FACTOR INVESTING
A Discussion with Frank Fabozzi, PhD, CPA, CFA®

Interviewed by Anthony B. Davidow, CIMA®

Frank J. Fabozzi is a professor of finance at EDHEC Business School and a member of the EDHEC Risk Institute. He is responsible for doctoral dissertations in finance and coordinates and lectures in the Yale School of Management-EDHEC Risk Institute Certificate in Risk and Investment Management. He is a visiting fellow at Princeton's Department of Operations Research and Financial Engineering and for the 2013–2014 academic year was the James Wei Visiting Professor in Entrepreneurship in Princeton's School of Engineering and Applied Science. He is the editor of the Journal of Portfolio Management and an associate editor for several journals. He is on the advisory board of The Wharton School, University of Pennsylvania, Jacobs Levy Equity Management Center for Quantitative Financial Research and a Fellow of the International Center for Finance at Yale University. He earned a PhD in economics from the City University of New York.

Professor Fabozzi spoke at IMCA’s 2015 Summer Institute powered by Yale University. Following the presentation, Tony Davidow sat down with him to talk about factor investing.

Davidow: I am thrilled to be joined today by Professor Frank Fabozzi. Professor Fabozzi, you shared with our participants some of the academic research on factor investing. Today, we see a proliferation of factor-based strategies. The market often refers to these strategies as smart beta, strategic beta, or scientific beta strategies. Some of the smart beta strategies leverage the academic rigor referenced in your presentation, while others appear to be clever back-tests.

Let’s start in the beginning. What is factor investing? What has history shown us about these factors?

Fabozzi: Factor investing is identifying what at one time was referred to as anomalies in the market that explain returns, excess returns above and beyond the beta of a portfolio. Those anomalies, since they were determined to consistently provide excess return, were then converted into what’s called factors. This explanation offered by behavioral finance competes with explanations based on asset-pricing theory, which assumes that the excess returns of certain factors compared to others come not from an anomaly but from a rationality, in the sense that over the long term some factors are better rewarded than others because they correspond, in some very poor economic conditions, to greater risk-taking, as is the case for example with the small-cap or illiquidity premium. An investor who has a long investment horizon can accept this risk-taking and also harvest the associated risk premia. Some of those factors subsequently have been found to not provide a consistent excess return, so they’ve been removed from the category of rewarded factors.

The belief is that if you invest in factors, you can either provide a return in the long term that will be in excess of the return on a capitalization-weighted index, or provide a better diversification format.

Even before the concept became popular, I used it to control risks within a portfolio. I never looked at it in terms of excess return; I looked at it in terms of any index is a package of risk factors. And I would look at how you control portfolio risk by controlling those risk factors. If you wanted to actively manage, you would deviate from the weighting of your risk factor within that index.

Now moving to factors, smart beta, and strategic beta—all of these terms are the same, they’re used interchangeably. I have no idea why smart has come to be the dominant term and I am sure that there are other terms the firms have adopted as their own.

The notion of how you get from smart beta to factor investing has been one I believe has a historical basis; providers of smart beta indexes have to define attributes that they could use to create a smart beta index and those attributes are the factors. So because they’re using factors in lieu of asset classes, people started using the terms interchangeably. It should be recalled nonetheless that the starting point for smart beta was not only a choice of better factor exposures than those of the cap-weighted index but also a choice of diversification of idiosyncratic risk. This seems to have been forgotten slightly in recent years by smart beta providers, who have focused solely on the systematic risk to be diversified through multi-factor allocation.

Davidow: As you and I were talking about earlier, factor investing is steeped in a lot of academic rigor. Many of these factors have been well-known for decades. Yet it is only in the past several years that everyone has been focused and fixated on smart beta. This is due in part to the availability of investable products, either structured as an exchange-traded fund (ETF) or a mutual fund or some other vehicle.

Morningstar estimates that there are roughly $500 billion in strategic beta assets
under management and more than 400 different strategies today. This only includes ETFs, and we know that significant assets are being managed by institutions. The challenge for the average investor is how to distinguish among the options.

I think that one of the things that would be helpful for our advisors is some guidance on how to distinguish between what is smart and what is not. Which of these strategies have been battle-tested, use reliable factors, and hold-up in various market conditions? Can you offer any guidance?

