

COURSE: INVESTMENTS | CHAPTER 9

BEHAVIORAL FINANCE AND TECHNICAL ANALYSIS

Chapter Purpose

This chapter examines why actual investor behavior may differ from the assumptions of traditional financial theory.

- Behavioral finance
- Investor psychology
- Cognitive biases
- Emotional biases
- Prospect theory

- Herding
- Market sentiment
- Bubbles and crashes
- Limits to arbitrage
- Technical analysis

- Trends
- Momentum
- Moving averages
- Support and resistance

Psychology



Behavior



Trading



Market prices

Learning Objectives

By the end of this chapter, students should be able to:

1. Explain behavioral finance.
2. Compare traditional and behavioral finance.
3. Explain limits to arbitrage.
4. Identify major cognitive biases.
5. Explain overconfidence.
6. Explain anchoring and confirmation bias.
7. Explain loss aversion.
8. Describe prospect theory.
9. Explain mental accounting.
10. Explain herd behavior.
11. Explain market sentiment.
12. Discuss bubbles and crashes.
13. Explain technical analysis.
14. Interpret trends and moving averages.
15. Explain support and resistance.
16. Relate behavioral finance to market efficiency.

Traditional Finance Assumption

Traditional finance commonly models investors as:

- Rational
- Consistent
- Information-processing

- Wealth-maximizing
- Risk-aware
- Capable of learning from mistakes

In simple terms: investors make logically consistent decisions.

But Are Real Investors Always Rational?

Real investors may:

Panic

Become greedy

Follow crowds

Ignore bad news

Hold losing investments

Sell winners too early

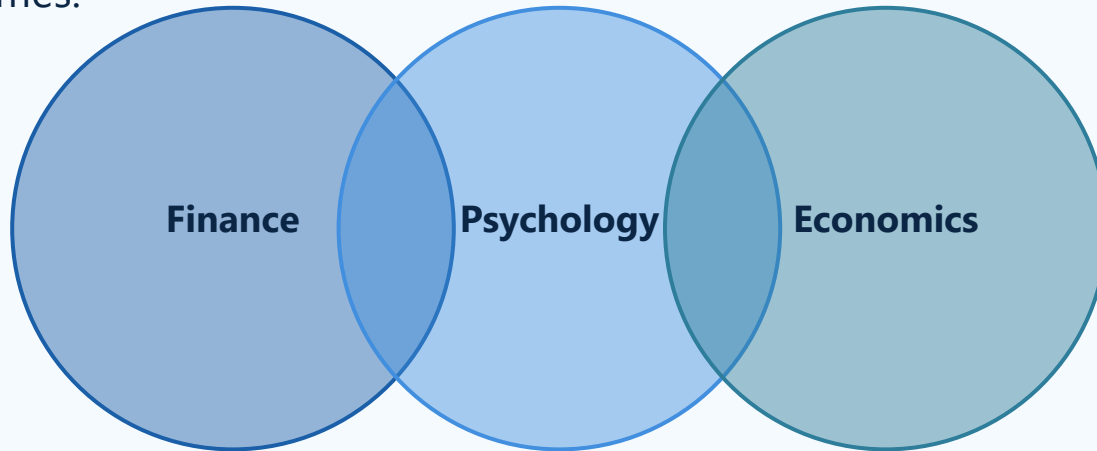
Trade too frequently

Become overconfident

Behavioral finance studies these departures from perfect rationality.

What Is Behavioral Finance?

Behavioral finance combines ideas from finance, psychology and economics to study how actual human behavior affects investment decisions, security prices and market outcomes.



Affects

- Investment decisions
- Security prices
- Market outcomes

Behavioral Finance

Imagine two investors receive exactly the same information.

Investor A

"I will analyze the evidence."

Investor B

"Everyone is buying — I don't want to miss out!"

Behavioral finance asks: why do investors react differently to the same information?

Traditional vs Behavioral Finance

Traditional Finance	Behavioral Finance
Rational investors	Bounded rationality
Consistent decisions	Biases influence decisions
Information processed objectively	Information may be interpreted selectively
Markets tend toward efficiency	Mispricing may persist
Risk-return focus	Risk + psychology + behavior

What Is Bounded Rationality?

