Strategic Asset Allocation: the search for a robust asset mix

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18 September 2014
SAA is the really big decision...

- Strategic asset allocation
- Marketing timing, stock selection etc.

... and the hardest to get right given the need to calculate *expected* ...  

- Returns  
- Volatility  
- Correlations

... especially for increasingly diverse asset mixes ...
…while factoring in the scheme’s unique...

• Covenant strength
• Journey plan to full funding/buyout
  – required gilts+ (real) return
  – risk budget/risk tolerances... VaR, FRaR, hedge ratios etc.
  – de-risking approach... instruments and collateral
  – liquidity budget
• Asset allocation parameters
  ...
crucial as the above are, let’s focus on calculating the expected returns and risks...
First, calculating expected returns...
Let me introduce you to Felicity Foresight and Harry Hindsight ...

• **Felicity Foresight** invested $1 in 1900 and reinvested the accumulated sum at the start of each year in what uncannily proved to be the world’s top performing asset market

• **Harry Hindsight**, a dedicated follower of fashion, with the same $1, invested in the previous year’s best performing asset

• What sum had each accumulated by end-1999 excluding transactions costs, taxes etc.? 

Source: the Economist 18/12/99 and 12/2/00
So 100 years on, by how much did Felicity outperform Harry?

- **Felicity Foresight:** $9,607,190,787,673,150,000 (Bill Gates’ worth end-1999 was a mere $85,000,000,000)
- **Harry Hindsight:** $184 (Harry made a loss in every other year)
- The lessons learnt?
  - Without perfect foresight a diverse asset mix is essential
  - Don’t asset allocate using historic data!

- ps Harry never got the girl!

Source: the Economist 18/12/99 and 12/2/00
However, in the real world...

...Forecasting is difficult and is rarely accurate...

...But simple financial economics is a good place to start
Simple financial economics helps us calculate long-run sustainable returns...

The long-run nominal return on any risky asset =
- trend economic growth + expected inflation + risk premium
...Pre-crisis these approaches worked reasonably well...

UK equity returns – forecast and realised – using the building block approach

But...

- No *one* correct way to calculate expected returns, and
- Each method requires
  - *judgement* and invites *prejudice*
  - frequent revisiting of risk premia

Also, we now have the *new normal to contend with*...
... where conventional economic analysis is constantly challenged...

e.g. is the US trend growth rate 0.7%, 1.0%, 1.5% or 3.2%?

“US GDP for 1Q14 revised down to -2.9%...”

“US posts GDP growth of 4% in 2Q14 ...”

“GDP Growth Rate in the United States averaged 3.2% from 1947 to 1H 2014...”

“Falling working age population growth and continued declines in productivity growth suggests a trend growth rate of 0.7%...but the prospect of a rising labour participation rate implies 1%...”

“The level of capital investment and its efficiency implies a trend growth rate of 1.5%...”

Sources: Andrew Smithers, Bad US productivity – is it a trend or a blip? FT.com, 7 August 2014; Andrew Smithers, Long-term investing, FT.com, 20 August 2014
...and unconventional central bank policies are arguably rigging asset prices...

“... asset allocation is in one of the toughest environments ever encountered... nothing looks cheap... nor is there anywhere to hide...”

John Plender

FT.com, 31 August 2014
Then there’s the risk calculations to make...

- Most approaches use historic measures of volatility and correlation
  - Time variation of volatility and correlation is a problem
  - Many fancy statistical techniques for forecasting future volatility and correlations
  - Once again there’s no one correct way to forecast volatilities and correlations
  ...and is volatility the right measure of risk for a pension scheme?
Once the returns and risks have been estimated quantified, the end result is the mean variance efficient frontier (MVEF)...
...the position and shape of which is very sensitive to small changes in these parameters... GIGO!

![Graph showing the relationship between expected return and expected volatility for different investment mixes of bonds and equities. The graph has two curves: one for 100% equities and 0% bonds, and another for 100% bonds and 0% equities. The expected return is on the y-axis, and the expected volatility is on the x-axis.]
MVEF optimisation also tends to give very concentrated solutions for multi-asset portfolios...

Expected return %

Expected volatility %

Unconstrained efficient frontier
Can we improve on the traditional approach?

Expected return %

Expected volatility %

Unconstrained efficient frontier

“Bootstrapped” efficient frontier
Can we improve on the traditional approach?

• Unless you know something about the future, an equally weighted portfolio (EWP) approach should be the default
  – a simple approach that
    • doesn’t require judgement, forecasting or confidence in estimating future returns, volatility or correlations
    • produces superior risk-adjusted returns versus the traditional approach*

Can we improve on a pure EWP approach... by using simple rules-based investing?

• Basic Risk Parity
  – weight asset classes proportionately to inverse of prior 12 months volatility

• Momentum
  – equally weighted portfolios
  – components based on prior 12 month return

• Trend following
  – equally weighted portfolios
  – adopt a 10-month moving average rule
  – invest in 3 month T-bills when trend in downwave

• 5 major asset classes...95 sub components...end-month index returns...1993-2011

• No short selling... no transactions costs ...monthly rebalancing

Source: The Trend is Our Friend: Risk Parity, Momentum and Trend Following in Global Asset Allocation
Andrew Clare*, James Seaton*, Peter N. Smith† and Stephen Thomas*, *Cass Business School, London, †University of York, UK
This Version: 1st June 2014
The components

- 5 major asset classes represented by well known financial market indices
  - Developed economy equities
  - Emerging market equities
  - Bonds
  - Commodities, and
  - Commercial property

- 95 sub-components of the main asset classes
  - 24 developed economy markets
  - 16 emerging economy equity markets
  - 19 government, investment grade and high yield bond markets
  - 23 commodities markets
  - 13 country level real estate markets
Sample of results

- Momentum tends to produce highest return, trend following the highest Sharpe ratio and lowest maximum drawdown
- Combination of momentum and trend tends to produce best combined metrics
- Are SAA weights stable?

Combined portfolio shows 20 asset momentum/trend following portfolio
Conclusions

• Asset allocation based on simple, mechanistic rules can work

• Many advantages:
  • avoids sophisticated optimisers that simply give us the answer we put into them
  • no subjective judgements, prejudices, valuation calls or flawed risk assumptions
  • acknowledges an inability to know which asset class will be the best performer over any given future period
  • capitalises on evidence of equally-weighted approaches to asset allocation outperforming optimised portfolios*
  • provides a sell discipline, so reducing drawdowns dramatically
  • transparent and replicable
  • meets with growing sympathy for simplicity over complexity**

** in both optimisation and regulatory context... The Dog and the Frisbee, Andrew Haldane, speech at Jackson Hole, 2012, www.bankofengland.co.uk/publications/Pages/speeches/default.aspx
But could we do even better?

- Over two-thirds of returns in study not attributable to smallcap or value risk premia ...

  ...so perhaps a selective *smart beta* approach rather than index funds might improve the results yet further ...

  ...acknowledging that these risk premia experience long periods of underperformance
Any questions?
Thank you