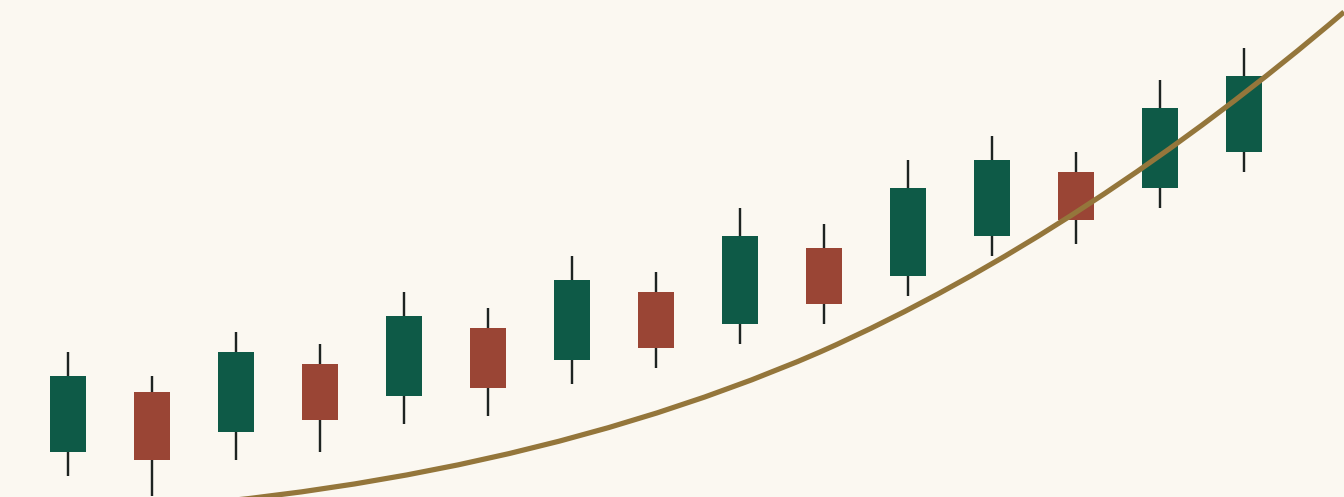


AN INVESTMENT EDUCATION

The Stock Market *Playbook*

From your first share to
understanding companies,
valuations, charts and wealth
building.



AYEZAHCODED

The Stock Market *Playbook*

*From your first share to understanding
companies, valuations, charts and
wealth building.*

A PSX edition · First edition, 2026

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Charts marked *Illustrative* use fictional data generated for teaching. Charts marked *Source data* use published figures, cited in their captions and in the bibliography. Tax rates and regulatory limits change; check current figures with SECP, PSX, NCCPL and FBR.

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Before You Begin

What Investing Really Means

Most people meet the stock market sideways. A cousin mentions a share that doubled. A WhatsApp group posts a screenshot full of green numbers. Someone at a wedding says the KSE-100 is "flying." The picture that forms is of a place where prices jump around and a few lucky people catch the jump.

That picture is right about prices. It is wrong about what sits underneath them.

When you buy a share of a company listed on the Pakistan Stock Exchange, you are buying a small, legal slice of a business: its factories or branches, its contracts, its debts, its future profits, and every decision its managers will make with your money. The price on the screen is only what the last buyer and seller agreed that slice was worth at that moment. Over a few days, that agreement can swing on rumour and mood. Over many years, it keeps getting pulled back toward one stubborn question. How much cash did the business actually produce for its owners?

In this book, *investing* means putting money into something today because you have reasoned that it is likely to return more than you put in, after allowing for the chance that you are wrong. Each part of that sentence is doing work.

Reasoned rules out tips and hunches. *Likely* admits that nothing is certain. *Allowing for the chance that you are wrong* means a dazzling expected return with a real risk of losing everything can be worse than a modest return you can depend on.

Here is a simple, hypothetical case. Two friends each have PKR 100,000. One buys shares in a company because its price has risen for three weeks straight. The other buys shares in a different company after reading its last three annual reports, working out that it earns roughly PKR 12 of profit for every PKR 100 of market value, and checking that its debts are small and its profits arrive as real cash. Both of them could lose money next month. Only one knows why they own what they own, and only one will know what to do when the price falls.

The second friend is not a genius. They have learned to ask a handful of questions in the right order. That is all this book teaches, and it turns out to be most of what matters.

INVESTOR'S NOTEBOOK

A share price tells you what the market thinks today. A company's results tell you what actually happened. Learn to read the second, and the first loses most of its power to frighten you.

Understanding the Stock Market

Before you can pick a good share, you need to know what a share is, where it lives, and who keeps it safe. This part starts with a samosa stall and ends with you knowing exactly what happens in the 24 hours after you press "Buy."

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1

CHAPTER ONE

What Are Stocks, Really?

A share is a slice of a real business. Everything else in this book follows from that one sentence.

BY THE END OF THIS CHAPTER YOU CAN

- explain what you own when you buy a share
- work out a company's size from its share price
- tell a market order from a limit order, and read a bid and an ask

Ali's samosa stall

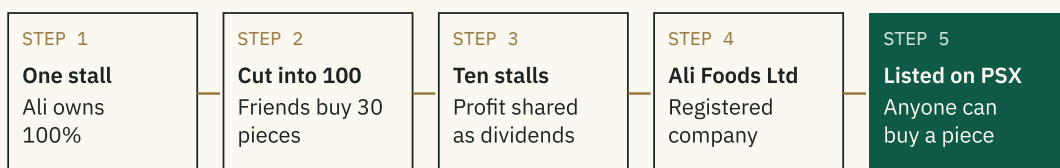
Let's start somewhere simple. Ali runs a samosa stall near a busy college in Lahore. His samosas are good, the queue is long, and every evening he goes home with more money than he started with. That money left over after paying for potatoes, oil, flour, gas and his helper's wages is called **profit**.

Ali wants to open a second stall near the hospital. He needs Rs 3 lakh for a new counter, a fryer and a month of supplies. He doesn't have it, and he doesn't want a bank loan with monthly instalments.

So he has an idea. He imagines his whole business cut into 100 equal pieces, like a cake. He thinks the whole business is worth about Rs 10 lakh, so each piece is worth Rs 10,000. He sells 30 pieces to three friends, 10 each, and collects Rs 3 lakh. The new stall opens.

Each of those pieces is a **share**. Ali's friends are now **shareholders**. They don't fry samosas and they don't stand at the counter, but they own part of the business. If the business does well, they do well. If it does badly, so do they.

ILLUSTRATIVE



Money from shareholders pays for growth

Fig. 1.1 How a small business becomes a listed company. Ali Foods is fictional; the path is the same one real PSX companies have taken.

What owning a share actually gets you

When you own a share, you get two possible rewards, and only two.

The first is a **dividend**. Say Ali's business makes Rs 2 lakh profit this year. He keeps Rs 1 lakh to open more stalls and shares the other Rs 1 lakh among all 100 pieces. That's Rs 1,000 per piece. A friend with 10 pieces gets Rs 10,000 without lifting a finger. That's a dividend: your slice of the profit, paid in cash.

The second is a **capital gain**. If the business keeps growing, one piece becomes worth more than Rs 10,000. If a friend later sells a piece for Rs 15,000, the extra Rs 5,000 is a capital gain. If the business shrinks and he sells for Rs 7,000, he has a **capital loss** of Rs 3,000.

Here is a worked example with a fictional PSX company.

01	You own shares of Ali Foods Ltd	200 shares
02	Company announces a 30% cash dividend on Rs 10 face value	Rs 3 / share
=	Dividend you receive, before tax (200 × 3)	Rs 600
03	You bought at Rs 50 and later sell at Rs 65	+Rs 15 / share
=	Capital gain, before costs and tax (200 × 15)	Rs 3,000

PSX detail. Companies on PSX usually announce dividends as a percentage of a share's face value, which is normally Rs 10. So "30% cash dividend" means Rs 3 per share, not 30% of today's price. Beginners get this wrong all the time.

Owning shares also gives you a voice. Ordinary shareholders can vote at the company's yearly meeting, the **AGM**, on things like choosing directors. One share, one vote. With 200 shares your vote is tiny, but it is real, and you'll receive the company's annual report, which is the most useful document in this whole book.

ORDINARY SHARES AND PREFERENCE SHARES

Almost every share you will buy on PSX is an **ordinary share** (also called a common share): you get votes, you get dividends if the company pays them, and you get whatever is left if the company is ever closed down and its debts are paid. A few companies also issue **preference shares**. These usually pay a fixed dividend that must be paid before ordinary shareholders get anything, but they normally don't carry voting rights. Think of them as sitting in the front row for dividends but having no say in how the show is run.

From one stall to the stock exchange

Ali's business keeps growing. Ten stalls, then a factory making frozen samosas for supermarkets. Now he needs Rs 50 crore for a bigger factory. His friends can't give him that. So he turns the business into a proper company, Ali Foods Ltd, and offers new shares to the whole country through the Pakistan Stock Exchange. This first sale to the public is called an **IPO**, or initial public offering. The money from the IPO goes to the company to build the factory.

After the IPO, something changes. The shares now trade every working day on PSX between ordinary people. When you buy 100 shares of Ali Foods next year, you are buying them from another investor who wants to sell, not from the company. The company gets nothing from that trade. This day-to-day trading is the **secondary market**, and it is what most people mean when they say "the stock market."

INVESTOR'S NOTEBOOK

The company gets your money only once, at the IPO. After that, the stock market is just owners swapping pieces of the same business with each other.

Why share prices go up and down

Picture the last ten mangoes at the Sunday bazaar at 6 pm. If twenty people want them, the seller can ask for more. If nobody wants them, he'll cut his price just to go home. Shares work the same way. When more people want to buy a share than sell it, the price rises. When more people want to sell, the price falls.

But why do people suddenly want to buy or sell? In the short run, for all kinds of reasons: news, rumours, interest rates, a WhatsApp forward, fear. In the long run, the reason is almost always the same. A business that earns more and more profit becomes worth more, and its share price tends to follow. Short term, the market behaves like a crowd. Long term, it behaves more like a weighing scale.

How big is the company? Market capitalisation

The share price on its own tells you almost nothing about how big a company is. You need one more number: how many shares exist. Multiply the two and you get the **market capitalisation**, or market cap. It's what the whole company is worth at today's price.

01	Ali Foods share price today	Rs 50
02	Total shares in existence	10 crore
=	Market cap (50 × 10 crore)	Rs 500 crore

This is why a Rs 20 share is not "cheaper" than a Rs 500 share. Look at two fictional companies:

COMPANY	SHARE PRICE	SHARES	MARKET CAP
Indus Textiles	Rs 500	1 crore	Rs 500 crore
Ravi Steel	Rs 20	50 crore	Rs 1,000 crore

Ravi Steel's share price is 25 times lower, yet the market values the whole company at twice as much. A low price per share is not a bargain. It just means the company has been cut into more pieces.

ILLUSTRATIVE

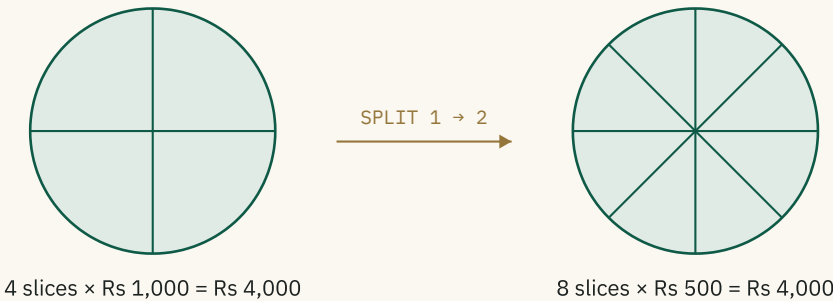


Fig. 1.2 Cutting a pizza into more slices does not make more pizza. Splits and bonus shares work the same way: more pieces, each worth less, same total.

Splits, bonus shares and rights issues

Companies sometimes change the number of shares. Three ways come up constantly on PSX, and each looks exciting in a headline when it often isn't.

A **stock split** cuts every existing share into smaller pieces. If you own 1 share at Rs 1,000 and the company splits each share into 10, you now own 10 shares at about Rs 100. You still have Rs 1,000. Nothing was created.

A **bonus issue** gives you free extra shares, paid for out of profits the company already kept. Very common on PSX. Say you own 100 shares at Rs 120, worth Rs 12,000. The company announces a 20% bonus, one new share for every five. You now have 120 shares. On the day the bonus takes effect the price usually adjusts down to around Rs 100. 120×100 is still Rs 12,000. Free shares, same wealth.

A **rights issue** is different, because it asks you for money. The company needs fresh cash and offers existing shareholders the right to buy new shares, usually at a discount. Say the offer is 1 new share for every 4 you hold, at Rs 40, while the market price is Rs 60. With 100 shares you can buy 25 new ones for Rs 1,000. You don't have to; you can usually sell the right instead. Always ask why the company needs the money. Building a new plant is one thing. Paying off debts it can't handle is another.

Buying and selling: the practical bits

Liquidity means how quickly you can sell something without dropping the price. Gold is liquid; any jeweller will buy it today. A plot of land in a new housing society is not; you might wait months. Shares are the same. Big, popular companies trade millions of shares a day and you can sell in seconds. Small, quiet companies might trade a few thousand shares, and selling Rs 5 lakh worth could push the price down against you.

Volume is the number of shares that changed hands in a day. High volume means lots of buyers and sellers are active. Volume is the simplest liquidity check you have.

Every share has two prices at any moment. The **bid** is the highest price a buyer is offering. The **ask** (or offer) is the lowest price a seller will accept. The gap between them is the **spread**. The money changer at the airport works exactly like this: he buys your dollars at one rate and sells them at a higher rate. The difference is his spread.

ILLUSTRATIVE

BUYERS (BID)	SHARES WANTED	SELLERS (ASK)	SHARES OFFERED
Rs 49.50	12,000	Rs 49.60	8,500
Rs 49.40	20,000	Rs 49.70	15,000
Rs 49.30	31,500	Rs 49.80	22,000

Fig. 1.3 A simplified order book for fictional Ali Foods Ltd. Best bid Rs 49.50, best ask Rs 49.60, spread Rs 0.10. Buy right now and you pay Rs 49.60; sell right now and you get Rs 49.50.

When you place an order with your broker, you pick between two main types.

A **market order** says: "Buy it now at whatever the best available price is." Fast, and certain to happen if anyone is selling, but you don't control the price. In a quiet share you can end up paying more than you expected.

A **limit order** says: "Buy only if the price is Rs 49.50 or lower." It's like telling the rickshaw driver your fare before you sit down. You control the price, but if nobody sells at your price, nothing happens.

For beginners, limit orders are almost always the better habit. You decide the price; the market decides whether to accept it.

YOUR TURN

Mehran Biscuits (fictional) trades at Rs 80 and has 25 crore shares. It announces a 25% cash dividend on Rs 10 face value. You own 400 shares. (a) What is the market cap? (b) How much dividend do you receive before tax? (c) If you had invested the same money in a share priced at Rs 8, would you own more of a company?

Answer · (a) $80 \times 25 \text{ crore} = \text{Rs } 2,000 \text{ crore}$. (b) $25\% \text{ of Rs } 10 = \text{Rs } 2.50 \text{ per share}$; $400 \times 2.50 = \text{Rs } 1,000$. (c) You'd own more shares, but not necessarily more of a company. What matters is the share of the business and what that business is worth, not how many pieces you hold.

TAKEAWAYS

1. A share is a piece of a real business. You make money from its dividends or from the business becoming worth more, and nothing else.
2. A share's price says nothing about size. Always multiply by the number of shares.
3. Splits and bonuses change the number of slices, not the size of the pizza. Rights issues ask you for money; find out why.
4. Use limit orders and check volume before you buy anything small.

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2

CHAPTER TWO

The Pakistan Stock Exchange

Who does what, where your shares are kept, and exactly how to start without getting cheated.

BY THE END OF THIS CHAPTER YOU CAN

- open a brokerage account the official way
- explain what PSX, your broker, CDC and NCCPL each do
- spot the five most common investment scams

One big, well-guarded bazaar

The Pakistan Stock Exchange, PSX, is a marketplace for shares. Think of it as a huge bazaar where hundreds of companies' shares are bought and sold every working day. But you can't walk in and shout a price. Only licensed members, called **brokers** (or TRE certificate holders), can place orders on the exchange. You trade through one of them, the way you'd send a property deal through a registered agent rather than a stranger on the street.

Above the bazaar sits the referee who writes the rules: the **Securities and Exchange Commission of Pakistan**, SECP. It licenses brokers, regulates PSX, and can punish people who break the rules.

The four players you rely on

When you buy a share, four organisations work together. You will deal directly with only one of them, but knowing all four is what keeps your money safe.

ILLUSTRATIVE

SECP · the regulator: licenses brokers and supervises everyone below

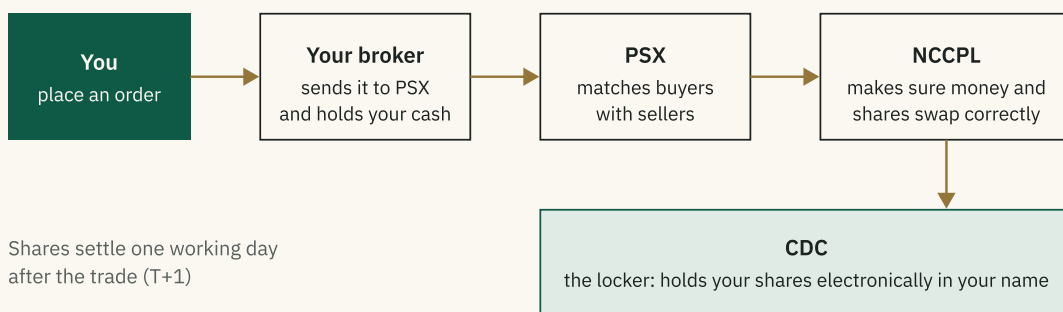


Fig. 2.1 Who does what when you buy a share on PSX.

CDC, the Central Depository Company, is the most important one to understand. There are no paper share certificates any more. Your shares exist as electronic entries at CDC, in your name. Think of CDC as a bank locker for shares. Your broker can see the locker, but the shares inside are recorded as yours. CDC sends you SMS and email alerts whenever shares move in or out, and you can check your holdings yourself. Read those alerts every time. If shares leave your account and you didn't sell them, you'll know the same day.

NCCPL, the National Clearing Company, sits in the middle of every trade. It makes sure the buyer's money reaches the seller and the seller's shares reach the buyer, so neither side can run off. It also works out and collects the capital gains

tax on your trades, so you don't have to calculate it yourself.

When you buy a share, the trade happens instantly, but the actual swap of money and shares takes a little longer. This is called **settlement**. On PSX it now happens one working day after the trade, which is written **T+1**. "T" is trade day.

New in 2026. PSX moved to T+1 settlement in February 2026, replacing the T+2 cycle used since 2008. Buy on Monday, and the shares settle into your CDC account on Tuesday.

Opening your account, step by step

Here is the official route. It works the same way at every licensed broker.

1. **Have your basics ready.** A valid CNIC and a bank account in your own name. Your dividends will be paid into this bank account, so the name must match.
2. **Choose a licensed broker.** Check that the broker appears on the PSX list of TRE certificate holders on psx.com.pk. If the name isn't there, walk away.
3. **Pick your account type.** A Sahulat account (explained below) or a regular account. Your broker will also open a CDC sub-account for you; this is the locker where your shares will sit.
4. **Fill in the form and complete verification.** The broker checks your identity, source of income and risk profile. This is the law, not paperwork for its own sake.
5. **Deposit money by bank transfer to the broker's company account.** Never to a person's account, never in cash to an agent. The account title should be the brokerage firm's name.
6. **Place your first order** through the broker's app or by calling your dealer. Use a limit order.
7. **Check your CDC alert** the next working day to confirm the shares arrived.

Sahulat account or regular account?

A **Sahulat account** is PSX's simplified account for people just starting out: students, homemakers, first-time investors. You open it with a simple form and a copy of your CNIC. It's for one person only, with no joint holder, and it blocks risky borrowing products like margin trading. You can convert it to a regular account any time.

In March 2026, SECP raised the Sahulat investment limit from Rs 1 million to Rs 3 million and allowed investors to hold Sahulat accounts at more than one broker, one per broker. Limits like this change, so confirm the current figure with your broker when you sign up.

	SAHULAT ACCOUNT	REGULAR ACCOUNT
Best for	First-time investors with smaller amounts	Larger amounts, joint accounts
Paperwork	Simplified form and CNIC copy	Full account-opening form and verification
Investment limit	Rs 3 million (from March 2026)	No such cap
Joint holder	Not allowed	Allowed
Borrowing to invest	Blocked	Available, and dangerous for beginners

What it costs

Every trade has costs, and they add up faster than people expect. You'll pay three kinds.

Broker commission: a small percentage of the trade value, or a minimum fee per trade, set by your broker. Ask for their full rate card before you open the account. **Exchange and clearing charges:** small fees from PSX, CDC and NCCPL, usually listed on your trade confirmation. **Taxes:** capital gains tax when you sell at a profit, and withholding tax deducted from dividends before they reach your bank.

One rule matters more than any number: being on the FBR's **Active Taxpayer List** (a "filer") means you pay lower tax rates than a non-filer on dividends and, depending on the year's rules, on gains. Tax rates on shares are reset in the federal budget most Junes, so this book does not print them. Check NCCPL's current capital gains tax table and FBR's withholding rate card the year you invest.

Your shares sit at CDC in your name. Your cash sits with your broker. That's why you choose a broker as carefully as you'd choose a bank.

The KSE-100 and other indices

When the news says "the market fell 800 points today," it usually means the **KSE-100 Index** fell. An index is like the average marks of a class. You don't know how each student did, but you get a sense of whether the class had a good day or a bad one. The KSE-100 tracks 100 of the largest companies on PSX, with bigger companies counting for more.

Two others you'll hear about: the **KSE-30**, a smaller group of large, frequently traded companies, and the **KMI-30**, which tracks 30 Shariah-compliant companies for investors who want Islamic investments.

Dividends and company news

When a company you own pays a dividend, the money (after tax) lands directly in the bank account linked to your CDC account. You don't need to do anything.

Listed companies must tell the public about anything important: results, dividends, bonus shares, board decisions, big contracts. These announcements are published on the **PSX Data Portal** (dps.psx.com.pk). Make it a habit to read announcements there, at the source, rather than in a WhatsApp group where someone has already added their own spin.

How people get cheated, and how you won't

Most investment losses in Pakistan don't come from bad analysis. They come from trusting the wrong person. Learn these five patterns.

WHAT YOU HEAR	WHAT IT REALLY MEANS
"Guaranteed 10% profit every month."	No honest investment guarantees returns. This is the oldest scam there is.
"Send the money to my personal account or JazzCash."	Licensed brokers only take deposits into their company's bank account.
"Join our VIP group, buy this share before it flies."	Often a pump-and-dump: they bought cheap, need you to push the price up, then sell to you.
"Download our trading app, it's not on the Play Store."	Fake apps show fake profits so you deposit more. Use only your licensed broker's official app.
"Give me your login, I'll trade for you."	Never share passwords or PINs. Anyone with your login can empty your account.

If something feels wrong, check the broker's licence on PSX's website and report it to SECP. Its investor-education site, Jamapunji, keeps warnings about known scams.

YOUR TURN

You buy 500 shares on a Wednesday. (a) On which working day should they appear in your CDC account? (b) A "broker" on Instagram asks you to deposit into an account titled "M. Usman." What do you do? (c) Where would you check whether a company has announced a dividend?

Answer · (a) Thursday, under T+1 (if Thursday is a working day). (b) Don't deposit. Real brokers use their company's account. Check the broker on PSX's list of TRE certificate holders. (c) The PSX Data Portal, dps.psx.com.pk, under company announcements.

TAKEAWAYS

1. You trade through a licensed broker; your shares are held at CDC in your name. Read every CDC alert.
 2. Trades now settle one working day later (T+1).
 3. A Sahulat account is the easy way in: CNIC copy, up to Rs 3 million, no borrowing.
 4. Becoming a filer lowers your tax. Rates change each budget, so check NCCPL and FBR.
 5. Money only ever goes to a broker's company account. Guarantees are always a lie.
-

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3

CHAPTER THREE

Investing Versus Trading

Planting a mango tree and selling mangoes at a stall are both honest work. They are not the same job.

BY THE END OF THIS CHAPTER YOU CAN

- explain the real difference between investing and trading
- show why frequent trading eats your returns through costs
- choose which one you are doing, on purpose

The tree and the stall

Two cousins in Multan both want to make money from mangoes. Bilal buys land and plants mango trees. For years nothing much happens. Then the trees start producing, and every summer they produce a little more. Bilal mostly waits, waters, and checks the trees are healthy.

Hamza runs a stall. Every morning he buys mangoes at the mandi and tries to sell them by evening for a little more than he paid. Some days he does well. Some days the price drops by noon and he sells at a loss. He has to be there every day, watching every price, and he pays the rickshaw, the mandi fee and the stall rent whether he wins or loses.

Bilal is **investing**; he owns something that produces value and lets time do most of the work. Hamza is **trading**; he profits from price movements and needs to be right again and again, quickly. Both are real. But they need different skills, different time and a different stomach.

	INVESTING	TRADING
You are betting on	The business growing its profits	The price moving your way soon
Time you hold	Years	Minutes to weeks
What you study	The company: profits, debt, cash, management	The chart: price, volume, momentum
Time it takes you	A few hours a month	Hours every trading day
Costs	Low, because you trade rarely	High, paid on every trade
Biggest danger	Owning a bad business, or paying far too much	Costs and emotions draining you slowly

The cost nobody counts

Every time you buy and then sell, you pay commission, exchange charges and, if you made money, tax. One round trip doesn't feel like much. Fifty of them do.

Here is a simple example. To keep the arithmetic clean, we'll assume each buy-and-sell round trip costs 0.4% of the amount traded in commission and charges combined. Your broker's real rate may be higher or lower; the point is the pattern.

A	Investor: Rs 1,00,000, one round trip in the year	$1 \times 0.4\%$
=	Cost for the year	Rs 400
B	Trader: Rs 1,00,000, one round trip every week	$50 \times 0.4\%$
=	Cost for the year	Rs 20,000

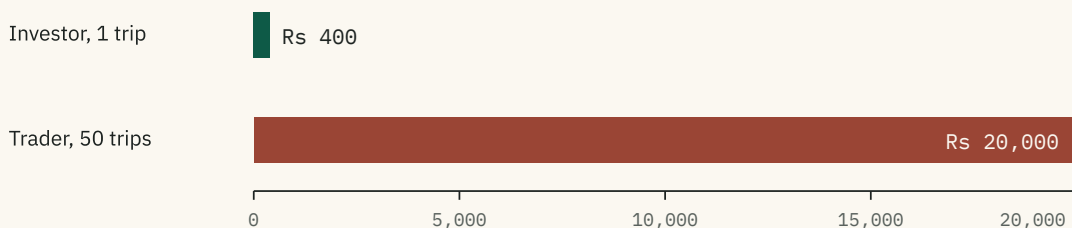


Fig. 3.1 Yearly trading costs on Rs 1 lakh, assuming 0.4% per round trip. Before tax. Drawn to scale.

The trader has to earn 20% a year just to get back to where they started. The investor needs to earn 0.4%. Same money, same market, completely different starting line. This is the quiet reason most people who trade often end up with less than people who simply buy good businesses and wait.

Why patience is a real strategy

Successful long-term investing does not need constant action. If you've bought a good business at a sensible price, the business does the work: it sells more, earns more, pays dividends, and grows into a bigger company. Your job is mostly to check, once a quarter when results come out, that it's still the business you thought you bought.

That's not laziness. Every trade you don't make is a cost you don't pay and an emotional mistake you don't risk. Most of the money in long-term investing is made by sitting, not by clicking.

Trading isn't wrong. Some people do it well, with real skill, strict rules and money they can afford to lose. Part VII of this book teaches you to read charts properly. But if you trade, do it on purpose, with a small, separate pot of money, and keep your long-term investments away from it.

INVESTOR'S NOTEBOOK

Decide before you buy: am I planting a tree or running a stall? Most losses start when people buy as investors and panic as traders.

YOUR TURN

Using the same 0.4% per round trip, what would a trader with Rs 2,00,000 pay in a year if they made two round trips every week for 50 weeks?

Answer · $100 \text{ round trips} \times 0.4\% = 40\% \text{ of the money traded each time. } 40\% \times \text{Rs } 2,00,000 = \text{Rs } 80,000 \text{ a year in costs, before tax.}$

TAKEAWAYS

1. Investors bet on the business. Traders bet on the price. Know which one you are.
2. Costs grow with every trade. Frequent trading raises the bar you need to clear just to break even.
3. Doing less is often the best decision available to a long-term investor.
4. If you trade, keep it separate and small.

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1. Cost figures in this chapter use an assumed 0.4% per round trip for illustration. Ask your broker for their actual rate card, and see NCCPL for current capital gains tax rates. nccpl.com.pk
2. SECP investor education portal, Jamapunji. jamapunji.pk

4

CHAPTER FOUR

How Companies Actually Make Money

Every business, from a samosa stall to a cement giant, does the same thing: it takes money in, pays money out, and hopes something is left.

BY THE END OF THIS CHAPTER YOU CAN

- follow money through any business, from customer to dividend
- calculate gross profit, operating profit and their margins
- explain why a cement company, a bank and a software house behave so differently

Follow the money

Let's go back to Ali's samosa stall from Chapter 1. Every rupee that enters his business takes the same journey. A customer pays. Some of that money goes on ingredients. Some goes on rent, gas and wages. Whatever is left is profit. Then Ali decides what to do with the profit: keep some to grow the business, and hand some to the owners. That's it. That's every company on PSX. The numbers are bigger and the words are fancier, but the journey is the same.

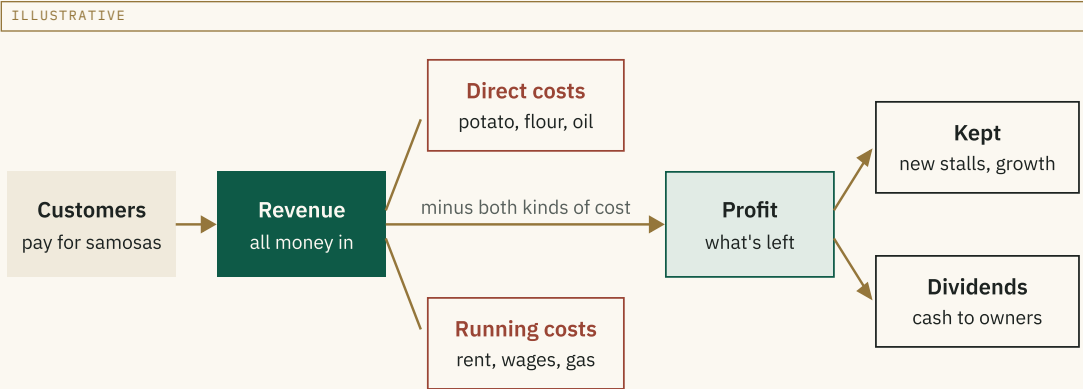


Fig. 4.1 How money moves through a business. Every income statement in Part III is just this picture written as numbers.

Revenue: the money coming in

Revenue, also called sales, is all the money customers pay. It's always the same simple sum: how many things you sold multiplied by the price of each.

01	Samosas sold in a day	500
02	Price per samosa	Rs 40
=	Revenue for the day (500 × 40)	Rs 20,000

Revenue can grow in only two ways: sell more, or charge more. When you read that a company's sales grew 30%, your first question should be which one it was. Selling more usually means real demand. Charging more might mean inflation.

Gross profit: what each sale leaves behind

Some costs rise and fall with every single sale. Each samosa needs potato, flour, oil and spices. Let's say those cost Rs 22 per samosa. These are **direct costs**; in company reports they're called **cost of sales** or cost of goods sold. What's left after direct costs is **gross profit**. Ali earns Rs 40 and spends Rs 22, so each samosa leaves Rs 18. As a share of the price, that's the **gross margin**.

01	Gross profit per samosa (40 – 22)	Rs 18
=	Gross margin (18 ÷ 40)	45%
02	Gross profit for the day (500 × 18)	Rs 9,000

Gross margin tells you how much breathing room each sale has. A business with a 70% gross margin can survive a lot of mistakes. A business with a 10% gross margin can be wiped out by one bad month of raw material prices.

Operating profit: after the bills are paid

Other costs don't care how many samosas Ali sells. The rent, his helper's wages and the gas connection cost the same whether he sells 300 or 700. These are **running costs**, or operating expenses. Say they come to Rs 5,000 a day.

01	Gross profit for the day	Rs 9,000
02	Minus running costs	– Rs 5,000
=	Operating profit	Rs 4,000
=	Operating margin (4,000 ÷ 20,000)	20%

Operating profit is what the business itself earns before anyone looks at loans or taxes. You'll see it in annual reports as operating profit or EBIT. We'll come back to it in Chapter 6.

Why profit jumps more than sales

Here's the part most beginners never see. Watch what happens to Ali's profit on a slow day and a busy day. His running costs stay at Rs 5,000 no matter what.

DAY	SAMOSAS	GROSS PROFIT (× RS 18)	RUNNING COSTS	OPERATING PROFIT
Slow	300	5,400	5,000	400
Normal	500	9,000	5,000	4,000
Busy	700	12,600	5,000	7,600

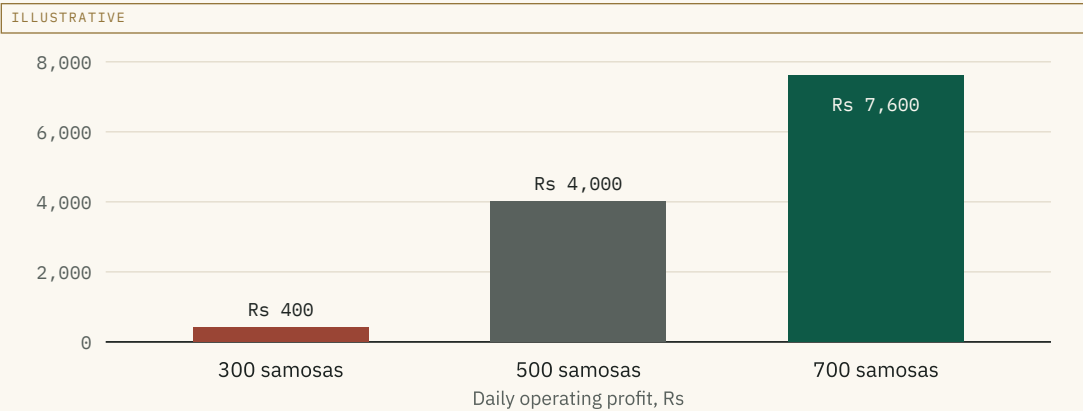


Fig. 4.2 Sales up 40% (500 → 700), profit up 90% (4,000 → 7,600). Sales down 40% (500 → 300), profit down 90%. Fixed costs stretch both ways. Drawn to scale.

When costs are mostly fixed, a small change in sales causes a big change in profit, in both directions. Investors call this **operating leverage**. It's why a cement company's profit can double in a construction boom and almost disappear in a slowdown, even though its sales only moved a little. Keep this table in your head. It explains half the surprises you'll see in quarterly results.

INVESTOR'S NOTEBOOK

When a business has big fixed costs, its profits swing much harder than its sales. Great on the way up. Painful on the way down.

Five businesses, five different machines

Now let's look at five kinds of business you'll find on PSX, or in your own neighbourhood. Each takes money in and pays money out, but what drives them is completely different.

ILLUSTRATIVE

BUSINESS	HOW IT EARNS	BIGGEST COSTS	WHAT MOVES PROFIT	MAIN DANGER
Restaurant	Sells meals	Food, rent, staff	Footfall, rent, food prices	A new place opens next door
Cement plant	Sells bags of cement to builders	Coal and electricity; a huge factory	Construction activity, fuel prices, interest rates	Building slows down; prices fall
Bank	Pays depositors a low rate, lends at a higher one	Interest paid to depositors, branches, staff	The gap between the two rates; how many loans get repaid	Loans that never come back
Textile mill	Turns cotton into yarn and cloth, often for export	Cotton, energy, workers	Cotton prices, energy costs, foreign orders, the rupee	Thin margins squeezed by energy costs
Software house	Sells developers' time and products, often in dollars	Salaries	New clients, keeping good staff, the dollar rate	Losing a big client or key engineers

Fig. 4.3 Five business models side by side. Notice how little they have in common once you look past "revenue minus costs."

A cement plant needs billions of rupees of machinery before it sells its first bag. A software house needs laptops, an office and good people. That difference has a name, **capital intensity**: how much money you have to lock up in buildings and machines to earn each rupee of sales. Capital-heavy businesses can be good investments, but they need years of strong demand to pay back what they spent, and they keep needing more money to replace old machines.

Pricing power: the best test of a business

Suppose the price of potatoes jumps and each samosa now costs Rs 5 more to make. Ali has two choices. He can raise his price to Rs 45 and hope customers stay, or keep it at Rs 40 and earn Rs 5 less on every samosa.

If his samosas are famous and the queue doesn't shrink, he has **pricing power**. If customers walk to the next stall over Rs 5, he doesn't. Pakistan has lived through years of high inflation, so this one question tells you more about a company than almost anything else: *when costs go up, can this business pass them on?*

Cyclical businesses: umbrellas in the monsoon

An umbrella seller does wonderfully in the monsoon and terribly in May. Nothing is wrong with his business; it just moves with the weather. Some companies move with the economy the same way. Cement, steel, cars and many banks sell more when the economy is growing, interest rates are low and people are building and borrowing. They sell less when it isn't.

These are **cyclical** businesses. The trap is buying them at the top of the cycle, when profits look amazing and everyone is excited, just before the weather turns. Chapter 18 shows how to value them properly.

How crowded is the market?

There are thousands of samosa stalls in Pakistan. No single one can raise prices much, because customers can go anywhere. In some industries there are only a handful of big companies, factories are expensive to build, and new

competitors can't appear overnight. The fewer serious competitors there are, and the harder it is for new ones to arrive, the more room each company has to earn good profits. This is called **industry structure**, and Chapter 5 turns it into a checklist.

Two more things to notice, briefly. **Market share** is how much of all the sales in an industry one company makes; rising share means customers are choosing it over rivals. **Customer retention** is whether customers keep coming back. A business whose customers return every month without being chased is worth far more than one that must win every sale from scratch.

YOUR TURN

Sana runs a chai dhaba. She sells 800 cups a day at Rs 60. Milk, tea, sugar and gas for each cup cost Rs 33. Rent, two helpers and electricity cost Rs 12,000 a day. Work out (a) revenue, (b) gross profit and gross margin, (c) operating profit and operating margin, (d) operating profit on a day she sells 1,000 cups.

Answer · (a) $800 \times 60 = \text{Rs } 48,000$. (b) Rs 27 per cup; $800 \times 27 = \text{Rs } 21,600$; gross margin $27 \div 60 = 45\%$. (c) $21,600 - 12,000 = \text{Rs } 9,600$; operating margin $9,600 \div 48,000 = 20\%$. (d) $1,000 \times 27 = 27,000 - 12,000 = \text{Rs } 15,000$. Sales up 25%, profit up 56%. That's operating leverage again.

TAKEAWAYS

1. Every business is revenue minus direct costs minus running costs. Learn to see that shape in any company.
2. Gross margin shows how much room each sale leaves; operating margin shows what's left after the business is run.
3. Big fixed costs make profits swing much harder than sales. Expect that in cement, steel and autos.
4. Ask of every company: can it raise prices when its own costs rise?

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1. All businesses and figures in this chapter are fictional and illustrative.
2. Michael E. Porter, *Competitive Strategy*, Free Press, 1980: the original framework for thinking about industry structure.
3. SECP investor education portal, Jamapunji. jamapunji.pk

5

CHAPTER FIVE

Understanding Business Quality

Making money is easy to copy. Keeping it is not. Good businesses have a wall around their profits, and honest people guarding it.

BY THE END OF THIS CHAPTER YOU CAN

- name the five kinds of protection a business can have
- spot the warning signs of poor management and governance
- score any company with a simple 20-point checklist

What happens when Ali gets rich

Ali's samosa stall is making Rs 4,000 a day. Word gets around. Within two months, three new samosa stalls open on the same street. Each one takes some of his customers. To keep them, Ali cuts his price. His profit shrinks.

This is the most important rule in business: *high profits attract competition, and competition eats profits*. So the question isn't just "does this company make money?" It's "what stops someone else from taking it?"

Warren Buffett called the answer a **moat**, after the water-filled ditch around an old castle. The wider the moat, the harder it is for attackers to reach the profits inside.

ILLUSTRATIVE

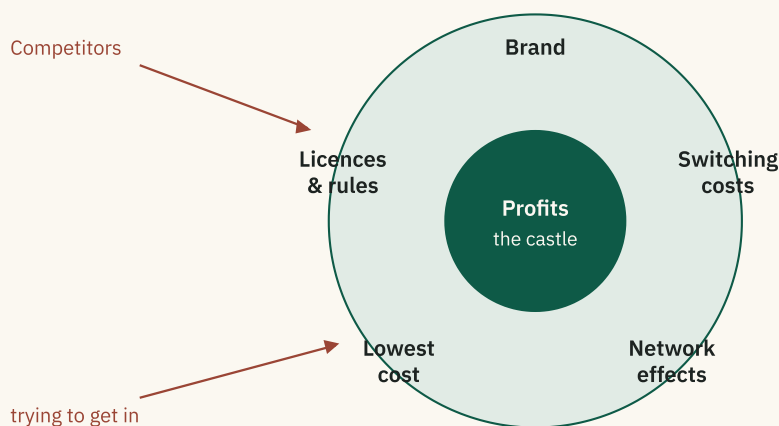


Fig. 5.1 Five kinds of moat. Most strong businesses have two or three; very few have all five.

The five moats, in everyday terms

1. Brand. When people ask for a product by name and won't accept a substitute, that brand is a moat. If a mother walks into a shop and asks for one particular biscuit for her children, the shopkeeper can't easily sell her a cheaper one. A real brand lets a company charge a bit more and still keep its customers. Just being well-known isn't enough; the test is whether people pay more for it.

2. Switching costs. Think about changing your bank. New cheque book, new card, updating your salary account, telling everyone your new account number. Most people don't bother, even if another bank is slightly better. When leaving is a hassle, customers stay. Software that a whole company runs on works the same way.

3. Network effects. A payment app becomes more useful each time another shop accepts it, and more shops accept it because more people use it. The busiest bazaar attracts the most sellers, which attracts the most buyers. When a product gets better simply because more people use it, the leader can become very hard to catch.

4. Lowest cost. If a cement plant sits right next to its limestone, has the newest, most fuel-efficient kilns and is closest to the big cities, it can make a bag for less than anyone else. In a price war it stays profitable while weaker rivals bleed. In a business where everyone sells the same product, being the cheapest producer is the moat.

5. Licences and rules. You can't open a bank tomorrow. You need a licence from the State Bank, lots of capital and years of approvals. When the government limits who can compete, the companies already inside are protected. But watch out: the same government that protects them can also cap their prices. Fertilizer, power and medicine companies in Pakistan know this well.

INVESTOR'S NOTEBOOK

Don't ask whether a company is profitable. Ask why nobody has taken its profits away yet. If you can't answer, maybe someone soon will.

The people running the castle

A strong business in the wrong hands can still lose your money. When you own shares, you're trusting managers you will never meet to handle your money honestly and sensibly. Four things tell you a lot about them.

DO THEY OWN SHARES THEMSELVES?

If the founder or the main family owns a big piece of the company, they win and lose alongside you. That's usually good. But on PSX, many companies are controlled by one family or group, and they can make decisions small shareholders don't like. Ownership alone doesn't guarantee they'll treat you fairly. Watch what they do.

WHAT DO THEY DO WITH THE PROFIT THEY KEEP?

This is called **capital allocation**, and it's the most important job managers have. With every rupee of kept profit, they can do five things: grow the existing business, buy another company, pay off debt, pay dividends, or buy back their own shares. Good managers pick whichever gives shareholders the most. Poor managers build empires: buying unrelated businesses because bigger feels better, often at silly prices.

ARE THEY DOING DEALS WITH THEMSELVES?

Imagine the company buys its packaging from a firm owned by the chairman's brother, at prices 20% above the market. Every extra rupee leaks out of your company and into the family's pocket. These are **related-party transactions**. They're legal and often perfectly normal, which is why companies must disclose them in a note in the annual report. Read that note. If it's long, growing, and full of payments to firms linked to the owners, be careful.

IS THE COMPANY HONEST WITH YOU?

Good **corporate governance** means the board has truly independent directors, the auditors are reputable, results come out on time, and the annual report explains bad news plainly instead of hiding it. Repeated delays, changing auditors often, or an auditor's report with "qualified" or "emphasis of matter" wording are reasons to slow down and read more closely. Chapter 20 shows you exactly where to look.

