



## **Tom Connor's Thinking Forward:**

### **The Value of Money**

#### ***Did economic man ever exist?***

At a recent lunch I attended, the discussion turned to money. People were asking, "What is money? Is it worth anything?" My answer - that depends on you.

In the orthodox view of economics, money improves the flow of goods and services in an economy, making economic exchange easier and more convenient. Without money, we would barter to realize the value of what we each produce, and that would absorb additional energy and economic resources. In this view, money has no value. It simply facilitates economic exchange. What we think of as money today in the US is Fiat Money, the paper bills and coins in our pockets. Fiat Money or Fiduciary money has value simply because a government has declared it suitable for all 'debts public and private'. It is not backed by gold, silver, or anything else of intrinsic value, only the faith and confidence held in the organization that issues the currency. Since it has use for 'all debts public and private', it is also our measure of value, or the worth of goods and services. In the United States, the paper currency has been primarily Federal Reserve Notes since 1968, and they contain the statement that they are: "legal tender for all debts, public and private". As liabilities of the Federal Reserve and obligations of the US government, they have no backing other than that established by confidence in the US government.<sup>1</sup>

However, money seems to be something more. Our analysis will use a framework that has been emerging from the research of neuroscientists and includes both affective (emotional) and deliberative brain function. Unlike the economic orthodoxy that assumes only rational, or deliberative processes, modern neuroscience is discovering that decision-making is affective as emotions influence our choices.

Among these neuroscientists are neurobiologist Antonio Damasio, psychologists Daniel Kahneman and Amos Tversky, and economist Herbert A Simon. All have observed central roles for the interplay of affective and deliberative processes. Damasio has outlined the role different regions of the brain provide while Kahneman and Simon, who have received Nobel prizes for their efforts, focus on the interplay of emotions and deliberative thought. Richard Thaler, an economist who utilizes an affective framework to study choice, has explained a number of anomalies to orthodox theory.

Application of the approach has provided insight into examples from marketing and pricing, labor markets, housing, and other areas where orthodox theory is incomplete. If economic man is the purely rational decision maker, perhaps it's time to focus on real people and their behaviors to improve our insight into decisions.

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<sup>1</sup> - For more on the history of money see: <http://www.pbs.org/wgbh/nova/moolah/history.html> and <http://minneapolisfed.org/econed/curric/history.cfm>.

## **Economic man and consumer indifference**

In orthodox economic theory, where money has no affect on the production of goods and services other than by facilitating exchange, it's through the concept of 'indifference' that the important trade-offs between consumer choices are established, deriving much of the foundation of the theory of choice.

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The standard consumer theory exposition of choice<sup>2</sup> depends on the development of the concept of 'indifference' between choices. For example, a consumer is indifferent when there is no preference between spending \$5.00 for a new coffee cup and keeping the \$5.00 – either one or the other provides the same level of satisfaction, or utility. Lower the price below \$5.00 and the cup will be the choice, raise it and the \$5.00 will be the choice. Similarly, improve or weaken features of the coffee cup and it is chosen or is not chosen. Indifference is just that – it is the point where the choice of one or the other item provides the same level of satisfaction to the chooser.

While the exposition of economic theory to which we are accustomed develops our sense of 'economic man', it also draws from an intellectual framework that optimizes decisions. Modern man is not yet that economic man. While these are processes modern man can be capable of performing, it is becoming apparent that evolution has presented us with a different brain. Antonio Damasio's<sup>3</sup> investigation into the human brain are from a neurobiological perspective and have identified different parts of the brain and the role they play in decision-making, and while there are feedback mechanisms from more deliberative processes, evolution has given us a brain today that utilizes affective as well as deliberative processes.

## **Loss Aversion and 'Real People'**

Daniel Kahneman and Amos Tversky are two psychologists at the forefront describing the patterns and emotions we often use making decisions. In their view, modern man is the result of a long period of evolution and thought that is a combination of emotional and deliberative processes. Kahneman, who won the 2002 Nobel Prize in economics for his work with Tversky, after recognizing the role of Tversky<sup>4</sup> in their work during his Nobel Prize lecture, said:

"The starting point of the present analysis was the observation that complex judgments and preferences are called 'intuitive' in everyday language if they come to mind quickly and effortlessly, like percepts. Another basic observation was that

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<sup>2</sup> - [http://en.wikipedia.org/wiki/Consumer\\_theory](http://en.wikipedia.org/wiki/Consumer_theory)

<sup>3</sup> - Damasio, A. Descartes' Error: Emotion, Reason, and the Human Brain. G. P. Putnam's Sons, New York, 1994.

