

Managing a Pension Portfolio: Global Asset Allocation

May 23, 2012

PAPERS Spring Forum

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A Theoretical Framework Of Strategic and Tactical Asset Allocation

Building Blocks of an Optimal Portfolio

Optimal Portfolio

Minimum Volatility + Strategic Tilts

- Strategic Asset Allocation (SAA):
 - Long-term, core exposures to asset classes (“risk class”?)
 - Can include active security selection within asset classes

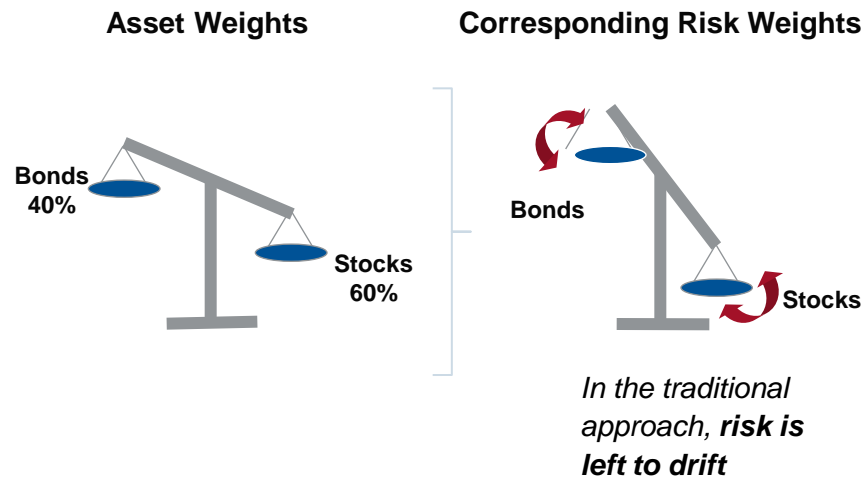
Tactical Tilts

- Tactical Asset Allocation (TAA):
 - when executed well, can deliver uncorrelated alphas
 - Overweight/Underweight; or risk optimized positions

Risk Balanced Strategic Asset Allocation (SAA)

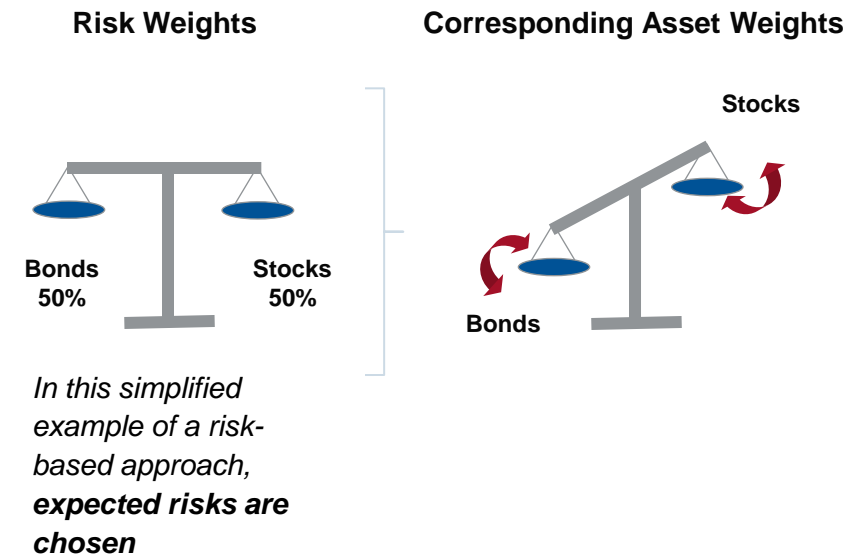
A responsive and adaptive approach with less error-prone forecasting

TRADITIONAL SAA APPROACH



- Asset weights chosen
- Risk weights and portfolio risks change
- Concentration of risks on equity likely

RISK BALANCED SAA APPROACH



- Risk weights and portfolio risks chosen
- Asset weights change
- Balanced risks may require leverage to achieve return target

