

2022 CFA®

Exam Prep

SchweserNotes™

Behavioral Finance, Capital Market
Expectations, and Asset Allocation

LEVEL III BOOK 1

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Regards,



Derek Burkett, CFA, FRM, CAIA
Vice President (Advanced Designations)

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Book 1: Behavioral Finance, Capital Market Expectations, and Asset Allocation

SchweserNotes™ 2022

Level III CFA®



SCHWESERNOTES™ 2022 LEVEL III CFA® BOOK 1: BEHAVIORAL FINANCE, CAPITAL MARKET EXPECTATIONS, AND ASSET ALLOCATION

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LEARNING OUTCOME STATEMENTS (LOS)

STUDY SESSION 1

The topical coverage corresponds with the following CFA Institute assigned reading:

1. The Behavioral Biases of Individuals

The candidate should be able to:

- a. compare and contrast cognitive errors and emotional biases.
- b. discuss commonly recognized behavioral biases and their implications for financial decision making.
- c. identify and evaluate an individual's behavioral biases.

The topical coverage corresponds with the following CFA Institute assigned reading:

2. Behavioral Finance and Investment Processes

The candidate should be able to:

- a. explain the uses and limitations of classifying investors into personality types.
- b. discuss how behavioral factors affect adviser–client interactions.
- c. discuss how behavioral factors influence portfolio construction.
- d. explain how behavioral finance can be applied to the process of portfolio construction.
- e. discuss how behavioral factors affect analyst forecasts and recommend remedial actions for analyst biases.
- f. discuss how behavioral factors affect investment committee decision making and recommend techniques for mitigating their effects.
- g. describe how behavioral biases of investors can lead to market characteristics that may not be explained by traditional finance.

STUDY SESSION 2

The topical coverage corresponds with the following CFA Institute assigned reading:

3. Capital Market Expectations, Part 1: Framework and Macro Considerations

The candidate should be able to:

- a. discuss the role of, and a framework for, capital market expectations in the portfolio management process.
- b. discuss challenges in developing capital market forecasts.
- c. explain how exogenous shocks may affect economic growth trends.
- d. discuss the application of economic growth trend analysis to the formulation of capital market expectations.
- e. compare major approaches to economic forecasting.
- f. discuss how business cycles affect short- and long-term expectations.
- g. explain the relationship of inflation to the business cycle and the implications of inflation for cash, bonds, equity, and real estate returns.
- h. discuss the effects of monetary and fiscal policy on business cycles.
- i. interpret the shape of the yield curve as an economic predictor and discuss the relationship between the yield curve and fiscal and monetary policy.
- j. identify and interpret macroeconomic, interest rate, and exchange rate linkages between economies.

The topical coverage corresponds with the following CFA Institute assigned reading:

4. Capital Market Expectations, Part 2: Forecasting Asset Class Returns

The candidate should be able to:

- a. discuss approaches to setting expectations for fixed-income returns.
- b. discuss risks faced by investors in emerging market fixed-income securities and the country risk analysis techniques used to evaluate emerging market economies.
- c. discuss approaches to setting expectations for equity investment market returns.
- d. discuss risks faced by investors in emerging market equity securities.
- e. explain how economic and competitive factors can affect expectations for real estate investment markets and sector returns.
- f. discuss major approaches to forecasting exchange rates.
- g. discuss methods of forecasting volatility.
- h. recommend and justify changes in the component weights of a global investment portfolio based on trends and expected changes in macroeconomic factors.

STUDY SESSION 3

The topical coverage corresponds with the following CFA Institute assigned reading:

5. Overview of Asset Allocation

The candidate should be able to:

- a. describe elements of effective governance and investment governance considerations in asset allocation.
- b. formulate an economic balance sheet for a client and interpret its implications for asset allocation.
- c. compare the investment objectives of asset-only, liability-relative, and goals-based asset allocation approaches.
- d. contrast concepts of risk relevant to asset-only, liability-relative, and goals-based asset allocation approaches.
- e. explain how asset classes are used to represent exposures to systematic risk and discuss criteria for asset class specification.
- f. explain the use of risk factors in asset allocation and their relation to traditional asset class-based approaches.
- g. recommend and justify an asset allocation based on an investor's objectives and constraints.
- h. describe the use of the global market portfolio as a baseline portfolio in asset allocation.
- i. discuss strategic implementation choices in asset allocation, including passive/active choices and vehicles for implementing passive and active mandates.
- j. discuss strategic considerations in rebalancing asset allocations.