Two risks that hide in plain sight

Concentration risk. If one customer buys 60% of everything a company sells, that customer is the boss. They can squeeze prices, and if they leave, the business can collapse overnight. The same goes for relying on one supplier, one product or one export market.

Regulatory risk. In Pakistan, the government sets or influences many prices: gas for fertilizer plants, electricity tariffs, medicine prices, and taxes that change every budget. A company can do everything right and still see its profit shrink because a rule changed. Always ask: how much of this company's profit depends on a decision someone in Islamabad could reverse?

The business quality scorecard

Here is a simple tool you can use on any PSX company. Answer ten questions. Give each one 0 (no), 1 (partly) or 2 (clearly yes). You'll find most answers in the annual report.

TEMPLATE		
#	QUESTION	SCORE 0–2
1	Can I explain in two sentences how this company makes money?	--
2	Does it have at least one clear moat from the five above?	--
3	Has it raised prices in the past without losing many customers?	--
4	Have profits been steady or growing over the last five years?	--
5	Is no single customer, product or market more than a third of sales?	--
6	Would a government decision struggle to wipe out its profit?	--
7	Do the owners or managers hold a meaningful stake?	--
8	Has management spent kept profits sensibly (not on random empire-building)?	--
9	Are related-party deals small and clearly explained?	--
10	Clean audit report, results on time, bad news explained honestly?	--
Total out of 20		--

Fig. 5.2 Business quality scorecard. **16–20**: high quality, worth deeper study. **10–15**: decent, know exactly what could go wrong. **Below 10**: needs a very good reason, and a very low price.

A high score doesn't mean "buy." A wonderful business at a crazy price can still be a bad investment; that's what Part V is about. The scorecard tells you whether a business deserves your time, not your money.

YOUR TURN

Kohistan Paints (fictional) sells paint under a brand that painters ask for by name, and has raised prices every year for five years with steady sales. Profits have grown every year. One distributor, owned by the chairman's son, handles 55% of all sales. The family owns 70% of the shares. Last year, it bought a hotel. Score questions 2, 3, 5, 8 and 9.

Answer · Q2: 2 (strong brand). Q3: 2 (proven price increases). Q5: 0 (one distributor is 55% of sales). Q8: 0 or 1 (a paint company buying a hotel is classic empire-building). Q9: 0 (the biggest channel is a related party). Total for these five: 4 or 5 out of 10. A good business with a governance problem, which is a very common PSX pattern.

TAKEAWAYS

1. Profits attract competitors. A moat is whatever stops them, and you should be able to name it.
2. Watch what managers do with kept profits. That decision, repeated for years, decides your return.
3. Read the related-party note in every annual report. Money leaks out quietly.
4. One giant customer, or one government decision, can matter more than everything else in the report.
5. Quality tells you what to study. Price, later, tells you whether to buy.

REFERENCES

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2. Pat Dorsey, *The Little Book That Builds Wealth*, Wiley, 2008: a practical guide to the main types of moat.
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4. All companies in this chapter are fictional and illustrative.

Mastering Financial Statements

Every listed company publishes three reports about itself. One tells you how much it earned. One tells you what it owns and what it owes. One tells you where the cash actually went. Learn to read these three and you will understand more about a company than most people who trade its shares.

We'll use one company the whole way through: Ali Foods Ltd, the samosa stall from Chapter 1, now grown into a listed frozen-food maker. Its numbers are made up, but they are built to fit together exactly the way a real company's do.

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9 · Connecting All Three Statements	50

6

CHAPTER SIX

Reading an Income Statement

The income statement is a staircase. You start at the top with all the money customers paid, and walk down one step at a time until you reach what belongs to you.

BY THE END OF THIS CHAPTER YOU CAN

- read every line of an income statement from revenue to EPS
- calculate gross margin, EBIT, EBITDA and EPS yourself
- spot a one-off gain that makes profit look better than it is

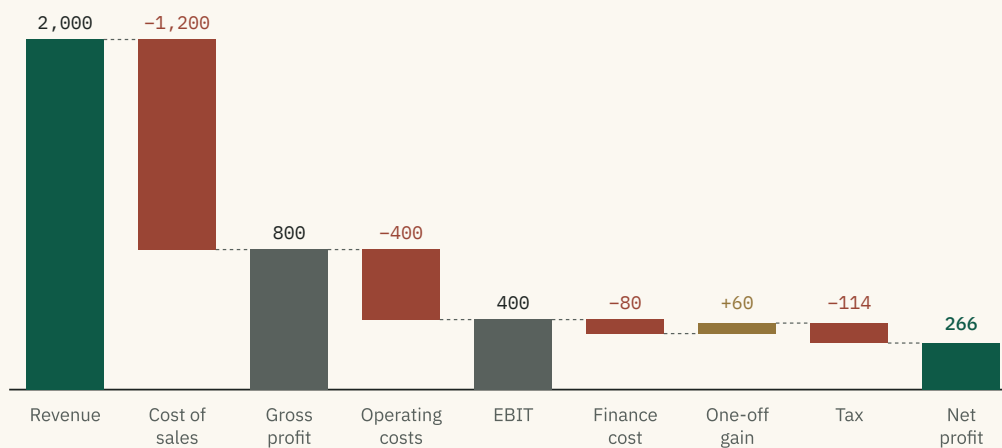
What it is

The **income statement** (Pakistani reports often call it the *statement of profit or loss*) shows what a company earned over a period: a quarter or a full year. It answers one question: *did the business make money, and how?*

In Chapter 4 we did this for one day at Ali's stall. A company does the same thing for a whole year, with a few more steps. Here is Ali Foods Ltd's.

ILLUSTRATIVE		
ALI FOODS LTD · YEAR ENDED 30 JUNE	RS MILLION	WHAT IT MEANS
Revenue	2,000	Everything customers paid for frozen samosas and parathas
Cost of sales	(1,200)	Ingredients, packaging, factory wages, factory power
Gross profit	800	What's left after making the product
Selling and distribution	(240)	Ads, delivery trucks, sales staff
Administrative expenses	(160)	Head office, managers, accountants
Operating profit (EBIT)	400	What the business itself earned
Finance cost	(80)	Interest paid on loans
Gain on sale of land	60	A one-time sale of an old plot
Profit before tax	380	
Taxation (30%)	(114)	Tax rate assumed for illustration
Net profit	266	What belongs to shareholders
Earnings per share, basic	Rs 2.66	266 ÷ 100 million shares

Fig. 6.1 Ali Foods Ltd income statement. Numbers in brackets are costs being subtracted. Depreciation of Rs 100 million is included inside cost of sales and admin, as it is in most real reports.



Rs million · drawn to scale (100 px = Rs 1,000 million)

Fig. 6.2 The income statement as a staircase. Of every Rs 100 customers paid, Rs 13.30 ended up as profit for shareholders.

Walking down the stairs

STEP 1 · REVENUE

The top line. All money from selling products, after discounts and sales tax are removed. Some reports show "gross sales" and then subtract sales tax and discounts to reach "net sales." Always use the net figure.

STEP 2 · GROSS PROFIT AND GROSS MARGIN

01	Revenue – cost of sales (2,000 – 1,200)	800
=	Gross margin (800 ÷ 2,000)	40%

For every Rs 100 of frozen samosas sold, Rs 40 is left after making them. Compare this number across years. If it falls from 40% to 32%, either ingredients got more expensive or the company had to cut prices. Either way, you want to know why.

STEP 3 · OPERATING COSTS AND EBIT

Subtract the costs of running the business, selling and admin, and you reach **operating profit**. Analysts call it **EBIT**: Earnings Before Interest and Tax. It's the cleanest view of how well the business itself performs, because it ignores how the company borrowed money and how much tax it pays.

01	Gross profit – selling – admin (800 – 240 – 160)	400
=	Operating margin (400 ÷ 2,000)	20%

A DETOUR: DEPRECIATION, AND WHY EBITDA IS POPULAR BUT RISKY

Ali Foods bought a new freezer line for Rs 500 million that should work for five years. It would be silly to say the company "lost" Rs 500 million in the year it bought the machine and then made huge profits for the next four. So accountants spread the cost: Rs 100 million a year for five years. That yearly slice is **depreciation**. For things you can't touch, like software or a brand bought from someone else, the same idea is called **amortisation**.

Depreciation is a real cost, but no cash leaves the company that year; the cash left when the machine was bought. So some people add it back and get **EBITDA**: earnings before interest, tax, depreciation and amortisation.

01	EBIT	400
02	Add back depreciation (inside cost of sales and admin)	+ 100
=	EBITDA	500

Here's the catch. Machines wear out and must be replaced. If you ignore depreciation, you're pretending the freezers will last forever. A company that brags about EBITDA but never mentions profit or cash is often hiding the fact that it needs to keep spending heavily on machines. Use EBITDA to compare companies, never as a stand-in for what the owners earn.

INVESTOR'S NOTEBOOK

Depreciation is the cost of the machine, paid slowly. A business that ignores it is like a rickshaw driver who counts his fares but forgets he'll need a new engine.

STEP 4 • FINANCE COST AND OTHER ITEMS

Finance cost is the interest Ali Foods paid on its loans: Rs 80 million. A company with lots of debt pays lots of interest, and in Pakistan, where interest rates have often been high, this line can swallow a big part of operating profit. Chapter 12 shows how to check whether a company can comfortably afford it.

Then there's the Rs 60 million **gain on sale of land**. Ali Foods sold an old plot it no longer needed. That's real money, but it won't happen again next year. Hold that thought.

STEP 5 • TAX AND NET PROFIT

Profit before tax is Rs 380 million. We've assumed a 30% tax rate to keep the arithmetic easy; real companies in Pakistan often pay different effective rates depending on the sector and the year's super tax. After Rs 114 million tax, **net profit** is Rs 266 million. This is the "bottom line," and it belongs to shareholders.

Earnings per share: your slice

Net profit is for the whole company. You own a few shares, so you want to know the profit per share. That's **EPS**.

01	Net profit	Rs 266 million
02	Divide by shares in issue	÷ 100 million
=	Basic EPS	Rs 2.66

You'll also see **diluted EPS**. Suppose Ali Foods has promised its managers options that could become 10 million new shares. If they're used, the same profit gets shared among 110 million shares. Diluted EPS shows that "worst case" so nobody is surprised.

=	Diluted EPS (266 ÷ 110 million)	Rs 2.42
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When the two numbers differ, use the diluted one. It's the more honest of the two.

The one-off trap

Remember the land sale? Take it out and see what the business really earned.

01	Profit before tax, without the land gain (380 – 60)	320
02	Less 30% tax	– 96
=	Adjusted net profit	224
=	Adjusted EPS (224 ÷ 100 million)	Rs 2.24

ILLUSTRATIVE



Fig. 6.3 The land sale made EPS look about 19% higher than the business really earned. Drawn to scale.

Headlines will say "Ali Foods EPS Rs 2.66, up strongly." The business itself earned Rs 2.24. Common one-offs on PSX include gains from selling land or investments, insurance claims, exchange gains when the rupee moves, and big write-offs. Read the line names, and check the notes for anything marked "other income." If you value the company on the inflated figure, you'll overpay.

Is the profit real? Earnings quality

Some profits are better than others. High-quality earnings come from the main business, repeat year after year, and turn into actual cash. Low-quality earnings come from one-offs, accounting choices, or sales where customers haven't paid yet. Four quick checks:

1. Is most of the profit coming from operating profit, not "other income"?
2. Are margins stable, or did they jump suddenly with no clear reason?
3. Is the company collecting cash from customers as fast as its sales grow? (Chapter 8 shows how.)
4. Does the auditor's report have any warnings? (Chapter 20.)

YOUR TURN

Margalla Juices (fictional) reports revenue of Rs 900 million, cost of sales Rs 540 million, operating costs Rs 180 million, finance cost Rs 30 million, and a Rs 50 million insurance claim from a warehouse fire. Tax is 30%. It has 60 million shares. Calculate (a) gross margin, (b) EBIT, (c) reported EPS, (d) EPS without the insurance claim.

Answer · (a) $900 - 540 = 360$; $360 \div 900 = 40\%$. (b) $360 - 180 = \text{Rs } 180$ million. (c) $\text{PBT} = 180 - 30 + 50 = 200$; tax 60; net 140; $\text{EPS} = 140 \div 60 = \text{Rs } 2.33$. (d) $\text{PBT} = 150$; tax 45; net 105; $\text{EPS} = 105 \div 60 = \text{Rs } 1.75$. The claim lifted EPS by a third.

TAKEAWAYS

1. Read the income statement top to bottom, like a staircase. Each step removes one kind of cost.
2. Gross margin and operating margin, tracked over five years, tell you more than any single year's profit.
3. EBITDA is useful for comparing companies, but machines still wear out. Don't treat it as profit.
4. Strip out one-offs before you judge a company. Use diluted EPS when it's different.

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2. IFRS Foundation, IAS 16 *Property, Plant and Equipment* (depreciation). [ifrs.org](https://www.ifrs.org)
3. Ali Foods Ltd and Margalla Juices are fictional. Tax at 30% is assumed for easy arithmetic, not a statement of current Pakistani rates.

7

CHAPTER SEVEN

Understanding the Balance Sheet

The income statement is a video of the year. The balance sheet is a photograph of one day: everything the company owns, everything it owes, and what's left for the owners.

BY THE END OF THIS CHAPTER YOU CAN

- explain why a balance sheet always balances
- find cash, debt, inventory and book value in any report
- tell whether a company can pay its bills this year, and survive the next five

Start with your own house

Suppose you own a house worth Rs 1 crore. You still owe the bank Rs 40 lakh on the home loan. How much of the house is really yours? Rs 60 lakh.

Everything a company owns is its **assets**. Everything it owes to others is its **liabilities**. Whatever is left over belongs to the shareholders, and is called **equity**. Just like your house:

$$= \quad \text{Assets} = \text{Liabilities} + \text{Equity} \quad \quad \quad 1 \text{ crore} = 40 \text{ lakh} + 60 \text{ lakh}$$

This is true for every company, on every date, without exception. That's why it's called a **balance sheet**: both sides must be equal. In Pakistani reports you'll often see it titled *statement of financial position*.

Ali Foods Ltd on 30 June

ILLUSTRATIVE			
WHAT IT OWNS (ASSETS)	RS MN	WHAT IT OWES, AND WHAT'S LEFT (LIABILITIES + EQUITY)	RS MN
Factory, machines, trucks (PP&E)	1,500	Long-term bank loan	500
Goodwill	100	<i>Non-current liabilities</i>	<i>500</i>
<i>Non-current assets</i>	<i>1,600</i>	Money owed to suppliers (payables)	200
Stock of ingredients and frozen goods (inventory)	250	Short-term bank borrowing	150
Money customers still owe (receivables)	200	Tax and other bills due	50
Cash in bank	150	<i>Current liabilities</i>	<i>400</i>
<i>Current assets</i>	<i>600</i>	Total liabilities	900
		Share capital (100 mn shares × Rs 10)	1,000
		Retained earnings (profits kept over the years)	300
		Total equity	1,300
Total assets	2,200	Total liabilities + equity	2,200

Fig. 7.1 Ali Foods Ltd balance sheet. Both sides add up to Rs 2,200 million. They always will.

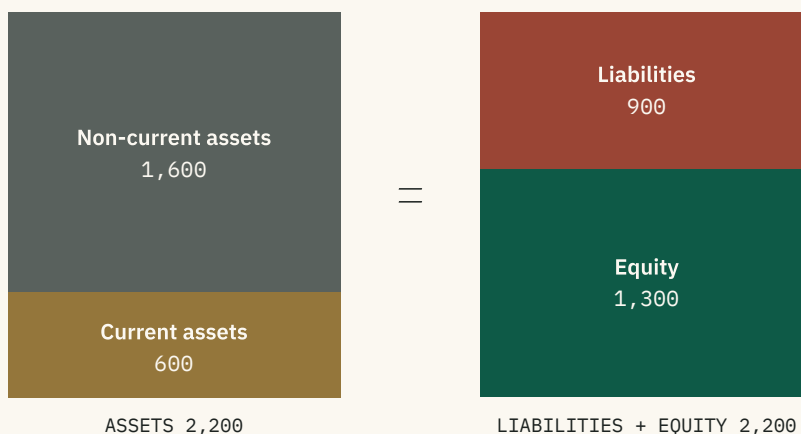


Fig. 7.2 The accounting equation, drawn to scale (10 px = Rs 100 million). Two towers of exactly the same height.

The asset side, line by line

Assets are split into two groups by one simple test: will they turn into cash within a year?

Current assets will. **Cash** is the safest asset of all. **Inventory** is ingredients and finished frozen samosas sitting in the cold store, waiting to be sold. **Receivables** are sales already made but not yet paid for; supermarkets usually pay Ali Foods 30 to 60 days later. Both are worth something, but both can go wrong. Inventory can go stale. Customers can fail to pay.

Non-current assets won't turn into cash soon, because the company needs them to operate. The biggest is usually **property, plant and equipment** (PP&E): land, buildings, machines, vehicles. These are shown at what they cost minus all the depreciation so far.

Goodwill is the strangest asset. Last year Ali Foods bought a small Karachi bakery. The bakery's ovens and stock were worth Rs 200 million, but Ali Foods paid Rs 300 million because of its loyal customers and famous name. The extra Rs 100 million it paid sits on the balance sheet as goodwill. You can't sell goodwill on its own, and if the bakery disappoints, the company must write it down, which shows up as a loss. Big goodwill is a sign the company has been buying other businesses; check whether those purchases are working.

The liabilities side

Liabilities are split the same way. **Current liabilities** must be paid within a year: suppliers waiting to be paid (payables), short-term bank borrowing, tax due. **Non-current liabilities** are due later, mainly long-term loans.

Add up the bank debt: Rs 500 million long-term plus Rs 150 million short-term is Rs 650 million. Subtract the Rs 150 million cash and you get **net debt** of Rs 500 million. That's how much Ali Foods would still owe if it used every rupee in its bank account to pay down loans. Remember this number; it comes back in valuation.

Equity: the owners' part

Share capital is the money shareholders originally put in, counted at face value: 100 million shares × Rs 10 = Rs 1,000 million. **Retained earnings** is all the profit the company has kept over its life instead of paying out.

Here's how the two statements connect. Last year Ali Foods' retained earnings were Rs 134 million. This year it made Rs 266 million and paid Rs 100 million in dividends (Rs 1 per share, a 10% dividend on face value).

A link you'll see again. This year's profit and dividend are the bridge between last year's balance sheet and this year's. Chapter 9 builds that bridge in full.

01	Retained earnings, start of year	134
02	Add net profit (from the income statement)	+ 266
03	Less dividends paid	- 100
=	Retained earnings, end of year	300

Book value is total equity: Rs 1,300 million. Per share, that's Rs 1,300 million ÷ 100 million = **Rs 13**. It's roughly what shareholders would get if the company sold everything at the values in the books and paid off all its debts. Real life rarely works out that neatly; factories may sell for much more or much less than their book value. But it's a useful anchor, especially for banks.

INVESTOR'S NOTEBOOK

Profit tells you how fast a company is moving. The balance sheet tells you whether it can survive a bump in the road.

Can it pay its bills? Liquidity and solvency

Two different questions, often confused.

Liquidity asks: can the company pay what it owes in the next twelve months? Compare current assets with current liabilities. The gap is **working capital**.

01	Current assets – current liabilities (600 – 400)	200
=	Current ratio (600 ÷ 400)	1.5×

Ali Foods has Rs 1.50 of short-term assets for every Rs 1 of short-term bills. Comfortable. Below 1.0 would mean it needs new money or a lot of luck to pay everyone on time.

Solvency asks a bigger question: can the company survive its debts over many years? Compare debt with equity.

=	Debt to equity (650 ÷ 1,300)	0.5×
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For every Rs 1 the owners have in the business, lenders have put in 50 paise. That's moderate. A company with debt three or four times its equity can be wiped out by one bad year or one interest rate rise. Chapter 12 gives you the full set of these checks.

YOUR TURN

Hunza Dairy (fictional) has: PP&E Rs 800 mn, inventory Rs 120 mn, receivables Rs 90 mn, cash Rs 40 mn, payables Rs 150 mn, short-term loan Rs 100 mn, long-term loan Rs 300 mn, and 50 million shares. (a) What is total equity? (b) Book value per share? (c) Current ratio? (d) Net debt?

Answer · Total assets = 800 + 120 + 90 + 40 = 1,050. Total liabilities = 150 + 100 + 300 = 550. (a) Equity = 1,050 – 550 = Rs 500 mn. (b) 500 ÷ 50 = Rs 10 per share. (c) Current assets 250 ÷ current liabilities 250 = 1.0×, tight. (d) Debt 400 – cash 40 = Rs 360 mn.

TAKEAWAYS

1. Assets = liabilities + equity, always. Equity is simply what's left for the owners.
2. Current means "within a year." Compare current assets with current liabilities to test liquidity.
3. Net debt (all borrowing minus cash) is the real burden. Compare it with equity to test solvency.
4. Large goodwill means past acquisitions. Check that they're earning their keep.
5. Retained earnings link the balance sheet to the income statement: last year's figure, plus profit, minus dividends.

REFERENCES

1. IFRS Foundation, IAS 1 *Presentation of Financial Statements* (current and non-current classification). [ifrs.org](https://www.ifrs.org)
2. IFRS Foundation, IFRS 3 *Business Combinations* and IAS 36 *Impairment of Assets* (goodwill). [ifrs.org](https://www.ifrs.org)
3. Ali Foods Ltd and Hunza Dairy are fictional. All figures are illustrative.

8

CHAPTER EIGHT

Reading Cash Flow Statements

Profit is what the accountant says you earned. Cash is what's actually in the bank. Companies die from running out of the second, not the first.

BY THE END OF THIS CHAPTER YOU CAN

- read the three sections of a cash flow statement
- calculate free cash flow and cash conversion
- explain how a profitable company can still run out of money

The shopkeeper's khata

Picture a kiriyana store owner who sells Rs 50,000 of goods this month. Most of it goes on *udhaar*, written in the khata for customers to pay later. On paper he had a great month. But when the wholesaler comes on the 1st to collect his money, the shopkeeper's drawer is nearly empty. He made a profit. He doesn't have the cash.

That gap between profit and cash is why the **cash flow statement** exists. It ignores accounting opinions and tracks one thing: real money, in and out of the bank account, during the year.

Three buckets

Every rupee that moves goes into one of three buckets.

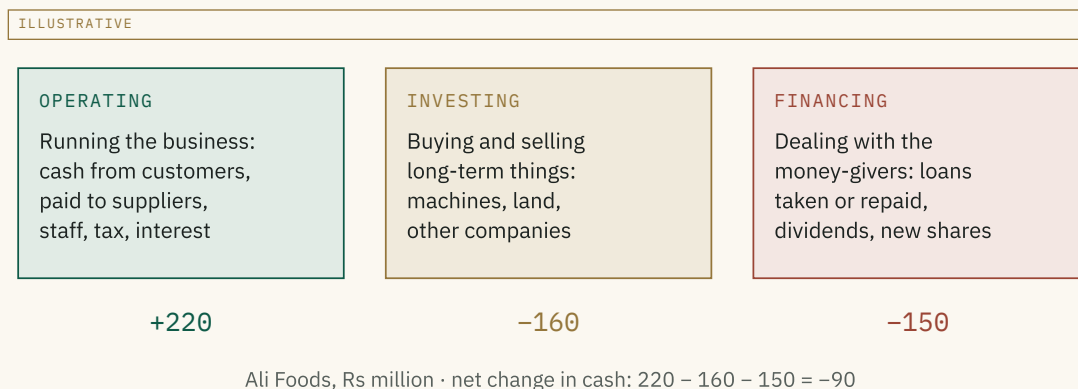


Fig. 8.1 The three buckets of a cash flow statement.

Operating cash flow is cash from the day-to-day business. This is the one that matters most. A healthy company should bring in plenty of cash here, year after year.

Investing cash flow is cash spent on, or received from, long-term things: new machines, a factory, land, buying another company. It's usually negative for a growing company, and that's normal. Spending on machines is called **capital expenditure**, or **capex**.

Financing cash flow is cash to and from the people who funded the company: banks and shareholders. Taking a loan brings cash in. Repaying a loan or paying a dividend sends cash out.

Ali Foods' cash flow statement

Most companies don't list every rupee received. Instead they start from net profit and correct it, step by step, to show cash. This is called the **indirect method**, and it's what you'll see in nearly every PSX annual report.

ILLUSTRATIVE

ALI FOODS LTD · YEAR ENDED 30 JUNE	RS MILLION	WHY
Net profit	266	From the income statement
Add back depreciation	100	A cost, but no cash left this year
Remove gain on sale of land	(60)	The land cash belongs in investing
Inventory went up	(50)	Cash got stuck in the cold store
Receivables went up	(60)	Customers haven't paid yet
Payables went up	20	We haven't paid suppliers yet, so cash stayed with us
Tax and other bills due went up	4	Tax charged 114, tax paid 110
Cash from operating activities	220	
Bought machines (capex)	(250)	New paratha line
Sold old land	90	Book value 30 + gain 60
Cash from investing activities	(160)	
Repaid long-term loan	(100)	
Took extra short-term borrowing	50	
Paid dividends	(100)	Rs 1 per share
Cash from financing activities	(150)	
Net change in cash	(90)	220 – 160 – 150
Cash at start of year	240	
Cash at end of year	150	Matches the balance sheet in Ch. 7

Fig. 8.2 Ali Foods Ltd cash flow statement. Interest paid (Rs 80 million) is inside operating cash flow, which is how many Pakistani companies show it; some put it under financing. Check the notes.

The two adjustments that confuse everyone

Why add back depreciation? Because the cash for the freezer line left years ago. This year's Rs 100 million depreciation reduced profit but didn't take a single rupee out of the bank. So to get from profit to cash, we put it back.

Why does more inventory or receivables mean less cash? Go back to the kiriyana store. If more of this month's sales are sitting in the khata, the profit is counted but the cash hasn't arrived. Same with inventory: if Ali Foods filled its cold store with Rs 50 million more stock, that cash is now frozen samosas, not rupees. The opposite works too. Paying suppliers later keeps cash in your pocket a little longer.

Here's a simple rule: *if an asset goes up, cash goes down. If a liability goes up, cash goes up.*

Free cash flow: the number that pays you

Operating cash flow tells you what the business brought in. But the business also has to keep buying machines just to stay in shape. What's left after that is **free cash flow**, or FCF: cash that could be paid to shareholders, used to repay debt, or saved, without hurting the business.

01	Cash from operating activities	220
02	Less capital expenditure	– 250
=	Free cash flow	– 30

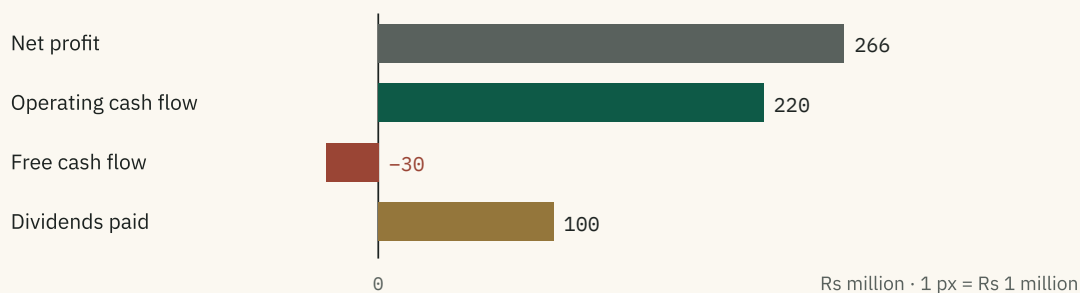


Fig. 8.3 Ali Foods reported Rs 266 million profit, but its free cash flow was negative. The Rs 100 million dividend was paid from its cash pile and extra borrowing. Drawn to scale.

This is the most important lesson in the chapter. Ali Foods looks profitable and paid a nice dividend. But after building its new paratha line, it didn't actually generate enough cash to pay that dividend. It used savings (cash fell from 240 to 150) and borrowed a little more.

Is that a disaster? Not necessarily. The new line should earn money for years. Look at the gap between capex (250) and depreciation (100): roughly Rs 100 million is the cost of keeping old machines running, and the other Rs 150 million is **growth spending**. One year of negative FCF while building is fine. Several years in a row while still paying big dividends means the dividend is being paid with borrowed money, and that can't last.

INVESTOR'S NOTEBOOK

A dividend paid out of borrowed money is not a gift. It's the company lending to itself on your behalf.

Cash conversion: is the profit turning into money?

Divide operating cash flow by net profit. This tells you how much of each rupee of profit actually showed up as cash.

01	Operating cash flow ÷ reported net profit (220 ÷ 266)	83%
=	Operating cash flow ÷ adjusted net profit (220 ÷ 224)	98%

Remember the land sale from Chapter 6? Once you strip it out, nearly all of Ali Foods' real profit turned into cash. That's healthy. As a rough guide, over several years a good company's operating cash flow should be close to, or above, its net profit. If profit keeps rising while operating cash flow stays flat or falls, find out why before you trust the profit.

How a profitable company runs out of cash

Taxila Tiles (fictional) is growing fast. Big builders love its tiles and order more every month. But builders pay slowly, and Taxila has to keep lots of stock to meet orders.

TAXILA TILES, RS MILLION	YEAR 1	YEAR 2
Sales	500	800
Net profit plus depreciation	60	95
Increase in receivables	(40)	(110)
Increase in inventory	(30)	(70)
Operating cash flow	(10)	(85)

Profits are up 58%. Cash is pouring out. Every new sale needs money tied up in stock and unpaid bills before the customer pays. Taxila has to borrow to pay wages and suppliers. If the bank says no, or one big builder doesn't pay, this "growing, profitable" company can collapse. Rapid growth eats cash. Always check the cash flow statement of a fast-growing company.

YOUR TURN

Sialkot Sports (fictional): net profit Rs 120 mn, depreciation Rs 40 mn, receivables up Rs 30 mn, inventory down Rs 10 mn, payables up Rs 15 mn, capex Rs 70 mn, dividend paid Rs 50 mn. Calculate (a) operating cash flow, (b) free cash flow, (c) cash conversion. (d) Was the dividend covered by free cash flow?

Answer · (a) $120 + 40 - 30 + 10 + 15 = \text{Rs } 155 \text{ mn}$. (b) $155 - 70 = \text{Rs } 85 \text{ mn}$. (c) $155 \div 120 = 129\%$, strong. (d) Yes: FCF of 85 easily covers the 50 dividend, leaving 35.

TAKEAWAYS

1. Operating cash flow is the business's real earning power. Over time it should roughly match or beat net profit.
2. If an asset goes up, cash goes down. If a liability goes up, cash goes up.
3. Free cash flow (operating cash minus capex) is what can actually be paid to you.
4. Check whether dividends are covered by free cash flow. Borrowed dividends don't last.
5. Fast growth can drain cash. A growing company with falling operating cash flow needs a close look.

REFERENCES

1. IFRS Foundation, IAS 7 *Statement of Cash Flows* (indirect method; classification of interest and dividends paid). [ifrs.org](https://www.ifrs.org)
2. Ali Foods Ltd, Taxila Tiles and Sialkot Sports are fictional. All figures are illustrative.

9

CHAPTER NINE

Connecting All Three Statements

Three reports, one story. Once you see the threads between them, you can check any company's numbers yourself.

BY THE END OF THIS CHAPTER YOU CAN

- trace how profit, cash and the balance sheet connect
- explain every change in a balance sheet from one year to the next
- predict how a single event, like taking a loan, shows up in all three statements

Three views of one cricket match

Think of a cricket match. The **scorecard at the end** tells you where things stand: runs, wickets, overs. The **ball-by-ball commentary** tells you how each run was scored. The **partnership chart** tells you who contributed what. Three different views, same match. If the runs in the commentary don't add up to the scorecard, someone has made a mistake. Financial statements work the same way. The balance sheet is the scorecard at a moment in time. The income statement and cash flow statement explain how the scorecard changed from last year to this year. They must agree.

ILLUSTRATIVE

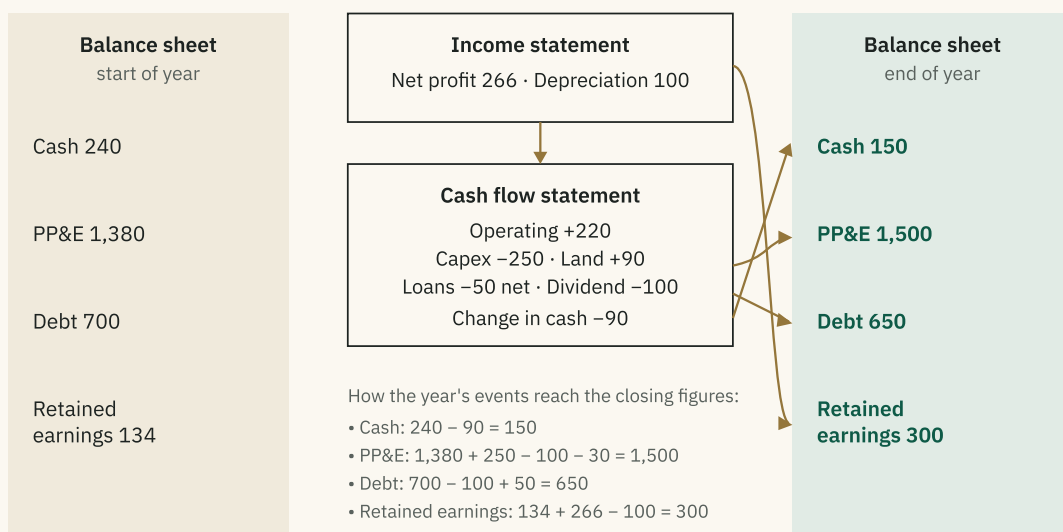


Fig. 9.1 The threads between the three statements. Net profit starts the cash flow statement and grows retained earnings. The cash flow statement explains the change in cash. Capex and depreciation explain the change in machines. Loans and dividends explain the change in debt and equity.

The four threads

Thread 1: profit → retained earnings. Net profit from the income statement is added to retained earnings on the balance sheet. Dividends are taken away. $134 + 266 - 100 = 300$.

Thread 2: profit → cash flow. The cash flow statement starts with the same net profit, then adjusts it to cash.

Thread 3: cash flow → cash. The cash flow statement ends with the change in cash. Add it to last year's cash and you get this year's balance sheet cash. $240 - 90 = 150$.

Thread 4: everything else. Every other change in the balance sheet is explained by a line somewhere in the other two statements. Machines go up with capex and down with depreciation. Debt goes up with borrowing and down with repayments.

Ali Foods: every change, explained

Here are Ali Foods' two balance sheets side by side, with every single change traced to its source. This is the complete case study the chapter promised: one company, three statements, nothing left unexplained.

ILLUSTRATIVE				
RS MILLION	START	END	CHANGE	EXPLAINED BY
PP&E	1,380	1,500	+120	Capex +250, depreciation –100, land sold –30
Goodwill	100	100	0	No new acquisitions, no write-down
Inventory	200	250	+50	Cash flow: inventory went up
Receivables	140	200	+60	Cash flow: receivables went up
Cash	240	150	–90	Net change in cash
Total assets	2,060	2,200	+140	
Payables	180	200	+20	Cash flow: payables went up
Short-term borrowing	100	150	+50	Financing: new borrowing
Tax and other bills due	46	50	+4	Tax charged 114, paid 110
Long-term loan	600	500	–100	Financing: repayment
Share capital	1,000	1,000	0	No new shares issued
Retained earnings	134	300	+166	Profit +266, dividends –100
Total liabilities + equity	2,060	2,200	+140	Balances on both dates

Fig. 9.2 Ali Foods Ltd balance sheets at the start and end of the year. Every change comes from the income statement (Ch. 6) or the cash flow statement (Ch. 8).

INVESTOR'S NOTEBOOK

If you can explain every change in a balance sheet, you understand the company's year. If you can't, that's exactly where to dig.

Five events, followed through all three statements

The best way to make this stick is to take one event at a time and ask: what happens in each statement? Use Ali Foods and imagine each event on its own.

EVENT	INCOME STATEMENT	CASH FLOW STATEMENT	BALANCE SHEET
Depreciation of Rs 100 mn	Cost –100, so profit falls (after tax, by 70)	Added back in operating; only the tax saved is real cash	PP&E –100; retained earnings –70; tax due –30
Buy Rs 50 mn of stock on credit	Nothing yet; it's a cost only when sold	Nothing yet; no cash moved	Inventory +50; payables +50
Borrow Rs 50 mn from a bank	Nothing (interest comes later)	Financing +50	Cash +50; debt +50

EVENT	INCOME STATEMENT	CASH FLOW STATEMENT	BALANCE SHEET
Pay a Rs 100 mn dividend	Nothing; dividends aren't a cost	Financing –100	Cash –100; retained earnings –100
Buy a Rs 250 mn machine	Nothing now; depreciation over its life	Investing –250	Cash –250; PP&E +250

Notice that in every row, the balance sheet still balances. The machine purchase swaps one asset (cash) for another (machines). The loan adds the same amount to both sides. A dividend takes the same amount off both sides. That's not luck. It's the rule from Chapter 7, working every time.

Three quick checks for any real company

When you open a real PSX annual report, use these three checks. They take five minutes and catch a surprising amount.

1. **Does closing cash in the cash flow statement match cash on the balance sheet?** If not, read the note that explains the difference (often short-term borrowings or restricted cash counted differently).
2. **Does the change in retained earnings roughly equal profit minus dividends?** If there's a big unexplained gap, look at the "statement of changes in equity" for what else moved.
3. **Did debt rise while the company said it was doing well?** Find out what the money was spent on. Growth? Dividends? Covering losses?

YOUR TURN

Starting from Ali Foods' end-of-year figures, the company does just two things next month: it issues 10 million new shares at Rs 30 each, and uses the money to repay part of its long-term loan. What happens to (a) cash, (b) long-term loan, (c) share capital, (d) total equity, (e) debt to equity? Ignore profit for the month.

Answer · The share issue brings in Rs 300 mn; repaying the loan sends it straight out. (a) Cash unchanged at 150. (b) Long-term loan $500 - 300 = 200$. (c) Share capital rises by face value: $10 \text{ mn} \times \text{Rs } 10 = +100$, to 1,100. The extra Rs 20 per share above face value (Rs 200 mn) goes into a "share premium" reserve. (d) Equity $1,300 + 300 = 1,600$. (e) Total debt $200 + 150 = 350$; $350 \div 1,600 = 0.22\times$, down from $0.5\times$.

TAKEAWAYS

1. The balance sheet is the scorecard; the income statement and cash flow statement explain how it changed.
2. Net profit links to both retained earnings and the start of the cash flow statement.
3. Ending cash in the cash flow statement must match balance sheet cash.
4. Follow any single event through all three statements and the balance sheet will still balance.

REFERENCES

1. IFRS Foundation, *IAS 1 Presentation of Financial Statements* (statement of changes in equity) and *IAS 7 Statement of Cash Flows*. [ifrs.org](https://www.ifrs.org)
2. Ali Foods Ltd is fictional. Its income statement (Ch. 6), balance sheets (Ch. 7 and 9) and cash flow statement (Ch. 8) are built to reconcile exactly.

Financial Ratios and Calculations

A company that made Rs 266 million profit. Is that good? You can't tell. It depends on how much it sold, how much money it needed, and how much you paid for it. Ratios answer those questions by comparing one number with another.

Each ratio in this part gets the same treatment: what it measures, the formula, Ali Foods worked step by step, how to read it, what can fool it, and how it changes from industry to industry.

10 · Profitability Ratios	56
11 · Valuation Ratios	62
12 · Debt, Liquidity and Efficiency	69
13 · Growth Analysis	74

10

CHAPTER TEN

Profitability Ratios

Two shops both earn Rs 1 lakh a month. One needed Rs 5 lakh to set up; the other needed Rs 50 lakh. They are not equally good businesses.

BY THE END OF THIS CHAPTER YOU CAN

- calculate margins, ROE, ROA, ROIC and ROCE from an annual report
- break ROE into its three parts with DuPont analysis
- tell a high return earned honestly from one built on debt

The Ali Foods numbers we'll use

Everything below comes from Chapters 6 to 9. For "return" ratios we use the **average** of the start-of-year and end-of-year balance sheet, because profit was earned across the whole year, not on one day.

ALI FOODS LTD, RS MILLION	FIGURE	FROM
Revenue · Gross profit · EBIT	2,000 · 800 · 400	Ch. 6
Net profit · adjusted (without land gain)	266 · 224	Ch. 6
Tax rate (assumed)	30%	Ch. 6
Equity, start → end · average	1,134 → 1,300 · 1,217	Ch. 9
Total assets, start → end · average	2,060 → 2,200 · 2,130	Ch. 9
Debt, start → end · Cash, start → end	700 → 650 · 240 → 150	Ch. 9

Margins: how much of each sale you keep

You met these in Chapters 4 and 6. Here they are as proper ratio cards.

Gross, operating and net margin

40% · 20% · 13.3%

MEASURES	How many rupees of each Rs 100 of sales are left at each step of the income statement.
FORMULA	Gross profit ÷ Revenue EBIT ÷ Revenue Net profit ÷ Revenue
ALI FOODS	800 ÷ 2,000 = 40.0% 400 ÷ 2,000 = 20.0% 266 ÷ 2,000 = 13.3% (adjusted 224 ÷ 2,000 = 11.2%)
READ IT AS	Of every Rs 100 of samosas sold, Rs 40 survives the factory, Rs 20 survives running the company, and about Rs 11 is real profit for owners.
USEFUL FOR	Spotting pricing power (stable or rising gross margin) and cost control (operating margin) over five years.
CAN FOOL YOU	One-offs inflate net margin. Changing how costs are grouped can shift gross margin without anything real changing.

Return on equity: what your money earns inside the company

If you put Rs 100 into a savings account and earn Rs 12 a year, your return is 12%. **Return on equity (ROE)** asks the same question of a company: for every Rs 100 the owners have in the business, how much profit did it make?

01	Average equity $((1,134 + 1,300) \div 2)$	1,217
02	Net profit $\div$ average equity $(266 \div 1,217)$	21.9%
=	Adjusted ROE $(224 \div 1,217)$	18.4%

Return on equity (ROE)

18.4% adjusted

READ IT AS	The business turns every Rs 100 of owners' money into about Rs 18 of profit a year. Compare it with what you'd earn risk-free in a bank deposit or government savings; a business should beat that comfortably.
USEFUL FOR	The single best quick test of whether a business creates value for its owners, especially banks.
CAN FOOL YOU	Debt pushes ROE up (less equity, same profit). Big losses or buybacks shrink equity and make ROE look great. A company with negative equity can show a meaningless ROE.
BY INDUSTRY	Banks run on a lot of borrowed money, so they need high ROE from small margins. Asset-light businesses can show very high ROE with no debt at all.

Return on assets: how hard the whole company works

Return on assets (ROA)

12.5%

MEASURES	Profit earned on everything the company owns, however it was paid for.
FORMULA	$\text{Net profit} \div \text{Average total assets}$
ALI FOODS	$266 \div 2,130 = 12.5\%$ (adjusted $224 \div 2,130 = 10.5\%$)
READ IT AS	Every Rs 100 of factories, stock and cash produced about Rs 10.50 of real profit.
CAN FOOL YOU	Old, fully depreciated factories make assets look small and ROA look high.
BY INDUSTRY	Banks: often around 1 to 2%, because nearly all their assets are loans funded by deposits. Factories: lower than software houses. Never compare a bank's ROA with a cement company's.

ROIC and ROCE: the professionals' favourites

ROE can be pumped up with debt. ROA mixes in cash that's just sitting there. Professionals often prefer to ask: *for all the money put to work in the business, by owners and lenders together, what does the business itself earn?*

Return on invested capital (ROIC) uses operating profit after tax, called **NOPAT**, and divides it by the money invested by owners and lenders, minus spare cash.

01	NOPAT = EBIT × (1 – tax rate) = 400 × 0.70	280
02	Invested capital, start: 1,134 + 700 – 240	1,594
03	Invested capital, end: 1,300 + 650 – 150	1,800
04	Average invested capital	1,697
=	ROIC (280 ÷ 1,697)	16.5%

Return on capital employed (ROCE) is a close cousin. It uses EBIT before tax, and capital employed is total assets minus current liabilities.

01	Capital employed, start: 2,060 – 326	1,734
02	Capital employed, end: 2,200 – 400	1,800
=	ROCE (400 ÷ average 1,767)	22.6%

ROIC and ROCE 16.5% · 22.6%

READ IT AS	The business earns about 16.5% after tax on all the money tied up in it. If it can borrow or raise money for less than that, growth creates value. If its ROIC is below the cost of that money, growth destroys value, however exciting it looks.
USEFUL FOR	Judging management's capital allocation (Chapter 5) and comparing companies with different amounts of debt.
CAN FOOL YOU	Analysts define invested capital in slightly different ways. Always check how a figure was calculated before comparing it with yours. One-off gains don't affect it, which is a strength.
BY INDUSTRY	Capital-heavy businesses (cement, power) usually show lower ROIC than asset-light ones (software, brands). A cement company with a steady mid-teens ROIC through a full cycle is doing well.

