

Behavioral Portfolio Management: A New Paradigm for Managing Investment Portfolios

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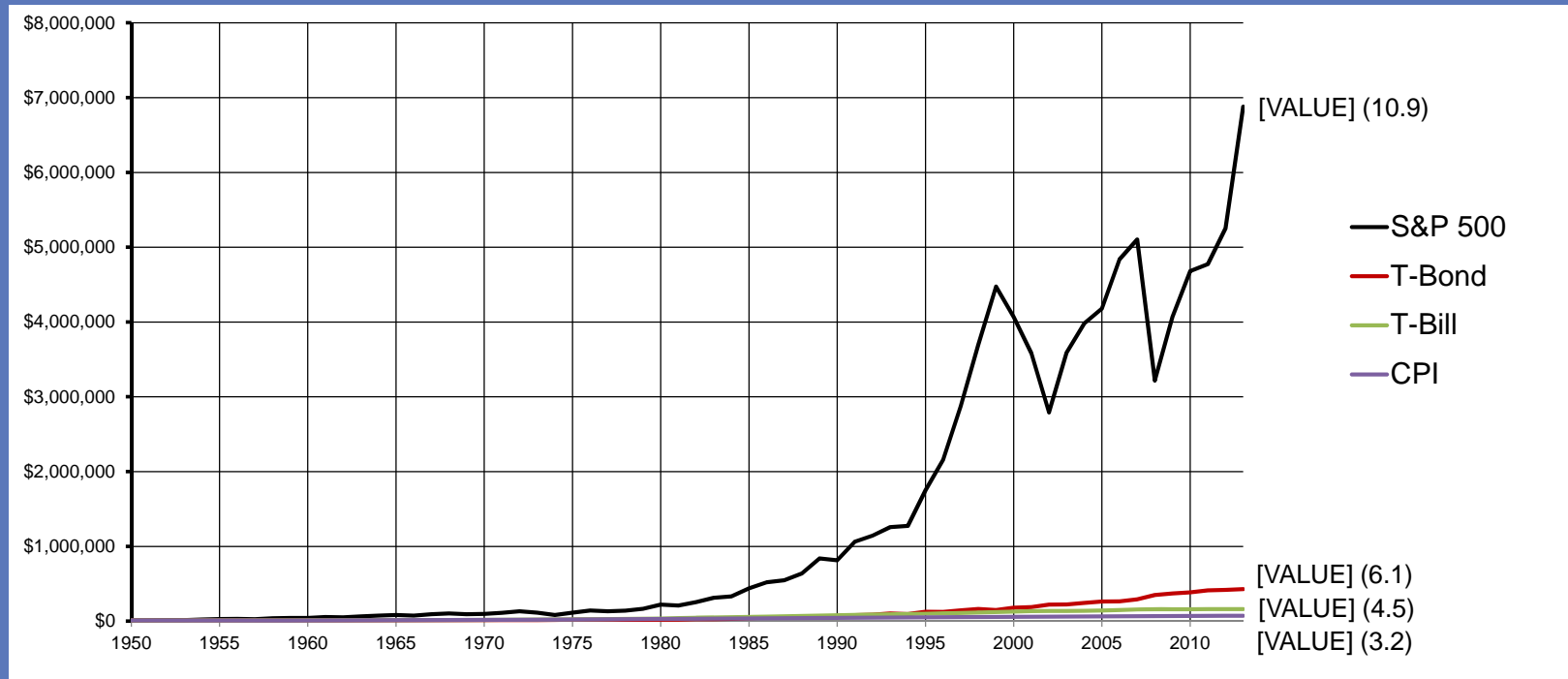
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Asset Class Returns: 1950 – 2013



Source: AthenaInvest, Thomson-Reuters Financial, Center For Research In Securities Prices, St Louis Federal Reserve FRED data base.

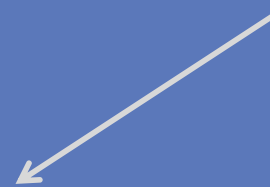
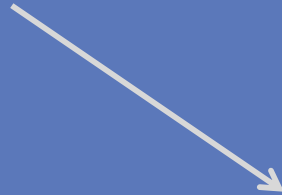
Emerging Paradigm



Convergence of Two Research Streams

Finance
Research

Behavioral
Science



**Behavioral
Finance**

Three Eras of Finance...