<sup>4</sup> - Nobel prizes are not awarded posthumously. Tversky died in 1996.

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judgments and intentions are normally intuitive in this sense, but can be modified or overridden in a more deliberate mode of operation.”<sup>5</sup>

A key finding of theirs was the identification of different responses to gains and losses, with losses receiving more weight than gains. This asymmetric response is called Loss Aversion, and it challenges the ‘indifference’ conclusions of traditional economic theory.

Several examples will illustrate the aversion to loss (sometimes examples of the biases that require greater compensation for losses than gains are called an ‘Endowment Effect’, other similar biases are known as the ‘Status Quo’ bias, but all refer to Loss Aversion). A famous experiment with Cornell University students<sup>6</sup> that provided students with a coffee mug or candy bar, each with an identical market value is an example of the ‘Endowment Effect’. Researchers established that students had no significant tendency to prefer one object to the other, and the objects were randomly distributed so that roughly, half the students would not receive their preferred object. When allowed to trade they would look for someone willing to make the exchange. Experimental results show barely 10% of students traded.

Over the past ten years, similar tests have studied consumer responses to ‘endowment’ effects. Consistently, once endowed or given, an object, consumers demonstrate a reluctance to exchange it for something else,<sup>7</sup> requiring compensation greater than the initial value of the item to trade (the evolutionary nature of the behavior has also been recognized in research on Capuchin monkeys, where loss aversion has also been recognized<sup>8</sup>).

In financial markets, loss aversion can occur when investors focus too closely on the purchase price of securities that have declined rather than the current price. Financial advisers often suggest investors evaluate the equities they own independent of the purchase price to determine current value. The equity is either worth owning now or not, independent of the price paid in the past, something many investors find difficult, often holding securities too long in the hope of ‘getting back’ their initial investment. Warren Buffett, famous investor with one of the most enviable records of accomplishment has commented that the key to successful investing is more temperament than intelligence.

“Investing is not complicated; you work to find pockets of value. You didn't need a high IQ to buy junk bonds in 2002 -- you needed to have the courage of your convictions when everyone else was terrified, and it was the same in 1974. People were paralyzed. You need to learn to follow logic rather than emotion, and that's easier for some people to do than others.”<sup>9</sup>

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<sup>5</sup> - Daniel Kahneman, Nobel Lecture; <http://nobelprize.org/economics/laureates/2002/kahnemann-lecture.pdf>

<sup>6</sup> - To have and to hold; [http://economist.com/finance/displayStory.cfm?story\\_id=2021010](http://economist.com/finance/displayStory.cfm?story_id=2021010)

<sup>7</sup> - The test was first reported in: "Experimental Tests of the Endowment Effect and the Coase Theorem", Daniel Kahneman, Jack L. Knetsch, Richard H. Thaler *Journal of Political Economy*, Vol. 98, No. 6 (Dec., 1990), pp. 1325-1348

<sup>8</sup> - Humans' Rational and Irrational Buying Behavior Is Mirrored in Monkeys; [http://mba.yale.edu/news\\_events/CMS/Articles/4444.shtml](http://mba.yale.edu/news_events/CMS/Articles/4444.shtml)

<sup>9</sup> - Berkshire Behind the Scenes: Part 5;

<http://www.fool.com/news/commentary/2006/commentary06060104.htm?source=eptyholnk303100&logvisit=y&npu=y>

In his book "Winner's Dilemma" Richard Thaler relates another story about Loss Aversion, called the 'status quo' bias. In this version, loss is perceived as a movement away from a point of reference, the 'status quo'. He quotes a reader of his column, Anomalies, published in the *Journal of Economic Perspectives*, about the response of decision makers in the American Economic Association on which of two choices would be presented to members as the status quo.

