Behavioral Portfolio Management: A New Paradigm for Managing Investment Portfolios

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CEO and Director of Research
AthenaInvest

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Asset Class Returns: 1950 – 2013

Source: AthenaInvest, Thomson-Reuters Financial, Center For Research In Securities Prices, St Louis Federal Reserve FRED data base.
Emerging Paradigm
Convergence of Two Research Streams

Finance Research

Behavioral Science

Behavioral Finance
Three Eras of Finance…

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<tr>
<td>Graham &amp; Dodd</td>
<td>Modern Portfolio Theory</td>
<td>Behavioral Finance</td>
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<td>Analyst &amp; Manager Skill</td>
<td>Engineered Solutions</td>
<td>Harnessing Market Emotions</td>
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<td>Fundamental Intrinsic Value</td>
<td>Market Efficiency</td>
<td>Behavioral Price Distortions</td>
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BPM Basic Principles

1. Emotional Crowds dominate market pricing and volatility
   • Prices rarely reflect underlying fundamentals

2. Behavioral Data Investors can earn superior returns
   • BDIs take positions different from the crowd
   • Emotionally challenging to do so

3. Redefining Risk as the chance of underperformance
   • Volatility and risk are not synonymous
   • Volatility is emotion
Behavioral Portfolio Management

Release Your Emotional Brakes

Understand Randomness

Move Beyond MPT

- Rationality Model
- Sharpe Ratio
- Tracking Error
Implementing BPM:
Releasing Emotional Brakes
Investor Cognitive Errors

- Myopic Loss Aversion
- Social Validation
- Availability Bias
- Availability Cascade
- Representativeness
- Framing
- WYSIATI
- Anchoring
- Fallacy of Information
- Fallacy of Control
- Peak-end Memories
- Fooled by Randomness
- Phantastic Objects

*Thinking, Fast and Slow* by Daniel Kahneman 2012
Implementing BPM:
Understanding Randomness
Since 1926, US market produced positive annual returns 72% of the time.

Indexes are unmanaged and cannot be invested in directly. Returns represent past performance, are not a guarantee of future performance, and are not indicative of any specific investment.
Implementing BPM:
Excess Returns
Truly Active Equity Funds
Active Management Research

- **Active Management (Active)**
  - Amihud & Goyenko
  - NYU
  - R-squared

- **Best Ideas (Conviction)**
  - Cohen, Polk & Silli
  - Harvard, MIT, LSE
  - Relative Weight

- **Strategy (Consistency)**
  - Howard
  - Denver University
  - Own Strategy Stocks

Consistent Research Results
4% – 6% Excess Returns
BPM Benefits

Data sources: AthenalInvest, Thomson Reuters Financial, and Lipper
Using Behavioral Factors to Select Truly Active Managers and Best Ideas Stocks
Manager Behavior Is Key

- How a manager goes about making money: investment strategy
- Strategy consistently pursued
- Takes high conviction positions

Focus on Manager Behavior: Strategy, Consistency, Conviction
Strategy Peer Groups

**Competitive Position**: Business principles, including quality of management, market power, product reputation, and competitive advantage. Consider the sustainability of the business model and history of adapting to market changes.

**Economic Conditions**: Top-down approach based on economic fundamentals; can include employment, productivity, inflation, and industrial output. Gauges where overall health of economy is in business cycle, resulting supply and demand situations in various industries, and best stocks to purchase.

**Future Growth**: Companies poised to grow rapidly relative to others. The Future Growth and Valuation strategies are not mutually exclusive and can both be deemed important in investment process.

**Market Conditions**: Consideration of stock's recent price and volume history relative to the market and similar stocks as well as the overall stock market conditions.

**Opportunity**: Unique opportunities that may exist for a small number of stocks or at different points in time. May involve combining stocks and derivatives and may involve use of considerable leverage. Many hedge fund managers follow this strategy, but a mutual fund manager may also be so classified.

**Profitability**: Company profitability, such as gross margin, operating margin, net margin and return on equity.

**Quantitative**: Mathematical and statistical inefficiencies in market and individual stock pricing. Involves mathematical and statistical modeling with little or no regard to company and market fundamentals.

**Risk**: Control overall risk, with increasing returns a secondary consideration. Risk measures considered may include beta, volatility, company financials, industry and sector exposures, country exposures, and economic and market risk factors.

**Social Considerations**: Company's ethical, environmental, and business practices as well as an evaluation of the company's business lines in light of the current social and political climate.

