Is One Better than Three?

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November 8, 2011

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"I focus on the pie, I don't care how they slice it."
- Mark Vitner

There is this story about a man who goes to the local pizza shop for lunch and picks up a personal-sized pizza to go. The counter clerk asks the man: "Would you like your pizza cut into four pieces or six?" The man says: "Just cut it into four pieces. I don't think I can eat six."

This story calls to mind the noise we often hear about slicing our asset allocation pie into smaller and smaller pieces. A recent article in *Financial Planning* by Craig L. Israelsen entitled *Multiply Returns by Dividing* explored the premise that the return over the last 10 years would be higher if you just took Vanguard's Total Domestic Equity ETF (VTI) and split it into its three market cap components of large cap, mid cap and small cap in *equal weightings.* I share what I believe was Israelsen's intent – to improve clients' lives – so I endeavored to evaluate his comparison more thoroughly and see if his premise achieved a benefit for clients.

Over the 10 years that Israelsen evaluated, small-cap and mid-cap stocks beat large-cap stocks by more than 5% annualized. VTI (the whole pie) owns those pieces too, but it weights them by market cap, which results in much smaller mid- and small-cap slices. Israelsen discovered that if you overweight the mid- and small-cap pieces by equally weighting them, you get a higher return, and minimal additional risk – at least for the 10-year period he wrote about.

Of course, it isn't surprising that, if certain slices of the market pie outperformed others, then cutting larger slices of those outperforming pieces would improve the return. In fact, with perfect hindsight, you could have just put your whole pie into the small-cap slice, which outperformed large caps by nearly 6% over the 10-year period covered, according to the article.

After careful analysis, those extra slices might not be so filling after all.

Ignoring additional risk

Israelsen minimized the risk posed by the additional 1.4% in annualized standard deviation that his equal-weighted (really over-weighted) slices introduce. It is helpful to analyze this probabilistically, on an apples-to-apples basis, to see the impact of this decision in every historical period available instead of the single window Israelsen considered, and to put it in the context of the longer time horizon of a typical client.

My company, Wealthcare, has a lot of historical data, which we use to build our capital market assumptions for our patented processes and systems. We also use that data to help us gain an accurate perspective of history. Instead of looking at one 10-year period and making a leap of faith that it was representative, I looked at 661 30-year periods starting in every month going back to 1926. Also, since it rarely makes sense for any client with specific goals to have an all-equity portfolio, I looked at balanced allocations that blended 7-10 Year Treasury bonds with either total domestic equities (like VTI), or an equal-weighted blend of small-, mid-, and large-cap stocks, as Israelsen did.

Although Israelsen dismissed the extra 1.4% standard deviation as minimal, think about how many experts advocate small allocations of very expensive and potentially risky alternative investments in order to theoretically lower the standard deviation of a portfolio, often by far less than this purported “minimal” additional risk.

Our apples-to-apples analysis on the basis of risk parity found that if you model your Wealthcare plan with 60% domestic equities and 40% 7-10 year Treasuries, and the equities in the portfolio by using equal-weighted slices like Israelsen suggests, the risk is actually equivalent to having 72.2% in stocks and 27.8% in Treasuries. Though your risk tolerance may have dictated a 60/40 portfolio, in reality your advisor would be crafting you a portfolio that is significantly more risky. Unfortunately, this would be not be evident in allocation pie charts, which is why it is incumbent upon advisors and investors to think critically about the consequences and potential outcomes.

Now, some might argue that the extra return is worth the extra risk. On behalf of my clients though, I question whether this higher return even exists, and more importantly, whether it will produce more wealth.

There is no doubt that equal- or over weighting small- and mid-cap stocks (and likely value stocks too) requires one to reduce overall equity exposure to achieve risk parity with a market-cap weighting. It would be a breach of our fiduciary duty to our clients to dismiss this extra risk. The question is: Is there enough extra return to justify the extra risk and other costs… and more importantly, does it create more wealth?

The table below shows how much you need to reduce your equity exposure in an equal-weighted portfolio allocation to match the market-cap weighted risk when blended with 7-10 year Treasury bonds:

Market-cap weighted domestic equity allocation target	Equal-weighted stock allocation for risk parity	Standard deviation
72.2%	60.0%	13.82%
60.0%	50.0%	11.94%
50.0%	41.2%	10.49%

The standard deviation for this risk parity comparison was based on 1,009 historical 12-month periods using monthly data from The Center for Research in Security Prices (CRSP) from 1926 through 2010.

As you might expect, with lower equity exposure the assumed extra return gained by over-weighting small- and midcap is diluted by the lower overall equity allocation. Through 661 30-year historical periods for these allocations, I found the difference in the *median* compound return between the equal-weighted and cap-weighted balanced allocations was only 4 to 33 basis points when adjusting for the slightly higher expense ratios of the small- and mid-cap allocation slices. Of course, I don't advise planning based on the median, since it represents only one potential outcome.

What is certain and what is not

With the theoretical return advantage for risk-parity-balanced portfolio allocations being somewhere between 0.04%-0.33% *at the median*, one might assume I would relentlessly chase those extra basis points. But, I also recognize what is knowable and what is not.

