Behavioral Finance

CFA三级必备知识点

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1. Traditional Finance vs. Behavioral Finance

Traditional Finance vs. Behavioral Finance

- Within traditional finance, individuals are assumed to be risk-averse, self-interested utility maximizers. (**rational**). Traditional finance further hypothesizes that, at the market level, **prices incorporate and reflect all available and relevant information**.
- Behavioral finance **includes behavioral economics, investor psychology, behavioral science, experimental economics, and cognitive psychology**. The variety of approaches taken to examine investor behavior adds to the confusion about what is meant by behavioral finance. (**normal**)
  - **behavioral finance micro (BFMI)** examines behaviors or biases that distinguish individual investors from the rational actors envisioned in neoclassical economic theory.
    - ✓ BFMI questions the perfect rationality and decision-making process of individual investors.
  - or **behavioral finance macro (BFMA)** considers market anomalies that distinguish markets from the efficient markets of traditional finance.
    - ✓ BFMA questions the efficiency of markets.

Traditional Finance vs Behavioral Finance

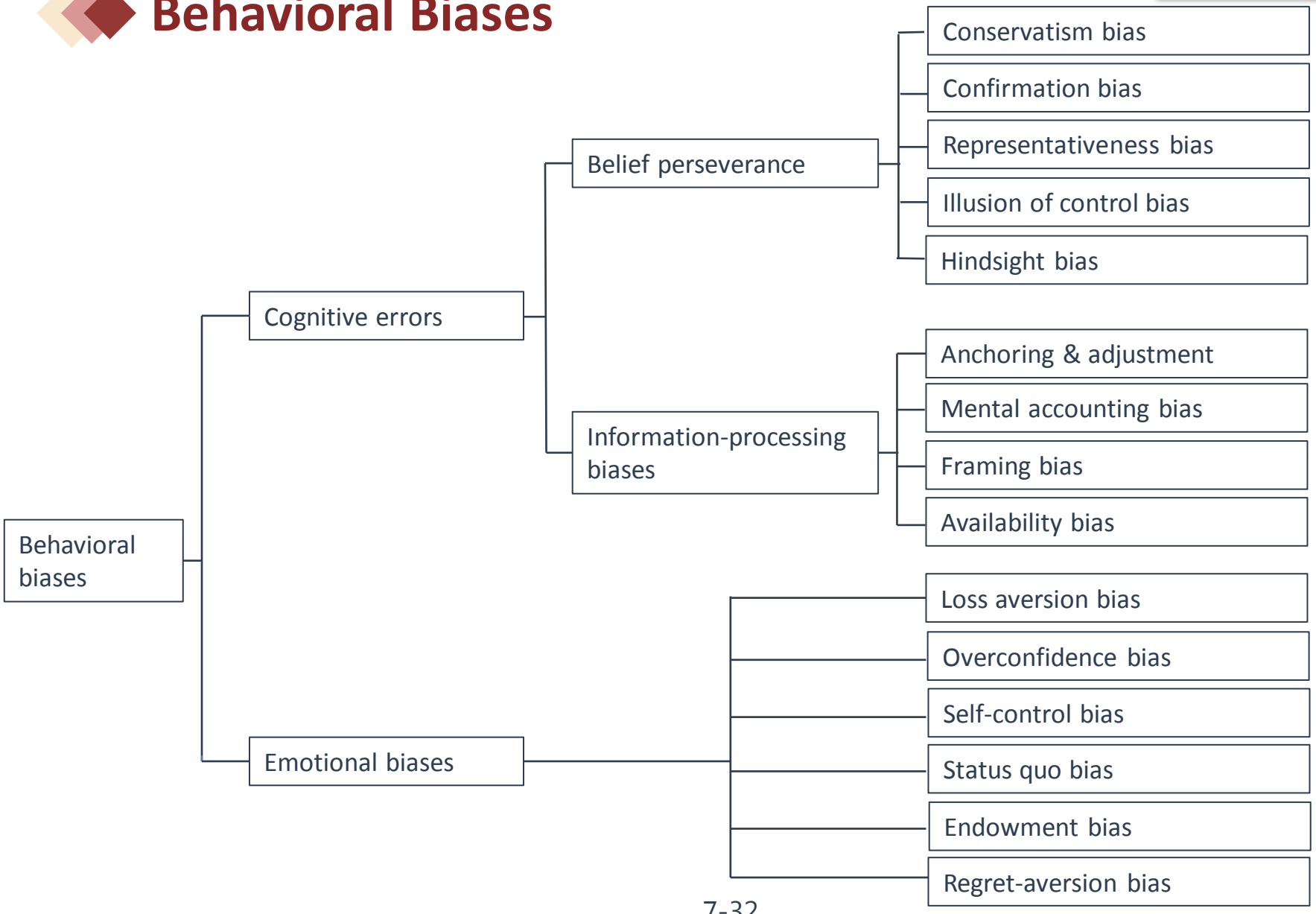
Traditional Finance Assumes:	Behavioral Finance Assumes:
Unlimited perfect knowledge	Capacity limitations on knowledge
Utility maximization	Satisfice
Fully rational decision making	Bounded rationality. Cognitive limits on decision making
Risk aversion	Loss averse

