CHARTA LEARNING · LESSON NOTES

Behavioural biases of individuals

CFA Level I · Portfolio Management

You will learn: How to name the common investor biases, sort them into cognitive errors and emotional biases and respond to each, explain loss aversion and the disposition effect with numbers, and describe how herding links to momentum and other anomalies.

Running example: Examples use made-up investors, mainly Priya, a real person who feels it when her savings fall, set against the textbook rational investor. All numbers are made up.

1. Biases and overconfidence

- The rational (textbook) investor weighs every fact fairly and is never rattled. Behavioural finance studies how real people actually decide. A bias is a steady, predictable lean in one direction, not random bad luck.
- Overconfidence is believing you know more, or can predict better, than you really can. It leads to trading too often (every trade costs money) and to too little diversification (too much in one idea).
- It is classified as an emotional bias: it comes from ego, so facts alone rarely cure it.

QUINN HOLDS, BEA TRADES (BOTH EARN 7% BEFORE COSTS, START 100,000; BEA TURNOVER 150%, COST 0.4% OF AMOUNT TRADED)

Amount traded	150% × 100,000	**150,000**
Yearly cost	150,000 × 0.4%	**600 (0.6% of portfolio)**
Bea's return after costs	7% − 0.6%	**6.4%**
Quinn after 20 years	$100{,}000 \times 1.07^{20}$	**386,968**
Bea after 20 years	$100{,}000 \times 1.064^{20}$	**345,806**
Gap	386,968 − 345,806	**41,162**

2. Anchoring, confirmation and other biases

- Anchoring is clinging to a number that has nothing to do with the question, such as the price you paid or a past high. Confirmation bias is hunting for facts that agree with what you already believe and skipping those that do not.
- Both leave a view that was never properly tested.
- A fall of L needs a rise of L ÷ (1 − L) to get back, because the rise is measured on a smaller base: a 20% fall needs a 25% rise, a 50% fall needs 100%.
- The market does not know what you paid; ask whether you would buy the share today.
- Conservatism: updating beliefs too slowly. Representativeness: judging by resemblance. Availability: judging by what comes to mind easily. Endowment: valuing what you own above what it is worth. Status quo: sticking with what you have to avoid the effort of change.

> **Gain needed = Fall ÷ (1 − Fall)**

PRIYA BOUGHT A SHARE AT 80, NOW 56, AND WILL SELL ONLY AT 80

Fall in price	(80 − 56) ÷ 80	**30%**
Gain needed	0.30 ÷ (1 − 0.30)	**42.9%**
Check	56 × 1.4286	**80**

3. Cognitive errors versus emotional biases

- Cognitive errors come from faulty reasoning or incomplete information. Correct them with facts, checklists and discipline. Conservatism and confirmation (holding on to a belief) and anchoring and framing (processing information) are cognitive.
- Emotional biases come from feeling and impulse, not reasoning. Accommodate them, because argument rarely works and often digs them in deeper. Overconfidence, loss aversion, regret aversion and status quo are emotional.
- For an emotional bias use a plan the client can follow and a rule agreed in advance when nothing is at stake. A plan the client sticks to beats a perfect plan abandoned in the first big fall. Knowing the list does not remove a bias; a written rule does.
- Fact-based cures work further left on the spectrum, a good plan works further right.

TWO CLIENTS, SAME ADVICE (REDUCE THE POSITION)

Client 1: employer shares, 40% of everything, 'I know them'	faulty reasoning (familiarity and confirmation)	**cognitive: show concentration data**
Client 2: will not sell a loser, 'I would be admitting I was wrong'	regret aversion	**emotional: pre-agreed rule to review and cut at a set point**

Watch out: Mixing up the families (overconfidence and loss aversion are emotional); piling facts onto an emotional bias; letting the price paid decide what to do next.

4. Loss aversion and the disposition effect

- Loss aversion: a loss hurts roughly twice as much as an equal gain pleases. It comes from prospect theory, in which people judge changes from a reference point (usually what they paid), not final wealth. It is not the same as risk aversion, which is a general dislike of uncertainty.
- In the felt-value formula, lambda (λ) is the loss aversion factor, about 2. With λ = 1 you compare the plain average win and loss. A bigger λ makes you refuse more fair bets.
- The disposition effect is selling winners too soon and holding losers too long, because selling a winner makes a gain real and selling a loser makes a loss final. The holding period follows what a share has done, not its prospects.
- In a taxable account with gains to offset it can be exactly backwards.

> **Felt value = p × Prize − (1 − p) × λ × Stake**

WIN 150 OR LOSE 100, FAIR COIN, Λ = 2; THEN TAX AT 20%

Plain average	0.5 × 150 − 0.5 × 100	**+25**
Felt value	0.5 × 150 − 0.5 × 2 × 100 = 75 − 100	**−25: refuses**
Break-even prize	0.5 × prize = 100	**200 (twice the stake = λ)**
Sell winner A (gain 10,000): tax	20% × 10,000	**−2,000**
Sell loser B (loss 10,000): relief	20% × 10,000	**+2,000**
Swing	2,000 − (−2,000)	**4,000**

Watch out: Treating the disposition effect as a sound tax or profit strategy.

5. Herding and market anomalies

- Herding is following what other investors do instead of doing your own analysis. For a manager it can be rational: wrong with everyone is survivable, wrong alone can end a career. That protects the manager, not always the client, and it can be harmful in total.
- Chain: wrong alone is fatal, so follow the crowd, so prices move on flows rather than facts, so momentum, bubbles and crashes follow. An information cascade is later traders copying early ones and ignoring their own information.
- Momentum: recent winners keep winning for a while. Post-earnings announcement drift: price jumps part of the way on news then keeps drifting to fair value (underreaction, then the herd).
- Also named: the January effect (small shares do well in early January, often linked to tax selling in December), the turn of the month effect, the size effect and the value effect.
- An anomaly is evidence to examine, not a free lunch: many vanish after trading costs, some come from data mining or an incomplete risk model, and the rival explanation is pay for a risk not yet named. Herding is consistent with anomalies, not proof of them.

MANAGER DEV AVOIDS A SECTOR (40% OF INDEX) THAT RETURNS 30% A YEAR FOR TWO YEARS; REST OF MARKET 8%

Index yearly return	$0.4 \times 30\% + 0.6 \times 8\%$	**16.8% (Dev 8.0%)**
After 2 years: index / Dev	$1.168^2 - 1$; $1.08^2 - 1$	**+36.4% / +16.6%**
Index in year 3 (sector −40%)	$0.4 \times (-40\%) + 0.6 \times 8\%$	**−11.2% (Dev +8%)**
After 3 years: index / Dev		**1.211 versus 1.260, Dev ahead**

Key takeaways

- Overconfidence trades too much and diversifies too little; costs compound into a large gap.
- Anchoring and confirmation are cognitive errors: correct them with information and discipline.
- Loss aversion and regret aversion are emotional: build a plan around them, do not argue.
- Gain needed to recover = fall ÷ (1 − fall); a 50% fall needs a 100% rise.
- Felt value = $p \times$ prize $- (1 - p) \times \lambda \times$ stake, with λ about 2; the disposition effect sells winners too early.
- Herding moves prices on flows; momentum and drift fit it, but an anomaly alone does not prove a bias.

Quick check

1. A share falls 50%. What gain gets it back to the old price?
   Answer: 0.5 ÷ 0.5 = 100%, a doubling
2. Anchoring on cost: cognitive error or emotional bias?
   Answer: Cognitive: correct with data
3. Win 120 or lose 100, fair coin, $\lambda = 2$. Accept?
   Answer: 60 − 100 = −40: refuses