**Fabozzi:** Certain factors are well-known, such as market cap (small cap versus large cap), value versus growth, low volatility, and momentum. There are certain factors that a good number of empirical studies suggest are factors that can be used to provide returns that are in the long run better than just a simple market-cap weighted index.

So the key question, if you try to not discriminate between smart beta and factor-based indexing, is what's alpha. A long time ago alpha was simply the difference between a beta-adjusted return and the benchmark return, and anything over that was considered alpha. Then what was viewed by market participants as alpha changed once it was realized that those anomalies are not necessarily anomalies. They really are factors that the market has provided compensation for in terms of a risk premium. And therefore pure alpha became anything over and above adjusting for all of those factors.

But the interesting thing is that the belief is that what you did in indexing for a cap-weighted portfolio you now can do for factors by delivering factors in a passive way.

So that’s really where it stands right now for factor-based investing strategies. They can still be active or passive strategies, but the search is still for things such as are there factors that continue to provide a risk premium over time—and that will always be an empirical issue. Some market participants talk about pure factors. What they really mean is time-tested factors that have delivered a risk premium. Researchers are identifying what they believe to be new factors all the time.

So that’s where the search on factor-based investing stands. And it’s an empirical challenge; there is no underlying theory about these factors. There are economic reasons or behavioral financial reasons why you might expect a factor to be rewarded. Behavioral finance theorists do a very good job of explaining that link, but the empirical work will go on. For the *Journal of Portfolio Management*, I would say probably one out of every 10 papers submitted involves what the author(s) believe are new factors or further support of well-known factors. I have a large number of papers on my to-read list on factor-based investing and smart beta.

**Davidow:** One of the interesting debates that I often hear when talking about these strategies is: Are they active or are they passive? Many of these strategies screen and weight securities based on economic factors, and then rebalance at regular intervals. By employing this rules-based discipline, many have delivered significant excess returns relative to their market-cap equivalents. Some would argue that you actually capture many of the positive attributes of both traditional index and active strategies. Where do you come out on that?

**Fabozzi:** When you talk about indexing for a cap-weighted index, most of your members will be talking to people about partial indexing and then partial active. There’s no conflict between the two. The question is whether the client is going to be paying for active management regardless of whether the manager is pursuing a combination of both active and passive strategies. Basically, with active management the client is paying up-front with an uncertain delivery of a return in excess of what can be obtained by just investing passively.

You flip that to factor-based investing or smart-beta investing, and you still raise the same question about what type of service the client is paying for. If a product is available whereby a client can receive a passive return for all of the factors that have offered a risk premium, what should the client pay for active management? Active strategies, and accordingly pure alpha, then refer to strategies that can deliver returns in excess of what the factors can provide via passive investing. Active strategies would then involve tilting toward one or more factors that the manager believes will result in out-performance. So in the same way that a manager historically delivered performance by providing index returns based on a cap-weighted index and active investing, now a manager can deliver all factors in passive form and then bet on factors.

In factor-based investing, you’re going through the same type of due diligence with your client as in almost any other investment. If you decided you wanted to introduce derivatives to your clients, it’s going through the same steps, addressing the same issues. But the most important thing is to make sure your client understands that an active factor-based strategy is not a simple thing to do—clients will have to make decisions in consultation with advisors that are the same as in traditional investing. Clients have to decide first of all what service provider to use to determine what the potential factors are. Then they have to make a decision whether or not they still believe that those factors can deliver a risk premium. And then finally it’s weighting of factors, much the same way clients work with their advisors now with cap-weighted indexes in a single-factor world, deciding whether or not they should use cap-weighted or equal weighting, etc. So it’s not any different.

There are numerous issues that a client and advisor must decide on. It’s not simply a client telling an advisor to follow a factor-based strategy. A client who wants to bet on factors must be confident that the manager selected by an advisor has a good macro view so as to tilt the portfolio toward factors that will outperform in the forecasted macro environment. So you’ll see some clients such as defined benefit plans who have adopted factor-based investing hiring advisors who are reputed to be good macro forecasters.
**Davidow:** I think you made a really important point for our audience, that they should evaluate these strategies the same way they would evaluate an active manager. It is not sufficient to just accept the fact that historically they’ve delivered an excess return. Two of the important considerations in evaluating these strategies that you talked about in your presentation were capacity and implementation. These are really important considerations that can help in distinguishing between a clever-looking back-test and a viable strategy. Can you just provide a little bit of color on that?

