

Behavioral Finance And Practical Asset Management

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Overview

- ◆ Limitations of rational modern finance
- ◆ Limitations of behavioral finance
- ◆ Rational decision making
- ◆ A practical rational investment framework

Why Behavioral Finance

- ◆ Rational modern finance is invalid!
 - ✦ CAPM beta doesn't work
 - ✦ Expected utility hypothesis (EUH) is invalid
 - ✦ Efficient market hypothesis (EMH) is invalid
 - ✦ Paradoxical market behavior
 - ✦ Individuals decision making errors

Paradoxical Market Behavior

Investors and Markets Are Crazy!

- ◆ Value beats growth
- ◆ Stocks beat bonds (equity premium)
- ◆ Losers beat winners
- ◆ Selling winners early, losers late
- ◆ Buying overvalued markets
- ◆ Too little international diversification
- ◆ Missed opportunities?
 - ✦ Simple strategies for beating the market?
 - ✦ Investor biases?
 - ✦ Not behaving in own interests?

Reality Check

- ◆ Few managers consistently beat the market
- ◆ How useful are the strategies in practice?
 - ✦ Liquidity, too small cap, trading costs
 - ✦ Waiting for the long-run
- ◆ Fashionableness driven by the evidence or
- ◆ ... the convenience of simple academically sanctioned rationales for poor performance and out-of-date investment ideas?

EMH Evidence

Market Anomaly Studies

- ◆ Major source of behavioral issues
- ◆ Many factors, strategies, significant
 - + P/E, P/B, dividend yield, earnings trend, reversal, size, January, losers beat winners, value beats growth
- ◆ Evidence in U.S. and global markets

Economically Significant? Persistent?

Rationales

- ◆ Inefficient markets
 - + Ephemeral effects
 - + Irrational investor behavior
- ◆ Efficient markets
 - + Unmeasured systematic risk
 - + Methodological errors
 - + Data snooping
 - + Misinterpretations
 - + Attribute sorting
 - + Econometric limitations

Beyond Market Anomalies: Active Management and Data Snooping

Institutional Relevance Issue

- ◆ Market anomaly studies
 - + Generally systematic risk studies
- ◆ The institutional mandate
 - + Active return/risk
 - + Investment grade stocks
 - + Data snooping limitations
- ◆ Most market anomaly studies have little practical active investment value

Institutional Global Style Factors (Michaud 1999)

- ◆ A global factor-return data set (started 12/90)
 - Forward test
 - Risk-adjusted style factors
 - Seven factor multivariate style framework
- ◆ Minimal data-snooping/ institutional framework
 - Many traditional factors insignificant
 - Inconsistent with traditional style, intuition

Irrational Global Markets?

- ◆ Irrational market hypothesis
 - Decision errors do not vary by country
 - Same factors in global markets
 - Contrarian factors
- ◆ My results inconsistent with irrational global markets hypothesis
 - Factors significantly vary by market
 - Non-contrarian significant factors

Rational Global Markets

- ◆ A market culture hypothesis (Michaud 1999)
 - Investment culture varies by market
- ◆ Other rational effects
 - Globalization
- ◆ Updating conventional intuition
 - Risk-adjusted style factors
 - Limitations of long-run studies
 - Role of non-contrarian styles

Other Paradox Rationales

- ◆ Changes in economic/market environment
- ◆ Equity Premium: Goetzmann, Jorion (1999)
- ◆ International investing: Krugman, Sen
- ◆ Irrational behavior should not be confused with uninformed or not well informed behavior

Other Paradoxes

- ◆ Some behavioral patterns require further study
 - Excessive market volatility relative to economic factors
 - Volatility when the stock market is closed
 - Large jumps in market pricing
 - Internet stock valuations

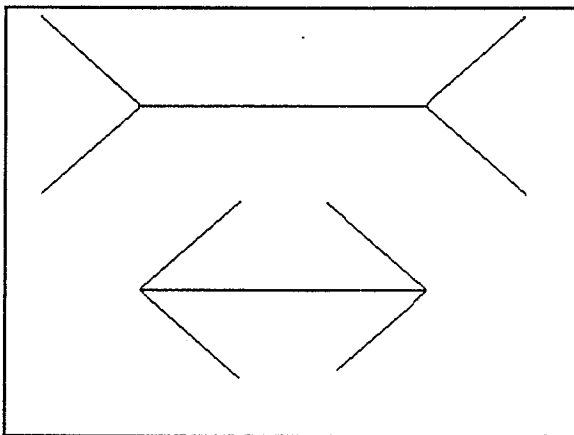
Individuals Errors and Biases

Frames and Decision Making

- ◆ Psychological models of “irrational decision making” may explain irrational investor behavior (Arrow 1982)
- ◆ Psychological experiments show
 - Prior information or “frames” affect behavior
- ◆ Many behavioral finance “frame” papers
 - Frames may create biases and poor decisions
- ◆ Markets exhibit irrational patterns of behavior due to widespread individual errors and biases