Asset turnover: how hard the assets work

=	Revenue ÷ average total assets (2,000 ÷ 2,130)	0.94×
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Ali Foods makes Rs 94 of sales for every Rs 100 of assets. A supermarket might make Rs 300 of sales per Rs 100 of assets, at a very thin margin. A power plant might make Rs 30, at a fat margin. Neither is wrong; they're different machines.

INVESTOR'S NOTEBOOK

High returns on capital, held for many years, are the fingerprint of a great business. Look for that pattern before you look at anything else.

DuPont: taking ROE apart

ROE is made of three things multiplied together. Splitting it shows you *how* a company earns its return.

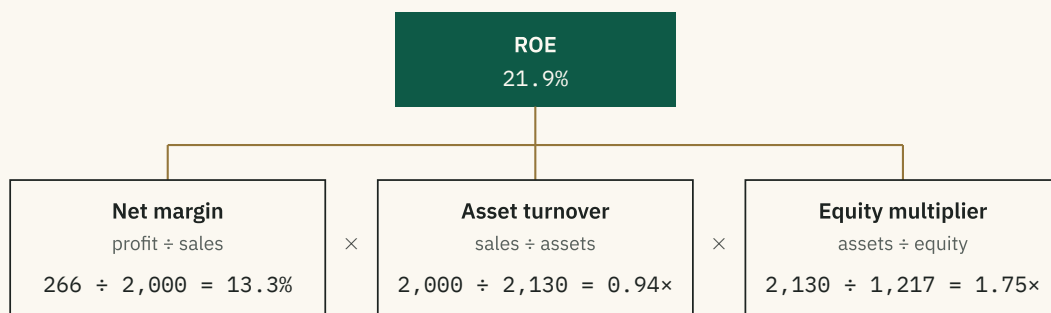


Fig. 10.1 DuPont analysis of Ali Foods. $13.3\% \times 0.939 \times 1.750 = 21.9\%$. The three parts are profitability, efficiency and borrowing.

Why bother? Because the same ROE can come from very different places. Look at two fictional companies, both showing a 20% ROE:

	NET MARGIN	ASSET TURNOVER	EQUITY MULTIPLIER	ROE
Quetta Brands (strong brand, little debt)	20%	0.5×	2.0×	20%
Port Traders (thin margins, heavy debt)	2%	2.5×	4.0×	20%

Quetta Brands earns its 20% by making a lot on each sale. Port Traders earns it by selling a lot and borrowing a lot. If Port Traders' margin slips from 2% to 1%, its ROE halves. If interest rates rise, its debt bites. Same headline number, very different risk.

YOUR TURN

Chenab Pharma (fictional): revenue Rs 3,000 mn, EBIT Rs 450 mn, net profit Rs 300 mn, average total assets Rs 2,500 mn, average equity Rs 1,500 mn, tax rate 30%, average invested capital Rs 2,100 mn. Calculate (a) net margin, (b) ROE, (c) ROA, (d) ROIC, (e) check ROE with DuPont.

Answer · (a) $300 \div 3,000 = 10\%$. (b) $300 \div 1,500 = 20\%$. (c) $300 \div 2,500 = 12\%$. (d) NOPAT $450 \times 0.7 = 315$; $315 \div 2,100 = 15\%$. (e) $10\% \times (3,000 \div 2,500 = 1.2\times) \times (2,500 \div 1,500 = 1.667\times) = 20\%$. ✓

TAKEAWAYS

1. Margins tell you how much of each sale you keep; returns tell you how much the money invested earns.
2. Use average balance-sheet figures and adjusted profit for return ratios.
3. ROIC is the cleanest test of business quality because debt and spare cash can't flatter it.
4. Use DuPont to see whether a high ROE comes from margins, efficiency or borrowing.

REFERENCES

1. CFA Institute, *Financial Reporting and Analysis*, CFA Program curriculum (ratio definitions and DuPont analysis).
2. Aswath Damodaran, "Return on Capital (ROC), Return on Invested Capital (ROIC) and Return on Equity (ROE): Measurement and Implications," NYU Stern, 2007. pages.stern.nyu.edu/~adamodar
3. Ali Foods Ltd, Quetta Brands, Port Traders and Chenab Pharma are fictional.

11

CHAPTER ELEVEN

Valuation Ratios

Chapter 10 asked whether the business is good. This chapter asks whether the price is fair. A great business at a silly price is still a bad buy.

BY THE END OF THIS CHAPTER YOU CAN

- calculate P/E, P/B, P/S, PEG, EV/EBITDA, and the yields
- work out enterprise value from market cap and net debt
- explain why a "cheap" share is often cheap for a reason

The price tag

When you buy a plot of land, you don't just ask "how much?" You ask "how much per marla?" Then you can compare it with the plot next door. Valuation ratios do the same for shares: they turn a share price into "price per rupee of profit," "price per rupee of sales," or "price per rupee of book value," so you can compare.

Ali Foods' share price is **Rs 50**, with **100 million shares**.

Market cap and enterprise value

Market capitalisation is what the shares are worth: Rs 50 × 100 million = **Rs 5,000 million**. But if you bought the entire company, you'd also take on its debts, and you'd get its cash. So professionals use **enterprise value** (EV): the price of the whole business, debt included.

Think of buying a house that has a Rs 20 lakh loan on it. The seller asks Rs 80 lakh, but you also have to take over the loan. The real price is Rs 1 crore. If there's Rs 5 lakh in a drawer that comes with the house, the real price is Rs 95 lakh.

ILLUSTRATIVE



Fig. 11.1 Enterprise value = market cap + debt – cash = 5,000 + 650 – 150 = Rs 5,500 million. Debt minus cash is the net debt of Rs 500 million from Chapter 7.

P/E: how many years of profit are you paying for?

Price-to-earnings (P/E)		22.3× adjusted
MEASURES	How many rupees you pay for each rupee the company earned in the last year.	
FORMULA	Share price ÷ EPS	
ALI FOODS	Reported: 50 ÷ 2.66 = 18.8× Adjusted: 50 ÷ 2.24 = 22.3×	
READ IT AS	If profit stayed exactly the same forever, it would take about 22 years of earnings to add up to the price. Buyers expect profit to grow, which is why they'll pay that much.	

EARNINGS YIELD $\text{EPS} \div \text{price} = 2.24 \div 50 = 4.5\%$. The P/E flipped upside down. Handy to compare with interest rates on savings.

Notice what the land sale from Chapter 6 did. On reported profit Ali Foods looks like it costs 18.8 times earnings. On real, repeatable profit it's 22.3. Same share, same price, and a big difference in how "cheap" it looks.

WHY A P/E OF 20 CAN BE CHEAPER THAN A P/E OF 10

Two fictional companies, both at Rs 150. Company A earns Rs 15 a share (P/E 10) and isn't growing. Company B earns Rs 7.50 (P/E 20), but its profit grows 20% a year. Divide the price you paid today by each future year's EPS:

YEAR	A • EPS	A • PRICE ÷ EPS	B • EPS	B • PRICE ÷ EPS
Today	15.00	10.0×	7.50	20.0×
1	15.00	10.0×	9.00	16.7×
2	15.00	10.0×	10.80	13.9×
3	15.00	10.0×	12.96	11.6×
4	15.00	10.0×	15.55	9.6×

ILLUSTRATIVE

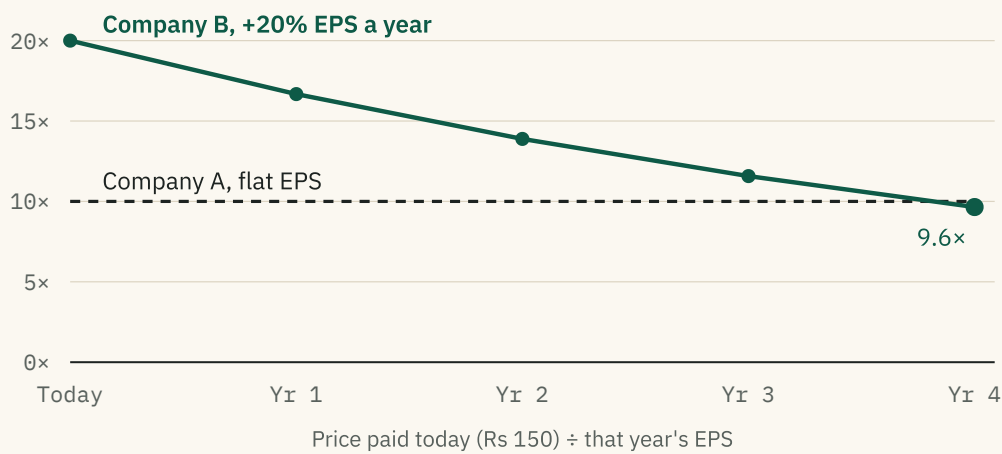


Fig. 11.2 If B delivers its growth, by year four you're paying less per rupee of profit than A's buyers. If B's growth stalls, you paid 20× for a company earning Rs 7.50 forever. Drawn to scale.

A P/E is a price tag for expectations. A high P/E says "the market expects profits to grow." A low one says "the market expects trouble." Your job is to decide whether the market is right.

FORWARD P/E AND PEG

The normal P/E uses last year's profit, which is why it's sometimes called "trailing." A **forward P/E** uses next year's expected profit instead. Suppose we expect Ali Foods' real EPS to grow 15% next year: $2.24 \times 1.15 = \text{Rs } 2.58$. Forward P/E = $50 \div 2.58 = 19.4\times$. That forecast is an assumption, and forecasts are often wrong.

The **PEG ratio** divides P/E by the expected growth rate (as a plain number) to see if you're paying fairly for growth.

= $\text{PEG} = \text{P/E} \div \text{growth \%} = 22.3 \div 15$ **1.49**

A rough rule many investors use: around 1 is fair, well below 1 may be cheap, well above 1 means you're paying a lot for growth. It's a rule of thumb, not a law. Growth that's assumed is worth much less than growth that's proven.

The other price tags, all on one page

ILLUSTRATIVE				
RATIO	FORMULA	ALI FOODS	BEST USED FOR	WATCH OUT
P/B	Price ÷ book value per share	$50 \div 13 = 3.8\times$	Banks, insurers, asset-heavy firms	Means little for brands and software whose value isn't on the balance sheet
P/S	Market cap ÷ revenue	$5,000 \div 2,000 = 2.5\times$	Young or loss-making firms	Sales aren't profit; a 2% margin business deserves a much lower P/S
EV/EBITDA	EV ÷ EBITDA	$5,500 \div 500 = 11.0\times$	Comparing firms with different debt	Ignores the cost of replacing machines (Ch. 6)
EV/EBIT	EV ÷ EBIT	$5,500 \div 400 = 13.8\times$	Capital-heavy firms	Still ignores tax differences
EV/Sales	EV ÷ revenue	$5,500 \div 2,000 = 2.75\times$	Like P/S, but debt-aware	Same as P/S
FCF yield	Free cash flow ÷ market cap	$-30 \div 5,000 = -0.6\%$	Seeing what cash the price buys	One heavy capex year distorts it; use a 3–5 year average
Dividend yield	Dividend per share ÷ price	$1 \div 50 = 2.0\%$	Income investors	A falling price makes the yield look high (Ch. 17)
Payout ratio	Dividend ÷ EPS	$1 \div 2.24 = 44.6\%$	Testing if dividends are sustainable	Check it against free cash flow too (Ch. 8)

Fig. 11.3 Ali Foods' valuation dashboard at Rs 50 a share. Payout on adjusted EPS; on reported EPS it is $1 \div 2.66 = 37.6\%$.

Two things jump out. Ali Foods pays out 45% of its real profit as dividends, which sounds fine, but its free cash flow this year was negative, so Chapter 8's warning applies. And a P/B of 3.8× means investors value it at nearly four times what's in the books, a sign they believe in its brand and growth, not its freezers.

INVESTOR'S NOTEBOOK

A low P/E is a question, not an answer. Ask what the market is worried about, then decide whether it's right.

Cheap is not the same as undervalued

The most common beginner mistake is buying something because the ratio looks low. Meet Lyari Shipping (fictional), at Rs 20 with EPS of Rs 5. A P/E of 4! What a bargain. Except its profits are falling 40% a year:

YEAR	EPS	PRICE PAID ÷ THAT YEAR'S EPS
Today	5.00	4.0×
1	3.00	6.7×
2	1.80	11.1×
3	1.08	18.5×

In three years, your "cheap" share costs more per rupee of profit than Ali Foods does today. This is a **value trap**: a share that looks cheap because the business is shrinking. Low ratios are where you start asking questions, never where you stop.

Four reasons a share can look cheap and deserve it: profits are about to fall (cyclical peak, Chapter 18); the profit includes a one-off; the company has heavy debt the P/E doesn't show; or the owners treat small shareholders badly (Chapter 5).

YOUR TURN

Bolan Cement (fictional): price Rs 120, 200 million shares, EPS Rs 12, book value per share Rs 80, dividend Rs 6, debt Rs 9,000 mn, cash Rs 1,000 mn, EBITDA Rs 4,000 mn. Calculate (a) P/E and earnings yield, (b) P/B, (c) market cap and EV, (d) EV/EBITDA, (e) dividend yield and payout ratio.

Answer · (a) $120 \div 12 = 10\times$; 10%. (b) $120 \div 80 = 1.5\times$. (c) $120 \times 200 \text{ mn} = \text{Rs } 24,000 \text{ mn}$; $\text{EV} = 24,000 + 9,000 - 1,000 = \text{Rs } 32,000 \text{ mn}$. (d) $32,000 \div 4,000 = 8\times$. (e) $6 \div 120 = 5\%$; $6 \div 12 = 50\%$. Notice the P/E of 10 ignores Rs 8,000 mn of net debt; EV/EBITDA doesn't.

TAKEAWAYS

1. Valuation ratios turn a price into a "price per rupee" of profit, sales or assets, so you can compare.
2. Use adjusted EPS. One-offs can make a share look much cheaper than it is.
3. Enterprise value adds debt and subtracts cash. Use EV ratios when companies carry different debt.
4. Match the ratio to the business: P/B for banks, EV/EBITDA for capital-heavy firms, P/E for steady earners.
5. A low ratio is a question. Make sure the business isn't shrinking before you call it cheap.

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1. Aswath Damodaran, *Investment Valuation*, 3rd ed., Wiley, 2012 (multiples, enterprise value).
2. Benjamin Graham, *The Intelligent Investor*, rev. ed., HarperBusiness, 2003 (price versus value; earnings yield).
3. Peter Lynch, *One Up on Wall Street*, Simon & Schuster, 1989 (origin of the popular PEG rule of thumb).
4. Ali Foods Ltd, Lyari Shipping, Bolan Cement and Companies A and B are fictional. The 15% growth forecast is an assumption for illustration.

12

CHAPTER TWELVE

Debt, Liquidity and Efficiency

Most companies that collapse were profitable not long before. They didn't run out of profit. They ran out of time to pay their bills.

BY THE END OF THIS CHAPTER YOU CAN

- test whether a company can pay its bills this year
- test whether its debt is manageable over the long run
- measure how long cash stays stuck inside the business

The motorcycle on instalments

Kamran earns Rs 80,000 a month. He buys a motorcycle on instalments of Rs 15,000 a month. Fine. Then a phone on instalments, Rs 10,000. Then a fridge, Rs 12,000. Now Rs 37,000 of his salary is gone before he buys food. One bad month, a medical bill or a late salary, and he can't pay. Nothing he bought was a bad idea on its own. Together, they made him fragile.

Companies are the same. Debt isn't evil; it helps businesses grow. But too much debt, or debt that comes due at the wrong moment, can sink a perfectly good company. This chapter gives you the tests. Ali Foods' numbers, from Chapters 6 to 9:

ALI FOODS LTD, RS MILLION	START	END
Inventory · Receivables · Cash	200 · 140 · 240	250 · 200 · 150
Current assets · Current liabilities	580 · 326	600 · 400
Payables · Total debt · Equity	180 · 700 · 1,134	200 · 650 · 1,300
Revenue · Cost of sales · EBITDA · EBIT · Finance cost	2,000 · 1,200 · 500 · 400 · 80	

Test 1 · Can it pay this year's bills? (Liquidity)

Three ratios, each stricter than the last. They all compare what the company can turn into cash soon with what it must pay soon.

Current, quick and cash ratios 1.5× · 0.88× · 0.38×

FORMULA	Current: current assets ÷ current liabilities Quick: (current assets – inventory) ÷ current liabilities Cash: cash ÷ current liabilities
ALI FOODS	600 ÷ 400 = 1.50× (600 – 250) ÷ 400 = 0.88× 150 ÷ 400 = 0.38×
READ IT AS	Counting everything, Ali Foods has Rs 1.50 for each Rs 1 of bills due this year. Without the frozen stock, which takes time to sell, it has 88 paise. In cash right now, 38 paise. It relies on customers paying on time.
WHY THREE?	Inventory can go stale or sell slowly, so the quick ratio leaves it out. The cash ratio is the "what if nobody pays us for a month" test.

CAN FOOL YOU	It's one day's snapshot. Companies sometimes tidy up their balance sheet right before year-end.
BY INDUSTRY	Supermarkets and fast food often run below 1.0 safely, because customers pay cash instantly while suppliers are paid later. A manufacturer below 1.0 deserves a closer look. Banks use different tests entirely.

Test 2 · Can it live with its debt? (Solvency)

Debt to equity 0.50×

FORMULA	Total debt ÷ total equity = 650 ÷ 1,300
READ IT AS	Lenders have put in 50 paisa for every rupee the owners have. Moderate.
CAN FOOL YOU	Doesn't show how much profit is available to pay the debt. A small, stable debt on a shaky business can still be dangerous.

Net debt to EBITDA 1.0×

FORMULA	(Debt – cash) ÷ EBITDA = (650 – 150) ÷ 500
READ IT AS	If Ali Foods used all its EBITDA to repay debt, it would be debt-free in about one year. This is the ratio banks look at most when deciding whether to lend more.
BY INDUSTRY	Utilities with very steady income can carry more. A cyclical business (cement, steel) whose EBITDA can halve in a bad year should carry much less.

Interest coverage 5.0×

FORMULA	EBIT ÷ finance cost = 400 ÷ 80
READ IT AS	Operating profit covers the interest bill five times over. Profit could fall by 80% and Ali Foods could still pay its interest.
WHY IT MATTERS IN PAKISTAN	Interest rates here have swung a lot over the years. A company that's comfortable when rates are low can be squeezed hard when they rise. Always run the stress test below.

THE STRESS TEST: WHAT IF RATES RISE?

Suppose interest rates jump and Ali Foods' finance cost rises by half, from Rs 80 to Rs 120 million, and a slowdown cuts EBIT by a quarter, from 400 to 300.

01	Stressed EBIT ÷ stressed finance cost (300 ÷ 120)	2.5×
=	Still covers interest. Ali Foods passes.	✓

Now a fragile company. Gwadar Steel (fictional) has EBIT of Rs 300 million and a finance cost of Rs 250 million. Coverage is 1.2×. Apply the same stress (EBIT down a quarter to 225, interest up half to 375): coverage falls to **0.6×**. It can no longer pay its interest from its profits. It must borrow more, sell assets, or ask shareholders for money through a rights issue (Chapter 1). Same economy, same shock. One company shrugs; the other is in trouble.

INVESTOR'S NOTEBOOK

Debt doesn't make a good business bad. It makes a bad year deadly. Always ask what happens to this company in its worst year, not its best.

Test 3 · How long is cash stuck? (Efficiency)

Back at the samosa factory, here's what happens to each rupee. Ali Foods buys potatoes and flour. They sit in the cold store as frozen samosas. Then they're sold to a supermarket, which pays a month later. Meanwhile, Ali Foods pays its own suppliers after a while too. The question is: how many days is Ali Foods' own cash tied up?

01	Days inventory: $\text{average inventory} \div \text{cost of sales} \times 365 = 225 \div 1,200 \times 365$	68.4 days
02	Days receivables: $\text{average receivables} \div \text{revenue} \times 365 = 170 \div 2,000 \times 365$	31.0 days
03	Days payables: $\text{average payables} \div \text{cost of sales} \times 365 = 190 \div 1,200 \times 365$	57.8 days
=	Cash conversion cycle: $68.4 + 31.0 - 57.8$	41.6 days

ILLUSTRATIVE

Ali Foods, from buying ingredients to collecting cash · 4 px = 1 day

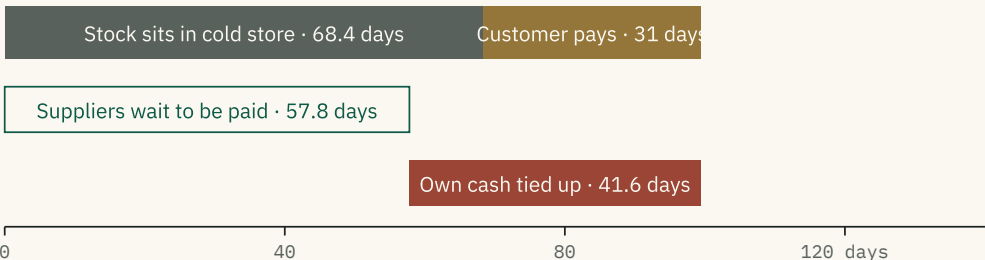


Fig. 12.1 The cash conversion cycle. Suppliers fund the first 57.8 days; Ali Foods' own cash funds the last 41.6. Drawn to scale.

Inventory turnover and receivables turnover are the same idea flipped: $1,200 \div 225 = \mathbf{5.3 \text{ times}}$ a year for stock, $2,000 \div 170 = \mathbf{11.8 \text{ times}}$ for receivables. Days are easier to picture, so most investors use days.

Why should you care? Because growth needs this cash. Ali Foods ties up inventory plus receivables minus payables, $250 + 200 - 200 = \text{Rs } 250 \text{ million}$, to run Rs 2,000 million of sales. That's **12.5%**. So every extra Rs 100 of sales needs about Rs 12.50 of new cash before it brings anything in. Remember Taxila Tiles from Chapter 8? Its cycle got longer as it grew, and that's what drained it.

Watch the trend. A cash cycle that stretches from 40 to 70 days while management says "sales are booming" often means customers are paying slower or stock isn't selling. Both are early warnings.

The fragile-company checklist

These are rules of thumb for a typical non-financial company, not laws. Use them to decide where to look harder. Banks and insurers need their own tests (Chapter 18).

RULE OF THUMB

CHECK	COMFORTABLE	WATCH	FRAGILE	ALI FOODS
Current ratio	Above 1.5×	1.0–1.5×	Below 1.0×	1.5×
Net debt / EBITDA	Below 1.5×	1.5–3.0×	Above 3.0×	1.0×
Interest coverage	Above 5×	2–5×	Below 2×	5.0×
Coverage after stress test	Above 2×	1–2×	Below 1×	2.5×
Cash conversion cycle trend	Stable or shorter	Lengthening slowly	Lengthening fast	Check ↓
Free cash flow, 3-year total	Positive	Around zero	Negative and dividends still paid	Check ↓

Fig. 12.2 Fragile-company checklist. Ali Foods is comfortable on debt; its one open question, from Chapter 8, is whether free cash flow turns positive once the new paratha line is running.

YOUR TURN

Mardan Sugar (fictional): current assets Rs 900 mn including inventory Rs 600 mn and cash Rs 50 mn; current liabilities Rs 800 mn; total debt Rs 1,500 mn; EBITDA Rs 400 mn; EBIT Rs 300 mn; finance cost Rs 180 mn. Calculate (a) current and quick ratios, (b) net debt / EBITDA, (c) interest coverage, (d) coverage if EBIT falls a quarter and interest rises by half. Comfortable, watch or fragile?

Answer · (a) $900 \div 800 = 1.13\times$; $(900 - 600) \div 800 = 0.38\times$. (b) $(1,500 - 50) \div 400 = 3.6\times$. (c) $300 \div 180 = 1.7\times$. (d) $225 \div 270 = 0.8\times$. Fragile: it relies on selling a big pile of stock to pay its bills, and a modest shock leaves it unable to cover interest.

TAKEAWAYS

1. Liquidity is about this year's bills; solvency is about surviving the debt over many years. Check both.
2. Net debt / EBITDA and interest coverage tell you more than debt / equity alone.
3. Always stress-test: lower profit and higher interest at the same time.
4. The cash conversion cycle shows how much cash growth will eat. Watch its trend.

REFERENCES

1. CFA Institute, *Financial Reporting and Analysis*, CFA Program curriculum (liquidity, solvency and activity ratios).
2. State Bank of Pakistan, monetary policy statements and policy rate history, for context on how often Pakistani interest rates change. sbp.org.pk
3. Ali Foods Ltd, Gwadar Steel and Mardan Sugar are fictional. Thresholds in Fig. 12.2 are common rules of thumb, not regulatory limits.

13

CHAPTER THIRTEEN

Growth Analysis

"Sales up 18%!" sounds great. Was it more samosas, or just higher prices? Was it the business, or a company it bought? Was it real, or just inflation?

BY THE END OF THIS CHAPTER YOU CAN

- calculate year-on-year growth and CAGR, by hand and in a spreadsheet
- separate real growth from inflation, and organic growth from acquisitions
- work out how fast a company can grow without borrowing

Ali Foods over five years

To study growth you need more than one year. Here is Ali Foods' history. FY5 is the year we've been studying since Chapter 6; EPS is adjusted, without one-offs. Shares stayed at 100 million throughout.

ILLUSTRATIVE					
YEAR ENDED 30 JUNE	FY1	FY2	FY3	FY4	FY5
Revenue, Rs mn	1,100	1,250	1,480	1,700	2,000
Revenue growth, YoY	–	13.6%	18.4%	14.9%	17.6%
Adjusted EPS, Rs	1.30	1.45	1.70	1.95	2.24
EPS growth, YoY	–	11.5%	17.2%	14.7%	14.9%
Adjusted net margin	11.8%	11.6%	11.5%	11.5%	11.2%

Fig. 13.1 Ali Foods Ltd five-year record.

Year-on-year growth

The simplest measure. Take this year, divide by last year, subtract 1.

$$= \text{FY5 revenue growth: } 2,000 \div 1,700 - 1 \quad \mathbf{17.6\%}$$

CAGR: the one growth number to remember

Year-on-year numbers jump around: 13.6%, 18.4%, 14.9%, 17.6%. What was the "typical" growth? You can't just average them; growth compounds, like interest on interest. The right tool is the **compound annual growth rate**, or CAGR: the steady yearly rate that would take you from the first number to the last.

01	Ending ÷ starting value (2,000 ÷ 1,100)	1.818
02	Number of years of growth (FY1 to FY5)	4
03	Raise to the power 1 ÷ 4, then subtract 1	$1.818^{0.25} - 1$
=	Revenue CAGR	16.1%
=	EPS CAGR: $(2.24 \div 1.30)^{0.25} - 1$	14.6%

Careful with step 2. Five years of data give **four** years of growth. Counting five is the most common CAGR mistake.

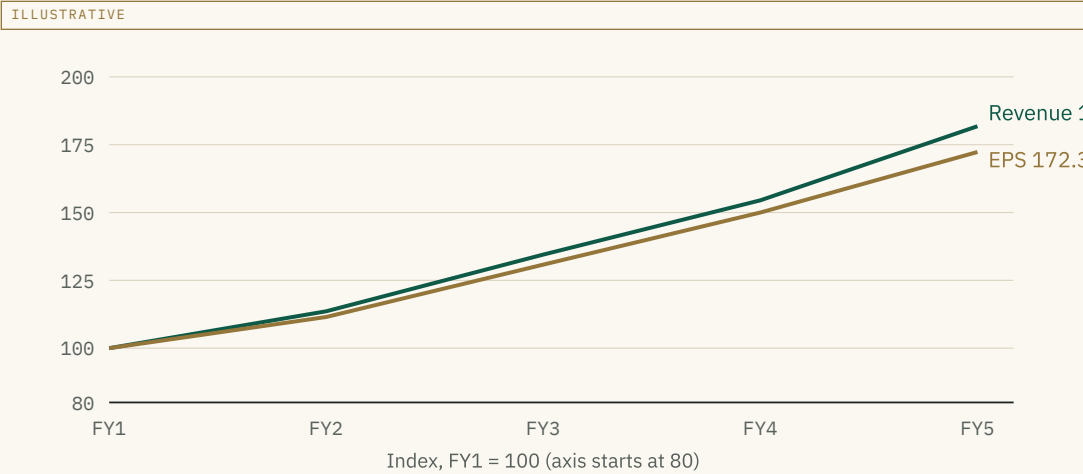


Fig. 13.2 Revenue (CAGR 16.1%) has grown a little faster than EPS (CAGR 14.6%). Both indexed to 100 in FY1 and drawn to scale. Look at the gap between the two lines. Revenue grew faster than profit, which means the net margin slipped, from 11.8% to 11.2%. Not a disaster, but a question: is competition forcing prices down, or are costs rising faster than the company can pass on? Profit growing slower than sales, year after year, eventually matters.

Quarter-on-quarter: watch out for Ramadan

Companies on PSX report every quarter. It's tempting to compare each quarter with the one before. For many Pakistani businesses, that's misleading. Frozen samosas sell far more during Ramadan. Look at Ali Foods' quarters:

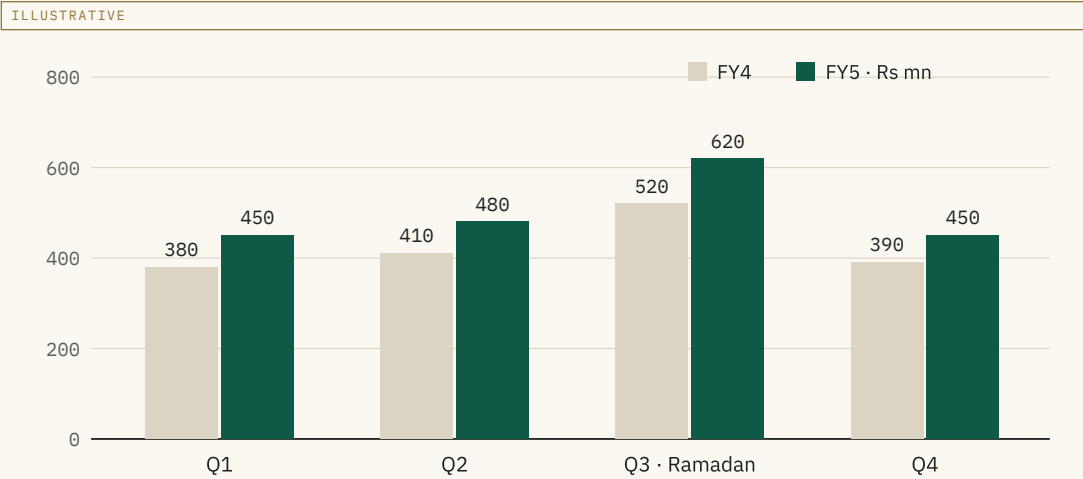


Fig. 13.3 Quarterly revenue. FY4 quarters add to 1,700 and FY5 to 2,000. Drawn to scale.

QoQ	FY5 Q4 vs FY5 Q3: $450 \div 620 - 1$	-27.4%
YoY	FY5 Q4 vs FY4 Q4: $450 \div 390 - 1$	+15.4%

The quarter-on-quarter number says sales collapsed. The year-on-year number says they grew nicely. The truth is the second one: Ramadan ended. For seasonal businesses, always compare a quarter with the **same quarter last year**. One more Pakistani twist: Ramadan moves about 11 days earlier every year, so over time it slides from one quarter into another. Fertilizer (sowing seasons), cement (monsoon slowdowns) and textiles have their own seasons too.

What's behind the growth?

PRICE OR VOLUME?

Ali Foods' FY5 revenue grew 17.6%. Its annual report says pack prices rose about 12% and the number of packs sold rose about 5%. Check: $1.12 \times 1.05 = 1.176$. So most of the growth came from charging more. That's fine in a year of high inflation, if customers kept buying, which they did. But volume growth is the stronger sign: it means more people want the product.

REAL OR JUST INFLATION?

If prices across the economy rose 10% that year (an assumption for this example), then a company growing 10% stood still in real terms. To find **real growth**:

$$= (1 + \text{nominal growth}) \div (1 + \text{inflation}) - 1 = 1.176 \div 1.10 - 1$$

7.0%

In a country where inflation has often been in double digits, this is not a detail. A company reporting "record sales" every year may simply be keeping pace with prices. Find the year's actual inflation from the Pakistan Bureau of Statistics and always ask what's left after it.

ORGANIC OR BOUGHT?

Remember the Karachi bakery Ali Foods bought (Chapter 7)? It was bought partway through FY4, so FY5 includes a full year of its sales for the first time. Say that added Rs 70 million more than FY4. Then growth from Ali Foods' own business, called **organic growth**, was:

$$= (300 - 70) \div 1,700$$

13.5%

Buying growth isn't wrong, but it costs money, and it doesn't repeat unless the company keeps buying. Organic growth is the better guide to the future. Annual reports usually mention acquisitions in the directors' report and the notes.

INVESTOR'S NOTEBOOK

Every growth number has three questions hiding behind it: more units or higher prices? Real or inflation? Earned or bought?

How fast can it grow on its own?

A company can fund growth from three places: kept profits, new borrowing, or new shares. If it uses only kept profits, there's a speed limit called the **sustainable growth rate**.

01 Adjusted ROE (Ch. 10)

18.4%

02 Retention ratio: share of profit kept = 1 – payout (1 – 44.6%)

55.4%

$$= \text{Sustainable growth} = 18.4\% \times 55.4\%$$

10.2%

Ali Foods is growing at around 16%, well above its 10% speed limit. That's not wrong, but it means the extra growth must be funded from somewhere else. And that's exactly what we saw in Chapter 8: free cash flow was negative, cash fell, and short-term borrowing rose. Every chapter in this part has been telling the same story from a different angle. That's what good analysis looks like.

Doing it in a spreadsheet

You don't need to do this by hand. Open Excel or Google Sheets and type the five years of revenue in column B. These formulas do the rest.

	A	B	C
1	Year	Revenue	YoY growth
2	FY1	1100	
3	FY2	1250	=B3/B2-1
4	FY3	1480	=B4/B3-1

	A	B	C
5	FY4	1700	=B5/B4-1
6	FY5	2000	=B6/B5-1
8	CAGR	= (B6/B2)^(1/4)-1	or =RRI(4,B2,B6)
9	Inflation	10%	
10	Real FY5	=(1+C6)/(1+B9)-1	

1. Type the years in A2:A6 and revenue in B2:B6.
2. In C3 type =B3/B2-1, then drag the corner down to C6. Format as %.
3. In B8 type the CAGR formula. The "4" is the number of years of growth, not the number of data points.
4. Put that year's inflation in B9 and the real growth formula in B10.
5. Copy the whole block for EPS in another column. Compare the two CAGRs.

YOUR TURN

Indus Motors Parts (fictional) had revenue of Rs 800 mn in FY1 and Rs 1,400 mn in FY6. In FY6 it grew 20%, inflation was 12%, and Rs 60 mn of FY6's Rs 1,400 mn came from a company bought that year. FY5 revenue was Rs 1,167 mn. ROE is 15% and it pays out 60% of profit. Find (a) CAGR, (b) real FY6 growth, (c) organic FY6 growth, (d) sustainable growth rate.

Answer · (a) Five years of growth: $(1,400 \div 800)^{1/5} - 1 = 11.8\%$. (b) $1.20 \div 1.12 - 1 = 7.1\%$. (c) $(1,400 - 60 - 1,167) \div 1,167 = 14.8\%$. (d) $15\% \times 40\% = 6.0\%$. It's growing faster than it can fund from profits, so check its debt.

TAKEAWAYS

1. Use CAGR, not an average of yearly growth rates. Count years of growth, not years of data.
2. For seasonal businesses, compare each quarter with the same quarter last year.
3. Split growth into price and volume, real and inflation, organic and acquired.
4. Growth above the sustainable rate must be paid for with debt or new shares. Check which.

REFERENCES

1. Pakistan Bureau of Statistics, consumer price index releases (for real inflation figures). pbs.gov.pk
2. Microsoft Support, RRI function. support.microsoft.com
3. Robert C. Higgins, "How Much Growth Can a Firm Afford?", *Financial Management*, 1977 (sustainable growth rate).
4. Ali Foods Ltd and Indus Motors Parts are fictional; 10% and 12% inflation are assumptions for illustration.

How to Value a Stock

You now know how to read a company and measure it. This part answers the question everyone actually cares about: *what is this share worth?* Not what it costs today. What it's worth.

There's no single right answer, and anyone who gives you one exact number is pretending. What you'll learn is how to build a sensible range, see which assumptions matter most, and buy only when the price leaves room for being wrong.

14 · Price Versus Value	78
15 · Discounted Cash Flow Valuation	81
16 · Relative Valuation	88
17 · Dividend Models and Income Investing	92
18 · Special Valuation Situations	96

14

CHAPTER FOURTEEN

Price Versus Value

Price is what you pay. Value is what you get. Most investing mistakes come from treating them as the same thing.

BY THE END OF THIS CHAPTER YOU CAN

- explain the difference between a share's price and its value
- describe what a share price is really "expecting"
- use a margin of safety to protect yourself from your own mistakes

The second-hand car

You find a 2019 Suzuki Cultus on OLX. The seller wants Rs 30 lakh. Is that a good price? You don't know until you work out what the car is worth: its condition, its mileage, what similar cars sell for, what it'll cost to keep running. If it's worth Rs 33 lakh, Rs 30 lakh is a fair deal. If it's worth Rs 24 lakh, it's a bad one, however shiny the photos.

The asking price is the **price**. What the car is actually worth to you is its **value**. Shares work the same way. The price is on your screen every second. The value you have to work out yourself.

What is a share really worth?

A share is a slice of a business (Chapter 1). A business is worth all the cash it will hand its owners over its whole life, adjusted for the fact that money later is worth less than money now. That's called **intrinsic value**. Chapter 15 shows exactly how to estimate it.

Three honest truths about intrinsic value:

1. **It's an estimate, not a fact.** It depends on guesses about the future.
2. **It's a range, not a number.** "Somewhere between Rs 15 and Rs 30" is more honest than "Rs 23.48."
3. **It changes slowly.** Value moves when the business changes. Price moves when moods change, which is much more often.

A moody neighbour named Mr Market

Benjamin Graham, the teacher of Warren Buffett, described the market with a story worth retelling in our own words. Imagine you own a shop with a partner who is a bit unstable. Every day he offers either to buy your half or sell you his, at a price he names. On happy days he names a crazy high price. On gloomy days he'll sell you his half for almost nothing. You don't have to accept. His price tells you about his mood, not about the shop. The smart move is to ignore him most days, and only deal with him when his price is clearly silly, in your favour.

That's the stock market. Prices react to news, rumours and fear. Your job isn't to follow the mood. It's to know roughly what the business is worth, so you can recognise when the mood offers you a bargain, or warns you off an expensive one.

What a price "expects"

Every share price contains a hidden forecast. When Ali Foods trades at Rs 50, the market is saying, in effect, "we expect this company to grow strongly for a long time." Chapter 15 will show that, under sensible assumptions, Ali Foods is worth around Rs 23. So at Rs 50, buyers are expecting much more than our base case: faster growth, for longer, or less risk.

The question to ask is never "is this a good company?" It's "is this company *better* than what the price already expects?" A great company priced for perfection can be a poor investment. An average company priced for disaster can be a good one.

Margin of safety

An engineer building a bridge for 10-ton trucks doesn't design it to hold exactly 10 tons. She designs it for 30. Not because she expects 30-ton trucks, but because her calculations could be wrong, the steel could be weaker, and the cost of being wrong is a collapse.

Graham called this idea the **margin of safety**: only buy when the price is well below your estimate of value. If you think a share is worth Rs 100, don't buy it at Rs 95. Wait for Rs 70. The gap protects you from your own forecasting mistakes, which you will make.

01	Your base-case value for Ali Foods (Chapter 15)	Rs 23.50
02	Margin of safety you want	30%
=	Highest price you'd pay: $23.50 \times (1 - 0.30)$	Rs 16.45

ILLUSTRATIVE

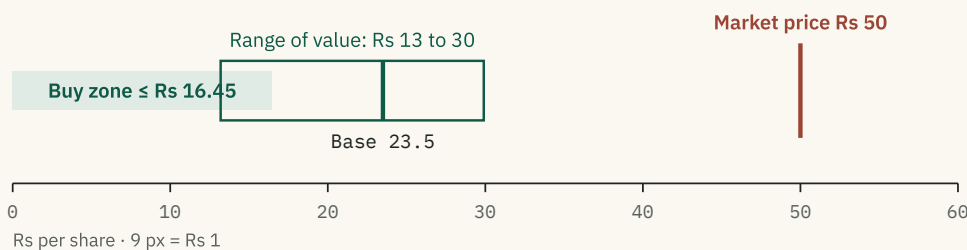


Fig. 14.1 Ali Foods: price versus value. Our bear-to-bull range (Chapter 15) is Rs 13 to 30. The market price of Rs 50 sits far above even the bull case. Drawn to scale.

On these numbers, Ali Foods at Rs 50 is a good business at a price that's hard to justify. That's a perfectly normal conclusion. You don't have to buy everything you study. Most of the time, the right answer is "not at this price," and you move on or wait.

INVESTOR'S NOTEBOOK

You don't need to know a company's exact value. You need to know it's worth a lot more than you're paying.

TAKEAWAYS

- 1. Price is a number on a screen. Value is your estimate of all future cash the business will hand its owners.
- 2. Value is a range. Be suspicious of anyone who gives you one precise figure.
- 3. Every price hides a forecast. Ask whether the company will beat it.
- 4. Insist on a margin of safety. It's your protection against being wrong.

REFERENCES

1. Benjamin Graham, *The Intelligent Investor*, rev. ed., HarperBusiness, 2003: chapter 8 (Mr Market) and chapter 20 (margin of safety).
2. Ali Foods Ltd is fictional. Value range from the DCF in Chapter 15.

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CHAPTER FIFTEEN

Discounted Cash Flow Valuation

Add up all the cash a business will ever make, and shrink each rupee by how far in the future it arrives. That's the whole idea. The rest is careful arithmetic.

BY THE END OF THIS CHAPTER YOU CAN

- forecast free cash flow and discount it to today
- estimate a discount rate (WACC) and a terminal value
- turn the result into a value per share, then test it with sensitivity and scenarios

Step 0 · Why a rupee tomorrow is worth less

Would you rather have Rs 100 today or Rs 100 in a year? Today, obviously. You could spend it, or put it in a savings account and have more than Rs 100 next year. And prices rise, so Rs 100 buys less next year anyway.

Turn that around. If you could earn 17% a year on your money elsewhere, then Rs 117 promised a year from now is worth only Rs 100 today. Converting future money into today's money is called **discounting**, and the rate you use is the **discount rate**.

01 Today's value of money received in year n = amount $\div (1 + \text{rate})^n$

= Rs 100 received in 5 years, at 17%: $100 \div 1.17^5$ Rs 45.60

ILLUSTRATIVE

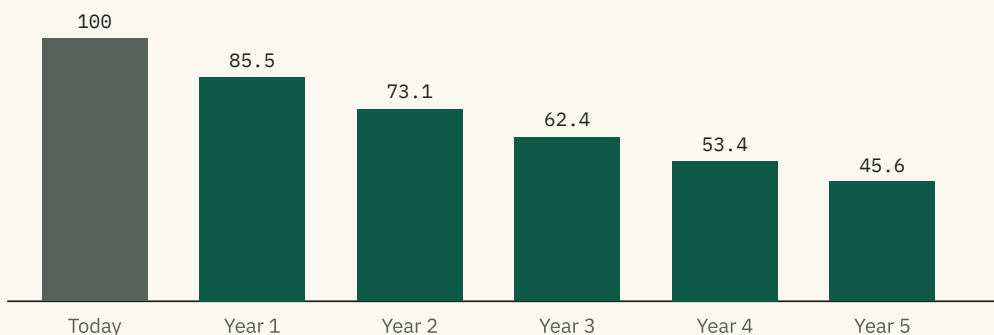


Fig. 15.1 What Rs 100 is worth today if it arrives in each future year, at a 17% discount rate. Drawn to scale (1.5 px = Rs 1).

The plan

A DCF has five steps. We'll do every one on Ali Foods.

1. Forecast the free cash flow for the next five years.
2. Choose a discount rate.
3. Estimate what the business is worth after year five (the terminal value).
4. Discount everything back to today and add it up.
5. Subtract net debt and divide by the number of shares.