The topical coverage corresponds with the following CFA Institute assigned reading:

6. Principles of Asset Allocation

The candidate should be able to:

- a. describe and evaluate the use of mean-variance optimization in asset allocation.
- b. recommend and justify an asset allocation using mean-variance optimization.
- c. interpret and evaluate an asset allocation in relation to an investor's economic balance sheet.
- d. discuss asset class liquidity considerations in asset allocation.

- e. explain absolute and relative risk budgets and their use in determining and implementing an asset allocation.
- f. describe how client needs and preferences regarding investment risks can be incorporated into asset allocation.
- g. discuss the use of Monte Carlo simulation and scenario analysis to evaluate the robustness of an asset allocation.
- h. describe the use of investment factors in constructing and analyzing an asset allocation.
- i. recommend and justify an asset allocation based on the global market portfolio.
- j. describe and evaluate characteristics of liabilities that are relevant to asset allocation.
- k. discuss approaches to liability-relative asset allocation.
- l. recommend and justify a liability-relative asset allocation.
- m. recommend and justify an asset allocation using a goals-based approach.
- n. describe and evaluate heuristic and other approaches to asset allocation.
- o. discuss factors affecting rebalancing policy.

The topical coverage corresponds with the following CFA Institute assigned reading:

7. Asset Allocation With Real-World Constraints

The candidate should be able to:

- a. discuss asset size, liquidity needs, time horizon, and regulatory or other considerations as constraints on asset allocation.
- b. discuss tax considerations in asset allocation and rebalancing.
- c. recommend and justify revisions to an asset allocation given change(s) in investment objectives and/or constraints.
- d. discuss the use of short-term shifts in asset allocation.
- e. identify behavioral biases that arise in asset allocation and recommend methods to overcome them.

The following is a review of the Behavioral Finance principles designed to address the learning outcome statements set forth by CFA Institute. Cross-Reference to CFA Institute Assigned Reading #1.

READING 1: THE BEHAVIORAL BIASES OF INDIVIDUALS¹

Study Session 1

EXAM FOCUS

Expect exam questions that present situations where you must identify which bias or biases are displayed. Because many of the biases are closely related, read each exam situation closely and identify from the facts presented which bias is the best fit to the facts. Also know the implications of a bias on investment decision-making or policy and be able to identify whether it is better to accommodate or mitigate a bias. It is highly likely behavioral finance will be tested with a dedicated item set or as part of a constructed response question. In constructed response, it is often linked into an investment policy statement question.

MODULE 1.1: COGNITIVE ERRORS VS. EMOTIONAL BIASES



Video covering this content is available online.

Traditional finance focuses on how individuals *should* behave. It assumes people are rational, risk-averse, and selfish utility maximizers who act in their own self-interests without regard to social values—unless such social values directly increase their own personal utility. Utility can be defined as the pleasure or satisfaction an individual gains from obtaining or consuming a good or service. Such individuals will act as *rational economic men* (REM), which will lead to efficient markets where prices accurately reflect all available, relevant information. Traditional finance is concerned with normative analysis and determining the rational solution to a problem. It uses prescriptive analysis to look for practical tools and methods to find those rational solutions.

Behavioral finance is descriptive, which focuses on describing how individuals *actually* behave and make decisions. It draws on concepts of traditional finance, psychology, adaptive economics, and neuroeconomics. Neuroeconomics has been used to look at decision-making under uncertainty, drawing on studies of brain chemistry to understand how decision-making utilizes both rational and emotional areas of the brain. Behavioral finance recognizes that the way information is presented can affect decision-making, leading to both emotional and cognitive biases.

Kahneman and Tversky's work in the 1970s set logic tests, where individuals' intuitive answers were predictably flawed. This revealed many of the systematic biases in human decision-making. The significance of errors (deviances from traditional finance's outcomes) being systematic is that they can be identified and predicted and we can attempt to correct for them.

Behavioral finance looks at normal behavior of individual market participants (Behavioral Finance Micro) and the effect of such behavior on markets (Behavioral Finance Macro). A better understanding of the biases of clients (and of the professionals who work with those clients) should allow for the construction of portfolios that better approximate the efficiency of traditional finance and with which clients are better able to adhere to with during adverse conditions.

