CHAPTER 1

Introduction

There is a developing trend among investors to consider alternative investments (hedge funds, private equity, real estate, currencies, commodities, timber, and oil and gas) as a group of assets driven by a series of measurable return and risk factors. Heretofore, many investors have added these alternative investments purely on the initial merits of diversification and return potential, without a sophisticated approach to integrating them into a portfolio construction process. However, there is a more elegant way to conduct this implementation using factor and cash flow analysis, in order to identify common investment and structural factors and more accurately depict the correlations among these investments. This approach leads to improved veracity of portfolio construction with fewer redundancies and greater efficiency.

Potential benefits include more precise answers to the quantity of each type of alternative investment to use during the construction of a portfolio, in what combinations, and how rebalancing should occur based on forward-looking factor views for each alternative investment. Resolution of these issues provides a road map with quantitative and qualitative underpinnings for the migration of investors to the promise that they recognize in alternative investments but many have yet organizationally to achieve. In this fashion, the effectiveness exemplified by sophisticated endowments that have ample allocations to alternative investments is attainable by a much broader range of investors.

INTEGRATION OF ALTERNATIVE INVESTMENTS AND TRADITIONAL ASSET CLASSES THROUGH FACTOR ANALYSIS

Alternative investments keep creeping into many portfolios with little more portfolio cognition than for the sake of diversification. As these token

allocations to nontraditional investments mature across a broader range of investor portfolios, a deeper contemplation of their merits and risks is being sought by investors, trustees, and other fiduciaries. The turning point for most traditional investors in considering an increase in allocations to these investments often results from a desire for improved investment performance or from the persuasion of a trustee or adviser. Then, the desire for a quantitative understanding of the portfolio role for individual alternative investments is brought into the bright light of day. A problem many investors face is how to move beyond initial allocations to alternative investments in a holistic way that integrates these investments into traditional asset-class exposures and enables efficient portfolio construction. The thesis of this book is that this dilemma can be resolved through the practical application of factor analysis. Factor analysis can be applied both to alternative investments and to traditional asset classes when constructing efficient portfolios. This approach reveals the unique factors that drive returns, volatility, and correlation for alternative investments and their overlap with traditional asset classes.

Traditional style analysis, such as small versus large capitalization or growth versus value investing, is fairly limited in its explanation of investment choices within asset classes. Given the efficient nature of traditional asset classes, such as equity and fixed income, it perhaps is surprising that there is a litany of descriptors for styles. If styles are members of the same asset class, then they likely have high correlations to one another. In contrast, alternative investments not only have a range of types (such as private equity, real estate, and commodities) and a range of strategies (such as leverage buyouts, mezzanine debt, and venture capital), but also an entire genus of factors (such as credit spreads, volatility, and liquidity) that determine their outcome. However, the traditional investment world tends not to think about alternative investments in these terms. Investors have been slow to broaden their understanding of the unique drivers of return and risk for alternative investments. This stonewalling seems to be on the precipice of change.

APPROACHES TO PORTFOLIO CONSTRUCTION

A yearning for how alternative investments truly fit in the context of portfolio construction initially has led to the recognition that they do not fit well into traditional methodologies. For instance, when considering alternative investments in the framework of mean variance optimization, many practitioners realize that this tool is not completely accurate and assumes the expectation for a normal distribution of returns for each asset

class, which often is not the case for alternative investments. A user of mean variance optimization also often is forced to constrain allocations to various asset classes, in order to artificially maintain diversification. While mean variance analysis may continue to be used as an informative tool, it can be augmented by regressions that identify factor sensitivities of alternative investments. This tactic provides a better understanding of the sources of return and risk that underlie alternative investments.

