

Introduction to Stock Markets

1.1 – Why should I invest?

Before we address the above question, let us understand what would happen if one chooses not to invest. Assume you earn Rs.50,000/- per month, and you spend Rs.30,000/-towards your day-to-day living; this can include expenses like housing, food, transport, shopping, medical, etc. The balance of Rs.20,000/- is your monthly surplus.

For the sake of simplicity, let us ignore the tax effect in this discussion.

To drive the point across, let us make a few simple assumptions –

1.

1. The employer is kind enough to give you a 10% salary hike every year.
2. The cost of living is likely to go up by 8% yearly.
3. You are 30 years old and plan to retire at 50, this translates to 20 working years.
4. You don't intend to work after you retire.
5. Your expenses are fixed, and you don't foresee any other expenses.
6. The balance cash of Rs.20,000/- per month is retained as hard cash.

Going by these assumptions, here is what the cash balance will look like in 20 years.

Years	Yearly Income	Yearly Expense	Cash Retained
1	600,000	360,000	240,000
2	6,60,000	3,88,800	2,71,200
3	7,26,000	4,19,904	3,06,096
4	7,98,600	4,53,496	3,45,104
5	8,78,460	4,89,776	3,88,684
6	9,66,306	5,28,958	4,37,348
7	10,62,937	5,71,275	4,91,662

8	11,69,230	6,16,977	5,52,254
9	12,86,153	6,66,335	6,19,818
10	14,14,769	7,19,642	6,95,127
11	15,56,245	7,77,213	7,79,032
12	17,11,870	8,39,390	8,72,480
13	18,83,057	9,06,541	9,76,516
14	20,71,363	9,79,065	10,92,298

15	22,78,499	10,57,390	12,21,109
16	25,06,349	11,41,981	13,64,368
17	27,56,984	12,33,339	15,23,644
18	30,32,682	13,32,006	17,00,676
19	33,35,950	14,38,567	18,97,383
20	36,69,545	15,53,652	21,15,893
			Total Income 17,890,693

If one were to analyze these numbers, one would soon realize this is a scary situation. A few things are quite obvious –

1.

1. After 20 years of hard work, you have accumulated Rs.1.7Crs.
2. Since your expenses are fixed, your lifestyle has not changed over the years, and you probably even suppressed your lifelong aspirations – a better home, car, vacations, etc.
3. After you retire, assuming the expenses will continue to grow at 8%, the retirement corpus of Rs.1.7Crs is good enough to sail you through roughly 8 years of post-retirement life. 8th year onwards, you will be in a tight spot with literally no savings left to back you up.

What would you do after you run out of money in 8 years? How do you fund your life? Is there a way to ensure that you collect a more considerable sum at the end of 20 years?

At this point, you may think that the assumptions are simple and that real life does not work like this. I agree, and I won't dispute that fact. However, the point to note in the above calculation is that no investments are made, hence the cash retained has a flat or zero growth.

Let's consider another scenario where instead of keeping the cash idle, you choose to invest the cash in an investment option that grows at, let's say, 12% per annum. For example – in the first year, you retained Rs.240,000/- which, when invested at 12% per annum for 20 years (19 years assuming you invest at the end of 1st year), yields Rs.2,067,063/- at the end of the 20th year. For those interested in math, here is how that works –

$$= 240000 * (1+12\%)^{19}$$

= 2067063

Dont worry about the math at this point. We will explain that later in this module (and several other modules in Varsity). Here is how the table looks if you choose to invest.

Years	Yearly Income	Yearly Expense	Cash Retained	Retained Cash Invested @12%
1	600,000	360,000	240,000	20,67,063
2	6,60,000	3,88,800	2,71,200	20,85,519
3	7,26,000	4,19,904	3,06,096	21,01,668
4	7,98,600	4,53,496	3,45,104	21,15,621
5	8,78,460	4,89,776	3,88,684	21,27,487

6	9,66,306	5,28,958	4,37,348	21,37,368
7	10,62,937	5,71,275	4,91,662	21,45,363
8	11,69,230	6,16,977	5,52,254	21,51,566
9	12,86,153	6,66,335	6,19,818	21,56,069
10	14,14,769	7,19,642	6,95,127	21,58,959
11	15,56,245	7,77,213	7,79,032	21,60,318
12	17,11,870	8,39,390	8,72,480	21,60,228

13	18,83,057	9,06,541	9,76,516	21,58,765
14	20,71,363	9,79,065	10,92,298	21,56,003
15	22,78,499	10,57,390	12,21,109	21,52,012
16	25,06,349	11,41,981	13,64,368	21,46,859
17	27,56,984	12,33,339	15,23,644	21,40,611
18	30,32,682	13,32,006	17,00,676	21,33,328
19	33,35,950	14,38,567	18,97,383	21,25,069

20	36,69,545	15,53,652	21,15,893	21,15,893
----	-----------	------------------	-----------	-----------

Total cash after 20 years	4,26,95,771
---------------------------	--------------------

Your cash balance has increased significantly with the decision to invest surplus cash.

The cash balance has grown to Rs.4.26Crs from Rs.1.7Crs, a staggering 2.4x more than earlier (when you choose not to invest). Clearly, with the decision to invest, you are in a much better situation to deal with your post-retirement life.

Now, going back to the initial question of why invest? There are a few compelling reasons –

1.

1. **Fight Inflation** – By investing, one can deal better with the inevitable reality of life – the growing cost of living – generally referred to as Inflation.
2. **Create Wealth** – By investing, one can build a bigger corpus by the end of the target period. In the above example, the period was up to retirement, but it can be anything – children's education, marriage, house purchase, retirement holidays, etc
3. **Better life** – To meet life's financial aspirations.

1.2 – Where to invest?

Having figured out the reasons to invest, the next obvious question is – where would one invest, and what return can one expect with investing? When investing, one has to choose an **asset class** that suits the individual's risk and returns profile. For example, one individual will be open to taking a lot of risk with his or her money, while another may want to take moderate risk, while another would want zero risk.

Think of an asset class as an investment vehicle defined by its risk and return characteristics. The following are some of the popular asset classes.

1.

1. Fixed income instruments
2. Equity
3. Real estate
4. Commodities (precious metals)



Fixed Income Instruments

Fixed-income instruments are investment avenues where your principal amount (the money you invest) is perceived to be safe. The entity pays an interest amount on the

principal you invest. The bank's fixed deposit scheme is the simplest example of a fixed investment instrument. The interest paid could be quarterly, semi-annual or annual. The capital is returned to the investor at the end of the investment period, also known as the maturity period.

