Learning Module 5: The Behavioral Biases of Individuals

LOS 5a: compare and contrast cognitive errors and emotional biases

Behavioral biases are irrational beliefs or behaviors that can influence our decision-making process. Behavioral biases may make our decisions to stray from what is prescribed or recommended, if you may, by the traditional finance theory. Behavioral bias is split into two types:

1. Cognitive errors.
2. Emotional biases.

Cognitive biases, alternatively known as faulty cognitive reasoning, refer to erroneous ways of thinking, reasoning, and judgment that characterize how we process and interpret information.

On the other hand, emotional bias occurs when our emotions blur our sense of judgment, reasoning, and information decoding processes. Emotional bias pushes us to make impulsive decisions and judgments that are not premised upon facts, evidence, logic, or research.

Emotional biases are more difficult to correct than cognitive biases because they are unpremeditated. It is, nevertheless, noteworthy that cognitive errors can be eliminated through such interventions as advice, education, and provision of more information.

Question

Which of the following is *most likely* a form of behavioral bias based on faulty cognitive reasoning?

A. Cognitive errors.
B. Emotional biases.
C. Cognitive errors and emotional biases.

Solution

The correct answer is **A**.

Cognitive errors are based on faulty cognitive reasoning.

B and C are incorrect. Emotional biases are based on feelings or emotions.

LOS 5b: discuss commonly recognized behavioral biases and their implications for financial decision making

Cognitive Errors

Cognitive biases, alternatively known as faulty cognitive reasoning, describe erroneous ways of thinking, reasoning, and interpreting information. Below are the two categories into which cognitive errors can be split:

I. Belief perseverance bias.
II. Processing errors.

I. Belief Perseverance Bias

The belief perseverance bias results from the discomfort experienced as a result of new information contradicting previously held beliefs. Often called cognitive dissonance, it occurs when two opposite beliefs conflict with each other.

There are five sub-types of perseverance biases:

a. Conservatism bias.
b. Confirmation bias.
c. Representativeness bias.
d. Illusion of control bias.
e. Hindsight bias.

a. Conservatism Bias

A conservative bias is a bias in which people hold onto old ideas or views while reluctantly accepting new contradictory or disruptive information. By and large, people often tend to underestimate new information and, instead, overestimate their predictions regarding an event. This leads to inaccurate judgments and inadequate responses to a new situation.

Effects of Conservatism Bias

- Investors may be slow to update forecasts even in the face of new information.
- Investors may reinforce old beliefs instead of dealing with the stress of updating beliefs given new complicated data.

How to Detect and Overcome Conservatism Bias

- The impacts of conservatism bias may be mitigated by running an adequate analysis and weighting of new information. To begin with, we need to be conscious of the existence of biases, more so regarding technical or statistics-related information. This is because the cognitive cost of processing such information is higher than other information pieces.
- If the interpretation and comprehension of information is a challenge, an investor should seek the guidance of an expert. This will enable her/him to clearly understand the information and its business implications.

b) Confirmation Bias

Confirmation bias refers to the tendency to value or notice what reinforces one's previous beliefs and disregard any information that negates them. It occurs when a person rationalizes their beliefs in order to calm their cognitive discomfort.

Effects of Confirmation Bias

- Financial market participants (FMPs) may only pay attention to favorable information about an existing investment and ignore any negative information. FMPs may develop a screening criterion without considering information that questions the validity of the criteria. The direct consequence of this bias is the adoption of wrong investment choices, i.e., good investments that do not meet the approval threshold are not approved. Instead, it is the ill-suited investments that meet the set criterion that is approved.

- Confirmation bias leads to the under-diversification of portfolios. In this case, an investor may ignore negative news in their potential investment assessment. Instead, the investor only gathers information that validates their views on the stock under review. Such an investor ends up with an inappropriately large position and an under-diversified portfolio. For instance, FMPs may invest a relatively large amount of their investment assets in the company's shares they work for.

How to Detect and Overcome Confirmation Bias

- Confirmation bias can be mitigated or eliminated by aggressively seeking pieces of information that can help one deconstruct one’s old beliefs.
- Another way to mitigate it is to confirm an investment choice with a variety of different investment perspectives.

c) Representative Bias

Representative bias occurs when we perceive new knowledge as a repetition of previous experience. Subsequently, one categorizes new information based on previous prejudices, biases, experiences, and classifications. It is important to note that whereas new information may look similar to previously categorized pieces of information, the two sets of information could practically be very different.

