Risk Based Investing
Summary Information
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Introduction & Background

Investors historically have attempted to assess and measure the tradeoffs involved in pursuing higher returns. Most recognize the advantage of maintaining well balanced portfolios and understand that an investor's time horizon and ability to accept meaningful volatility are critical elements in policy selection. Harry Markowitz (Modern Portfolio Theory) and William Sharpe (Capital Asset Pricing Model) are widely recognized for their seminal research that quantified the relationship between expected return and risk. "Mean variance optimization analysis" is widely utilized in the evaluation of alternative asset allocation policies and is commonly employed by institutional investors.

In recent years, perhaps in response to improvements in technology (economical computing power and data availability) and evolving portfolio management practices, greater attention has been focused on measuring and improving risk measures. In our opinion, the vast majority of institutional money managers and investors are spending more time and resources evaluating risk measures beyond those typically incorporated in traditional mean variance analysis. All recognize that "equity" risk dominates the total risk associated with most large long-term oriented institutional portfolios. For example, equity risk often accounts for 85% or more of total expected portfolio volatility in the typical 60/40 stock to bond portfolio.

Illustrations of the Application of Risk Concepts to Portfolio Construction

Liability Driven Investing

Liability Driven Investing (LDI) has gained a significant position (although not a majority) in the corporate defined benefit marketplace. Several factors including the partial or full closing of corporate DB programs, government regulation and accelerated funding requirements based on annual funded status tied to current interest rate levels, in our judgment, explain the changing practice. Corporate managements now more frequently routinely incorporate strategies to link some portion of their plans' assets to the "interest rate sensitivity" of their liabilities. This is commonly referred to as "surplus" optimization. Numerous industry surveys suggest that approximately 20-30% of major corporate defined benefit plans utilize some form of liability driven investment.

A 2008 Survey published in *Pensions & Investments* noted that 22% of survey respondents employed some form of LDI strategy and an additional 20% were considering employing such a strategy. The list that follows identifies several major corporate pension plans that have been publicly associated with the use of LDI strategies. The degree to which such strategies are employed is not readily available to the public.

1. Boeing
2. Briggs & Stratton
3. Delta Airlines
4. Discover
5. GM
6. Hallmark
7. Hewlett Packard
8. MolsonCoors
9. Morgan Stanley
10. Sony Music
11. Telcordia
12. UPS

Absolute Return Strategies

Such portfolio approaches often have weak positive correlations to stock and/or bond markets (note they do tend to have positive correlation to major risk factors such as equity, credit or interest rates). Nonetheless, this lower correlation improves overall total portfolio diversification. Absolute return strategies are being used in different ways. The most typical is as an additional asset category (despite the fact that such strategies are not really an asset class but rather a management approach). Some funds also use absolute return strategies as the source of active management premium which can be transported to stocks or bonds. Historically, major foundations and endowments have made significant allocations to such management approaches. Over the past 5-7 years, major public sector funds have established allocations.

Many absolute return strategies involve shorting and derivatives to reduce/manage underlying market exposure (beta).

Major institutional investors employing absolute return strategies are listed below.

Illustrative Listing of Major Funds
Utilizing Absolute Return Strategies

1. Alberta Heritage Fund
2. Massachusetts Pension Reserve Investment Management
3. CalPERS
4. CalSTERS
5. Colorado Police & Fire Retirement
6. Harvard Management
7. MIT
8. Orange County Employees Retirement System
9. Ontario Teachers

10. Missouri State Retirement System
11. Pennsylvania School Employees
12. South Carolina Retirement
13. Virgina Retirement System
14. Yale Endowment
15. Weyerhaeuser

Major Money Managers

As should be expected, a large number of leading money management firms offer "risk based" investment products. A partial listing of such firms is provided below. In addition, a larger number of money management firms utilize very sophisticated quantitative risk management tools in the construction of active stock and fixed income portfolios

Major Money Management Firms Offering
Risk Based Asset Allocation Portfolio Products

1. AQR
2. Baring Asset Mgmt.
3. Bridgewater Associates
4. Credit Agricole Asset Mgmt.
5. 1st Quadrant
6. GMO
7. Goldman Sachs Asset Mgmt.
8. HighVista Strategies
9. Makena Capital
10. Morgan Stanley Investment Management
11. JP Morgan Asset Management
12. Neuberger Berman Group LLC
13. PIMCO
14. Wellington Management Company LLP

These 14 firms were identified by Callan as semi-finalist candidates for the APFC external CIO search from a group of more than 40 asset management firms that responded to a request for information. The degree and manner in which the firms implement risk based approaches varies significantly from firm to firm.

There are literally hundreds of other respected money managers who make extensive use of risk based approaches to portfolio construction and monitoring.

Major Funds Noted for Extensive Reliance on Risk Based Principles in the Management of Fund Assets

The most advanced users of risk based management strategies for long-term oriented investment pools are major foundation and endowment funds. Such funds tend to have the largest allocations to non-traditional investment approaches, hedge fund exposures and illiquid investments.

Major endowments such as Harvard, Yale, Stanford, Princeton, and MIT are all recognized for their innovative investment approaches including quantification of risk measures. To be sure these same funds also suffered substantially in the 2008 market meltdown and are still evaluating the implications for future policy directions.

Industry publications suggest that allocations to “alternative investments” (defined broadly to include absolute return, hedge fund, real estate and private equity) accounted for more than 50% of the assets for the top three endowments ranked by size (Harvard, Yale and Stanford).

Canadian and European pension funds including entities such as the Ontario Teachers, Ontario Municipal Employees, ABP (Netherland) focus extensively on liability centered investing. Such pension schemes have significant exposure to inflation and explicitly build their asset allocation policies with an objective of explicitly linking their asset returns to expected growth in liabilities. For example, the Ontario Teachers has been a leading investor in infrastructure largely as a hedging strategy. Similarly all three funds have a significant allocation to inflation linked bonds.

British Petroleum has been a pioneering organization in the development and use of risk based strategies in the management of its defined benefit pension program. Other major corporate defined benefit sponsors noted for risk management capabilities include Boeing and General Motors.

Public funds increasingly are embracing risk based portfolio construction for their investment portfolios. Such funds include CalPERS, Texas Teachers, and the South Carolina Retirement System.

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