Target Date Funds & Asset Allocation Theory

John Rekenthaler, CFA
Vice President, Research
Target Date Funds

- The biggest news in U.S. mutual funds over the past decade
- Dominant with defined-contribution plans
- Approximately $300 billion now in target-date mutual funds
- Additional assets in pooled trusts, custom TD funds

Attractions

- Diversification
- Rebalancing
- Dynamic asset allocation
- “Funds with advice”
- Reduces fiduciary burden for plan sponsor
Dynamic Asset Allocation = “Glide Path”

- Typical glide path rolls down gradually each year
- High allocation to equities for youngest investors; much more defensive by retirement
- Average equity allocation for 2050 funds: 89%
- Average equity allocation for 2015 funds: 53%
- However, wide range of allocations, especially in short-dated funds
Which Glide Path Would You Like?
Average Industry Equity Allocation % for 2009 and 2010

Average Equity Allocation %

Data through 12/31/10. Source: Morningstar, Inc.
Average Equity Allocations for “To” and “Through” Glide Paths

Data through 12/31/10. Source: Morningstar, Inc.
Typical Target Date Fund: Portfolio Structure

- Active funds still predominate
  - More than half of all series have >90% of assets in active strategies
  - About one-fifth of series have mixed approaches
  - Fully passive series still in minority, but growing
    - Several fund companies now offer both options
  - Almost always structured as fund-of-funds
- Closed-architecture strategies remain in majority
  - But newer open-architecture series gaining traction
  - ETFs?
Typical Target Date Fund: Use of Alternatives

- Some series maintain only “plain vanilla” allocations
- Most have incrementally added more specialized asset classes, such as TIPS, high-yield bonds, and emerging markets equities and bonds.
- But overall, use of alternatives is modest
The Asset Mix

Industry Equity Allocations
- Other
- US Lg Cap Equity
- US Md/Sm Cap Equity
- Non-US Developed Equity
- Non-US Emerging Equity

Fixed-Income Allocations
- Other
- US Government Bond
- US Inv Grade Bond
- US High Yield Bond
- Foreign Bond
- TIPS
- Cash
Where Are the Innovations?

- Innovations have been coming in several areas:
  - Adding diversified asset classes/alternatives
  - Risk/volatility management
  - Tactical allocation
  - Glide path reconsiderations

- Many of these innovations have been driven by reactions to the losses incurred in 2008 and/or the need to differentiate new products in a crowded marketplace.
Increasing Diversification

- Most notable trend in this area has been addition of commodities and real asset strategies to glide paths.
  - Differing approaches: indexed vs. active approaches, straight commodities vs. diversified real-asset sleeves
- Long/short and absolute-return funds less common
  - Modest use of long/short or absolute-return strategies
  - Putnam made its Absolute Return funds a major part of its target-date series in 2010.
Risk Management

- Losses in 2010 funds during 2008 meltdown have prompted heightened awareness of risk surrounding near-retirees.
- Vantagepoint Milestone funds increase allocations to Diversifying Strategies fund, a multistrategy, low-volatility, low-correlation vehicle.
- AllianceBernstein, with one of the most aggressive glide paths, introduces a “volatility management sleeve” designed to pull back on equities during periods of high volatility.
- PIMCO incorporates a tail-risk hedging overlay for investors near and in retirement.
Tactical Allocation

- While standard approach in target-date industry has been to rely on the strategic asset allocation, some firms have incorporated elements of tactical allocation.
- Tracking error bands tend to be limited, in 1%-2% range.
- Difficult for investors to assess success of such strategies.
Other innovations, either available now or under development, include:

- Retirement income strategies with guaranteed components
- Challenges of portability, cost, insurer solvency
- Collective investment trusts
  - Provide ability to invest in direct real estate
  - Lower costs
  - Less transparency
- Custom target-date solutions that can be modified for individual preferences and circumstances
Asset Allocation Theories – Markowitz & Sharpe

Max Sharpe Ratio

- Human Capital (Bond-like Characteristics)
- LT Bonds
- TIPS
- Cash
- Retirement Income Liability (Short TIPS-like characteristics)

Emerging Market Stocks
- International Stocks
- Large Cap Stocks

Market Portfolio
- Stocks: 47%
- Bonds: 53%

Expected Return vs. Standard Deviation
Supplementing with the Notion of Human Capital

Human Capital
An individual’s ability to earn and save.

