STRATEGIC EXCHANGE

ASSET MIX CONUNDRUM

INCORPORATING RISK FACTOR PERSPECTIVES

For decades the strategic asset mix of choice has been 60% equity / 40% fixed income. Many investors now believe this mix is ill-suited to meet their future needs. While there is a shared view of the problem, there is no consensus on what the alternative should be, or how big the problem really is.

Why has the asset mix conundrum surfaced and how can alternative perspectives help determine asset mix with greater confidence going forward?

Defining the Problem

The asset mix conundrum has led to a range of responses from investors. Some see the problem as a mismatch against liabilities by having too much equity risk and not enough and too short-duration fixed income. Others see it as an expected return problem created by low yielding bonds coupled with a greater impact to total returns from volatile equities.

Investor response has partly been driven by investor size; the big ones are making changes, the smaller ones less so.

However, irrespective of investor size, there is a common desire for more risk awareness in setting strategy.

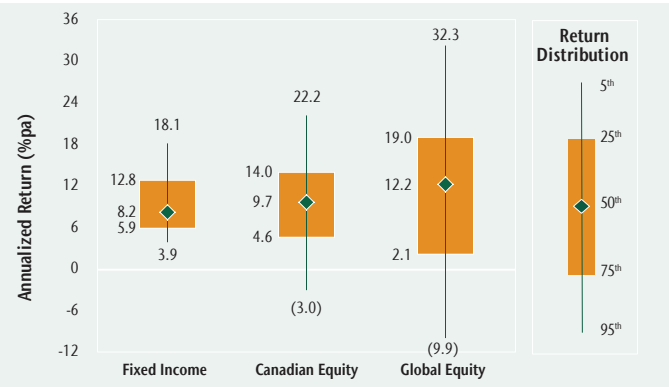
Assumption Challenges

Asset strategy is generally determined through a mean-variance optimization framework using asset class returns, standard deviation and correlation expectations to solve for an optimal mix along the efficient frontier.

Forecasting the assumptions is not easy. For example, correlations are unstable and tend to move in the wrong direction at the worst possible time. Risk and returns are also difficult to predict and while asset strategy focuses on the long term, formal reviews tend to occur every three years.

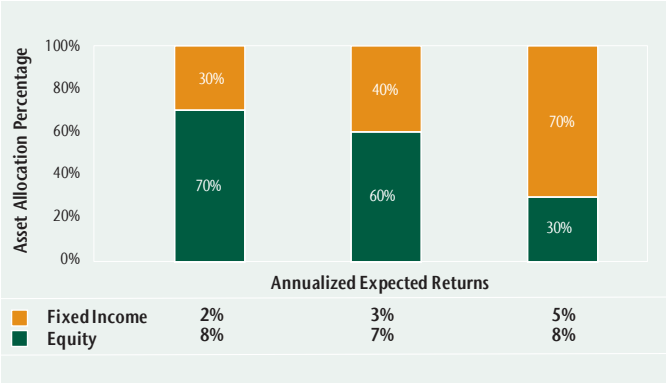
There can be a great deal of variability in actual returns from one 3-year period to the next. *Chart 1* shows the range of rolling 3-year returns from 1980 to 2015 for fixed income, Canadian equity and global equity (unhedged). The return variability highlights the short-term influences when setting assumptions. For example, global equities ranged from -9.9% per annum to +32.3% per annum (95th to 5th percentile observations).

Chart 1 – Rolling 3-Year Return Periods 1980-2015



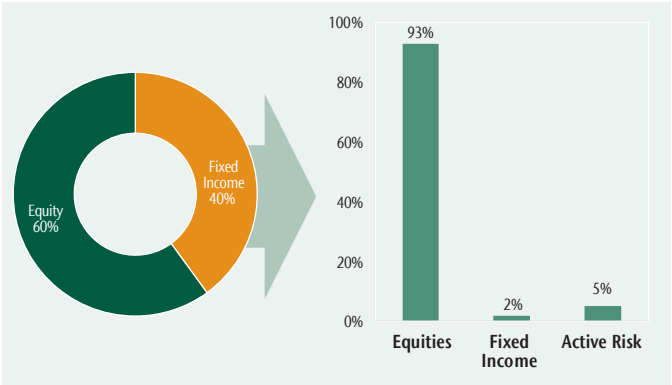
It takes little change in return assumptions to have a significant impact on capital allocations. For a portfolio invested in fixed income and equities, there is a dramatic increase in the optimal allocation to fixed income when the difference in their relative returns is reduced as illustrated below in *Chart 2*.