Fundamental 1934 – 1973	MPT 1974 – 2013(?)	Behavioral 2014 –
Graham & Dodd	Modern Portfolio Theory	Behavioral Finance
Analyst & Manager Skill	Engineered Solutions	Harnessing Market Emotions
Fundamental Intrinsic Value	Market Efficiency	Behavioral Price Distortions

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



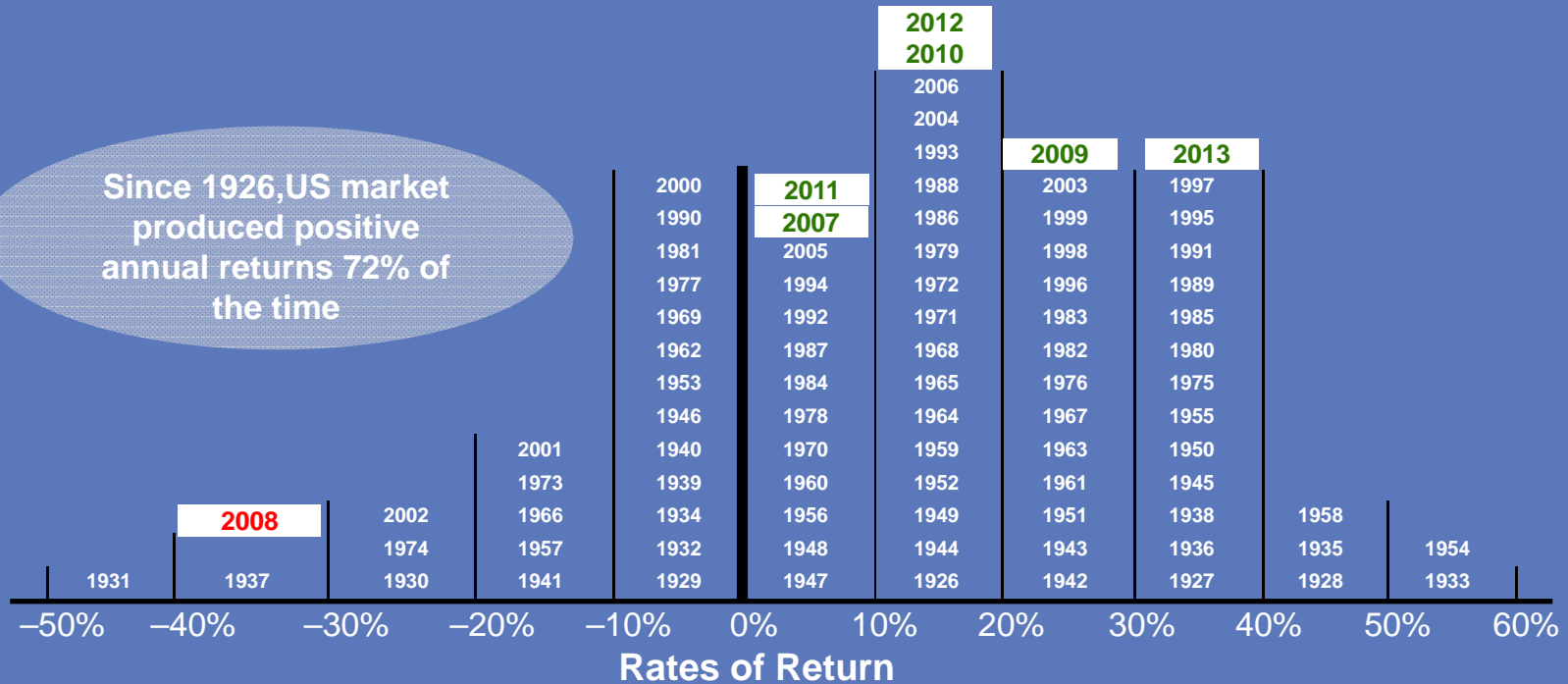
Implementing BPM: Understanding Randomness