Step 1 · Forecast free cash flow

We'll forecast cash flow to the *whole* business, before any interest is paid to lenders. This is called **free cash flow to the firm** (FCFF). It's a cousin of the free cash flow in Chapter 8, built from operating profit so that debt is handled separately later:

$$= \text{FCFF} = \text{EBIT} \times (1 - \text{tax}) + \text{depreciation} - \text{capex} - \text{increase in working capital}$$

ASSUMPTIONS · EVERY ONE IS A CHOICE YOU CAN DISAGREE WITH

Revenue growth: 15%, 14%, 12%, 10%, 8% over the next five years. Slowing from the recent 16% CAGR (Ch. 13) as the company gets bigger.

EBIT margin: 20% every year, the same as FY5.

Tax rate: 30%, as in all earlier chapters.

Depreciation: 6% of revenue, a bit higher than FY5's 5% because of the new paratha line.

Capex: 8% of revenue, above depreciation because the company is still growing.

Working capital: 12.5% of each extra rupee of sales (Ch. 12).

ILLUSTRATIVE

RS MILLION	FY6	FY7	FY8	FY9	FY10
Revenue	2,300.0	2,622.0	2,936.6	3,230.3	3,488.7
EBIT (20%)	460.0	524.4	587.3	646.1	697.7
NOPAT: EBIT × 0.70	322.0	367.1	411.1	452.2	488.4
+ Depreciation (6%)	138.0	157.3	176.2	193.8	209.3
– Capex (8%)	(184.0)	(209.8)	(234.9)	(258.4)	(279.1)
– Increase in working capital	(37.5)	(40.3)	(39.3)	(36.7)	(32.3)
Free cash flow to the firm	238.5	274.4	313.1	350.9	386.3
Discount factor at 17%: $1 \div 1.17^n$	0.8547	0.7305	0.6244	0.5337	0.4561
Present value of FCFF	203.8	200.4	195.5	187.3	176.2

Fig. 15.2 Ali Foods five-year forecast. Sum of present values = Rs 963.3 million. Increase in working capital = 12.5% × (this year's revenue – last year's). Check FY6: 12.5% × (2,300 – 2,000) = 37.5.

Step 2 · The discount rate (WACC)

The discount rate is the return investors need to justify the risk. Ali Foods is funded by two groups who each want a return: shareholders and lenders. We blend their required returns, weighted by how much each has put in. The result is the **weighted average cost of capital**, or WACC.

COST OF EQUITY: WHAT SHAREHOLDERS WANT

Shareholders take more risk than a bank depositor, so they want more. The standard method, called CAPM, says:

01	Risk-free rate: long-term government bond yield (assumed)	12.0%
02	Equity risk premium: extra return for owning shares (assumed)	6.0%
03	Beta: how much this share moves with the market (assumed)	1.0
=	Cost of equity = 12% + 1.0 × 6%	18.0%

Where do real numbers come from? The risk-free rate is the yield on long-term Pakistan Investment Bonds, published by the State Bank. The equity risk premium for Pakistan is estimated by researchers such as Professor Damodaran, who

updates country risk premiums every year. Beta can be calculated from price history. All three change; use current figures when you value a real company.

COST OF DEBT: WHAT LENDERS WANT

Ali Foods pays about 13% on its loans (assumed; its Rs 80 million interest on roughly Rs 650 million of debt in Chapter 6 is in that area). Interest reduces tax, so the real cost is lower: $13\% \times (1 - 0.30) = \mathbf{9.1\%}$.

BLENDING THEM

01	Equity weight: $\text{market cap} \div (\text{market cap} + \text{debt}) = 5,000 \div 5,650$	88.5%
02	Debt weight: $650 \div 5,650$	11.5%
=	WACC = $88.5\% \times 18.0\% + 11.5\% \times 9.1\% = 16.98\%$, rounded	17.0%

Step 3 · Terminal value: everything after year five

Ali Foods won't stop at FY10. We can't forecast forever, so we estimate the value of all cash flows after year five in one lump, called the **terminal value**. There are two ways.

METHOD A · PERPETUAL GROWTH

Assume cash flow keeps growing at a slow, steady rate forever. That rate must be modest: no company can outgrow the whole economy forever. We'll assume 7% a year in rupees, roughly long-run inflation plus a little real growth.

01	Terminal value = $\text{FCFF}_{\text{FY10}} \times (1 + g) \div (\text{WACC} - g) = 386.3 \times 1.07 \div (0.17 - 0.07)$	4,133.9
=	Today's value: $4,133.9 \times 0.4561$	1,885.5

METHOD B · EXIT MULTIPLE

Assume that in FY10 someone would buy the whole business at a typical EV/EBITDA multiple, say 10×. FY10 EBITDA = EBIT 697.7 + depreciation 209.3 = 907.1 (unrounded figures).

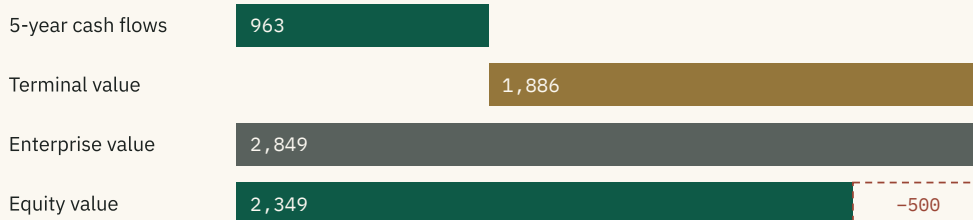
01	Terminal value = 10×907.1	9,070.7
=	Today's value: $9,070.7 \times 0.4561$	4,137.2

The two methods disagree by more than double. That's not a mistake; it's the most useful warning in the whole model. Working backwards, a 10× exit multiple only makes sense if cash flow grows about **12.2% a year forever**, well above the 7% we thought reasonable. Multiples feel safe because they're "what the market pays," but they quietly smuggle in big growth assumptions. When the two methods disagree, trust the one whose assumptions you can defend. Here, that's Method A.

Steps 4 and 5 · From enterprise value to value per share

01	Present value of five years of FCFF	963.3
02	Present value of terminal value (Method A)	+ 1,885.5
=	Enterprise value	2,848.8
03	Less net debt (650 – 150, Ch. 7)	– 500.0
=	Equity value	2,348.8
=	Value per share: $2,348.8 \div 100$ million shares	Rs 23.49
04	Diluted, if 10 million options are used ($\div$ 110 million)	Rs 21.35

ILLUSTRATIVE



Rs million · 0.15 px = Rs 1 million

Fig. 15.3 From cash flows to equity value. Two-thirds of the value (66%) comes from the terminal value, which is the least certain part of any DCF. Drawn to scale.

Our base-case value is about **Rs 23.50 a share**. The market price is Rs 50, more than double. Either the market expects much more than we do, or it's being too optimistic. A DCF doesn't tell you which. It tells you exactly what you'd have to believe to pay Rs 50, so you can decide whether you believe it.

INVESTOR'S NOTEBOOK

A DCF is not a machine that prints the right answer. It's a way of writing your beliefs down so you can check them.

Sensitivity: which assumptions matter most?

Change the two most powerful assumptions, the discount rate and the long-term growth rate, and watch the value move. Everything else stays as in the base case.

ILLUSTRATIVE

WACC ↓ / TERMINAL GROWTH →	5%	6%	7%	8%	9%
15%	25.3	27.8	30.8	34.8	40.0
16%	22.4	24.4	26.7	29.7	33.5
17%	20.1	21.6	23.5	25.8	28.6
18%	18.0	19.3	20.8	22.6	24.8
19%	16.3	17.4	18.6	20.1	21.8

Fig. 15.4 Value per share (Rs) under different discount rates and terminal growth rates. Base case highlighted. Even the most optimistic corner, Rs 40, is below the Rs 50 market price.

Two lessons. First, small changes matter a lot: moving WACC from 17% to 15% and growth from 7% to 9% almost doubles the value. Second, no reasonable combination here gets to Rs 50. When that happens, the price is relying on something your model doesn't include, perhaps much faster growth or higher margins. Find out what, and judge whether it's realistic.

Scenarios: three possible futures

Sensitivity changes one or two numbers. Scenarios change the whole story.

SCENARIO	STORY	GROWTH, FY6–FY10	EBIT MARGIN	TERMINAL G	VALUE / SHARE
Bull	New paratha line is a hit; exports to the Gulf start	18, 17, 15, 12, 10%	22%	7%	Rs 29.9
Base	Steady growth, slowing as it gets bigger	15, 14, 12, 10, 8%	20%	7%	Rs 23.5
Bear	A big competitor enters frozen food; prices squeezed	8, 7, 6, 6, 5%	17%	6%	Rs 13.2

All three use a 17% WACC. Write down what would have to happen for each, then watch for those signs in each quarter's results. That's how a valuation becomes a tool you keep using, not a number you calculate once and forget.

Where DCF breaks down

- **Garbage in, garbage out.** The output is only as good as your forecasts. A confident-looking spreadsheet can hide wild guesses.
- **The terminal value dominates.** Two-thirds of Ali Foods' value comes from after year five, the part we know least about.
- **Unpredictable businesses.** For cyclical firms (cement, steel), loss-makers, and early-stage companies, five-year forecasts are close to guesswork. Use ranges, normalised profits and other methods (Chapters 16 and 18).
- **Banks are different.** For banks, debt is raw material, not financing, so FCFF doesn't work. Chapter 18 shows what to use instead.
- **Pakistan-specific inputs move.** Interest rates and inflation have swung widely, which moves WACC and terminal growth. Update them every time you revisit a valuation.

YOUR TURN

A fictional company expects free cash flow to the firm of Rs 100 mn next year, Rs 110 mn in year 2, and Rs 120 mn in year 3, then 5% growth forever. WACC is 15%. Net debt is Rs 200 mn and there are 50 million shares. Calculate (a) the present value of the three cash flows, (b) the terminal value and its present value, (c) value per share.

Answer · (a) $100 \div 1.15 = 87.0$; $110 \div 1.3225 = 83.2$; $120 \div 1.5209 = 78.9$; total 249.1. (b) $TV = 120 \times 1.05 \div (0.15 - 0.05) = 1,260$; $PV = 1,260 \div 1.5209 = 828.5$. (c) $EV = 249.1 + 828.5 = 1,077.6$; equity = 877.6; per share = Rs 17.55.

TAKEAWAYS

1. A DCF adds up future free cash flows, discounted to today, plus a terminal value, minus net debt.
2. Write every assumption down. Each one is a belief you can be wrong about.
3. The terminal value usually dominates. Keep long-term growth modest and check it against exit multiples.
4. Always run a sensitivity table and three scenarios. The range is the answer, not the single number.
5. Use the DCF to ask "what must I believe to pay this price?"

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1. Aswath Damodaran, *Investment Valuation*, 3rd ed., Wiley, 2012 (FCFF, WACC, terminal value).
2. Aswath Damodaran, country default spreads and risk premiums, updated annually. pages.stern.nyu.edu/~adamodar
3. State Bank of Pakistan, government securities yields (for the risk-free rate). sbp.org.pk
4. Tim Koller, Marc Goedhart and David Wessels, *Valuation*, McKinsey & Company, 7th ed., Wiley, 2020.
5. Ali Foods Ltd is fictional. The 12% risk-free rate, 6% equity risk premium, beta of 1.0, 13% cost of debt and 7% terminal growth are assumptions for teaching, not current market data.

16

CHAPTER SIXTEEN

Relative Valuation

You don't need a spreadsheet to know a 5-marla house in DHA shouldn't cost three times the one next door. Relative valuation is that common sense, done carefully.

BY THE END OF THIS CHAPTER YOU CAN

- build a fair peer group and value a company against it
- adjust for differences in growth, quality and debt
- pick the right multiple for each kind of business

The property dealer's method

Ask a property dealer what a house is worth and he won't build a DCF. He'll say: "Similar houses on this street sold for Rs 2.5 to 3 crore. This one has a bigger lawn, so maybe 3." That's **relative valuation**: find similar things, see what they sell for, adjust for the differences.

For shares, the "price per marla" is a valuation multiple from Chapter 11: P/E, EV/EBITDA, P/B. The method is quick, it uses what the market is paying today, and it's how most analysts on PSX talk about shares. It also has one big weakness, which we'll come to.

Step 1 • Choose real peers

Peers must be genuinely similar: same kind of business, similar customers, similar risks. A frozen-food company should be compared with other packaged-food companies, not with a bank or a cement plant just because they're all on PSX. Here are Ali Foods' fictional peers:

ILLUSTRATIVE					
COMPANY	P/E	EV/EBITDA	EPS GROWTH	ROE	NET DEBT / EBITDA
Murree Frozen	11.0×	7.0×	6%	12%	2.5×
Kaghan Foods	14.0×	8.0×	10%	16%	1.5×
Punjab Bakers	16.0×	9.0×	13%	18%	1.0×
Thar Snacks	18.0×	10.5×	18%	22%	0.5×
Peer median	15.0×	8.5×	11.5%	17%	1.25×
Ali Foods at Rs 50	22.3×	11.0×	14.6%	18.4%	1.0×

Fig. 16.1 Ali Foods and its peers. All companies and figures are fictional. P/E uses adjusted EPS; growth is five-year EPS CAGR.

Use the **median** (the middle value), not the average. One weird company can drag an average a long way; the median ignores it. With four peers, the median is halfway between the two middle ones: $(14 + 16) \div 2 = 15$.

Step 2 · Apply the multiple

01	By P/E: peer median $15.0 \times$ Ali Foods adjusted EPS Rs 2.24	Rs 33.60
02	By EV/EBITDA: $8.5 \times$ EBITDA 500 = EV 4,250	4,250
	Minus net debt 500 = equity 3,750; $\div$ 100 million shares	Rs 37.50

Step 3 · Adjust for differences

Ali Foods isn't an average peer. It grows faster than the median (14.6% vs 11.5%), earns a higher ROE (18.4% vs 17%), and has less debt. So it probably deserves a multiple above the median. A fair range might be the P/E of the two closest peers, Punjab Bakers and Thar Snacks: 16× to 18×.

=	16× to 18× adjusted EPS of Rs 2.24	Rs 35.80 to 40.30
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ILLUSTRATIVE

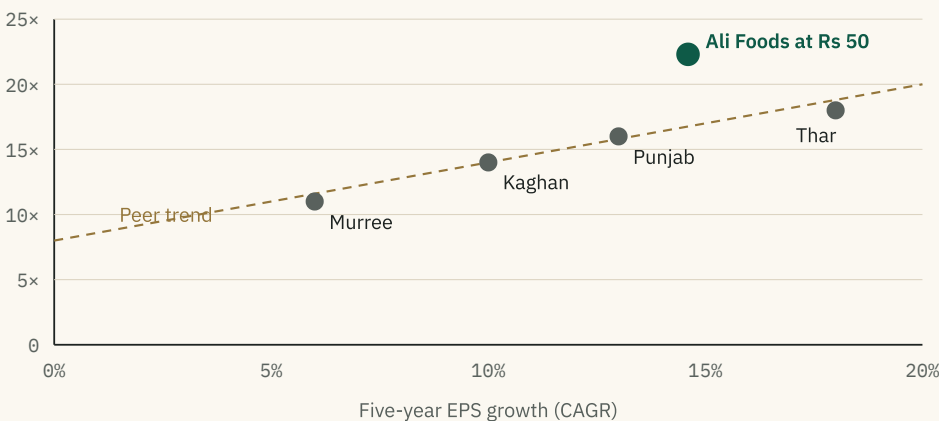


Fig. 16.2 P/E against growth. Peers sit near a rising line: faster growers earn higher multiples. Ali Foods at Rs 50 sits well above that line, priced as if it were growing much faster than it is. Drawn to scale.

The big weakness

Relative valuation tells you whether a share is cheap *compared with its peers*. It cannot tell you whether the whole group is cheap. If every frozen-food company is overpriced, Ali Foods can look "fair" against them and still be expensive. In a market bubble, everything looks reasonable next to everything else.

That's exactly what's happening here. Against peers, Ali Foods is worth Rs 34 to 40. Against its own cash flows (Chapter 15), about Rs 23. The truth probably lies somewhere in that space, and both methods agree on one thing: Rs 50 is a lot. Use relative valuation and DCF together. When they disagree, the gap is telling you something.

INVESTOR'S NOTEBOOK

"Cheaper than its peers" and "cheap" are different statements. Make sure you know which one you're making.

Right multiple, right business

BUSINESS TYPE	MAIN MULTIPLE	WHY	AVOID
Banks	P/B, alongside ROE	Their assets are loans, valued close to book	EV/EBITDA: debt is their raw material (Ch. 18)
Cement, steel	EV/EBITDA; EV per tonne of capacity	Heavy debt and machinery; capacity is what you're buying	P/E at peak profits (Ch. 18)

BUSINESS TYPE	MAIN MULTIPLE	WHY	AVOID
Steady consumer goods	P/E, dividend yield	Predictable profit, often little debt	P/B: brand value isn't on the balance sheet
Technology, software	P/E, EV/Sales for fast growers	Few physical assets; growth matters most	P/B
Power, utilities	Dividend yield, EV/EBITDA	Regulated returns, high payouts	Ignoring the debt and payment delays

YOUR TURN

Four fictional cement peers trade at EV/EBITDA of 5×, 6×, 7× and 9×. Margalla Cement has EBITDA of Rs 6,000 mn, net debt of Rs 10,000 mn and 400 million shares. (a) What's the peer median? (b) What value per share does it give? (c) If Margalla has older, less efficient kilns than its peers, should you use a higher or lower multiple?

Answer · (a) $(6 + 7) \div 2 = 6.5\times$. (b) $EV = 6.5 \times 6,000 = 39,000$; equity = 29,000; $\div 400 \text{ mn} = \text{Rs } 72.50$. (c) Lower: higher costs and more spending needed on replacement mean it deserves a discount.

TAKEAWAYS

1. Choose peers that are truly similar, and use the median multiple.
2. Adjust for growth, quality and debt before applying a multiple.
3. Relative value says "cheap versus peers," never "cheap." Cross-check with a DCF.
4. Match the multiple to the business: P/B for banks, EV/EBITDA for heavy industry, P/E for steady earners.

REFERENCES

1. Aswath Damodaran, *Investment Valuation*, 3rd ed., Wiley, 2012, chapters on relative valuation.
2. All companies in this chapter are fictional; the peer trend line is drawn by eye for illustration.

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CHAPTER SEVENTEEN

Dividend Models and Income Investing

A rental flat pays you every month. Some shares do something similar. The trick is telling the reliable ones from the ones about to cut.

BY THE END OF THIS CHAPTER YOU CAN

- value a steady dividend-payer with the Gordon growth model
- check whether a dividend is safe
- spot a yield trap, and measure total shareholder return

Why dividends matter on PSX

Many Pakistani investors love dividends, and for good reason. Several big PSX sectors, like fertilizer, power, oil and gas, and banks, have long histories of paying out a large share of profits. A dividend is real cash in your bank account, not a promise. It's also a quiet test of honesty: a company can dress up profits, but it can't fake cash it has already paid.

The dividend discount model

If a share is worth all the cash it will ever pay you, and for a shareholder that cash comes as dividends, then a share is worth all its future dividends, discounted to today. That's the **dividend discount model** (DDM). Adding up dividends forever sounds impossible, but if they grow at a steady rate, there's a neat shortcut called the **Gordon growth model**:

=

Value = next year's dividend ÷ (required return – dividend growth)

$D_1 \div (r - g)$

It's the same formula as the terminal value in Chapter 15, applied to dividends instead of cash flow.

EXAMPLE: SINDH FERTILIZER (FICTIONAL)

A mature company that pays out most of its profit. Last year's dividend was Rs 10 per share. You expect it to grow 5% a year, and you want an 18% return to own it.

01	Next year's dividend: 10×1.05	Rs 10.50
02	Required return – growth: $18\% - 5\%$	13%
=	Value: $10.50 \div 0.13$	Rs 80.77

If Sindh Fertilizer trades at Rs 65, the model says it's cheap. At Rs 100, expensive. Simple.

WHEN THE MODEL FAILS: ALI FOODS

Try it on Ali Foods: dividend Rs 1, growing 7%, required return 18%. Value = $1.07 \div 0.11 = \text{Rs } 9.73$. That's far below the DCF's Rs 23.50. Why? Because Ali Foods keeps more than half its profit to grow. The DDM only counts what's paid out today, and misses what the kept profit will build. Use the DDM for mature, high-payout companies. For growers, use the DCF.

The formula also breaks if growth is close to, or above, the required return: dividing by a tiny or negative number gives nonsense. Keep long-term growth modest.

Is the dividend safe?

A dividend is only worth something if it keeps coming. Three checks, from Chapters 8 and 11:

RULE OF THUMB

CHECK	FORMULA	SAFER	RISKIER
Payout ratio	Dividend ÷ EPS	Below 70% for most firms	Above 100%: paying more than it earns
Earnings cover	EPS ÷ dividend per share	Above 1.5×	Below 1.0×
Cash cover	Free cash flow ÷ dividends paid	Above 1.0× over 3 years	Below 1.0×, with debt rising
Track record	Dividends over 5–10 years	Steady through bad years	Erratic, or only in boom years

Fig. 17.1 Dividend safety checks. Mature, regulated businesses (some utilities, fertilizer) can safely pay higher ratios than growing ones.

Ali Foods passes on payout (45%) and earnings cover ($2.24 \div 1 = 2.2\times$), but fails cash cover this year: free cash flow was negative (Chapter 8). One year is fine during an expansion. Watch next year.

The yield trap

Kotri Power (fictional) paid Rs 6 a share last year. Its price was Rs 40, a 15% yield. Then bad news: the government is months late paying its electricity bills, and the company has borrowed heavily to keep running. The price falls to Rs 20. The screen now shows a **30% dividend yield**.

That 30% is an illusion. The yield is calculated on *last year's* dividend. The market has already guessed that the next one will be cut, which is why the price halved. When Kotri pays Rs 2 next year, the real yield on Rs 20 is 10%, and you're holding a share that lost half its value.

A **yield trap** is a share whose dividend yield looks high only because the price has collapsed. Before buying any yield above about double what similar companies pay, ask: why is the price so low? If the answer is "the dividend is in danger," believe it.

INVESTOR'S NOTEBOOK

An unusually high dividend yield is usually the market warning you, not rewarding you.

Reinvesting dividends

What you do with dividends matters a lot over time. Take Rs 1 lakh in a fictional share that yields 8% a year in dividends, while its price rises 5% a year. Compare spending the dividends with using them to buy more shares. (Taxes and costs ignored to keep the picture clear.)

ILLUSTRATIVE

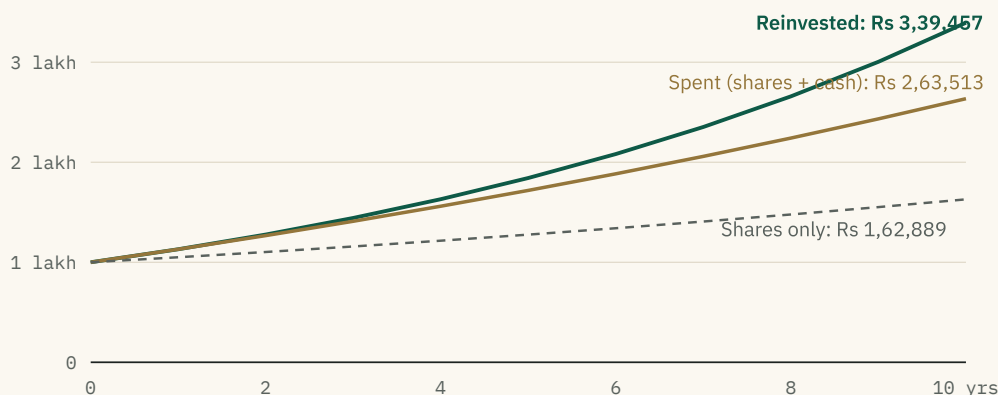


Fig. 17.2 Rs 1 lakh over ten years, 8% dividend yield and 5% yearly price rise. Reinvesting grows at $(1.05 + 0.08) = 13\%$ a year. Drawn to scale. Real results will vary, and dividend tax reduces what's reinvested.

Same share, same decade. Reinvesting ends about Rs 76,000 ahead of spending the dividends, because each reinvested dividend buys shares that pay their own dividends. Chapter 30 goes deeper into compounding.

Total shareholder return

When judging how an investment did, never look at price alone. **Total shareholder return** (TSR) counts both the price change and the dividends.

01 Bought at Rs 50, sold at Rs 60, received Rs 4 in dividends along the way

$$= \text{TSR} = (60 - 50 + 4) \div 50$$

28%

A share whose price went nowhere for five years but paid a 10% yield every year was not a bad investment. A share whose price doubled after a huge rights issue (Chapter 1) may not have been a good one. TSR keeps the score honest.

YOUR TURN

Hyderabad Gas (fictional) just paid Rs 8. Dividends are expected to grow 4% a year. You require 16%. EPS is Rs 10 and free cash flow per share is Rs 7. (a) Gordon value? (b) Payout ratio? (c) Is the dividend covered by free cash flow? (d) If the price is Rs 40, what's the yield, and what should you check?

Answer · (a) $8 \times 1.04 = 8.32$; $8.32 \div 0.12 = \text{Rs } 69.33$. (b) $8 \div 10 = 80\%$. (c) No: FCF Rs 7 is less than the Rs 8 dividend. (d) $8 \div 40 = 20\%$. The price is far below the model value, the payout is high, and cash doesn't cover it. That's a yield trap warning: find out why the price fell before you trust the model.

TAKEAWAYS

1. The Gordon model, $D_1 \div (r - g)$, suits mature high-payout companies, not growers.
2. Check payout, earnings cover, cash cover and track record before trusting a dividend.
3. A yield far above peers usually means the market expects a cut.
4. Reinvested dividends compound. Judge results by total shareholder return, not price alone.

REFERENCES

1. Myron J. Gordon, "Dividends, Earnings, and Stock Prices," *Review of Economics and Statistics*, 1959.
2. PSX Data Portal, company dividend announcements (to check a real company's dividend history). dps.psx.com.pk
3. Sindh Fertilizer, Kotri Power and Hyderabad Gas are fictional. Figures are illustrative and before tax.

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CHAPTER EIGHTEEN

Special Valuation Situations

A thermometer is a fine tool, unless you're trying to weigh flour. Some businesses need different tools, and using the wrong one gives confident, wrong answers.

BY THE END OF THIS CHAPTER YOU CAN

- value a cyclical company without falling for peak profits
- value a bank with P/B and ROE, and read its key ratios
- handle growth companies, loss-makers and holding companies

Cyclical businesses: don't buy the peak

Cement, steel, cars and chemicals ride the economy up and down (Chapter 4). Here's the trap. At the top of a boom, profits are huge, so the P/E looks tiny. At the bottom, profits are small or negative, so the P/E looks enormous. If you buy because the P/E is low, you'll often buy at exactly the wrong time.

DADU CEMENT (FICTIONAL)	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
EPS, Rs	2	8	15	6	3
Phase	Slump	Recovery	Boom	Cooling	Slump

In Year 3 the share trades at Rs 120. $P/E = 120 \div 15 = 8\times$. Looks cheap. But Rs 15 is the best year of the cycle. The fix is **normalised earnings**: average EPS over a full cycle.

01	Average EPS: $(2 + 8 + 15 + 6 + 3) \div 5$	Rs 6.80
=	Normalised P/E: $120 \div 6.80$	17.6×

Not cheap at all. For cyclicals, value on mid-cycle profits, prefer EV/EBITDA (debt matters a lot when profits swing), and pay attention to capacity. Cement analysts on PSX often compare companies by **EV per tonne of capacity**, because building a new plant costs a known amount per tonne. If you can buy existing capacity in the market far cheaper than it costs to build, that's interesting. The best time to buy a cyclical is often when its P/E looks terrible, during the slump.

Asset-heavy companies

For businesses whose value is mostly in physical things, like land, factories, ships or plants, compare price with book value (P/B) and, better, with what it would cost to build the same assets today. Book value can be badly out of date: a factory bought 25 years ago sits in the books at a fraction of its replacement cost, while land bought in the 1990s may be worth many times its book value. Read the notes for any revaluation of property.

Banks: a completely different machine

For a factory, debt is a way of paying for machines. For a bank, debt (customer deposits) is the raw material. Deposits come in, loans go out, and the profit is the gap. That's why you can't use EV, EBITDA or FCF on a bank: there's no sensible way to separate "operating" from "financing" when lending *is* the operation.

Instead, value banks on **P/B**, linked to **ROE**. A bank that earns a high return on its equity deserves to trade above book value; one that earns below its cost of equity deserves to trade below. There's a simple formula, the justified P/B:

01	Justified P/B = $(\text{ROE} - g) \div (r - g)$	
=	Strong bank: ROE 20%, g 8%, r 17% $\rightarrow 0.12 \div 0.09$	1.33×
=	Weak bank: ROE 12%, same g and r $\rightarrow 0.04 \div 0.09$	0.44×

That's why some PSX banks trade well below book value and others above. It's not random; it tracks ROE. Before trusting any bank's ROE, check the five numbers Pakistani bank analysts watch:

METRIC	PLAIN MEANING	GOOD SIGN
Net interest margin (NIM)	The gap between what it earns on loans and investments and what it pays on deposits	Stable or rising
CASA ratio	Share of deposits in current and savings accounts, which are cheap for the bank	High: cheap, sticky funding
Infection ratio	Non-performing loans $\div$ total loans: loans that have gone bad	Low and falling
Coverage ratio	Provisions already set aside $\div$ bad loans	High: losses already recognised
Capital adequacy ratio (CAR)	Capital cushion against losses, set by the State Bank	Comfortably above the SBP minimum

Insurance companies are similar: value them on book value and return on equity, and look closely at the quality of their investment portfolio and claims history. Never run a standard DCF on a bank or insurer.

INVESTOR'S NOTEBOOK

A bank is worth its book value multiplied by how well it earns on that book. Everything else is detail.

High-growth companies

A fast-growing tech or consumer company may have small profits today and a big future. P/E looks silly because today's E is tiny. Use EV/Sales to compare with peers, and run a DCF with several clearly different scenarios: what if it becomes very big, moderately big, or stalls? Weight each by how likely you think it is. Be very honest about the stall case; most fast growers eventually slow down, and the share price often falls hard when they do.

Loss-making businesses

When EPS is negative, P/E is meaningless. Ask three questions instead.

1. **Why is it losing money?** A temporary problem (a plant shut for upgrade) is very different from a broken business model.
2. **How long can it survive?** Cash runway = cash $\div$ yearly cash burn. A company with Rs 500 million of cash burning Rs 200 million a year has about 2.5 years. Before then it must turn a profit, borrow, or issue new shares (diluting you).
3. **What would it be worth if it recovers?** Value the "fixed" business, then cut that hard for the chance it doesn't get fixed.

Conglomerates and holding companies

Several big PSX names are groups: a parent company that runs one business and owns stakes in others. Value them piece by piece, called **sum of the parts** (SOTP).

Indus Group (fictional) runs a cement business, owns 55% of a listed car company, and owns a chemicals stake.

01	Own cement business (valued at peer EV/EBITDA)	30,000
02	55% of listed car company worth 20,000 at market price	+ 11,000
03	Chemicals stake at market value	+ 6,000
04	Less parent company's net debt	- 5,000
=	Sum of the parts (Rs million)	42,000

ILLUSTRATIVE

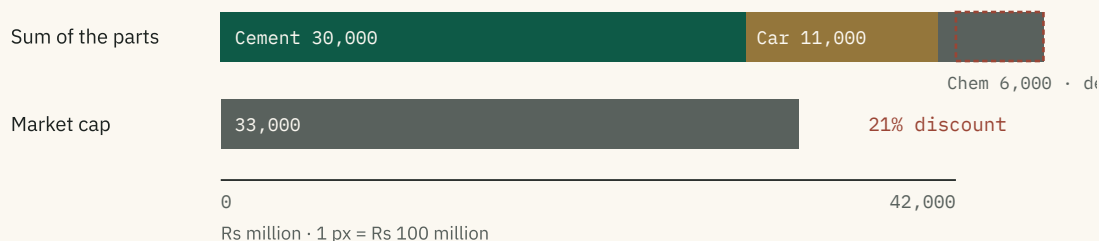


Fig. 18.1 Indus Group: the parts add to Rs 42,000 million, but the market values the whole group at Rs 33,000 million. Drawn to scale; the net debt (dashed) is subtracted from the end of the bar.

The market cap is 33,000, so the group trades at a 21% discount to its parts ($33,000 \div 42,000 = 0.79$). This **holding company discount** is very common, on PSX and everywhere else. Investors knock off value because they can't control how the parent spends its money, because profits in subsidiaries are hard to reach, and because family-controlled groups sometimes favour themselves (Chapter 5). A discount isn't automatically a bargain. Ask what would make it shrink: a listing, a sale, a special dividend, better governance. If nothing will, the discount may stay forever.

YOUR TURN

(a) A chemicals company earned EPS of Rs 4, 9, 14, 7 and 1 over a full cycle and now trades at Rs 98 after the Rs 14 year. Find the trailing and normalised P/E. (b) A bank has book value of Rs 150 per share and ROE of 15%; assume g 8% and r 17%. What's its justified P/B and value per share?

Answer · (a) Trailing: $98 \div 14 = 7.0\times$. Normalised: average EPS $(4 + 9 + 14 + 7 + 1) \div 5 = 7$; $98 \div 7 = 14.0\times$. (b) $(0.15 - 0.08) \div (0.17 - 0.08) = 0.78\times$; $0.78 \times 150 = \text{Rs } 116.67$.

TAKEAWAYS

1. Value cyclical on normalised, mid-cycle profits. A low P/E at the peak is a warning, not a bargain.
2. Never use EV, EBITDA or a standard DCF on banks or insurers. Use P/B against ROE, and check NIM, CASA, infection ratio, coverage and CAR.
3. For loss-makers, ask why, how long the cash lasts, and what recovery would be worth.
4. Value groups part by part, and expect a holding company discount that may never close.

REFERENCES

1. Aswath Damodaran, *The Dark Side of Valuation*, 3rd ed., Pearson FT Press, 2018 (cyclicals, financial firms, loss-makers).
2. State Bank of Pakistan, Banking Policy & Regulations: capital adequacy requirements and prudential regulations. sbp.org.pk
3. State Bank of Pakistan, quarterly *Performance Review of the Banking Sector* (sector NPL and capital ratios). sbp.org.pk
4. Dadu Cement and Indus Group are fictional. Justified P/B inputs are assumptions for teaching.

How to Select Good Stocks

You've learned the pieces: how businesses work, how to read their reports, how to measure and value them. This part puts the pieces in order, so that when someone in a WhatsApp group shouts a ticker, you have a calm, repeatable process for deciding what you think.

From here on, real PSX companies appear, with every figure sourced.

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21 · Understanding Sectors	109
22 · Building a Stock Screener	115

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CHAPTER NINETEEN

The Stock Selection Framework

Pilots run a checklist before every flight, even after twenty years of flying. Not because they forget, but because the one time they skip it is the one time it matters.

BY THE END OF THIS CHAPTER YOU CAN

- run any PSX company through ten steps in a fixed order
- know which steps can rule a company out early
- write a short investment thesis you can test later

Why a fixed order?

Most people start with the share price: "it's fallen 30%, it must be cheap." That's backwards. The price only means something once you know what the business is worth, and you can only judge that once you understand the business. So the framework runs from the business outward, and the price comes almost last. It also saves time. Most companies fail an early step. If you can't understand how a company makes money, you don't need to build its DCF.

ILLUSTRATIVE

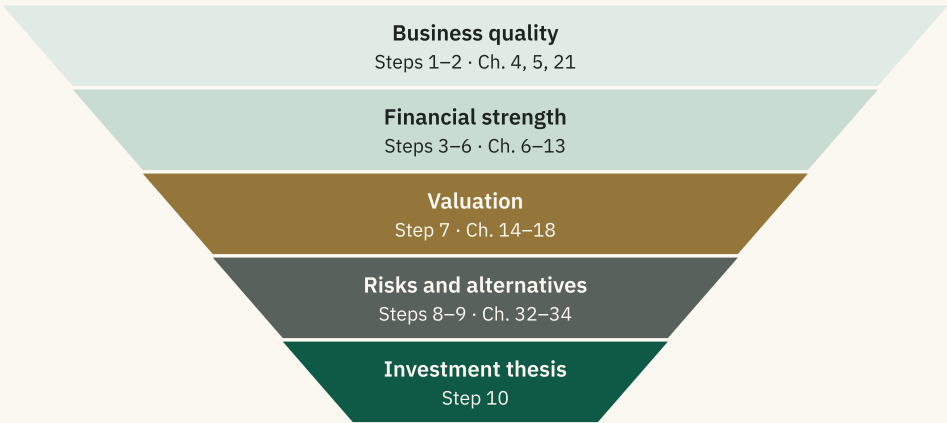


Fig. 19.1 The stock selection funnel. Most companies drop out in the top two layers, which is the point: you only spend valuation effort on businesses that deserve it.

The ten steps

Each step has a question, where to find the answer, and what Ali Foods (our company since Chapter 6) scored. The right-hand column shows how the steps chain together into one view.

1	Understand the business Can I explain in two sentences what it sells, to whom, and why they buy? (Ch. 4)	Ali Foods: frozen samosas and parathas sold through supermarkets. ✓
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2	Study the industry Is the market growing? How many competitors? Any moat? (Ch. 5, 21)	Growing category, brand moat, a few larger rivals. Scorecard 15/20. ✓
3	Examine performance Five years of sales, margins and EPS. Stable, rising, or erratic? (Ch. 6, 13)	EPS CAGR 14.6%; net margin slipping slightly, 11.8% → 11.2%. Mostly ✓
4	Evaluate the balance sheet Can it survive a bad year? (Ch. 7, 12)	Net debt / EBITDA 1.0×, coverage 5×, passes stress test. ✓
5	Assess cash generation Does profit turn into cash? Is the dividend covered? (Ch. 8)	Cash conversion 98% adjusted, but FCF negative this year from expansion. Watch
6	Evaluate management Capital allocation, related parties, honesty of reporting. (Ch. 5, 20)	Bakery acquisition reasonable; no related-party concerns found. ✓
7	Calculate valuation DCF range, peer multiples, margin of safety. (Ch. 14–16)	DCF Rs 13–30, peers Rs 34–40. Price Rs 50. ×
8	Identify risks What could permanently reduce its value? (Ch. 32)	New competitor in frozen food; ingredient inflation; growth above sustainable rate.
9	Compare alternatives Is this the best use of this money right now? (Ch. 16)	Punjab Bakers is similar quality at 16× P/E vs Ali's 22×.
10	Decide Buy, wait, or pass, based on thesis, price and your own risk tolerance.	Good business, wrong price. Wait.

Steps that can end the process

Some answers mean you stop immediately, however exciting the story:

- You can't explain how it makes money (Step 1).
- It couldn't survive a bad year: fragile on the Chapter 12 checklist (Step 4).
- Profits never turn into cash, year after year (Step 5).
- The auditor has qualified the accounts, or money is clearly leaking to related parties (Step 6).

A company that fails Step 7 (valuation) is different. It isn't a "no." It's a "not at this price." Put it on a watchlist with the price at which you would buy.

INVESTOR'S NOTEBOOK

"Good company" and "good investment" are two separate decisions. The framework makes you make both.

Step 10 in practice: the investment thesis

Before you buy anything, write down why, in a few sentences. This is your **investment thesis**. It does two jobs. It forces you to be clear. And later, when the price jumps or falls, it tells you whether anything has actually changed, so you react to facts instead of feelings.

What it is: Pakistan's fastest-growing branded frozen-food maker, with a recognised brand and supermarket distribution.

Why it could be worth owning: Revenue has compounded at 16% for four years, ROIC is 16.5%, and debt is modest. The new paratha line should add volume growth.

What I think it's worth: Rs 23 to 30 on a DCF; Rs 34 to 40 on peer multiples.

The price I'd pay: Rs 25 or below.

What would prove me wrong: Gross margin below 35% for two years; a major competitor taking share; free cash flow still negative after FY7.

Decision today, at Rs 50: Pass. Review after each quarterly result.

Notice the "prove me wrong" line. Most people only write why they're right. Writing down what would make you wrong, in numbers you can check, is what separates investing from hoping.

YOUR TURN

Pick any PSX company you've heard of. Using only its latest annual report from the PSX Data Portal, try Steps 1 to 4. Stop the moment you hit a "stop" answer. Write down which step stopped you, or, if none did, what you'd need to know for Steps 5 to 7.

Answer · A good answer names specific numbers and pages ("net debt / EBITDA 3.8× from note 21 and the income statement; fragile; stopped at Step 4"), not impressions ("seems like a strong company"). Worksheet 12 in Part XI gives you a full template.

TAKEAWAYS

1. Go from the business to the price, never the other way round.
2. Most companies fail early. That's the framework saving you time.
3. Failing on valuation means "wait," not "no." Keep a watchlist with buy prices.
4. Write a thesis with a "what would prove me wrong" line, in numbers.

REFERENCES

1. Atul Gawande, *The Checklist Manifesto*, Metropolitan Books, 2009 (why fixed checklists help experts).
2. Ali Foods Ltd and Punjab Bakers are fictional; figures refer back to Chapters 6 to 16.

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CHAPTER TWENTY

How to Analyze an Annual Report

A PSX annual report can run to hundreds of pages. You don't read it like a novel. You read it like a map: you know where the treasure is, and you go straight there.

BY THE END OF THIS CHAPTER YOU CAN

- find any annual report and know what each section is for
- locate the twelve things that matter in under an hour
- read real figures from Lucky Cement and ask the right questions about them

Where to get it

Every listed company must publish an audited annual report and put it on its own website. You'll also find reports, results and announcements on the **PSX Data Portal** (dps.psx.com.pk): search the company's symbol, then look under financial reports and announcements. Always use the company's own PDF, not a summary on social media.

The map of a Pakistani annual report

Reports differ, but most PSX annual reports follow a similar order. Here's what each part is for, and how much attention it deserves.

ILLUSTRATIVE

SECTION	WHAT YOU'LL FIND	TIME TO SPEND
Company profile, vision, awards	Marketing. Pleasant, rarely useful	Skim
Key figures / six-year summary	Sales, profit, EPS, dividends, ratios over several years in one table	Read closely
Chairman's review and directors' report	Management's explanation of the year: what went well, what didn't, plans, dividends, risks	Read closely , then check it against the numbers
Corporate governance, board, committees	Who's on the board, how independent they are, meeting attendance	Skim for red flags
Auditor's report	An independent accountant's opinion on whether the accounts are fair	Read every word
Financial statements	Income statement, balance sheet, cash flow, changes in equity (Part III)	Read closely
Notes to the accounts	The details behind every line: debt terms, contingencies, related parties, segments	Read the notes listed below
Pattern of shareholding	Who owns the shares: directors, family, institutions, public	Check who controls the company

Fig. 20.1 Map of a typical PSX annual report. Groups like Lucky Cement publish two full sets of accounts: unconsolidated (the parent company alone) and consolidated (the parent plus the companies it controls).

Consolidated or unconsolidated?

This trips up nearly every beginner. Lucky Cement isn't just a cement company. It owns stakes in other businesses, including 55% of Lucky Core Industries (formerly ICI Pakistan), 71.55% of Lucky Motor Corporation (which assembles Kia and Peugeot cars), and 100% of Lucky Electric Power, a 660 MW coal power plant near Karachi.

The **unconsolidated** accounts show Lucky Cement on its own. The **consolidated** accounts add in everything it controls, as if the whole group were one company. Headlines usually quote consolidated numbers. When comparing with another cement company, make sure you compare like with like.

Lucky Cement's FY2026 in numbers

Here are Lucky Cement's consolidated results for the year ended 30 June 2026, as announced to the exchange and summarised by Mettis Global. When you write your own analysis, check every figure in the published annual report itself.

SOURCE DATA			
LUCKY CEMENT LTD, CONSOLIDATED, RS BILLION	FY2026	FY2025	CHANGE
Gross revenue	645.93	563.63	+14.6%
Sales tax, FED, rebates and incentives	(129.57)	(109.57)	
Net sales	516.36	454.06	+13.7%
Cost of sales	(385.05)	(326.89)	+17.8%
Gross profit	131.31	127.17	+3.3%
Distribution and administrative costs	(25.52)	(24.81)	
Other income	20.97	15.89	+32.0%
Share of profit of joint ventures and associates	16.75	17.78	-5.8%
Other expenses and levy	(8.38)	(5.07)	
Finance cost	(18.94)	(25.50)	-25.7%
Profit before tax	116.19	105.75	+9.9%
Taxation	(19.73)	(21.25)	-7.1%
Profit after tax	96.46	84.50	+14.2%
EPS attributable to owners, basic and diluted (Rs)	60.78	52.53	+15.7%
Cash dividend per share (Rs)	5.00	n/a	

Fig. 20.2 Lucky Cement Limited, consolidated results, years ended 30 June 2026 and 2025, Rs billion. Source: Mettis Global, "LUCK FY26 profit jumps 14%," summarising the company's FY26 results announcement. FY25 figures are as shown in the FY26 announcement and may differ slightly from those first reported for FY25. Grouped lines are sums of the reported items. FY26 lines add exactly to profit before tax; the FY25 lines in the summary add to 105.46, Rs 0.29 billion short of the 105.75 reported, so one small FY25 item is missing from the summary. Check the annual report.

