Week 5:
Overconfidence and Emotional Foundations

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Outline

Overconfidence

Overconfidence: Readings and Topics

Required readings:

- Ackert & Deaves, Chapters 6, 7, and 9 (main)
- Kahneman, D. (2011). *Thinking Fast and Slow*, Part III

Topics covered:

1. Overconfidence: definition and three types
2. Emotional foundations: why overconfidence persists
3. Financial applications: investors and managers

Overconfidence Takes Three Distinct Forms

Confidence is having a positive feeling about your skills and knowledge; overconfidence is having an inflated sense of one's abilities.

> *"Perhaps the most robust finding in the psychology of judgement is that people are overconfident" (DeBondt and Thaler, 1995, p. 389).*

Three manifestations:

Overprecision

Excessive certainty regarding the accuracy of one's beliefs

Overestimation

Overestimation of one's actual performance or abilities

Overplacement

Overestimation of one's performance *relative to others*

We Think Our Knowledge Is More Precise Than It Is

Overprecision

Excessive certainty regarding the accuracy of one's beliefs—thinking your knowledge is more precise than it really is.

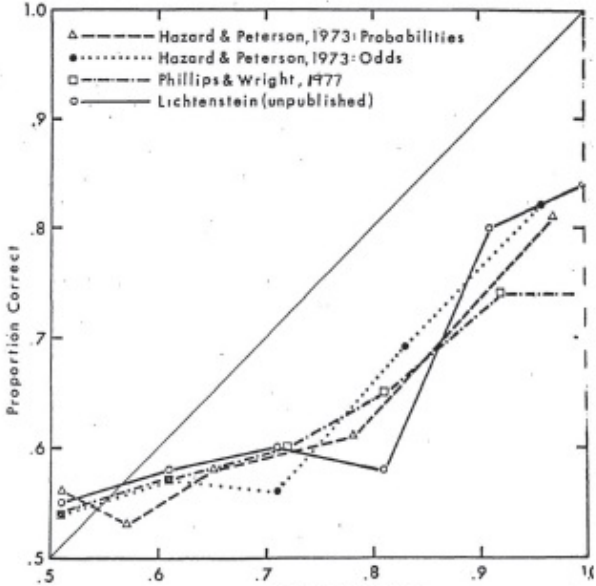
Measured through calibration tests:

- Ask people 50 multiple-choice questions, then ask how many they got right
- If you think you got 25 right but only got 15, you are overprecise

Or use the confidence interval approach:

- "What is the length of the river Nile? Give upper and lower bounds such that the true value falls within your range with 90% confidence."
- Typical hit rate for 90% confidence intervals: only about 50%

90% Confidence Intervals Contain the Truth Only 50% of the Time



Our Predictions About the Future Are Unrealistically Favourable

Excessive Optimism

People's predictions about the future are unrealistically favourable.

Evidence

- Students expect to receive higher marks than they actually do
- They overestimate the number of job offers they will receive
- People think they can accomplish more than they end up accomplishing

Costs of Excessive Optimism

- Inability to meet one's goals can lead to disappointment and loss of self-esteem
- Time and money can be wasted pursuing unrealistic goals

We Forecast Best-Case Scenarios and Call Them Plans

Planning Fallacy

We make forecasts that are unrealistically close to best-case scenarios (inside view) and could be improved by consulting the statistics of similar cases (outside view).

Scottish Parliament building:

- 1997 estimate: £40 million
- 1999 revised budget: £109 million
- 2002 revised estimate: £295 million
- Completed in 2004 at a final cost of £431 million

American homeowners remodelling their kitchens:

- Expected cost: $18,658
- Actual average cost: $38,769

We View Our Own Odds as Better Than Everyone Else's

Optimism Bias

Most of us view the world as more benign than it really is, and our goals as more achievable than they really are.

Survey of American entrepreneurs:

- "Estimate the chances of success for any business like yours": average estimate 60%
- "What are *your* chances of success?": 81% put their odds at 7 out of 10 or higher, and 33% said their chance of failing was zero
- Actual probability of a small business surviving 5 years: 35%

Most People Think They're Better Than Most People

Better-than-Average Effect

People are overoptimistic about their own abilities while being relatively realistic about others.

