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Getting the Same Return With Less Risk: The Power of Factors

An Interview With Larry Swedroe

Article Highlights

- Since not all factors—a characteristic or trait of a stock—do poorly or well at the same time, combining different ones into a portfolio can smooth out returns.
- Almost 90% of the risk for a 60% stock/40% bond allocation is caused by the equity allocation. The equity allocation, and its risk, can be reduced without sacrificing expected returns if factors are used instead of a market-like portfolio.
- Getting exposure to a factor's return premium does not require short-selling certain stocks; an investor simply needs to have more exposure to a given factor than the market does.

Larry Swedroe is director of research for Buckingham Strategic Wealth and the BAM Alliance. He has written several books and co-authored the expanded edition of “Reducing the Risk of Black Swans” (Buckingham, 2018). We spoke about using factors and interval funds to achieve better diversification.

—Charles Rotblut, CFA



Charles Rotblut (CR): Since diversification is a basic building block to the portfolio strategies we're going to discuss, could you explain why investors should have a diversified portfolio?

Larry Swedroe (LS): I think a basic understanding of finance and an understanding of history are required to make good decisions. In my book co-authored with Andrew Berkin, “Your Complete Guide to Factor-Based Investing” (BAM Alliance Press, 2016), one of the things we demonstrate to investors is that all risky assets—in this case, factors—go through long periods of relatively poor performance. Even 20-year periods of negative risk premiums are not uncommon.

It doesn't matter if you're looking at growth stocks, small stocks, value stocks, momentum stocks, high-profitability stocks, quality stocks or even bonds, there have been very long periods of underperformance. Now, the longer the time frame, the lower the odds are that you will get a negative premium from these risk-based factors in the future.

So why would you want to put all of your eggs in one risk basket when the research shows that when you diversify—even

using very simple portfolios—the odds of a negative premium go down dramatically? This is because not all factors or asset classes do poorly at the same time or to the same degree. They don't all do well at the same time or to the same degree, either. You get a diversification benefit that smooths out returns.

CR: Could you explain what factors are? Not all investors are familiar with the term.

LS: The term “factor” simply refers to a common trait or characteristic of a stock. It's usually associated with academic research into these factors.

The capital asset pricing model (CAPM) was the first factor, or asset pricing, model we had. It was a single-factor model, with the factor being market beta. Market beta represents the risk of a stock or a group of stocks relative to the risk of the market. If you have a beta of 1.0, you have the same risk as the market. If your beta is more than 1.0, you have more risk; if it's less than 1.0, you have less risk.

More research came out and found that beta only explained about two-thirds of the variation and returns across diversified portfolios. It implied that there must be either other factors or luck driving returns. Eugene Fama and Kenneth French identified two other factors: size and value. These two added to the explanatory power, raising it from about two-thirds to about 90%. This prompted investors to invest in different factors.

Mark Carhart came along afterward and added momentum to the list of factors. Momentum is the tendency of securities that have done well in the recent past to continue to do well for at least some short period, and for securities that have done poorly to continue to do poorly, on average.

The profitability factor was added beginning around 2012 thanks to Robert Novy-Marx. Cliff Asness and the team at hedge fund firm AQR Capital Management added a quality factor a few years later. Those are the five factors out of the roughly hundreds of them in the academic literature that we identified in our book and the ones we think investors should focus on.

CR: *You have also written about correlation, suggesting that even some financial advisers don't properly grasp the concept of it.*

LS: Well, I think they grasp correlation. What they don't grasp is negative correlation. Correlation measures how much the returns of one factor explain the other. People know that if things are positively correlated, when one tends to do well the other also tends to do well.

Regarding negative correlation, I once asked a group of over 100 people who were all accountants and investment advisers to properly explain it. Not one of them could. They all think when one factor or asset class goes up the other goes down. That's not what it means. It means that when one produces above-average returns relative to its average, the other tends to produce below-average returns relative to its average.