Reading it like an investor

Now use everything from Parts III and IV. Six observations, each with the question it raises. None of these is a verdict on the company; they're the questions a careful reader takes into the rest of the report.

01	Gross margin FY26: $131.31 \div 516.36$	25.4%
02	Gross margin FY25: $127.17 \div 454.06$	28.0%

1. Sales grew faster than gross profit. Net sales rose 13.7%, but cost of sales rose 17.8%, so gross margin fell by about 2.6 percentage points. *Question:* which part of the group drove this? Check the segment note to see whether cement, chemicals, autos or power had the weaker year.

2. The tax line is huge. Of Rs 645.9 billion of gross revenue, Rs 108.7 billion (16.8%) went straight to sales tax and federal excise duty before the company counted a rupee of net sales. That's why you always start from net sales.

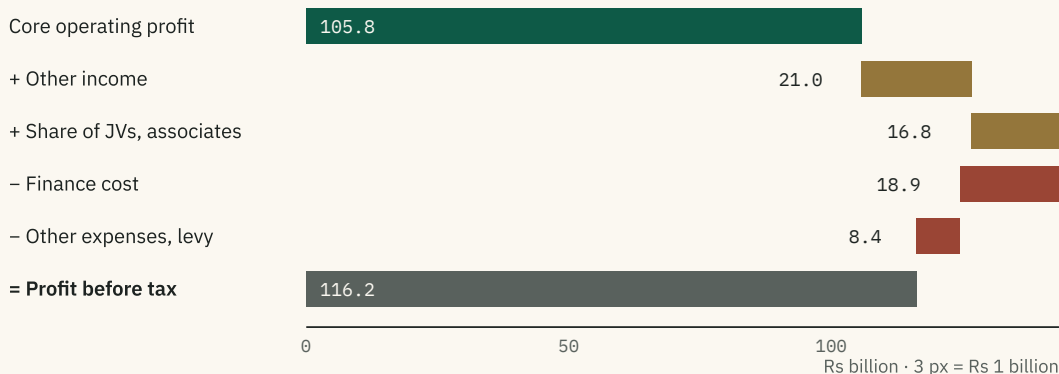


Fig. 20.3 Lucky Cement FY26: where profit before tax came from. Core operating profit = gross profit – distribution – admin = 131.31 – 16.94 – 8.58 = 105.79. Source as Fig. 20.2. Drawn to scale.

3. About a third of pre-tax profit came from outside the core operations. Other income (Rs 20.97 billion) and the share of profit from joint ventures and associates (Rs 16.75 billion) together were Rs 37.72 billion, 32.5% of profit before tax. *Question:* what's inside "other income"? Interest on cash, dividends from investments, exchange gains? Some of these repeat; some don't (Chapter 6). The other-income note tells you.

4. Lower interest costs helped a lot. Finance cost fell 25.7%, by Rs 6.56 billion. *Question:* did the group pay down debt, or did interest rates fall, or both? Check the borrowings note and the cash flow statement. If it's mostly rates, remember Chapter 12: rates can rise again.

5. Not all the profit belongs to Lucky's shareholders. EPS of Rs 60.78 on about 1,465 million shares implies roughly Rs 89 billion attributable to Lucky's owners. The rest of the Rs 96.46 billion, about Rs 7.4 billion, belongs to **non-controlling interests**: the other shareholders in subsidiaries Lucky doesn't fully own. Always use profit attributable to owners when calculating your own P/E.

6. EPS history needs adjusting for the split. In 2025, Lucky Cement split each Rs 10 share into five Rs 2 shares, taking the count from about 293 million to about 1,465 million (Chapter 1's pizza, in real life). The FY25 EPS of Rs 52.53 shown here is already on the new basis. If you pull EPS from older reports, divide it by 5 before comparing.

Bonus: read the dividend correctly. A Rs 5 cash dividend on a Rs 2 face value is announced as a 250% dividend. As a share of EPS, it's a payout of $5 \div 60.78 = 8.2\%$. That's a low payout for a company this profitable. *Question:* what is the board doing with the other 92%? The directors' report should explain the plans for retained cash: expansion, debt repayment, investments or something else. Judge that against Chapter 5's capital allocation test.

INVESTOR'S NOTEBOOK

The numbers tell you what happened. The notes tell you why. The directors' report tells you what management wants you to think. Read all three, in that order of trust.

The twelve things, and where to find them

WHAT	WHERE	WHAT TO CHECK
Revenue	Income statement; revenue note	Net, not gross. Split by product or market
Profit	Income statement	Attributable to owners; strip out one-offs
EPS	Foot of the income statement; EPS note	Basic vs diluted; adjust for splits and bonus shares
Cash flow	Cash flow statement	Operating cash vs profit; capex; FCF
Debt	Balance sheet; borrowings notes	Amounts, interest rates, when it's due
Management commentary	Chairman's review; directors' report	Does the story match the numbers?

WHAT	WHERE	WHAT TO CHECK
Auditor's opinion	Auditor's report, just before the statements	Unmodified, qualified, adverse or disclaimer; any "emphasis of matter"
Notes	After the statements	Accounting policies, especially any changes
Contingent liabilities	"Contingencies and commitments" note	Tax disputes, court cases, guarantees that could become real costs
Related-party transactions	Related-party note	Size, trend, who they're with (Ch. 5)
Segment performance	Segment information note	Which business makes the money; which is struggling
Dividends	Directors' report; notice of AGM; changes in equity	Amount, payout, whether cash covers it

Reading the auditor's report

The auditor is an independent accounting firm hired to check the accounts. Their opinion comes in four flavours:

- **Unmodified ("clean").** The accounts are fair. This is normal and what you want.
- **Qualified.** Fair, *except for* one specific issue. Find out what, and how big.
- **Adverse.** The accounts are not fair. A serious red flag.
- **Disclaimer.** The auditor couldn't get enough evidence to give an opinion. Also very serious.

Even a clean opinion can include an **emphasis of matter** paragraph, where the auditor points to something important already disclosed, such as a big lawsuit or doubts about a subsidiary's future. And look for **key audit matters**: the areas the auditor found hardest to check. They're a free list of where the accounting is most uncertain.

YOUR TURN

Download Lucky Cement's FY2026 annual report from the company's investor relations page or the PSX Data Portal. Find: (a) the segment note, and which segment had the biggest revenue; (b) the auditor's opinion type and any key audit matters; (c) the contingencies note, and the largest single item; (d) what the directors' report says about how retained profit will be used. Then repeat (a) to (d) in the unconsolidated accounts and note what changes.

Answer · There's no single answer key because this depends on the published report. A good answer quotes note numbers and figures exactly as printed, says whether each figure is consolidated or unconsolidated, and writes one "question this raises" line for each. Worksheet 10 in Part XI turns this into a reusable template.

TAKEAWAYS

1. Get reports from the company or the PSX Data Portal. Read the six-year summary, directors' report, auditor's report, statements, and the key notes.
2. Know whether you're reading consolidated or unconsolidated figures, and use profit attributable to owners.
3. Adjust old EPS for splits and bonus shares before comparing years.
4. Turn every surprising number into a question, then find the note that answers it.

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21

CHAPTER TWENTY-ONE

Understanding Sectors

A cricket selector doesn't judge a fast bowler by his batting average. Every sector on PSX plays a different game, and needs to be judged by its own numbers.

BY THE END OF THIS CHAPTER YOU CAN

- say what drives revenue and profit in eleven PSX sectors
- pick the right ratios for each one
- avoid the classic valuation mistake in each

Why sectors matter so much on PSX

On PSX, shares in the same sector often move together, because they share the same big drivers: interest rates, the rupee, gas prices, government policy. Before you study one company, understand its sector's game. Half of what happens to the company will come from there.

Each sector below gets the same five lines. Example companies are named only to help you find the sector on the PSX Data Portal; naming them is not a judgement on them. Check each one's current listing and details yourself.

The macro map

Three forces move most PSX sectors: interest rates, the rupee-dollar rate, and energy prices. Here's how each tends to hit each sector. These are general tendencies, not rules; individual companies can differ a lot.

ILLUSTRATIVE			
SECTOR	INTEREST RATES FALL	RUPEE WEAKENS	ENERGY COSTS RISE
Banks	▼ margins shrink	–	–
Cement	▲ building, lower interest	▼ imported coal costs more	▼
Fertilizers	mixed	mixed	▼ if gas price rise isn't passed on
Oil & gas exploration	–	▲ prices linked to dollars	▲ higher oil prices
Power	▲ less interest on heavy debt	tariffs usually adjust	usually passed through
Textiles	▲ cheaper working capital	▲ exports earn more rupees	▼ energy is a big cost
Pharmaceuticals	▲	▼ imported raw materials	–
Consumer goods	▲ more spending	▼ if inputs are imported	▼
Technology	–	▲ dollar revenue, rupee costs	–
Autos	▲ car financing cheaper	▼ imported parts cost more	–
Real estate, REITs	▲ property demand, lower funding cost	–	–

Fig. 21.1 How three big forces tend to affect each PSX sector. ▲ usually helps, ▼ usually hurts. A company that has hedged, passes costs on, or exports may behave differently from its sector.

Eleven sectors, field-guide style

Banking

Examples to look up: HBL, MCB Bank, Meezan Bank, United Bank

EARN FROM	The gap between interest on loans and investments and interest paid on deposits, plus fees.
DRIVERS	Interest rates (higher rates usually widen margins), deposit growth, cheap current and savings deposits (CASA).
MAIN RISKS	Bad loans; falling rates; heavy reliance on government securities; changes in bank taxation.
USE	P/B with ROE; NIM; infection ratio; coverage; CAR; dividend yield (Ch. 18).
MISTAKE	Using EV/EBITDA or debt-to-equity. A bank's "debt" is its deposits.

Cement

Examples: Lucky Cement, others in the PSX cement sector

EARN FROM	Selling bags and bulk cement to builders and government projects, plus exports.
DRIVERS	Construction and government development spending, interest rates, coal and power costs, capacity use, regional price discipline (north and south markets behave differently).
MAIN RISKS	Slowdowns, new capacity flooding the market, coal price spikes, high debt from expansions.
USE	EV/EBITDA, EV per tonne of capacity, capacity utilisation, gross margin per tonne, net debt / EBITDA.
MISTAKE	Buying at a low P/E at the peak of the cycle (Ch. 18).

Fertilizers

Examples: Fauji Fertilizer, Engro Fertilizers, Fatima Fertilizer

EARN FROM	Making urea and other fertilizers, mostly from natural gas, and selling to farmers.
DRIVERS	Gas supply and gas prices set by government, urea prices, farm incomes, sowing seasons.
MAIN RISKS	Gas price or supply changes, subsidy and pricing decisions, sector-specific taxes.
USE	Dividend yield and payout, P/E, free cash flow, gas cost per tonne.
MISTAKE	Assuming today's gas pricing lasts forever. One policy change can reset profits.

Oil and gas

Examples: OGDC, Pakistan Petroleum, Mari Energies (exploration); Pakistan State Oil (marketing)

EARN FROM	Exploration companies sell oil and gas they produce; marketing companies sell fuel at regulated margins; refineries earn the gap between crude and product prices.
DRIVERS	Global oil prices, the dollar rate, production volumes and new discoveries, regulated margins.
MAIN RISKS	Circular debt: unpaid bills passed between government, power producers and fuel suppliers, so profits sit as receivables instead of cash. Also falling reserves.
USE	P/E, EV/EBITDA, receivables days, operating cash flow vs profit, reserve life.
MISTAKE	Valuing on profit without checking whether the cash is actually being collected (Ch. 8).

Power

Examples: Hub Power, other independent power producers

EARN FROM	Long-term contracts to sell electricity to the government buyer, often with capacity payments and returns linked to the dollar.
DRIVERS	Contract terms, plant availability, the payment cycle from the government.
MAIN RISKS	Circular debt and delayed payments, contract renegotiation, the plant's contract ending.
USE	Dividend yield, free cash flow, receivables, years left on contracts, a DCF that ends when the contract does.
MISTAKE	Treating a high yield as permanent when the contract, or the plant's life, is finite.

Textiles

Examples: Nishat Mills, Interloop

EARN FROM	Spinning, weaving, dyeing and making garments, largely for export.
DRIVERS	Export orders, the rupee, cotton prices, energy costs, export incentives and tax regimes.
MAIN RISKS	Thin margins, energy cost shocks, losing big foreign buyers, policy changes on exporters.
USE	Gross margin trend, EV/EBITDA, working capital days, P/B for asset-heavy mills.
MISTAKE	Extrapolating a year boosted by a sharp rupee fall. Currency gains rarely repeat.

Pharmaceuticals

Examples: The Searle Company, AGP, Abbott Laboratories (Pakistan)

EARN FROM	Selling medicines, many made from imported raw materials.
DRIVERS	Drug pricing decisions by the regulator (DRAP), the rupee, new product launches, distribution reach.
MAIN RISKS	Price controls that lag cost increases, currency shocks, product recalls.
USE	Gross margin, P/E, revenue growth by volume vs price, receivables.
MISTAKE	Ignoring that a weaker rupee can squeeze margins until price increases are allowed.

Consumer goods

Examples: Nestlé Pakistan, Colgate-Palmolive (Pakistan), Unilever Pakistan Foods

EARNs FROM	Selling everyday branded products through a huge distribution network.
DRIVERS	Brand strength, pricing power, household incomes, input costs.
MAIN RISKS	Customers trading down to cheaper brands in hard times, input inflation, high valuations.
USE	P/E, ROIC, gross margin stability, volume growth, dividend payout.
MISTAKE	Paying any price for quality. Great brands at 40× earnings can disappoint for years.

Technology

Examples: Systems Limited, TRG Pakistan, Avanceon

EARNs FROM	IT services and software, much of it exported and billed in dollars.
DRIVERS	Client wins abroad, keeping skilled staff, the dollar rate, tax treatment of IT exports.
MAIN RISKS	Staff leaving abroad, losing a big client, a slowdown in global tech spending, a rupee rebound.
USE	Revenue growth in dollars (not just rupees), P/E, EV/Sales for fast growers, ROIC, client concentration.
MISTAKE	Mistaking currency gains for business growth. Ask what grew in dollar terms.

Automobiles

Examples: Indus Motor, Honda Atlas Cars, Millat Tractors

EARNs FROM	Assembling cars, bikes and tractors, largely from imported kits and parts.
DRIVERS	Interest rates (most cars are bought on finance), the rupee, import rules, taxes on vehicles.
MAIN RISKS	Sharp demand swings, import restrictions, new competitors, policy changes.
USE	Volumes, gross margin, net cash (many hold large customer advances), normalised P/E.
MISTAKE	Ignoring how quickly demand collapses when financing becomes expensive.

Real estate-related

Examples: listed REITs and property developers on PSX

EARNs FROM	Rent (REITs) or selling developed property (developers).
DRIVERS	Occupancy, rent levels, property prices, interest rates.
MAIN RISKS	Revaluation gains that aren't cash, project delays, tenant concentration.
USE	Dividend yield, price to net asset value, occupancy, rental cash flow.
MISTAKE	Counting property revaluation gains as if they were cash profit.

INVESTOR'S NOTEBOOK

On PSX, ask what the government has to do with a company's profit. In many sectors, the answer is "a lot."

YOUR TURN

Suppose the State Bank cuts interest rates sharply and the rupee strengthens against the dollar in the same year. Using Fig. 21.1, name two sectors likely to benefit and two likely to suffer, and explain each in one line.

Answer · Likely helped: autos (cheaper financing, and imported kits cost less in rupees) and cement (more construction, lower interest). Likely hurt: banks (narrower margins) and technology or textile exporters (each dollar earned converts into fewer rupees). Individual companies may differ; check their exposure.

TAKEAWAYS

1. Learn the sector's game before the company's. Interest rates, the rupee, energy and government policy drive much of PSX.
2. Each sector has its own best ratios. Use them, not one formula for all.

3. Circular debt means profits can sit as unpaid bills. Always check cash collection in power and energy.
4. Every sector has a classic mistake. Know it before you buy.

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2. State Bank of Pakistan, monetary policy statements and exchange rate data. sbp.org.pk
3. Drug Regulatory Authority of Pakistan (DRAP), drug pricing policy. dra.gov.pk
4. Oil and Gas Regulatory Authority (OGRA), petroleum and gas pricing. ogra.org.pk
5. Example companies are named for orientation only; the sensitivity directions in Fig. 21.1 are general tendencies, not forecasts.

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CHAPTER TWENTY-TWO

Building a Stock Screener

There are hundreds of companies on PSX. You can't study them all. A screen is a sieve: pour them all in, shake, and look at what's left.

BY THE END OF THIS CHAPTER YOU CAN

- set up five screens: value, growth, quality, dividend and strength
- run them in a spreadsheet with one formula
- recognise the traps hiding in screen results

What a screen does, and doesn't

A **stock screen** filters companies by numbers you choose: "show me everything with a P/E under 12 and low debt." It's fast and it's fair; it doesn't care about rumours or famous names.

But a screen only sees numbers. It can't see a one-off gain, a cyclical peak, a governance problem or a dividend about to be cut. Every company that passes a screen still has to go through the ten-step framework in Chapter 19. A screen gives you a shortlist, not a buy list.

Our test universe

Nine fictional companies you've already met in this book. Their numbers match earlier chapters where they appeared.

ILLUSTRATIVE											
COMPANY	P/E	P/B	ROE	EPS	CAGR	NET DEBT / EBITDA	INT. COVER	CURRENT RATIO	DIV. YIELD	PAYOUT	FCF, 3 YRS
Ali Foods	22.3	3.8	18%		15%	1.0	5.0	1.5	2.0%	45%	–
Thar Snacks	18.0	4.0	22%		18%	0.5	12.0	1.8	1.5%	27%	+
Punjab Bakers	16.0	2.9	18%		13%	1.0	7.0	1.6	3.0%	48%	+
Kaghan Foods	14.0	2.2	16%		10%	1.5	4.0	1.3	4.0%	56%	+
Murree Frozen	11.0	1.3	12%		6%	2.5	2.5	1.1	5.0%	55%	+
Dadu Cement	8.0	1.5	19%	erratic		2.0	4.0	1.2	5.0%	40%	+
Sindh Fertilizer	6.0	1.8	30%		4%	0.3	15.0	1.7	13.3%	80%	+
Kotri Power	8.0	0.6	8%		–5%	4.5	1.5	0.9	30.0%	240%	–
Gwadar Steel	9.0	0.7	10%		2%	5.0	1.2	0.8	0.0%	0%	–

Fig. 22.1 A nine-company test universe. All fictional. Kotri Power's yield and payout use last year's dividend, before the cut described in Chapter 17

Five screens

These thresholds are sensible starting points for PSX, not magic numbers. Adjust them for market conditions; when interest rates are high, for example, PSX P/E ratios tend to be lower across the board.

SCREEN	LOOKS FOR	RULES
Value	Cheap prices, survivable balance sheets	$P/E < 12 \cdot P/B \leq 1.5 \cdot \text{Net debt} / \text{EBITDA} \leq 2.5$
Growth	Fast, profitable growth	$\text{EPS CAGR} > 12\% \cdot \text{ROE} > 15\%$
Quality	High returns, low debt, real cash	$\text{ROE} > 15\% \cdot \text{Net debt} / \text{EBITDA} < 1.5 \cdot \text{FCF positive over 3 years}$
Dividend	Income that looks sustainable	$\text{Yield} \geq 5\% \cdot \text{Payout} \leq 80\% \cdot \text{FCF positive over 3 years}$
Strength	Companies that can survive a bad year	$\text{Net debt} / \text{EBITDA} \leq 1.0 \cdot \text{Interest cover} \geq 5 \cdot \text{Current ratio} \geq 1.5$

The results

ILLUSTRATIVE					
COMPANY	VALUE	GROWTH	QUALITY	DIVIDEND	STRENGTH
Ali Foods	-	✓	-	-	✓
Thar Snacks	-	✓	✓	-	✓
Punjab Bakers	-	✓	✓	-	✓
Kaghan Foods	-	-	-	-	-
Murree Frozen	✓	-	-	✓	-
Dadu Cement	✓	-	-	✓	-
Sindh Fertilizer	-	-	✓	✓	✓
Kotri Power	-	-	-	-	-
Gwadar Steel	-	-	-	-	-

Fig. 22.2 Which companies pass which screen. ✓ passes every rule in that screen.

Now look closer: what the screens missed

Every result needs a second look. Here's what Chapters 1 to 21 tell us about the companies that passed:

- **Dadu Cement passed Value.** But its P/E of 8 is on peak-cycle profit. Normalised, it's 17.6× (Chapter 18). A classic screen trap.
- **Kotri Power failed every screen,** but its 30% headline yield would have topped any simple "highest yield" list. Good thing the dividend screen also checked payout and cash.
- **Ali Foods passed Growth and Strength,** but its free cash flow is negative and its price is far above our DCF (Chapters 8 and 15).
- **Sindh Fertilizer passed three screens** and looks excellent. Now ask the sector question from Chapter 21: how much of that profit depends on today's gas pricing?
- **Thar Snacks and Punjab Bakers** pass Growth, Quality and Strength. These two deserve the full ten-step treatment first.

Notice that Gwadar Steel and Kotri Power look "cheap" on P/B (0.7 and 0.6) but fail everything else. Low price-to-book on a weak, heavily indebted company is usually a value trap.

A screen finds companies that look good in numbers. Your job is to find out which numbers are lying.

Building it in a spreadsheet

Put one company per row, one ratio per column. Then a single FILTER formula (in Google Sheets, or Excel 365) returns everything that passes. Here's the Value screen, with P/E in column B, P/B in C, and net debt / EBITDA in F:

	A	B	C	...	F
1	Company	P/E	P/B	...	ND/EBITDA
2	Ali Foods	22.3	3.8	...	1.0
3	...				
13	Value screen:				
14	=FILTER(A2:A10, B2:B10<12, C2:C10<=1.5, F2:F10<=2.5)				

Each condition after the first range is one rule. Add more rules by adding more conditions. Copy the formula and change the rules to build the other four screens.

WHERE THE NUMBERS COME FROM

You can fill the sheet yourself from annual reports and the PSX Data Portal, which is slow but reliable. Broker apps and research websites also offer ready-made screeners, which are fast, but check a few numbers against the annual report before trusting them. Data errors, stale prices and one-off profits are common. Whatever you use, write the date and source at the top of the sheet.

YOUR TURN

Using Fig. 22.1, design a "cheap but safe dividend" screen of your own with exactly three rules. Which companies pass? Then explain in one line why one of them might still be a mistake.

Answer · Rules: P/E < 12, yield ≥ 5%, interest cover ≥ 4. Passes: Dadu Cement (8, 5%, 4.0) and Sindh Fertilizer (6, 13.3%, 15). Murree Frozen just misses on interest cover (2.5). Bolan might be a mistake because its profits, and therefore dividends, are at a cyclical peak. Your rules may differ; the point is to question each result.

TAKEAWAYS

1. Screens turn hundreds of companies into a shortlist. They are never a buy signal.
2. Combine rules (price, quality, debt, cash) so no single number fools you.
3. Check every result for one-offs, cyclical peaks, yield traps and value traps.
4. Build your screen in a spreadsheet with FILTER, and record your data sources and dates.

REFERENCES

1. Google, FILTER function (Google Sheets Help). support.google.com
2. Microsoft, FILTER function (Excel 365). support.microsoft.com
3. PSX Data Portal. dps.psx.com.pk
4. All companies in this chapter are fictional; thresholds are teaching starting points, not recommendations.

Technical Analysis

Everything so far has been about the business. This part is about the price itself: how it moves, and what those movements can and can't tell you.

Let's be honest from the first page. Charts describe what buyers and sellers have done. They're very good at that. They're much weaker at predicting what will happen next, and research on whether chart patterns beat the market after costs is mixed at best. So this part teaches charts as a tool for reading the crowd, planning entries and controlling risk. It does not teach them as a crystal ball.

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CHAPTER TWENTY-THREE

Understanding Price Charts

A price chart is a diary of every argument between buyers and sellers. Learn to read the handwriting before you try to read the mood.

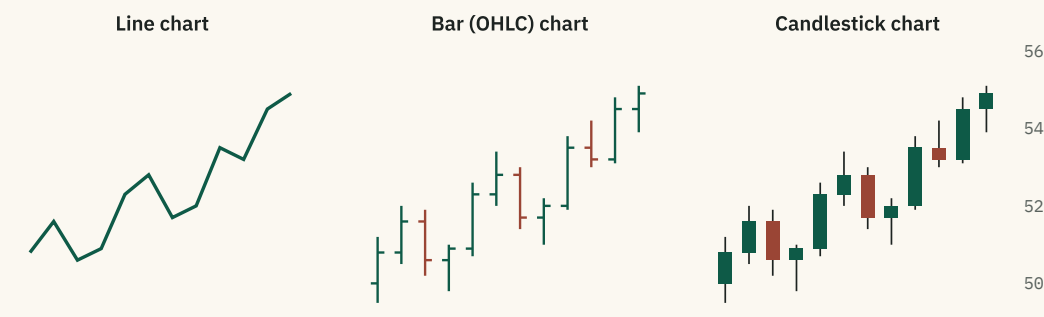
BY THE END OF THIS CHAPTER YOU CAN

- read line, bar and candlestick charts
- explain open, high, low, close and volume
- spot gaps, and tell real ones from corporate-action adjustments

Three ways to draw the same days

Every trading day, a share has four important prices: where it started (**open**), the highest it reached (**high**), the lowest (**low**), and where it finished (**close**). Together they're called **OHLC**. Charts are just different ways of drawing these four numbers.

ILLUSTRATIVE



Same 12 days of a fictional share. Price in Rs.

Fig. 23.1 One set of prices, three charts. The line chart uses only the close. The bar chart shows all four prices: a vertical line from low to high, a tick left for the open and right for the close. The candlestick shows the same four prices with a filled body.

A **line chart** joins up the closing prices. It's the cleanest view of the overall direction, and the best one for long periods. A **bar chart** adds the day's range. A **candlestick chart** shows the same thing as a bar chart, but the coloured body makes it much easier to see at a glance who won each day. Most traders on PSX use candlesticks, so we will too.

Anatomy of a candle

ILLUSTRATIVE

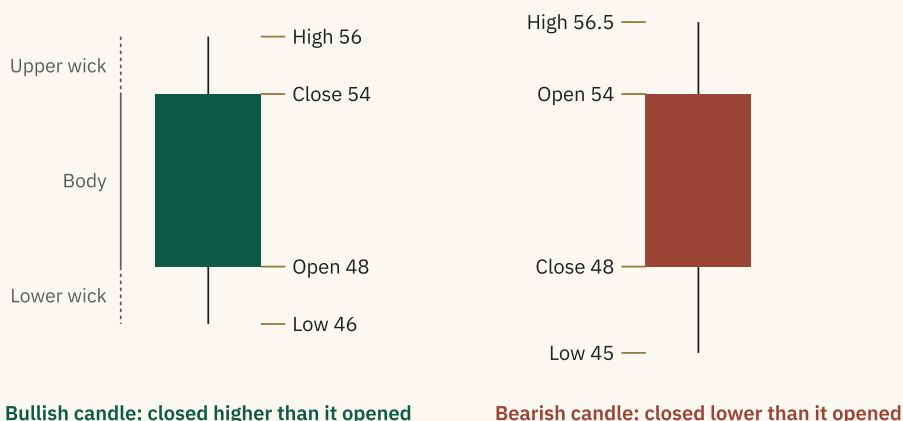


Fig. 23.2 Anatomy of a candlestick. The body runs from open to close; the thin wicks (or shadows) reach the day's high and low. Green: closed higher than it opened. Red: closed lower.

Read a candle as a short story. The bullish candle above opened at Rs 48, dipped to Rs 46, then buyers pushed it all the way to Rs 56 before it settled at Rs 54. Buyers won the day, comfortably. The bearish one opened at Rs 54, briefly reached Rs 56.50, then sellers dragged it down to Rs 45 before it closed at Rs 48. A long wick tells you a price was *tried* and *rejected*.

Timeframes

Each candle can represent any period: five minutes, one day, one week, one month. The same share can look like it's falling on a 15-minute chart and rising on a weekly chart. Both are true.

Pick the timeframe that matches how long you plan to hold. A long-term investor who holds for years should mostly look at weekly or monthly charts; minute-by-minute candles are noise for them. Day traders live on short timeframes. Most beginners' mistakes come from making long-term decisions while staring at short-term charts.

Volume: how loud was the argument?

Volume is the number of shares traded in each period, usually drawn as bars under the price. A price move on high volume means lots of people took part; it carries more weight. The same move on very low volume might be just a few traders, and can easily reverse.

Gaps

ILLUSTRATIVE

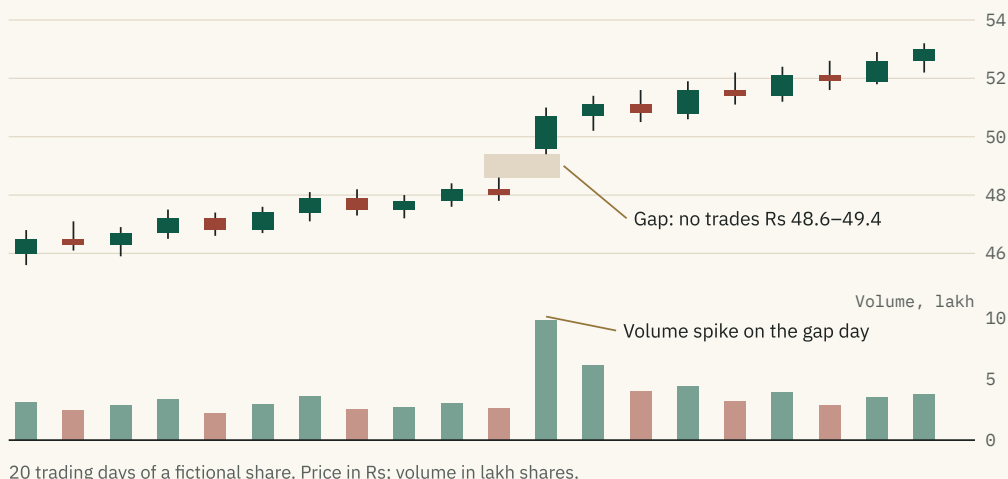


Fig. 23.3 Candlesticks with volume underneath. On day 12 the share opened above the previous day's high, leaving a **gap** where no trades happened, on roughly three times normal volume.

A **gap** happens when a share opens well above (or below) the previous day's range, leaving an empty space on the chart. On PSX, gaps often follow news released outside trading hours, like quarterly results, a big dividend, or a policy announcement. A gap on heavy volume, like the one above, shows strong conviction.

A warning that catches many beginners: on PSX, prices drop mechanically when a share goes **ex-dividend**, ex-bonus, ex-rights, or after a split. When Lucky Cement split each share into five in 2025 (Chapter 20), its price fell to about a fifth overnight. That's not a crash; nobody lost money. Good charting tools *adjust* past prices for these events. Always check whether your chart is adjusted before reading anything into a sudden drop.

Market structure, in one line

Step back from individual candles, and price moves in waves: up, pause, down, pause. The pattern of those waves, whether each peak and trough is higher or lower than the last, is called **market structure**. It's the backbone of everything in Chapters 25 and 26.

INVESTOR'S NOTEBOOK

Choose your chart's timeframe to match your holding period. A five-year investor reading five-minute candles is watching the waves and forgetting the tide.

YOUR TURN

A candle has open Rs 120, high Rs 131, low Rs 118, close Rs 129. (a) Is it bullish or bearish? (b) How long is the body, upper wick and lower wick, in rupees? (c) The next morning, the share opens at Rs 134. What happened?

Answer · (a) Bullish: close above open. (b) Body $129 - 120 = \text{Rs } 9$; upper wick $131 - 129 = \text{Rs } 2$; lower wick $120 - 118 = \text{Rs } 2$. (c) A gap up: it opened above the previous high of Rs 131. Check for news, and whether volume confirms it.

TAKEAWAYS

1. Every candle is four prices: open, high, low, close. The body shows who won; the wicks show what was rejected.
2. Match the chart's timeframe to how long you hold.
3. Moves on high volume carry more meaning than moves on low volume.
4. Ex-dividend, bonus and split drops aren't real falls. Use adjusted charts.

REFERENCES

1. John J. Murphy, *Technical Analysis of the Financial Markets*, New York Institute of Finance, 1999.
2. Steve Nison, *Japanese Candlestick Charting Techniques*, 2nd ed., Prentice Hall, 2001.
3. All chart data in this chapter is fictional and generated for illustration.

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CHAPTER TWENTY-FOUR

Candlestick Analysis

A single candle is a sentence. A pattern is a short paragraph. Neither means much until you know which chapter of the story you're in.

BY THE END OF THIS CHAPTER YOU CAN

- recognise six common candlestick patterns
- explain what each says about buyers and sellers
- judge whether a pattern means anything in its context

The six patterns worth knowing

There are dozens of named candlestick patterns. Most are variations on a few ideas. These six cover nearly everything you'll see discussed.

ILLUSTRATIVE



Fig. 24.1 Six candlestick patterns. The engulfing patterns and the inside bar use two candles; the others use one.

DOJI

Open and close almost exactly equal, so the body is a thin line. Buyers and sellers fought all day and ended where they started. A doji says *indecision*. After a long rise, it can be an early sign the buyers are tiring. In a quiet, sideways market, it means almost nothing.

HAMMER

A small body near the top, and a long lower wick at least twice the body's length. Sellers pushed the price well down during the day, but buyers fought back and closed it near the high. After a decline, it suggests sellers may be running out of steam.

SHOOTING STAR

The hammer flipped: small body near the bottom, long upper wick. Buyers pushed up, sellers slammed it back down. After a rise, it hints that buyers are being rejected at higher prices.

Hammers and shooting stars belong to a wider family traders call **pin bars** or **rejection candles**: any candle whose long wick shows a price was tested and turned away.

BULLISH AND BEARISH ENGULFING

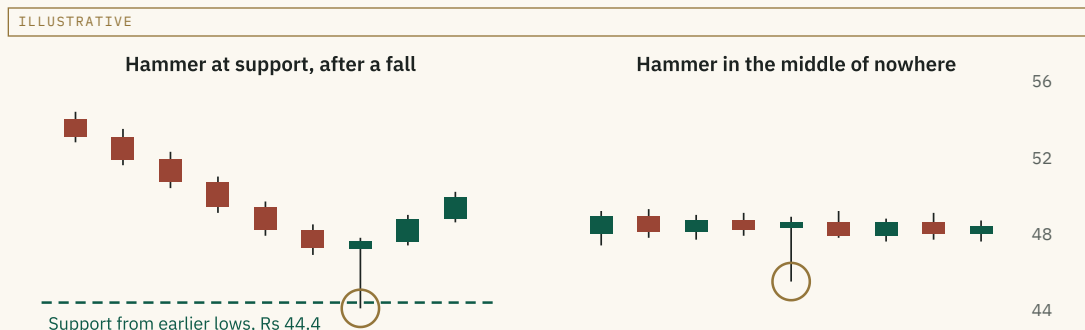
Two candles. In a bullish engulfing, a red candle is followed by a bigger green one whose body completely covers the red body. Yesterday sellers won a little; today buyers won a lot. A bearish engulfing is the mirror image. Engulfing patterns get more attention when they come after a clear move and on higher volume.

INSIDE BAR

A candle whose whole range fits inside the previous candle's range. The market is pausing, coiling. Traders watch for which side it breaks out of next. On its own, it tells you nothing about direction.

Context is everything

Here is the most important idea in this chapter. The same shape can be a strong signal in one place and pure noise in another.



Left: a meaningful signal worth watching. Right: the same shape, but no trend, no level, no message.

Fig. 24.2 The same hammer shape (circled) in two places. On the left, it appears after a clear fall, right at a level where the price had found buyers before. On the right, it's just one candle in a sideways shuffle.

Before you read anything into a pattern, ask three questions:

1. **Where is it?** At a meaningful level (an old low, an old high, a trendline), or in the middle of nowhere?
2. **What came before?** A reversal pattern needs something to reverse. A hammer after a rise is not a hammer signal.
3. **Was volume higher than usual?** More participation means more meaning.

And then one more: **what happened next?** Most traders wait for the following candle to confirm the pattern, for example a green day after a hammer, before acting.

The honest limits

Candlestick patterns are good at describing what just happened in the fight between buyers and sellers. On their own, studies have found their ability to predict the next move is weak, and often disappears once trading costs are counted. A share can print a perfect hammer and keep falling, especially if the business is getting worse. Use candles to refine *when* to act on a decision you've already made for better reasons, not to decide *whether* to own a company.

INVESTOR'S NOTEBOOK

A candlestick pattern is a clue, not a verdict. The same shape means different things in different places.

YOUR TURN

A share fell from Rs 90 to Rs 70 over six weeks. Rs 70 was also its low last year. Today's candle: open Rs 71, high Rs 72, low Rs 66, close Rs 71.80, on twice the normal volume. (a) Name the pattern. (b) Give two reasons it's more meaningful here than usual. (c) What would you wait for before acting?

Answer · (a) A hammer: small body near the top (Rs 71 to 71.80) with a long lower wick down to Rs 66. (b) It follows a clear decline, it's at a level that held before (last year's low), and volume was high. (c) Confirmation: a strong close above Rs 72 the next day, and, for an investor, a business case from Part VI.

TAKEAWAYS

1. Six patterns cover most of what you'll hear: doji, hammer, shooting star, two engulfings, and the inside bar.
2. Long wicks mean rejection. Big bodies mean conviction. Thin bodies mean indecision.
3. Check location, what came before, volume, and confirmation.
4. Patterns help with timing. They don't tell you what a business is worth.

REFERENCES

1. Steve Nison, *Japanese Candlestick Charting Techniques*, 2nd ed., Prentice Hall, 2001.
2. Ben R. Marshall, Martin R. Young and Lawrence C. Rose, "Candlestick technical trading strategies: Can they create value for investors?", *Journal of Banking & Finance*, 2006 (finds little evidence of profitability for candlestick strategies in US large stocks).
3. All chart data in this chapter is fictional.

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CHAPTER TWENTY-FIVE

Trend and Market Structure

Waves on the beach go in and out, but the tide still rises or falls. Trends are the tide.

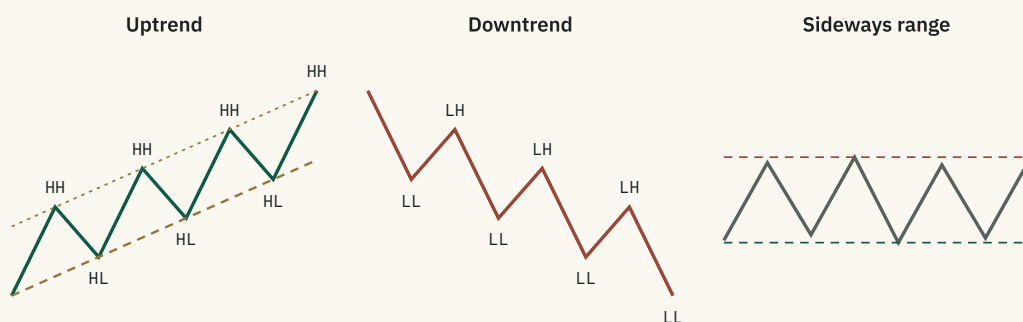
BY THE END OF THIS CHAPTER YOU CAN

- identify an uptrend, downtrend or range by its highs and lows
- draw trendlines and channels properly
- tell a real breakout from a failed one

Highs and lows tell you the trend

Forget indicators for a moment. You can identify a trend with just your eyes and four labels:

ILLUSTRATIVE



HH higher high · HL higher low · LH lower high · LL lower low. Dashed gold: trendline and channel.

Fig. 25.1 Three kinds of market. In the uptrend, the price is drawn as a zigzag of closing prices with a trendline under the lows and a parallel channel line over the highs.

Uptrend: each peak is higher than the last (**higher high**, HH) and each dip stops higher than the last (**higher low**, HL). Buyers are stepping in at higher and higher prices.

Downtrend: **lower highs** (LH) and **lower lows** (LL). Sellers are willing to sell at lower and lower prices.

Sideways (range): peaks and dips at roughly the same levels. Neither side is winning. Many shares spend most of their time here.

A trend is in place until the pattern breaks. An uptrend's first warning is a *lower high*; its first real break is a *lower low*.

Trendlines and channels

A **trendline** in an uptrend connects the higher lows. You need two points to draw one, and a third touch to take it seriously. In a downtrend, connect the lower highs. Draw a parallel line on the other side and you have a **channel**: a corridor the price has been moving within.

Three rules keep trendlines honest. Connect wicks or bodies consistently, not whichever fits your hope. Don't redraw the line every time price breaks it. And the steeper the line, the sooner it usually breaks; trends that go nearly vertical rarely last.

Breakouts and failed breakouts

When the price escapes a range or pushes through a level it couldn't pass before, that's a **breakout**. Many breakouts don't last. The price pokes above, catches buyers who chase it, then falls back inside. Traders call that a **failed breakout**, or a bull trap.

ILLUSTRATIVE

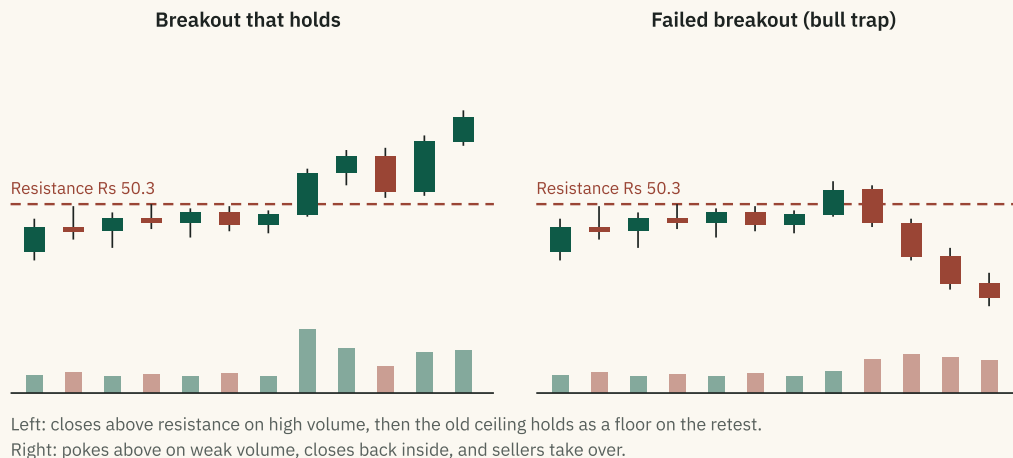


Fig. 25.2 Same starting range, two endings. Volume bars are shown under each chart.

Signs a breakout is more likely to be real: the price **closes** beyond the level, not just pokes through during the day; **volume** is clearly higher than normal; and on the first pullback, the old ceiling acts as a new floor (a **retest**, Chapter 26). Signs of a trap: low volume, a close back inside the range, and a quick reversal.

INVESTOR'S NOTEBOOK

A trend is innocent until proven guilty. Don't call the top of an uptrend until it actually makes a lower low.

YOUR TURN

A share's recent swing points, in order: Rs 30 (low), 38 (high), 34 (low), 42 (high), 37 (low), 40 (high), 33 (low). (a) Label each from the second onward as HH, HL, LH or LL. (b) When did the first warning appear? (c) When did the uptrend break?

Answer · (a) 38 HH · 34 HL · 42 HH · 37 HL · 40 LH · 33 LL. (b) At Rs 40: the first lower high. (c) At Rs 33: a lower low, below the previous low of Rs 37.

TAKEAWAYS

1. Uptrend = higher highs and higher lows. Downtrend = lower highs and lower lows.
2. Two points draw a trendline; a third touch makes it worth watching.
3. Trust breakouts that close beyond the level on strong volume and survive a retest.
4. A lower high is a warning; a lower low is the break.

REFERENCES

1. John J. Murphy, *Technical Analysis of the Financial Markets*, New York Institute of Finance, 1999 (trends, trendlines, channels).
2. All chart data in this chapter is fictional.

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CHAPTER TWENTY-SIX

Support, Resistance and Price Action

Prices have memory, because people do. A level where many bought or sold before often matters again.

BY THE END OF THIS CHAPTER YOU CAN

- mark support and resistance as zones, not lines
- recognise retests, false breakouts and role reversal
- use volume to judge whether a level really broke

The memory of a price

Suppose a share keeps falling to about Rs 46, and every time it gets there, buyers step in and it bounces. Why? Maybe some investors think it's good value at Rs 46. Maybe others regret not buying last time and are waiting for another chance. Whatever the reason, there's a cluster of buying interest there. That level is **support**: a floor where demand has outweighed supply before.

The opposite is **resistance**: a ceiling where selling has overwhelmed buying before. Perhaps people who bought at Rs 50 and watched it fall are relieved to sell when it gets back to Rs 50, just to break even.