Chart 2 – Mean-Variance Optimization



A typical 60% equity / 40% fixed income portfolio lacks diversification since equities represent a much higher risk contribution (i.e., percentage of expected return volatility) relative to its 60% capital allocation as shown in *Chart 3*. This lack of diversification of a 60 / 40 portfolio was highlighted during the global financial crisis of 2008.

Chart 3 – Risk Contribution



Growth of Risk Factor Investing

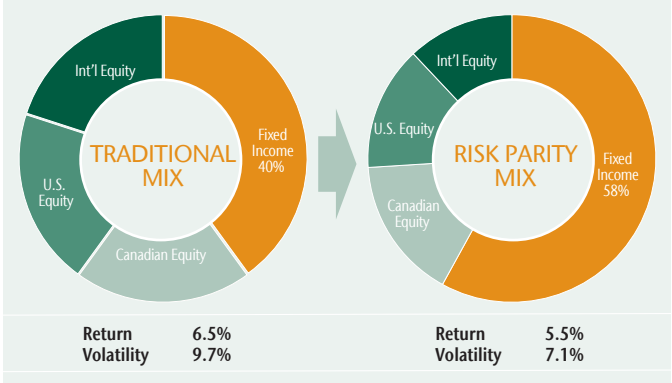
Recognizing the challenges of traditional risk and return measures, the concept of risk factor investing is increasingly in the spotlight. There are various applications for risk factor investing. For example at an asset class level targeting factors expected to deliver certain return or risk benefits. Smart beta falls under this component.

Another application is risk parity which derives its name from its stated objective of building portfolios with risk equally allocated across asset classes. There is also risk-based asset allocation which focuses on allocating risk as opposed to capital at the overall portfolio level to help identify a more diversified asset mix.

Risk factors at an asset class level generally involve a rules-based portfolio construction approach, replacing a security weight based on market capitalization with a security weight emphasizing return premium characteristics, such as value and size premiums, or risk characteristics, such as low volatility. Many such factors have outperformed historically. However, no factor is guaranteed to always outperform so the adoption of such factors is an active decision by investors.

To appreciate the risk parity concept, *Chart 4* compares a traditional 60 / 40 portfolio with a risk parity asset mix.

Chart 4 – Expected Risk And Return



The traditional 60 / 40 portfolio has an expected return of approximately 6.5% per annum and volatility of 9.7%. Under a simple risk parity approach, the objective is to create a portfolio where each asset class contributes equally to the overall portfolio risk, resulting in a lower allocation to volatile equities and higher allocation to fixed income. However, by tapping into the same set of asset classes, risk parity portfolios not only imply more diversified and lower risk portfolios, but also lower expected returns. To make up for the return shortfall, leverage is introduced for the fixed income component. It is not unreasonable to require over 50% leverage depending on the expected returns and cost of borrowing.

The use of leverage creates complexities that limit its appeal to medium- and smaller-sized investors which tends to imply larger and well-resourced investors consider risk parity solutions more often. This approach has also been embraced by the investment management community, particularly hedge fund managers.

> It takes little change in return assumptions to have a significant impact on capital allocations.

The concept of risk-based asset allocation owes thanks to Norway following the global financial crisis of 2008. The Norwegian sovereign wealth fund, one of the largest investors globally, experienced significant declines during the global financial crisis prompting the Norwegian government to commission an investigation into the fund's performance and the hiring of three distinguished academics[1].

The review's key finding was the portfolio was not as well diversified as had been assumed by the Norwegian government, since the various asset classes had significant exposures to the same risk factors. A recommendation from the review was to consider a risk-based allocation process.

Risk Factor Review Process

A potential process for reviewing asset mix from a risk factor perspective is shown below in *Chart 5*.

Chart 5 - Factor Review Process

The first step is to identify a set of appropriate underlying risk factors and then to assess how the various asset classes are exposed to those factors. An investor's risk tolerance will help assess the appropriate allocation to the various risk factors and identify a portfolio to meet the desired outcome.

While there is no standard set of risk factors, the ones summarized in *Table 1* are commonly considered.

Table 1 – Risk Factor Descriptions

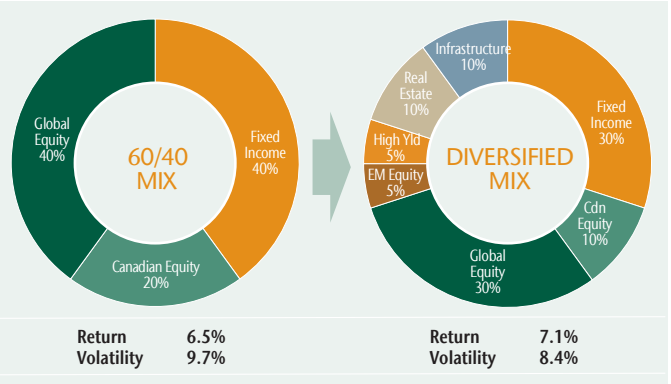
Factor	Description
Economic	• Premium from economic growth • Adverse impact of economic downturn.
Credit	• Premium for lending to corporations • Risk of downgrade or default.
Inflation	• Premium for bearing inflation risk • Risk of adverse real value impact
Political	• Premium for bearing political risk • Risk due to political instability.
Real rates	• Premium for time value of money • Risk of less purchasing power in receipt of cash flows.
Liquidity	• Premium for tying up investment • Risk of being unable to cash out at certain times.