Security Selection Within Asset Classes

“Risk-Based Asset Allocation: A New Answer To An Old Question?” Lee (2011)

“Demystifying Risk Parity,” Kaya and Lee (2012)

- Any non-market-cap weighted portfolio is an active portfolio, no exception
- Take active security selection risks to the extent alpha-versus-fees analysis justifies it
- Sound theoretical underpinnings for:
 - Minimum Volatility Portfolio
 - Risk Parity Portfolio



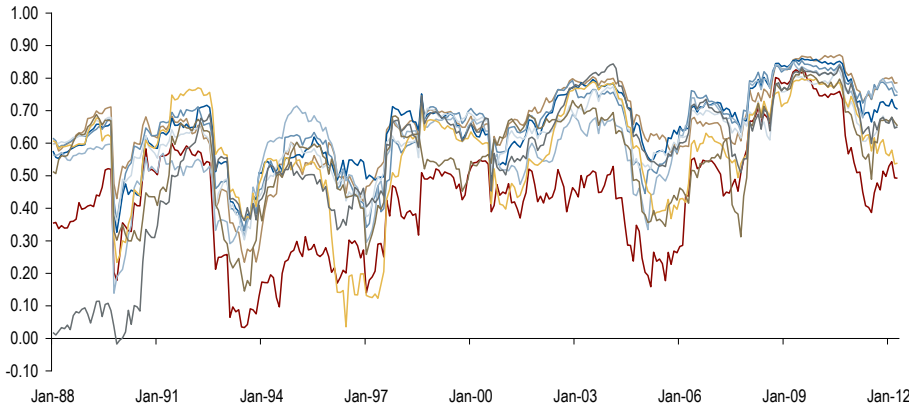
- the first fundamental building block of an optimal portfolio
- high weight concentration, high risk concentration, high turnover

- a less error-prone portfolio to mitigate forecast errors
- balanced weight, balanced risk, lower turnover

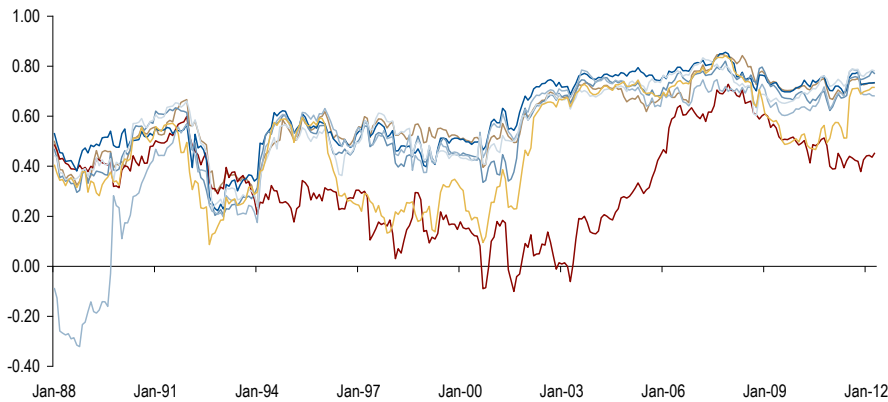
“Risk On / Risk Off” (Lee, 2012) Challenges All Investors, Ex-Ante