Investors cannot process unlimited information. They face constraints such as:

- Limited time
- Limited knowledge
- Limited attention
- Complex financial products
- Uncertain information

Therefore

People often use mental shortcuts called HEURISTICS.

Heuristics = mental shortcuts that simplify complex decisions.

Are Heuristics Always Bad?

No

Mental shortcuts help us make decisions quickly.

But

They can sometimes create systematic errors.

“This company was successful last year, so it must be a good investment now.”

The conclusion may ignore valuation and changing conditions.

What Is Overconfidence?

Overconfidence occurs when investors overestimate:

Their knowledge

Their forecasting
ability

Their investment
skill

The precision of
their information

Confidence is useful. Overconfidence is expensive.

— Overconfidence

Suppose an investor earns 30% in one year. He concludes: "I am an excellent stock picker."

+30%

Investor return

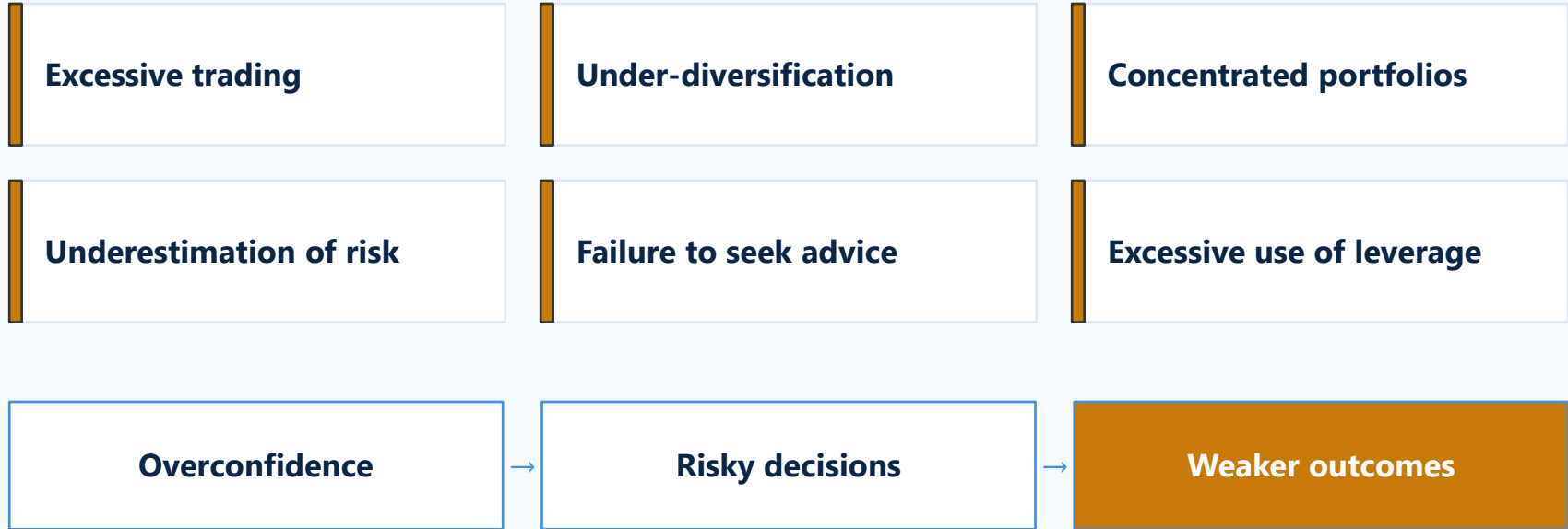
vs

+35%

Whole market return

Question: was it skill — or a rising market?

Consequences of Overconfidence



Overtrading

An overconfident investor may repeatedly buy and sell because:

"I know where the market is going next."

But more trading may create:

Commissions

Bid-ask costs

Taxes

Timing mistakes

Activity does not automatically equal performance.

What Is Representativeness Bias?

Representativeness occurs when investors assume recent or familiar patterns will continue because they appear representative of a larger trend.



A few observations are treated as if they describe the whole picture.

Representativeness Example

A company has grown earnings rapidly for three years. The investor concludes:

“This company will continue growing 30% every year.”