A few examples for fixed-income instruments are –

1. Bank's Fixed deposits
2. Bonds issued by the Government of India (also called G Sec bonds and T Bills)
3. Bonds issued by Government related agencies such as GAIL, HUDCO, NHAI, etc
4. Bonds issued by corporate's (Tata, Bajaj, Reliance, Adani)

As of October 2022, the typical return from a fixed-income instrument (bank's FD) varies between 5 – 6%. Government bonds offer about 5.5%, and a few corporate bonds offer nearly 9 or 10%. The rates across different instruments vary because of the risk varies. The Govt bonds are considered the safest investment, with zero risk to your investment, because, well, the govt can't cheat and run away with your money. Corporate bonds are risky, though; investment in corporate bonds can go to zero, and we have seen plenty of such examples in the past.



Equity

Investment in Equities involves buying shares of publicly listed companies. The shares are traded on the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE).

When an investor invests in equity, unlike a fixed-income instrument, there is no capital guarantee. However, as a trade-off, the returns from equity investment can be much better. Indian Equities have generated upwards of 12% CAGR (compound annual growth rate) over the past 10 to 15 years.

Investing in some of the best and most well-run Indian companies has yielded over 20% CAGR in the long term. Identifying such investment opportunities requires skill, hard work, and patience.



Real Estate

Real Estate Investment involves transacting (buying and selling) commercial and non-commercial land. Typical examples include transacting in vacant plots, apartments, and commercial buildings. There are two income sources from real estate investments:

Rental income and Capital appreciation of the investment amount. The rental yield typically varies between 2-3%, which is not so attractive, in my opinion. The appreciation in land prices is in select pockets and is not uniform.

The transaction procedure can be quite complex involving legal verification of documents. The cash outlay in real estate investment is usually quite large. There is no official metric to measure the returns generated by real estate. Hence it would be hard to comment on this.



Commodity – Bullion

Gold and silver are considered one of the most popular investment options. Gold and silver, over the long term, have appreciated. Investments in these metals have yielded a CAGR return of approximately 5-8% over the last 20 years. There are several ways to invest in gold and silver. One can invest in jewelry, Exchange Traded Funds (ETF), or Sovereign Gold bonds, popularly called as SGBs.

Going back to our initial example of investing the surplus cash, it would be interesting to see how much one would have saved by the end of 20 years, considering he can invest in any one – fixed income, equity, or bullion.

1. By investing in fixed income at an average rate of 9% per annum (good corporate bond), the corpus would have grown to Rs.3.3Crs.
2. Investing in equities at an average rate of 15% per annum, the corpus would have grown to Rs.5.4Crs.
3. Investing in bullion at an average rate of 8% per annum, the corpus would have grown to Rs.3.09Crs.

Equities tend to give you the best returns, especially when you have a multi-year investment perspective.

Many of you reading this may wonder why I've not considered Cryptocurrencies as an asset class. When you invest your hard-earned money, you need to ensure enough checks, balances, and regulatory frameworks to protect you as an investor. Crypto, lacks all these; hence I'd suggest you stay away from crypto (or any other fancy investment option) till there is a regulatory framework.

It is best if your investments have a mix of all asset classes. It is wise to diversify your investment among the various asset classes. The technique of allocating money across asset classes is termed 'Asset Allocation', and we will discuss asset allocation later in Varsity.

For instance, a young professional may take a higher risk given the age and years of investment available. Typically investors should allocate at least 60% of their investable amount in equity, 20% in precious metals, and 20% in fixed-income investments. The percentage mix changes based on risk profile and age. For example, a retired person could invest 80% in fixed income (Govt bonds maybe), 10% in equity markets, and 10% in precious metals.

1.3 – Things to note before investing

Investing is an integral part of financial planning, but before you start your investment journey, it is good to be aware of the following –

1.

1. Risk and Return go hand in hand. Higher the risk, the higher the return. The lower the risk, the lower the return.
2. Investment in fixed income is a good option if you want to protect your principal amount. It is relatively less risky. However, you have the risk of losing money when you adjust the inflation return. Example – A fixed deposit that gives you 9% when the inflation is 10% means you lose a net of 1% per annum. Alternatively, the risk increases if you invest in a corporate fixed-income instrument.
3. Investment in Equities is a great option. It is known to beat inflation over a long period. Historically equity investment has generated returns close to 14-15%. However, equity investments can be risky.
4. Real Estate investment requires a significant outlay of cash and cannot be done with smaller amounts. Liquidity is another issue with real estate investment – you cannot buy or sell whenever you want.
5. Gold and silver are relatively safer, but the historical return on such investment has not been very encouraging.

You can download the [excel sheet](#) used in the chapter to generate the two tables.

Key takeaways from this chapter

1. One has to invest, to secure his or her's financial future.
2. The corpus you build at the end of the investment period is sensitive to the return percentage. A slight variation in the rate can significantly impact the corpus.
3. Choose an instrument that best suits your risk and return appetite.
4. Equity should be a part of your investment if you want to beat inflation in the long run.
5. A good investment practice is to build a portfolio that mixes all asset classes.

Regulators, the guardians of capital markets

2.1 – What is the stock market?

In the previous chapter, we established that investing in equities is vital to generate inflation-beating returns. Having said that, how do we go about investing in equities?

Before we dwell further into this topic, it is essential to understand the market ecosystem and the many different entities involved in making our capital market journey smooth.

Just like the way we go to the neighborhood kirana store or a supermarket to shop for our daily needs, similarly, we go to the stock market to shop (read as transact) for investments. The stock market is where all the participants who wish to transact in shares go. Transact means to buy or sell shares in the context of stock markets. The primary purpose of the stock market is to help you facilitate your transactions. So if you want to buy shares of a company, the stock market helps you meet the seller and vice versa.

Unlike a supermarket, the stock market does not exist in a brick-and-mortar form. It exists in electronic form. You access the market electronically from your computer and conduct transactions (buy or sell). It is also important to note that you can access the stock market via a registered intermediary called the stockbroker. We will discuss the stockbrokers at a later point.

India has two stock exchanges – the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). There were many other exchanges earlier, but none of them survived. So when you talk about the stock markets in India, you are essentially referring to either NSE or BSE. Older stock exchanges like Bangalore Stock Exchange (BgSE), Madras Stock Exchange (MSE), Calcutta Stock Exchange (CSE) have either merged with BSE/NSE or shut shop.

2.2 – Market Participants and the need to regulate them

The stock market attracts individuals and corporations from diverse backgrounds.

Anyone who transacts in the stock market is called a market participant. The market participant can be classified into various categories –

1.

1. **Domestic Retail Participants** – These are people like you and me transacting in markets
2. **NRI's and OCI** – These are people of Indian origin but based outside India
3. **Domestic Institutions** – These are corporate entities in India
4. **Domestic Asset Management Companies (AMC)** – Mutual fund companies like SBI Mutual Fund, HDFC AMC, Edelweiss, ICICI Pru, etc.
5. **Foreign Institutional Investors** – Non-Indian corporate entities. These could be foreign asset management companies, hedge funds, and other investors.

Now, irrespective of who participates in the market, the agenda for all is to make profitable transactions. More bluntly put – to make money.

