The Art of Asset Allocation

Ideas from the trenches

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Asset Allocation Process

- The most important decision
- "Asset allocation exemplifies the importance of combining art and science in portfolio construction." David Swensen
- Define an asset class
- An asset class should meet fundamental investment goals and/or de-correlate equity risk

Modern Portfolio Theory: Neoclassical view

- Insights:
  - *Risk quantification*
  - *Smart diversification*
- Limitations
  - *A model driven by one risk factor – beta*
  - *Constant expected returns and correlations*
  - *Investment decisions based solely on means and variances*
  - *Investors rationality and efficient markets*
  - *Frictionless markets*

Performance Analysis and Reporting

- Pitfalls in performance reporting
  - *Sharpe Ratio*
  - *Sortino Ratio*
  - *Peso Problem*
  - *Margin to Equity*

Modern Portfolio Theory: Current view

- Current view insights:
  - *Multiple risk factors*
  - *Covariation with bad times (beyond market declines: negative consumption growth rates, rising unemployment, rising inflation, unexpected monetary tightening, illiquidity spirals, increases in volatilities)*
  - *Time varying risk premia*
  - *Skewness and liquidity preference*
  - *Supply-demand effects on asset prices*
  - *Market inefficiencies (structural or behavioral)*

Investing in a Post Modern Portfolio Theory Universe

- Ex ante expected returns forecasts:
  - *Value factor*
  - *Size factor*
  - *Return evidence (momentum)*
  - *Return reversals*
  - *Volatility (i.e. GARCH models)*
  - *Liquidity*
  - *EPS momentum*
  - *Corporate actions: asset growth, net issuance*
  - *Inflation sensitivity*
- Scenario dependent analysis (correlations)

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The Endowment Model

- Endowment investing as a long term solution
- Endowment Model characteristics:
  - *Long term investment horizon*
  - *Contrarian thinking*
  - *Significant diversification of asset classes*
  - *Uncorrelated strategies (factor diversification)*
  - *Illiquidity premium capture*
  - *Avoidance of active management in efficiently priced markets*
  - *Real asset focus*

The Long View

- The Endowment Model attempts to profit from this long term posture
  - *Illiquidity premium*
  - *Contrarian investing (provider of liquidity during dislocations)*

Diversification

- Large number of asset classes
- Inclusion of alternatives
- Global approach
- The rise of factor diversification
  - *Example: blended factors strategies*:*
    - ➢ Book-to-price factor: information ratio of 0.32
    - ➢ Momentum factor: information ratio of 0.50
    - ➢ 50/50 combination of above factors: information ratio of 0.86

*Source: Wilmer Henao, Factor Diversification: Sometimes More Really is More, ING Investment Weekly, 2009

Efficient versus inefficient markets

- Beta replication in efficient markets
- Alpha seeking in inefficient ones
- Return disparity by asset class in top/bottom quartile of money managers per annum over last ten years(Yale report):
  - *US Treasuries: 0.8%*
  - *Large Cap Domestic Equities: 1.5%*
  - *Domestic Small Cap Equities: 2.3%*
  - *Developed Markets Foreign Equities: 2.7%*
  - *Emerging Market Equities: 2.8%*
  - *Leveraged buy-outs: 13.8%*
  - *Natural Resources: 17.4%*
  - *Real Estate: 19.1%*
  - *Venture Capital: 19.8%*

Third Party Performance Measurement

- Long term view in evaluating outside managers
- Due diligence on the strategy and not only the managers and the operations
  - *Focus: Is it correct to favor a handful of concentrated managers?*

Endowments Comparison

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Yale versus Norway Sovereign Wealth Fund

- Yale predominantly actively managed
- Norway Sovereign Wealth Fund predominantly engaged in beta replication
  - *The Norway Model:*
    - Almost exclusively publicly traded securities
    - Very small tracking error policy which restricts actively managed allocation
    - No Private Equity and almost no hedging
    - Diversification is main risk control factor
    - Socially responsible
    - Transparency
    - Team approach

Yale Endowment Asset Allocation 2015

Asset Class	% Allocated
Absolute Return	20.5%
Domestic Equity	3.9%
Foreign Equity	14.7%
Fixed Income	4.9%
Natural Resources	6.7%
Private Equity	32.5%
Real Estate	14.0%
Cash	2.8%

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Harvard Endowment Policy Portfolio Allocation 2016

Asset Class	% Allocated
Domestic Equities	6%-16% range – actual: 10.5%
Foreign Equities	6%-11% range- actual: 7%
Emerging Markets	4%-17% range – actual: 11.5%
Private Equity	13%-23% range – actual: 20%
Absolute Return	11%-21% range – actual: 14%
Real Estate	10%-17% range – actual: 14.5%
Natural Resources and Commodities	6%-16% range – actual: 10%
Publicly Traded Commodities	N/A
Domestic Bonds	5%-9% range – actual: 9%
Foreign Bonds	0%-4% range – actual: 1%
High Yield	0%-3% range – actual: 0.5%
Inflation Indexed Bonds	0%-6% range – actual: 2%
Cash	0%