Possible problem — the investor may ignore:

Competition

Valuation

Market saturation

Economic change

Great Company vs Great Investment

Excellent company

Strong products, growth and management.

Extremely expensive shares

Price already reflects — or exceeds — those strengths.

A good company is not automatically a good investment at every price.

Conservatism Bias

Conservatism occurs when investors update their beliefs too slowly after receiving new information.

Example

A company experiences a major structural improvement.

Investor response

But investors continue valuing it using old assumptions.

New information



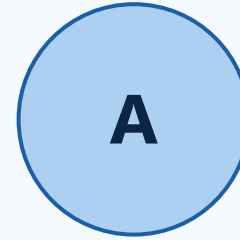
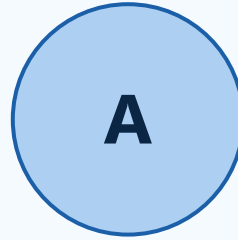
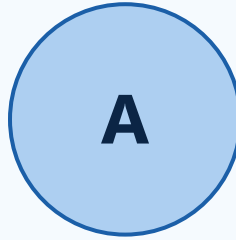
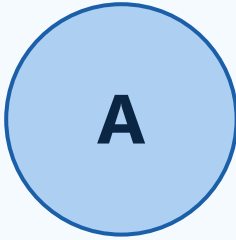
Slow belief adjustment



Delayed price reaction

— Conservatism

You believe a student is weak academically. Then the student earns:



But you continue saying: “Probably just luck.” — you are updating your belief too slowly.

The same behavior can occur in markets.

What Is Anchoring?

Anchoring occurs when investors rely too heavily on an initial number or reference point.

Common anchors:

Purchase
price

Previous high

Analyst
target

Historical
average

IPO price

The anchor feels meaningful — but it may say nothing about intrinsic value.

Anchoring Example

ETB 100

Your purchase price

ETB 60

Current price

"I will sell when it returns to
ETB 100."

Key question: why should ETB 100 still be the correct value?

Your purchase price may have no relevance to the company's current intrinsic value.

Confirmation Bias

Confirmation bias occurs when investors:

Seek

Information that supports existing beliefs.

Ignore

Information that contradicts them.

The investor reads only the news that already agrees with the decision.

Confirmation Bias Example

Investor believes: "Company X is an excellent investment."

The investor reads

- Positive earnings news
- Positive analyst opinion

But ignores

- Rising debt
- Falling cash flow
- New competition

Result: decision quality deteriorates.

How to Reduce Confirmation Bias

Before investing, deliberately ask: what evidence would prove my investment thesis wrong?

Seek opposing
views

Use checklists

Establish sell
criteria

Review negative
evidence

Bull evidence

Bear evidence

What Is Loss Aversion?

The psychological pain of losing may be greater than the pleasure of gaining the same amount.

Losing ETB 10,000

Feels strongly negative — often disproportionately so.

Gaining ETB 10,000

Feels good — but usually less intensely.

— Loss Aversion

Option A

You gain ETB 1,000. You feel happy.

Option B

You lose ETB 1,000. The loss feels much more painful.

The loss may feel far more painful than the gain felt enjoyable.

This asymmetry affects investment decisions.

What Is Prospect Theory?

Prospect theory explains how people make decisions involving uncertain gains and losses.

Investors often evaluate outcomes relative to a reference point rather than total wealth alone.

Below the reference point

Outcomes are felt as losses.

Above the reference point

Outcomes are felt as gains.

Prospect Theory Value Function

In gains

Investors may become relatively risk-averse.

In losses

Investors may become more willing to take risk to avoid realizing a loss.



S-shaped value function: steeper in losses, flatter in gains

Example — Risk in Losses

ETB 50,000

Loss already incurred

Instead of accepting the loss, the investor takes even more risk hoping to “get back to break-even.”

Loss



More risk taken



Larger loss possible

What Is the Disposition Effect?

Sell winners too early

Realizing gains feels good.

Hold losers too long

Realizing losses feels painful.

The decision is driven by emotion about the purchase price, not by fundamental value.

Disposition Effect — Example

Stock A

Purchased at ETB 100 · Now ETB 130

Investor sells quickly: “I don't want to lose my profit.”

Stock B

Purchased at ETB 100 · Now ETB 60

Investor holds: “It will come back.”

