

Hybrid Zone

FIRMS ARE FINDING SUCCESS WITH A DIVERSE ARRAY OF QUANT STRATEGIES

By Ed McCarthy

The term “quantitative investment management” is broad enough to cover a wide variety of investment management strategies. Some firms have developed their own hybrid approaches that blend various methods. With names like “post-modern portfolio theory,” “social Sharpe ratio,” and the “third way,” these alternative approaches can range from innovative ideas to new applications of traditional tools.

To learn how and why firms are using such diverse strategies, this article looks at three firms that have found unique and successful ways to implement their versions of quantitative analysis.

POST-MODERN PORTFOLIO THEORY

Innovative portfolio analytics have proven an important factor in the success of Athena Capital Advisors,

which is based in Lincoln, Massachusetts. The firm’s assets under management had grown to \$5.9 billion at year-end 2015. Lisette Cooper, CFA, founded the firm in 1993 after working as manager of consulting services for Barra Inc. (later MSCI Barra and now simply MSCI) and serves as CEO and chief investment officer. Many of Athena Capital’s clients work as investment managers (for other companies), and the firm’s average client account is \$126 million.

Several years ago, Athena Capital developed a risk management system as part of its proprietary quantitative portfolio analysis (QPA) software. The firm still uses QPA and is working to include additional data sources and to automate it. In addition, the risk management team has been measuring each asset’s marginal contribution to overall portfolio risk and expanding its scenario analysis. Although this approach has proven somewhat difficult to implement with private equity and private real estate holdings, it allows investment managers to measure each asset’s contribution to a portfolio’s risk and return.

Risk estimations become complicated because the risk relationships among asset classes can be nonlinear, according to Todd Burchett, CFA, vice president of portfolio management at Athena. For example, if the equities markets are down 20%, a client’s nonlinear holdings might be down 100%. That relationship has broader wealth management implications. “For folks in the private equity business who have carried interest, depending on how far in-the-money or out-of-the-money that carried interest is, it could be very

nonlinear,” says Cooper. “So, looking at the sensitivity of their portfolio and some scenario analysis ... might lead someone with private-equity carried interest that’s in that kind of nonlinear zone to carry a higher cash balance at certain times, because they really have a lot more equity beta than it might appear on the surface.”

Scenario analyses also allow the firm to show clients how their portfolios would behave in market downturns such as that experienced in 2008 or during the first few weeks of 2016. “We’re able to really quickly stress [the portfolio] and say, ‘How did you hold up in January?’” says Burchett. “That’s a great time to talk to a client about their risk tolerance as well: ‘You were down 6% in January; is that a risk that you’re comfortable taking? ... Let’s consider taking risk off if you’re not comfortable with it.’”

Athena Capital has been active in socially responsible investing since 1996. Only recently, however, did the firm develop a formal framework for including social return portfolio considerations in a manner consistent with modern portfolio theory (MPT). The result of their work in this area is what they call “post-modern” portfolio theory (PMPT).

Earlier academic research considered how social return could fit into traditional portfolio design and measurement. One suggested approach was to add a third axis that measured social impact to the traditional risk and return measures used for efficient frontier construction, effectively transforming the two-dimensional frontier into a three-dimensional curve.

A drawback to this approach was that it didn’t connect to the assumptions underlying utility theory. MPT depends on investors rationally maximizing their utility, but social impact is a public, not private, good. Cooper gives a hypothetical example to illustrate how an identical social impact can produce different personal benefits to an individual: Imagine that you have a hundred dollars to give away, and you could give it to your neighbor or to a stranger, both of whom are equally needy. If all that mattered was the marginal utility or marginal social benefit that the gift created in the world, the donor might split the gift equally. But that’s not the likely outcome. “Would anyone be surprised if you gave all of it to your neighbor?” she says.

That insight led the firm to model clients’ social return preferences in MPT-based portfolio constructions while recognizing that some investors’ motivations aren’t directly related to financial return. PMPT allows for optimization of client portfolios based on this expanded definition of utility. This definition enhances the construction of efficient portfolios to include both financial and social returns and provides a method to demonstrate the potential portfolio impact of seeking social returns.

KEY POINTS

Quantitative investment management encompasses an increasingly diverse array of strategies.

Some firms with a quantitative focus have found success in developing hybrid approaches or innovative business models.

What's intriguing about the reformulation is how it accommodates the full range of investors' preferences for social returns. Most wealthy clients have personal views on what Athena Capital calls "social finance," an umbrella term describing the full range of financial practices that consider social characteristics. Those viewpoints can range from no interest (in which clients ignore investments' social returns and focus solely on maximizing risk-adjusted returns) to active philanthropy (in which investors act as donors and aren't concerned with assets' financial returns).

