an index investor would have to bear.

We have also done things like small randomization of the date on which we rank securities. That way, we can prevent hedge fund managers or other active investors from forcing securities in or out of the index.

**Montgomery:** That's significant to me. Choosing of the date of the reconstitution is part of it?

**John Heaton:** The date on which the reconstitution will occur is fixed, but the ranking date—the date on which you use the market cap and decide which stocks are in and out of various market-cap portfolios—would be randomly chosen in a look-back way, so that hedge fund managers can't, for example, trade in a particular stock on a particular day to force membership one way or another.

**Montgomery:** So, there's a continuum, and you're just shortening that spectrum up by not giving the formula or the specific date a year in advance. I assume you're rebalancing quarterly. One of the things we look at is the frequency of rebalancing, which on the one hand keeps you more style-pure, as it's more frequent, and on the other hand, of course, drives up transaction costs. That's where what we call an overlap comes into play. You drive down the turnover sum by having a band rather than a hard limit. But I was interested in the exact date. You can minimize that sum, but you can't completely do away with it, because you still have to disclose the date ahead of time for people to rebalance their assets. Is that correct?

**Heaton:** That's correct. They'll know in advance what securities will be in or out of

various indexes. And as you describe, at the quarterly reconstitution dates there is a banding to minimize the turnover.

The idea with the randomization of the ranking date is that people won't know in advance what date we'll use to do the allocation to indexes based on market cap. Once that's determined, we'll say, "OK, two weeks from now will be our reconstitution date on which the new indexes will occur." Subscribers will know the exact identity going forward.

## What's an Index?

**Rekenthaler:** I'd like to explore the definition of an index. One thing that I've struggled with is where does an index end and a quantitative strategy begin? I'll give a specific example. Morningstar publishes lifetime allocation indexes, which are an index of target-date strategies. But they're not indexes that reflect what target-date funds are doing on average. They're indexes where the quantitative team says, "If you have a 2045 fund, an appropriate benchmark would be this percentage in large U.S. stocks and this percentage in commodities, and so forth."

Now, I work at Morningstar, but I struggle with that being an index, because I think of an index as mimicking or duplicating something, and I don't know what's being mimicked or duplicated. It's an investment strategy—a quantitative strategy that was developed in-house. I look at a lot of other things that are called indexes, increasingly in the ETF world, and they feel like that as well.


**Montgomery:** I have a similar view, and we have a lot of discussion at Bridgeway about what we do. Even internally in our investment management team, there's disagreement about how much of what we do is active or passive. One of the guys on our research team believes that everything Bridgeway does is passive. Almost no one outside our firm would consider that. Every-



**Lubos Pastor**  
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CRSP is not developing fundamentally weighted indexes such as those that would be advocated by Arnott, Siegel, or other practitioners. Fundamental-

based investing is just a combination of market-cap-based indexing and a value or size strategy. 

thing we do is evidence-based and quantitative, but we have some very high turnover funds, some very low turnover funds.

In the target-date example, you're not mimicking something that's going on in the marketplace, per se. You're mimicking something that is a need of investors. Within that, it's complicated to know what's pure. The strategy that you come up with, I would say, is farther and farther removed from something that's going on in the marketplace. Is that an index or not? I think you could argue it either way. But you really need to understand the specific theory underlying the target-date fund. People think the older that you get, the more conservative you want to be. That may not be the case. If your withdrawal rate is 1%, you can be very conservative or very aggressive. So, how does the strategy tie in with that?

It gets complicated, but as long as you disclose what the index construction is and how it is useful, it could still be helpful. The AQR family, with respect to the definition of momentum, would strike me as another conversation. Is that momentum fund an index fund? Well, that is a property of something that goes on in the marketplace that you can measure, so maybe it is, but it's not an index in the classical sense.

**Heaton:** At some level, it's an index as long as it's transparent and the rules are well understood—something that an investor could follow. It's also something where there will be competitive pressures to follow that rule, resulting in lower fees for investors.

**Pastor:** I am having a hard time imagining how that target-date index would be used. Typically, I think of an index as a benchmark for something.

**Rekenthaler:** A lot of people are creating indexes, not as benchmarks, but as something for assets to be put into. I think of indexes these days as following the ETF market, as something somebody creates to attract assets. I don't think of indexing as benchmarking or measuring—that's a secondary usage. It's a change in mind-set from how we used to think about indexes.