Neither decision necessarily reflects fundamental value.

What Is Mental Accounting?

Mental accounting occurs when investors treat money differently based on arbitrary categories.

Salary money

Bonus money

Investment
profits

Inheritance

Gambling
gains

Economically, ETB 1 is still ETB 1 — but psychologically people may treat it differently.

Mental Accounting Example

"This ETB 50,000 profit is house money, so I can take more risk."

Reality

The profit is now part of the investor's wealth like any other birr.

Key lesson

Evaluate portfolio risk as a whole.

What Is Herd Behavior?

Herd behavior occurs when investors follow other investors rather than relying primarily on independent analysis.

“Everyone is buying.”



“They must know something.”



“I should buy too.”

The risk

If the crowd is wrong, following it simply spreads the mistake — and can amplify price moves far beyond fundamentals.

— Herding

Imagine a restaurant. You see:

Restaurant A

Empty.

Restaurant B

Long queue.

Without checking the food, you assume Restaurant B must be better.

Financial markets can show similar behavior.

Why Investors Follow the Herd

Fear of missing out

Social pressure

Reputation concerns

Limited information

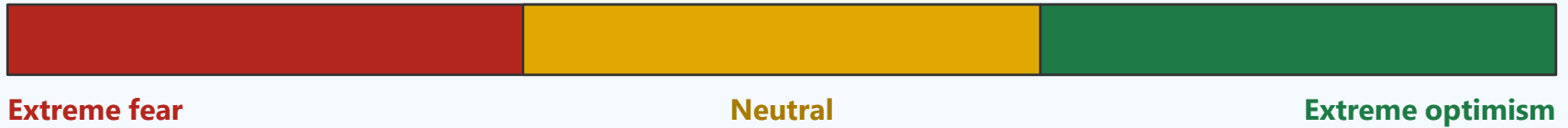
Belief others know more

Career risk for managers

Herding is often rational for the individual — and destabilizing for the market.

What Is Market Sentiment?

Market sentiment refers to the overall mood or attitude of investors.



Sentiment may affect:

Trading volume

Valuations

Demand for risky
assets

Short-term price
moves

Bull and Bear Sentiment

Bullish sentiment

Investors generally expect prices to rise.

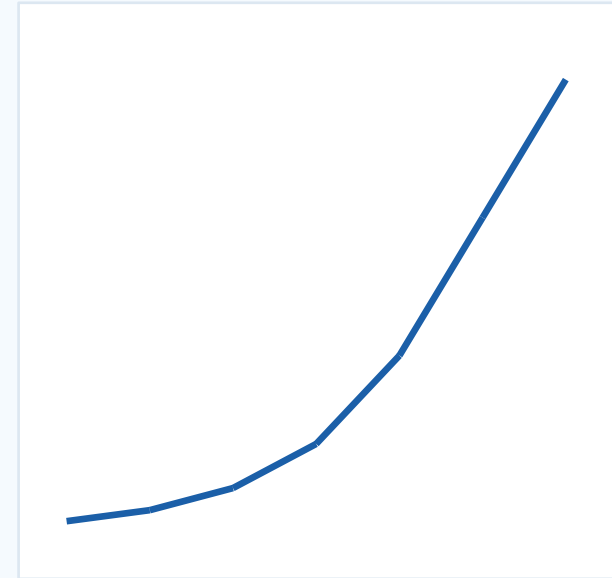
Bearish sentiment

Investors generally expect prices to fall.

Important: sentiment does not necessarily equal fundamental value.

What Is an Asset-Price Bubble?

A bubble occurs when asset prices rise substantially above levels justified by reasonable fundamental expectations, often supported by self-reinforcing optimism.