Within Asset Classes: Correlations Have Been High

Average Correlations Among Major Stock Markets

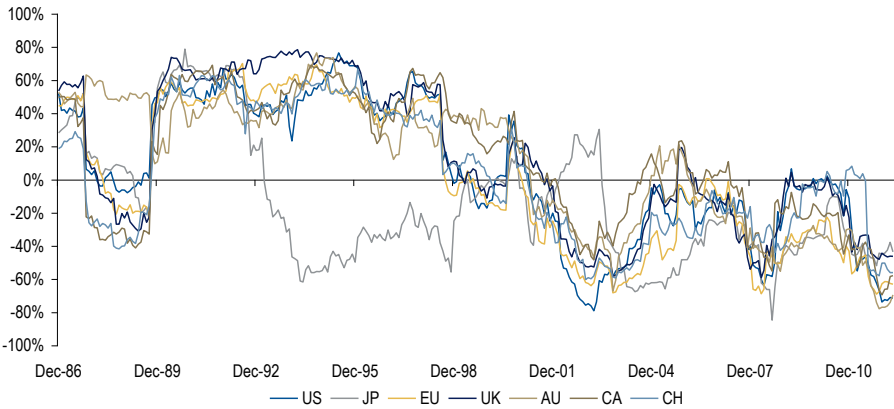


Average Correlations Among Major Gov Bond Markets

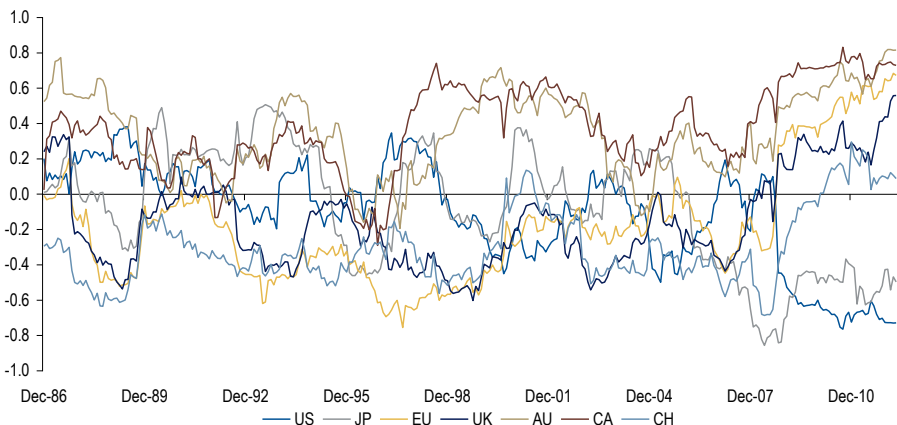


Across Asset Classes: Correlations Shocked to Extremes

Correlations Between Stocks and Gov Bonds In Same Regions



Correlation Between Stocks and Currency Returns In Same Regions



Sources: Bloomberg and Neuberger Berman Quantitative Investment Group.

Summary

“... risk is a choice rather than a fate” – Peter Bernstein (1996)

- Rethinking diversification in strategic asset allocation:
 - traditional versus risk-balanced
 - with or without leverage
- Market cap-weighted is the one portfolio every investor *can* follow, but not everyone *has to* follow
 - active security selection risks
- Sensible risk taking with tactical asset allocation
 - net leverage or not

Putting Research Work into Practice

PUBLICATIONS

Demystifying Risk-Parity

Neuberger Berman white paper, March 2012

Risk On Risk Off

Journal of Portfolio Management, Spring 2012

Risk Budgeting With Asset Class and Risk Class

Journal of Investing, Spring 2012

Risk-Based Asset Allocation: A New Answer To An Old Question?

Winner of Bernstein Fabozzi/Jacobs Levy Award for Best Article; published in The Journal of Portfolio Management, Summer 2011

Implementable Tail Risk Management and Optimization

Journal of Derivatives and Hedge Funds November 2011

Regimes: Non-Parametric Identification and Forecasting

The Journal of Portfolio Management, Winter 2010

The Black-Litterman Model For Active Portfolio Management

Winner of Bernstein Fabozzi/Jacobs Levy Award for Outstanding Article; published in The Journal of Portfolio Management, Winter 2009

Risk Budgeting

Handbook of Finance: Investment Management and Financial Management, 2008

Implementing Optimal Risk Budgeting

The Journal of Portfolio Management, Fall 2001

Modeling and Forecasting Interest Rate Volatility with GARCH

Advances in Fixed Income Valuation Modeling & Risk Management, 1997

Theory and Methodology of Tactical Asset Allocation

Wai Lee, 2000

CLIENT APPLICATION:

Risk-Balanced Strategic Asset Allocation

Global Tactical Asset Allocation

Risk-Balanced Security Selection Strategies

Active Security Selection Strategies