**Pastor:** I absolutely agree that an index is something to put your money into. But I also believe that its use as a benchmark is still important. Active managers need to be benchmarked against other things. Now, maybe they should be benchmarked against index funds as opposed to indexes themselves, because index funds have some costs that theoretical indexes don't. But I see these as two major uses of an index.

### Moving Beyond Market Cap

**Rekenthaler:** Let's discuss index construction. In the late 1980s, there was a mutual fund that, rather than indexing international stocks through market cap, it weighted countries according to their GDP. The argument back then was that there's a bubble in Japan, so you don't want to put 40%, or whatever it was, of your assets into Japan. You should

just weight by GDP. That was an argument that was 20 years too early, because nobody put any assets into the fund, and I think it went under. It would have done spectacularly well in the 1990s, relative to the market-cap-weighted competition. But this had an element of market-timing to it: Japan is too expensive. You shouldn't put much money in there. What does the panel think about getting away from market-cap-weighting schemes?

**Heaton:** Value-based indexes have that flavor, right? The example seemed like an international way to do a value-based strategy. Japan is expensive relative to the fundamentals, as measured by GDP, so tilt away.

**Rekenthaler:** Does CRSP have fundamentally based indexes?

**Pastor:** No, CRSP is not developing fundamentally weighted indexes such as those that would be advocated by Arnott, Siegel, or other practitioners. Fundamental-based investing is just a combination of market-cap-based indexing and a value or size strategy. In my mind, there is no need to combine those two things. An investor can always invest in a market-cap-based strategy and then take on as much value or size on top of that as he wants. Selling market cap plus value as a package may be appealing to some investors, but I don't see that as a dominant strategy in any way. It somehow presupposes that whatever has a higher market value is more likely to be overvalued, and that is a stretch.



**John Montgomery**  
founder  
Bridgeway Capital  
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**Montgomery:** I would take an opposite view on that with respect to some market segments—in particular, our mega-cap Blue Chip 35 Index Fund BRLIX. The strategy of the fund is based on our research that found that in the mega-cap space the market-cap-weighted index is independent of value and growth bias. A market-cap-weighted index has a momentum bias. So, the larger a company gets, the higher component of the index that it makes up, which we think, from a risk/return standpoint, is less efficient than some alternatives, including the fundamental-weighted strategy.

**Rekenthaler:** So, you form your Blue Chip 35 portfolio in a way other than market cap?

**Montgomery:** Yes. We have a roughly equal-weighted strategy in it. So, we're always moving back in the direction of equal weighting—though similar to the overlapping by size that CRSP is doing, we don't necessarily do it all at once and on a particular date that's published. We want to avoid the same kind of things that they're working on to make the CRSP indexes more investable.

**Rekenthaler:** It strikes me that it might be interesting work to think about which strategies—equal weighted versus the fundamental approach versus market-cap approach—work best in different areas of the market.

**Montgomery:** Let me give you specific data on this with respect to our own proprietary index. It's a mega-cap-weighted index, so we

would normally expect that in large-cap-driven markets, we would outperform the more standard large-cap indexes, say, the Russell 1000 or the S&P 500. And, in fact, in both our design and research and back-testing, that's true. Essentially 100% of the time, we outperform when large cap beats small.

Yet, the weighting strategy makes up the deficit about half the time on the other end of the spectrum, when small cap beats large. Our fund has outperformed the S&P 500. That part is counterintuitive if you're just thinking about size. You could adjust for value versus growth, but that doesn't explain all the difference, either.

**Pastor:** Just taking a step back, the average investor holds the market-cap-weighted index, at least in the equity space. So, anything that you do that's different is really an active strategy overlaid on top of a market index.

If you do an equal-weighted index, what you're really doing is a market-cap-weighted index plus a bet on the size effect. If you do a fundamental-weighted index with respect to dividends, then you're doing a passive market-cap strategy tilted toward an active strategy that sorts stocks based on dividends. At least, that's the simple way that I like to think about it. And yeah, I suppose you could combine the two and call them a new index and a new strategy. I think we agreed earlier that a rule-based strategy could be called an index strategy, even if it has an active element.

## ETFs vs. Mutual Funds

**Rekenthaler:** Does the panel have any thoughts on the current debate about exchange-traded funds versus mutual funds? Well, it's a debate from one side. I hear constantly from exchange-traded funds about how they are superior for implementing index strategies. Are they?