Out of one million students taking the SAT (1976):

- 70% rated themselves above average in leadership abilities
- 60% rated themselves above average in athletic ability
- 85% rated themselves above average in ability to get along with others

When asked about driving skills:

- 90% believe they are better than average

Evidence suggests people pick a definition of the task that suits their purpose—they answer "Am I a good driver?" rather than "Am I better than the median driver?"

These Three Types Are Not the Same Bias

You might expect an overconfident person to show all three. They don't.

Hard tasks (e.g. trivia)

- People overestimate their own score...
- ...but underplace: "everyone else probably did well too"

Easy tasks (e.g. driving)

- People underestimate their own score...
- ...but overplace: "I'm still better than you"

The correlation between overestimation and overplacement is actually negative ($r = -.64$). They pull in opposite directions depending on task difficulty.

So which type should worry us most? Overprecision—the one you can't feel. It persists across *all* conditions, and it's the hardest to learn away.

Source: Moore and Healy (2008), *Psychological Review*.

Emotional Foundations

Why Does Overconfidence Persist?

If overconfidence leads to suboptimal decisions, why don't people learn from their mistakes?

Three broad mechanisms:

1. Learning is difficult: feedback is often infrequent, delayed, or ambiguous—people are overconfident about hard problems and even underconfident about easy ones
2. Biases reinforce each other: hindsight bias, self-attribution, and cognitive dissonance all protect overconfident beliefs
3. Overconfidence is useful: it can be an effective rule of thumb in bargaining, fostering innovation, and motivating persistence—then spills over into contexts where it is harmful

We Build Confident Stories from Incomplete Evidence

System 1 excels at jumping to conclusions:

- When we observe some facts, we construct the best story that explains them
- We do not realise that other interpretations are possible
- "What You See Is All There Is": if we have not thought about it, it does not exist

→ We are more confident in our judgement than the evidence warrants.

Example: Google's success—skill or luck?

Naïve Realism

We are not aware that our view is subjective. If someone disagrees with us, we assume they must be wrong.

We Cannot Imagine Scenarios We Haven't Thought Of

When we make predictions, we think of some possible scenarios—but we do not allow for scenarios we have not thought about.

Black Swan Event (Nassim Taleb)

An event that deviates beyond what is normally expected, and that would be extremely difficult to predict.

Three characteristics:

Outlier

It lies outside the realm of expectations; nothing in the past points to its existence

Extreme impact

When it happens, the consequences are enormous

Retrospective predictability

After the fact, the human mind constructs explanations that make it seem predictable

We Reason Our Way to Conclusions We Already Favour

Our beliefs can be shaped by our motivations: people reason their way to conclusions they favour, by adjusting how

- evidence is gathered
- arguments are processed
- memories of past experiences are recalled

This is not without limits—we are constrained by the ability to construct *reasonable* justifications.

Two key motivations:

Preference for belief consonance

We actively resolve tension between contradictory beliefs (cognitive dissonance)

Self-serving bias

We take personal credit for success while blaming external factors for failure

Contradictory Beliefs Create Tension—So We Eliminate the Contradiction

Cognitive Dissonance (Festinger, 1957)

We experience tension whenever we hold two contradictory beliefs, and we actively work to resolve this tension.

Experiment by Festinger and Carlsmith (1959):

- Students completed a boring task
- They were then offered either $1 or $20 to tell the next participant the task was fun
- Those paid only $1 later recalled the task as genuinely enjoyable
- Those paid $20 had sufficient justification and felt no dissonance

Other examples:

- Voters leaving the polling place speak more positively about their chosen candidate than before voting
- A smoker might convince themselves that the negative health effects have been overstated

We Take Credit for Wins and Blame Losses on Bad Luck

Self-Serving Bias

We take personal credit for success while blaming external factors for failure.

- Investors who experience high returns attribute this to their skill and become more overconfident
- Investors who experience low returns attribute it to bad luck—rather than experiencing an offsetting fall in confidence

→ Self-serving bias allows people to protect their self-esteem, but it can lead to persistent overoptimism.

→ This asymmetric updating means overconfidence is hard to “learn away.”