There are two types of representative bias: base-rate neglect and sample-size neglect.

i. **Base-rate neglect**: An event’s incidence rate in a larger population is ignored in favor of particular information.
ii. **Sample-size neglect**: In this case, investors mistakenly assume that small sample sizes represent populations accurately.

Effects of Representative Bias

- As a result of representative bias, a point of view or a forecast is largely based on small sample size or individual, unique data.
- Instead of dealing with the mental stress that emanates from updating beliefs based on complex data, FMPs update beliefs using basic classifications.

How to Detect and Overcome Representative Bias

- The investment under review should be analyzed based on the likelihood that it belongs to the group to which it is deemed a representative, rather than the group to which it is statistically more likely to belong. The question will prompt the FMPs to reflect on whether they have considered base-rate probabilities or ignored the law of small numbers, which ultimately results in an inaccurate assessment of an even.
- It may be essential to conduct an additional study to gain base-rate information and increase the sample size of observations.

d) Illusion of Control Bias

People with illusions of control bias feel they can manipulate or control results when they can't. A good example is the people's insistence on the freedom to pick their own lottery numbers than having random numbers assigned to them.

Effects of Illusion Control Bias

- Illusion control bias may lead to under-diversified portfolios. According to research, there are high chances of investors investing in companies over which they believe they have control of investment decisions. For instance, an investor is likely to invest in the companies they work for. The reality, however, is that investors do not hold a solid sway over the companies in which they invest. It is also worth noting that in case a company goes bankrupt, the employee will lose both their livelihood (employment) and investment(s).
- Illusion of control bias may make financial market participants to hog a market, i.e.,

trade more than necessary. It is noteworthy, though, that according to researchers, portfolio turnover is inversely associated with investment performance.

- Investors may construct extremely complex and detailed financial models and forecasts. Even then, increasing the complexity of the financial models does not curb the inherent risk and unpredictability of investment results.

How to Detect and Overcome Illusion of Control Bias

- Investors need to acknowledge that investing is a probability-based undertaking beyond anyone’s control. In fact, even investment management firms worth their names can neither control nor confidently predict the outcome of an investment. Contrary to what some investors think, companies can never be under their control despite the magnitude of their investments in them. This is because external factors such as the actions of suppliers, customers, and industry competitors influence companies' performance.
- Investors should find contrary viewpoints, such as considering factors that might work against an investment.

e) Hindsight Bias

Hindsight bias is the belief that past events were predictable and foreseeable. Hindsight bias stems from the fact that results realized in the past are evident. This cannot be said of results that were never realized. Moreover, irrational decisions with positive results may be hailed as masterstrokes. On the other hand, strategies that yield poor results might pass for mistakes that could otherwise be avoided.

Effects of Hindsight Bias

- Investors may overestimate the extent to which they correctly forecast the results of an investment or the predictability of a result in general.
- Hindsight bias may result in unfair investment performance assessment. The

assessment unfairness is attributable to the fact that performance is measured against what actually occurred rather than an investor's expectations when they ventured into an investment.

How to Detect and Overcome Hindsight Bias

- When making investment decisions, investors should not let past events blur their judgment. Instead, they should acknowledge and learn from their past mistakes.
- Investors should keep accurate records of their investment decisions and the factors that informed the decisions. Written records will particularly prevent hindsight bias. Whenever the need arises, investors may refer to the written records rather than relying on their memories. This way, they will run significantly more accurate and objective analyses of the past decisions.

II. Processing Errors

The term 'processing errors' refers to irrational or illogical use of information occasioned by how information has been processed. Note that processing errors are attributed a lot more to how information is processed than memory lapses. There are four types of processing errors:

a. Anchoring and adjustment bias.
b. Mental accounting bias.
c. Framing bias.
d. Availability bias.

a) Anchoring and Adjustment Bias

Anchoring and adjustment bias relates to using a piece of initial information as the premise upon which subsequent judgments, estimates, and conclusions are founded. Investors will begin with a given value ‘anchor’ when estimating a given value. It is this ‘anchor’ that they either adjust upwards or downwards. Remember that insufficient adjustment of the ‘anchor’ produces biased estimates.