When money is involved, human emotions such as greed and fear run high. One can easily fall prey to these emotions and get involved in unfair practices. India has its fair share of such unethical practices. Given this, the stock markets need someone who can set the game rules (commonly referred to as regulation and compliance) and ensure that people adhere to these regulations and compliance, thereby making the markets a level playing field for everyone.

2.3 – The Regulator

In India, the stock market regulator is called **The Securities and Exchange Board of India**, often referred to as SEBI. SEBI aims to promote the development of stock exchanges, protect the interest of retail investors, and regulate market participants' and financial intermediaries' activities. In general, SEBI ensures:

1.

1. The stock exchange conducts its business fairly
2. Stockbrokers conduct their business fairly
3. Participants don't get involved in unfair practices
4. Corporates don't use the markets to benefit themselves (Satyam Computers) unduly
5. Small investors' interests are protected
6. Large investors with mega cash piles should not manipulate the markets
7. Overall development of markets

Given the above objectives, it becomes imperative for SEBI to regulate all the entities which are involved in the market. All the entities mentioned below are directly involved in the stock markets. Malpractice by any of the following entities can disrupt what is otherwise a harmonious market in India.

SEBI has prescribed a set of rules and regulations for each entity. The entity should operate within the legal framework as prescribed by SEBI. The specific rules applicable

to a specific entity are made available by SEBI on its website. They are published under the 'Legal Framework' section of their site.

Entity	Example of companies	What do they do?	In simpler words
Credit Rating Agency (CRA)	CRISIL, ICRA, CARE	They rate the creditworthiness of corporate and governments	If a corporate (or Govt) entity wants to avail loan financing), CRAs check for creditworthiness and a rating, the basis on which other entities can decide to extend a loan or not.
Debenture Trustees	Almost all banks in India	Act as a trustee to corporate debenture	When companies want to raise a loan, they can issue debentures against which they promise to pay interest. The public can subscribe to these debentures. A Debenture Trustee ensures that the debenture obligation is honored
Depositories	NSDL and CDSL	Safekeeping, reporting, and settlement of clients' securities	They act like a digital vault for your shares. These depositories hold your shares and facilitate the exchange of your securities. When you buy shares, these shares sit in your Depository account, usu

referred to as the DEMAT account.

Depository

Participant (DP)

Most of the banks
and few
stockbrokers

Act as an agent to the
depositories

You cannot directly interact with NSDL or CDSL.
You must liaise with a DP to open and maintain your
DEMAT account.

Foreign

Institutional

Investors (FII)

Foreign corporate,
funds and
individuals

Make investments in
India

These are foreign entities with interest in invest
India. They usually transact large amounts of m
and hence their activity in the markets has an in
terms of market sentiment.

Merchant Bankers

Karvy, Axis Bank,
Edelweiss Capital

Help companies raise
money in the primary
markets

If a company plans to raise money by floating a
then merchant bankers are the ones who help
companies with the IPO process.

Asset Management Companies (AMC)

HDFC AMC,
Reliance Capital,
SBI Capital

Offer Mutual Fund
Schemes

An AMC collects money from the public, puts th
money in a single account, and then invests tha
in markets intending to make the investments g
generate wealth.

Portfolio			
Managers/ Portfolio Management System (PMS)	Capitalmind Wealth PMS, Motilal PMS, Parag Parikh PMS	Offer PMS schemes	They work similarly to a mutual fund except in a you have to invest a minimum of Rs.50,00,000; however, there is no such cap in a mutual fund.
Stock Brokers	Zerodha, Sharekhan, ICICI Direct	Act as an intermediary between an investor and the stock exchange	Stock brokers act as a gateway to the stock market giving electronic access to stock markets to facilitate transactions.

We will elaborate on some of these market intermediaries in the next chapter.

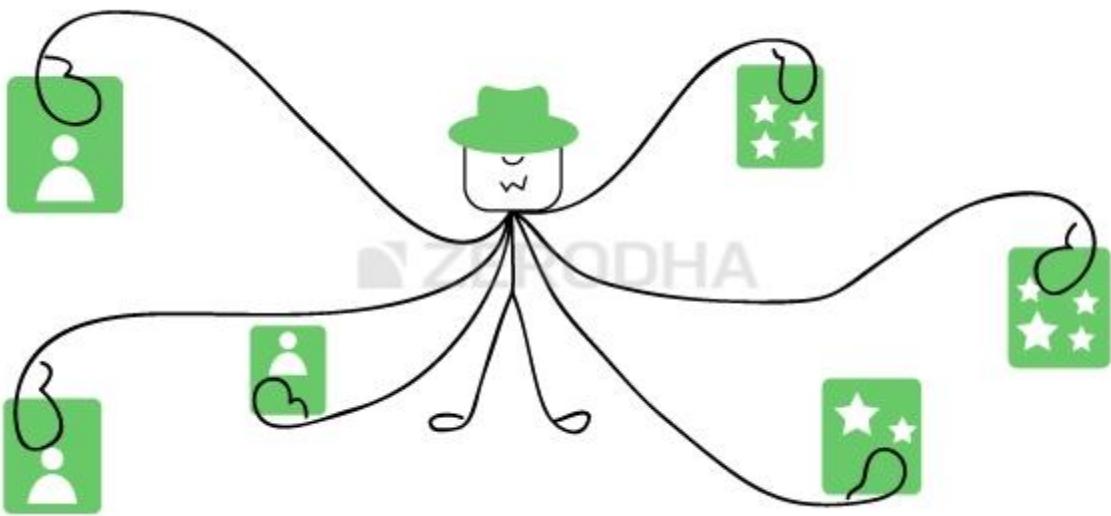
Key takeaways from this chapter

1. The stock market is the place to transact in equities.
2. Stock markets exist electronically and can be accessed through a stockbroker.
3. There are many different market participants operating in the stock markets.
4. Every entity operating in the market has to be regulated and can operate only within the framework prescribed by the regulator.
5. SEBI is the regulator of the securities market in India. They set the legal framework and regulate all entities interested in operating in the market.
6. Most importantly, you need to remember that SEBI is aware of what you are doing, and they can flag you down if you are up to something fishy in the markets!

Market Intermediaries

3.1 – Overview

Many corporate entities work in tandem to ensure transactions in the market flow smoothly. Right from the time you log in to a trading terminal (let's say to buy shares), to the time these shares hit your DEMAT account, market intermediaries work seamlessly together to ensure your transactions flow without any hiccups.



These entities play their role quietly behind the scene, always complying with the rules laid out by SEBI and ensuring an effortless and smooth experience for your transactions in the stock market. These entities are generally referred to as Financial Intermediaries or market intermediaries.

Together, these financial intermediaries, interdependent on one another, create an ecosystem in which the financial markets operate. Let us quickly review a few of these key market intermediaries and the roles they play in the ecosystem.