Let's say stocks earn 10% and bonds, to keep it simple, earn 6%. If, in a year, stocks earn 9% and bonds earn 7%, they're negatively correlated because the return of stocks was below average whereas bonds performed better than average. That's the concept of negative correlation.

What you want to do is combine assets that can deliver premiums over time and either have low correlations with each other or, better yet if you can find them, have negative correlations.

When doing so, you're going to need to rebalance the portfolio and buy

low and sell high. You will also want to be sure that not all of your assets are doing well at the same time because, if that's the case, then they will all likely do very poorly at the same time. The five factors that I listed for you tend to have low to negative correlations to each other (except profitability and quality, which are highly correlated, as high profitability is one of the traits of high-quality firms).

Value is negatively correlated with market beta, as are profitability and quality. Value and momentum are negatively correlated as well. (See Table 1.)

CR: *How would somebody actually get that exposure?*

LS: That's important, but let's talk about one other important point first. If you had \$600,000 in stocks and \$400,000 in bonds, how much of the risk of your portfolio would be attributable to stocks? You'd likely say 60%, right?

CR: *That would be the common response.*

LS: And it's wrong. It's not even close to being right, and that creates a problem. The typical equity portfolio—say, globally diversified—is going to have a volatility of about 20%. If you buy, say, a five-year Treasury note, it's going to have a volatility of about 5%. So, if you think about it in terms of risk points, your 60% stock allocation times 20% volatility is 1,200 risk points. Your 40% bond allocation times 5% volatility is 200.

Well, you've got 1,400 total points. That means almost 90% of the portfolio's risk is dominated by the equity allocation. It's way more than 60%. A simple way to think about it is that if you were holding one-month CDs, which have absolutely no risk, then 100% of the risk of the portfolio would obviously be due to stocks. People think a market-like portfolio is well-diversified at a typical 60% stocks, but it isn't.

One other problem we need to address is that people think, "Well, I own a total market fund, therefore 20% of it is in small stocks and 30% of it is in value. Thus, I have exposure to the size and value factors." The reality is that you have no exposure to these factors.

That's because factors are long-short portfolios.

The total market owns both growth stocks and value stocks. Value stocks give you positive exposure to the value factor, but growth stocks give you negative exposure to the value factor, and by definition, they offset each other. You have no net exposure to value.

It's the same thing with size. Large stocks give you negative exposure to the size factor, offsetting the positive exposure your small-cap stocks give you. For you to have more exposure than the market does, you have to own more small stocks, and more value stocks, than the market does.

CR: *So, we're getting the long-short exposure by underweighting growth and, in this case, overweighting value.*

LS: You don't have to go short to get exposure to the factors. You just have to have more exposure than the market does, although there are limits to it if you don't go short. For example, if we assume value stocks account for 30% of the market's total capitalization and you own only value stocks, well, 100% of your portfolio is in value stocks. You have more exposure than the market and you didn't have to short-sell growth stocks to get that exposure.

CR: *In terms of bond allocations, in your book you suggest using stocks to get the exposure to the factors and then use bonds to control the portfolio's volatility.*

LS: I'm not disagreeing with your conclusion, but I would say that we only want to invest in the safest bonds in general. The reason is that there is no evidence of a significant credit premium in corporate bonds.

In fact, the realized premium after expenses is almost certainly negative. Additionally, the risk of corporate bonds does not mix well with the risk of equities. Treasuries tend to do well in flights to quality when stocks are getting killed, like in 2008.

When you need the diversification benefit the most, the correlations of corporate bonds to stocks tend to run up toward 1.0, whereas the correlation

Table 1. Annual Correlations of Six Equity Factors (1964–2015)

This table appeared in Larry Swedroe's April 2017 *AII Journal* article, "Factors Allow Investors to Think Differently About Diversification." We've republished it here to show the negative correlations between factors. When two factors have a negative correlation, one tends to realize below-average returns when the other produces above-average returns, relative to their averages.