Traditional Finance vs Behavioral Finance

- **Utility Theory**
  - To maximize utility, a rational investor will make decisions conforming to the four axioms of utility: completeness, transitivity, independence, and continuity.
- **Risk Averse** (In traditional finance, individuals are assumed to be risk-averse.)
  - Someone who prefers to invest to receive an expected value with certainty rather than invest in the uncertain alternative that generates the same expected value is called risk-averse.
  - Someone who is indifferent between the two investments is called risk-neutral.
  - Someone who prefers to invest in the uncertain alternative is called risk-seeking.
- **Bounded rationality**
  - **Bounded rationality** assumes that individuals' choices are rational but are subject to limitations of knowledge and cognitive capacity, and do not behave with perfect rationality (**satisfice**).
  - **Satisficing** ("satisfy" & "suffice") is finding an acceptable solution as opposed to optimizing, which is finding the best (optimal) solution.

2. Behavioral Biases

Behavioral Biases



Cognitive Errors and Emotional Biases

- **Behavioral biases** may be categorized as either cognitive errors or emotional biases.
- **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.
  - Cognitive errors are more easily corrected for because they stem from faulty reasoning rather than an emotional predisposition.
  - Cognitive errors can be further classified into two categories:
    - ✓ **belief perseverance biases**
    - ✓ **and information-processing biases**.
- **Emotional biases** stem from impulse or intuition; emotional biases tend to result from reasoning influenced by feelings.
  - Emotional biases are harder to correct for because they are based on feelings, which can be difficult to change.
- To moderate a bias is to recognize the bias and to attempt to reduce or even eliminate the bias within the individual.
- To adapt to a bias is to recognize and accept the bias and to adjust for the bias rather than to attempt to moderate the bias.

Cognitive Errors: Belief Perseverance

- **Belief perseverance is the tendency to cling to one's previously held beliefs irrationally or illogically.**
  - **Conservatism bias**. people maintain their prior views or forecasts by inadequately incorporating new information;
  - **Confirmation bias**. Individuals tend to notice only information that agrees with their perceptions or beliefs. They look for confirming evidence while discounting or even ignoring evidence that contradicts their beliefs or their perceptions;
  - **Representativeness bias**. people tend to classify new information based on past experiences and classifications. This bias occurs because people attempting to derive meaning from their experiences tend to classify objects and thoughts into personalized categories; **Two forms: base rate neglect, sample-size neglect.**
  - **Illusion of control.** people tend to believe that they can control or influence outcomes when, in fact, they cannot. expectancy of a personal success probability inappropriately higher than the objective probability would warrant;
  - **Hindsight bias.** a bias with selective perception and retention aspects. People may see past events as having been predictable and reasonable to expect.