**Fabozzi:** Well, to me the capacity issue with factor-based investing is no different than the capacity issue with any active strategy that a client is contemplating. When you’re trying to decide to bet on a factor that historically has delivered a risk premium, you have to be concerned that the factor has been arbitraged away if enough investors pursue that factor or that the risk premium exists but it has declined dramatically. Remember that the empirical assessment of whether a risk premium for a factor still exists is based on empirical evidence which, in turn, depends on the time period analyzed.

Here is an example. Consider one well-known factor, momentum. There are empirical studies that suggest this factor is no longer being rewarded. However, whether that is the case required a close examination of the empirical analysis reported. Many of the studies look at short-term or medium-term historical returns. The absence of any risk premium or a small risk premium may simply mean that during the period investigated by the authors of such studies that the reward may be different from what might be expected in the long run.

That is, studies that show from one point of view that the risk premium disappears in the short term or the medium term forget that a risk premium is time-varying by definition. More technically, these debates are often due to differences in observation periods. Like any return, this one is a non-convergent estimator that always depends on only two points. While betas and risk estimators are convergent indicators that benefit from an increase in the number of observations in order to estimate them, multiplying the number of observations does not improve the estimation of returns. Moreover, since risk premia are variable by nature, it is normal for them to diminish over certain periods, without that meaning that the factor has disappeared. This is just one example of why factor-based investing involves continual assessment of the market to determine whether a factor has been arbitraged away.

**Davidow:** It seems like that’s one that can be arbitraged away.

**Fabozzi:** You would think. And now with all of the indexes and exchange-traded products (ETP) being created, you would think that would impact the risk premium for factors—it would be very interesting for someone to do a study to look at what happens in the long-term premium after a factor is introduced as an ETF or an ETP.

**Davidow:** The last question—and I think it’s an important one. You talked today about the fact that institutions actually have been embracing these strategies for many, many years. Institutions have been using some form of factor investing alongside an active manager. I thought you had some interesting comments on how internally within those organizations they’re actually doing a lot of the vetting of the strategies. So for advisors in our community who are focusing on institutions, this isn’t something they should shy away from. But how should they think about using these strategies?

**Fabozzi:** In a one-factor world, advisors would advise institutional clients on the asset allocation decision and then within each asset class work with a client on the degree of active and passive management. With factor-based investing, an advisor’s role is expanded, requiring a much more rigorous process. An advisor has to re-orient institutional clients to think about risk factors rather than asset classes. Then the advisor has to identify the candidate factors not just at the inception of a strategy but on an ongoing basis to improve the likelihood that the factor is still relevant. Once the factors are identified, the active versus passive versus hybrid strategy must be discussed with the institutional client. There is no reason why all factors have to be pursued using the same strategy. Finally, when advising defined benefit plans where the strategy pursued should be based on the plan’s liability structure, the advisor must evaluate how factor-based investing would be better than a dedicated portfolio strategy such as cash-flow matching.

**Davidow:** Perhaps the best advice for our advisors—and I’ll just paraphrase what you said earlier—is to evaluate these strategies with the same rigor as an active manager. They should understand the screening and weighting methodology utilized, they should understand any biases that exist in the methodology, and they should understand the role each strategy plays in a portfolio. These strategies have provided advisors with additional tools in building portfolios, but not all strategies are created equally.

**Fabozzi:** It’s a much more complex decision because now you’re not talking about just cap-weighted but about deciding on factors. And so that becomes a little more difficult. It’s the same process, but it’s an empirically driven decision. And you’re not going to read a textbook where someone mathematically derives all of the factors that are important. You’re just not going to derive that information from financial economic theory.

**Davidow:** Thank you for enlightening our advisors. Factor investing is gaining a lot of attention, but as you point out it has been around for a long time. One of the differences is the availability of investable products. Your guidance should help advisors make better informed decisions regarding the usage of these strategies in their client portfolios.

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