Investment managers typically profile and rank clients' risk tolerance levels on a scale from conservative to aggressive, often by using heuristic methods, such as questionnaires and responses to scenarios. Athena Capital takes a similar approach to identifying clients' interest in and enthusiasm for social returns. The process involves asking clients an additional set of questions about specific social issues to determine which ones they care about. These questions also provide insight into clients' enthusiasm for these returns by probing how much financial return clients are willing to sacrifice or how much additional risk they will accept to earn social returns.

Athena Capital uses these responses to sort clients into five social investor categories: financial only, financial first, blend, impact first, or philanthropic. Financial-only clients are uninterested in seeking social returns from their investments. Their sole focus is earning the highest risk-adjusted return, and they separate their investing and philanthropic activities. At the other end of the scale, philanthropists focus solely on social return and make grants, not investments.

Each client is assigned an impact enthusiasm score ranging from zero to one. For clients with nonzero scores, preferences for social returns vary. Using the ESG (environmental, social, and governance) classifications as an example, one client might have a strong preference for governance impact, while another prefers social impact exclusively.

At the risk of oversimplifying the post-profile implementation, as with traditional MPT implementation, an investment manager using PMPT aims to select investments that produce the highest risk-adjusted return for the client's profile. To accommodate the social finance aspect, returns are calculated for each investment using a "social Sharpe ratio" that accounts for the investments' projected social impacts and weights the client's preferences for those impacts. If the client is a financial-only investor, the weights are zero, the model reverts to traditional MPT, and the firm works with its traditional model portfolios. For clients interested in earning social returns, the investment manager includes investments that align with a client's expressed preferences and works to maximize the social Sharpe ratio. As Cooper explains, "We extended modern portfolio theory using what we call a heterogeneous equilibrium model because people place different values—specific to each individual—on the social impact of a particular investment."

"PEOPLE ARE SERIALLY CORRELATED"

Factor-based investment management continues to attract assets. In May, BlackRock's Factor-Based Strategies Group

reported having more than \$142 billion in assets under management; in September, Fidelity Investments announced its intention to launch six new factor-based exchange-traded funds (ETFs).

With \$3 billion of assets under management and advice, primarily from private clients, New York City-based Gerstein Fisher isn't the largest investment management firm focusing on factors. But the firm can rightly claim to be one of the method's earliest adopters, having used factor analysis since 1993. In fact, the firm has trademarked the Multi-Factor® term used to describe its investing approach.

Firm co-founder and chief investment officer Gregg Fisher first became interested in factor-based approaches to investment selection as a college student in the late 1980s. Most investment managers were using traditional, fundamental analytic methods to determine a security's value and potential return, but a number of leading finance academics were publishing research indicating that these methods were less robust than had been assumed.

Fisher believed he could manage money based on those research findings. When he surveyed the industry, he observed that most investment managers, including those using quantitative methods, were value managers. He saw this emphasis on value stocks as an opportunity to offer growth strategies using multi-factor analysis.

He stresses that Gerstein Fisher did not invent multi-factor investing, giving that credit instead to the academic researchers. But his firm was one of the first to use the method in its mutual funds and with clients' separate accounts. Their method is a "third way" to invest, he says, versus traditional active management and passive indexing. From the indexing method, Gerstein Fisher uses the practice of investing in large numbers of securities, low portfolio turnover, and reasonable fees. The firm then incorporates factor analysis based on the idea that tilting toward specific risks in a portfolio's holdings can generate excess returns.

"It seemed to me that there would be a way to earn better returns than the average investor if risk and return were related and one were willing to take on more risk than the average investor," he explains. "And that really is the heart of the multi-factor model, this idea that we can look back and observe 100 years of market data, and there do seem to be strong, pervasive factors that do a good job explaining the difference in returns."

That idea drives the firm's research and portfolio design. Fisher notes that approximately 400 factors have been researched in efforts to explain the differences among returns. In using that research, the goal is to create portfolios that combine the characteristics and benefits of indexing while also offering investors the possibility of outperforming the average investor without relying on traditional stock-picking methods.

Observations of investors' behavior also influenced Fisher's thinking, although his conclusions predate the term "behavioral finance." In theory, stock prices are rationally priced based on discounted future income streams, but Fisher believed that investors' memories influenced their decisions. "It wasn't securities prices that had memory—it

was the people buying the securities that had the memory,” he says. “People are serially correlated. The markets are efficient, but investors can also be human.”

