Introduction

Basic Information
- $30 billion under management
- average age of employees: 40 years old
- 70% of employees are CFP

Zeus Investment Philosophy
- Long-term growth
  - Conservative
  - Moderate
  - Quality-oriented

Privacy Investors
- Individual minimum investment of $5 million
- Institutions: minimum required amounts for investment in one or more mutual funds
- Institutions: foundations and endowments, mutual funds, insurance companies, etc.

Zeus Products
- Equity Fund
- Bond Fund
- Municipal Bond Fund
- International Fund
- Balanced Fund
- Short-term Fund

Zeus Mutual Funds
- Objectives and Investment Process

Mutual Fund Return vs Index

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Questions talked next?

- Performance Evaluation
- Risk Analysis
- Asset Allocation

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Performance Evaluation Methodology

Beta Estimation
- CAPM
- Fama-French
- Four-Factors Model

Ratio Analysis
- Treynor ratio
- Sortino ratio
- Sharp ratio
- Alpha

Object
- Use appropriate benchmark?
- Calculate Beta

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Fama-French Model

\[ r - R_f = \alpha + \beta_1 (r_m - r_f) + \beta_2 HML_i + \beta_3 SMB_i + e_i \]

HML - historic excess returns of value stocks over growth stocks
SMB - historic excess returns of large caps over small caps

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Ratio Analysis

Sharp ratio: the average rate of return
Sortino ratio: the downside risk
Treynor Ratio: return relative to the system risk
Alpha: the fund’s excess return over the predicted return

<table>
<thead>
<tr>
<th></th>
<th>Sharp Ratio</th>
<th>Treynor Ratio</th>
<th>Sortino Ratio</th>
<th>Jensen's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity Fund</td>
<td>33%</td>
<td>1.08%</td>
<td>56.32%</td>
<td>1.77%</td>
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<tr>
<td>Bond Fund</td>
<td>25%</td>
<td>0.32%</td>
<td>42.60%</td>
<td>0.57%</td>
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<tr>
<td>Balanced Fund</td>
<td>22%</td>
<td>0.52%</td>
<td>35.53%</td>
<td>1.32%</td>
</tr>
<tr>
<td>International Fund</td>
<td>3%</td>
<td>0.13%</td>
<td>4.32%</td>
<td>-0.25%</td>
</tr>
</tbody>
</table>

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Risk Analysis

Correlation of each Zeus Fund

- Equity fund is highly correlated to bond fund and international fund, and bond fund is highly correlated to balanced fund.

<table>
<thead>
<tr>
<th>Fund</th>
<th>Equity Fund</th>
<th>Bond Fund</th>
<th>Balanced Fund</th>
<th>International Fund</th>
</tr>
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<tbody>
<tr>
<td>Low</td>
<td>0.00</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td>High</td>
<td>0.86</td>
<td>0.00</td>
<td>0.86</td>
<td>0.86</td>
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<tr>
<td>Low Balanced</td>
<td>0.86</td>
<td>0.86</td>
<td>0.00</td>
<td>0.86</td>
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<tr>
<td>High Balanced</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
<td>0.00</td>
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</tbody>
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Risk Analysis

Total risk vs system risk

<table>
<thead>
<tr>
<th>Fund</th>
<th>Standard deviation</th>
<th>Beta</th>
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</thead>
<tbody>
<tr>
<td>Equity Fund</td>
<td>3.35%</td>
<td>0.85</td>
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<tr>
<td>Bond Fund</td>
<td>3.12%</td>
<td>0.08</td>
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<tr>
<td>Balanced Fund</td>
<td>2.81%</td>
<td>1</td>
</tr>
<tr>
<td>International</td>
<td>4.66%</td>
<td>1.03</td>
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