The additional expense ratios of the smaller slices are 100% certain. (Why would I pay 12 or 17 basis points for the mid- and small-caps when I can buy them for 7 basis points as part of a total domestic equity ETF?) The turnover within the ETF slices is certain to be higher as well – more than double. The trading and tax costs of rebalancing are certain to be higher, based only on the number of pie slices you are rebalancing. The bid/ask spreads on trades are larger for these smaller slices too. All of these extra costs are certain, while the small return "advantage" for equivalent risk is not. The better choice is to avoid these certain costs instead of hoping that the tiny return advantage will appear.

Since we aim to exceed clients' goals, which depend on dollars of wealth, not return percentages, let's examine a case study of a sample client.

Assume we have a 65-year old with a $1 million taxable portfolio, who wants to make sure that he can withdraw $30,000 a year (net after tax and adjusted for inflation) without running out of money. Historically, starting in *any month* going back to 1926, in every historical period he could live to 95 and still have money left over with a portfolio allocation of 50% domestic equities (weighted by market cap) and 50% 7-10 year Treasury bonds. The same would be true for the risk-equivalent portfolio allocation of 41.2% stocks with approximately equal weightings of small-, mid-, and large-cap stocks.

Portfolio statistics for 661 30-year historical periods

	50% Domestic Equities 50% 7-10 Year Treasuries	**41.2% Stocks (1/3 each in Small, Mid, Large) 58.8% 7-10 Year Treasuries**
Median Return Net of ETF Expense Ratios	8.16%	8.20%
Standard Deviation	10.49%	10.48%
95th%-tile Downside 1 Year Loss	-7.31%	-7.24%
Approx. Blended Expense Ratios	0.098%	0.13%
Stock Turnover (within ETFs)	5%	11%

Dollar outcomes at age 95

	50% Domestic Equities 50% 7-10 Year Treasuries	**41.2% Stocks (1/3 each in Small, Mid, Large) 58.8% 7-10 Year Treasuries**
Best	$5,652,878	$5,566,931
5th%-tile	$4,210,235	$4,047,166
25th%-tile	$2,705,882	$2,630,056
50th%-tile	$1,668,466	$1,600,778
75th%-tile	$1,344,055	$1,177,387
95th%-tile	$807,525	$842,807
Worst	$266,623	$526,258

When you look at this probabilistically, you need to adjust your thinking to understand that *all of the outcomes above had the same chance of occurring* – each was a 1 in 661 chance. The total range of historical uncertainty for both was around $5 million. A critical eye might observe that at least in these seven trials for these two approaches, *the market-cap-weighted approach created more dollars of wealth with higher frequency*. But a sample size of seven can be misleading, so I went to the Financeware percentile rankings page and showed all percentiles, which gave me 101 trials to compare (0%-tile through 100th %-tile).

Here is where probabilistic thinking uncovers value for clients. The market-cap weighted portfolio produced more dollars of wealth in 77 of the 101 (76.24%) trials. The average dollar advantage of those trials was $122,000. The equal-weighted allocation exceeded the market-cap approach in only 24 of the 101 (23.76%) trials. The average dollar advantage of those trials was $91,500. The better decision is clear.

Historically, the equal-weighting approach had a 23.76% chance of adding an average of $91,500 of wealth for our sample investor versus the market-cap approach that had a 76.24% chance of adding an average $122,000 of wealth.

Which would you pick?

Other considerations

Certainly history is unlikely to repeat itself, and nor is it an indicator of future results. Only time will tell which of these approaches will add more value for each unique investor. It depends on when they start, what their particular goals are and how those goals change over time. Therefore*, it is not a good idea to set an expectation for any investor that one approach will produce superior results.* Invariably it will not for some.

Drawbacks for the equal-weighted approach, however, are known with certainty. As mentioned, trading costs, taxes, expense ratios and turnover will be higher. Why would one resign themselves to such certain drawbacks, especially when the historical odds suggest that the approach is actually disadvantageous when compared with a market-cap-weighted approach?

To do the best job for your clients, to help them make the most of their lives, you must go beyond the oversimplified analysis of returns. You have to use probability analysis to uncover facts and expose myths. We look beyond average and median returns to create advice that delivers dollars of wealth that clients can use for goals they value, to enrich their lives and to experience their dreams. It is what we do every day, and it is what gives our careers meaning.

A popular industry speaker and writer, DAVID B. LOEPER is the CEO and founder of Financeware, Inc. in Richmond, VA. He is author of the top selling book Stop the 401(k) Rip-off!, three other books released in 2009 by John Wiley & Sons (Stop the Retirement Rip-off, Stop the Investing Rip-off and The Four Pillars of Retirement Plans) and numerous whitepapers. He has appeared on CNBC, CNN, Fox Business and Bloomberg TV, served on the Investment Advisory Committee of the $30 billion Virginia Retirement System, and was chairman of the Advisory Council for the Investment Management Consultants Association (IMCA). Before founding Financeware in 1999 he was Managing Director of Strategic Planning for Wheat First Union. He earned the CIMA® designation (Certified

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