

Behavioral Finance

The Irrational influences

From the mid -1950s, the field of finance has been dominated by the traditional finance model (also referred to as the standard finance model) developed primarily by the economists of the University of Chicago. The central assumption of the traditional finance model is that people are rational. However, psychologists challenged this assumption. They argued that people often suffer from cognitive and emotional biases and act in a seemingly irrational manner.

The finance field was reluctant to accept the view of psychologists who proposed the behavioral finance model. Indeed, the early proponents of behavioral finance were regarded as heretics. As the evidence of the influence of psychology and emotions on decisions became more convincing, behavioral finance has received greater acceptance. Although there is disagreement about when, how and why psychology influences investment decisions, the award of 2002 Nobel Prize in Economics to psychologist Daniel Kahneman and Amos Tversky for their work on the psychology of judgment and decision-making under uncertainty, and the field of behavioral finance.

The key difference between “traditional finance” and “behavioral finance” are as follows:

- Traditional finance assumes that people process data appropriately and correctly. In contrast, behavioral finance recognizes that people employ imperfect rules of thumb (heuristics) to process data which induces biases in their beliefs and predisposes them to commit errors.
- Traditional finance presupposes that people view all decisions through the transparent and objective lens of risk and return. Put differently, the form (or frame) used to describe a problem is inconsequential. In contrast, behavioral finance postulates that perceptions of risk and return are significantly influenced by how decision problems are framed. In other words, behavioral finance assumes frame dependence.
- Traditional finance assumes that people are guided by reason and logic and independent judgment. Behavioral finance, on the other hand, recognizes that emotions and herd instincts play an important role in influencing decisions.
- Traditional finance argues that markets are efficient, implying that the price of each security is an unbiased estimate of its intrinsic value. In contrast, behavioral finance contends that heuristic-

driven biases and errors, frame dependence, and effects of emotions and social influence often lead to discrepancy between market price and fundamental value.

This Chapter discusses heuristic-driven biases, frame dependence, emotional and social influences, and market inefficiencies. Note that while these things are discussed separately for pedagogic convenience, they are interrelated in subtle ways.

HEURISTIC-DRIVEN BIASES

The important heuristic-driven biases and cognitive errors that impair judgment are:

- Representativeness
- Overconfidence
- Anchoring
- Aversion to ambiguity
- Innumeracy

Representativeness

Representativeness refers to the tendency to form judgments based on stereotypes. For example, you may form an opinion about how a student would perform academically in college on the basis of how he has performed academically in school. While representativeness may be a good rule of thumb, it can also lead people astray.

Overconfidence

People tend to be Overconfidence and hence overestimate the accuracy of their forecasts. Overconfidence stems partly from the illusion of knowledge. The human mind is perhaps designed to extract as much information as possible from what is available, but may not be aware that the available information is not adequate to develop an accurate forecast in uncertain situations. Overconfidence is particularly seductive when people have special information or experience – no matter how significant – that persuades them to think that they have a investment edge. In reality, however, most of the so-called sophisticated and knowledge investors do not outperform the market consistently.

Anchoring

After forming an opinion, people are often unwilling to change it, even though they receive new information's that is relevant. Suppose that investors have formed an opinion that company A has above –average long term earnings prospect. Suddenly, A reports much lower earnings that

expected. Thanks to anchoring (also referred to as conservatism), investors will persist in the belief that the company is above-average and will not react sufficiently to the bad news. So, on the day of earnings announcement the stock price would move very little. Gradually, however, the stock price would drift downwards over a period of time as investors shed their initial conservatism.

Anchoring manifests itself in a phenomenon called the “post-earning announcement drift,” which is well-documented empirically. Companies that report unexpectedly bad (good) earning news generally produce unusually low (high) returns after the announcement.

Aversion to Ambiguity

People are fearful of ambiguous situations where they feel that they have little information about the possible outcomes. In experiments, people are more inclined to bet when they know the probabilities of various outcomes than when they are ignorant of the same.