2008 Template for Question 2

Donaldson's statement	Select the behavioral finance concept best exhibited in each of Donaldson's three statements. Note: No behavioral finance concept can be used more than once. (circle one)	Explain how the behavioral finance concept you selected affects Donaldson's investment decision making.
• "I read a newspaper article reporting that commercial property values in the city have increased 14 percent annually since 2000. • According to the article, the average commercial property in the city sold for $1.5 million last year. • This makes me very happy because I just purchased a piece of commercial property last month. There is no doubt that it will be a good investment."	Naïve diversification	• Donaldson may have bought late in the cycle, but believes that commercial property values will continue to increase. • Donaldson, by relying on the representativeness heuristic, has become overly optimistic about a past winner.
	Overconfidence	
	Representativeness	
	Regret avoidance	
	Self-control	

Cognitive Errors: Information Processing

- **Describing how information may be processed and used illogically or irrationally in financial decision making.**
  - **Anchoring and adjustment**. the use of a psychological heuristic influences the way people estimate probabilities. When required to estimate a value with unknown magnitude, people generally begin by envisioning some initial default number an "anchor" which they then adjust up or down to reflect subsequent information and analysis;
  - **Mental accounting bias**. people treat one sum of money differently from another equal-sized sum based on which mental account the money is assigned to;
  - **Framing bias**. a person answers a question differently based on the way in which it is asked (framed);
  - **Availability bias**. people take a heuristic (sometimes called a rule of thumb or a mental shortcut) approach to estimating the probability of an outcome based on how easily the outcome comes to mind.

Emotional Biases 1

- **Emotional biases are harder to correct** for than cognitive errors because they originate from impulse or intuition rather than conscious calculations. In the case of emotional biases, it may only be possible to recognize the bias and adapt to it rather than correct for it.
  - **Loss aversion bias**. people tend to strongly prefer avoiding losses as opposed to achieving gains. A number of studies suggest that, psychologically, **losses are significantly more powerful than gains**;
  - **Overconfidence bias**. people demonstrate unwarranted faith in their own intuitive reasoning, judgments, and/or cognitive abilities. This overconfidence may be the result of overestimating knowledge levels, abilities, and access to information.
    - ✓ **Prediction overconfidence** leads to underestimating risk and setting confidence intervals too narrow. **Certainty overconfidence** relates to over-stated probabilities of success;
    - ✓ **Self-attribution bias**, the combination of **self-enhancing bias** and **self-protecting bias**, contributes to overconfidence. By **self-enhancing**, individuals take all the credit for their successes. By **self-protecting**, they place the blame for failure on someone or something else.

Emotional Biases 2

- **Self-control bias.** people fail to act in pursuit of their long-term, overarching goals because of a lack of self-discipline. There is an inherent conflict between short-term satisfaction and achievement of some long-term goals.
- **Status quo bias.** an emotional bias in which people do nothing (i.e., maintain the "status quo") instead of making a change. People art generally more comfortable keeping things the same than with change and thus do not necessarily look for opportunities where change is beneficial.
- Endowment bias. people value an asset more when they hold rights to it than when they do not. Endowment bias is inconsistent with standard economic theory, which asserts that the price a person is willing to pay-for a good should equal the price at which that person would be willing to sell the same good.
- **Regret-aversion bias** occurs when market participants do nothing out of excess fear that actions could be wrong. Simply put, people try to avoid the pain of regret associated with bad decisions.

Example: 2015 Question 11-A

- Pablo Rodriquez is an advisor at a brokerage firm with retail clients who are active traders. He acquires four clients from Carla Chee, an advisor who is retiring from the firm. Over the years, Chee regularly surveyed her clients to detect any behavioral biases in their investment decision-making processes. She determined that her clients routinely exhibited the biases summarized in Exhibit 1.

Exhibit 1
Chee Clients: Behavioral Biases

Client	Bias
Client 1	Regret-aversion
Client 2	Loss-aversion
Client 3	Mental accounting
Client 4	Framing

Rodriquez believes that clients act primarily on the basis of their biases. He meets with the clients to evaluate Chee's assessments of their biases.

Example: 2015 Question 11-A

➢ **Client 1 and Client 2:**

Rodriquez asks Client 1 and Client 2 to consider two equities, Uno Inc. and Deux Co., which each had purchased for their respective portfolios. The purchase price and current price are shown in Exhibit 2. Neither equity pays dividends.

Exhibit 2
Selected Equity Holdings
(in USD)

Equity	Purchase Price	Current Price
Uno Inc.	55	66
Deux Co.	60	48

ANSWER QUESTION 11-A IN THE TEMPLATE PROVIDED ON PAGE 71.