"You may be interested to know that when the AEA was considering letting members elect to drop one of the three Association journals and get a credit, prominent economists involved in that decision clearly took the view that fewer members would choose to drop a journal if the default was presented as all three journals (rather than the default being two journals with an extra charge for getting all three). We're talking economists here."<sup>10</sup>

Labor markets also respond to loss aversion. There evidence demonstrates labor's aversion to loss when firms prefer to increase nominal wages at less than the rate of inflation, rather than cut real wages. Without inflation, a cut in nominal wages would be the same as a cut in real wages, a loss to workers. Raising nominal wages may appear to reduce the loss, and probably requires some rational thought. While still not happy, it appears workers are less unhappy.

The US Federal Reserve Bank is often criticized that the purchasing power of the US dollar has declined to 5%<sup>11,12</sup> of its value when the Fed was establishment in 1913.<sup>13</sup> If prices had remained stable however, cuts in nominal wages would reflect more of the real reductions. Since firms often cut real wages, inflation reduces the emotion in the loss. While still not happy, workers are less unhappy.<sup>14</sup>

## **The Value of Money**

If we go back to the origins of utility theory and indifference, a dollar is a dollar is a dollar, and movement along an indifference curve reflects no change in utility. The value of the dollar does not change. However, under a behavioral analysis it is clear that consumer utility evaluations are sensitive to perceptions, and perceptions, being part of our neurological processes, are subjective. Since most economic transactions are not barter (coffee cups for candy bars), money measures the loss. To answer the question in the title, "Yes money has value, and the value changes according to the perception of gains and losses", as explained in the following simple example.

Let's assume a car manufacturer is selling a new model car in two different regions to test consumer's response to price. The framework for each region is different, but the final

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<sup>10</sup> - Thaler, R. H. *The Winner's Curse: Paradoxes and Anomalies of Economic Life*, New York: Free Press, 1991, page 70.

<sup>11</sup> - Inflation and the Fed ; <http://www.financialsense.com/editorials/2005/0429.html>

<sup>12</sup> - What is a dollar worth?; <http://www.minneapolisfed.org/Research/data/us/calc>

<sup>13</sup> - Federal Reserve; [http://en.wikipedia.org/wiki/Federal\\_Reserve](http://en.wikipedia.org/wiki/Federal_Reserve)

<sup>14</sup> - Goette and Huffman, Do Emotions Improve Labor Market Outcomes?;  
<http://doku.iab.de/externe/2006/k060103f06.pdf>

price paid and the car delivered are the same. In one area, the manufacturer announces that due to anticipated strong demand the price of the car will rise from \$20,000 to \$21,000. In another region, an announcement that due to a special promotion the same car's price will be \$21,000, a reduction from an initial price of \$22,000. In a loss aversion framework, consumers will see the surcharge as a loss, and sales will suffer while consumers in the latter region will see greater value.

Framing the issue in a positive sense, saving \$1000 for example, enhances perceptions of utility while a presentation in a negative frame, a loss of \$1000, diminishes utility even though final purchase price and type of car is the same in each region. Clearly, the way choices are framed will have a significant impact on the outcome of consumer choice.

In one experiment, researchers have also demonstrated similar responses in health care. Breast self-exams are very useful for the early detection of breast cancer. But, the exam is psychologically risky. Identical brochures, one highlighting the gains from self-exam and another the risk of inaction were distributed. The brochures that emphasized the risk of inaction were more effective.

It's important to recognize that the context in which choices are presented is influential. Whether it be the frame in which medical literature is presented or the context that presents prices, choices will be changed. For firms, pricing should occur in stages. In an accounting sense, they are inputs that determine profit and margins. But from a demand point of view price influences the demand elasticity, but perhaps more important is not the choice of a particular price for a product or service, but the way it is presented.

### **Emerging Choice Theory**

Loss aversion is an example of an affective response that alters the outcome of choices. Current research into affective responses and the interaction of deliberative and emotional systems is demonstrating a more complex understanding of choice. Compared to the approach of orthodox economics where stable goals and choices among alternatives that are consistent with these goals take place, affective behavior reveals processes that are more complex and more intuitive. While loss aversion is just one example of an affective response, it demonstrates that individual characteristics and product attributes interact differently. For those interested in human behavior it continues to shed light on these behaviors.

We hope you enjoyed Tom Connor's **Thinking Forward** article. To be notified when Tom or our other author's enter an article, please go to <http://www.hungrypeasant.com/remindme.cfm>. You can contact Tom with questions or thoughts about what you've read at [tomc@ridma.com](mailto:tomc@ridma.com).