Factor	Beta	Size	Value	Momentum	Profitability	Quality
Beta	1.00	0.29	(0.27)	(0.17)	(0.27)	(0.52)
Size	0.29	1.00	0.01	(0.12)	(0.22)	(0.54)
Value	(0.27)	0.01	1.00	(0.20)	0.09	0.02
Momentum	(0.17)	(0.12)	(0.20)	1.00	0.08	0.30
Profitability	(0.27)	(0.22)	0.09	0.08	1.00	0.74
Quality	(0.52)	(0.54)	0.02	0.30	0.74	1.00

Source: Data supplied by Fama/French Data Library and AQR Capital Management. Indexes are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio nor do indexes represent results of actual trading. Information from sources deemed reliable, but its accuracy cannot be guaranteed. Performance is historical and does not guarantee future results.

of safe bonds to stocks tends to go in exactly the right direction, meaning it tends to turn negative.

CR: *In terms of diversification, if someone's investing in Treasuries, could they then adjust the allocation based on how much volatility in the portfolio's returns they can handle?*

LS: Correct. Only I would never buy Treasuries unless you're forced to. A 401(k) plan would be an example. One of the silliest mistakes I think individual investors can make is to buy Treasuries when they can buy FDIC-insured CDs instead. If you stick with reasonably safe banks, you'll have no credit risk at all and you'll save the mutual fund fee. At least this is true for tax-advantaged accounts. For taxable accounts you have to consider that interest on Treasuries is exempt from state taxes.

That's what we do. We don't generally buy any Treasuries, unless a client has money in a 401(k) plan and then they can't buy the CDs, of course. However, there are occasions for those who live in higher tax states where lower-yielding Treasuries are appropriate because they provide a higher aftertax return. You have to do the math in each case.

CR: *How does an individual investor decide how much of their equity portion should*

be allocated to, say, size, momentum or value?

LS: The first thing is you should do your research.

The evidence has to be persistent over very long periods of time, not 10, 20 or 30 years even, but longer.

A factor has to be pervasive around the globe. It's even better if it works across asset classes. Value works wherever you look, as does momentum. It doesn't matter whether it's stocks, bonds, commodities or currencies, it works. So that gives you confidence that it's likely not due to data mining—meaning just a lucky outcome that some computer found but lacks causation.

A factor has to have robustness. The value premium works whether you use the price-to-book, price-to-cash-flow or price-earnings ratio. Momentum works whether you use a one-month, three-month, six-month, nine-month, 12-month or 24-month period. That gives you confidence that these factors are not simply the result of data mining.

You also have to be able to implement the factor. It doesn't matter if you have a 3% premium if the trading costs and fund expenses are 4%. So, we look at the evidence there.

And very importantly, it has to have intuition behind why you think it should persist. There should be,

preferably, a risk-based explanation for the premiums.

Obviously, stocks are riskier than bonds, so there's a logic behind the market beta premium. I think everyone would pretty much agree that smaller companies are riskier than large companies. Most of the research, or at least plenty of it, shows that value stocks are riskier than growth stocks. There is some behavioral evidence on the other side, and there are behavioral explanations for momentum and profitability, as well as quality factors.

There are also limits to arbitrage that prevent sophisticated investors from correcting this pricing. For example, let me ask you a question: How do you correct an undervaluation?

CR: *You buy the stock.*

LS: Everybody could do that. None of that is true when you're dealing with correcting an overvaluation because to correct an overvaluation, what do you have to do?

CR: *You have to sell it or short it.*

LS: To short it, you have to first borrow the stock and pay a premium securities lending fee to that borrower, then you have to sell it. Now you have to risk a margin call. When shorting, even if you're right in the long term, you'll be in trouble if you're wrong in the short term. And your losses are not limited to your investment, as is the case when buying a stock; they're totally unlimited.