3.2 – The Stock Broker

The stockbroker is probably one of the most important financial intermediaries you need to know. A stockbroker is a corporate entity registered as a trading member with the stock exchange and holds a stockbroking license. SEBI grants the license through due diligence, and the broker is expected to comply with the rules prescribed by SEBI.

A stockbroker is your gateway to the stock markets to make investments in stocks, bonds, ETFs, and Mutual funds. To transact in the stock market, you must set up (open account) with a stockbroker of your choice. Many stock brokers are registered in India, and you can choose a broker based on personal criteria. A few popular filters based on which people select stockbrokers are –

-
- The simplicity of the broker platform
- The efficiency of the broker's support system
- Access to ready reports – Profit & Loss reports, Tradebook, Tax P&L
- Broker's net worth (you don't want to deal with a broker who is not profitable or does not have a good P&L)
- Initiatives like education

Once you decide on your broker and open a trading and DEMAT account, you can start transacting in the stock market. After setting up your account, there are a few standard ways to interact with your broker.

1.

1. You can call your broker, identify yourself with your client code (account code) and place an order for your transaction. The dealer at the other end will execute the order for you and confirm the status of the same while you are still on the call.
2. Do it yourself – this is perhaps the most popular way to transact in the markets. The broker gives you access to the market via a 'Trading Terminal'. After you log in to the trading terminal, you can view live price quotes from the market and place orders yourself. For example, Zerodha's trading platform is called 'Kite'.
3. Advanced users can access the market programmatically via APIs. Some of the brokers provide APIs for a fee.

The essential services provided by the broker include...

1.

1. Access to the markets and allow you to transact
2. Margins for trading, we will discuss this point at a later point
3. Support in terms of call and trade, help you resolve queries, educate you on markets
4. Issue contract notes for the transactions – A contract note is a written confirmation detailing the transactions you have carried out during the day.
5. Facilitate the fund transfer between your trading and bank account

6. Provide you with a back-office. The back office is a portal to access many reports about your account. Zerodha's back office is called Console.
7. The broker charges a fee for the services provided, also called the 'brokerage charge' or just brokerage. The brokerage rates vary, and it's up to you to find a broker you think strikes a balance between the brokerage charged and the services provided.



3.3 – Depository and Depository Participants

When you buy a property, the only way to identify and claim that you own the property is by producing the property papers. Hence, it becomes essential to keep the property papers safe and secure.

Likewise, when you buy a share (a share represents part ownership in a company), the only way to claim ownership is by producing your share certificate. A share certificate is nothing but a document entitling you as the owner of the shares in a company. Before 1996 the share certificate was in paper format; however, post-1996, the share certificates were converted to digital form. Converting a paper format share certificate into a digital format share certificate is called "Dematerialization," often abbreviated as DEMAT.

Did you know the Harshad Mehta scam of 1992, played a significant role in digitizing the share certificate? I'd suggest you watch the SonyLiv series on the Harshad Mehta saga, it gives you a good perspective of the market's ecosystem before it went digital.

The share certificate in DEMAT format has to be stored digitally. The storage place for the digital share certificate is the 'DEMAT Account. A Depository is a financial intermediary that offers the Demat account service. Think of the demat account as a digital vault for your shares. As you may have guessed, your broker's trading account and the DEMAT account from the Depository are interlinked.

For example, if your idea is to buy Infosys shares, then all you need to do is open your trading account, look for Infosys' prices, and buy it. Once the transaction is complete, the role of your trading account is done. After you buy, the shares of Infosys will automatically get credited to your demat account.

Likewise, when you wish to sell Infosys shares, you must log in to your trading account and sell the stock. The act of selling is carried out in your trading account. But in the backend, because your trading account and demat account are linked, the broker debits your demat account of the shares you have sold.

At present, only two depositaries offer DEMAT account services. The National Securities Depository Limited (NSDL) and Central Depository Services (India) Limited. There is virtually no difference between the two, and both operate under strict SEBI regulations.

You cannot walk into National Stock Exchange's (NSE) office to open a trading account, likewise, you cannot walk into a Depository (NSDL or CDSL) to open a demat account. To open a demat account, you must speak to a Depository Participant (DP). A DP helps you set up your DEMAT account with a Depository. A DP acts as an intermediary

between you and the Depository. Even the DP is governed by the regulations laid out by the SEBI.

Zerodha is a depositary participant of Central Depository Services (India) Limited (CDSL).



3.4 – Banks

Banks play a straightforward role in the market ecosystem. They help facilitate the fund transfer from your bank account to your trading account. Both the trading account and bank account are linked. Broker's link these accounts after verifying your bank account.

You can link multiple bank accounts to your trading through which you can transfer funds and trade. Irrespective of how many bank accounts you choose to link with your trading account, funds can be withdrawn to only one bank account. The account you choose to withdraw funds (from your trading account) is called the 'Primary account.' At Zerodha, you can add one primary bank account and up to 2 secondary bank accounts. You can add funds to all the bank accounts, but withdrawals are only processed to the primary bank account.

Also, dividend payments and money from buybacks will be sent to the primary bank account. The primary bank account is connected to your trading account, the Depository, the Registrar, and the transfer agents (RTA).

At this stage, you must have realized that the three financial intermediaries operate via three different accounts – a trading account offered by your broker, demat account offered by the depositary participant, and a Bank account offered by a bank. All three accounts operate electronically and are interlinked, giving you a seamless experience.



3.5 – NSE clearing Limited and ICCL

NSE Clearing Limited and Indian Clearing Corporation (ICCL) are wholly owned subsidiaries of the National Stock Exchange and Bombay Stock Exchange, respectively.

The job of the clearing corporation is to ensure guaranteed settlement of your trades/transactions. For example, if you buy one Biocon share at Rs.446 per share, someone must sell that one share to you at Rs.446. For this transaction, you will be debited Rs.446 from your trading account, and the seller must be credited that Rs.446 toward the sale of Biocon. In a typical transaction like this, the clearing corporation's role is to ensure the following:

-
- Identify the buyer and seller and match the debit and credit process
- Ensure no defaults – The clearing corporation also ensures no defaults by either party. For instance, after selling the shares, the seller should not be able to back out, thereby defaulting in his transaction.

For all practical purposes, it's ok not to know much about NSE Clearing Limited or ICCL simply because you, as a trader or investor, would not be interacting with these agencies

directly. You need to know these institutions are also heavily regulated and work towards a smooth settlement and efficient clearing activity.

Clearing corporations are also involved in the margining process, which is critical while trading complex instruments like futures and options. Perhaps, we will discuss this aspect in a related discussion.