Self-reinforcing price rise

The Bubble Cycle

**1. Innovation /
opportunity**

2. Optimism

3. Rapid price increase

4. Euphoria

5. Extreme valuation

6. Trigger

7. Selling

8. Crash

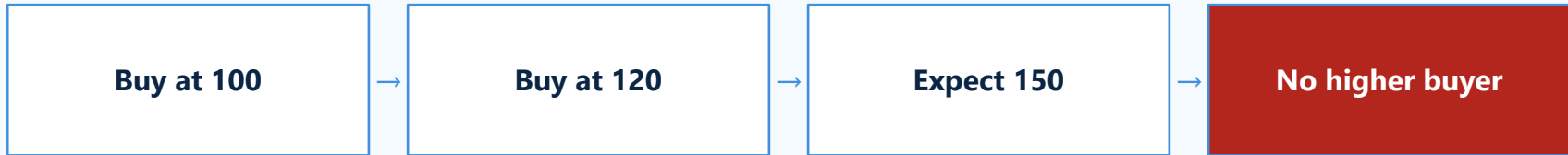


Typical bubble-and-crash price path

— Bubble

Someone buys an asset for ETB 100, not because they believe it is worth ETB 100, but because:

“Someone will probably pay ETB 120 tomorrow.”



Eventually no higher buyer appears — and the cycle can reverse sharply.

Why Can Markets Crash?

Crashes may involve combinations of:

**Deteriorating
fundamentals**

Excessive leverage

Panic

Forced selling

Herd behavior

Liquidity shortages

Margin calls

Changing expectations

Multiple pressures combine into a sharp market decline.

Fear Can Reinforce Declines



Feedback loop

Each step makes the next step more likely — declines can become self-reinforcing.



Downward spiral

Why Don't Rational Investors Correct Every Mispricing?

Traditional view

If something is mispriced, rational investors will trade until the error disappears.

Behavioral response

Correcting mispricing can itself be risky and costly.

This is called LIMITS TO ARBITRAGE.

Arbitrage Can Be Risky

Suppose you believe a stock is overpriced, so you short it. But irrational optimism continues for another year.

You may be correct about value but unable to survive the path.

+50%

Further rise before any fall

Key lesson: mispricing can persist longer than expected.

Sources of Limits to Arbitrage

Fundamental risk

Noise-trader risk

**Short-selling
constraints**

Transaction costs

Funding constraints

Career risk

Timing uncertainty

These barriers surround the arbitrage opportunity — and can keep it open.

Behavioral Finance and Anomalies

Behavioral explanations may help explain patterns such as:

Momentum

Reversal

Excess
volatility

Asset
bubbles

Post-
earnings drift

Possible mechanisms:

Underreaction

Prices adjust too slowly.

Overreaction

Prices move too far, then reverse.

Underreaction

Investors may react too slowly to new information because of:

Conservatism

Anchoring

Limited attention

News released



Slow price adjustment



Drift continues

Result: prices may adjust gradually — which can help explain some momentum-like patterns.

Overreaction

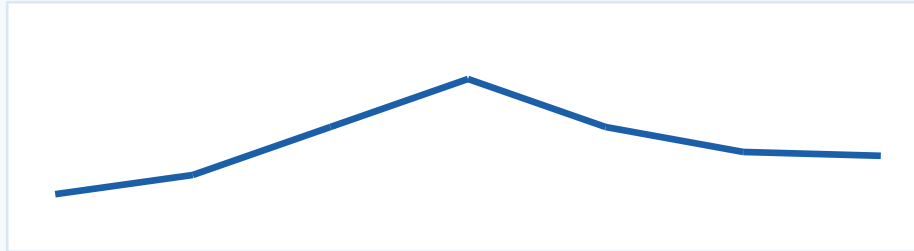
Investors may react too strongly because of:

Herding

Representativeness

Fear

Euphoria



Overshoot, then correction

Result: prices may move too far and later reverse.

What Is Technical Analysis?

Technical analysis attempts to forecast market movements primarily using market-generated information such as:

Prices

Trading volume

Trends

Patterns

Momentum



Price and volume behavior under the lens

Fundamental vs Technical Analysis

Fundamental analysis

Asks: what should the security be worth?

- Earnings
- Cash flow
- Assets
- Economic conditions

Technical analysis

Asks: what is market price behavior telling us?

- Price
- Volume
- Trends
- Momentum

What Is a Trend?

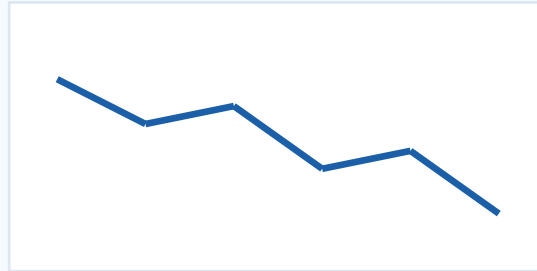
A trend is the general direction of price movement.