A. **Determine**, assuming Chee's bias assessments are correct, which action (buy additional shares, take no action, sell) each client will most likely choose for each of the following equities:

I. Uno Inc.
II. Deux Co.

Justify each response.

Note: Consider each client (Client 1 and Client 2) and each equity independently.

(12 minutes)

Example: 2015 Question 11-A

Client (Bias)	Equity	Determine, assuming Chee is correct, which action each client will most likely choose for each of the following equities. (circle one)	Justify each response.
Client 1 (Regret-aversion)	Uno Inc.	buy additional shares take no action sell	■ An investor with a regret-aversion bias tends to avoid making a decision out of fear that the decision will turn out poorly. Client 1 would likely take no action, in order to avoid the regret that would come from missing further price appreciation in Uno.
	Deux Co.	buy additional shares take no action sell	■ An investor with a regret-aversion bias wants to avoid the pain of regret resulting from a poor investment decision. Client 1 would likely take no action in order to avoid the regret that would come from missing a possible recovery in the price of Deux.

Example: 2015 Question 11-A

Client 2 (Loss-aversion)	Uno Inc.	buy additional shares take no action sell	■ An investor with a loss-aversion bias tends to suffer from the disposition effect, which is the tendency to realize gains early and delay recognizing losses. The investor feels the impact of a loss much more strongly than the impact of a similar gain. The investor may also sell the strong performer to avoid any further perceived risk, regardless of potential future price appreciation. Client 2 is likely to sell Uno to recognize the 20% gain.

Example: 2015 Question 11-A

Client 2 (Loss-aversion)	Deux Co.	buy additional shares take no action sell	■ An investor with a loss-aversion bias tends to suffer from the disposition effect, which is the tendency to realize gains early and delay recognizing losses. The investor often holds investments in a loss position in the hope that they will return to break even, despite the potential risk of even further price declines. Client 2 would likely take no action and hope to recover the 20% loss in Deux.

3. Behaviorally Modified Asset Allocation

Suggested Deviation From A Rational Portfolio

	Cognitive bias	Emotional Bias
High wealth/ low SLR	• Modest changes • +/— 5 to 10% maximum per asset class	• Larger changes • +/— 10 to 15% maximum per asset class
Low wealth/ high SLR	• close to the rational asset allocation • +/— 0 to 3% maximum per asset class	• Modest changes • +/— 5 to 10% maximum per asset class

*SLR – standard of living risk

Example: 2018

2018--Guideline Answer: Template for Question 4-C		
➢ Sara has a high standard of living risk. And her questionnaire indicates that her potential behavioral bias is representativeness. ➢ Beech provides John with a mean-variance optimized portfolio. Based on John's standard of living risk and his potential behavioral bias, Beech also produces a behaviorally modified portfolio. The asset class weights of the modified portfolio differ from those of the optimized portfolio by +/− 10%. Beech then repeats the process for Sara, preparing both a mean-variance optimized portfolio and a behaviorally modified portfolio.		
Determine the most likely amount by which the asset class weights of Sara's two portfolios will differ. (circle one)		
less than +/− 10%	equal to +/− 10%	greater than +/− 10%
Justify your response.		