The key takeaway from this chapter

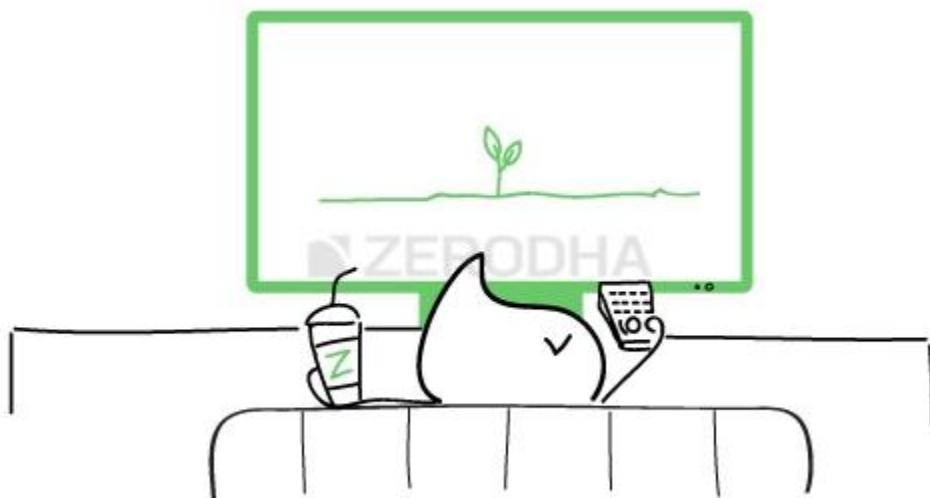
1. The market ecosystem is built by a cluster of financial intermediaries, each offering services unique to the functioning of markets.
2. A stockbroker is your market access, so choose a broker that matches your requirements.
3. A stockbroker provides you with a trading account that is used for all market-related transactions (buying and selling of financial instruments like shares)
4. A Depository is a corporate entity that holds the shares electronically in your name in your account. Your account with the depository is called the 'DEMAT' account.
5. There are only two depositaries in India – NSDL and CDSL.
6. To open a DEMAT account with one of the depositaries, you must liaise with a Depository Participant (DP). A DP functions as an agent to the Depository
7. A clearing corporation works towards clearing and settling trades executed by you.

The IPO Markets (Part 1)

4.1 – Overview

This chapter was updated on 15th November 2022. A few comments in the query section may seem out of place. Kindly ignore those comments. The essence of the chapter remains the same.

The initial three chapters set the background on basic market concepts you need to know. It becomes necessary to address a fundamental question at this stage – Why do companies go public? A good understanding of this topic lays a sound foundation for all future topics.



In this and the next chapter, we will learn about why companies go public and, in the process, also learn a few financial concepts.

4.2 – Origin of a Business

Before we seek an answer as to why companies go public, let us figure out a basic concept – the origins of a typical business. We will build a familiar story around this concept to understand IPOs better. Let us split this story into several scenes to understand how the business and the funding environment evolve and the circumstances that lead a company to list in the public market.

Scene 1 – The Angels



Let us start our story. Imagine a passionate entrepreneur with a business idea – to manufacture highly fashionable, organic cotton t-shirts. The designs are unique, priced attractive, and the best quality cotton is used to manufacture these t-shirts. The entrepreneur is confident that the business will click and is enthusiastic about starting the business.

As you'd imagine, the entrepreneur will face a typical problem – how to fund the idea? Assuming the entrepreneur has no business background, he/she will not attract any serious investors initially. Chances are, the entrepreneur will approach the family and immediate friends to pitch the idea and raise some money.

Let us assume that the entrepreneur pools some of his money and convinces two good friends to invest in his business. These two friends invest in the business based on their trust in their friends. The two friends in this context are referred to as the **Angel investors**. Please note that angel money is not a loan but an investment in the business.

So let us imagine that the promoter (entrepreneur) and the angels raise INR 5 Crore in capital. This initial money the business gets to kick start operations is called '**The Seed Fund**' Sometimes, it is also called a 'Friend & Family round.' It is important to note that the seed fund will not sit in the entrepreneur's bank account but the company's bank account.

Angel funding need not always come from friends; there are professional angel investors who invest money in companies that they think are good.

In return for the initial seed investment, the original three (promoter plus two angels) will be issued share certificates of the company, which entitles them to certain ownership. The only asset that the company has at this stage is cash. Hence the value of the company is only to the extent of the cash they own. In this case, the valuation is 5Crs. Of course, one can argue that the company's value is cash plus the company's unique business idea, and therefore the valuation is beyond 5Crs, but we will not get into that.

Issuing shares is quite simple; the company assumes that each share is worth Rs.10 and because there is Rs.5 crore as share capital, there have to be 50 lakh shares, with

each share worth Rs.10. In this context, Rs.10 is called the 'Face value' (FV) of the share. The face value could be any number. If the FV is Rs.5, the number of shares would be one crore, and so on.

Backed by the seed fund, the promoter kick-starts business operations. The entrepreneur moves cautiously, hires the right people, establishes the right process, and starts manufacturing high-quality t-shirts. At this stage, the entrepreneur has one small manufacturing unit and one store to retail the product.

Scene 2 – The Venture Capitalist



The entrepreneur's hard work pays off, and the business generates a steady revenue stream. The company starts to break even at the end of the first two years of operations. The promoter is no longer a rookie business owner. Instead, he is more knowledgeable about the business and, of course, more confident. Backed by confidence, the promoter wants to expand the business by adding one more manufacturing unit and a few additional retail stores in the city. The entrepreneur chalks out the plan and figures out that the fresh investment needed for business expansion is INR 7 Crs.

The entrepreneur is now in a better situation when compared to two years ago. The big difference is the fact that the business is generating revenues. The healthy inflow of revenue validates the business and its offerings. The entrepreneur can now access reasonably savvy investors for investing in the business. The investor who typically invests in such an early stage of business is called a **Venture Capitalist (VC)**, and the money that the business gets at this stage is called **Series A** funding.

Assume the entrepreneur raises the 7 Crs required to expand the business. Typically when new investment flows into the business, the following happens –

1. There is a dilution of shares by the promoter.
2. The valuation of the business increases
3. All the previous investors (in this case, the two angles) tend to make notional profits on their initial investment.

With the VC's money coming into the business, the notional value (valuation) increases, and therefore, notional wealth is created for early investors.

As we advance with our story, the promoter now has the capital required for the business. As planned, the company gets an additional manufacturing unit and a few more retail outlets in the city. Things are going great; the product's popularity is growing, translating into higher revenues. The management team gets more professional, thereby increasing operational efficiency, which translates to better profits.

Scene 3 – The Banker



Three more years pass by, and the company is phenomenally successful. The company decides to have a retail presence in at least three more cities. To back the retail presence across three cities, the company plans to increase its production capacity and hire more resources. Whenever a company plans such expenditure to improve the overall business, the expenditure is called 'Capital Expenditure' or simply '**CAPEX**'.

The management estimates 40Crs towards their CAPEX requirements. How does the company get this money, or in other words, how can the company fund its CAPEX requirements?

There are a few options for the company to raise the required funds for their CAPEX:

1. The company has made some profits over the last few years; a part of the CAPEX requirement can be funded through the profits. This is also called funding through **internal accruals**.
2. The company can approach another VC and raise another round of VC funding by allotting shares; if they do, it's called **series B funding**.
3. The company can approach a bank for a loan. The bank would be happy to tender this loan as the company has been doing fairly well. The loan is also called '**Debt**'.