Volatility and Tail Events

S&P 500 Annual Returns: 1926 – 2013

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

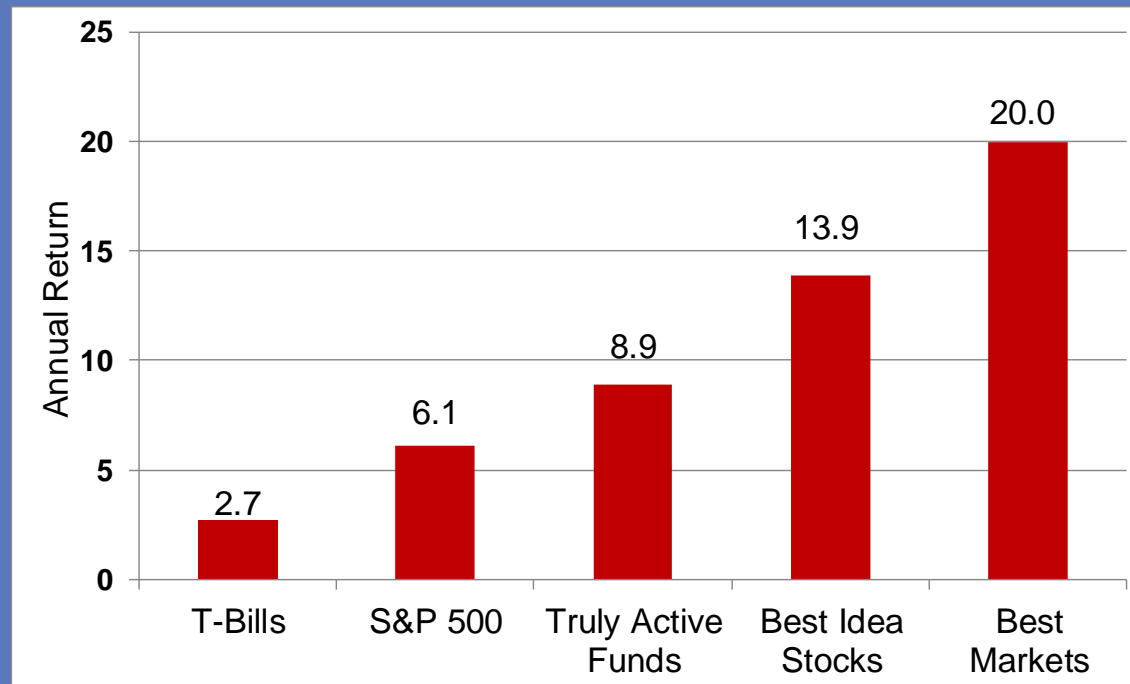
Strategy
(Consistency)

- Howard
- Denver University
- Own Strategy Stocks

Consistent
Research
Results

4% – 6%
Excess
Returns

BPM Benefits



Data sources: AthenaInvest, 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.