That's all support and resistance are: places where lots of people made decisions before, and may again. Traders sometimes call them **demand zones** and **supply zones**.

ILLUSTRATIVE

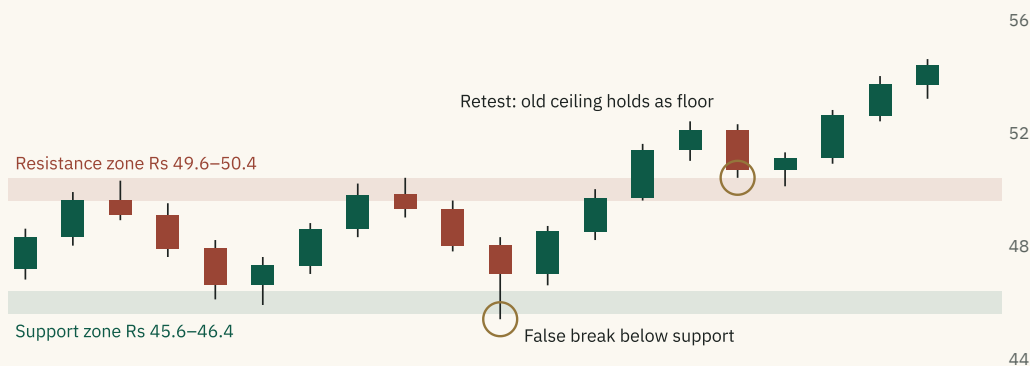


Fig. 26.1 A share range-bound between a support zone (green) and a resistance zone (red). It dips below support once and snaps back, then breaks above resistance and later dips back to test it from above. Price in Rs.

Zones, not lines

Prices are messy. A level that stopped the price at Rs 46.10 last time might stop it at Rs 45.80 or Rs 46.40 this time. Draw support and resistance as **bands** around the area where price turned, usually using the wicks and bodies of the turning candles. Treat any line drawn to the paise with suspicion.

A level gets stronger the more times it has held, the more volume traded there, and the longer the timeframe it shows up on. A level visible on the weekly chart matters more than one from last Tuesday's 15-minute chart.

Consolidation and the range

When price moves sideways between support and resistance, it's **consolidating**. Buyers and sellers are roughly balanced. This can last weeks or months. Eventually one side wins and the price leaves the range. The longer and tighter the

consolidation, the more attention traders pay when it ends.

False breakouts, and why they happen

In Fig. 26.1, day 11 dips below support, then closes back inside. Why does this happen so often? Many traders place **stop-loss orders** just below obvious support, instructions to sell automatically if the price falls there. When the price dips into that zone, those orders trigger, a burst of selling happens, and bigger buyers can pick up shares cheaply before the price recovers. Traders sometimes call this a "stop hunt." The lesson is not that someone is out to get you; it's that obvious levels attract obvious orders, and **a wick through a level is not the same as a close through it**.

Role reversal and the retest

Once resistance breaks properly, something interesting often happens. The old ceiling becomes a new floor. People who sold at Rs 50 and watched the price climb to Rs 52 now want to buy back near Rs 50. When the price comes back to the old level, that's a **retest**. If it holds, as on day 16, many traders see the breakout as confirmed. If price falls straight back through, the breakout probably failed (Chapter 25).

Volume confirmation

- **Breakout on high volume:** many participants agree. More trustworthy.
- **Breakout on low volume:** few people care yet. More likely to fail.
- **Bounce off support on rising volume:** buyers are showing up in strength.
- **Price drifting up on shrinking volume:** the rise may be running out of fuel.

What happens at a level: four scenarios

PRICE REACHES...	WHAT IT DOES	NAME	OFTEN READ AS
Resistance in an uptrend	Closes above on volume, holds the retest	Continuation	Trend still healthy
Resistance in an uptrend	Rejected with a long upper wick, then a lower high	Possible reversal	Buyers tiring
Support in a downtrend	Closes below on volume	Continuation	Sellers still in control
Support in a downtrend	Hammer or bullish engulfing, then a higher low	Possible reversal	Sellers tiring

INVESTOR'S NOTEBOOK

A wick through a level is a test. A close through it, on volume, is a decision.

YOUR TURN

A share bounced near Rs 118, Rs 120 and Rs 119 over three months, and stalled near Rs 140 twice. Today it traded down to Rs 116 but closed at Rs 121 on average volume. (a) Draw the zones. (b) Is today a breakdown? (c) What would a genuine breakdown look like?

Answer · (a) Support roughly Rs 118–120; resistance near Rs 140. (b) No: it wicked below support but closed back above it. That's a test, possibly a false break. (c) A close clearly below about Rs 118, on above-average volume, ideally followed by a failed attempt to climb back above Rs 118 (the old floor acting as a ceiling).

TAKEAWAYS

1. Support and resistance are zones where many people acted before.
2. Count closes, not wicks. Obvious levels attract stop orders and false breaks.
3. Broken resistance often becomes support; a successful retest confirms the break.
4. Volume tells you how many people agree with a move.

REFERENCES

1. John J. Murphy, *Technical Analysis of the Financial Markets*, New York Institute of Finance, 1999 (support, resistance, role reversal, volume).
2. Carol Osler, "Support for Resistance: Technical Analysis and Intraday Exchange Rates," *Federal Reserve Bank of New York Economic Policy Review*, 2000 (evidence that clustered orders help explain why such levels matter).
3. All chart data is fictional.

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CHAPTER TWENTY-SEVEN

Technical Indicators

An indicator is a formula applied to past prices. It can't see anything the chart doesn't already show; it just shows it differently. Know the formula and you'll never be fooled by the line.

BY THE END OF THIS CHAPTER YOU CAN

- calculate moving averages, RSI, MACD, Bollinger Bands, ATR, VWAP and Fibonacci levels
- explain what each measures, and where each one lies
- use ATR to size a position sensibly

One series, every indicator

All charts in this chapter use the same 80 days of a fictional share, of which the last 60 are shown. On the final day it closed at **Rs 54.91**. Every value quoted below was calculated from that series in code, so you can check the charts against the numbers.

Moving averages: SMA and EMA

MEASURES	The average price over the last n days, which smooths out daily noise to show direction.
SMA FORMULA	$SMA = (\text{sum of last } n \text{ closes}) \div n$
EMA FORMULA	$EMA \text{ today} = \text{close} \times k + EMA \text{ yesterday} \times (1 - k), \text{ where } k = 2 \div (n + 1)$

SMA	Five closes: 50, 52, 51, 53, 54 → 260 ÷ 5	Rs 52.00
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EMA	10-day: $k = 2 \div 11 = 0.1818$. Yesterday's EMA 52.00, today's close 55: $55 \times 0.1818 + 52 \times 0.8182$	Rs 52.55
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ILLUSTRATIVE

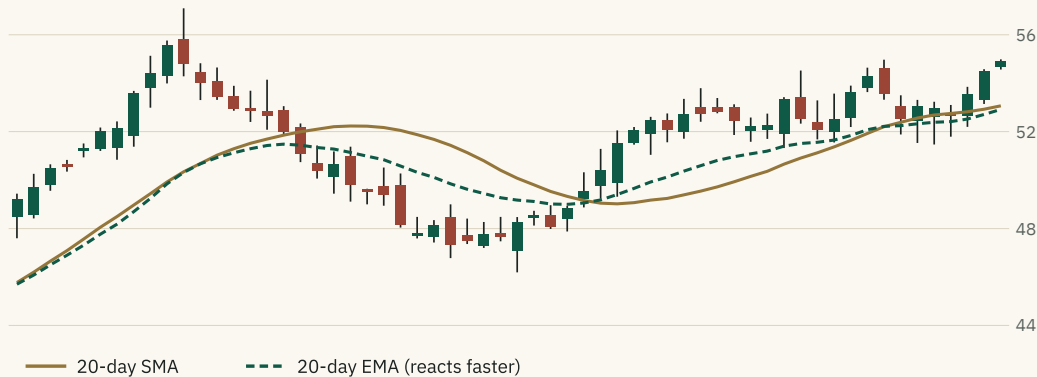


Fig. 27.1 20-day SMA and EMA on the sample series. On the last day: close Rs 54.91, SMA Rs 53.07, EMA Rs 52.92.

The **EMA** gives more weight to recent days, so it turns sooner. Price above a rising moving average suggests an uptrend; below a falling one, a downtrend. Long-term investors often watch the 200-day average as a simple trend filter. When a shorter average crosses above a longer one, traders call it a "golden cross"; below, a "death cross."

False signals: in sideways markets, price crosses the average back and forth constantly, and every cross is a fake.
Unsuitable when: there's no trend. Averages always lag; they confirm a move after it has started, never before.

RSI: Relative Strength Index

MEASURES	How strong recent gains have been compared with recent losses, on a scale of 0 to 100.
FORMULA	$RS = \text{average gain} \div \text{average loss (over 14 days)}$ $RSI = 100 - 100 \div (1 + RS)$

01	Average daily gain over 14 days 1.20; average loss 0.80 → $RS = 1.20 \div 0.80$	1.5
=	$RSI = 100 - 100 \div 2.5$	60

ILLUSTRATIVE



Lower panel: RSI (14). Above 70 often called overbought, below 30 oversold.

Fig. 27.2 14-day RSI (Wilder's smoothing). On the last day it reads 66.2. Notice how it stayed above 70 for days during the early rise while the price kept climbing.

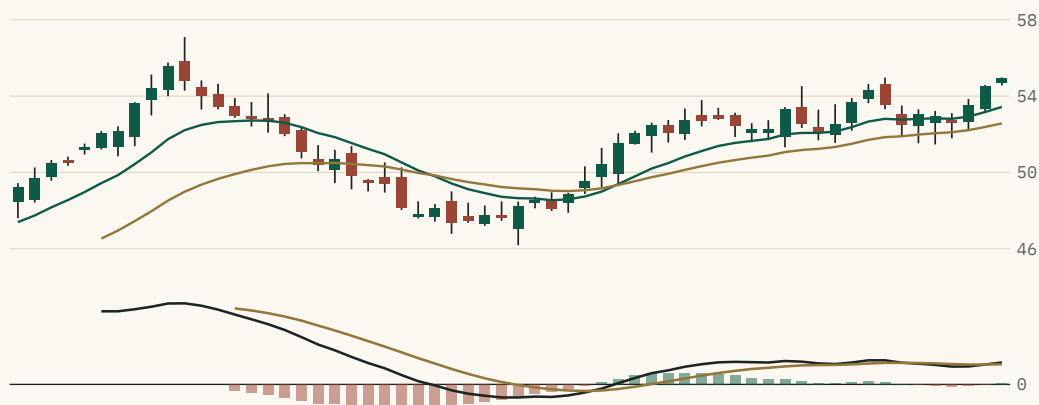
Above 70 is often called *overbought* and below 30 *oversold*. Traders also watch for **divergence**: price makes a new high, but RSI makes a lower high, a sign the rise is losing strength.

False signals: in a strong trend, RSI can stay "overbought" for weeks while price keeps rising, as in the chart. Selling because RSI hit 70 would have meant selling early. **Unsuitable when:** a powerful trend is under way; it works better in ranges.

MACD

MEASURES	Momentum: the gap between a fast and a slow moving average, and whether it's widening or narrowing.
FORMULA	$\text{MACD line} = 12\text{-day EMA} - 26\text{-day EMA}$ $\text{Signal} = 9\text{-day EMA of the MACD line}$ $\text{Histogram} = \text{MACD} - \text{signal}$

01	Last day: 12-day EMA minus 26-day EMA	0.867
02	Signal line	0.805
=	Histogram: $0.867 - 0.805$	+0.062



Top: 12-day EMA (green), 26-day EMA (gold). Bottom: MACD line (black), signal (gold), histogram (bars).

Fig. 27.3 MACD (12, 26, 9) on the sample series. During the pullback the MACD line fell below zero; it crossed back above its signal line as the recovery began.

Traders read a MACD line crossing above its signal line as momentum turning up, and below as momentum turning down. Above zero means the short-term average is above the long-term one.

False signals: in choppy markets the lines cross constantly. **Unsuitable when:** price is going sideways. Like all moving-average tools, it lags.

Bollinger Bands and ATR: measuring volatility

BOLLINGER	Middle = 20-day SMA Upper / lower = $SMA \pm 2 \times \text{standard deviation of the last 20 closes}$
TRUE RANGE	Largest of: high - low; high - yesterday's close ; low - yesterday's close
ATR	Average of true range over 14 days (Wilder's smoothing)

BB	Last day: SMA 53.07, standard deviation 0.77 → 53.07 ± 1.54	51.53 to 54.61
TR	Normal day: yesterday's close 52, today high 53.5, low 51.2 → max(2.3, 1.5, 0.8)	Rs 2.30
TR	Gap day: yesterday's close 50, today high 54, low 52.5 → max(1.5, 4.0, 2.5)	Rs 4.00



Top: 20-day SMA (gold) and Bollinger Bands at ± 2 standard deviations (dashed). Bottom: 14-day ATR.

Fig. 27.4 Bollinger Bands (top) and 14-day ATR (bottom). On the last day the close of Rs 54.91 sits just above the upper band, and ATR is Rs 1.45.

Bollinger Bands widen when prices are jumpy and narrow when they're calm. A long, tight "squeeze" often comes before a big move, though it doesn't say in which direction. Touching the upper band isn't automatically a sell signal; in strong uptrends, price can "walk the band" for a long time.

ATR doesn't care about direction at all. It tells you how much the share typically moves in a day. Its most practical use is risk control:

01	Place a stop-loss $2 \times \text{ATR}$ below the price: $54.91 - 2 \times 1.45$	Rs 52.01
02	You're willing to lose Rs 2,000 on this trade. Risk per share = 2.90	
=	Position size: $2,000 \div 2.90$, rounded down	689 shares

A jumpy share gets a wider stop and fewer shares; a calm one gets a tighter stop and more. Your rupee risk stays the same. **Unsuitable when:** you treat either tool as a direction signal.

VWAP: volume-weighted average price

MEASURES The average price paid during the day, with heavier trading counting more. Big traders use it to judge whether they bought well.

FORMULA $\text{VWAP} = \frac{\sum(\text{price} \times \text{volume})}{\sum(\text{volume})}$, reset each day

TIME SLOT	AVG PRICE, RS	SHARES	PRICE $\times$ SHARES
Open	50.00	20,000	10,00,000
Morning	50.60	35,000	17,71,000
Afternoon	51.20	30,000	15,36,000
Close	50.80	15,000	7,62,000
Total		1,00,000	50,69,000
=	$\text{VWAP} = 50,69,000 \div 1,00,000$		Rs 50.69

If you bought at Rs 50.40 that day, you paid less than the average buyer. Day traders often treat price above VWAP as a sign buyers are in control. **Unsuitable for:** long-term investors. It resets daily, so it says nothing about value or long trends.

Volume indicators

The simplest is the one you already know: the volume bars under the chart, often with a 20-day average of volume for comparison. A popular extra is **On-Balance Volume (OBV)**: add the day's volume when the close is up, subtract it when the close is down, and keep a running total. Rising OBV while price is flat suggests buying is quietly building. **False signals:** one huge block trade can distort it for weeks.

Fibonacci retracements

MEASURES	Where a pullback might pause, using fixed percentages of the previous move: 23.6%, 38.2%, 50% and 61.8%.		
FORMULA	Level = swing high - ratio × (swing high - swing low)		
01	Sample series: swing low Rs 39.29, swing high Rs 57.09; move = 17.80		
38.2%	$57.09 - 0.382 \times 17.80$		Rs 50.29
50%	$57.09 - 0.500 \times 17.80$		Rs 48.19
61.8%	$57.09 - 0.618 \times 17.80$		Rs 46.09
ILLUSTRATIVE			

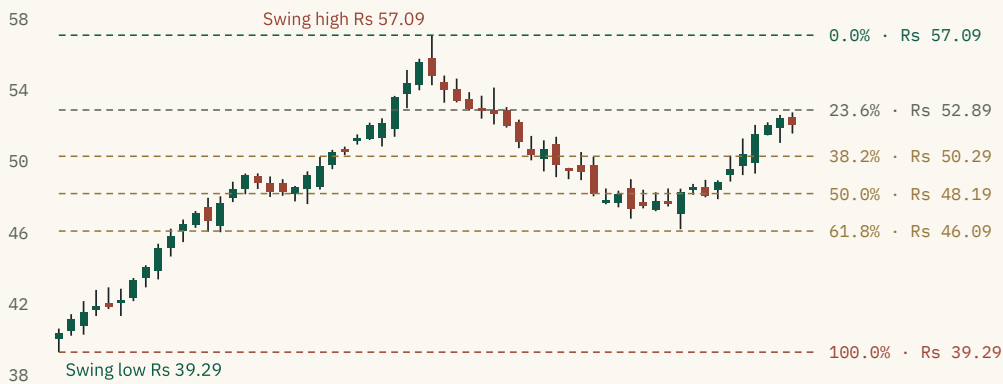


Fig. 27.5 Fibonacci retracement of the first rise in the sample series. The pullback's lowest price was Rs 46.78, between the 50% and 61.8% levels.

An honest note: there's no economic reason a share should respect these exact ratios. They come from a number sequence found in nature, and any effect in markets most likely comes from enough traders watching the same levels. Use them as rough zones to watch, never as precise targets. **Unsuitable when:** you pick swing points after the fact to make the levels "work."

INVESTOR'S NOTEBOOK

Every indicator is yesterday's prices run through a formula. Use one or two you truly understand, not ten you don't.

YOUR TURN

(a) Five closes: 80, 82, 85, 83, 86. What's the 5-day SMA? (b) Average gain 0.9, average loss 1.8. What's the RSI? (c) A share rose from Rs 100 to Rs 140. Where's the 50% retracement? (d) ATR is Rs 3 and you'll risk Rs 3,000 with a 2-ATR stop. How many shares?

Answer · (a) $416 \div 5 = \text{Rs } 83.20$. (b) $RS = 0.5$; $RSI = 100 - 100 \div 1.5 = 33.3$. (c) $140 - 0.5 \times 40 = \text{Rs } 120$. (d) Risk per share Rs 6; $3,000 \div 6 = 500$ shares.

TAKEAWAYS

1. Moving averages show direction but lag. RSI and MACD show momentum but fail in strong trends and choppy markets respectively.
2. Bollinger Bands and ATR measure volatility, not direction. ATR is the most practical tool for sizing positions.
3. VWAP is for intraday traders; Fibonacci levels are rough zones, not laws.
4. Know the formula behind every line you use.

REFERENCES

1. J. Welles Wilder Jr., *New Concepts in Technical Trading Systems*, Trend Research, 1978 (RSI, ATR, Wilder's smoothing).
2. Gerald Appel, *Technical Analysis: Power Tools for Active Investors*, FT Press, 2005 (MACD).
3. John Bollinger, *Bollinger on Bollinger Bands*, McGraw-Hill, 2001.
4. Joseph Granville, *Granville's New Key to Stock Market Profits*, Prentice-Hall, 1963 (On-Balance Volume).
5. All data in this chapter is fictional and generated in code; indicator values on the charts match the worked figures.

28

CHAPTER TWENTY-EIGHT

Combining Fundamentals and Technicals

Fundamentals tell you what to buy and what it's worth. Charts can help with when. Mixing up the two questions is how good investors make bad trades.

BY THE END OF THIS CHAPTER YOU CAN

- keep valuation decisions and timing decisions separate
- use a chart to plan entries for a company you've already researched
- recognise two classic traps

Two questions, two tools

A fundamental investor asks: *is this a good business, and is it worth more than the price?* That's Parts II to VI. A chart can't answer it. A chart can only show how other people have been trading the share recently.

But once you've decided a company is worth owning at a certain price, the chart can still help. It can show whether the price is still falling hard (perhaps wait), where support sits (a sensible place to buy), and how volatile the share is (how much to buy).

FRAMEWORK

FUNDAMENTALS GOOD · CHART RISING	FUNDAMENTALS GOOD · CHART FALLING
<p>Great business, momentum behind it</p> <p>Check the price isn't already far above value. If it's within your margin of safety, buy in stages on pullbacks to support.</p>	<p>Possible opportunity</p> <p>The market may be overreacting. Wait for the fall to slow (a higher low, a reclaimed moving average) and buy in stages. Recheck the thesis: is the fall telling you something?</p>
FUNDAMENTALS POOR · CHART RISING	FUNDAMENTALS POOR · CHART FALLING
<p>Speculation, not investing</p> <p>Popular story, weak business. If you trade it, keep it small and separate (Ch. 3). Don't call it an investment.</p>	<p>Avoid</p> <p>A shrinking business with a falling price is a "falling knife." Low ratios here are usually a value trap (Ch. 11).</p>

Fig. 28.1 Fundamentals decide whether a share belongs on your list. The chart helps decide when and how much, never whether.

Trap 1 · A great business at the wrong price

Ali Foods is a good business: growing, profitable, modest debt (Chapter 19). Suppose its chart looks wonderful too: higher highs, price above its rising 200-day average, strong volume. Tempting.

But our valuation said it's worth about Rs 23 to 30, and it trades at Rs 50 (Chapters 14 to 16). A beautiful chart doesn't change that. Momentum can carry a share higher for a while, but you'd be buying with no margin of safety, betting that someone will pay even more. The chart tells you the crowd likes it. It doesn't tell you the crowd is right.

What to do: keep it on your watchlist with your buy price, Rs 25 or below. If the price ever falls into that zone, the chart becomes useful: look for a support level and signs the fall is slowing, then buy.

Trap 2 · A cheap price with a dying business

Gwadar Steel (Chapters 12 and 22) trades at 0.7 times book value. Looks like a bargain. Its chart shows a clear downtrend: lower highs, lower lows, price below a falling 200-day average. A beginner thinks, "it's fallen so far, it must bounce."

Here the chart and the fundamentals are telling the *same* story: interest coverage of 1.2×, net debt five times EBITDA, falling profits. The downtrend is the market pricing in that weakness. A low price on a weakening business can get much lower. "It's already down 60%" means nothing; a share down 60% can still fall another 60%.

INVESTOR'S NOTEBOOK

A chart can tell you the crowd's mood. Only the business can tell you if the mood is wrong.

A sensible way to combine them

1. **Decide what with fundamentals.** Run the ten steps (Chapter 19). Write your thesis and your buy price.
2. **Wait for your price.** No chart signal should make you pay more than your margin of safety allows.
3. **Use the chart for timing within your zone.** Prefer buying near support, after the fall slows, rather than into a steep plunge.
4. **Buy in stages.** For example, a third at your price, a third if it confirms a higher low, a third on a successful retest. If you're wrong about timing, you're only partly in.
5. **Size with volatility.** Use ATR (Chapter 27) so a jumpy share doesn't carry more risk than a calm one.
6. **Exit on the thesis, not the wiggle.** Sell when your "what would prove me wrong" line is triggered, not because RSI touched 70.

YOUR TURN

You've valued a PSX consumer company at Rs 400 and want a 25% margin of safety. It trades at Rs 320, but it's falling fast after a weak quarter, with no sign yet of a higher low. Support from two years ago sits near Rs 290. (a) What's your maximum buy price? (b) Is Rs 320 inside it? (c) How might you stage your buying?

Answer · (a) $400 \times 0.75 = \text{Rs } 300$. (b) No: Rs 320 is above Rs 300, so you wait. (c) First recheck whether the weak quarter changes your Rs 400 value. If not, consider a first third near Rs 290–300 (support, inside your price), a second third if it forms a higher low, and the last third on confirmation.

TAKEAWAYS

1. Fundamentals decide what and at what price. Charts help with when and how much.
2. A strong chart doesn't make an overpriced share cheap. A weak chart often confirms a weakening business.
3. Buy within your margin of safety, near support, in stages, sized by volatility.
4. Sell when the thesis breaks, not when an indicator twitches.

REFERENCES

1. Benjamin Graham, *The Intelligent Investor*, rev. ed., HarperBusiness, 2003 (margin of safety).
2. Ali Foods Ltd and Gwadar Steel are fictional; figures refer back to Parts IV to VI.

Portfolio Construction

Picking good shares is only half the job. The other half is deciding how much to put in each one, how much to keep out of shares altogether, and how to let time do the heavy lifting. A brilliant stock pick can't save a badly built portfolio. A sensibly built portfolio can survive a few bad picks.

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CHAPTER TWENTY-NINE

Building an Investment Portfolio

A good cook doesn't put every spice in every dish in equal amounts. A good portfolio isn't "buy everything that looks nice" either.

BY THE END OF THIS CHAPTER YOU CAN

- set objectives, time horizon and risk tolerance before buying anything
- split money between shares, fixed income, gold and cash
- size positions, limit concentration, and rebalance

Start with three questions, not a stock

What is the money for? A wedding in two years, a house deposit in eight, retirement in thirty? Each goal is a separate pot with its own rules.

When will you need it? This is your **time horizon**. Shares can fall 30% or more in a year and take years to recover. Money you need within two or three years should not depend on the stock market.

How much falling can you stomach? This is your **risk tolerance**. It has two parts: how much loss you can *afford* (your finances) and how much you can *bear* (your nerves). Be honest about the second one. Many people say "I'm fine with risk" until their Rs 5 lakh becomes Rs 3.5 lakh.

Before any shares: the cash cushion

Keep an emergency fund first, commonly three to six months of essential expenses, in something safe and easy to reach, such as a savings account or a money market fund. Without it, a job loss or hospital bill forces you to sell shares at whatever price the market offers that week, often the worst one. Liquidity needs come before returns.

Asset allocation: the biggest decision

Asset allocation is how you divide money between broad types of investment. For a Pakistani investor, the main choices are:

- **Shares** (directly or through equity funds): highest long-term growth potential, biggest swings.
- **Fixed income**: government savings schemes, treasury bills, income and money market funds. Steadier, lower long-term growth, but rates in Pakistan have often been high.
- **Gold**: a traditional store of value in Pakistan, which has often held up when the rupee weakens. It pays no income.
- **Cash**: for emergencies and opportunities.

How you split between these matters more to your result, and your sleep, than which individual shares you pick. Here are three hypothetical people:

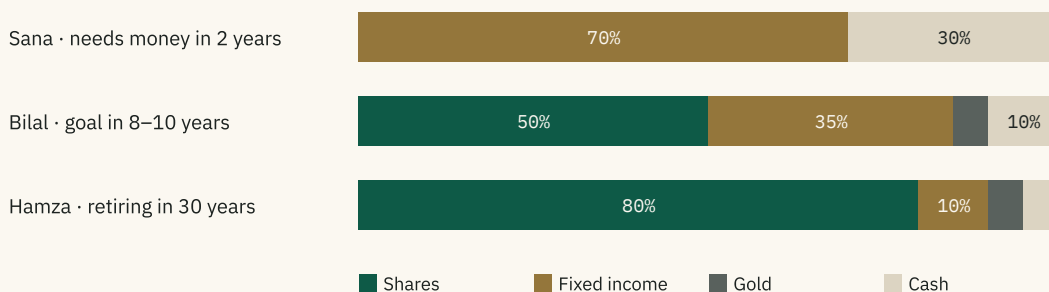


Fig. 29.1 Three hypothetical allocations for different goals. These are teaching examples, not recommendations for you. Your own split depends on your goals, income, other assets and temperament.

Sana needs her money for MBA fees in two years; shares could be down exactly when she needs them, so she owns none. Bilal can ride out a few bad years. Hamza has decades, so short-term crashes matter less to him than long-term growth.

Diversification and correlation

Imagine owning two small shops on the same beach: one sells umbrellas, one sells sunglasses. On rainy days, umbrellas sell. On sunny days, sunglasses sell. Each shop has good and bad days, but together your income is much steadier. That's **diversification**, and it works because the two shops' fortunes move differently. That relationship is called **correlation**. Owning five cement companies is not diversification; they all rise and fall with construction and coal prices. Owning a cement company, a bank, a tech exporter, a consumer brand and a fertilizer maker is more diversified, because they respond to different forces (Fig. 21.1). Remember, though, that in a real market panic most shares fall together for a while. Diversification reduces risk; it doesn't remove it.

Position sizing and concentration

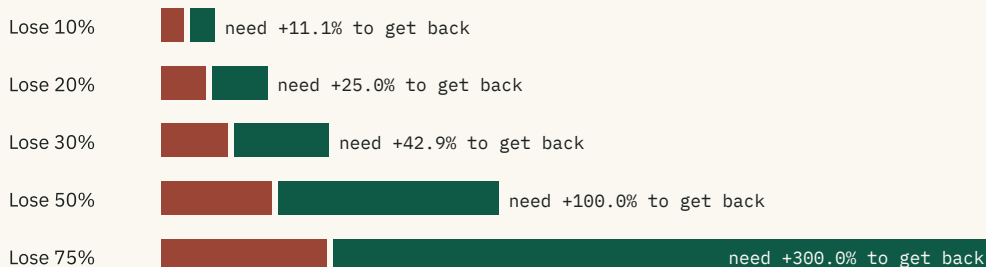
Some practical limits many careful investors use (rules of thumb, not laws):

LIMIT	COMMON STARTING POINT	WHY
Largest single share	5–10% of your share portfolio	One disaster can't sink you
Largest single sector	25–30%	PSX sectors move together (Ch. 21)
Number of shares, if picking yourself	8–15	Enough to diversify, few enough to follow properly
Speculative trades	A small, separate pot	Keeps trading mistakes away from long-term money (Ch. 3)

If you can't follow fifteen companies' results every quarter, that's a strong reason to hold part of your share allocation in an index fund (Chapter 31).

Volatility and drawdowns

Volatility measures how much a price swings around. A **drawdown** is the fall from a peak to a low. Drawdowns are what investors actually feel, and their maths is cruel:



Red: the fall. Green: the gain needed to recover. 1.3 px = 1 percentage point.

Fig. 29.2 The gain needed to recover from a loss: $1 \div (1 - \text{loss}) - 1$. Small losses are easy to recover; large ones are brutal.

A 50% fall needs a 100% gain just to get back to where you started. That's why avoiding big permanent losses (fragile companies, too much in one share, borrowing to invest) matters more than catching every rally.

Rebalancing

Over time, the parts of your portfolio grow at different speeds, and your allocation drifts. **Rebalancing** means bringing it back to your plan.

01	Start: Rs 10 lakh, 60% shares (6 lakh) and 40% fixed income (4 lakh)	
02	A year later: shares +30% → Rs 7.8 lakh; fixed income +10% → Rs 4.4 lakh	Total 12.2 lakh
03	Shares are now $7.8 \div 12.2$ of the total	63.9%
04	Target shares: $60\% \times 12.2$ lakh	7.32 lakh
=	Sell Rs 48,000 of shares, add it to fixed income	back to 60 / 40

Notice what rebalancing makes you do: sell some of what has risen and buy what has lagged. It's a built-in "sell high, buy low" habit. Many investors rebalance once a year, or whenever an allocation drifts more than about five percentage points from target. Check the tax and trading costs before you do it.

INVESTOR'S NOTEBOOK

Decide your allocation when you're calm. Follow it when you're not.

YOUR TURN

Rabia has Rs 20 lakh: 70% shares, 30% fixed income. In a bad year shares fall 25% and fixed income earns 12%. (a) What are the new values and the new share percentage? (b) How much should she move, and in which direction, to get back to 70/30? (c) If her shares later fall another 20%, what gain does she need from that low to recover the second fall?

Answer · (a) Shares $14 \text{ lakh} \times 0.75 = 10.5 \text{ lakh}$; fixed income $6 \text{ lakh} \times 1.12 = 6.72 \text{ lakh}$; total 17.22 lakh; shares 61.0%. (b) Target $70\% \times 17.22 = 12.054 \text{ lakh}$, so move about Rs 1.55 lakh from fixed income into shares. (c) $1 \div 0.8 - 1 = 25\%$.

TAKEAWAYS

1. Goal, time horizon and risk tolerance come before any stock pick.
2. Build an emergency fund first. Money needed within two or three years stays out of shares.
3. Allocation between shares, fixed income, gold and cash drives most of your experience.
4. Limit single shares and sectors. Big losses need much bigger gains to recover.

5. Rebalance on a schedule; it makes you sell high and buy low.

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3. The three profiles and all limits are illustrative, not individual advice.

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CHAPTER THIRTY

Compounding and Wealth Creation

A mango tree's fruit can grow new trees, whose fruit grows more trees. Given enough seasons, the orchard is mostly made of trees you never planted.

BY THE END OF THIS CHAPTER YOU CAN

- calculate compound growth and monthly investing
- separate real returns from inflation, and measure the damage done by fees
- explain why the order of returns matters when you withdraw money

Simple versus compound

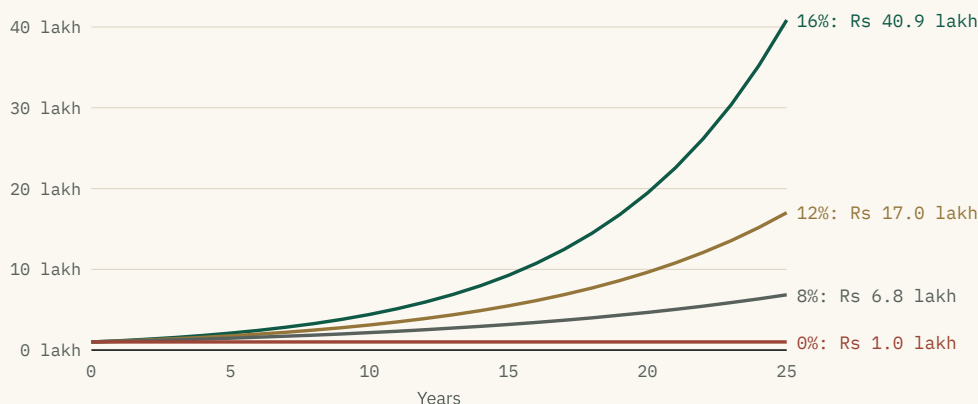
Put Rs 1 lakh somewhere that earns 10% a year.

Simple You take the Rs 10,000 out every year: after 10 years you have your 1 lakh plus $10 \times 10,000$ Rs 2,00,000

Compound You leave the gains in, so they earn too: $1,00,000 \times 1.10^{10}$ Rs 2,59,374

The extra Rs 59,374 is interest earned on earlier interest. In the early years the difference is small. Later it becomes enormous, because compounding grows on an ever bigger base. This is the CAGR formula from Chapter 13 used in reverse: **future value = today's amount $\times (1 + \text{rate})^{\text{years}}$** .

ILLUSTRATIVE



Rs 1 lakh invested once, compounded yearly. Hypothetical returns, before tax and fees. Drawn to scale.

Fig. 30.1 Rs 1 lakh, invested once and left alone for 25 years at four hypothetical yearly returns. At 16%, the final value is about 41 times the start; at 8%, about 7 times. These are assumptions, not forecasts for PSX.

Two forces drive compounding: the **rate** and the **time**. You can't control the market's rate. You can control when you start, and how long you leave the money alone. Twenty-five years at a decent return beats ten years at a great one.

Investing every month

Most people don't have a lump sum; they have a salary. Investing a fixed amount every month (called a systematic investment plan, or SIP, by many fund companies) uses compounding too.

01	Rs 10,000 a month for 20 years (240 months); assumed return 12% a year, about 1% a month		
02	Future value = monthly amount $\times ((1 + 0.01)^{240} - 1) \div 0.01$		
=	Ending value, from Rs 24 lakh paid in	≈ Rs 98.9 lakh	
In a spreadsheet, the same answer is =FV(1%, 240, -10000).			

Rupee-cost averaging

Investing the same amount every month has a hidden benefit. When prices are low, your fixed amount buys more shares; when prices are high, it buys fewer.

MONTH	PRICE	INVESTED	SHARES BOUGHT
1	Rs 100	10,000	100
2	Rs 80	10,000	125
3	Rs 125	10,000	80
4	Rs 100	10,000	100
Total	avg price Rs 101.25	40,000	405

Your average cost is 40,000 ÷ 405 = **Rs 98.77**, below the average price of Rs 101.25. Called dollar-cost averaging elsewhere, it doesn't guarantee a profit, but it removes the impossible job of guessing the best day to invest, and it turns falling prices into something useful.

Inflation: the silent tax

Pakistan has lived through long spells of high inflation. A return that looks good in rupees can be poor once you count what those rupees buy.

=	Real return = (1 + nominal return) ÷ (1 + inflation) – 1 = 1.15 ÷ 1.10 – 1	4.5%
A 15% return in a year of 10% inflation increased your buying power by only 4.5%. If a savings account pays 10% while prices rise 12%, you're getting poorer slowly, even though your balance grows. Always think in real terms when judging whether an investment is working.		

Fees: the slow leak

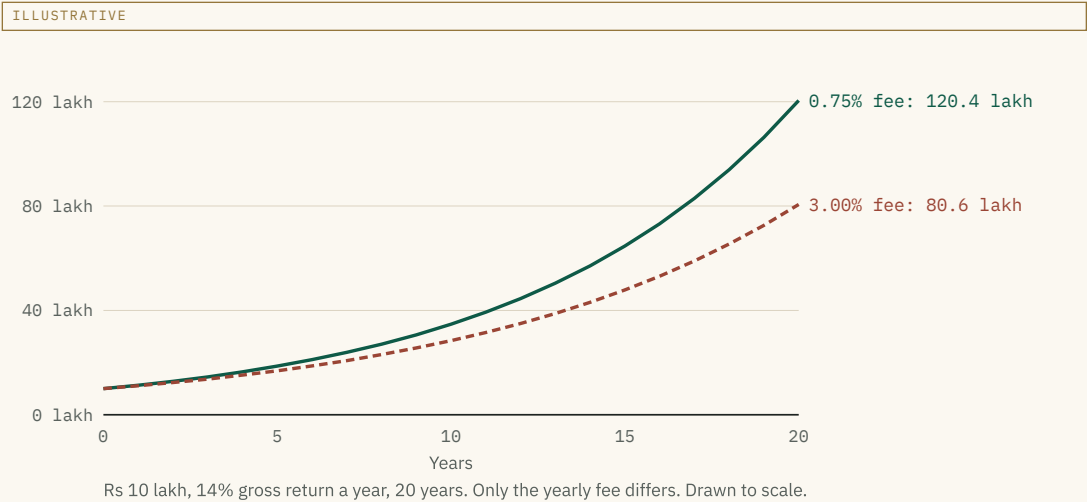


Fig. 30.2 Rs 10 lakh for 20 years at a 14% gross return, minus a yearly fee of 0.75% (net 13.25%) or 3% (net 11%). The fee gap of 2.25% a year costs about Rs 39.8 lakh by year 20.

A fee difference that looks tiny each year compounds just like returns do, against you. Over twenty years, the higher-fee investor ends with about a third less. When comparing funds, look at the total expense ratio (Chapter 31), not just past returns. Taxes on dividends and gains reduce compounding too, which is one more reason to avoid unnecessary trading.

INVESTOR'S NOTEBOOK

Returns compound. So do fees, taxes and inflation. Your job is to keep the first and shrink the other three.

Sequence of returns: when order matters

If you invest once and never touch it, the order of good and bad years doesn't change your ending value. Five years of -30%, +10%, +20%, +10%, +20% in either order turn Rs 10 lakh into Rs 12.2 lakh. But if you're *withdrawing* money, as retirees do, order matters a lot.

ILLUSTRATIVE

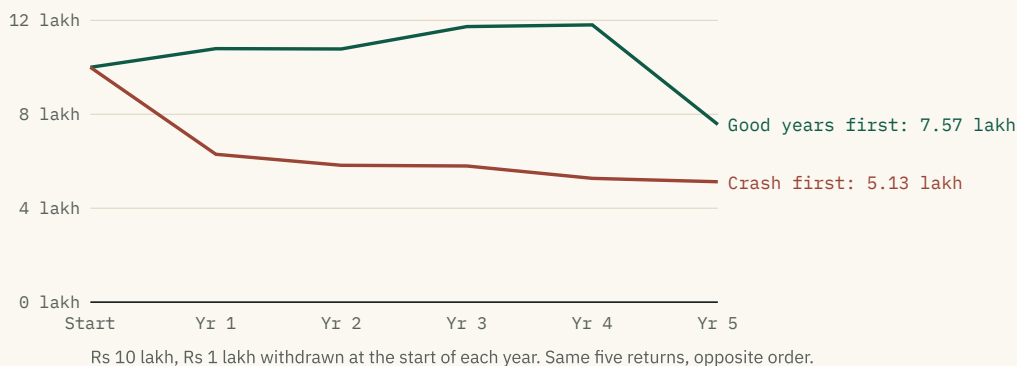


Fig. 30.3 Same five returns, same Rs 1 lakh withdrawn each year. A crash at the start leaves Rs 5.13 lakh; the same crash at the end leaves Rs 7.57 lakh. Calculated in code.

When the crash comes first, you're forced to sell shares at low prices to fund withdrawals, and those shares aren't there for the recovery. This is why people close to needing their money usually shift gradually toward fixed income and cash (Sana in Chapter 29), rather than staying fully in shares to the last day.

YOUR TURN

(a) Rs 5 lakh at 12% for 15 years: what's it worth? (b) A fund returned 14% in a year when inflation was 11%: what was the real return? (c) Rs 5,000 a month for 10 years at 1% a month: what's the future value? (Use a calculator or =FV.)

Answer · (a) $5,00,000 \times 1.12^{15} \approx \text{Rs } 27.4 \text{ lakh}$. (b) $1.14 \div 1.11 - 1 \approx 2.7\%$. (c) $5,000 \times (1.01^{120} - 1) \div 0.01 \approx \text{Rs } 11.5 \text{ lakh}$, from Rs 6 lakh paid in.

TAKEAWAYS

1. Future value = amount $\times (1 + \text{rate})^{\text{years}}$. Time is the part you control.
2. Investing monthly builds wealth from a salary and averages your buying price.
3. Judge returns after inflation. A rising balance can still mean falling buying power.
4. Small yearly fees become very large over decades.
5. When withdrawing, a crash early hurts far more. Reduce risk as you near the goal.

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31

CHAPTER THIRTY-ONE

ETFs, Mutual Funds and Index Investing

You don't have to cook every meal yourself. Sometimes the smart choice is a good, honest restaurant with fair prices. Funds are that restaurant.

BY THE END OF THIS CHAPTER YOU CAN

- explain mutual funds, index funds and ETFs, and how each is bought in Pakistan
- compare funds on cost, tracking and risk
- decide when a fund makes more sense than picking shares

What a fund is

A **mutual fund** pools money from many investors, and a professional manager (an asset management company, or AMC) invests it. You own *units* of the fund. Each unit's value, the **net asset value** (NAV), is the fund's total investments divided by the number of units. In Pakistan, AMCs are licensed and regulated by SECP, and the fund's assets are held by an independent trustee, not by the AMC itself.

Pakistan's fund industry has grown fast. Total assets under management reached about **Rs 4.51 trillion** in May 2026, according to MUFAP data reported by Mettis Global. Most of that, about 85%, sits in debt and money market funds; equity funds held about **Rs 690 billion**, roughly 15%.

The main kinds

TYPE	INVESTS IN	GOOD FOR
Money market funds	Treasury bills, short-term bank deposits	Emergency funds, near-term money
Income funds	Government and corporate debt	The fixed income part of a portfolio
Equity funds (active)	Shares picked by a manager	Share exposure without picking stocks
Index funds	The shares in an index, like KSE-100 or KMI-30	Low-cost, broad share exposure
ETFs	Usually an index, traded on PSX like a share	Index exposure bought through your broker
Shariah-compliant versions	Same categories, screened for Islamic principles	Investors who want Islamic investments
Voluntary Pension System (VPS)	Pension sub-funds in equity, debt and money market	Long-term retirement saving, often with tax benefits

Active or passive?

An **active** fund manager tries to beat the market by picking shares. A **passive** index fund just buys everything in the index in the same proportions and accepts the market's return.

Active management sounds better. But it costs more, and every rupee of fees comes off your return (Fig. 30.2). In the United States, S&P's long-running SPIVA reports have repeatedly found that most active equity funds underperform their benchmark index over long periods after fees. Pakistan's market is smaller and less efficient, so skilled managers may have more room to add value here, but you should still check: compare any active fund's long-term return, after fees, with its benchmark index. MUFAP publishes fund returns you can use.

Costs: what SECP allows

From 1 July 2025, SECP replaced the old cap on total expense ratios with caps on the **management fee** an AMC can charge, as a yearly percentage of the fund's average net assets:

MUTUAL FUND CATEGORY	MANAGEMENT FEE CAP
Equity	up to 3.00%
Income, aggressive income, commodities	up to 1.50%
Money market	up to 1.25%
Fixed rate / return	up to 1.00%
ETFs and index schemes	up to 0.75%

These are maximums; many funds charge less. On top of the management fee there are other costs (trustee, SECP fee, audit, trading), all included in the **total expense ratio** (TER), which AMCs must disclose. Compare TERs, not just management fees. Also check for **front-end or back-end loads**: one-off charges when you buy or sell units.