Raiffa² provides a framework for the analysis of decision-making:

1. **Normative analysis.** The optimal rational solution per the assumptions of traditional finance. This is the solution decisions should strive to emulate.
2. **Descriptive analysis.** Focusing on how individuals actually make decisions based on behavioral finance.
3. **Prescriptive analysis.** Advice and tools aimed at aligning actual behavior with the normative ideal.

LOS 1.a: Compare and contrast cognitive errors and emotional biases.

CFA® Program Curriculum, Volume 1, page 6

Individuals, when facing complex decision-making, often lack the time or ability to derive the optimal course of action prescribed by traditional finance. Every day, the average person makes between 2,000 and 10,000 decisions. Rather than following the processes and steps of a rational economic man (REM), individuals use shortcuts, rules of thumb, and intuition (known as heuristics) to arrive at decisions quickly. Additionally, emotions and social influences affect decision-making. Cognitive limitations and emotional responses introduce bias into the decision-making process, leading to irrational behaviors and decisions. Behavioral finance asserts that biases are not simply errors, which are random, but are systematic and therefore predictable.

Cognitive errors are due primarily to faulty reasoning and could arise from a lack of understanding proper statistical analysis techniques, information processing mistakes, faulty reasoning, or memory errors. Such errors can often be minimized or mitigated with better training or information.

Emotional biases are not related to conscious thought and stem from feelings or impulses or intuition. As such they are more difficult to overcome and may have to be accommodated. Despite the distinction in grouping biases as either cognitive or emotional, a bias may have elements of both cognition and emotion. When trying to overcome or mitigate biases that are both emotional and cognitive, success is more likely by focusing on the cognitive issues.



PROFESSOR'S NOTE

You should always look at the combination of facts and information presented in any question to see if the bias in a particular situation is arising more from cognitive or emotional thinking before determining if it is likely it can be mitigated or if it must be accommodated.

LOS 1.b: Discuss commonly recognized behavioral biases and their implications for financial decision making.

LOS 1.c: Identify and evaluate an individual's behavioral biases.

CFA® Program Curriculum, Volume 1, page 8

Cognitive Errors

While cognitive errors arise primarily from statistical or information or reasoning deficiencies or faulty memory, they can also have an emotional element. Market participants may unconsciously tilt away from behavior that causes personal distress or pain while tilting toward behavior that causes pleasure. In general cognitive errors are easier to mitigate or correct with better information, asking the right questions, or seeking qualified advice.

Cognitive errors can be divided into 5 “belief perseverance” biases that reflect a desire to stick with a previous decision and 4 “processing errors” where the information analysis process is flawed.



PROFESSOR'S NOTE

Candidates regularly complain that many BF terms mean the same thing. (1) This is partially true and exam questions will be written so there is a best answer choice. (2) The main terms are not the same. Keep definitions short and the differences become more apparent.

Candidates also complain that there are too many terms. The solution is to show judgment and focus on the terms that are discussed in detail and/or multiple times.

In the following section, a useful short distinguishing characteristic of main terms is in bold.

Cognitive Errors: Belief Perseverance

1. **Conservatism bias** occurs when market participants **rationally form an initial view but then fail to change that view as new information becomes available**. In Bayesian terminology, they overweight the initial probabilities and do not adjust probabilities for the new information. Individuals displaying this bias will stick with their prior forecasts or views, ignoring or failing to update their initial beliefs to fully incorporate new information. Individuals may react slowly to new data or ignore information that is complex to process.

EXAMPLE: Conservatism

John Mue has carefully analyzed the historical data and concluded that recessionary environments occur on average 20% of the time. Mue has incorporated this probability into his strategic asset allocation recommendations. When new information is presented by a coworker showing that the actions of the central bank significantly affect the recession probabilities and that the new head of the central bank has announced tightening monetary conditions, Mue goes on vacation without making any adjustments to his work.

Answer:

Mue is showing conservatism by sticking with his original work and not considering the impact of the new information. In this case there may be an emotional aspect as well as Mue chooses the pleasure of a vacation over doing hard work.

Consequences and implications of conservatism may include market participants who:

- Are unwilling or slow to update a view or forecast for new information, and therefore hold an investment too long.
- Hold an investment too long to avoid the mental effort or stress of updating a view, when the new information is complex to understand.