In the world of investments, aversion to ambiguity means that investors are wary of stocks that they feel they don't understand. On the flip side it means that investors have a preference for the familiar. This is manifested in home country bias (investors prefer stocks of their country), local company bias (investors prefer stocks of their local area), and own company bias (employees of a company have a preference for their own company's stock).

Innumeracy

People have difficulty with numbers. In his book *Innumeracy: Mathematical Illiteracy and its Consequences*, John Paulos notes that “some of the blocks to dealing comfortably with numbers and probabilities are due to quite natural psychological responses to uncertainty, to coincidence, or to how a problem is framed. Others can be attributed to anxiety, or to romantic misconceptions about the nature and importance of mathematics”. Trouble with numbers is reflected in the following.

- People confuse between “nominal” changes (greater or lesser numbers of actual rupees) and “real” changes (greater or lesser purchasing power). Economists call this “money illusion”.
- People have difficulty in figuring out the “true” probabilities. Put differently, the odds are that they don't know what the odds are. To illustrate this point consider an example. In a lottery in which six numbers are selected out of fifty, what are the chances that the six numbers will be 1,2,3,4,5, and 6? Most people think that such an outcome is virtually impossible. The reality, of course, is that the probability of selecting 1 through 6 is the same as the probability of selecting any six numbers. As Martin Gardner says: “In no other branch of Mathematics is it easy for experts to blunder as in probability.”
- People tend to pay more attention to big numbers and give less weight to small figures.

- People estimate the likelihood of an event on the basis of how vivid the past examples are and not on the basis of how frequently the event has actually occurred.
- People tend to ignore the 'base rate' which represents the normal experience and go more by the 'case' rate, which reflects the most recent experience.

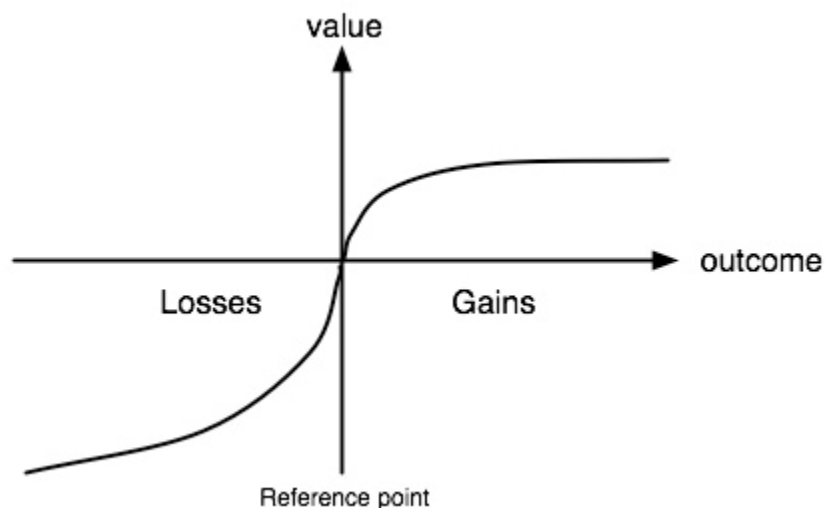
FRAME DEPENDENCE

Proponents of traditional finance argue that framing is transparent, implying that investors can see through all the different ways cash flows might be described. Indeed, frame independence lies at the core of the Modigliani-Miller approach to corporate finance. The essence of frame independence was put vividly by Miller as follows: "If you transfer a dollar from your right pocket to your left pocket, you are no wealthier. Franco and I put that rigorously." Frame independent investors pay attention to changes in their total wealth because it is this that eventually determines how much they can spend on goods and services.

In reality, behavior is frame-dependent. This means that the form used to describe a problem has a bearing on decision making. Frame dependence stems from a mix of cognitive and emotional factors. The cognitive aspects relate to how people organize information mentally, in particular how they code outcomes into gains and losses. The emotional aspects pertain to how people feel as they register information.