**Valuation**: Stocks selling cheaply compared to peer stocks based on accounting ratios and valuation techniques. The Valuation and Future Growth strategies are not mutually exclusive and can both be deemed an opportunity strategy, but a mutual fund manager may also be so classified.
Desirable Fund Characteristics

- Focused strategy
- Smaller funds
- Limited number of stocks
- Low R-squared
- High tracking error
- High style drift
- High Active Share
- Solo manager is desirable
- Brand name of limited value

In short, avoid closet indexers!
Stock and Fund Rating Process

- Rank Managers
  - Strategy Identify Funds
  - Measure Consistency
  - Measure Conviction

- Rank Holdings
  - Strategy Identify Stocks
  - Measure Conviction

- Best Managers (Funds)
- Best Investments (Stocks)

Monthly Process (22,000 Funds and Holdings)
Patented Behavioral Algorithm
### Athena Ratings Performance

<table>
<thead>
<tr>
<th>Diamonds</th>
<th>Guidance</th>
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<tbody>
<tr>
<td>5</td>
<td>Strong Buy</td>
</tr>
<tr>
<td>4</td>
<td>Buy</td>
</tr>
<tr>
<td>3</td>
<td>Hold</td>
</tr>
<tr>
<td>2</td>
<td>Sell</td>
</tr>
<tr>
<td>1</td>
<td>Strong Sell</td>
</tr>
</tbody>
</table>

400–600bps Spread Between Highest and Lowest Conviction

**Advisor Perspectives — Tom Howard**

“Improving on Morningstars Ratings” June 22, 2010
“Using Buy Side Analytics to Improve Stock Selection” November 16, 2010
High Conviction Equity
Concentration and Volatility

Pure Valuation | Profitability

- BPM Proof Of Concept
- Strategy — Valuation | Profitability
- Consistently Pursued — 12 year track record
- High Conviction — 10 stocks
- Results — Over 7% annualized alpha
- Recognized for performance — Barrons/Morningstar/PSN
Using Behavioral Factors to Select Best Markets
Best Markets Behavioral Factors

• How investors are rewarding investment strategies in US and Internationally

• Sentiment Index for small versus large stocks: Baker and Wurgler

• T-bills if no equity market appears attractive
Strategy Returns


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Behavioral Market Barometers


<table>
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<tr>
<th>Rank</th>
<th>Strategy</th>
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<tbody>
<tr>
<td>1</td>
<td>Future Growth</td>
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<tr>
<td>2</td>
<td>Competitive Position</td>
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<tr>
<td>3</td>
<td>Opportunity</td>
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<tr>
<td>4</td>
<td>Profitability</td>
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<tr>
<td>5</td>
<td>Quantitative</td>
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<tr>
<td>6</td>
<td>Valuation</td>
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<tr>
<td>7</td>
<td>Market Conditions</td>
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<tr>
<td>8</td>
<td>Economic Conditions</td>
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<td>9</td>
<td>Social Considerations</td>
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<tr>
<td>10</td>
<td>Risk</td>
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</tbody>
</table>

Current Relative Ranking

- Aligned
- Mixed
- Inverted

Expected Returns

- High
- Med
- Low

Advisor Perspectives — Tom Howard
“Forecasting Market Returns July 19, 2011”
Best Markets Model

First Level
Market Expected Return
US Equity International Equity Cash

Second Level
Market Cap Expected Return
US Large Cap US Small Cap

Third Level
Signal Strength Leverage
1x 2x
## Best Markets Implementation


<table>
<thead>
<tr>
<th>MARKET EXPOSURE</th>
<th>FACTOR</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>POSITIONS AND % OF MONTHS HELD</th>
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<tbody>
<tr>
<td><strong>OPPORTUNISTIC</strong></td>
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<td><strong>NEUTRAL</strong></td>
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<td><strong>DEFENSIVE</strong></td>
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The portfolio typically invests in one ETF at a time. The behavioral market indicators are updated on a monthly basis and the portfolio is reallocated, if necessary, based on the updated signals.
And in Closing…
BPM Benefits

Data sources: AthenInvest, Thomson Reuters Financial, and Lipper
BPM Self Assessment

- Do you separate long-term from short-term needs?
- Do you focus on expected and excess returns for building long horizon wealth?
- Do you view risk as the chance of underperformance?
- Do you consider strategy, consistency, and conviction when selecting managers?
- Do you build strategy diverse portfolios?
- Do you invest in high conviction managers?
Into Action — Next Steps

1. Ask Us Questions — At the conference or email
2. Read The Article — Handed out today or online
3. Get The Book — “Behavioral Portfolio Management”
4. Join The Community — Access commentary and research
5. Analyze A Portfolio — Email us tickers and get an analysis