Risk factors impact individual asset classes differently. For example, the biggest impact on corporate bonds comes from real rates, whereas for Canadian equity the largest risk factor is economic.

Risk-based analysis can complement the capital allocation approach when assessing potential asset mixes by identifying more broadly diversified mixes.

Many larger investors have made asset mix moves away from 60% equity / 40% fixed income to incorporate additional asset classes for a more "Diversified Mix" as *Chart 6* illustrates.

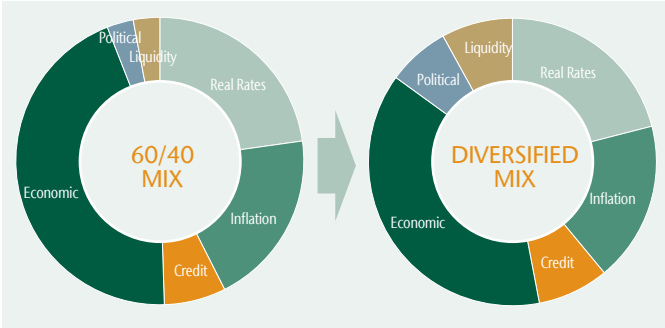
Chart 6 – Move To More Diversified Mix



[1] Andrew Ang, Professor of Business at Columbia Business School, William N. Goetzmann, Professor of Finance at Yale and Stephen M. Schaefer, Professor of Finance at London Business School

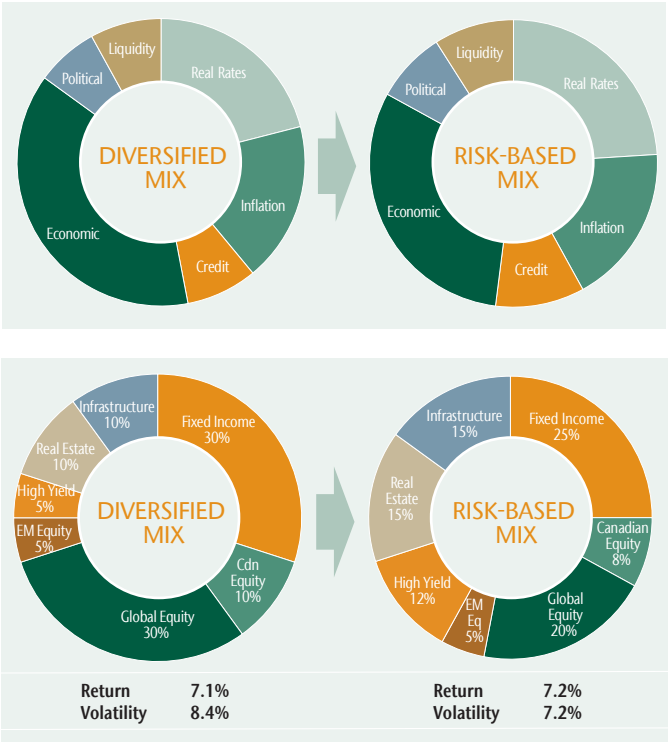
Risk and return expectations are generally improved through a more diversified mix and the risk factors are also more broadly spread among the six factors. However, the economic exposure is still high *(Chart 7)*.

Chart 7– Risk Factor Perspective



From a risk-factor perspective, the solution for a portfolio that aims to reduce economic risk exposure further, can also enhance the traditional risk and return expectations as highlighted in *Chart 8*. The lower economic exposure is achieved through higher allocations to asset classes with less or little economic factor exposure compared to equity investments, such as real estate, infrastructure and high yield bonds.

Chart 8– Risk-Based Approach



Asset Mix Resolution

The most important decision for investors is determining the strategic asset mix. However, it is also the most challenging process, partly because risk is hard to understand when simply defined as volatility of returns, or funding level. Broadening asset mix risk assessment to include a risk factor allocation perspective will help committees to better understand the underlying risks, which can help in identifying strategic asset mixes in a timelier manner and with greater confidence for success.

For more information on incorporating risk factor perspectives into asset strategy contact:

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