- *Prospect Theory*

The prospect theory proposed by Kahneman and Tversky describes how people frame and value a decision involving uncertainty. According to the prospect theory, people look at choices in terms of potential gains or losses in relation to a specific reference point, which is often the purchase price.



- ***Mental Accounting***

Traditional finance holds that wealth in general and money in particular must be regarded as “fungible” and every financial decision should be based on a rational calculation of its effects on overall wealth position. In reality, however, people do not have the computational skills and will power to evaluate decisions in terms of their impact on overall wealth. It is intellectually difficult and emotionally burdensome to figure out how every short-term decision (like buying a new camera or throwing a party) will bear on what will happen to wealth position in the long run. So, as a practical expedient, people separate their money into various mental accounts has a different significance to them. The concept of mental accounting was proposed by Richard Thaler, one of the brightest stars of behavioral finance.

Mental accounting manifests itself in various ways:

- Investors have a tendency to ride the losers as they are reluctant to realize losses.

Mentally, they treat unrealized “paper loss” and realized “loss” differently, although from a rational economic point of view they are the same.

- Investors often integrate the sale of losers so that the feeling of regret is confined to one time period.
- Investors tend to stagger the sale of winners over time to prolong the favourable experience.
- People are more venturesome with money received as bonus but very conservative with money set aside for children’s education.
- Investors often have an irrational preference for stocks paying high dividends, because they don’t mind spending the dividend income, but are not inclined to sell a few shares and “dip into the capital”.

- ***Narrow Framing***

Ideally, investors should pay attention to changes in their total wealth (comprising of real estate, stocks, bonds, capitalized future income, and other assets) over their investment horizon because it is this that determines how much they can spend on goods and services, which is what ultimately matters to them. In reality, however, investors engage in “narrow framing”-they focus on changes in wealth that are narrowly defined, both in a cross-sectional as well as a temporal sense.

- ***Behavioral Portfolios***

While investors understand the principle of diversification, they don’t form portfolios in the manner suggested by portfolio theory developed by Harry Markowitz. How then, do they build a diversified portfolio?

According to Hersh Shefrin and Meir Statman, the psychological tendencies of investors prod them to build their portfolios as a pyramid of assets as shown in Exhibit 11.2.

The salient features of the pyramid of behavioral portfolio are as follows:

- Investors have several goals such as safety, income, and growth, often in that sequence.
- Each layer in the pyramid represents assets meant to meet a particular goal.
- Investors have separate mental accounts for each investment goal and they are willing to assume different levels of risk for each goal.
- The asset allocation of an investor's portfolio is determined by the amount of money assigned to each asset class by the mental accounts.

EMOTIONAL AND SOCIAL INFLUENCES

Emotions and herd instincts are an important part of the decision-making process, particularly when decisions involve a high degree of uncertainty. This section looks at how emotional and social influences bear on decision making.

- ***Emotional Time Line***

Emotions have a bearing on risk tolerance, and risk tolerance influences portfolio selection. Investors experience a variety of emotions as they consider alternatives, decide how much risk to take, watch their decisions play out, assess whether the initial strategy needs modification, and finally learn how far they have succeeded in achieving their financial objectives.

- ***Herd Instincts and Overreaction***

There is a natural desire on the part of human beings to be part of a group. So people tend to herd together. Moving with the herd, however, magnifies the psychological biases. It induces one to decide on the "feel" of the herd rather than on rigorous independent analysis. This tendency is accentuated in the case of decisions involving high uncertainty.

MARKET INEFFICIENCY

Behavioral finance argues that, thanks to various behavioral influences discussed in the previous sections, often there is a discrepancy between market price and intrinsic value. The argument of behaviouralists rests on two key assumptions:

1. Some investors – they call them noise traders—are not rational as their demand for risky assets is influenced by beliefs or sentiments that are not fully supported by fundamentals.
2. Arbitrage operation by rational investors tends to be limited as there are risks associated with it.