Uptrend



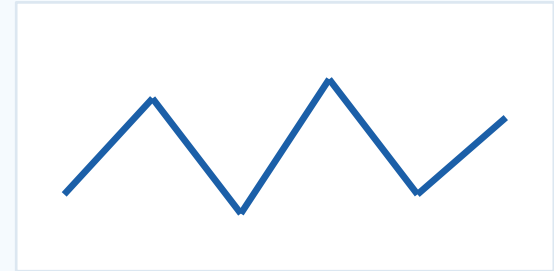
Higher highs + higher lows

Downtrend



Lower highs + lower lows

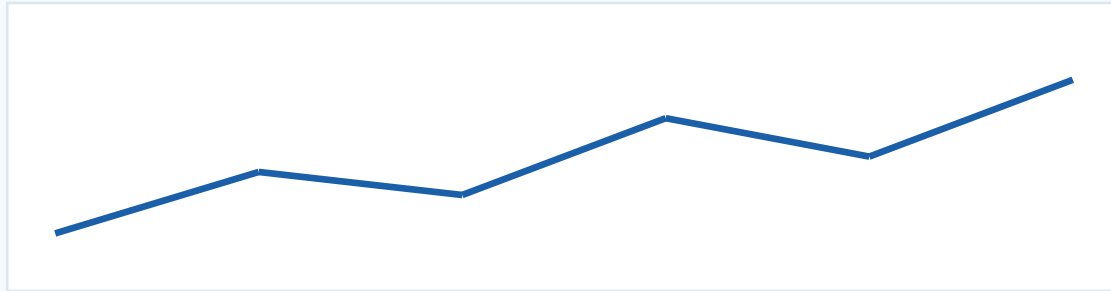
Sideways



No clear sustained direction

Trend Example

Uptrend price path:



Although price occasionally falls, the overall direction remains upward

Technical analysts may try to identify such trends.

What Is Momentum?

Momentum measures the strength or persistence of price movement.

Assets that have recently risen may sometimes continue rising for a period, while recent losers may continue falling.

Behavioral link

Underreaction and herding can extend price moves.



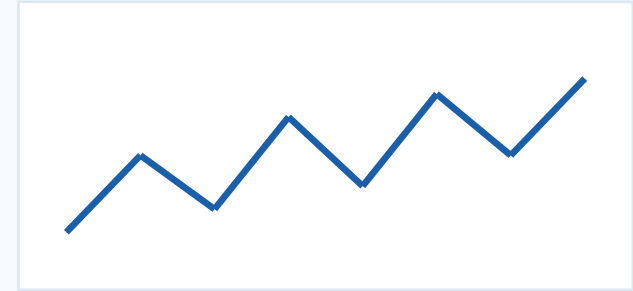
Accelerating upward move

What Is a Moving Average?

A moving average smooths short-term price fluctuations to make trends easier to see.

20-day moving average

Uses the average closing price from the most recent 20 trading days.



Lagged price line



Smoothed moving average

Simple Moving Average

Example prices: 100, 102, 104, 106, 108

$$\begin{aligned}\text{SMA}(5) &= (100 + 102 + 104 + 106 + 108) \div 5 \\ &= 104\end{aligned}$$

Each new day drops the oldest price and adds the newest — so the average “moves”.

Moving-Average Crossover

Short-term moving average

Reacts quickly to recent prices.

Long-term moving average

Reacts slowly; shows the broader trend.

Possible bullish signal

Short-term average crosses ABOVE long-term average.