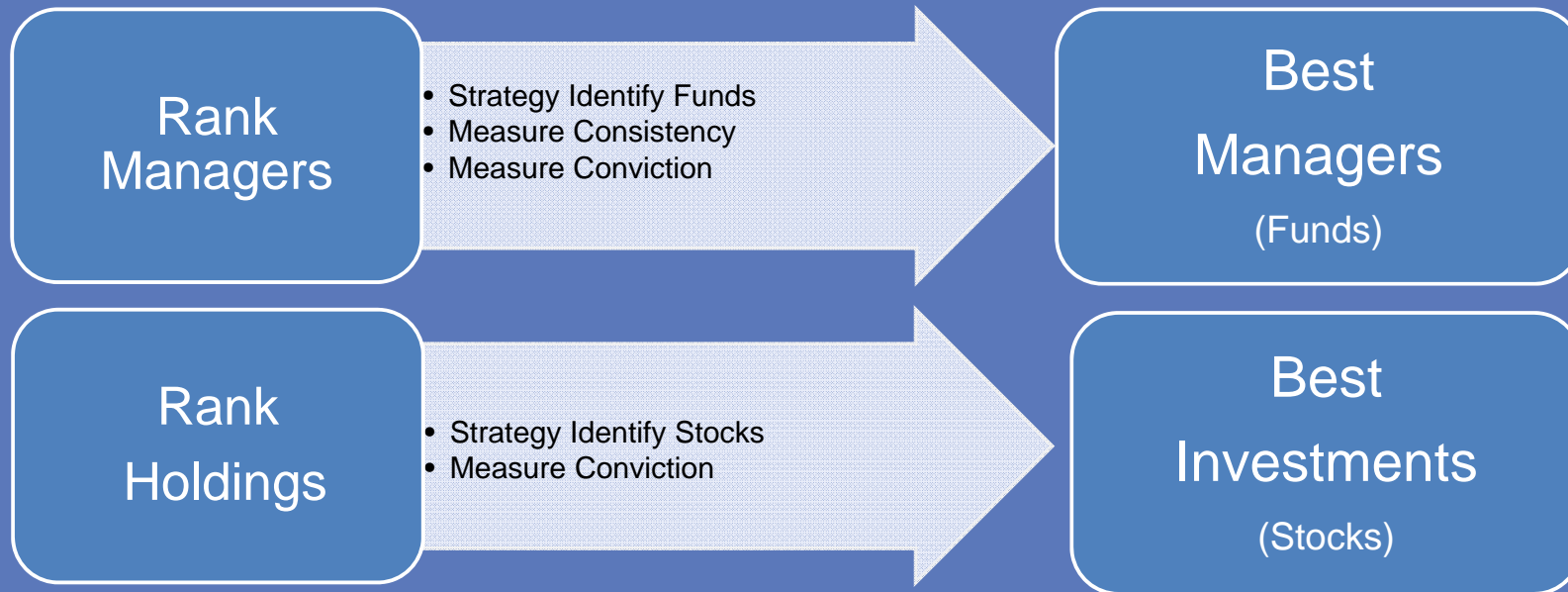
Valuation: Stocks selling cheaply compared to peer stocks based on accounting ratios and valuation techniques. The Valuation and Future Growth strategies are not mutually exclusive and can both be deemed an opportunity strategy, but a mutual fund manager may also be so classified.