Overconfidence Thrives Where Feedback Is Scarce and Stories Are Easy

Some intuitive judgements are surprisingly accurate:

- Firefighters who leave a building just before it collapses
- Art experts who identify fakes without being able to explain how
- Experienced chess players who intuitively find strong moves

Conditions for skilled judgement

- An environment that is sufficiently regular to be predictable
- An opportunity to learn these regularities through prolonged practice

Overconfidence is likely when

- The environment is unpredictable
- It is hard to learn regularities
- But it is easy to construct good stories

→ Financial markets tick all three boxes for overconfidence.

Overconfidence Is Costly for Individuals but May Benefit Society

Costs

- Suboptimal decisions—bearing more risk than planned
- Canadian Inventor's Assistance Program: careful ratings on 37 criteria predicted failure accurately (only 5 of 411 predicted failures reached commercialisation)
- Yet 47% of inventors continued after being told their project was hopeless

Benefits

- Optimistic people are more cheerful, popular, and resilient
- They take better care of their health
- Optimism encourages persistence in the face of obstacles
- Overconfident risk-taking contributes to economic dynamism—most major discoveries and business successes would never be attempted if people correctly estimated the odds

We Make Financial Decisions to Avoid Future Emotions—Not Just Future Losses

Emotions are not noise in financial decision-making. They are inputs.

Anticipated regret

Investors hold losing stocks too long and sell winners too early—not because of a calculation, but because realising a loss *feels* worse than the paper loss itself. This helps explain the disposition effect.

Fear of missing out

Fund managers herd into the same stocks not because they all reach the same conclusion, but because being wrong *alone* is more painful than being wrong together.

Physiological evidence confirms the link: when researchers monitored professional traders during live trading, cardiovascular data correlated significantly with market events. The body responds before the mind catches up.

Sunshine, World Cup Wins, and Spotify Charts All Move Stock Prices

An emotion is about something specific; a mood is a diffuse feeling with no particular target. Both affect financial decisions—but moods are more insidious because people misattribute them.

Weather

Hirshleifer and Shumway (2003): stock returns are significantly higher on sunny days across 26 countries. Sunshine improves mood, which spills into risk assessment.

Sports

Edmans, García, and Norli (2007): after a national football team's World Cup elimination, the domestic stock market falls significantly the next trading day.

Music

Spotify chart positivity correlates with contemporaneous stock returns—aggregate mood leaves fingerprints in asset prices.

→ Incidental affect—mood from an unrelated source—distorts the risk judgements of millions of investors simultaneously.

Emotional Traders Perform Worst—But Emotionless Traders Cannot Decide

Too much emotion

- A study of 80 day traders tracked daily emotional states alongside profits and losses
- Those whose emotional reactions to gains and losses were most intense had the worst trading performance
- Excessive emotional turbulence leads to impulsive, reactive decisions

Too little emotion

- Patients with damage to emotional brain regions *cannot make decisions at all*—they deliberate endlessly (Damasio, 1994)
- Positive feelings improve creativity, problem solving, and negotiation
- Emotion pushes us to act when a decision must be made

→ The goal is not to eliminate emotion from financial decisions—it is to achieve emotional balance. This is the case for emotional intelligence.

Financial Applications

Financial Markets Are Ideal Breeding Grounds for Overconfidence

There is strong and robust evidence of overconfidence among financial agents.

Financial decisions are ideal grounds for overconfidence:

- Complex decisions where overconfidence is most pronounced
- Idiosyncratic decisions that reduce the potential for debiasing through learning

Overconfidence is relatively easy to integrate into financial models:

Optimism

Overestimating expected earnings—modelled as an overestimate of the mean

Overconfidence

Underestimating the riskiness of expected earnings—modelled as an underestimate of the variance

What Happens When Every Trader Thinks They're Above Average?

The No-Trade Theorem says rational traders shouldn't speculate—so where does all the volume come from?

Odean (1998): let traders overestimate the precision of their own information.

- Volume explodes—they trade on noise they mistake for signal
- Prices become more volatile—pushed away from fundamentals by confident mistakes
- And the cruel irony: these traders would be richer if they did nothing. Even passive, uninformed investors outperform them

→ The more you think you know, the more you trade. The more you trade, the poorer you get.

Source: Odean (1998), *Journal of Finance*.