There are winners and losers from the use of this methodology and the knowledge that it provides. Winners include investment managers who really do generate their returns from unique sources of returns. Losers are investors who may be slow to recognize an alternative investment manager that generates a majority of its returns from multiple beta exposures to traditional asset classes. Some factors that drive returns for alternative investments can be associated with traditional asset classes. A hedge fund that derives its returns from volatility, credit spreads, and some equity beta is not necessarily deceptive. It is only that those are the key factors from which that fund generates profits and losses. It should be relieving once those factors are established, so that they can be monitored and estimates for their direction can be determined by the fund manager and its investors. Conversely, a large-capitalization equity fund ostensibly derives the vast majority of its returns from a beta to only one factor—the equity market. The separation of alpha from beta should be no different for alternative investment managers, except they may have exposures to a larger number of factor betas. Alpha can become quite small once a more careful analysis is conducted and multiple factor betas are used to explain returns.

Nevertheless, an investor may be likely to find a greater opportunity for alpha in less efficient alternative investment areas than traditional asset classes. The smaller alpha becomes, it may begin to be rivaled in size by the error term in a regression calculation, which seeks to divine factor betas and alpha for an investment.

THE IDENTIFICATION OF ALPHA AND BETA IN NEW INVESTMENT STRATEGIES

Discussing alternative investments in terms of two simple subcomponents—alpha and beta to the equity market—is woefully inadequate. Alpha often is a virtual catchall for the return generated by an alternative investment that is not considered to be related to equity beta. However, there are many types of betas to various factors that can be present in alternative investments. The ability to identify a greater number of factor betas provides a better explanation of a new investment strategy and renders its alpha less

mysterious. Whether it is unique factor betas or unique alpha that a new investment strategy provides, both are of value to an investor. Still, the process of identifying the unique sources of returns for new strategies is helpful when combining a range of investments in an effort to ensure that a portfolio is optimized.

Beta is the amount of return for a security or fund that is explained by its benchmark or component benchmarks. A high beta for a fund is a measure of its directional movement with its benchmarks. In a traditional sense, nondirectional hedge funds should have betas near zero and generate returns that are unrelated to the returns of traditional market benchmarks, and alpha is a measure of a fund's return that is independently generated from the beta return that is influenced by the fund's benchmark. However, this rationale presumes single independent variable regressions where there is only one beta, presumably to the equity market. Many investors in low-beta hedge funds seek an independent alpha return that these investments are capable of generating. When added to a diversified portfolio, these uncorrelated returns may improve overall returns and reduce volatility. Nevertheless, the alpha from these funds can be deconstructed into numerous additional factor betas.

Alpha is the value added by an investment manager. It is the component of return that is unrelated to the manager's association with any market or beta. The importance of identifying alpha and multiple betas from new investment strategies is twofold. First, idiosyncratic alpha represents a new source of absolute return relative to a new investment strategy and is different from alpha generated by other investment strategies in an investor's portfolio. Second, new betas often are uncorrelated with betas generated by other asset classes. However, the identification of alpha is never as easy as it appears. This is particularly true as more independent factors are added to a multivariable regression analysis. As independent variables are identified, they represent new unique sources of return and risk with low correlation to other independent variables.

For example, consider the financing of imported goods as a new hedge fund strategy. Assume that this strategy is based on a lack of effective local banking support in an emerging country to pay local exporters for their goods while in transit to a developed nation. The developed country importer of the goods does not wish to pay until receipt, and then on a 60- or 90-day-payable basis. Therefore, an opportunity exists for financing the period of shipment. In this instance, a benefit for the financial firm filling this void is financing a strong credit from a developed country importer. A key to such a strategy is the velocity of transactions, or having multiple turnovers of these transactions annually. Another benefit should be repeat transactions with importers that have strong credit ratings and are located

in developed countries. The risk-free rate might be the base price above which the facilitator prices its service, thereby creating a spread equaling a risk premium.