Possible bearish signal

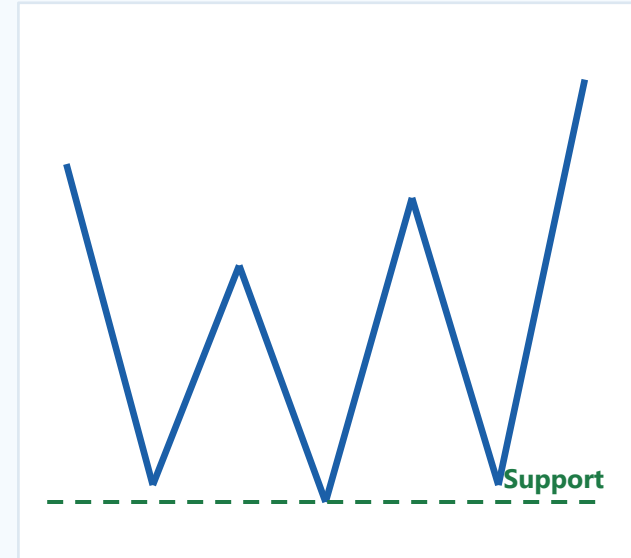
Short-term average crosses BELOW long-term average.

Crossovers are signals, not guarantees — they can also produce false alarms.

What Is Support?

Support is a price area where buying interest may tend to become stronger.

Imagine a bouncing ball. Support is like the FLOOR where the price has difficulty falling further.

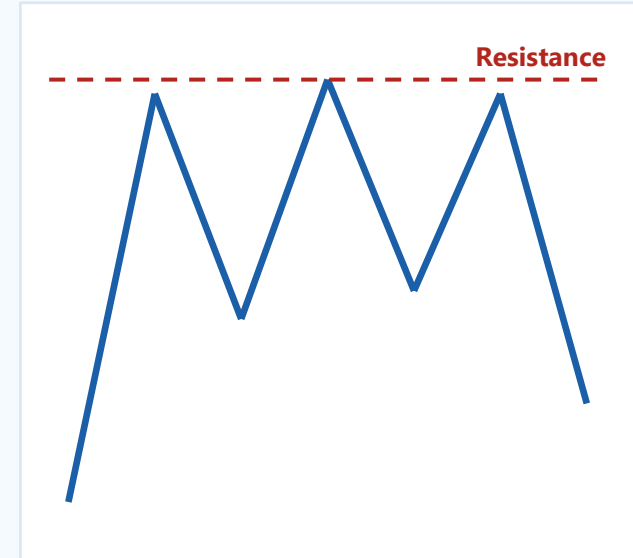


Price bounces off the floor

What Is Resistance?

Resistance is a price area where selling pressure may tend to become stronger.

Resistance is like a CEILING where the price has difficulty rising further.