Noise Trading

Many investors trade on pseudo-signals, or noise, and not on fundamentals. As long as these investors trade randomly, their trades cancel out and are likely to have no perceptible impact on demand. True, this happens to some extent because the market is thronged by noise traders who employ different models and, hence, cancel each other out. However, a good portion of noise traders employ similar strategies, as they suffer from similar judgmental biases while processing information. For example:

- They tend to be overconfident and hence assume more risk.
- They tend to extrapolate past time series and hence chase trends.
- They tend to put lesser weight on base rates and more weight on new information and hence overreact to news.
- They follow market gurus and forecasts and act in a similar fashion.

Given the correlated behavior of noise traders their actions lead to aggregate shifts in demand.

- *Limits to Arbitrage*

One can expect the irrationality of 'noise traders' to be countered by the rationality of 'arbitrageurs' as the latter are supposed to be guided by fundamentals and immune to sentiments. However, arbitrage in the real world is limited by two types of risk. The first risk is fundamental. Buying 'undervalued' securities tends to be risky because the market may fall further and inflict losses. The fear of such a loss may restrain arbitrageurs from taking large enough long positions that will push price to fully conform to fundamentals.

- *Price Behavior*

Given the substantial presence of noise traders whose behavior is correlated and the limits to arbitrage, investor sentiment does influence prices. In such a market, prices often vary more than what is warranted by changes in fundamentals. Indeed, arbitrageurs may also contribute to price volatility as they try to take advantage of the mood swings of noise traders. For example, when some investors follow a positive feedback strategy that says "buy when the price increases and sell when the price decreases", it is no longer optimal for arbitrageurs to counter the actions of noise traders all the time. Instead, they may profit by jumping on the bandwagon themselves for a while. It pays them to buy stocks which excite feedback traders, stimulate price increases, fuel the purchase of other investors, and sell near the top and collect their profits. Likewise, it is profitable for them to sell stocks that positive feedback traders dislike, trigger price decreases, induce sales by other investors, and buy them back near the nadir. Of course, finally their action would align prices to fundamentals. Andrei Schaefer and Lawrence H. Summers say: "The effect of arbitrage is to stimulate the interest of other investors and so to contribute to the movement of prices away from fundamentals. Although

eventually arbitrageurs sell out and help prices return to fundamentals, in the short run they feed the bubble rather than help it to dissolve.”

STRATEGIES FOR OVERCOMING PSYCHOLOGICAL BIASES

Understand the Biases: Pogo, the folk philosopher created by the cartoonist Walt Kelly, provided an insight that is particularly relevant for investors, “We have met the enemy-and it’s us”. So, understand your biases (the enemy within) as this is an important step in avoiding them.

Focus on the Big Picture: Develop an investment policy and put it down on paper. Doing so will make you react less impulsively to the gyrations of the market.

Follow a set of Quantitative Investment Criteria: It is helpful to use a set of quantitative criteria such as the price-earnings ratio being not more than 15, the price to book ratio being not more than 5, the growth rate of earnings being at least 12percent, and so on. Quantitative criteria tend to mitigate the influence of emotion, hearsay, rumour, and psychological biases.

Diversify: if you own a fairly diversified portfolio of say 12 to 15 stocks from different industries, you are less prone to do something drastically when you incur losses in one or two stocks because these losses are likely to be offset by gains elsewhere.

Control Your Investment Environment: If you are on a diet, you should not have tempting sweets and savories on your dining table. Likewise, if you want to discipline your investment activity, you should regulate or control your investment environment. Here are some ways of doing so:

- Check your stocks only once every month.
- Trade only once every month and preferably on the same day of the month.
- Review your portfolio once or twice a year.

Strive to Earn Market Returns: Seek to earn returns in line with what the market offers.

If you strive to outperform the market, you are likely to succumb to psychological biases.

Review Your Biases Periodically: Once in a year review your psychological biases. This will throw up useful pointers to contain such biases in future.

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