Assume the company exercises all three options to raise funds for Capex. It plows back 15Crs from internal accruals, plans a series B – divests some equity for a consideration of 10Crs from another VC, and raises 15Crs debt from the bank.

Note that the company's valuation again increases with 10Crs coming in from series B. With the increase in valuations, the previous investors tend to make bigger notional profits. Also, I would encourage you to think about the wealth created over the years. This is exactly what happens to entrepreneurs with great business ideas and a highly competent management team.

Real-world examples of such wealth creation stories are companies like Infosys, Page Industries, Eicher Motors, Titan Industries, Bajaj Finserv, HDFC Bank, and internationally, one could think of Google, Apple, Amazon, etc. The list is quite exhaustive.

Scene 4 – The Private Equity



A few years pass by, and the company's success continues to grow, and with the growing success of this 8-year-old company, ambitions swell. The company decides to

raise the bar and branch out across the country. They also diversify the company by manufacturing and retailing fashion accessories, designer cosmetics, and perfumes.

The CAPEX requirement to fuel the new ambition is now pegged at 60 Crs. The company does not want to raise money through debt because of the interest rate burden, also called the **finance charges**, bites into the company's profits. For example, suppose the company generates Rs.100 as profit and pays Rs.20 towards finance charges; the profitability is reduced to Rs.80. We will discuss more on this in the Fundamental Analysis module.

The company decides on Series C funding. They cannot approach a typical VC because VC funding is usually small and runs into a few crores. This is when a **Private Equity (PE)** investor comes into the picture. Think about the PE as a big brother of a VC. Here are a few differences between a PE and VC –

1. VCs tend to cut smaller cheques, while PE typically invests large amounts.
2. VC invests in early-stage businesses and takes a much higher risk than PE. PEs invest at a mature stage and take on lesser risk compared to a VC
3. PEs, upon investment, also take up a board seat in the company and oversee the company's functioning.

PE investors are quite savvy. They are highly qualified and have an excellent professional backgrounds. They invest large amounts of money to provide the capital for constructive use and place their people on the board of the investee company to ensure the company steers in the required direction.

Usually, when a PE invests, they invest in funding large CAPEX requirements. Besides, they do not invest in the early stage of a business; instead, they prefer to invest in companies that already have a revenue stream and have been in operation for a few years. Deploying the PE capital and utilizing the capital for the CAPEX requirements takes a few years.

Let us assume that the company raises funds via a Private Equity company and expands its business.

Scene 5 – The IPO



Fast forward 5 years after the PE investment, the company has progressed well. They have successfully diversified their product portfolio and have a presence across all the country's major cities. Revenues are good, profitability is stable, and the investors are happy. The promoter, however, does not want to settle in for just this.

The promoter now aspires to go international! The company now wants the brand available across all the major international cities, with at least two outlets in each major city worldwide.

The company needs to invest in market research to understand the demographics of other countries, invest in people, and increase manufacturing capacities. Besides, they also need to invest in real estate space across the world. The CAPEX requirement is

huge; the management estimates this at 200 Crs. The company has few options to fund the CAPEX requirement –

1.

1. Fund Capex from internal accruals
2. Raise Series D from another PE fund
3. Raise debt from bankers
4. Float a bond (this is another form of raising debt)
5. File for an Initial Public Offer (IPO)
6. A combination of all the above

For convenience, let us assume the company decides to fund the CAPEX partly through internal accruals and the rest via an IPO. When a company files for an IPO, they have to offer its shares to the general public. The general public will subscribe to the shares (i.e., if they want to) by paying a certain price. Now, because the company offers the shares for the first time to the public, it is called the "**Initial Public Offer**".

We are now at a crucial juncture where a few questions need to be answered.

1.

1. Why did the company decide to file for an IPO? In general, why do companies go public?
2. Why did they not file for the IPO when they were in Series A, B, and C situations?
3. What would happen to the existing shareholders after the IPO?
4. What does the general public look for before they subscribe to the IPO?

5. How does the IPO process evolve?
6. Which of the financial intermediaries are involved in the IPO markets?
7. What happens after the company goes public?

In the following chapter, we will address each of the above questions plus more, and we will also give you more insights into the IPO Market. Hopefully, from this chapter, you should have developed a sense of the sequence of events that would typically drive a company to raise funds via an IPO.

Key takeaways from this chapter

1. Before understanding why companies go public, it is important to understand the origin of business.
2. The people who invest in your business in the pre-revenue stage are called Angel Investors.
3. Angel investors take the maximum risk. They take in as much risk as the promoter.
4. The money that angels give to start the business is called the seed fund.
5. Angel's invests a relatively small amount of capital
6. The valuation of a company signifies how much the company is valued by considering the company's assets, liabilities, and future growth prospects.
7. Face value is simply a denominator to indicate how much one share is originally worth.
Face value is also called the notional value of a share.
8. The money the company spends on business expansion is called capital expenditure or CAPEX

9. Series A, B, and C are funding the company seeks as it evolves. Usually, the newer the series, the higher the company's valuation.
10. Beyond a certain size, VCs don't invest, and hence the company seeking investments will have to approach Private Equity firms.
11. PE firms invest large sums of money, usually at a slightly more mature stage of the business.
12. In terms of risk, PEs have a lower risk appetite as compared to VCs or angels.
13. Typical PE investors post their people on the investee company's board to ensure business moves in the right direction.
14. The company's valuation increases as and when the business, revenues, and profitability increase.
15. An IPO is a process using which a company can raise funds from the general public. The funds raised can be for any valid reason – for CAPEX, restructuring debt, rewarding shareholders, etc

The IPO Markets (Part 2)

5.1 – Overview

This chapter was updated on 15th November 2022. A few comments in the query

section may seem out of place. Kindly ignore those comments. The essence of the chapter remains the same.

The previous chapter gave us perspective on how a company evolves from the idea generation stage until it decides to file for an IPO. The idea behind creating the fictional story in the previous chapter was to give you a sense of how a business matures over time. Of course, many nuances were intentionally overlooked to drive the point across, and I hope that helped. The emphasis was on the different stages of business and funding options available at various stages of business.



Circumstances leading to an IPO are extremely important to understand because the IPO market, also called the **Primary market**, sometimes attracts many new first-time stock market investors. In this chapter, we will understand the IPO process and the many different aspects of a company's IPO.

5.2 – Why do companies go public?

We closed the previous chapter with a few unanswered questions: Why did the company decide to file for an IPO, and in general, why do companies go public?

When a company decides to file for an IPO, one of the main reasons is to raise funds to fuel its CAPEX requirement. Apart from this, there are several other reasons for an IPO, sometimes, a company raises funds via IPO to reduce a high-cost debt, or sometimes a company can IPO to give an exit for an early-stage investor. Here is something interesting you can do. Think about a company that went IPO recently, and google for the IPO reason, and you'll know why the company went public.