ETFs on PSX: useful, but check the liquidity

An **exchange-traded fund** is a fund whose units trade on PSX like a share, through your normal brokerage account. Pakistan's ETF market is still small: when the Mahaana Islamic Index ETF listed in March 2024, PSX described it as only the ninth ETF on the exchange. Trading in many ETFs has been thin, which can mean wide bid-ask spreads (Chapter 1). In 2026, SECP approved a roadmap to grow the market, including letting AMCs sell ETFs directly to investors and proposing index options inside the Voluntary Pension System. Before buying any ETF, check: its daily trading volume, the gap between its market price and its NAV, its TER, and how closely it has tracked its index.

Tracking error and other fund risks

Tracking error is how far an index fund's return wanders from its index. Fees, cash held for redemptions, and the cost of buying and selling all cause it. Small and steady is fine; large and erratic is a warning.

Other fund risks to know: **concentration** (KSE-100 and KMI-30 are weighted by size, so a handful of big companies and sectors can dominate them); **manager risk** in active funds; **liquidity** in thinly traded ETFs; and simple **market risk**: an index fund falls when the market falls. It removes the risk of picking the wrong share, not the risk of owning shares.

FRAMEWORK			
	PICKING SHARES YOURSELF	OPEN-END FUND	ETF ON PSX
How you buy	Broker	From the AMC, at NAV	Broker, at market price
Yearly cost	Only your trading costs	TER (index funds cheaper)	TER plus trading costs and spread
Time needed	High: quarterly research	Low	Low
Diversification	Depends on you	Built in	Built in
Main risk	Your own mistakes and concentration	Fees; manager choices	Thin trading; tracking error

Fig. 31.1 Three ways to own Pakistani shares. Many investors combine them: an index fund as the core, a few researched shares around it.

INVESTOR'S NOTEBOOK
If you don't have time to research companies properly, a low-cost index fund isn't settling. It's a sensible decision.

YOUR TURN

Go to the MUFAP website and pick one KSE-100 or KMI-30 index fund and one active equity fund. For each, find (a) its TER, (b) its return over the longest period shown, and (c) its benchmark's return over the same period. Which one beat its benchmark after fees?

Answer · There's no single answer; it depends on the funds and dates you choose. A good answer states the fund names, the date of the data, the TER, and the return gap versus benchmark in percentage points. If the active fund trailed its index, ask whether its higher fee explains the gap.

TAKEAWAYS

1. Funds pool money; NAV is what each unit is worth. Assets are held by an independent trustee.
2. Index funds and ETFs offer cheap, broad exposure. SECP caps their management fee at 0.75%.
3. Compare active funds with their benchmark, after fees, over long periods.
4. Check ETF liquidity and price-to-NAV gaps before buying on PSX.
5. An index fund core plus a few researched shares suits many investors.

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Risk Management and Investor Psychology

You can do every calculation in this book correctly and still lose money, either because a risk you didn't think about showed up, or because, at the worst possible moment, you did exactly what your feelings told you to. This part is about both.

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CHAPTER THIRTY-TWO

The Risks Nobody Talks About Enough

Most people think "risk" means "the price might go down." That's only the risk you can see. The dangerous ones are the risks you didn't know you were taking.

BY THE END OF THIS CHAPTER YOU CAN

- name fourteen kinds of investment risk and how each shows up on PSX
- tell temporary price falls from permanent loss of capital
- see exactly how borrowing to invest can wipe you out

Volatility is not the real enemy

A share that falls 30% and recovers in a year was uncomfortable, but you lost nothing if you didn't sell. A share that falls 30% because the business is failing, and never recovers, is a **permanent loss of capital**. That's the risk that actually destroys wealth. Most of the risks below matter because they can turn a temporary fall into a permanent one.

The fourteen risks

FRAMEWORK			
RISK	IN PLAIN WORDS	HOW IT SHOWS UP ON PSX	YOUR DEFENCE
Business	The company's business gets worse	A competitor takes customers; a product fails	Moats, quality scorecard (Ch. 5)
Valuation	Good company, paid too much	A popular share falls for years even as profits grow	Margin of safety (Ch. 14)
Liquidity	Can't sell when you want, at a fair price	Small shares trade a few thousand a day; whole market can freeze (see below)	Check volume; keep emergency cash
Market	Everything falls together	Crises, elections, IMF news move the whole index	Allocation, time horizon (Ch. 29)
Interest rate	Rates rise, shares look less attractive	When safe savings pay high rates, investors sell shares; indebted firms suffer	Prefer low debt; stress-test (Ch. 12)
Currency	The rupee loses value	Importers' costs rise; your rupee returns buy fewer dollars	Know each company's exposure (Ch. 21)
Inflation	Returns don't keep up with prices	A 15% gain with 12% inflation is a 2.7% real gain	Think in real returns (Ch. 30)
Regulatory	The rules change	Gas prices, drug prices, sector taxes, export regimes	Ask what Islamabad controls (Ch. 21)
Political	Instability hits confidence	Sharp market falls around political crises	Diversify; don't over-borrow
Governance	Owners treat you unfairly	Related-party deals; delayed results; minority shareholders ignored	Read the notes (Ch. 5, 20)
Leverage	Borrowing magnifies losses	Indebted firms, or investors using margin	Avoid as a beginner (below)
Margin call	Lender forces you to pay or sell	Forced selling at the worst moment	Don't borrow to buy shares
Permanent loss	The money doesn't come back	Business fails; fraud; you sold at the bottom	Every chapter in this book
Opportunity cost	The better use you missed	Money stuck in a dead share for five years	Compare alternatives (Ch. 19, step 9)

Fig. 32.1 Fourteen investment risks. Diversification reduces business, governance and regulatory risk in single companies; it does little against market, inflation and interest-rate risk, which hit almost everything at once.

When the whole market couldn't be sold: 2008

Liquidity risk sounds abstract until you live it. In 2008, as Pakistani shares fell sharply, regulators placed a floor under the KSE-100 on 28 August, at 9,144 points, after the index had lost about 42% in four months. Prices couldn't fall below it, so for more than 100 days trading nearly stopped. Investors who needed their money couldn't sell. When the floor was removed on 15 December, the market fell a further 36% in twelve sessions. Pakistani shares ended 2008 down about 58%, the worst year since the KSE-100 was created in 1991.

The lesson isn't that this will happen again in the same way. It's that "I can always sell" is an assumption, not a fact. Keep money you might need soon outside shares (Chapter 29).

How margin turns a fall into a disaster

Borrowing to buy more shares is called buying on **margin**. On PSX, it's available through products such as the Margin Trading System (blocked in Sahulat accounts, Chapter 2). Here's why beginners should stay away.

01	Your money Rs 1 lakh + borrowed Rs 1 lakh = shares worth	Rs 2,00,000
02	Shares fall 30%	Rs 1,40,000
03	You still owe the lender	– Rs 1,00,000
=	What's left of your own money	Rs 40,000

A 30% fall in the shares became a **60% loss** of your own money. Worse: lenders require your own stake to stay above a set percentage of the shares' value. Your stake is now $40,000 \div 1,40,000 = 28.6\%$ of the holding. If that's below the required level, you get a **margin call**: add cash immediately or your shares are sold, at the bottom, whether you like it or not. Without the loan, you'd have Rs 70,000 and the choice to wait.

Currency risk, worked through

Suppose your PSX portfolio rises 20% in a year, but the rupee falls 15% against the dollar. In dollar terms: $1.20 \div 1.15 - 1 = 4.3\%$. If you'll eventually spend in rupees in Pakistan, this matters less. If you're saving for fees abroad, or you're an overseas Pakistani measuring in dollars, it matters a lot.

INVESTOR'S NOTEBOOK

Volatility is the price of admission. Permanent loss is what you must avoid. Debt is how one becomes the other.

YOUR TURN

(a) You put Rs 2 lakh of your own and Rs 3 lakh borrowed into shares. They fall 20%. What's left of your own money, as a percentage loss? (b) Your portfolio gains 18% while inflation is 13% and the rupee falls 8% against the dollar. What's your real return in rupees, and your return in dollars?

Answer · (a) Rs 5 lakh $\times 0.8 =$ Rs 4 lakh; minus Rs 3 lakh owed = Rs 1 lakh. You've lost 50% of your own money from a 20% fall. (b) Real: $1.18 \div 1.13 - 1 \approx 4.4\%$. In dollars: $1.18 \div 1.08 - 1 \approx 9.3\%$.

TAKEAWAYS

1. The real risk is permanent loss, not temporary price swings.
2. Diversification helps against company-level risks, not against market, inflation or rate risk.
3. Liquidity can vanish for the whole market. Keep near-term money out of shares.
4. Borrowing to invest multiplies losses and can force you to sell at the bottom.

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2. Dawn, "Pakistani stocks end 2008 with loss of 58.34pc," 1 January 2009 (36% fall in 12 sessions after the floor; worst year since 1991). dawn.com
3. Howard Marks, *The Most Important Thing*, Columbia University Press, 2011 (risk as permanent loss).
4. Margin and currency examples are fictional and illustrative.

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CHAPTER THIRTY-THREE

Behavioral Finance

The biggest risk in your portfolio usually isn't a company. It's the person who presses the buy and sell buttons.

BY THE END OF THIS CHAPTER YOU CAN

- recognise ten common biases in real investing situations
- see where on the emotional cycle the market and you might be
- set simple rules that protect you from yourself

Your brain wasn't built for this

Human brains are excellent at keeping us safe in a village: follow the group, run from danger, remember the last bad thing that happened. In markets, those same instincts make us buy after prices have already risen, sell after they've already fallen, and hold on to losers out of pride. **Behavioral finance** is the study of these predictable mistakes. Knowing them won't make you immune, but it helps you catch yourself.

ILLUSTRATIVE



A widely shared teaching diagram. Prices and feelings are illustrative, not a model of any real market.

Fig. 33.1 The cycle of market emotions. Investors feel safest at the top, when risk is highest, and most hopeless at the bottom, when opportunity is greatest. Adapted from a diagram widely used in investor education.

Ten biases, in situations you'll recognise

1 · Fear and greed

The KSE-100 has risen every week for two months. Everyone at the office is talking about shares. Your cousin doubled his money.

Greed peaks when prices are high; fear peaks when prices are low. Both push you to do the wrong thing at the wrong time (Fig. 33.1).

Defence: decide your allocation in advance (Chapter 29) and rebalance on schedule. It forces you to sell some when greed is high and buy when fear is high.

2 · Loss aversion

Losing Rs 10,000 keeps you up at night. Gaining Rs 10,000 felt nice for an afternoon.

Research by Daniel Kahneman and Amos Tversky found that losses feel roughly twice as painful as equal gains feel good. So we take wild risks to avoid locking in a loss, and play too safe to protect small gains.

Defence: judge decisions by your thesis, not by whether you're currently up or down.

3 · Confirmation bias

You own a fertilizer share. You join three Telegram groups that love it, and skip the article warning about gas prices.

We look for information that agrees with us and avoid what doesn't.

Defence: before buying, write the strongest case *against*. Keep the "what would prove me wrong" line in your thesis (Chapter 19).

4 · Anchoring

"It was Rs 300 last year. At Rs 180 it's a steal."

We fix on a number we saw, often an old high or our purchase price, and judge everything against it. The market doesn't know or care what a share used to cost.

Defence: compare price with your estimate of value, never with old prices.

5 · Herd mentality

A ticker is trending everywhere. Volume is ten times normal. Nobody can explain what the company does.

Following the crowd feels safe. In markets, by the time the crowd arrives, the easy money is usually gone.

Defence: run the ten-step framework anyway. If you can't pass Step 1, you don't buy.

6 · FOMO (fear of missing out)

A share you looked at last month is up 40%. You buy today so you don't miss the next 40%.

Regret about missed gains pushes us to chase. Chasing means buying after the rise, at a worse price, with less margin of safety.

Defence: a 48-hour rule: wait two days before any purchase not on your watchlist with a buy price.

7 · Overconfidence

Three good trades in a row. You increase your position sizes and stop doing the research.

Most people rate themselves above average as investors. A lucky streak feels like skill.

Defence: keep an investing journal (Part XII) and review your *reasoning*, not just your results.

8 · Recency bias

The market fell three months in a row, so you're sure it'll keep falling. Or rose, so you're sure it'll keep rising.

We assume whatever happened lately will continue.

Defence: look at a ten-year chart before reacting to a three-month one.

9 · Sunk-cost fallacy

"I've already lost Rs 50,000 on this. I can't sell now."

Money already lost is gone whatever you do next. The only question is whether this share is the best place for the money that's *left*.

Defence: ask, "If I had this cash today, would I buy this share at this price?" If not, why hold it?

10 · The disposition effect

You sell your winners quickly to "lock in profit," and hold your losers hoping they'll come back.

Researchers Hersh Shefrin and Meir Statman named this pattern. It means you keep the weakest companies and cut the strongest ones, the opposite of what you want.

Defence: sell when the thesis breaks or the price exceeds value, not because of a gain or loss.

INVESTOR'S NOTEBOOK

Make your decisions when you're calm, write them down, and let the written rules make the decisions when you're not.

YOUR TURN

Name the bias: (a) "I'll sell when it gets back to what I paid." (b) "Everyone in my family is buying this, so it must be good." (c) "I've been right four times; I'll put my whole bonus in this one." (d) "It's down 60% from its high, it can't fall much more."

Answer · (a) Anchoring to your purchase price, plus loss aversion. (b) Herd mentality. (c) Overconfidence. (d) Anchoring to the old high. A share down 60% can fall another 60%.

TAKEAWAYS

1. You feel safest when risk is highest and most scared when opportunity is greatest.
 2. Prices you remember (old highs, your purchase price) don't tell you what a share is worth.
 3. Sunk costs are gone. Decide based on what the remaining money should do next.
 4. Written rules (allocation, thesis, a 48-hour wait, a journal) beat willpower.
-

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CHAPTER THIRTY-FOUR

Common Investing Mistakes

You don't need to be brilliant to do well. You mostly need to avoid doing something foolish. Here is the list of foolish things, so you can tick them off.

BY THE END OF THIS CHAPTER YOU CAN

- audit your own process against eleven repeat mistakes
- find the chapter that fixes each one

The eleven

MISTAKE	WHAT IT LOOKS LIKE	THE FIX	CH.
1 · Buying on social media tips	"Strong buy, target 2x, join VIP for more"	Run the ten steps yourself; treat tips as names to research, nothing more	19
2 · Thinking a low share price means cheap	"It's only Rs 8, it can easily go to Rs 16"	Look at market cap and valuation, never price per share	1, 11
3 · Ignoring debt	Great profit growth, interest cover of 1.3x	Net debt / EBITDA, coverage, stress test	12
4 · Ignoring cash flow	Profits rise every year; operating cash doesn't	Cash conversion and free cash flow	8
5 · Chasing dividends	Buying the highest yield on the screen	Payout, cash cover, and why the price fell	17
6 · Buying without a thesis	You can't say why you own it or when you'd sell	Write a thesis with a "prove me wrong" line	19
7 · Overtrading	Fifty trades a year, net returns lagging the index	Count costs; keep trading in a small separate pot	3
8 · Borrowing aggressively	Margin to "boost returns"	Don't. A 30% fall can halve your money or worse	32
9 · Not diversifying	Half the portfolio in one share, or one sector	Position and sector limits; index fund core	29, 31
10 · Treating chart signals as guarantees	"RSI says oversold, it must bounce"	Charts for timing within a fundamental decision	27, 28
11 · Ignoring fees, taxes and inflation	Celebrating a 12% year when inflation was 13%	Real, after-cost returns	30

The one behind all of them

Look at the list again. Nearly every mistake comes from the same root: acting before understanding. Buying the tip before reading the report. Buying the yield before asking why it's high. Buying the chart before valuing the business. Borrowing before imagining the bad year.

The fix is slow and unexciting: a process, written down, followed every time. That's what Parts I to VIII have been building. Part XI turns it into worksheets, and Part XII into checklists you can keep on your desk.

You don't get rich by being clever once. You get rich by not being foolish, many times in a row.

YOUR TURN

Look at the last three investment decisions you made, or would have made. For each, write which of the eleven mistakes it risked, and which chapter's tool would have caught it.

Answer · A useful answer is specific: "Bought X after a Telegram tip (mistake 1), without checking debt (3). Chapter 12's checklist would have shown net debt / EBITDA of 4×." Keep this in your investing journal and revisit it in six months.

TAKEAWAYS

1. Most losses come from a short list of repeat mistakes.
2. Each mistake has a tool earlier in this book that catches it.
3. The root cause is acting before understanding. A written process is the cure.

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Real-World Company Analysis

Four real PSX companies, each chosen because it tests a different part of this book: a cyclical conglomerate, a high-dividend regulated business, a bank, and a dollar-earning tech exporter. Each gets the same fifteen-point treatment, from business overview to bull, base and bear cases.

Read this first. Every case study uses figures as publicly reported at the time of writing (October 2026), with sources and dates. Share prices move daily and results change every quarter. Nothing here is a recommendation to buy or sell. The point is the method, so you can repeat it yourself on the latest numbers.

35 · Case Study: Lucky Cement	155
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38 · Case Study: Systems Limited	166

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CASE STUDY ONE · PSX: LUCK

Lucky Cement

A cement company that is also a car assembler, a chemicals group and a power producer. It tests cyclical analysis, consolidated accounts and sum-of-the-parts thinking all at once.

516.4	60.78	6.5 Mt	≈6.5×	8.2%
FY26 net sales, Rs bn, consolidated	FY26 EPS attributable to owners, Rs	FY26 domestic cement dispatches	P/E at Rs 394 (30 Oct 2026)	Payout: Rs 5 dividend ÷ EPS

1–2 Business overview and revenue model

Lucky Cement sells cement in Pakistan and abroad from plants in Khyber Pakhtunkhwa and Sindh, with domestic capacity of about 15.6 million tonnes a year after recent upgrades. Through subsidiaries it also owns 55% of Lucky Core Industries (chemicals and agri), 71.55% of Lucky Motor Corporation (Kia and Peugeot vehicles), 100% of Lucky Electric Power (a 660 MW coal plant near Karachi), and cement joint ventures in Iraq and the Democratic Republic of Congo. Revenue comes from selling bags and bulk cement, chemicals, vehicles, and electricity under contract.

3 Industry dynamics

Cement is cyclical (Chapter 4). Demand follows construction, government development spending and interest rates; costs follow coal and power. In FY26, domestic demand recovered after four sluggish years, helped by lower interest rates and a more stable currency. Industry domestic sales were about 41.5 million tonnes, and Lucky held roughly a 15.6–15.7% share. Exports fell, partly because of the closure of the Afghan border, and management says export margins are lower than domestic ones.

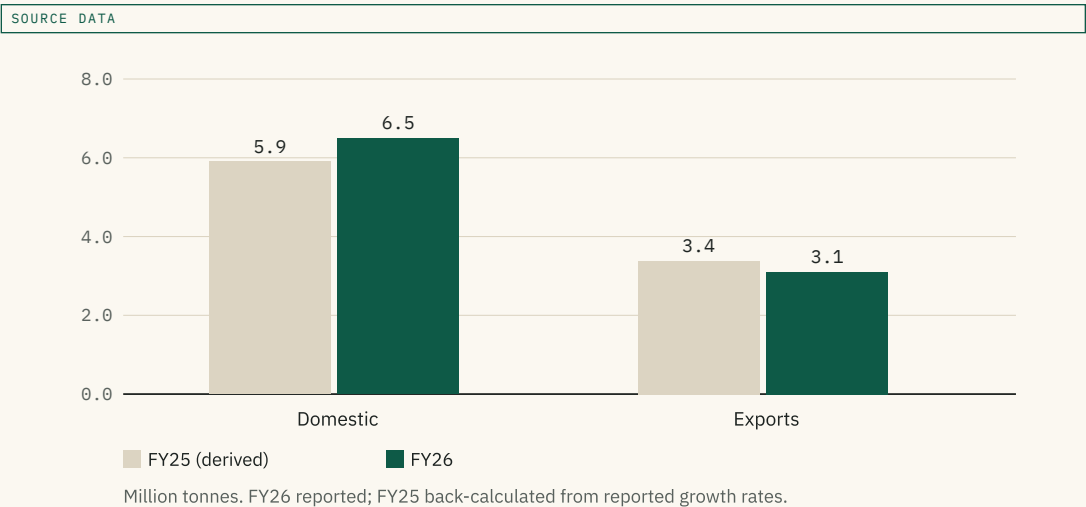


Fig. 35.1 Lucky Cement dispatches. FY26: domestic 6.5 Mt (+10.1%), exports 3.1 Mt (–8.2%), per AHL Research via CemNet, October 2026. FY25 values are back-calculated from those growth rates.

4–5 Financial performance and profitability trends

Using the consolidated FY26 figures from Chapter 20: net sales rose 13.7% to Rs 516.4 billion and profit after tax rose 14.2% to Rs 96.5 billion. EPS attributable to Lucky's owners rose 15.7% to Rs 60.78. But gross margin fell from 28.0% to 25.4%, because cost of sales grew faster than sales. About a third of profit before tax (32.5%) came from other income and the share of profit from joint ventures and associates, rather than core operations.

6–7 Debt and cash flow

Finance cost fell 25.7% to Rs 18.9 billion in FY26, reflecting lower interest rates and/or lower borrowing. A third-party data provider (StockAnalysis) showed enterprise value about Rs 55.7 billion above market cap in August 2026, implying modest net debt for a group of this size. Lucky's own annual report shows the borrowings note and cash flow statement; check operating cash flow against profit (Chapter 8) and how much went to the Congo expansion and other investments before relying on this.

8 Growth drivers

- Recovering domestic demand, which management expects to continue into FY27 with housing incentives and lower financing costs.
- Doubling the DRC plant from 1.6 to 3.2 Mt, expected within about 18 months.
- Cheaper energy: about 89 MW of solar and 29 MW of wind, plus waste heat recovery, now meet roughly 55% of power needs, which should lower costs.
- Local production of GAC vehicles at Lucky Motor, planned for early FY27.

9 Key ratios

RATIO	VALUE	CALCULATION AND SOURCE
Net sales growth	13.7%	$516.36 \div 454.06 - 1$ (Ch. 20)
Gross margin FY26 / FY25	25.4% / 28.0%	Gross profit $\div$ net sales
Net margin (PAT $\div$ net sales)	18.7%	$96.46 \div 516.36$
P/E	6.5×	$\text{Rs } 394.45$ (Sarmaaya, 30 Oct 2026, intraday) $\div$ Rs 60.78
Earnings yield	15.4%	$60.78 \div 394.45$
Dividend yield	1.3%	$\text{Rs } 5 \div 394.45$
Market cap (approx.)	Rs 578 bn	$394.45 \times$ about 1,465 million shares

10 Valuation approach

A single P/E undervalues the complexity here. The right tool is **sum of the parts** (Chapter 18): value the cement business on mid-cycle EV/EBITDA or EV per tonne against peers; value the listed stake in Lucky Core Industries at its market price times 55%; value Lucky Electric on its contracted cash flows to the end of its power purchase agreement; and value the car business, Iraq and DRC separately. Subtract the parent's net debt and expect a holding-company discount. Because cement is cyclical, also check the P/E on *normalised* earnings; FY26 was a recovery year for domestic demand, not a slump.

11 Major risks

- A construction slowdown or interest-rate rise reversing the domestic recovery.
- Coal and energy cost spikes squeezing the already-falling gross margin.
- Circular debt delaying payments to the power business (Chapter 21).
- Policy and import changes hitting the car business.
- Country risk in Iraq and DRC, and execution risk on the Congo expansion.
- Holding-company discount: minority shareholders don't control how retained cash is used.

12–14 Bull, base and bear cases

BULL	BASE	BEAR
Domestic demand keeps recovering, renewables push margins back toward FY25 levels, DRC doubles on time, and the auto business keeps earning high returns. Earnings grow and the market narrows the conglomerate discount.	Moderate domestic growth, margins stable around FY26 levels, overseas expansion adds gradually. Profit grows roughly with the economy; the low payout continues and value builds through reinvestment.	Rates rise again and construction slows; coal costs jump; car demand falls; power receivables pile up. Earnings fall from what may prove to have been a good year, and the low P/E turns out to be a cyclical-peak P/E.

No price targets are given. Write your own numbers for each case using Chapter 15's method, then see which case the current price already assumes.

15 Analytical conclusion

On FY26 figures, Lucky Cement traded at a low single-digit P/E, about 6.5×, with an earnings yield above 15% and a very low payout. That's not automatically cheap. The questions an investor needs to answer are: how much of FY26 profit was cyclical recovery and non-core income; whether the group's capital allocation, with most profit retained and invested abroad and in autos, earns more than shareholders could earn elsewhere; and how large a holding-company discount is fair. The low payout makes management's capital allocation record, which you can trace through several years of annual reports, the single most important thing to judge.

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CASE STUDY TWO · PSX: FFC

Fauji Fertilizer

One of PSX’s best-known dividend payers. It tests dividend sustainability, regulated inputs, and reading through to subsidiaries.

432.4	51.7	37.0	10.4×	6.8%
2025 net sales, Rs bn	2025 EPS, Rs	2025 dividends per share, Rs	P/E at Rs 540.26 (25 Sep 2026)	Dividend yield at that price

1–2 Business overview and revenue model

Fauji Fertilizer Company makes and sells urea and, since absorbing Fauji Fertilizer Bin Qasim (FFBL) in a merger effective 1 July 2024, DAP fertilizer as well. Revenue comes from selling fertilizer to farmers through a dealer network. FFC also holds investments in subsidiaries and associates; in 2025 these paid it Rs 22.4 billion in dividends, and it earned a further Rs 17.4 billion of investment income.

3 Industry dynamics

Urea is made mainly from natural gas, whose supply and price are set through government policy, so the government effectively shapes the industry’s profits (Chapter 21). Demand follows the crop seasons and farm incomes. In 2025 FFC ran its plants above nameplate capacity: urea production of 2.90 million tonnes (112% utilisation) and DAP of 0.84 million tonnes (124%). With plants this full, growth must come from prices and efficiency rather than volume, unless capacity is added.

4–5 Financial performance and profitability trends

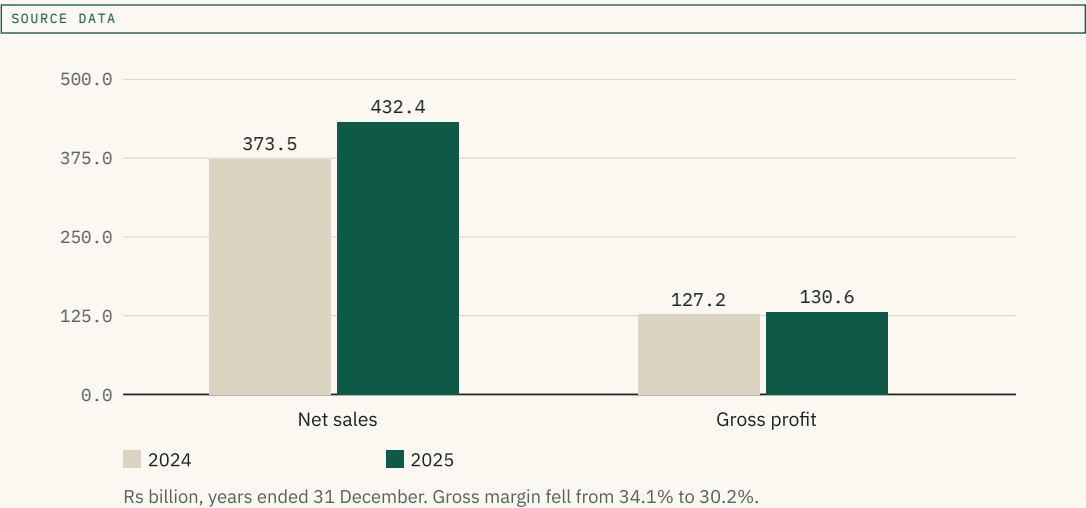


Fig. 36.1 FFC net sales and gross profit, 2024 and 2025. Source: Profit (Pakistan Today), 29 January 2026, reporting the company’s 2025 results. Net sales grew 15.8% to Rs 432.4 billion, but gross profit grew only 2.7%, so gross margin fell from 34.1% to 30.2%. Profit before tax rose 10.8% to Rs 120.9 billion, helped by investment and dividend income. Profit after tax was Rs 73.6 billion, implying a tax charge of about Rs 47.3 billion, an effective rate of about 39%, a reminder of how heavily this sector is

taxed. Because the Rs 73.6 billion includes dividend income from subsidiaries, it appears to be the *unconsolidated* figure; FFC's 2024 unconsolidated profit was reported at Rs 64.7 billion, which would make 2025 growth about 14%. Confirm the basis in the annual report before comparing.

6–7 Debt and cash flow

On consolidated figures compiled by StockAnalysis (trailing twelve months to September 2026), FFC held about Rs 198.4 billion of cash against Rs 107.7 billion of debt: a **net cash** position of about Rs 90.7 billion. Operating cash flow was about Rs 116.0 billion and capex Rs 41.9 billion, giving free cash flow of about Rs 74.1 billion. Total 2025 dividends of Rs 37 on roughly 1.44 billion shares cost about Rs 53.3 billion, so free cash flow covered them about 1.4 times. That's Chapter 17's cash-cover test, passed.

8 Growth drivers

- Urea and DAP price increases, where permitted and accepted by farmers.
- Efficiency from combining FFC and FFBL operations.
- Rising dividends and income from its investment portfolio.

With plants already running above capacity, volume growth is limited. This is a mature business; expect most of the return to come from dividends.

9 Key ratios

RATIO	VALUE	CALCULATION AND SOURCE
Net sales growth	15.8%	$432.4 \div 373.5 - 1$
Gross margin 2025 / 2024	30.2% / 34.1%	Gross profit $\div$ net sales
Effective tax rate	$\approx 39\%$	$(120.9 - 73.6) \div 120.9$
Payout ratio	71.6%	$\text{Rs } 37.0 \div \text{Rs } 51.7$
P/E	10.4 $\times$	$\text{Rs } 540.26 \text{ (close 25 Sep 2026, StockAnalysis)} \div \text{Rs } 51.7$
Dividend yield	6.8%	$\text{Rs } 37.0 \div \text{Rs } 540.26$
FCF cover of dividends	$\approx 1.4\times$	$74.1 \div (37 \times 1.44)$
ROE (consolidated, third-party)	34.5%	StockAnalysis, Sep 2026

10 Valuation approach

For a mature, high-payout business, the dividend discount model (Chapter 17) is the natural tool. Instead of guessing a required return, turn the Gordon formula around and ask: *what return is the market price offering?*

01	Next year's dividend if it grows 4% (an assumption): 37×1.04	Rs 38.48
02	Dividend yield on next year's dividend: $38.48 \div 540.26$	7.1%
=	Implied return: yield + growth ($r = D_1 \div P + g$)	$\approx 11.1\%$ a year

Dividend yield

7.1%

+ assumed growth

4.0%

= implied return

11.1% a year

Next year's dividend Rs 38.48 ($\text{Rs } 37 \times 1.04$) ÷ price Rs 540.26, plus 4% growth. 30 px = 1 percentage point.

Fig. 36.2 What the September 2026 price implied, if dividends grow 4% a year forever. The 4% is an assumption, not a forecast.

Now compare that roughly 11% with what you could earn elsewhere with less risk, such as long-term government bonds (check current yields at the State Bank). If the gap is wide, the share offers a decent reward for its risks. If government bonds pay nearly as much, you're being paid little for taking on gas-price, tax and policy risk. Check this with sum-of-the-parts for the investment portfolio, and with P/E against fertilizer peers.

11 Major risks

- Gas price increases or supply cuts that can't be passed on to farmers.
- Changes to fertilizer pricing, subsidies, or sector-specific taxes.
- Falling margins, as already seen from 2024 to 2025.
- Dependence on investment and dividend income from other companies.
- A high payout leaves less room if profits fall; dividends could be cut.

12–14 Bull, base and bear cases

BULL	BASE	BEAR
Gas policy stays stable, prices keep pace with costs, investment income grows, and dividends rise faster than 4% a year. Strong net cash supports payouts.	Margins stabilise near 2025 levels; dividends grow slowly with inflation; returns come mostly from the yield.	A gas price shock or new tax squeezes margins further; the company protects its balance sheet by cutting the dividend; the share re-rates down as a yield trap (Chapter 17).

15 Analytical conclusion

FFC looks like a textbook income stock on its 2025 figures: high payout, dividends covered by free cash flow, net cash, and a dividend yield near 7% at the September 2026 price. The two things to watch are the trend in gross margin, which fell four percentage points in a year, and government policy on gas and taxes. For an income investor, the key question is whether an implied return of about 11% is enough compensation for those policy risks, compared with what safer instruments pay at the time you invest.

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CASE STUDY THREE • PSX: MEBL

Meezan Bank

Pakistan's largest Islamic bank. It tests everything Chapter 18 said about banks: forget EBITDA, read book value against ROE, and check the five numbers bank analysts live by.

89.0 2025 profit after tax, Rs bn (bank only)	34% Return on equity, 2025	3.3 tn Deposits, Rs, end-2025 (+28%)	28.0 2025 dividends per share, Rs	3.4× P/B at Rs 552.30 (6 Oct 2026)
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1–2 Business overview and revenue model

Meezan Bank provides Islamic banking: instead of charging interest, it earns profit through Shariah-compliant contracts such as financing based on trade, leasing and partnership. Economically, the model looks like any bank's (Chapter 18). It gathers deposits, mostly in current and savings accounts, uses them for financing and investments (largely government Islamic securities), and earns the **net spread** between what it earns and what it pays depositors. It also earns fees from cards, remittances and other services.

3 Industry dynamics

Bank profits in Pakistan swing with the State Bank's policy rate: higher rates usually widen spreads, falling rates squeeze them. Banks are also among the most heavily taxed companies on PSX. Islamic banking has been growing faster than conventional banking, helped by customer preference and government policy, and Meezan is the largest player. In 2025, falling interest rates pushed the whole sector's spreads down.

4–5 Financial performance and profitability trends

MEEZAN BANK, CONSOLIDATED, RS BN	2025	2024	CHANGE
Net spread earned	252.45	287.04	–12.1%
Non-markup (fee and other) income	38.19	31.85	+19.9%
Operating expenses	(85.41)	(81.66)	+4.6%
Credit loss provisions	(3.89)	(9.22)	–57.9%
Profit before tax	200.30	226.28	–11.5%
Tax	(108.12)	(122.56)	–11.8%
Profit after tax	92.18	103.72	–11.1%
Basic EPS (Rs)	50.47	57.28	–11.9%

Fig. 37.1 Source: Mettis Global, 9 February 2026, from the bank's 2025 results. The bank-only (unconsolidated) profit was Rs 89.0 billion, EPS Rs 49.54.

Profit fell about 11% because the net spread shrank as rates fell. Fee income grew, costs were held down, and bad-loan provisions fell sharply, which softened the blow. Now look at tax:

Profit before tax Rs 200.3 bn

Tax Rs 108.1 bn · 54%

Profit Rs 92.2 bn · 46%

Meezan Bank, consolidated, 2025. 2.5 px = Rs 1 billion.

Fig. 37.2 More than half of Meezan's pre-tax profit went to tax in 2025. Same source as Fig. 37.1.

An effective tax rate of about 54% is a structural feature of Pakistani banking, not a one-off. It means a bank's earnings are very exposed to budget decisions: a change in bank tax rates can move profit as much as a change in interest rates.

6–7 Balance sheet, capital and asset quality (instead of "debt and cash flow")

For a bank, deposits are its raw material, not debt in the usual sense, and the cash flow statement says little (Chapter 18).

These are the numbers that matter:

BANK METRIC	MEEZAN	WHAT IT TELLS YOU
Deposits, end-2025	Rs 3.3 tn (+28%)	Fast growth in raw material
CASA ratio (Q1 2025)	93%	Almost all deposits are cheap current and savings accounts
Gross financing / deposits	$1.69 \div 3.3 = 51\%$	About half of deposits lent out; the rest mainly in investments (Rs 2.6 tn)
Non-performing financing ratio	1.8%	The "infection ratio": low
Coverage of bad financing	146%	Provisions exceed bad loans: conservative
Capital adequacy ratio	19.2% (vs 11.5% required)	A large capital cushion

Sources: Pakistan Observer, reporting the bank's 2025 results (deposits, financing, investments, NPF, coverage, CAR); Bloom Pakistan, June 2025 (CASA at Q1 2025).

8 Growth drivers

- Continued shift of Pakistani savers toward Islamic banking.
- Deposit growth from a large, low-cost CASA base, plus Roshan Digital Account inflows from overseas Pakistanis (about USD 3.4 billion cumulatively, roughly 29% of industry inflows, per the bank).
- Growing fee income from cards, digital banking and remittances.

9–10 Key ratios and valuation approach

RATIO	VALUE	SOURCE / CALCULATION
Price	Rs 552.30	StockAnalysis, close 6 Oct 2026
Book value per share	Rs 163.44	StockAnalysis, Oct 2026
P/B	3.38×	$552.30 \div 163.44$
P/E (trailing)	10.9×	StockAnalysis
2025 payout ratio	56.5%	$\text{Rs } 28 \div \text{Rs } 49.54$
Dividend yield (trailing 12 months)	5.8%	$\text{Rs } 32 \div 552.30$ (StockAnalysis)

Use the justified P/B from Chapter 18: $\text{P/B} = (\text{ROE} - g) \div (r - g)$. Turn it around to see what the market price assumes. With ROE of about 33% and long-run growth of 8%:

01	At a 17% required return: $(0.33 - 0.08) \div (0.17 - 0.08)$	2.78×
=	Return implied by P/B of 3.38: $r = 0.08 + 0.25 \div 3.38$	≈15.4%

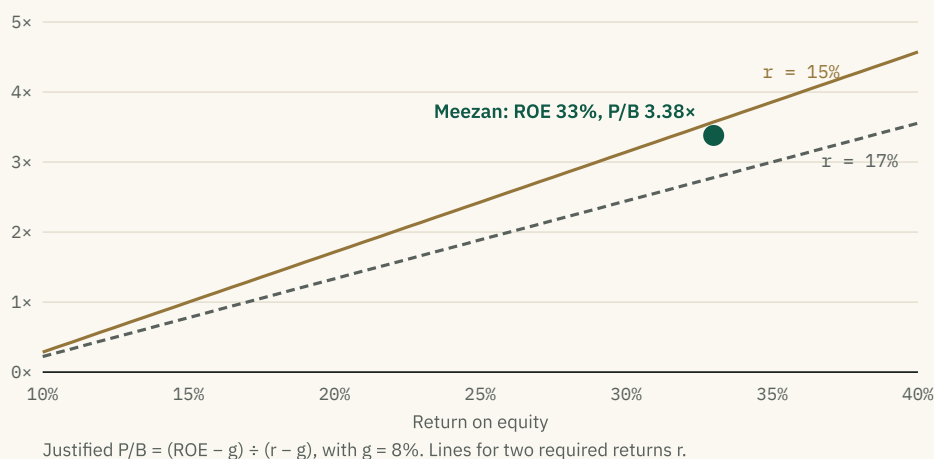


Fig. 37.3 Justified P/B against ROE. The market price puts Meezan between the two lines: it assumes the bank can keep earning about a third on its equity, and accepts a return of about 15% for the risk. The 8% growth and both required returns are assumptions.

The single most important judgement is whether a 33% ROE is sustainable as interest rates fall and taxes stay high. If ROE drifted to 25% with the same assumptions, the justified P/B at a 15% required return would be 2.4x, well below the October 2026 price.

11 Major risks

- Falling policy rates squeezing spreads further.
- Higher bank taxes in future budgets.
- Heavy exposure to government securities, tying the bank to the sovereign.
- Competition as conventional banks expand Islamic windows.
- Asset quality worsening in an economic slowdown.

12-14 Bull, base and bear cases

BULL	BASE	BEAR
Deposit growth stays strong, fee income keeps rising, and ROE holds near 30% even with lower rates. The premium P/B is justified and dividends grow.	ROE drifts down toward the mid-20s as spreads normalise; earnings grow with deposits; dividends steady.	Rates fall further, a budget raises bank taxes, and bad financing rises. ROE falls sharply and the market re-rates P/B toward 2x or lower.

15 Analytical conclusion

Meezan shows what a high-quality bank looks like on paper: a 93% CASA base, very low bad financing, high coverage, strong capital and an ROE above 30%. The market knows this, which is why it traded at more than three times book in October 2026. The investment question is not "is it a good bank?" It's "will ROE stay high enough, for long enough, to justify paying 3.4x book, given falling rates and a 54% tax rate?" That question, not the P/E, is where the analysis should focus.

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CASE STUDY FOUR · PSX: SYS

Systems Limited

A Pakistani software company that earns mostly in foreign currency. It tests growth analysis in dollars, currency effects, and how to value a business with few factories and lots of people.

\$286m	80.4	7.49	15.9×	86%
2025 revenue in US dollars (+18%)	2025 revenue, Rs bn, consolidated (+19%)	2025 EPS, Rs, consolidated	P/E at Rs 119.16 (28 Sep 2026)	Revenue earned outside Pakistan, 2025

1–2 Business overview and revenue model

Systems Limited provides IT services and software implementation to large companies, especially banks and financial institutions, telecoms, retail and consumer goods. Clients pay for project work and for ongoing teams of engineers. Its costs are mainly salaries, and it needs few physical assets: Chapter 4's "software house," at scale. In 2025 it completed the acquisition of Confiz and began a partnership with British American Tobacco's shared services.

3 Industry dynamics

Global companies outsource technology work to places with skilled engineers at lower cost. Pakistan competes with India, Eastern Europe and others. Demand depends on clients' technology budgets, especially in the Gulf, where Systems earns most of its revenue. The biggest constraint is people: hiring and keeping skilled engineers, many of whom are recruited abroad.



Europe 5% · APAC 4%. Share of 2025 revenue (Business Recorder / company results). 6 px = 1%.

Fig. 38.1 Revenue by region, 2025: Middle East 59%, North America 18%, Pakistan 14%, Europe 5%, Asia Pacific 4%. Source: Business Recorder and ProPakistani, reporting company results.

4-5 Financial performance and profitability trends

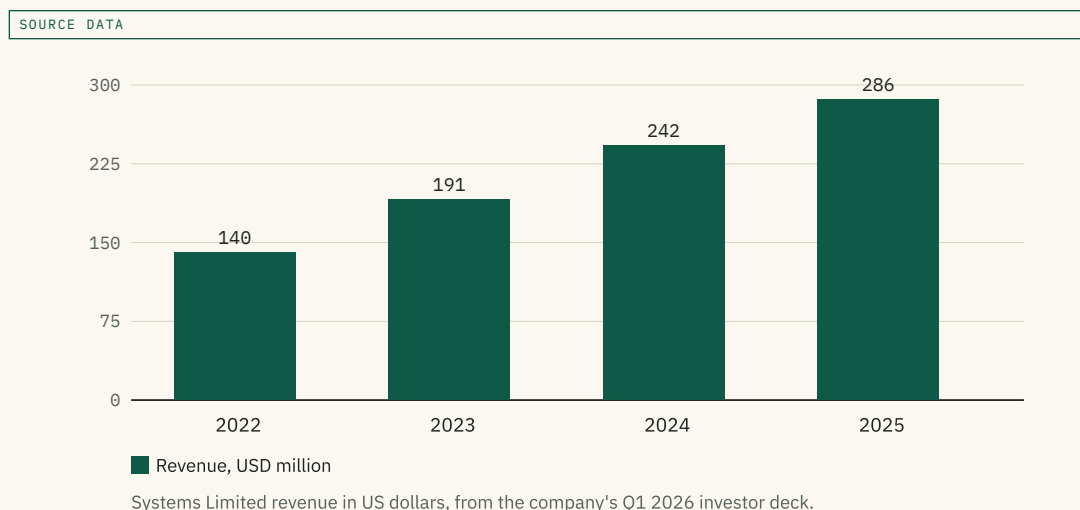


Fig. 38.2 Revenue in US dollars, 2022–2025. Source: Systems Limited investor brief deck, Q1 2026.

Here's Chapter 21's question for tech exporters: did the business grow, or just the dollar? For 2025 the answer is clear. Revenue grew **18% in dollars** and **19% in rupees**, so almost all of the growth was real business growth, not currency. Dividing rupee revenue by dollar revenue gives an implied average rate of about Rs 281 per dollar in 2025 and Rs 279 in 2024: the rupee was roughly stable. In earlier years, when the rupee fell sharply, rupee growth far outran dollar growth.

01	Dollar revenue CAGR, 2022 to 2025: $(286.04 \div 140.25)^{1/3} - 1$	26.8%
02	Gross margin 2025 (USD figures, company deck)	28%
03	Gross margin 2024	24%
04	Net margin 2025, consolidated: $11,041 \div 80,392$	13.7%
=	Profit after tax 2025 vs 2024 (Rs 11.0 bn vs 7.5 bn)	+48%

Profit grew far faster than revenue because gross margin recovered from 24% to 28%. That's operating leverage (Chapter 4) working in a people business. But note that in Q1 2026 the company reported a 25% gross margin, so the 2025 level isn't guaranteed. Growth also slowed: dollar revenue grew about 36% in 2023, 27% in 2024 and 18% in 2025, before a strong 33% start to 2026 (Q1 revenue of USD 85.8 million).