Price is turned back at the ceiling

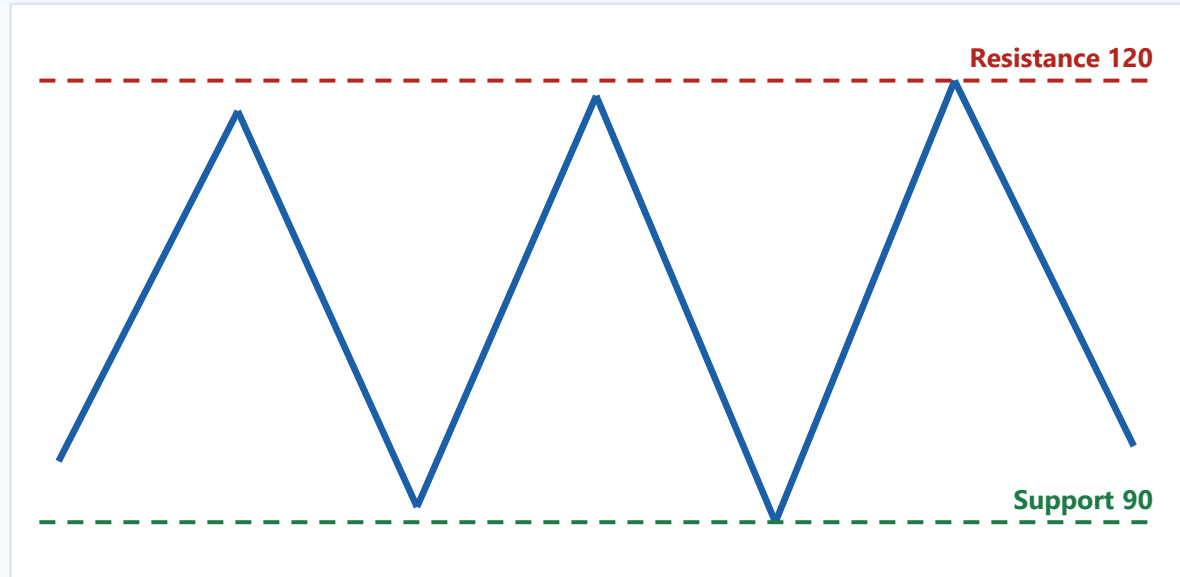
Support and Resistance Example

ETB 90

Possible support

ETB 120

Possible resistance



The stock repeatedly rebounds near 90 and falls back near 120 — a trading range

The EMH Challenge

From Chapter 8: weak-form market efficiency argues that historical information should already be reflected in current prices.

Prices

Returns

Volume

Therefore, purely technical trading strategies should not consistently generate abnormal risk-adjusted returns after costs if weak-form efficiency holds strongly.

Behavioral Finance Response

Behavioral finance suggests that persistent biases may sometimes produce:

Underreaction

Overreaction

Momentum

Reversals

Herding

Some price patterns could potentially reflect systematic investor behavior.

Market efficiency

Behavioral explanations

How Can Investors Reduce Behavioral Mistakes?

Use disciplined processes:

Written investment policy

Diversification

Predefined rebalancing rules

Investment checklists

Independent research

Long-term focus

Automatic investing

Cooling-off periods

Performance benchmarks

Discipline acts as a behavioral shield around the portfolio.

Practical Exercise — Identify the Bias

Match each statement with the likely bias:

A

"I bought at ETB 100. I refuse to sell below ETB 100."

B

"Everyone is buying crypto, so I should too."

C

"I made 40% last year. I clearly understand the market better than most."

D

"I only read analysts who agree with my investment thesis."

E

"This company grew rapidly for three years, so it will definitely continue."

Possible answers

- Anchoring
- Herding
- Overconfidence
- Confirmation bias
- Representativeness

Integrated Investment Case

Scenario

A technology company's share price rises 80% in six months.

- “Everyone is buying.”
- “Technology always goes up.”
- “The old high is ETB 200, so it must return there.”
- “Negative analysts don't understand innovation.”
- Valuation has doubled; earnings rose only 10%
- Trading volume has surged

Student tasks

1. Identify possible behavioral biases.
2. Is herd behavior present?
3. Is anchoring present?
4. Is representativeness present?
5. How could fundamental analysis help?
6. What would a technical analyst examine?
7. Could the price rise further even if overvalued?
8. How do limits to arbitrage matter?

Key Takeaways

- Behavioral finance studies how psychology affects investment decisions and market outcomes.
- Investors are not always perfectly rational.
- Bounded rationality encourages the use of mental shortcuts.
- Overconfidence can lead to excessive trading and risk-taking.
- Representativeness may cause investors to extrapolate recent performance too far.
- Conservatism can cause slow updating of beliefs.
- Anchoring ties decisions to irrelevant reference points.
- Confirmation bias causes investors to favor supporting evidence.
- Loss aversion makes losses psychologically more powerful than equivalent gains.
- Prospect theory explains decision-making relative to reference points.
- The disposition effect can lead investors to sell winners and hold losers.
- Mental accounting treats economically identical money differently.
- Herd behavior can contribute to price momentum, bubbles and crashes.
- Limits to arbitrage can allow mispricing to persist.
- Technical analysis studies price, volume, trends and momentum.
- Moving averages help smooth price movements.
- Support and resistance describe potential price zones.
- Behavioral finance offers possible explanations for some market anomalies.
- Investment discipline can reduce behavioral mistakes.

The greatest risk to an investor may not always be the market. Sometimes it is the investor's own behavior.

Next Chapter — Chapter 10: Bond Prices and Yields

The next chapter will cover:

- Bond characteristics
- Bond cash flows
- Bond valuation
- Present value
- Coupon bonds
- Zero-coupon bonds
- Price–yield relationship
- Yield to maturity
- Current yield
- Yield to call
- Holding-period return
- Premium bonds
- Discount bonds
- Interest-rate risk
- Reinvestment risk
- Default risk
- Pricing between coupon dates
- Term structure of interest rates

From investor psychology to the mathematics of fixed-income valuation.

THANK YOU

Questions and discussion

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