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AUTHOR: **Aaron M. Bell**, ChFC®, CLU®, CLTC®, MA

TOPIC #6: **Economic Models + Bounded Rationality**

PROMPT: **Compare and contrast traditional economic models and bounded rationality. Include a discussion about the concepts of risk tolerance and loss aversion in light of rational expectations theory (i.e., utility maximization theory) and prospect theory.**

Expected utility theory (EUT) is the traditional model for rational decision making and has long been used to illustrate economic behavior of what "reasonable" people *would* do in a given situation (Kahneman & Tversky's, 1979, p. 263). Under risk a rational utility-maximizing person, making a decision simplifies the choice by selecting the act with highest expected value. Determined by three tenets: (i) expectation—possible outcome versus probability, (ii) asset integration—how one's final state of wealth is impacted, and (iii) risk aversion—certainty is preferred over risky prospects with the same potential outcome. Kahneman & Tversky (1979), highlight risk aversion in expected utility theory as a U-shape curve, "equivalent to the concavity of the utility function," a prevalence diagrammed back in the 1700's which substantiates consumer interest for gambling and insurance today (p. 264). The application for modern financial planners, is to use aforementioned models to identify a client's risk profile, and construct portfolios that achieve the reward goal with the lowest acceptable risk.

Unfortunately, while people *can* behave rationally, there are constraints that erode the preference for maximizing optimal outcome and lead one to settle with satisfactory outcomes. Many economic models allow for cultural transmissions (ie., beliefs, habits, norms, attitudes), where sub-maximum decisions are influenced by purposeful socializations (Spolaore & Wacziarg, 2013, p. 357), however less-than-rational decision making has pervasive roots across humankind. While difficult to distinguish intellectual variance from a person's energy level (inherent laziness) is a chief constraint. Processing power (or "willpower") to sustain attention is required when evaluating monetary risk decisions and observably, people tend to perform the *least* amount of effort hoping for the most amount of output—this leads to simplification or "mental shortcuts" (Benartzi & Thaler, 2007, p. 81 & 84). This widespread behavioral bias is coined bounded rationality, and is interrelated with (a) willpower (or self-control), (b) procrastination that produces a status quo bias, and (c) loss aversion, in several forms. Various studies display (d) reference-dependence and (e) regret play a part in irrationality (Kahneman, 2003, p. 1457).

Having classified these heuristics, researchers describe behaviors that specifically violate EUT cannons. Regarding the first, expectation, probabilities are overlooked if the "relative salience" of an outcome alters the perceived prominence of that decision via linguistic or psychological framing bias (Kahneman, 2003, p. 1458). Asset integration's focus on long term results can be derailed by fixation on short term changes (magnitude) of wealth based on a reference point like a transitory goal or mental anchor (Kahneman, 1979, p. 264). Thirdly, risk aversion principles can be unhinged by concerns for loss: people weigh losses twice as much as proportionate gains (Thaler & Benartzi, 2004, p. 169). People often demand more to give up an object or inherited position than they would be willing to pay to

Aaron M. Bell | ChFC®, CLU®, CLTC®, MA | Financial Advisor

| **CANNATARO PARK AVENUE FINANCIAL**
| Nortwestern Mutual Wealth Management Co.
| 245 Park Avenue, Suite 1800
| New York, NY 10167
| cpaf.nm.com
| 646.366.6571
| Aaron.Bell@NM.com

acquire it, called endowment effect (Kahneman & Knetsch, 1991, p. 194). Finally, people overvalue certainty where moving from 95% to 100% can be more attractive than moving from 85% to 95% probability for *more* reward (Kahneman, 2013, p. 311).

To accommodate these emotional anomalies, a new economic model, the prospect theory was proposed altering the EUT value-function to an S-shape with a "sharp kink" in the loss quadrant to account for biases (Kahneman & Tversky, 1979, p. 279). Prospect theory inherently puts more weight on "experienced material well-being" versus expected utility theory (Thaler, 2000, p. 137). Most interestingly, Thaler (2000) points out a lack of study on the impact of "bounded memories" or hindsight bias within prospect theory (p. 138).

References:

Benartzi, S., & Thaler, R.H. (2007). Heuristics and biases in retirement savings behavior. *Journal of Economic Perspectives 21*(3), 81-104.

Kahneman, D., Knetsch, J.L. & Thaler, R.H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives, 5*(1), 193-206.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263-292.

Spolaore, E., & Wacziarg, R. (2013). How Deep Are the Roots of Economic Development?. *Journal of Economic Literature, 51*(2), 325-369.

Thaler, Richard H. (2000). From homo economicus to homo sapiens. *Journal of Economic Perspectives, 14*(1), 133-141.

Thaler, R.H., & Benartzi, S. (2004). Save More Tomorrow™: Using behavioral economics to increase employee saving. *Journal of Political Economy, 112*(S1), S164-S187.

Aaron M. Bell | ChFC®, CLU®, CLTC®, MA | Financial Advisor

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