There are other constraints too. For example, lots of investors by charter are not allowed to go short. A lot of endowments, municipalities and governments have restrictions. So, there are a limited number of people who can go in and correct mispricings.

For those who are long only, they can be limited to, say, a maximum 60% allocation to stocks. If they're optimistic, all they can do is buy riskier stocks, high-beta stocks. That constraint against leverage causes those high-beta stocks to be overvalued. So how do you correct for them?

Well, you have to go short, and that's tough and expensive to do. So, there

are limits to arbitrage. While I clearly prefer to have a risk-based explanation, I'm willing to accept behavioral ones if I can identify those constraints that prevent a correction.

So, to answer the question about how much you should invest in the size and value factors, as examples, I first would say, the greater the confidence you have that a premium will persist, the more you should be willing to invest. But secondarily, and here's the important thing, the more exposure you have to these factors, the higher the expected return of your equity portfolio will be.

So, for example, small value stocks have a long-term return close to 14% annualized versus 10% for large-cap stocks. Rounding here again, let's say bonds have realized 6%. In hindsight, you could have gotten 10% by being in 100% stocks or 50% in small-cap value and 50% in safe bonds.

Which do you think did worse in 2008?

CR: In 2008, stocks did worse.

LS: Right. Small value probably underperforms in a bear market because these are the riskiest stocks and the risks show up at the wrong time, but they don't go down twice as much.

Bonds, if you buy only the right kind, went up roughly 10% in that year. So, if your stock allocation falls 40%, maybe 50% if it was small value, but the allocation only represents half of your portfolio, you're down 25%. Meanwhile, your safe bonds go up 10%. On an overall basis, you're only down 15%, not 40%.

Table 2. Using Factors to Reduce the Allocation to Stocks

The higher expected returns associated with factors allow investors to reduce the level of portfolio volatility they incur relative to more traditional allocations. An example is shown in the table below.

The first portfolio has a 60% allocation to the S&P 500 index and a 40% allocation to five-year Treasury notes. The second portfolio has a 25% allocation to value stocks [split evenly between the Fama/French Small Value Index (ex-utilities) and the Dimensional International Small-Cap Value Index] and a 75% allocation to five-year Treasury notes.

Though the 60/40 portfolio has realized a higher return, it has done so with much greater risk, as the standard deviation and worst-year return figures show. Investors seeking higher levels of expected return can increase the equity allocation in the second portfolio (from the 25% allocation) while still maintaining a comparatively greater exposure to bonds.

	60% Large-Cap/ 40% Bonds	25% Value/ 75% Bonds
Annualized Returns (%)	10.3	9.7
Standard Deviation (%)	10.3	7.2
Years With Returns Above/Below 15%	11/1	9/0
Years With Returns Above/Below 20%	7/0	2/0
Years With Returns Above/Below 25%	2/0	2/0
Worst-Year Return (%)	(17.0)	(1.4)
Best-Year Return (%)	29.3	28.0
Number of Down Years	5	3

Source: "Reducing the Risk of Black Swans," by Larry Swedroe and Kevin Grogan (BAM Alliance Press, 2018). Data © 2017 Morningstar Inc.

The reverse is true in a year like 2013. The market was up 32% and the small value fund I use, Bridgeway Small-Cap Value (BRSVX), was up approximately 45%. I only own half of it, so that's 22%. Bonds were about flat. I'm only up 22%, but the market is up 32%. I can't get the great returns, but I can't get the awful returns.

So, you pull in the extremes without lowering your expected returns. That's how we've been managing money for 25 years and gotten far superior Sharpe ratios (risk-adjusted returns) for our clients. It doesn't always work because every factor goes through long periods of underperformance.

If you're a total market investor or own stocks that look like the market, you've got a lot of exposure to market beta. I've got much lower exposure to

market beta, but I'm adding the diversification benefit through exposure to size, value, profitability and quality. When you do that, you smooth out returns and you cut the risk of extreme returns dramatically.

