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EXECUTIVE SUMMARY

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Review of institutional investors' investment principles and methods

Institutional investors commonly target five percent real annual return, or seven to eight percent nominal returns. The Finnish earnings-related pension system has more modest expectations. It assumes a 3.5 percent real return on pension assets. However, most investors are likely to be disappointed going forward. Current market yields and valuations make it very unlikely that traditional allocations will achieve their target returns.

Over the past century, or 113 years, it has not been easy to achieve five percent long-term real returns, unless the portfolios have heavily concentrated on equity market risks. The long-term average real yield since 1900 (1900–2013) is 5.2 percent for stocks and 1.8 percent for bonds. Real return on a typical 60/40 portfolio of stocks and bonds has been 3.8 percent.

Currently, the prospective real yield on the 60/40 portfolio is 2.4 percent, its lowest level in 113 years. A typical Finnish pension fund allocation is 40/40/20 of stock, bonds and alternative assets. Its prospective yield is likewise 2.4 percent, not 3.5 percent as expected.

The present situation is relatively unique in that both stocks and bonds are expensive at the same time. Roughly speaking, the ex-ante real yield on stocks is 4 percent and on bonds 0 percent – both below or well below their long-term average levels.

The classical asset allocation recipe, known as the 60/40 policy, fundamentally subscribes to the market efficiency hypothesis. It fundamentally assumes that asset volatilities and correlations

are low and stable over time, according to the underlying assumptions in Markowitz's modern portfolio theory (MPT).

For a long time, investment theory and practice have been summarized as follows. The capital asset pricing model (CAPM) stated that the market portfolio is optimal. The 60/40 portfolio approximates the market portfolio; it is how equities and bonds are allocated at capital markets.

For quantitative asset allocation, many of these investors used the optimization model developed by Harry Markowitz, even though they knew that such an approach was very sensitive to input parameters, and in particular, to expected returns. One reason is that there was no other alternative model. Another reason is that the Markowitz model is easy to use and simple to explain.

At the heart of the 60/40 paradigm is the notion that stocks and bonds can be relied upon for diversification, as the correlation between them is – allegedly – low and stable. The first serious warning shot came with the dotcom crises. Some institutional investors lost substantial amounts of money because of their high exposure to equities. While a 60/40 portfolio might appear balanced in terms of capital allocation, it is highly concentrated from the perspective of risk allocation, and therefore not diversified. Risk weights are not the same as dollar weights, and equities seem to account for about 80–90 percent of portfolio volatility.

The second generation approach was to have more asset classes and, hence more diversification. The limitations posed by the 60/40 allocation led to a gradual shift of strategic allocations towards leverage-sensitive alternative asset classes, such as private equity, infrastructure, venture capital, real estate and hedge funds. Some pioneers, like Yale University, adopted the "endowment model" and diversified into various alternative asset classes, combining reliance on the equity premium with faith in illiquidity premia and in hedge fund alpha. The investment model gained popularity in the early 2000s after the equity market bust.

However, alternative asset classes failed to address the dominance of stock market directionality in portfolio risk, particularly since the onset of the financial crises in 2008. Investors found out that also alternative asset classes are vulnerable to equity market risks during stressful periods, since most alternative asset classes carry significant exposures to equity beta and systemic liquidity risks.

The third generation strategies are modern answers to this challenge. One family of the third generation models exploits the empirical finding that systematic risk premia exists in all asset classes and across a number of investment styles. The so-called alternative beta strategies harvest these risk premia. Risk parity strategies provide the second answer. Risk parity investing implies balanced risk allocations across major asset classes instead of letting the most volatile asset class – equities – dominate.

Investors have two broad choices in how to respond to the stark news delivered above. They could take a very long-term view and accept that the return target is unlikely to be achieved

in the next 5 to 10 years but is, perhaps, still a reasonable very long-term goal, and thus make plans according to these lower expectations.

Alternatively, investors could take action and either: (1) harvest a broad set of return sources, far broader than the typical set that relies heavily on the equity risk premium, (2) implement a series of portfolio management methods labelled "alpha in portfolio construction", or (3) put in place the risk control necessary to see this, or any approach, through the tough times.

Long-term investment success requires identifying attractive return sources, harvesting them cost-effectively, aggressively diversifying among them and overlaying smart risk controls. Investors should allocate by risk, not dollars. Risk parity investors have taken this message to heart, but it really applies to every investor.

First, this report investigates the building blocks to successful investment strategies for institutional investors by presenting the results of worldwide surveys of investment beliefs. The surveys reveal how pension funds and commercial asset managers view capital markets. Investment beliefs can be linked to performance measures, and it is obvious that pension funds with clear beliefs about asset pricing and risk diversification have better return/risk performance measures, as well as lower costs. The last 30 years have seen a revolution in the way financial economists understand the investment world. Old and new facts are discussed. The key findings are: (1) there are multiple sources of priced risks and (2) long-term returns are predictable. Investors can exploit these new findings.

Thereafter, three quantitative asset allocation tools are applied to data. When Markowitz's framework to optimize the portfolio is applied, the implementation reveals the main problem: the optimized portfolio is very sensitive to the inputs and none of the unconstrained tangency portfolio weights is statistically significant. Furthermore, the naive equally weighted (EW) portfolio and the minimum variance (MV) portfolio beat the optimized portfolio out of the sample from 2004 through 2013.

In terms of return/risk ratios, five risk parity portfolios out of six beat the EW, MV and Markowitz portfolios, providing a 9.0–12.5 percent average annual return out of the sample. A simple smart beta yields a 7.3 percent annual return using static allocation, but a 14.8 percent annual return using a dynamic allocation strategy.

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