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



Monthly Process (22,000 Funds and Holdings)
Patented Behavioral Algorithm

Athena Ratings Performance

Diamonds	Guidance
5	Strong Buy
4	Buy
3	Hold
2	Sell
1	Strong Sell



**400–600bps
Spread Between
Highest and Lowest
Conviction**

Advisor Perspectives — Tom Howard

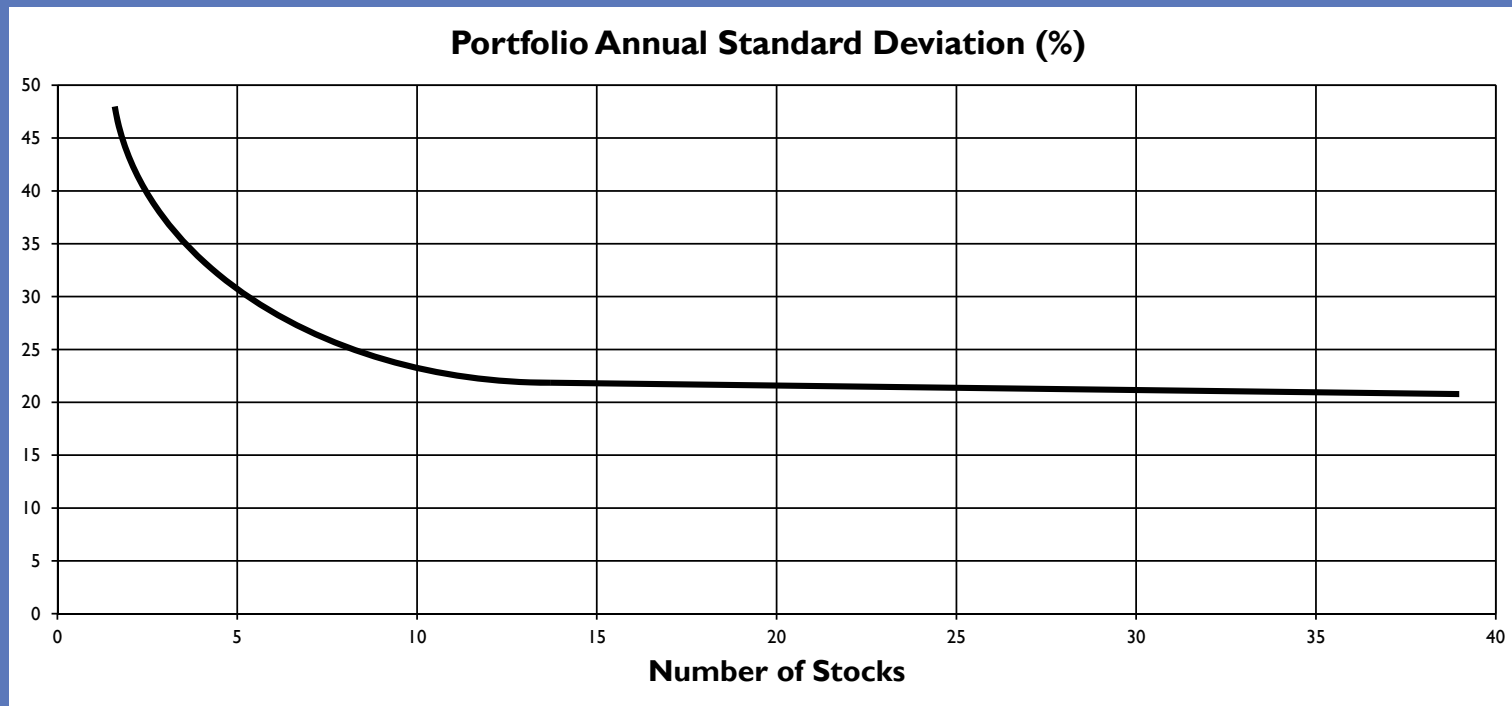
“Improving on Morningstars Ratings” June 22, 2010

“Using Buy Side Analytics to Improve Stock Selection” November 16, 2010

High Conviction Equity



Concentration and Volatility



Assumes stock standard deviation of 45% and inter-stock correlation of 0.33. Based on Evans, J.L., and S.H. Archer (1968), **Diversification and the reduction of dispersion: an empirical analysis**, *Journal of Finance*, 23, 761–767.

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

US EQUITY STRATEGY BENCHMARK ANNUAL RETURN CHART(4/1/2004 - 3/31/2014)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	YTD
Ec	10.8%	V 15.9%	Ec 14.4%	Sc -34.0%	Fg 36.8%	Fg 20.0%	Ix 2.1%	Ix 16.0%	Fg 35.4%	V 2.0%
R	10.0%	Ix 15.8%	Fg 12.8%	O -34.7%	P 35.2%	P 18.2%	Q 0.0%	Cp 14.6%	Cp 34.4%	Q 1.9%
P	9.0%	O 14.9%	R 11.9%	Mc -36.1%	Cp 34.1%	Cp 18.1%	P -1.5%	Fg 14.3%	Sc 34.3%	Ix 1.8%
O	8.4%	R 13.0%	Cp 8.9%	V -36.9%	Ec 32.4%	Mc 18.0%	V -2.7%	Q 14.1%	Q 33.0%	P 1.8%
Cp	8.3%	Cp 12.4%	Sc 7.4%	Ix -37.0%	Sc 32.0%	V 17.0%	Fg -2.9%	V 14.0%	Ix 32.4%	Sc 1.8%
Fg	7.8%	Q 12.3%	Mc 7.3%	R -37.0%	R 31.6%	Q 17.0%	O -3.3%	Sc 13.3%	V 32.2%	Cp 1.5%
Q	7.4%	P 12.2%	P 7.2%	Q -38.4%	V 28.9%	Ec 16.9%	Cp -3.4%	P 12.8%	P 32.0%	O 1.5%
V	7.1%	Sc 11.7%	Ix 5.5%	Ec -39.0%	O 27.7%	O 15.4%	Sc -3.5%	O 12.0%	Mc 28.8%	Ec 1.3%
Mc	6.4%	Mc 11.5%	Q 3.6%	Cp -39.1%	Ix 26.5%	Ix 15.1%	R -3.6%	Ec 10.4%	Ec 28.8%	R 1.1%
Ix	4.9%	Ec 10.0%	O 2.6%	P -40.1%	Q 25.2%	Sc 14.8%	Mc -3.9%	Mc 9.1%	O 26.0%	Fg 0.8%
Sc	4.2%	Fg 8.9%	V 1.3%	Fg -41.6%	Mc 19.9%	R 11.8%	Ec -4.5%	R 5.2%	R 14.1%	Mc 0.2%