Financial Capital
An individual’s total saved assets.
# Individual Balance Sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Capital</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Human Capital</strong></td>
<td><strong>Future Expenses</strong></td>
</tr>
<tr>
<td>PV of Earnings used for Pre-Retirement Expenses</td>
<td>PV of Pre-Retirement Expenses</td>
</tr>
<tr>
<td>PV of Earnings directed toward Savings</td>
<td>PV of Post-Retirement Expenses</td>
</tr>
<tr>
<td>PV of future Social Security and Pensions</td>
<td>PV of Bequest</td>
</tr>
<tr>
<td>Surplus (Deficit)</td>
<td></td>
</tr>
</tbody>
</table>

PV = Present Value
MPT Target Glide Path for Total Economic Worth

Bonds: 53% of Market Portfolio

Stocks: 47% of Market Portfolio
Risk Capacity

<table>
<thead>
<tr>
<th>Human Capital</th>
<th>Financial Capital</th>
<th>Market Portfolio Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative</td>
<td><img src="image" alt="Conservative" /></td>
<td><img src="image" alt="Conservative" /></td>
</tr>
<tr>
<td><img src="image" alt="Human Capital" /></td>
<td><img src="image" alt="Financial Capital" /></td>
<td><img src="image" alt="Market Portfolio Definition" /></td>
</tr>
<tr>
<td><img src="image" alt="Financial Capital" /></td>
<td><img src="image" alt="Conservative" /></td>
<td><img src="image" alt="Financial Capital" /></td>
</tr>
<tr>
<td><img src="image" alt="Market Portfolio Definition" /></td>
<td><img src="image" alt="Conservative" /></td>
<td><img src="image" alt="Financial Capital" /></td>
</tr>
<tr>
<td>Moderate</td>
<td><img src="image" alt="Moderate" /></td>
<td><img src="image" alt="Moderate" /></td>
</tr>
<tr>
<td><img src="image" alt="Human Capital" /></td>
<td><img src="image" alt="Financial Capital" /></td>
<td><img src="image" alt="Market Portfolio Definition" /></td>
</tr>
<tr>
<td><img src="image" alt="Financial Capital" /></td>
<td><img src="image" alt="Moderate" /></td>
<td><img src="image" alt="Financial Capital" /></td>
</tr>
<tr>
<td><img src="image" alt="Market Portfolio Definition" /></td>
<td><img src="image" alt="Moderate" /></td>
<td><img src="image" alt="Financial Capital" /></td>
</tr>
<tr>
<td>Aggressive</td>
<td><img src="image" alt="Aggressive" /></td>
<td><img src="image" alt="Aggressive" /></td>
</tr>
<tr>
<td><img src="image" alt="Human Capital" /></td>
<td><img src="image" alt="Financial Capital" /></td>
<td><img src="image" alt="Market Portfolio Definition" /></td>
</tr>
<tr>
<td><img src="image" alt="Financial Capital" /></td>
<td><img src="image" alt="Aggressive" /></td>
<td><img src="image" alt="Financial Capital" /></td>
</tr>
<tr>
<td><img src="image" alt="Market Portfolio Definition" /></td>
<td><img src="image" alt="Aggressive" /></td>
<td><img src="image" alt="Financial Capital" /></td>
</tr>
</tbody>
</table>
Risk Preference With Average Human Capital

- Risky Market Portfolio
- Average Market Portfolio
- Conservative Market Portfolio

Equity Exposure (%) vs. Age
Risk Capacity With Average Market Portfolio

![Graph showing risk capacity with average market portfolio.

- **Equity Exposure (%)**
  - Safe Human Capital
  - Average Human Capital
  - Risky Human Capital

- **Age**
  - 20
  - 28
  - 36
  - 44
  - 52
  - 60
  - 68
  - 76
  - 84

- **Equity Exposure (%)**
  - 0
  - 20
  - 40
  - 60
  - 80
  - 100

---

Morningstar®
Glide Path Characteristics

Within Bonds
- More Nominal Bonds
- Long Duration Bonds
- More Credit Exposure
- More Non-US Bonds

Within Bonds
- Shift to TIPS
- Decrease in Duration
- Decrease in Credit Exposure
- Decrease in Non-US Bonds

Within Bonds
- More TIPS
- Shorter Duration (Cash / Short-term)
- Less High Yield
- Greater US Home Bias

Within Stocks
- Higher Non-US
- Higher Emerging
- Higher Small Cap

Within Stocks
- Average Non-US
- Average Emerging
- Average Small Cap

Within Stocks
- Lower Non-US
- Lower Emerging
- Lower Small Cap

Higher, average, and lower are estimated relative to typical Ibbotson US risk-based asset allocations with the same stock-bond split.
Detailed Asset Allocations

Asset Class Allocation %

Target Retirement Age

Percentages and asset classes are subject to change