Effects of Anchoring and Adjustment Bias

- When analyzing new information, investors often stick to their initial projections. This is the case for both downward and upward changes.

How to detect and Overcome Anchoring and Adjustment Bias

- Investors should ask questions that may show an anchoring and adjustment-related bias. For instance, such questions should seek to understand the factors that inform an investor’s decisions, i.e., are the decisions based on rational analysis, or are they anchored to a particular price?
- Any recommendation for investment should be questioned to determine if it is based on past estimates or a 'default' number.

b) Mental Accounting Bias

Mental accounting bias refers to the mental allocation of money into 'accounts' that manipulate decisions, despite money being fungible (interchangeable).

Effects of Mental Accounting Bias

- Investors tend to disregard opportunities to scale down risk by diversification.
- Mental accounting bias may make an investor irrationally differentiate between returns earned from the income and those flowing from capital appreciation. Even though investors may urge to retain principal investment, mental account bias may inspire them to stick to the idea of spending the income generated by the principal.
- Investors may irrationally divide wealth or a portfolio into investment principal and investment returns. In fact, some investors may conclude that huge risk can be assumed using the returns compared with the initial investment principal. This is

euphemistically referred to as “playing with house money.”

How to Detect and Overcome Mental Accounting Bias

- Mental accounting bias can be recognized by identifying its effects. The main impact of mental accounting bias is that it disregards the relationships between investments, leading to accidental risk-taking.

c) Framing Bias

Framing bias occurs during information processing. As a result of this bias, an individual’s response to a question varies depending on the angle from which the question is asked. This explains why a particular decision problem can be structured in multiple ways. For instance, an investor may be inclined to a positive view of investment even though the chances of failure are higher.

Effects of Framing Bias

- Investors may misconceive risk tolerance due to the structure of risk-related questions. This increases investor risk-averseness when a gain frame guides their market analysis. On the other hand, investors would be more risk-seeking when their analysis of a market is based on a loss frame of reference.
- Investors may concentrate on short-term price fluctuations and, therefore, disregard long-run considerations in the decision-making process.

How to Detect and Overcome Framing Bias

- In order to detect framing bias, investors should check if their focus is on one particular position's gain or loss. To avoid this kind of inclination, investors should refrain from referencing previous gains and losses and focus more on future anticipations, remain neutral, and be open to new decision-making suggestions.

d) Availability Bias

Availability bias is an information-processing bias. An individual's estimation of the likelihood of an outcome or the significance of an event depends on how easily a piece of information pops up in their minds. The following are the four most applicable sources of availability bias:

i. **Retrievability**: The first answer or idea to cross the mind will probably be deemed correct even it is incorrect.
ii. **Resonance:** The more closely a situation resembles an individual's own situation, the more likely they are to be biased.
iii. **Categorization**: As people solve problems, they collect information from what they believe to be appropriate sets of searches.
iv. **Narrow range of experience:** An individual may use a limited scope of experience rather than considering multiple perspectives when estimating. For instance, an investor may assume that the positive performance of an investment in an economy will translate into its success in the global economy.

Effect of Availability Bias

- Investors may work with a narrow set of investments due to the use of known classification schemes. As such, investors may limit investments in stocks or bonds, securities of one country, or one sector.

- The choice of an investor may be affected by the degree of advertising or news coverage. In this respect, given a free hand to make a decision, an investor will most likely settle on the option that is intensely advertised or that which is extensively covered by the media.

- Investors may not diversify their investments. This failure may happen because their choices are limited to a narrow range of experiences.

How to Detect and Overcome Availability Bias

- To avoid availability bias, investors should develop a strategy for choosing investments.

Besides, they ought to research and analyze investment decisions and base their decisions on long-term historical data.

Emotional Biases

An emotional bias is a distortion of cognition and decision-making that results from emotional factors. Emotional biases are more challenging to correct than cognitive errors since they are based on impulses or intuition rather than conscious judgments.

There are six emotional biases:

a. Loss aversion.
b. Overconfidence.
c. Self-control.
d. Status quo.
e. Endowment.
f. Regret aversion.

a) Loss Aversion Bias

Loss aversion refers to the habit of evading losses to realize gains. Rational investors should be willing to assume more risk to increase gains, not mitigate losses. Loss aversion makes investors hold their loss-making investment to avoid recognizing losses and instead, sell their profitable investments to lock in profits.