6-7 Debt and cash flow

The unconsolidated accounts show debt at only about 6% of equity in 2025 (Business Recorder). Finance cost fell as interest rates eased. With few factories to build, most operating cash flow can become free cash flow; the main uses are acquisitions and working capital, because large clients often pay slowly. Check receivable days (Chapter 12) and the impairment of receivables, which was Rs 605 million in 2024 and lower in 2025.

8 Growth drivers

- Expanding in the Gulf, North America and Europe, and with new verticals like retail and consumer goods.
- Acquisitions such as Confiz, and large outsourcing partnerships like BAT's shared services.
- Global demand for cloud, data and AI implementation work.

9 Key ratios

RATIO	VALUE	CALCULATION AND SOURCE
Price	Rs 119.16	StockAnalysis, close 28 Sep 2026
P/E on 2025 EPS	15.9×	119.16 ÷ 7.49
P/E on trailing 12-month EPS	15.2×	StockAnalysis, EPS Rs 7.83
Market cap	≈Rs 176 bn	1,473 million shares × price
Payout and yield	26.7% · 1.7%	Rs 2 dividend ÷ EPS; ÷ price
PEG (on 2025 USD growth)	≈0.9	15.9 ÷ 18

10 Valuation approach

A **DCF in dollars** fits best (Chapter 15): forecast dollar revenue, apply a margin assumption, convert to free cash flow, and treat the rupee rate as a separate scenario, since a weaker rupee raises rupee profits and a stronger one cuts them. Cross-check with P/E and PEG against other PSX tech companies and regional IT services peers. Because growth has been uneven year to year, run three clearly different growth paths, as in Chapter 18's advice for high-growth companies.

11 Major risks

- Rupee strength: export revenue converts into fewer rupees.
- Talent: losing skilled engineers to emigration or better-paying rivals.
- Client and regional concentration, with 59% of revenue from the Middle East.
- Changes in the tax treatment of IT exports.
- Integration risk from acquisitions, and margin pressure if wage costs rise faster than prices.

12–14 Bull, base and bear cases

BULL Dollar growth stays above 20% as the 2026 start suggests, new regions scale, and margins hold near 28%. A P/E in the mid-teens proves cheap for this growth.	BASE Dollar growth settles in the mid-teens; margins around the mid-20s; earnings compound steadily with modest dividends.	BEAR Gulf clients cut budgets, talent costs rise, and the rupee strengthens. Growth slows to single digits and margins fall back to 2024 levels.
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15 Analytical conclusion

Systems Limited passed the most important tech-exporter test in 2025: its growth was real in dollars, not a currency effect. Margins recovered, debt is low, and the September 2026 price put it at around 15 to 16 times earnings, a PEG near 1 on 2025 dollar growth. The open questions are whether growth stays well above the 18% of 2025, whether margins hold after the dip to 25% in Q1 2026, and how dependent the business is on the Gulf. Track dollar revenue, gross margin and headcount every quarter; those three numbers tell you most of the story.

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1. Systems Limited, "Investors' brief deck Q1 2026" (USD revenue 2022–2025 and Q1 2026; gross profit; headcount). systems ltd.com
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3. Business Recorder, "Systems Limited: performance and outlook," 5 May 2026 (unconsolidated figures, debt-to-equity, impairment, acquisitions, shares outstanding). brecorder.com
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Practical Workbook

Reading about swimming won't teach you to swim. These worksheets are where the book becomes a skill. Each one gives you instructions, data, space to work, and the chapter to look back at if you're stuck. Do them with a pencil and a calculator first; then try the same thing in the Excel workbook.

All companies in Worksheets 1 to 9 are fictional, so you can't look the answers up. Worksheets 10 to 12 ask you to use a real PSX company of your choice.

Worksheet 1 · Calculate a P/E ratio

CHAPTERS 6, 11

Rawal Foods Ltd reported the figures below. The year's profit includes a one-off gain from selling a warehouse.

Share price	Rs 84	Net profit	Rs 630 mn
Shares in issue	90 mn	One-off gain, before tax	Rs 90 mn
Tax rate	30%		

1. Calculate reported EPS and P/E.
2. Remove the one-off gain (after tax) and recalculate EPS and P/E.
3. Calculate the earnings yield on both.
4. In one sentence: which P/E would you use, and why?

WORKING

Worksheet 2 · Analyse revenue growth

CHAPTER 13

Five years of revenue for Kohat Ceramics, Rs mn. In Year 5, Rs 60 mn of revenue came from a company bought that year. Inflation in Year 5 was 9%.

	Y1	Y2	Y3	Y4	Y5
Revenue	900	1,010	1,180	1,300	1,520
YoY growth	–				

1. Fill in year-on-year growth.
2. Calculate the four-year CAGR.
3. Calculate Year 5 real growth.
4. Calculate Year 5 organic growth.

WORKING

Worksheet 3 · Gross and net margins

CHAPTERS 6, 10

Swat Apparel Ltd, Rs mn: revenue 2,400; cost of sales 1,560; operating expenses 480; finance cost 60; tax rate 30%.

1. Build the income statement down to net profit.
2. Calculate gross, operating and net margin.
3. If cost of sales rises 5% and prices can't be raised, what happens to net profit?

WORKING

Worksheet 4 · Calculate ROE and ROIC

CHAPTER 10

Continue with Swat Apparel. Equity was Rs 1,300 mn at the start of the year and Rs 1,500 mn at the end. Average debt was Rs 700 mn, average cash Rs 200 mn, and average total assets Rs 2,800 mn.

- 1. Calculate ROE on average equity.
- 2. Calculate NOPAT and ROIC on average invested capital.
- 3. Break ROE into net margin × asset turnover × equity multiplier and check it matches.

WORKING

Worksheet 5 · Analyse company debt

CHAPTER 12

Bannu Steel, Rs mn: total debt 1,100; cash 150; EBITDA 380; EBIT 300; finance cost 110; current assets 900, of which inventory 400; current liabilities 750.

1. Net debt / EBITDA, interest coverage, current ratio, quick ratio.
2. Stress test: EBIT down 25%, finance cost up 50%. New coverage?
3. Using the checklist in Fig. 12.2, is it comfortable, watch or fragile?

WORKING

Worksheet 6 · Calculate free cash flow

CHAPTER 8

Chitral Pharma, Rs mn: net profit 300; depreciation 120; receivables up 80; inventory up 40; payables up 30; capex 260; dividends paid 150.

1. Operating cash flow.
2. Free cash flow.
3. Cash conversion (operating cash flow ÷ net profit).
4. Was the dividend covered by free cash flow? What would you check next?

WORKING

Worksheet 7 · Compare two competing companies

CHAPTERS 11, 12, 16

Two cement companies, Rs mn except share price.

	SHAHI CEMENT	INDUS CEMENT
Share price, Rs	150	90
Shares, mn	200	300
Net debt	9,000	1,000
EBITDA	6,000	4,000
Net profit	2,400	2,700
Equity	15,000	13,500

1. For each: market cap, EV, P/E, EV/EBITDA, net debt / EBITDA, ROE.
2. Which looks better value, and which looks safer? Is it the same company?

WORKING

Worksheet 8 · Estimate intrinsic value

CHAPTERS 14, 15

Ellahi Foods expects free cash flow to the firm of Rs 100 mn, 110 mn and 121 mn over the next three years, then 5% growth forever. WACC is 15%, net debt Rs 150 mn, 40 mn shares. Market price Rs 21.

1. Present value of the three cash flows.
2. Terminal value and its present value.
3. Equity value per share.
4. Highest price you'd pay with a 30% margin of safety. Would you buy at Rs 21?

WORKING

Worksheet 9 · Build a screening checklist

CHAPTER 22

Apply the Quality screen (ROE > 15%, net debt / EBITDA < 1.5, free cash flow positive over three years) to these six fictional companies. Then write one extra rule of your own.

COMPANY	ROE	NET DEBT / EBITDA	FCF, 3 YRS	P/E	PASS?
Attock Paints	22%	0.4	+	14	
Bannu Steel	18%	3.2	–	7	
Chitral Pharma	16%	1.0	+	12	
Dera Textiles	9%	0.8	+	6	
Ellahi Foods	25%	1.2	–	20	
Faisal Tech	30%	net cash	+	18	
WORKING					

Worksheet 10 · Evaluate an annual report

CHAPTER 20

Choose any PSX company and download its latest annual report from the PSX Data Portal. Fill in each line with the figure *and* the page or note number.

ITEM	FIGURE	PAGE / NOTE	QUESTION IT RAISES
Consolidated or unconsolidated?			
Net sales, and growth			
Gross margin, this year and last			
Profit attributable to owners; EPS			
Any one-off items			
Operating cash flow vs profit			
Total borrowings; net debt			
Auditor's opinion type; key audit matters			
Largest contingent liability			
Related-party transactions, total			
Best and worst segment			
Dividend per share; payout			

Worksheet 11 · Construct an investment portfolio

CHAPTERS 29–31

Usman is 35. He has Rs 15 lakh saved, monthly essential expenses of Rs 50,000, and wants the money for his children's university in 15 years. He says he would "lose sleep" if his savings fell more than about 25% in a year. He has time to follow at most four companies closely.

- 1. How much should stay in an emergency fund, and where?
- 2. Propose an allocation for the rest (shares, fixed income, gold, cash), in rupees.
- 3. How would you hold the share portion, given his limited time?
- 4. Write his rebalancing rule in one sentence.

WORKING

Worksheet 12 · Write a complete investment thesis

CHAPTER 19

Pick one PSX company you have analysed using Worksheets 1 to 10. Write each line in one or two sentences, with numbers wherever possible.

What it is	
Why it could be worth owning	
Key numbers (growth, ROIC, net debt / EBITDA, cash conversion)	
What I think it's worth (range)	
The price I'd pay (with margin of safety)	
Main risks	
What would prove me wrong (in numbers)	
Position size and why	
Decision today, and date	

ANSWER KEY

Model Solutions

Check your working, not just your final number. Small rounding differences are fine.

WORKSHEET 1

1	EPS = $630 \div 90$; P/E = $84 \div 7.00$	Rs 7.00 · 12.0×
2	After-tax gain $90 \times 0.7 = 63$; adjusted profit 567; EPS $567 \div 90$; P/E $84 \div 6.30$	Rs 6.30 · 13.3×
3	Earnings yield: $7 \div 84$; $6.30 \div 84$	8.3% · 7.5%
4: Use 13.3×; the warehouse sale won't repeat, so the adjusted figure reflects what the business really earns.		

WORKSHEET 2

1	YoY: Y2, Y3, Y4, Y5	12.2% · 16.8% · 10.2% · 16.9%
2	CAGR = $(1,520 \div 900)^{1/4} - 1$	14.0%
3	Real Y5 = $1.169 \div 1.09 - 1$	7.3%
4	Organic Y5 = $(1,520 - 60 - 1,300) \div 1,300$	12.3%

WORKSHEET 3

1	Gross profit 840 → EBIT 360 → PBT 300 → tax 90 → net profit	Rs 210 mn
2	Gross · operating · net margin	35.0% · 15.0% · 8.75%
3	COGS +78 → PBT 222 → net profit 155.4	−26%

A 5% cost rise cut profit by about a quarter: thin margins amplify cost shocks.

WORKSHEET 4

1	ROE = $210 \div 1,400$	15.0%
2	NOPAT = $360 \times 0.7 = 252$; invested capital = $1,400 + 700 - 200 = 1,900$; ROIC	13.3%
3	$8.75\% \times (2,400 \div 2,800 = 0.857) \times (2,800 \div 1,400 = 2.0)$	15.0% ✓

WORKSHEET 5

1	Net debt / EBITDA ($950 \div 380$) · coverage ($300 \div 110$) · current ($900 \div 750$) · quick ($500 \div 750$)	2.5 · 2.7 · 1.2 · 0.67
2	Stressed: $225 \div 165$	1.4×

3: "Watch," close to fragile: net debt is at the top of the watch range, coverage is thin, and the quick ratio shows reliance on selling stock.

WORKSHEET 6

1	$300 + 120 - 80 - 40 + 30$	Rs 330 mn
2	$330 - 260$	Rs 70 mn
3	$330 \div 300$	110%

4: No. FCF of 70 covers less than half of the 150 dividend. Check whether capex was a one-off expansion, whether debt rose, and the three-year FCF trend.

WORKSHEET 7

	SHAHI	INDUS
Market cap	30,000	27,000
EV	39,000	28,000
P/E	12.5×	10.0×
EV/EBITDA	6.5×	7.0×
Net debt / EBITDA	1.5×	0.25×
ROE	16%	20%

Indus looks better on P/E, ROE and safety. Shahi looks slightly cheaper on EV/EBITDA, because its higher EBITDA is carrying more debt. For most investors Indus is the stronger pick; Shahi only makes sense if you're confident in the cycle and its debt.

WORKSHEET 8

1	$86.96 + 83.18 + 79.56$	249.69
2	$TV = 121 \times 1.05 \div 0.10 = 1,270.5$; $PV = 1,270.5 \div 1.15^3$	835.37
3	$EV\ 1,085.07 - \text{net debt } 150 = 935.07 \div 40$	Rs 23.38
4	23.38×0.70	Rs 16.36

At Rs 21 the price is below value but above the margin-of-safety price. Wait, or buy only a small first stage.

WORKSHEET 9

Passes: Attock Paints, Chitral Pharma, Faisal Tech. Bannu fails debt and FCF; Dera fails ROE; Ellahi fails FCF. A good extra rule: "P/E below 20" (all three still pass), or "interest coverage above 5×." Each pass still needs the ten-step framework.

WORKSHEET 10

No single answer. A model answer quotes figures exactly as printed with note numbers, states the basis (consolidated or unconsolidated), and writes one specific question per line, as in Chapter 20's Lucky Cement walkthrough.

WORKSHEET 11 · ONE SENSIBLE ANSWER

1: Six months of expenses, Rs 3 lakh, in a money market fund. 2: Of the remaining Rs 12 lakh: shares 60% (Rs 7.2 lakh), fixed income 30% (Rs 3.6 lakh), gold 10% (Rs 1.2 lakh). With 15 years to go this is growth-tilted, but at 60% shares a 40% share-market fall would cut the whole Rs 15 lakh by about 19% ($7.2 \times 0.4 = 2.88$ lakh), inside his limit. 3: Rs 5 lakh in a low-cost KSE-100 or KMI-30 index fund as the core; the other Rs 2.2 lakh split across up to four researched companies (about Rs 55,000 each, under 5% of his total). 4: "Once a year, or whenever shares drift more than five points from 60%, move money back to target." Also: shift gradually toward fixed income in the last three to five years.

WORKSHEET 12

Compare yours with the Ali Foods thesis in Chapter 19. Good theses have numbers on every line, a value range rather than one figure, a buy price below that range, and a "prove me wrong" line you could check from the next quarterly report.

The Investor's Toolkit

Everything in this book, compressed into pages you can keep open on your desk. Use the glossary when a word stops you, the cheat sheets when you're working through an annual report, and the templates every time you buy, review or sell.

GLOSSARY

206 Terms, in Plain Words

Each entry points to the chapter where the idea is explained in full.

A

Accounting equation

Assets = liabilities + equity. Always true. [Ch. 7](#)

Adjusted EPS

Earnings per share with one-off gains and losses removed. [Ch. 6](#)

AGM

Annual general meeting, where shareholders vote. [Ch. 1](#)

AMC

Asset management company that runs mutual funds; licensed by SECP. [Ch. 31](#)

Amortisation

Depreciation for intangible assets such as software or licences. [Ch. 6](#)

Anchoring

Judging a price against an old number that no longer matters. [Ch. 33](#)

Annual report

Audited yearly report with financial statements and notes. [Ch. 20](#)

Asset allocation

How money is split between shares, fixed income, gold and cash. [Ch. 29](#)

Asset turnover

Revenue ÷ average total assets. [Ch. 10](#)

Assets

Everything a company owns. [Ch. 7](#)

ATR

Average true range: average daily price movement, a volatility measure. [Ch. 27](#)

Auditor's opinion

Independent accountant's view on whether the accounts are fair. [Ch. 20](#)

Average cost

Total paid ÷ shares bought; lowered by buying more at lower prices. [Ch. 30](#)

B

Balance sheet

Snapshot of assets, liabilities and equity on one date. [Ch. 7](#)

Basic EPS

Net profit ÷ shares in issue. [Ch. 6](#)

Bear case

A realistic pessimistic scenario. [Ch. 15](#)

Beta

How much a share moves relative to the market. [Ch. 15](#)

Bid

Highest price a buyer is offering now. [Ch. 1](#)

Bid-ask spread

Gap between bid and ask; a hidden trading cost. [Ch. 1](#)

Bollinger Bands

Moving average ± 2 standard deviations. [Ch. 27](#)

Bonus shares

Free extra shares from retained profit; value per share falls to match. [Ch. 1](#)

Book closure

Period when a company closes its register to decide who gets a dividend or bonus. [Part XII](#)

Book value

Total equity; per share, equity ÷ shares. [Ch. 7](#)

Breakout

Price closing beyond a support or resistance level. [Ch. 25](#)

Broker

Licensed firm (TRE certificate holder) that trades on PSX for you. [Ch. 2](#)

Bull case

A realistic optimistic scenario. [Ch. 15](#)

C

CAGR

Compound annual growth rate: the steady yearly rate from start to end value. [Ch. 13](#)

Candlestick

Chart symbol showing open, high, low and close. [Ch. 23](#)

Capex

Capital expenditure: spending on long-term assets like machines. [Ch. 8](#)

Capital adequacy ratio

A bank's capital cushion against losses, set by SBP. [Ch. 18](#)

Capital allocation

How management uses retained profit. [Ch. 5](#)

Capital gain

Profit from selling a share above its purchase price. [Ch. 1](#)

Capital gains tax

Tax on gains from selling shares; collected through NCCPL. [Ch. 2](#)

Capital intensity

How much money must be locked in assets to earn each rupee of sales. [Ch. 4](#)

CAPM

Cost of equity = risk-free rate + beta × equity risk premium. [Ch. 15](#)

CASA

Current and savings account deposits: a bank's cheap funding. [Ch. 18](#)

Cash conversion

Operating cash flow ÷ net profit. [Ch. 8](#)

Cash conversion cycle

Days inventory + days receivables – days payables. [Ch. 12](#)

Cash flow statement

Report of actual cash in and out: operating, investing, financing. [Ch. 8](#)

Cash ratio

Cash ÷ current liabilities. [Ch. 12](#)

CDC

Central Depository Company: holds your shares electronically in your name. [Ch. 2](#)

Channel

Two parallel trendlines enclosing price moves. [Ch. 25](#)

Circular debt

Unpaid bills passed between government, power and energy companies.
Ch. 21

Compounding

Earning returns on past returns. Ch. 30

Confirmation bias

Seeking only information that agrees with you. Ch. 33

Consolidated accounts

Parent plus the companies it controls, as one entity. Ch. 20

Contingent liability

A possible future obligation, such as a lawsuit or tax dispute. Ch. 20

Correlation

How closely two investments move together. Ch. 29

Cost of debt

Interest rate a company pays, usually after tax. Ch. 15

Cost of equity

Return shareholders require for the risk. Ch. 15

Cost of sales

Direct costs of making what was sold. Ch. 6

Coverage ratio (banks)

Provisions ÷ bad loans. Ch. 18

Current assets

Assets expected to become cash within a year. Ch. 7

Current liabilities

Bills due within a year. Ch. 7

Current ratio

Current assets ÷ current liabilities. Ch. 12

Cyclical business

One whose profits rise and fall with the economy. Ch. 4

D

DCF

Discounted cash flow valuation. Ch. 15

Debt to equity

Total debt ÷ equity. Ch. 12

Depreciation

Spreading the cost of an asset over its useful life. Ch. 6

Diluted EPS

EPS if all options and convertibles became shares. Ch. 6

Discount rate

Rate used to convert future money into today's value. Ch. 15

Disposition effect

Selling winners too early and holding losers too long. Ch. 33

Diversification

Spreading money across investments that behave differently. Ch. 29

Dividend

Cash paid to shareholders from profit. Ch. 1

Dividend cover

EPS ÷ dividend per share. Ch. 17

Dividend yield

Dividend per share ÷ share price. Ch. 11

Doji

Candle with open and close almost equal: indecision. Ch. 24

Drawdown

Fall from a peak to a low. Ch. 29

DuPont analysis

ROE = net margin × asset turnover × equity multiplier. Ch. 10

E

Earnings quality

How repeatable and cash-backed profits are. Ch. 6

Earnings yield

EPS ÷ price; P/E upside down. Ch. 11

EBIT

Earnings before interest and tax; operating profit. Ch. 6

EBITDA

EBIT plus depreciation and amortisation. Ch. 6

Economic moat

What protects a company's profits from competitors. Ch. 5

Effective tax rate

Tax charge ÷ profit before tax. Ch. 36

EMA

Exponential moving average; weights recent prices more. Ch. 27

Emergency fund

Three to six months of expenses kept safe and accessible. Ch. 29

Engulfing pattern

A candle whose body covers the previous candle's body. Ch. 24

Enterprise value

Market cap ÷ debt – cash. Ch. 11

Equity

Assets minus liabilities: the owners' share. Ch. 7

Equity risk premium

Extra return investors want for owning shares over safe bonds. Ch. 15

ETF

Exchange-traded fund; trades on PSX like a share. Ch. 31

EV/EBITDA

Enterprise value ÷ EBITDA. Ch. 11

Ex-dividend

Date from which a buyer no longer gets the declared dividend. Ch. 23

Expense ratio (TER)

A fund's total yearly costs as a % of assets. Ch. 31

F

Face value

Nominal value of a share, usually Rs 10; dividends are quoted as a % of it.
Ch. 1

False breakout

Price moves beyond a level but closes back inside. Ch. 26

Fibonacci retracement

Levels at 23.6%, 38.2%, 50%, 61.8% of a prior move. Ch. 27

Filer

Person on FBR's Active Taxpayer List; pays lower tax rates. Ch. 2

Finance cost

Interest paid on borrowings. Ch. 6

Financing cash flow

Cash from or to lenders and shareholders. Ch. 8

FOMO

Fear of missing out; buying because a price has already risen. Ch. 33

Forward P/E

Price ÷ next year's expected EPS. Ch. 11

Free cash flow

Operating cash flow – capex. Ch. 8

G

Gap

Price opening beyond the previous day's range. Ch. 23

Goodwill

Amount paid above the value of an acquired company's net assets. Ch. 7

Gordon growth model

Value = next dividend ÷ (required return – growth). Ch. 17

Gross margin

Gross profit ÷ revenue. Ch. 6

Gross profit

Revenue – cost of sales. Ch. 6

Growth stock

Company expected to grow faster than average. Ch. 22

H

Hammer

Small body at the top, long lower wick: buyers rejected lower prices. Ch. 24

Herd mentality

Following the crowd instead of your own analysis. Ch. 33

Holding company discount

Group valued below the sum of its parts. Ch. 18

I

Income statement

Report of revenue, costs and profit over a period. Ch. 6

Index fund

Fund that copies an index such as KSE-100. Ch. 31

Infection ratio

Non-performing loans ÷ total loans. Ch. 18

Inflation

General rise in prices; reduces real returns. Ch. 30

Inside bar

Candle within the previous candle's range: a pause. Ch. 24

Interest coverage

EBIT ÷ finance cost. Ch. 12

Intrinsic value

Estimated worth of a business based on its future cash. Ch. 14

Inventory

Raw materials and finished goods not yet sold. Ch. 7

Investing cash flow

Cash spent on or received from long-term assets. Ch. 8

Investment thesis

Written reasons for owning a share, with a buy price and exit test. Ch. 19

IPO

Initial public offering: a company's first sale of shares to the public. Ch. 1

K

KMI-30

PSX index of 30 Shariah-compliant companies. Ch. 2

KSE-100

Main PSX index tracking 100 large companies. Ch. 2

L

Leverage

Using borrowed money; magnifies gains and losses. Ch. 32

Liabilities

Everything a company owes. Ch. 7

Limit order

Order to buy or sell only at a set price or better. Ch. 1

Liquidity

How easily something sells without moving the price. Ch. 1

Loss aversion

Losses feel worse than equal gains feel good. Ch. 33

M

MACD

12-day EMA – 26-day EMA, with a 9-day signal line. Ch. 27

Margin call

Lender's demand for cash when a margin account falls too far. Ch. 32

Margin of safety

Gap between estimated value and the price you pay. Ch. 14

Market cap

Share price × shares in issue. Ch. 1

Market order

Order to trade now at the best available price. Ch. 1

Moving average

Average price over the last n periods. Ch. 27

Mutual fund

Pool of investors' money managed by an AMC. Ch. 31

N

NAV

Net asset value per unit of a fund. Ch. 31

NCCPL

National Clearing Company: settles trades and collects capital gains tax. Ch. 2

Net debt

Total debt – cash. Ch. 7

Net debt / EBITDA

Years of EBITDA needed to repay net debt. Ch. 12

Net interest margin

A bank's lending yield minus funding cost. Ch. 18

Net margin

Net profit ÷ revenue. Ch. 10

Net profit

Profit after all costs and tax. Ch. 6

Non-controlling interest

Share of subsidiaries' profit owned by outside shareholders. Ch. 20

Non-filer

Person not on FBR's Active Taxpayer List; pays higher tax rates. Ch. 2

NOPAT

EBIT × (1 – tax rate). Ch. 10

Normalised earnings

Average earnings across a full business cycle. Ch. 18

O

OHLC

Open, high, low, close. Ch. 23

Operating cash flow

Cash generated by day-to-day business. Ch. 8

Operating leverage

Fixed costs make profit swing more than sales. Ch. 4

Operating margin

EBIT ÷ revenue. Ch. 10

Opportunity cost

The return from the best alternative you gave up. Ch. 32

Organic growth

Growth excluding acquisitions. Ch. 13

Overconfidence

Overrating your own skill, often after a lucky streak. Ch. 33

P

P/B

Price ÷ book value per share. Ch. 11

P/E

Price ÷ earnings per share. Ch. 11

P/S

Market cap ÷ revenue. Ch. 11

Payables

Money owed to suppliers. Ch. 7

Payout ratio

Dividends ÷ earnings. Ch. 11

PEG ratio

P/E ÷ expected growth rate. Ch. 11

Permanent loss of capital

Money lost that never comes back. Ch. 32

Pin bar

Candle with a long wick showing rejected prices. Ch. 24

Position sizing

Deciding how much to put in one investment. Ch. 29

Preference shares

Shares with a fixed dividend paid first, usually without votes. Ch. 1

Present value

Today's value of a future amount. Ch. 15

Pricing power

Ability to raise prices without losing customers. Ch. 4

PSX Data Portal

dps.psx.com.pk: official announcements and company data. Ch. 2

Q

Quick ratio

(Current assets – inventory) ÷ current liabilities. Ch. 12

R

Real return

Return after inflation. Ch. 30

Rebalancing

Bringing a portfolio back to its target allocation. Ch. 29

Receivables

Money customers owe the company. Ch. 7

Recency bias

Assuming recent trends will continue. Ch. 33

Related-party transaction

Deal between a company and people or firms connected to it. Ch. 5

Relative valuation

Valuing a company against similar peers. Ch. 16

Resistance

Price zone where selling has stopped rises before. Ch. 26

Retained earnings

Profits kept in the business over its life. Ch. 7

Retest

Return to a broken level to test it from the other side. Ch. 26

Revenue

Money from sales, net of sales tax and discounts. Ch. 6

Rights issue

Offer to existing shareholders to buy new shares. Ch. 1

ROA

Net profit ÷ average total assets. Ch. 10

ROCE

EBIT ÷ (total assets – current liabilities). Ch. 10

ROE

Net profit ÷ average equity. Ch. 10

ROIC

NOPAT ÷ invested capital. Ch. 10

RSI

Relative Strength Index: momentum on a 0–100 scale. Ch. 27

Rupee-cost averaging

Investing a fixed amount regularly regardless of price. Ch. 30

S

Sahulat account

PSX's simplified account for new investors. Ch. 2

Secondary market

Trading between investors after an IPO. Ch. 1

SECP

Securities and Exchange Commission of Pakistan, the regulator. Ch. 2

Segment reporting

Results broken down by business line or region. Ch. 20

Sensitivity analysis

Testing how value changes with key assumptions. Ch. 15

Sequence-of-returns risk

Damage from bad returns early while withdrawing money. Ch. 30

Settlement

Exchange of money and shares after a trade; T+1 on PSX. Ch. 2

Shooting star

Small body at the bottom, long upper wick. Ch. 24

SMA

Simple moving average. Ch. 27

Solvency

Ability to survive debts over the long term. Ch. 7

Stock screen

Filter that finds shares meeting set criteria. Ch. 22

Stock split

Dividing each share into more, lower-priced shares. Ch. 1

Stop-loss order

Instruction to sell if price falls to a set level. Ch. 26

Sum of the parts

Valuing each business in a group separately. Ch. 18

Sunk-cost fallacy

Holding on because of money already lost. Ch. 33

Support

Price zone where buying has stopped falls before. Ch. 26

Sustainable growth rate

ROE × retention ratio. Ch. 13

T

Terminal value

Value of all cash flows beyond the forecast period. [Ch. 15](#)

Timeframe

Period each candle or bar represents. [Ch. 23](#)

Total shareholder return

Price change plus dividends. [Ch. 17](#)

Tracking error

How far an index fund's return differs from its index. [Ch. 31](#)

Trendline

Line joining higher lows or lower highs. [Ch. 25](#)

V

Value trap

Cheap-looking share whose business is declining. [Ch. 11](#)

Volatility

How much a price swings. [Ch. 29](#)

Volume

Number of shares traded in a period. [Ch. 1](#)

VWAP

Volume-weighted average price for the day. [Ch. 27](#)

W

WACC

Weighted average cost of capital. [Ch. 15](#)

Working capital

Current assets – current liabilities. [Ch. 7](#)

Y

Yield trap

High dividend yield caused by a falling price, before a dividend cut. [Ch. 17](#)

CHEAT SHEETS

Formulas, Checklists and the Decision Tree

Financial ratio formulas

RATIO	FORMULA	ROUGH GUIDE*	CH.
PROFITABILITY			
Gross margin	Gross profit ÷ revenue	Stable or rising	6
Operating margin	EBIT ÷ revenue	Compare within sector	10
Net margin	Net profit ÷ revenue	Use adjusted profit	10
ROE	Net profit ÷ average equity	Well above deposit rates	10
ROA	Net profit ÷ average assets	Banks ~1–2%	10
ROIC	$EBIT \times (1 - t) \div (\text{equity} + \text{debt} - \text{cash})$	Above cost of capital	10
ROCE	$EBIT \div (\text{assets} - \text{current liabilities})$	Compare within sector	10
DuPont	Net margin × asset turnover × equity multiplier	Find the source of ROE	10
VALUATION			
P/E	Price ÷ EPS	Use adjusted EPS	11
Earnings yield	EPS ÷ price	Compare with bond yields	11
P/B	Price ÷ book value per share	Main tool for banks	11, 18
P/S	Market cap ÷ revenue	Loss-makers, fast growers	11
PEG	$P/E \div \text{growth (\%)}$	~1 fair	11
Enterprise value	Market cap + debt – cash	–	11
EV/EBITDA	EV ÷ EBITDA	Capital-heavy firms	11
FCF yield	Free cash flow ÷ market cap	Use 3–5 yr average	11
Dividend yield	DPS ÷ price	Far above peers = ask why	11, 17
Payout	DPS ÷ EPS	Below ~70% for most	17
Gordon model	$D_1 \div (r - g)$	Mature payers only	17
Justified P/B	$(ROE - g) \div (r - g)$	Banks	18
DEBT, LIQUIDITY, EFFICIENCY			
Current ratio	Current assets ÷ current liabilities	> 1.5 comfortable	12
Quick ratio	$(CA - \text{inventory}) \div CL$	> 1.0 comfortable	12
Net debt / EBITDA	$(\text{Debt} - \text{cash}) \div \text{EBITDA}$	< 1.5 comfortable, > 3 fragile	12
Interest coverage	EBIT ÷ finance cost	> 5 comfortable, < 2 fragile	12

RATIO	FORMULA	ROUGH GUIDE*	CH.
Cash conversion cycle	DIO + DSO – DPO	Stable or shorter	12
Free cash flow	Operating cash flow – capex	Positive over 3 yrs	8
Cash conversion	Operating cash flow ÷ net profit	~100% over time	8
GROWTH AND TIME			
CAGR	$(\text{End} \div \text{start})^{1/\text{years}} - 1$	Count years of growth	13
Real growth	$(1 + \text{nominal}) \div (1 + \text{inflation}) - 1$	–	13, 30
Sustainable growth	ROE × (1 – payout)	Above it = needs funding	13
Future value	$PV \times (1 + r)^n$	–	30
Present value	$FV \div (1 + r)^n$	–	15
WACC	$E/V \times K_e + D/V \times K_d \times (1 - t)$	–	15
Terminal value	$FCF_n \times (1 + g) \div (WACC - g)$	g modest	15

*Rough guides are teaching rules of thumb for typical non-financial companies, not targets or regulatory limits.

Fundamental analysis checklist

☐ I can explain how it makes money in two sentences	Ch. 4
☐ It has at least one moat I can name	Ch. 5
☐ Five-year sales, margins and EPS are stable or rising	Ch. 6, 13
☐ I've removed one-offs and use adjusted EPS	Ch. 6
☐ Operating cash flow roughly matches profit over 3 years	Ch. 8
☐ Free cash flow covers dividends	Ch. 8, 17
☐ Net debt / EBITDA and coverage pass, including the stress test	Ch. 12
☐ ROIC is above the cost of capital	Ch. 10
☐ Growth is real (after inflation) and mostly organic	Ch. 13
☐ Related-party note, auditor's report and contingencies checked	Ch. 5, 20
☐ I've used the right valuation tool for the sector	Ch. 16, 18, 21
☐ Price is below my value range with a margin of safety	Ch. 14

Technical analysis cheat sheet

TOOL	WHAT IT TELLS YOU	MAIN TRAP
Higher highs / higher lows	Uptrend in place	Calling the top too early
Support / resistance zones	Where buyers or sellers acted before	Treating wicks as breaks
Breakout + volume + retest	Move likely genuine	Chasing low-volume pokes
Hammer / shooting star	Rejection of lower / higher prices	Ignoring location and context
SMA / EMA	Direction, smoothed	Whipsaws in sideways markets

TOOL	WHAT IT TELLS YOU	MAIN TRAP
RSI > 70 / < 30	Strong momentum	Selling strong trends too early
MACD cross	Momentum turning	Lag; choppy markets
Bollinger squeeze	Volatility about to expand	Doesn't say which direction
ATR	Typical daily move; stop distance; position size	Using it as a direction signal
Fibonacci levels	Rough zones for pullbacks	Treating them as exact

Stock selection decision tree

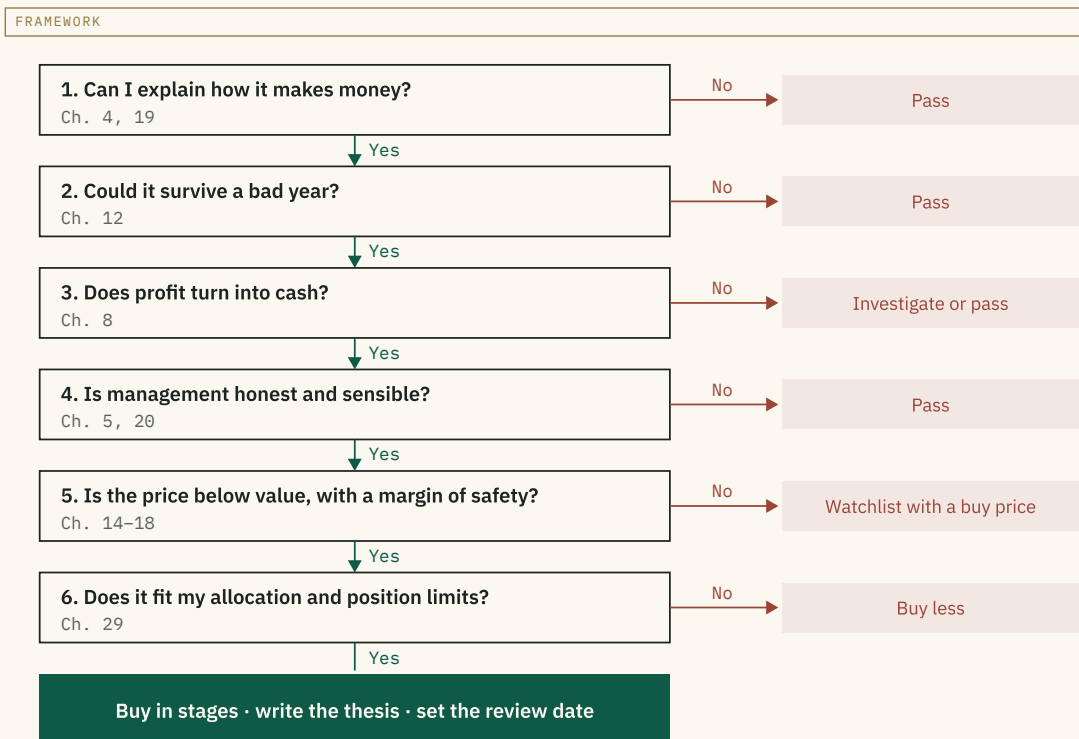


Fig. XII.1 Six questions in order. Any "No" stops or changes the action; only six "Yes" answers lead to a purchase.

TEMPLATES

Thesis, Portfolio Review and Journal

Copy these into a notebook or spreadsheet. Fill one in every time you buy, review or sell.

Investment thesis

Company and date

What it is (two sentences)

Why it could be worth owning

Key numbers: growth, ROIC, net debt / EBITDA, cash conversion

Value range and method

Buy price (with margin of safety)

Three main risks

What would prove me wrong (numbers)

Position size (% of portfolio) and why

Next review date

Portfolio review (every quarter)

HOLDING	% OF PORTFOLIO	THESIS INTACT?	"PROVE ME WRONG" TRIGGERED?	PRICE VS VALUE	ACTION
☐	Allocation within 5 points of target? If not, rebalance.				Ch. 29
☐	Any single share above 10% or sector above 30%?				Ch. 29
☐	Emergency fund still covers 3–6 months?				Ch. 29
☐	Returns this year after fees and inflation?				Ch. 30

Investing journal (every decision)

DATE	BUY / SELL / HOLD	COMPANY, PRICE	WHY, IN ONE LINE	HOW I FELT (CALM, EXCITED, SCARED)	RESULT AFTER 1 YEAR, AND WHAT I LEARNED

The "how I felt" column is the most valuable one. After a year, compare your calm decisions with your excited and scared ones (Chapter 33).

REFERENCE

Announcements, Resources and Your First 30 Days

Reading PSX corporate announcements

Listed companies publish announcements on the PSX Data Portal (dps.psx.com.pk). Here's what the common ones mean and what to check.

ANNOUNCEMENT	WHAT IT MEANS	WHAT TO CHECK
Financial results	Quarterly, half-yearly or annual figures	Consolidated or not; one-offs; margins; cash flow (Ch. 6–9, 20)
Dividend / bonus / right	Payout declared, usually with results	Amount as % of face value; payout ratio; dates
Book closure	Dates the share register closes to decide who receives a dividend, bonus or right, or can vote	The last day to buy and still qualify, as stated; the price usually adjusts on the ex-date
Board meeting notice	Date the board will consider results or other items	Expect results that day
Material information	Anything that could move the price: contracts, plant shutdowns, lawsuits, acquisitions	Size relative to the company; is it one-off?
AGM / EOGM notice	Shareholder meetings and the resolutions to vote on	Related-party approvals; new share issues; splits
Change in directors / auditors	Board or audit firm changes	Frequent auditor changes are a warning (Ch. 5)
Credit rating	Rating agency view on the company's debt	Direction of change; outlook
Transactions by insiders	Directors or major shareholders buying or selling	Pattern over time, not one trade

Official research resources

RESOURCE	USE IT FOR
PSX · psx.com.pk	Broker list, indices, Sahulat accounts, investor education
PSX Data Portal · dps.psx.com.pk	Announcements, financial reports, prices
SECP · secp.gov.pk	Regulations, licensed entities, complaints
Jamapunji · jamapunji.pk	SECP investor education and scam alerts
CDC · cdcpakistan.com	Your share holdings and account services
NCCPL · nccpl.com.pk	Settlement and capital gains tax
State Bank of Pakistan · sbp.org.pk	Policy rate, bond yields, exchange rates, banking data
FBR · fbr.gov.pk	Tax rates; Active Taxpayer List
Pakistan Bureau of Statistics · pbs.gov.pk	Inflation data
MUFAP · mufap.com.pk	Mutual fund returns, NAVs, expense ratios

RESOURCE	USE IT FOR
IFRS Foundation · ifrs.org	Accounting standards
Company investor relations pages	Annual reports, investor presentations

Recommended foundational reading

- Benjamin Graham, *The Intelligent Investor*: price versus value, margin of safety.
- Morgan Housel, *The Psychology of Money*: behaviour and long-term thinking.
- Pat Dorsey, *The Little Book That Builds Wealth*: moats.
- Aswath Damodaran, *The Little Book of Valuation*: valuation for beginners.
- Howard Marks, *The Most Important Thing*: risk and cycles.
- Peter Lynch, *One Up on Wall Street*: practical stock picking.
- Daniel Kahneman, *Thinking, Fast and Slow*: biases.
- John J. Murphy, *Technical Analysis of the Financial Markets*: charts, done carefully.

Your 30-day beginner roadmap

DAYS	DO THIS	READ
1–3	Write your goals, time horizon and risk tolerance. Build or check your emergency fund.	Ch. 1, 29
4–6	Check a broker on the PSX list. Open a Sahulat or regular account. Learn your CDC alerts.	Ch. 2
7–9	Pick three PSX companies you know as a customer. Explain how each makes money.	Ch. 4, 5
10–13	Download one annual report. Find the twelve items.	Ch. 6–9, 20
14–16	Calculate margins, ROE, ROIC, debt ratios in the workbook.	Ch. 10–12, W3–W5
17–19	Check cash flow and growth. Strip out one-offs.	Ch. 8, 13, W2, W6
20–22	Value one company: peers plus a simple DCF. Set a buy price.	Ch. 14–16, W7, W8
23–24	Read its sector page and list the risks.	Ch. 21, 32
25–26	Look at its weekly chart: trend, support, resistance.	Ch. 23–28
27–28	Write a full thesis. Decide: buy, wait or pass.	Ch. 19, W12
29	Compare with an index fund. Decide your core-and-satellite split.	Ch. 31
30	Start your investing journal. If buying, buy a first stage only, with a limit order.	Ch. 1, 28, 33

No rush. If any step takes a week, let it. The roadmap's job is to make sure the first rupee you invest has been through the whole process.

CLOSING CHAPTER

Research With Humility

You started this book with a samosa stall. You've finished it able to read a bank's capital ratios, value a business from its cash flows, and spot when a 30% dividend yield is a trap. That's a long way to travel, and it's worth pausing to say what all of it adds up to.

It doesn't add up to certainty. Nobody, however experienced, knows what Lucky Cement's profits will be in five years, whether Meezan's return on equity will hold, or where the KSE-100 will be next December. The people who sound most certain on television and in WhatsApp groups usually know the least. What this book has given you is not a way to be sure. It's a way to be *careful*: to know what you're assuming, to check it against the numbers, and to leave room for being wrong.

That room is the margin of safety, and it's the most important idea in investing. You will make mistakes. Some companies you analyse carefully will disappoint you for reasons no annual report could have shown. The goal is not to avoid every mistake. It's to make sure no single mistake can hurt you badly: by not overpaying, not borrowing, not putting too much in one place, and not letting a moment of fear or greed overrule a decision you made calmly.

Remember also that time is the most powerful thing you own. A young investor who starts small, invests every month, keeps costs low and stays patient for twenty years will very likely do better than a clever one who trades constantly. Compounding rewards consistency far more than brilliance.

Finally, keep learning, and keep checking. Rules on PSX change with each budget. Companies change. You will change. Revisit your theses, reread the chapters that challenged you, and treat every result, good or bad, as information. Be humble about what you can predict and disciplined about what you can control.

Do the research. Write it down. Wait for your price. Then let time do its work.

INVESTOR'S NOTEBOOK

The market will always offer another opportunity. It rarely offers a second chance to undo a reckless one.

AYEZAHCODED

Disclaimer

This book is for education only. It is not investment, tax or legal advice, and nothing in it is a recommendation to buy, sell or hold any security. Real company figures are historical, reported as published at the time of writing, and may have changed. Fictional companies and examples are illustrative. Investing in shares involves risk, including the loss of capital. Consider your own circumstances and, where appropriate, consult a licensed adviser before investing.

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