One Bias, Two Anomalies: Momentum *and* Reversal

Momentum (winners keep winning) and reversal (past winners eventually lose) look contradictory. How can one market produce both?

Daniel, Hirshleifer, and Subrahmanyam (1998) show it takes just one asymmetry:

- You are overconfident about your own research—but not about public news

Short run

Private signals overweighted → overreaction. Self-attribution ("I was right!") keeps confidence high → momentum

Long run

Public information slowly corrects the overreaction → reversal

→ Momentum isn't slow reaction to news—it's *continuing* overreaction, fuelled by the same bias that eventually causes reversal.

Source: Daniel, Hirshleifer, and Subrahmanyam (1998), *Journal of Finance*.

Rational Models Cannot Explain Why People Trade So Much

In rational asset-pricing models, people trade for liquidity or portfolio rebalancing.

No-Trade Theorem (Milgrom and Stokey, 1982)

Rational traders with different information about an asset's payoff will not agree to trade with each other—trading is a zero-sum game.

However, it is hard to reconcile these motivations with the large trading volume we see in financial markets:

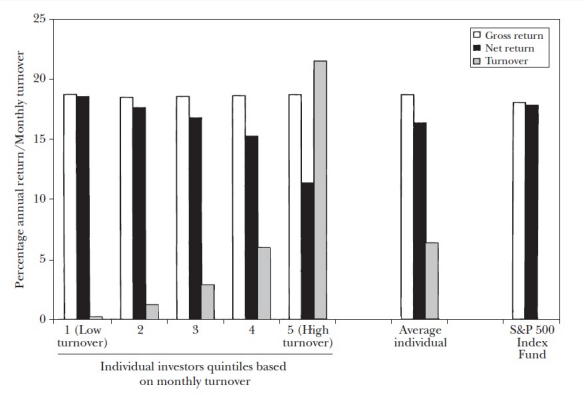
→ Active investing puzzle: most active investors underperform

→ People agree to disagree, each believing they are correct

The Most Active Traders Have the Worst Returns

Barber and Odean (2000): “Trading Is Hazardous to Your Wealth”

- Examined trading behaviour of 78,000 households (1991–1996)
- The most active traders have the poorest results—annual returns lower by 7%



Source: Barber and Odean (2000).

Men Trade 45% More Than Women—and Earn Nearly 1% Less

If overconfidence drives overtrading, who trades most? The psychology literature is clear: men are more overconfident than women in financial tasks. Barber and Odean (2001) test the prediction.

How much do they trade?

- Men: 77% annual turnover
- Women: 53% annual turnover
- Single men vs. single women: the gap widens further

What does it cost them?

- Men reduce returns by 2.65 pp/yr
- Women reduce returns by 1.72 pp/yr
- Net cost of male overconfidence: 0.94 pp/yr

Here is the twist: men don't pick worse stocks. Both genders' selections perform equally. The entire gap comes from transaction costs on unnecessary trades.

→ Overconfidence doesn't make you dumber—it makes you busier. And busy is expensive.

Source: Barber and Odean (2001), *Quarterly Journal of Economics*.

Overconfidence Makes Traders Agree to Disagree—at Their Own Expense

Excessive trading can be explained by overconfidence and disagreement:

- People trade because they agree to disagree, with each individual believing they are correct
- They put too much weight on their own views and insufficient weight on others'

Trading induced by overconfidence is costly because traders make suboptimal decisions:

- Miscalibration or the better-than-average effect leads to poor stock selection and excessive market participation
- There is a strong link between self-assessed competence and propensity to trade

→ Overconfidence is one of the most important sources of disagreement in financial markets.

The Overconfident Are Over-Represented in Upper Management

Even if there is no overconfidence *on average* in the population, those who are overconfident are more likely to perform extremely well (and extremely badly).

→ This places them disproportionately in the ranks of upper management.

And even if a manager starts without bias, self-attribution bias may lead successful managers to become overconfident over time (Gervais and Odean, 2001).

Heaton (2002)

Optimistic managers overestimate the probability of good future performance, leading to:

- Pecking-order behaviour: reluctance to issue equity
- High correlation between investment and cash flow

When CEOs Bet Their Own Money on Overconfidence, Shareholders Pay

How do you *measure* a CEO's overconfidence? Watch what they do with their own stock options. A rational CEO exercises deep-in-the-money options to diversify. An overconfident CEO holds on, thinking: "my stock is going even higher."