The promoter has three advantages in taking his company public –

1.

1. Raise funds to meet CAPEX requirement
2. Avoid the need to raise debt which means there are no finance charges to pay, which further translates to better profitability.
3. The promoter can spread the risk amongst a large group of investors instead of one large investor. 100s and thousands of retail investors are better than one large private equity investor.

There are other advantages as well in filing for an IPO –

1.

- 1. Provide an exit for early investors** – Once the company goes public, the shares of the company start trading publicly. Any existing company shareholders– promoters, angel investors, venture capitalists, or PE funds; can use this opportunity to sell their shares in the open market. By selling their shares, they get an exit on their initial investment in the company. Of course, there is a lock-in period before which early investors cant exit, but that is beside the point.
- 2. Reward employees** –Employees, working for the company would have shares allotted to them as an incentive. This arrangement between the employee and the company is called the “Employee Stock Option” or ESOPS. The shares are allotted at a discount to the employees. Once the company goes public, the employees can see capital appreciation in the shares. A few examples where the employee benefited from ESOP would be Google, Infosys, Twitter, Facebook, Amazon, etc
- 3. Improve visibility** – Going public increases visibility as the company is publicly held and traded. There is a greater chance of people’s interest in the company, consequently impacting its growth.

5.3 – Merchant Bankers

Having decided to go public, the company must do a series of things to ensure a successful initial public offering. The first and foremost step would be to appoint a **merchant banker**. Merchant bankers are called **Book Running Lead Managers**

(BRLM)/Lead Managers (LM). The job of a merchant banker is to assist the company with various aspects of the IPO process, including:

○

- Conduct due diligence on the company filing for an IPO, ensure their legal compliance and issue a due diligence certificate.
- Work closely with the company and prepare their listing documents, including **Draft Red Herring Prospectus (DRHP)**. We will discuss this in a bit more detail at a later stage.
- **Underwriting shares** – In underwriting shares, merchant bankers agree to take up the unsubscribed portion of an IPO. The underwriting is taken up for fresh shares issued during the IPO. The merchant banker takes up the remaining shares if the subscription is above a defined threshold but is not subscribed fully. If the subscription is below the threshold, the IPO is deemed to have failed. All investor money is unblocked in the investors' accounts. In March 2020, Anthony Waste Limited IPO's subscription was below the threshold.
- Help the company arrive at the price band for the IPO. A **price band** is the lower and upper limit of the share price within which the company will sell its shares to IPO applicants. For example, the current IPO of Keystone Realtors Limited has a price band of Rs.514 to Rs.541.
- Help the company with the roadshows. The roadshow is like a promotional/marketing activity for the company's IPO

- Appointment of other intermediaries, namely, registrars, bankers, advertising agencies, etc. The Lead manager also makes various marketing strategies for the issue.

Once the company partners with the merchant banker, they will work towards taking the company public.

5.4 – IPO sequence of events

Every step in the IPO sequence must happen under the SEBI guidelines. In general, the following is the sequence of steps involved.

-
- **Appoint a merchant banker.** In case of a large public issue, the company can appoint more than one merchant banker
- **Apply to SEBI with a registration statement** – The registration statement contains details on what the company does, why the company plans to go public, and the financial health of the company
- **Getting a nod from SEBI** – Once SEBI receives the registration statement, SEBI takes a call on whether to issue a go-ahead or a 'no go' to the IPO
- **DRHP** – If the company gets the initial SEBI nod, then the company needs to prepare the DRHP. A DRHP is a document that gets circulated to the public.

Along with a lot of information, DRHP should contain the following details:

- The estimated size of the IPO
- The estimated number of shares being offered to the public
- Why the company wants to go public, and how does the company plan to utilize the funds along with the timeline projection of fund utilization

- Business description including the revenue model, expenditure details
- Complete financial statements
- Management Discussion and Analysis – how the company perceives future business operations to emerge
- Risks involved in the business
- Management details and their background

1.

-
- **Market the IPO** – This would involve TV and print advertisements to build awareness about the company and its IPO offering. This process is also called the IPO roadshow.
- **Fix the price band** – Decide the price band between which the company would like to go public. Of course, this can't be way off the general perception. If it is, then the public will not subscribe to the IPO
- **Book Building** – Once the roadshow is done and the price band fixed, the company has to officially open the window during which the public can subscribe for shares. For example, if the price band is between Rs.100 and Rs.120, the public can choose a price they think is fair enough for the IPO issue. The process of collecting all these price points and the respective quantities is called Book Building. Book building is perceived as an effective price discovery method.
- **Closure** – After the book building window is closed (generally open for a few days), the price point at which the issue gets listed is decided. This price point is usually the price at which maximum bids have been received.
- **Listing Day** – This is the day when the company gets listed on the stock exchange. The listing price is the price decided based on market demand and

supply on that day and the stock is listed at a premium, par, or discount of the cut-off price.

5.5 – What happens after the IPO?

During the bidding process, investors can bid for shares at a particular price within the specified price band. This whole system is referred to as the Primary Market around the date of the issue where one bids for shares. The moment the stock gets listed and debuts on the stock exchange, the stock starts to trade publicly. This is called the **secondary market**.

Once the stock transitions from primary to secondary markets, the stock gets traded daily on the stock exchange. People transact (buy or sell) these listed shares regularly.

Why do people trade? Why does the stock price fluctuate? We will answer all these questions and more in the subsequent chapters.

5.6 – Few key IPO jargon

Before we wrap up the chapter on IPOs, let us review a few important IPO jargons.

 Under subscription – Let's say the company wants to offer 100,000 shares to the public. During the book-building process, it was discovered that only 90,000 bids were received, then the issue is said to be under-subscribed. This is not a great situation, as it indicates negative public sentiment.

 **Oversubscription** – If there are 200,000 bids for 100,000 shares on offer, then the issue is said to be oversubscribed two times (2x)

 **Green Shoe Option** – Part of the issue document that allows the issuer to authorize additional shares (typically 15 percent) to be distributed in the event of oversubscription. This is also called the overallotment option.

 **Fixed Price IPO** – Sometimes, the companies fix the price of the IPO and do not opt for a price band. Such issues are called fixed-price IPO

 **Price Band and Cut off price** – A price band is a price range between which the stock gets listed. For example, if the price band is between Rs.100 and Rs.130, then the issue can list within the range. Let's say it gets listed at 125; 125 is the cut-off price.

5.6 – Recent IPOs in India

Here is a look at a few recent IPOs in India. With all the background information you now have, reading this table should be easy.