Effects of Loss Aversion Bias

- Through fundamental analysis, investors may hold onto loss-making investments for a longer period than necessary in the hope that they would return to profitability.
- Fearing that the gains will dwindle, investors may enter a gain position earlier than the fundamental analysis recommends.

How to Detect and Overcome Loss Aversion Bias

- Loss-aversion bias can be mitigated by using a disciplined investment approach. Even if a loss is emotionally painful, a logical evaluation of the chances of gains and losses may aid investors in making investment decisions.

b) Overconfidence Bias

An overconfidence bias occurs when people place unjustified trust in their abilities. Overconfidence is compounded by self-attribution bias, in which people exaggerate their success (self-enhancement) and blame others for their failures (self-protection). Despite having aspects of both cognitive and emotional errors, overconfidence is classified as an emotional error because the bias is predominantly driven by emotion.

There are two types of overconfidence bias:

1. **Prediction overconfidence:** Occurs when investors assign too narrow confidence intervals to their investment predictions.
2. **Certainty overconfidence:** Occurs when the probabilities associated with the outcomes are overstated.

Effects of Overconfidence Bias

- Overconfidence bias may make investors overestimate their expected returns and underestimate risks.

- Investors may invest in poorly diversified portfolios, a move that may lead to significant downside risk.

How to Detect and Overcome Overconfidence Bias

- A comprehensive review of trading records, identifying both winners and losers, and calculating portfolio performance over at least two years is recommended.

- Investors must observe objectivity in their evaluation and execution of investment decisions. Besides, they should interrogate the rationale behind and the outcomes of investments as objectively as possible. Such interrogations should capture both winners and losers.
- In their analysis of unprofitable investment ventures, investors should pay attention to the patterns or mistakes they may have been unconscious of in examining the investment decisions they made that turned out to be unprofitable.

c) Self-Control Bias

Self-control bias occurs when people pursue instant gratification instead of long-term goals. For instance, although many people can and are ready to save money for the future, self-control makes it difficult for them to scale down their current consumption rate.

Effects of Self Control Bias

- Due to their failure to save for the future, investors may take on excess stock market risk to generate higher returns.
- Borrowing too much may lead to investors being unable to meet their current consumption needs.

How to Detect and Overcome Self-Control Bias

- Investors should create personal budgets and ensure that they have appropriate investment plans. Furthermore, the plans must be written to be reviewed regularly.

d) Status Quo Bias

Status quo bias is an emotional bias in which people prefer to keep things as they are rather than make a change, even when it is necessary. In other words, they maintain the status quo.

Effect of Status Quo Bias

- Investors may fail to investigate other investing opportunities.
- Investors may unknowingly retain portfolios that do not only have risky features but are also inappropriate for their circumstances.

How to Detect and Overcome Status Quo Bias

- Investors should embrace portfolio diversification and proper allocation of assets. Investors must consider investment risk reduction and return enhancement.

e) Endowment Bias

Endowment bias occurs when a person values an asset more when they own it than when they do not.

Effects of Endowment Bias

- Endowment bias may inspire investors' failure or reluctance to dispose of certain assets and replace them with others.
- Investors tend to maintain ownership of assets with which they are familiar.
- In some cases, an investor's asset allocation may not be suitable. Consequently, there could be incongruence among an investor's investment portfolio, risk tolerance, and financial goals.

How to Detect and Overcome Endowment Bias

- Wealth managers have seen clients hesitant to sell inherited securities due to emotional attachment. Such clients could be seen as disloyal by selling inherited securities.

f) Regret-aversion Bias

Regret-aversion bias is an emotional bias in which investors avoid making judgments for fear of making a bad decision. It has two dimensions: Actions taken by people and actions that people ought to have taken.

Effects of Regret Aversion Bias

- Investors embrace the herding mentality. This entails investing in ventures that are popular, i.e., those that many market players invest in. The motivation behind the herd mentality is often a result of poor prior results on hazardous investments.
- To avoid future regret, investors may opt to invest in low-risk ventures. In the long run, this causes such investors to underperform the benchmark and fail to beat investment targets.

How to Detect and Overcome Regret-aversion Bias

- Investors should weigh the benefits of diversity and asset allocation regarding risk reduction and return enhancement.

