Risk-Based Approach to Portfolio Construction
A Case Study

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STRATEGIES FOR A LOW RETURN MARKET

• Increase Risk

• Accept and plan for lower returns
  – Lower spending (endowments/foundations) / Reduce benefits (pensions)
  – Increase contributions

• Improve Process (Governance)

• Risk Management

• Improve Portfolio Structure
Three levels of fiduciary responsibility

- Governing: mission/objectives
- Managing: portfolio implementation
- Operating: administration and execution

1 *Pension Fund Excellence*, Keith P. Ambachtsheer and D. Don Ezra
THE OVERSIGHT STRUCTURES EMPLOYED

<table>
<thead>
<tr>
<th>Governing Fiduciaries</th>
<th>2-TIER COMMITTEE DRIVEN</th>
<th>3 TIER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment Committee, Staff, and Consultant – Supporting Fiduciary</td>
<td>Investment Committee</td>
</tr>
</tbody>
</table>

| Managing Fiduciary    |  | CIO and Staff |
|-----------------------| | |
|                       |  | |

| Operating Fiduciaries |  | Investment Managers Custodian Actuaries Other Vendors |
|-----------------------| | |
| Investment Managers Custodian Actuaries Other Vendors |  | |

Adapted from: *Pension Fund Excellence*, Keith P. Ambachtsheer and D. Don Ezra
COMMITTEE DYNAMICS

VARYING DEGREES OF INVESTMENT KNOWLEDGE

• Delays
• Inappropriate decisions
• No accountability

CREATES IMPLEMENTATION SHORTFALL

DECISIONS BASED ON COMFORT / REPUTATION

QUARTERLY MEETINGS

SEEK CONSENSUS

VOLUNTEERS/NOT FULL TIME
Advantages to 3-Tier:

- Increased Oversight
- Increased Flexibility
- Clear Accountability for Performance
- Allows Governing Fiduciaries to Focus on Policy
BEST PRACTICES – EFFECTIVE GOVERNANCE

• Select appropriate oversight structure

• Define “decision rights” and delegate appropriately within structure

• Maintain strong investment process and focus – “Process is Prudence”

• Understand investment horizons required to achieve results

• Understand risk in context of institution
# CASE STUDY – OVERVIEW

$200 million University Foundation

<table>
<thead>
<tr>
<th>Primary Return Objective</th>
<th>Inflation + 5-7%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4-5% Spending Policy</strong></td>
<td><strong>1-2% Fundraising and Administrative Fees</strong></td>
</tr>
</tbody>
</table>
CASE STUDY – GOVERNANCE

- Board approved:
  - Investment policy
  - Asset allocation
  - Manager hire/fire

2006

Board of Trustees

Investment Committee

Members

2012
Comprehensive Overhaul of Governance

• Understand risk in the broadest sense of the institution

• Risk management is a qualitative process, not a quant model

• Sources of risk include
  
  • Governance/Committee Structure
  
  • Market/Asset Allocation
  
  • Management/Execution
CASE STUDY – GOVERNANCE

- Board approves:
  - Investment policy
- Investment Committee authority:
  - Asset allocation
  - Manager hire / fire

Result: more efficient decision making process
RISKS

- Decrease in market value (market risk)
- Underperform liabilities (shortfall risk)
- Volatility (standard deviation)
- Underperform peers (career risk)
Means to address market risk and consequently, shortfall risk:

- Avoid market risk
- Hedge market risk
- Diversification
- Active risk management
AVOIDING RISK

- Taking risk is critical to meeting long-term return objectives

- Capital is preserved by avoiding market risk, but shortfall risk increases

- Can be successful if timed properly

Source: Ibbotson Associates
Reduce downside risk, but costs:

- Explicit – insurance cost
- Opportunity – limit upside

Source: FEG data. Hypothetical illustration.
### Asset Categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Role</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Equity</td>
<td>Total Return</td>
<td>Stock market declines</td>
</tr>
<tr>
<td>(stocks, private equity, long/short hedge funds)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Fixed Income and Credit</td>
<td>Equity Risk Mitigation</td>
<td>Rising Rates and/or Downgrades</td>
</tr>
<tr>
<td>bonds, bank loans, credit hedge funds)</td>
<td>and Total Return</td>
<td></td>
</tr>
<tr>
<td>Real Assets</td>
<td>Inflation Protection</td>
<td>Deflation</td>
</tr>
<tr>
<td>(real estate, natural resources, commodities)</td>
<td>and Total Return</td>
<td></td>
</tr>
<tr>
<td>Diversifying Strategies</td>
<td>Diversification and</td>
<td>Active Management</td>
</tr>
<tr>
<td>absolute return hedge funds, trading strategies)</td>
<td>Total Return</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Historical Valuations: Beginning Earnings Yield vs. Subsequent 10-Year Return
S&P 500, 1926 - Present