Example: 2018

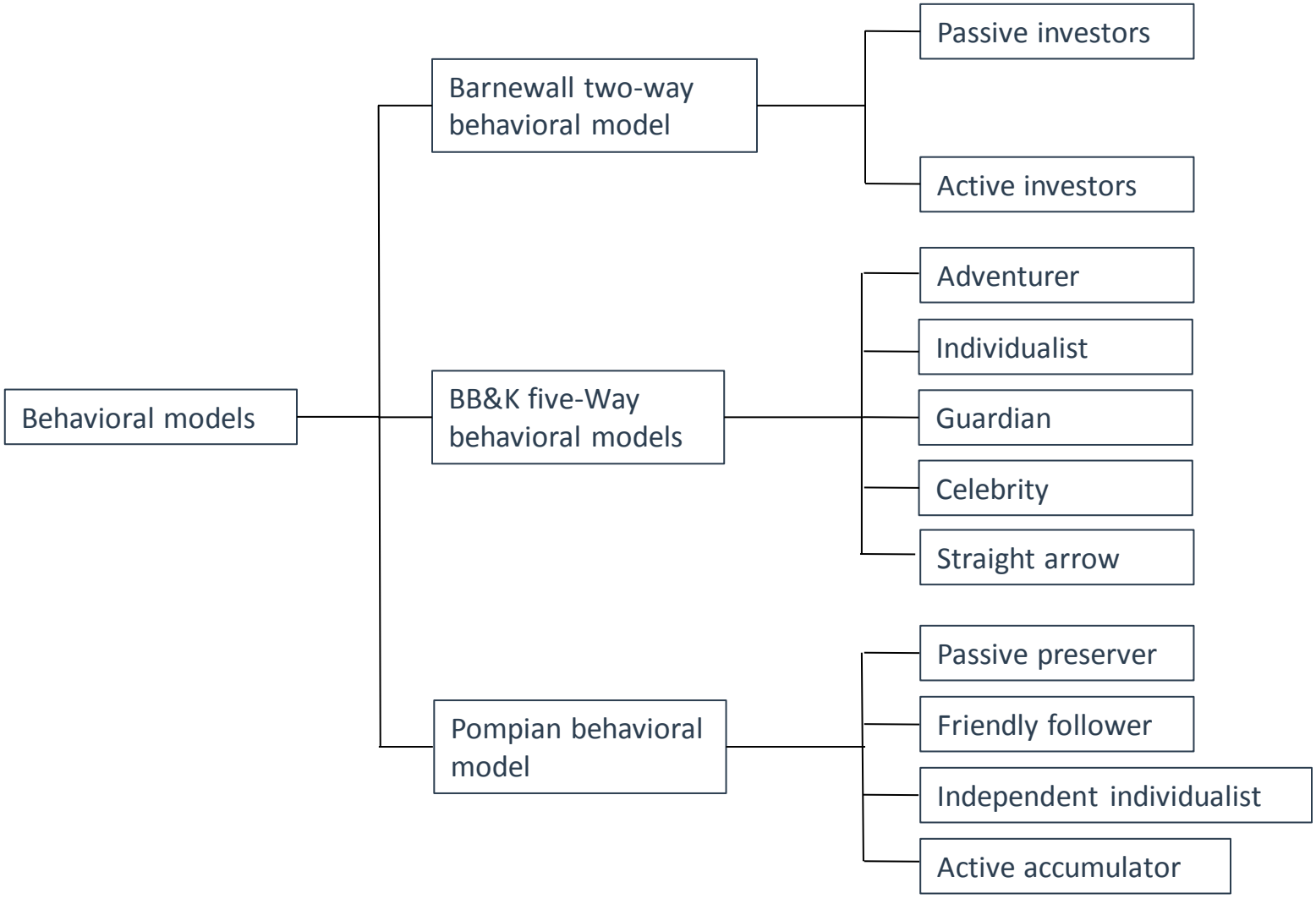
2018--Guideline Answer:
Template for Question 4-C

- The decision to moderate or adapt to a client's behavioral biases depends on two factors: the standard of living risk / level of wealth (high or low) and the type of bias (emotional or cognitive).

- Sara, with a high standard of living risk, is at risk of failing to achieve her goals, so her behaviorally modified portfolio should be closer to a mean-variance optimized portfolio. In addition, because her bias is cognitive (representativeness), better information can help to correct it (i.e., moderating the bias is more likely to be successful). As such, with the appropriate education, Sara should be able to adjust her behavior and tolerate a portfolio that more closely matches a rational (mean-variance optimized) allocation. This would lead Sara to have a portfolio with less than a + / − 10% difference in her asset class weights to the rational allocation.

4. Investors' Behavioral Models

Behavioral Models



Pompian Behavioral Model

General type	Passive		Active	
Risk tolerance	Low		High	
Investment style	Conservative	Moderate	Growth	Aggressive
Bias types	Emotional	Cognitive	Cognitive	Emotional
BITs	**Passive Preserver (PP)**	**Friendly Follower (FF)**	**Independent Individualist (II)**	**Active Accumulator (AA)**
Emotional bias	Endowment Loss aversion Status quo Regret aversion	Regret aversion	Overconfidence and self-attribution	Overconfidence Self-control
Cognitive bias	Mental accounting Anchoring and adjustment	Availability Hindsight Framing	Conservatism Availability Confirmation Representativeness	Illusion of control