Question 1

If a person prefers high standards of living in the present, rather than saving for retirement, the person suffers from:

A. Status quo bias.
B. Overconfidence bias.
C. Self-control bias.

The correct answer is **C**.

Self-control bias is an emotional bias, where people do not act in their best long-term interest because they lack self-control.

A is incorrect. Status quo bias is a bias in which people prefer to do nothing than make a change.

B is incorrect. Overconfidence bias is a bias in which people demonstrate unwarranted faith in their own abilities.

Question 2

When people make classifications based upon relevant past experience, this represents which of the following bias?

A. Confirmation bias.
B. Representativeness bias.
C. Availability bias.

The correct answer is **B**.

This is a cognitive and belief-perseverance bias where people make classifications based upon relevant past experiences.

A is incorrect. Confirmation bias is when people emphasize ideas that confirm our beliefs while devaluing ideas that contradict our beliefs.

C is incorrect. Availability bias is a cognitive and information processing bias, where investors use a shortcut, based on how familiar the outcome appears in their life. They perceive easily recalled possibilities as the best choices.

Question 3

Which of the following is *most likely* a bias where people demonstrate an unwarranted faith in their own abilities?

A. Framing bias.
B. Availability bias.
C. Overconfidence bias.

The correct answer is **C.**

Overconfidence bias is a bias in which people demonstrate unwarranted faith in their own abilities.

Option A is incorrect. Framing bias occurs during information processing. As a result of this bias, an individual's response to a question varies depending on the angle from which the question is asked.

Option B is incorrect. Availability bias is an information-processing bias in which individuals estimate the probability of an outcome or the importance of a phenomenon based on how effortlessly information is recalled.

LOS 5c: describe how behavioral biases of investors can lead to market characteristics that may not be explained by traditional finance

Some persistent market patterns such as momentum, value, bubbles, and crashes impact market efficiency and are regarded as functions of behavioral finance.

Market Anomalies

Anomalies are noticeable departures from the efficient market hypothesis, as evidenced by persistently aberrant returns. For instance, an anomaly such as misclassifications may stem from statistical problems, choice of asset pricing model, or temporary disequilibria.

There are ways of explaining some anomalies. Such ways include the analysis of the small sample sizes used, statistical bias in sample selection, survivorship bias, or data mining. It is also important to note that that the benchmark choice is paramount in determining the magnitude of any over or underperformance.

Momentum

When future price behavior aligns with that of the recent past, this is known as momentum or trending effects. Before reverting to the mean, the favorable association typically lasts about two years.

Availability, hindsight, and loss aversion biases can all contribute to momentum.

Regret is the feeling one experiences after missing out on an opportunity. It is often a manifestation of hindsight bias, reflecting the human predisposition to see past events as foreseeable. Thanks to regret, investors may feel an overwhelming urge to act emotionally not to miss out on the next big momentum play.

Bubbles and Crashes

Some bubbles may be products of sensible and logical reasoning. For instance, short-term performance-driven investment managers may attribute their decision to participate in a bubble to further advance their careers.

Bubbles excite confidence in investors. This leads to such anomalies as overtrading, underestimation of risks, failure to diversify, and rejection of any piece of information that contradicts their assessment of the market.

Excessive trading and overconfidence are connected to confirmation bias and self-attribution bias, contributing to a bubble. When a bubble bursts, markets may underreact due to anchoring. This occurs when investors fail to quickly update their beliefs.

Values

High book-to-market equity, low price-to-earnings ratios, and low price-to-dividend ratios are common characteristics of value stocks. High price-to-earnings ratios, low book-to-market equity, and high price-to-dividend ratios are distinguishing characteristics of growth stocks.

Behavioral reasons for value anomalies have been proposed in studies, such as in the Fama–French three-factor model (1993), portraying the anomalies as mispricing rather than compensating for greater risk. Less sophisticated investors who are easily driven by emotions may place a higher value on growth stocks.

Question

Which of the following is *most likely* a characteristic of value stocks?

A. Low book-to-market equity.

B. Low price-to-dividend ratio.

C. High price-to-earnings ratio.

The correct answer is **B**

Value stocks are usually characterized by high book-to-market equity, low price-to-earnings ratios, and low price-to-dividend ratios.

A and C are incorrect. They are both characteristics of growth stocks. Growth stocks are characterized by high price-to-earnings ratios, low book-to-market equity, and high price-to-dividend ratios.