There's no way anyone would have known 90 years ago, 50 years ago or 20 years ago, what the best combination is. So, to prevent data mining accusations, a simple approach is 1/N, a naïve portfolio. If you had the three factors of market beta, size and value, you would allocate one-third of the equity allocation in each.

If you had four factors, say you add momentum, you would put 25% in each. If you add profitability or quality, you would put 20% in each.

Once you get out to about five years, you would have never seen a negative premium for a diversified factor portfolio.

CR: Since we're discussing diversification, I know you've talked about using some interval funds that do peer-to-peer lending and reinsurance.

LS: The ones we use are reinsurance; alternative lending, which is small business loans, student loans and individual consumer loans; the variance risk premium, which is basically shorting the volatility of stocks, bonds, commodities and currencies; and AQR Capital's style- or risk-premium funds. The style-premium fund is momentum, value, defensive and carry [yield]. The fund is long and short these four factors across stocks, bonds, commodities and currencies. The risk-premium fund

drops commodities and adds two others: the variance risk premium in stocks and time-series momentum (managed futures).

With all of these funds, you're adding unique sources of risk and return. Tornados, which are a risk for reinsurance, are not caused by bear markets. With consumer loans, there was a steep correction in the summer of 1998, but unemployment didn't go up, so consumer and business loans held their own.

You do have to understand how the asset classes mix and make your decisions based upon how much you believe they'll persist and how much risk you're willing to take.

CR: *Just to build on that, if somebody's working with an adviser who offers them a different strategy, how do they go about determining whether the suggestion is good?*

LS: You'd want to see evidence from peer-reviewed academic journals and other papers, so it's not somebody's opinion. Never invest because of somebody's opinion. We only invest where we have significant peer-reviewed evidence, lots of data and commonsense logic to back it all up. That's number one.

The second rule of thumb is to

never invest unless the adviser is willing to show you that they personally have their own money invested. You want to see them putting their money where their mouth is. The logical question to ask, assuming their mother is alive, is if they've invested her money in it.

You want to have the evidence, the logic, an adviser who is willing to show you that they're putting their money where their mouth is and a reason why it should be expected to add value. Ask what are the correlations, are they low or high? Are these truly independent, unique factors? Do they tend to do well or poorly at the same time the other assets in the portfolio are doing well?

There's one other thing I'd like to bring up.

CR: *Okay.*

LS: With interval funds, you have to be aware that you're giving up liquidity. You only get to make withdrawals on a quarterly basis, in most cases. Under the worst scenario, which you should always plan for, this means that, while you might be able to get all of your invested dollars out, it could take five years. This would happen if everyone is asking for their money back and withdrawals are capped

at 5% of invested assets per quarter.

If you've invested IRA dollars and you're 30, 40 or 50 years old, you won't need to access your savings. Even at age 70, higher-net-worth individuals who are taking only their required minimum distributions (RMDs) are going to be buying these alternatives.

Since you can withdraw up to 20% from an interval fund in any one year, RMDs should not be a problem. So, if you don't need liquidity, get paid to take that risk. It's not a risk that you have a problem taking. Now, if you need liquidity, then demand a big premium or don't take that risk.

The other thing I want to add is that you've got to do a great amount of due diligence on the people running the fund to make sure they have the right experience, talent and culture and that they're investing significant amounts of their own capital in these funds.

At Buckingham, we spent, for example, three years getting to know the people at Stone Ridge before we approved their funds. We always wait at least a year, if not more, before we'll invest, and we want to see evidence of their ability to execute, not just theorize about it. ▲

Larry Swedroe is director of research for Buckingham Strategic Wealth and the BAM Alliance and co-author with Andrew Berkin of the expanded edition of "Reducing the Risk of Black Swans" (Buckingham, 2018). Find out more at www.aaii.com/authors/larry-swedroe.