This realization tied in with research by Narasimhan Jegadeesh and Sheridan Titman on momentum investing and the momentum premium factor. (Jegadeesh is a professor of finance at Emory University’s Goizueta Business School, and Titman is a professor of finance at McCombs School of Business at the University of Texas at Austin.) That factor still provides a significant benefit, according to Fisher, and it works better with growth stocks than value stocks. “Some of it has to do with turnover, some of it has to do with transaction costs, but a lot of it has to do with the ambiguity of opinion across analysts and investors of how to value a growth stock,” he explains. “There’s a much more diverse set of opinions on the value of a growth stock amongst analysts and investors than there is with value stocks.”

Deciding which factors to use, determining their portfolio weights, and choosing the implementation method are critical to success with the strategy. The firm combines its own research with academic studies to determine which factors work and whether they can be adopted. With the momentum factor, for example, the allocation weight will be greater for high-momentum names than for negative-momentum names. Country size premium is another evaluated factor, resulting in large countries being underweighted and small countries being overweighted up to a specified cap. “So, there’s a set of rules based on our research that we consistently apply each day and those rules, the few that I mentioned, are examples,” he says. “There are others, and we then create the holdings that we have. We do all of this while being mindful of our tracking to our benchmarks, our exposures to the factors that we want to have relative to our benchmarks, and of course trading costs and turnover, which could erode your benefits if you’re not careful about it.”

The firm’s three mutual funds are in the top 20% of their peer groups, Fisher notes. But at this stage, factor-based investing has gone mainstream: Can it continue to produce the desired results? Fisher believes it can, although he admits that the approach could become less beneficial. Nonetheless, he says, investors’ historical preferences are likely to continue. “For as long as people are uncomfortable with volatility, I think these factor exposures will continue to bear fruit,” he says. “Over time, I still believe the returns will be there.”

"GREAT IDEAS" AND "REAL WORLD FRICTIONS"

Like factor investing, smart-beta investing has caught many fund managers’ and investors’ attention. According to a May 2016 estimate, BlackRock reports that assets in smart-beta ETFs will reach \$1 trillion globally by 2020 and \$2.4 trillion by 2025. Rob Arnott, who founded Newport Beach, California-based Research Affiliates in 2002, developed a new way of indexing with the Research Affiliates Fundamental Index (RAFI™); during a 2010 meeting with the consulting

firm now known as Towers Watson Willis, a member of that company’s staff used the phrase “smart beta” to describe the strategy. The term became an industry buzzword, albeit one that is “tremendously fuzzy in the marketplace,” says John West, CFA, managing director and head of distribution and marketing for Research Affiliates. According to the firm’s website, Research Affiliates’ definition of smart beta for equity investing is “valuation-indifferent strategies that break the link between the price of an asset and its weight in the portfolio while retaining most of the positive attributes of passive indexing.”

Research Affiliates has a unique business model. Although it collects revenues as a percentage of assets like a traditional investment management firm, it doesn’t trade the underlying portfolios. Essentially, it’s an asset-based business with about \$160 billion of assets linked to the firm’s concepts or tied to its products. That’s by design, says West, resulting from Arnott’s decision to focus on investment research and product development while leaving the “heavy lifting on distribution and administration” to other organizations.

Those assets come from both institutional- and private-client channels; the firm works with organizations that can offer multiple classes of mutual funds, such as PIMCO, PowerShares, and Charles Schwab, among others, and other large asset managers offer comingled accounts or manage the assets themselves in separate accounts and pay Research Affiliates a license fee.

West gives an example of how a new strategy goes from first consideration to market: If the initial idea comes from academic research, the staff works to replicate the data and apply the theory to out-of-sample data. If the theory works with that data, the investment management team then considers if and how it might work in the securities market. “Somebody might have a great idea with research, but once you actually apply real-world frictions to it—trading costs, market impact, tens or hundreds of billions of dollars of institutional flow—the idea might go away,” he says.

The next hurdle is sufficient scale, and West makes it clear that an idea with \$200 or \$300 million trading capacity won’t make the grade. “Let the [hedge fund managers] have that; that’s just not what we’re here to do,” he says. “We really want the products that we developed to have massive impact and a positive impact for investors.”

Despite the expansion of smart-beta strategies, West believes Research Affiliates can stay ahead of its competitors by continuing to do “outstanding research.” In his estimation, only a handful of firms do research in a similar manner. It then becomes a question of whether that research will provide useful results. “That’s really paying very careful attention to implementation costs,” he says. “So, that’s a research activity. And then we make sure we’re really having honest and authentic dialogues with clients so we’re making sure that we’re solving their problems effectively.”

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