In this example, one might ask: What is alpha and what is beta for this strategy? If there is only one player in this scenario, it is tempting to say that there is no beta and that the entirety of net returns above the risk-free rate is alpha. Beta requires more than one player in a unique investment strategy in order to measure returns that may deviate from the mean experience. Furthermore, beta to mean index returns potentially presumes that the index is investable and offers a passive investment alternative to selecting an active manager. The beta of a manager's performance in this example might be associated with the strategy's average return, which equals the risk-free rate plus a risk premium. Manager returns that fall above or below this can be attributed to the manager's positive or negative alpha, respectively. However, the unique return drivers associated with this strategy and the strategy's low correlation to other strategies may be more important than determining beta and alpha for a manager operating in the strategy. Simply identifying the attributes of a new strategy will result in new beta through the selection of any manager to execute the strategy. Incremental alpha may be negligible relative to the benefit of adding the new independent drivers of returns to an investor's portfolio. Over time, the absolute-return margin above the risk-free rate may decline as more participants enter a new strategy and push down returns through their competitive pressures. Not only can alpha be converted to beta over time for new absolute-return strategies, total returns can evaporate. This concept is quite different than considering a manager's beta to the S&P 500, which has return characteristics in its own right.

Another area of examination when accepting a new investment factor is sustainability. This analysis can identify some faulty assumptions about alpha and beta as they relate to a new unique investment factor. This is not an issue of the sustainability of alpha for a manager. Nor is it an issue of alpha becoming beta for managers in a strategy over time. Certain return drivers, or independent factors, disappear over time. The lack of sustainability of return may result from increased competition, changes in marketplaces, or regulation. Using the example of export receivables financing, this market opportunity could evaporate over time as local banks offer credit to the exporters, the costs of growing crops in one country make it less competitive with another country, or new duties by developed nations cause a reduction in imports.

Historically, diversification has been considered in the light of adding as many unique asset classes as possible. The archetypal return features of asset classes are generalized by their benchmark returns. An investor

has the choice of passively replicating these asset classes through investable indexes or employing active management of asset classes to attempt to generate positive returns above the asset-class benchmarks, net of fees. The appropriate measure of success for active management is generating positive incremental returns above a benchmark, otherwise known as positive alpha. Within the context of active management, diversification can be rendered through exposure to multiple-asset-class or independent factor betas, as well as to multiple sources of manager alphas. The greater the number of discrete alphas that can be added to a diversified portfolio, the better. When evaluating discrete returns that are separate from a benchmark's beta (independent investable factors), more idiosyncratic return (alpha) is desirable. In light of the fact that asset-class and factor betas can be passively replicated, it behooves investors to focus their attentions on ways to generate independent alphas from an array of asset-class managers. Accumulated alphas minus the risk-free rate, which is a form of passive alpha, may then be depicted as active alpha. Successful investors increasingly are taking a portfolio approach to selecting and managing alternative investments through attention to generating active alpha.

WHAT THE FUTURE HOLDS

The future for success in the alternative investment realm may increasingly rely on methodologies for the accurate estimation of the future direction for these factors, their volatilities, and their correlations to each other. A full appreciation of alternative investment characteristics may ultimately lead to a renaissance for classical economists. Indeed, portfolio managers of the future may likely find their success measured by an ability to forecast the factors that are chief drivers of return and risk in their portfolios. Successful forecasting of these factors and applying accurate weightings for the optimization of these factors in a diversified portfolio should be at the heart of portfolio construction using alternative investments. Furthermore, investors should focus on identifying investment managers who are creative and capable enough to identify new investment opportunities.

SUMMARY

The use of factor analysis in determining the drivers of return and risk for alternative investments should enable a more accurate appraisal of these investments and lead to their broader use. The quantitative pathway exists through factor analysis to give investors a more explicit risk and return

interpretation of their portfolios when alternative investments are employed. This approach moves beyond traditional methods such as mean variance optimization and style analysis. The description of investment returns by their factor betas provides better delineation in portfolio construction. The identification of returns that are unaffiliated with traditional or exotic beta factors leads to a more accurate depiction of alpha generation by individual investment managers who operate in each asset class. This also enables a deciphering of the active component of alpha in total returns. Factor analysis also provides investors with a framework to include and measure new alternative investment strategies, rather than avoiding them because they do not fit within the context of historical analytical techniques. This process should liberate investors to focus their attentions on identifying investment managers who truly have access to unique sources of returns, which are ever more valued in an increasingly competitive investment landscape.