Source: Robert Shiller and Standard & Poor's
## ACTIVE RISK MANAGEMENT – MANAGER

<table>
<thead>
<tr>
<th>Index</th>
<th>Portfolio I</th>
<th>Portfolio II</th>
<th>Portfolio III</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Equity</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Core Bonds</td>
<td>40</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Hedged Equity</td>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Diversifying Strategies</td>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

### Annualized Return

**January 1, 1990  December 31, 2011**

- **8.2%**
- **8.8%**
- **9.3%**

### Annualized Standard Deviation

**January 1, 1990  December 31, 2011**

- **9.3%**
- **8.6%**
- **8.1%**

Source: Hedge Fund Research, Lipper, PerTrac
S&P 500, Barclays Aggregate Bond, HRFI Equity Hedged, and HFRI Multi-Strategy indexes used as proxies. Results are not necessarily indicative of FEG or FEG’s clients experience in hedge fund investing.
Market and Shortfall Risk

- Conflict with one another and cannot be avoided
- The avoidance of risk reduces the probability of reaching investment goals

Hedging

- The cost of portfolio protection is expensive

Diversification and Active Risk Management

- Risk diversification is important but not a panacea
- Active risk management can occur at the portfolio and manager level
CASE STUDY – ASSET ALLOCATION

<table>
<thead>
<tr>
<th>2006</th>
<th>2012</th>
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</thead>
<tbody>
<tr>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

- U.S. Equity: 60%
- International Equity: 15%
- Private Equity: 5%
- Fixed Income: 15%
- "Hedge Funds": 5%
Comprehensive Review Begins

- **Primary Objective** (Inflation + 5-7%) – required an aggressive risk profile
- **Investment Risk** – not well understood by all
- **Governance Structure** – did not allow for efficient decision making process
2008 Result = 33% decline

MUST... CONTROL... FIST...OF... DEATH...
Volatility is unavoidable

• Understand risks
  – Acceptable max drawdown
  – Organization’s reliance on the fund
  – Ability to meet long-term goals

• Contingency Planning
  – Stress test portfolio
Portfolio Changes Begin

- **U.S. Equity**: 60% (2006), 40% (2008), 60% (2009), 60% (2012)
- **International Equity**: 15% (2006), 20% (2008), 15% (2009), 15% (2012)
- **Private Equity**: 5% (2006), 5% (2008), 5% (2009), 5% (2012)
- **Fixed Income**: 15% (2006), 10% (2008), 15% (2009), 10% (2012)
- **"Hedge Funds"**: 15% (2006), 5% (2008), 15% (2009), 10% (2012)
- **Real Assets**: 10% (2006), 10% (2008), 10% (2009), 10% (2012)

Case Study 2008-2012
Process Changes - Communication

• New Chair works to improve communication with the Board

• Discussion of tradeoffs between market risk (2008 decline) and shortfall risk (long-term return less than inflation + 6%)

• Investment Policy Statement updated to better communicate risks within portfolio, and more broadly diversify the source of risk
CASE STUDY

Investment Policy Statement Updated

Range: 50-70%

Range: 10-20%

Range: 5-15%

Range: 5-30%

- Global Equity
- Global Fixed Income
- Real Assets
- Diversifying Strategies
CASE STUDY

Results

• Performance ranked in the top 2% and 22% of all higher education institutions for the last two fiscal years respectively

• Trailing 10 year results near top third all higher education institutions

• 10 year returns achieved the primary objective in 68% of the monthly observations since 1999
CONCLUSION

• Determine appropriate structure
• Understand risks
• Employ a risk-based approach to portfolio construction
• FEG tools:
  – Investment Committee Survey
  – Capital Markets Overview
  – Exposure Report
  – Papers:
    
    *Fiduciary Responsibilities of Investment Committees*
    
    *Can the “Black Swan” Rescue Investors from Market Declines*
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