Conservatism detection starts with participants becoming aware of their own biases. The more difficult the thought process or complex the information is, the greater the effort there is in correctly updating prior beliefs. This effort is known as **cognitive cost**. The greater the cognitive cost associated with a new source of information, the less likely it is to be correctly processed. Conversely, if new information has a low cognitive cost, participants may overweight its significance. Thus conservatism can lead to either too little or too much change and turnover.

2. **Confirmation bias** occurs when market participants **look for new information or distort new information to support an existing view**. It is a kind of selection bias. Information that contradicts the individual's views is more likely to be ignored or undervalued. Psychologists refer to the discomfort individuals feel when presented with information that is contrary to their beliefs as cognitive dissonance. Subconsciously, human nature rejects this information to avoid the discomfort. Clients who get involved with the portfolio process by researching some of their portfolio holdings may become overly attached to some holdings and only bring up information favorable to the holding. This would be confirmation bias.

"What the human being is best at doing is interpreting all new information so that their prior conclusions remain intact." - Warren Buffet

Consequences and implications of confirmation may include market participants who:

- Consider positive but ignore negative information and therefore hold investments too long.
- Set up the decision process or data screens incorrectly to find what they want to see.
- Underdiversify as they become overly convinced their ideas are correct, resulting in concentrated positions.
- Over concentrate in the stock of their employer believing they have an information advantage in to that security.

Confirmation detection starts with seeking out contrary views and information. For example, if an analyst focuses on bottom-up fundamental financial statement analysis, then the analyst could consult with a top-down economic forecaster to gain an alternative view. Additionally, further information and corroboration should be sought to support investment decisions. Effort needs to be made to process all information, whether positive or negative.

3. **Representativeness bias** occurs when the similarity of objects or events confuses individuals' assessments regarding the probability of an outcome. Individuals systematically make the error of believing that two similar things or events are more closely correlated than they actually are. **Representativeness** is based on a belief **the past will persist and new information is classified based on past experience or classification**. While this may be efficient, the new information can be misunderstood if is classified based on a superficial resemblance to the past or a classification.

Kahneman explains the bias with the following example: "Steve is a meek and tidy soul with a passion for detail, drawn at random from American census data. Is it more likely that Steve is a librarian, or a farmer?" Most people will answer

librarian, as this conforms to our preconceptions (the base rate) of the characteristics of a librarian. There is little evidence that librarians are meeker, tidier, and more detail focused than the general population. In the United States, there are 20 times the number of male farmers than librarians, so it is much more likely that Steve is a farmer.

Two forms of representativeness include:

- **Base rate neglect**, where the base rate (probability) of the initial classification is not adequately considered. Essentially the classification is taken as being 100% correct with no consideration that it could be wrong. A stock could be classified as a value stock and new information about the stock is analyzed based on that classification. In reality, it may not be a value stock.
- **Sample-size neglect** makes the initial classification based on an overly small and potentially unrealistic sample of data. The error made is believing that the characteristics of the small sample reflect the population. Individuals simply infer too much from a small sample of data. For example, a fund manager may show strong performance over a three-year time horizon. This may lead investors to assume this manager has superior skill. However, over a short time horizon, results may have arisen from luck rather than skill. A Vanguard Investments study illustrates this. The five best-performing funds were analyzed over a 10-year horizon.
 - Only 16% of funds made the top five in the subsequent year.
 - The top five funds generated, on average, 15% lower returns in the subsequent year.
 - The top five funds only beat the market by 0.3% in the subsequent year.

EXAMPLE: Representativeness

XYZ company has long been recognized as a growth stock delivering superior earnings growth and stock price appreciation. While earnings have continued to grow, last year's revenue has not and neither has the stock price. Under the following two conditions, would an analyst be more likely to buy or sell the stock?

1. The analyst suffers from base-rate and sample-size neglect (focusing on the recent results).
2. The analyst treats the growth classification as representative.

Answer:

If the analyst exhibits sample-size and base-rate neglect the analyst will ignore XYZ's long record as a growth stock, focus on the short-term disappointing result and may recommend sale without considering the long term possibility it will revert to growth behavior.

However, if the analyst over-relies on the initial growth classification, the analyst may assume it will return to growth and recommend purchase without properly considering all of the recent results.

Consequences and implications of representativeness may include market participants who:

- Attach too much importance to new pieces of information, or to a small sample. The impacts of such behavior can be excessive turnover based on short-term performance. The result can be excessive transaction fees and