Norway Government Pension Fund Allocation 2016

Asset Class	% Allocated
Equities	60.6%
Fixed Income	36.3%
Real Estate	3.1%

David Swensen's Portfolio For Individual Investors

(Swensen, *Unconventional Success*, 2005)

Investment	% Allocated
Domestic Equities	30%
Foreign Developed Stocks	15%
Emerging Markets Stocks	5%
Real Estate	20%
US Treasury Bonds	15%
US TIPS	15%

Implementation

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Strategic Frameworks

- Strategic Asset Allocation – rigid
- Global Tactical Asset Allocation (GTAA) – short term tactical
- Global Dynamic Asset Allocation (GDAA) – long term tactical
- Flexible Indeterminate Factor-based Asset Allocation (FIFAA)

Tactical actions

- Price awareness and opportunistic stance may suggest deviations from the long term strategic asset allocation
- Risk management, stress testing
- Rebalancing versus Tactical Posturing

Buy Low, Sell High……

- What lies in the intermediate timeframe?
  - *Value anomalies*
- Are markets micro-efficient but macro-inefficient?
  - *Asset classes co-integration*

Old Ideas… Modern Twists

- Portfolio torturing:
  - *Create an efficient frontier based on expected returns, expected volatilities and expected correlations*
  - *Add/manipulate constraints to achieve a mean-variance optimized portfolio that also responds to practical implementation elements and mitigates non-standard asset "dragon risk."*
- Core – Satellite; Alpha Core Approach
- Alpha Transport

Portfolio Construction and Risk Compensation

- Risk sharing
  - *Traditional: compensation for bearing risk or insuring against*
- Structural Constraints
  - *Structural: compensation for having fewer investment constraints*
- Information processing
  - *Behavioral: compensation for processing information better*

Source: Goldman Sachs Research

Portfolio Construction: Risk Sharing

- Traditional Beta
  - *Compensation for covariance with market factors*
- Specific Risk Events
  - *Risk associated with small probability events*

Investment blocks:

Equity and Bond risk premium

Equity Value

Put Selling

Merger Arbitrage

Source: Goldman Sachs Research

Portfolio Construction: Structural Constraints

- Liquidity
  - *Compensation for illiquid assets*
- Non-economically motivated players
  - *Provide services to non-economic agents*

Investment blocks:

Term Premium

Size

Commodity Carry

Credit risk

Source: Goldman Sachs Research

Portfolio Construction: Information Processing

- Under-reaction/Over-reaction to Information
  - *Compensation for pricing news, fundamentals faster*

Investment blocks:

Momentum

Analyst Revision

Source: Goldman Sachs Resource

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Cash as an asset class

- How much cash to hold?
  - *Cash as economical tail risk hedge*
  - *Zero correlation asset*
  - *Prefunding for capital calls*
  - *Operational buffer*
  - *Opportunistic*
  - *The case for leverage*

Alternative Investments

- An overview of different investments:
  - *Hedge Funds*
  - *Private Equity*
  - *Real Estate*
  - *Commodities*
  - *Managed Futures*

Conclusions

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Lessons Learned

- Long term allocations do have an edge
- Illiquidity premium should be exploited for long term allocations but not abused
- Equity premium as a source of performance
  - *Timing of entry (valuation, volatility levels) DO matter*
- Asset diversification and factor diversification may improve performance
- Contrarian approach may improve performance
- Moderate leverage can help implement effective diversification

Special Focus: Asset Allocation and Asset Location

- Manage the asset allocation process with a procedure that incorporates asset location
  - *Ownership of different investments by different individuals, entities*
  - *Legal issues may affect different risk levels in different accounts*
  - *After tax returns*
  - *Segregation of strategies by account*
  - *Offshore jurisdictions – a disappearing element*
- Custody risk: MF Global bankruptcy, multiple custodians

Sources and Contacts

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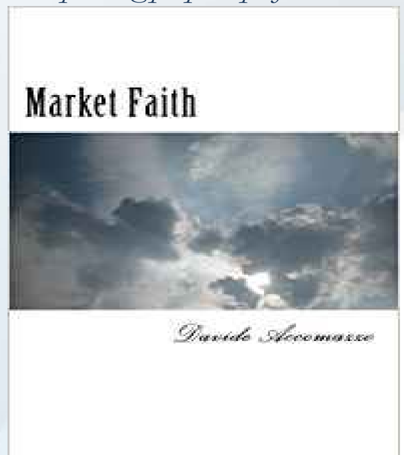
New Book: “Market Faith”

“Market Faith: a manual about understanding investments and managing market fear.”

"...If knowledge is power then a deeper understanding of what we want and what we become when we engage in the markets along with a clearer picture of what we are up against, will go a long way toward improving people's performance....."



The book is also available on Amazon

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