Malmendier and Tate (2005) identify CEOs who hold options >67% in-the-money past the vesting date—and track what happens to corporate investment.

- These CEOs show dramatically higher investment–cash flow sensitivity ($+0.18$, $t = 5.51$): when cash is abundant, they pour it into projects
- The effect is strongest where it hurts most—in financially constrained firms, where the alternative is costly external finance
- It's not inside information: these CEOs' personal option bets don't beat the S&P 500

→ This is a third channel—beyond agency and asymmetric information—the CEO genuinely believes their projects are worth more than the market thinks.

Source: Malmendier and Tate (2005), *Journal of Finance*.

Overconfidence Cannot Be Observed Directly—But It Leaves Fingerprints

Managerial traits are not directly observable, and there is no universally accepted measure of overconfidence.

1. Revealed Beliefs

- Late option exercise: managers voluntarily hold in-the-money stock options in their own firm (Malmendier and Tate, 2005)
- Return distribution forecasts: CFOs' confidence intervals for stock-market returns (Ben-David, Graham, and Harvey, 2013)

2. Outside Perception

- Press portrayal: how the media characterises a CEO's confidence (Hirshleifer, Low, and Teoh, 2012)
- Narcissism: ratio of first-person singular to total first-person pronouns in CEO speeches (Aktas et al., 2010)

CFO Confidence Intervals Are Wrong 62% of the Time

Ben-David, Graham, and Harvey (2013): surveyed hundreds of CFOs (2001–2007).

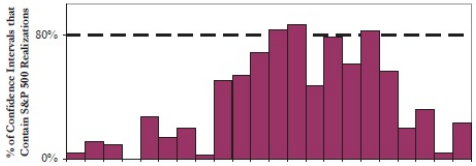
CFOs were asked to predict the expected return on the S&P 500 and the IRR of their own firm, along with 10th and 90th percentiles.

→ Realised market returns were within the 80% confidence intervals only 38% of the time.

Companies with overconfident CFOs:

- Use lower discount rates to value cash flows
- Invest more, use more debt, and are less likely to pay dividends

Figure 1. The percentage of CFOs for whom S&P 500 realized returns fall in the 80% confidence interval, by survey quarter



Overconfident CEOs Destroy Value in M&A but Drive Innovation

Mergers & Acquisitions

Malmendier and Tate (2008):

- Overconfident CEOs overpay for target companies and undertake value-destroying mergers
- Market reaction at merger announcement is significantly more negative for overconfident CEOs

Innovation

Hirshleifer, Low, and Teoh (2012):

- Firms with overconfident CEOs have greater return volatility and invest more in R&D
- They obtain more patents and patent citations
- They achieve greater innovative success for given R&D expenditure
- Results hold only in innovative industries

→ Overconfidence is costly in M&A but can be beneficial for innovation.

Overconfidence Distorts Investment, Dividends, and Capital Structure

Investment

Malmendier and Tate (2005): sensitivity of investment to cash flow is higher for more optimistic CEOs, especially in equity-dependent firms. Ben-David et al. (2013): both optimism and overconfidence are associated with higher investment.

Dividends

Managers who are optimistic about their firm's cash flows are less likely to pay dividends (Cordeiro, 2009), and the level of payout is lower (Deshmukh, Goel, and Howe, 2009). Optimistic managers prefer to invest cash in firm projects rather than pay it out.

Capital structure

Overconfident managers are reluctant to issue equity—they believe their stock is undervalued—leading to pecking-order behaviour and higher leverage.

Conclusions

Overconfidence Is the Bias That Protects Itself

1. We are overconfident in three distinct ways—and each one works differently depending on the task
2. The bias persists because self-serving attribution, cognitive dissonance, and motivated reasoning prevent us from learning it away
3. Emotions are not noise—they are inputs that shape financial decisions, from anticipated regret to incidental mood
4. In financial markets, overconfidence makes investors trade too much, managers invest too aggressively, and prices deviate from fundamentals

→ The question is not whether cognition and emotion distort financial decisions—it is whether we can channel them toward better ones.