**Montgomery:** Bridgeway has a strong view on that one. For tax-efficiency, ETFs are clearly superior in theory. The construction of an ETF means you're less likely to inadvertently distribute a capital gain to your investors. In a taxable account, that's a significant plus. Having said that, there are things you can do in management to minimize that. In its 14 years, our Blue Chip 35 fund has yet to distribute a capital gain, period.



Above that, the most interesting debate on ETFs was when Vanguard jumped into the game. I don't know whether Jack Bogle said it himself, but somebody said, "If you could sell a person a piece of rope knowing that they were going to go hang themselves with it, would you sell them the rope?" I think that is really a key part of the debate. Are people using ETFs to market-time? Are they adding or destroying value in their investment portfolios?

Timing is public enemy number one in investing. In aggregate, investor returns lag fund returns. This can be true in indexing and ETFs as well, and it's something that Morningstar has documented.

## Morningstar Conversation



**John Heaton**  
Professor of finance  
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 Bonds are not my area, but as an academic, I'd look really hard at the indexes that are used to benchmark that universe. How good are they? But in the end, the answer could be that they have insights and abilities that we just haven't quantified. 

Now, as an asset manager, you can say, "Well, that's not our problem." But I come back with, "Are you willing to sell the rope?" Bridgeway's answer is absolutely not. So, we only have mutual funds at this point.

**Rekenthaler:** It's certainly true that our research has shown that across investment types—mutual funds, exchange-traded funds, whatever—investors have not been successful at timing their purchases and sales. In aggregate, investors' returns are lower than the paper returns of their funds, and as the volatility of the strategy goes up, the gap between the investor returns and the market returns go down. And there doesn't seem to be a difference between index funds and active funds.

**Montgomery:** That's true. But by the way, one of the advantages, supposedly, of ETFs is that you can buy them any time during the day. You have an opinion on the market? You don't have to wait for the close. To the degree that that further increases an individual's, or even an institution's, portfolio turnover, we would argue that it's a bad thing.

**Pastor:** I think it's a matter of the clientele. Some investors prefer mutual funds, but some investors prefer ETFs. It's not hard to think of an example of an investor who will have a huge turnover in ETFs, trade them all the time, and make money. Just think of somebody who is arbitraging ETFs against the stocks in the index or against the futures on the index. If I'm a hedge fund manager who does

high-frequency trading and finds an opportunity to buy the SPDR and sell the 500 underlying stocks, I'm going to have a huge turnover, a huge amount of trading in ETFs, and I'll still be profitable.

**Montgomery:** I don't disagree with that. Someone can make money, but is there any responsibility around how this very significant majority of people are actually using them? The people using ETFs to equitize cash—there's certainly no problem there. The people who are arbitraging between the price of the security that's being used appropriately and the underlying stock prices—that's adding value, that's a good thing. There are other appropriate uses, but I just want to point out that I think the elephant in the room is one of poor investor returns. Shockingly, people are not talking about it much.

**Pastor:** Agreed.

### Bill Gross: Lucky or Good?

**Rekenthaler:** Let's move from talking about stocks to discussing bonds. I submit that in the advisor marketplace, there's about a 98% certainty that Bill Gross and his team have insights that enable them to outperform a passively managed index even after expenses. What's the panel's thought on this? Is Gross getting lucky, is it different for active managers with bonds, is this a sample size of one, or none of the above?

**Heaton:** I wish I had a good answer. Bonds are not my area, but as an academic, I'd look really hard at the indexes that are used to benchmark that universe. How good are they? But in the end, the answer could be that they have insights and abilities that we just haven't quantified.

**Rekenthaler:** When I talk to advisors, they have two strong beliefs. One is that indexing is a very solid strategy—that most times you're better off buying an index than buying an active manager. Yet, the other view I hear is that Gross has it all down. It is tough for me to reconcile those two viewpoints.

**Pastor:** One way to look at Bill Gross is that if you are able to make high-quality macro predictions about where inflation is going, where growth is going, etc., are you going to manage money in a big, liquid market, or in a smaller, illiquid market? Clearly, you're going to make more money in a big, liquid market, so perhaps Bill Gross is one of those people.

**Montgomery:** Part of the way I think of it is, a) it's a very impressive record and b) maybe you have 25 data points in this. How many times has Bill Gross and his team made a substantial bet one way or another over the 30-year life of his funds? Yes, it's impressive. Is it statistically significant? I think it's still arguable on that. But it's impressive. **!!!**

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John Rekenthaler is Morningstar's vice president of research and new product development.

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