Naïve Realism and Frames

- ◆ Do “frames” imply “irrational” behavior?
- ◆ Naïve realism:
 - Are things as they seem?
- ◆ Frames and perceptual puzzles
 - The bending of a stick in water
 - The constant size of the moving car
 - One eye depth perception
 - Two equal lines paradox



Frames Explained

- ◆ Psychological reality a cognitive construct
- ◆ Frames are integral to all perception and survival
- ◆ While framing skills and perceptual priors can be fooled, they are not irrational and unlikely to be gamed
- ◆ Many behavioral “frame” studies may have little investment relevance

CAPM Evidence

CAPM Beta Evidence

- ◆ Fama-French (1992, 1998)
 - Size and B/P dominate beta
- ◆ Roll, Ross (1994), Kandel, Stambaugh (1995)
 - Need to use GLS not OLS
- ◆ Ledoit (1997)
 - Fama-French and GLS – significant beta
 - Linear models a Ledoit approximation
- ◆ Observing CAPM beta likely to require
 - More powerful statistical methods

The Expected Utility Hypothesis

Expected Utility Hypothesis (EUH)

- ◆ EUH inconsistencies with behavior
 - Losses treated differently from winnings
 - Samuelson's EUH "fallacy"
- ◆ Prospect theory (Kahneman and Tversky 1979):
 - A rationale for non-EUH decision making
 - Implies path dependent decisions
- ◆ Prospect theory exacts a high price (Ross 1999)
 - Many investment strategies, utilities, not path dependent

Not the Only Route

- ◆ Luce (1999) provides extensions of EUH to encompass loser/winner behavior from rational principles
- ◆ Ross (1999) provides resolution of the Samuelson EUH "fallacy"
- ◆ Occam's razor: Prospect theory necessary?

Rational Decision Making Under Certainty

Logic Studies

- ◆ Important logical systems typically incomplete
 - Unprovable true statements always exist for any given set of axioms (Godel)
- ◆ It is naïve to identify rational decision making under uncertainty with a given set of axioms such as EUH
- ◆ Axioms don't define but follow from intuition
- ◆ Luce's approach for repairing EUH is correct

A Rational Framework for Asset Management

A Statistical Route

- ◆ Statisticians develop tools for rational decision making under uncertainty
- ◆ Statistical decision theory
 - + Negative utility or "loss" function
- ◆ Optimality criterion
 - + Minimize "average" loss function

Admissibility and Bayes Estimates

- ◆ An "admissible" estimate:
 - + Roughly, nothing else is always better
 - + Admissibility a minimal rational condition
- ◆ Bayes methods use priors to improve estimates
 - + Similar to perceptual frames
- ◆ Bayes methods:
 - + Admissible
 - + Span all admissible estimates
 - + Rational decision criteria

Bayes Methods in Asset Management

- ◆ Investors have priors
- ◆ Benefits of Bayes investment framework
 - + Admissible forecasts
 - + Proper use of prior information
 - + Consistent with semi-strong EMH
 - + Allows for non-stationary returns
 - + More robust relative to historical data
- ◆ Evidence of Bayesian updating in markets (Bossaerts, Hillion 1999)
- ◆ A rational framework for asset management

Summary: Behavioral Finance

- ◆ Benefits
 - + Identify paradoxical behavior patterns
 - + Insights into return generating process
- ◆ Limitations
 - + Limited empirical and conceptual basis
 - + Rational alternatives often ignored

Summary: Rational Finance

- ◆ CAPM beta: more powerful estimation methods
- ◆ Market anomalies and crazy markets
 - + Frame behavior typically not irrational
 - + Little out-of-sample predictability
 - + Numerous rational explanations
- ◆ Expected Utility Hypothesis
 - + Repairable limitations
- ◆ Demise of rational finance appears premature

Conclusions

- ◆ The market anomaly hoax:
 - + The existence of a profitable strategy based on a constant weighted factor with no business or investment risk is a hoax
- ◆ Reliable outperformance requires
 - + Well informed priors
 - + Comprehensive return frameworks
 - + Updated investment intuition
 - + Modern statistics

Selected Recent References

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