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Behavioral Market Barometers

Strategy Rankings 1988–2007

Rank	Strategy
1	Future Growth
2	Competitive Position
3	Opportunity
4	Profitability
5	Quantitative
6	Valuation
7	Market Conditions
8	Economic Conditions
9	Social Considerations
10	Risk

Current Relative Ranking

Aligned

Mixed

Inverted

Expected Returns

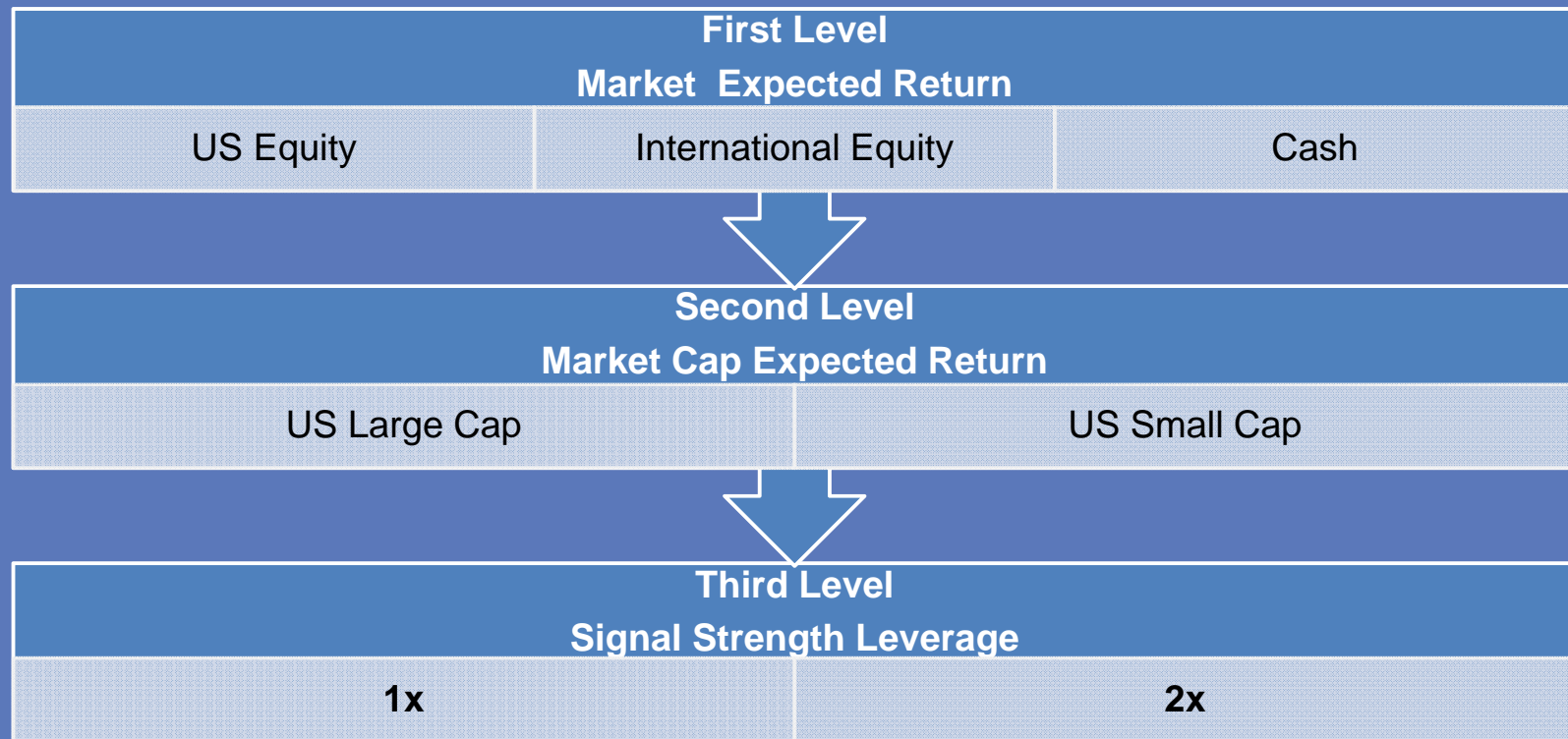
High

Med

Low

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

Best Markets Model



Best Markets Implementation

TACTICAL POSITIONS (2/29/2004 - 2/28/2014)

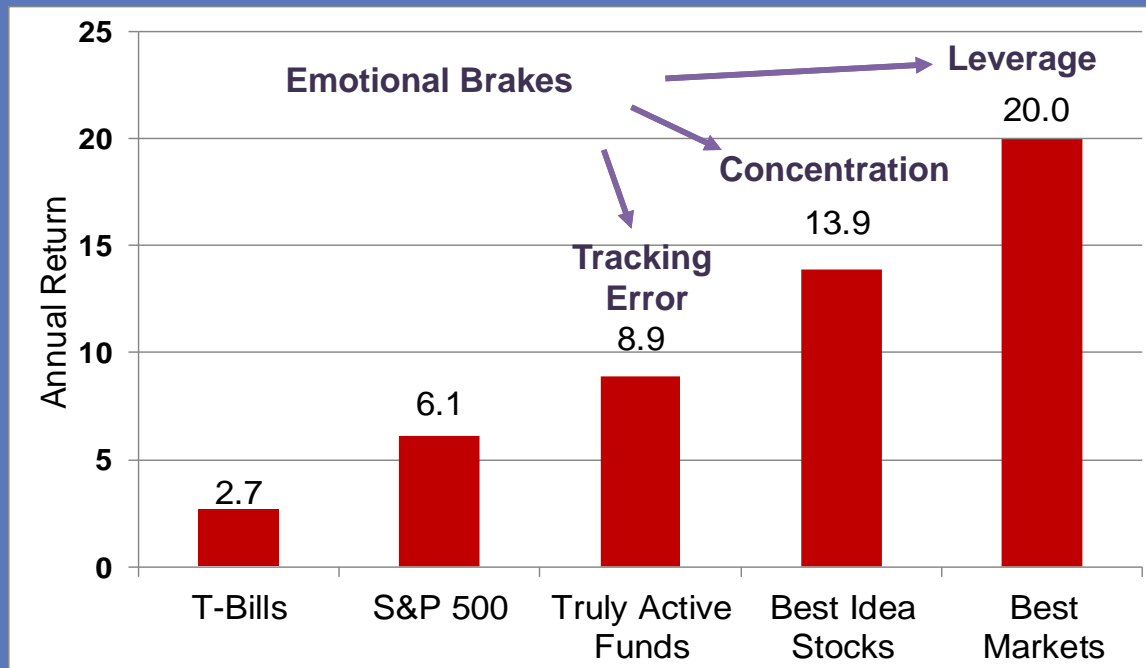
MARKET EXPOSURE		FACTOR	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	POSITIONS AND % OF MONTHS HELD	
OPPORTUNISTIC	International Developed	200%	■ ■			■ ■		■		■		■		EFO	15.8 %
	US Small Cap	200%	■ ■ ■ ■					■ ■ ■ ■	■ ■			■		UWM	34.2 %
	US Large Cap	200%							■					SSO	1.7 %
NEUTRAL	International Developed	100%										■ ■	■	EFA	5.8 %
	US Small Cap	100%												IWM	0.0 %
	US Large Cap	100%		■		■ ■ ■					■ ■ ■ ■			SPY	19.2 %
DEFENSIVE	Cash Equivalents	100%			■ ■		■ ■ ■ ■							SHV	23.3 %

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: AthenaInvest, 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