SI No	Name of Issue	IPO Size (INR Crs)	BRLM	Listing date	Price Ba
01	Adani Wilmar Limited	3600	Kotak, JP Morgan, ICIC	8th Feb 2022	218 -

01 Adani Wilmar Limited 3600 Kotak, JP Morgan, ICIC 8th Feb 2022 218 -

02	Delhivery Limited	5235	Kotak, BoFA, Citi	24th May 2022	462 -
03	Ethos India	472	Emkay, InCred Capital	30th May 2022	468 -
04	Aether Industries Limited	808	HDFC, Kotak	3rd June 2022	610 -
05	Tracxn Technologies Limited	310	IIFL Securities	20th Oct 2022	75 -

I hope the last two chapters gave you a sense of why a company files for an IPO and what happens during an IPO. In the next chapter, we focus on understanding the secondary markets and all the nuances around the secondary market.

Key takeaways from this chapter



1. Companies go public to raise funds, provide an exit for early investors, reward employees and gain visibility.
2. Merchant banker acts as a key partner with the company during the IPO process.
3. SEBI regulates the IPO market and has the final word on whether a company can go public or not

4. As an investor in the IPO, you should read through the DRHP to know everything about the company.
5. Most of the IPOs in India follow a book-building process.

The Stock Markets

6.1 – Public Limited company

Having understood the IPO process and the circumstances that lead a company to offer its shares to the public and raise funds, we are now set to explore the stock markets a step further.

Once a company becomes publicly traded, the company is obligated to disclose all information related to the company to the public. The shares of a public limited company are traded on the stock exchanges daily. There are a few reasons why market participants trade stocks. We will explore some of these reasons in this chapter.

6.2 – What is the stock market?

As we discussed earlier, the stock market is an electronic marketplace. Buyers and sellers electronically express their points of view in terms of trade.

For example, consider the current situation of Infosys. When writing this, Infosys faces a management succession issue, and most of the company's senior-level executives are

resigning. The leadership vacuum is weighing down the company's reputation heavily.

As a result, the stock price dropped to Rs.3,000 from Rs.3,500.

Assume there are two traders – A and B.

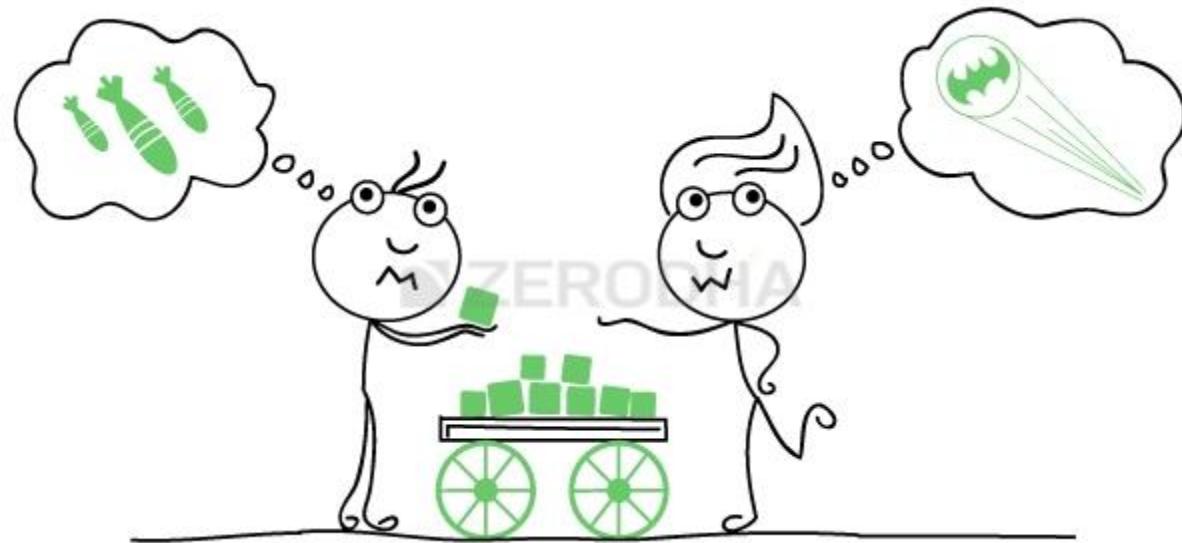
A's view on Infosys – The stock price will likely go down further because the company will find it challenging to find a new CEO. If A trades from his point of view, he should be a seller of the Infosys stock.

However, B views the same situation differently and has a different point of view.

According to her, the stock price of Infosys has overreacted to the succession issue, and soon the company will find a great leader. The stock price will eventually move up.

If B trades from her point of view, she should be a buyer of the Infosys stock.

So at, Rs.3000, A will be a seller, and B will be a buyer in Infosys.



Now both A and B will place orders to sell and buy the stocks respectively through their respective stock brokers. The stock broker routes it to the stock exchange. The stock exchange has to ensure that these two orders are matched and that the trade is executed. This is the primary job of the stock market – to facilitate the transactions between different market participants.

A stock market is where market participants can access any publicly listed company and trade from their point of view as long as other participants have an opposing point of view. After all, different opinions are what make a market.

6.3 – What moves the stock?

Let us continue with the Infosys example to understand how stocks move. Imagine you are a market participant tracking Infosys.

It is 10:00 AM Infosys is trading at Rs.3000 per share. The management makes a press statement that they have found a new CEO expected to steer the company to greater heights. They are confident that the newly appointed CEO will do good things for the company.

Two questions –

1.

1. How will the stock price of Infosys react to this news?
2. If you were to place a trade on Infosys, what would it be? Would it be a buy or a sell?

The answer to the first question is quite simple; the news is positive, so the stock price will increase. Infosys had a leadership issue, and the company has fixed it. When positive announcements are made, market participants tend to buy the stock at any given price, which cascades into a stock price rally.

Let me illustrate this further :

SI No	Time	Last Traded Price	What price the seller wants	What does the buyer do?	New Last Trad
01	10:00	3000	3002	Buys	3002
02	10:01	3002	3006	Buys	3006
03	10:03	3006	3011	Buys	3011
04	10:05	3011	3016	Buys	3016

Notice that the buyer is willing to pay whatever prices the seller wants; this is when the market is said to be bullish. In a bullish market, the prices tend to move up.

So as you can see, the stock price jumped 16 Rupees in a matter of 5 minutes. Though this is a fictional situation, it is a realistic and typical behavior of stocks. The stock price increases when the news is good or expected to be good.

In this particular case, the stock moves up because of two reasons. One, the leadership issue has been fixed, and two, there is also an expectation that the new CEO will steer the company to greater heights.

The answer to the second question is now quite simple; you buy Infosys stocks because there is good news surrounding the stock.

Now, moving forward on the same day, at 12:30 PM, 'The National Association of Software & Services company' (NASSCOM) makes a statement stating that the customer's IT budget seems to have come down by 15%, which could have an impact on the industry in the future. For those unaware, NASSCOM is a trade association of Indian IT companies.

By 12:30 PM, let us assume Infosys is trading at 3030. Few questions for you...

1.

1. How does this new information impact Infosys?
2. What would it be if you were to initiate a new trade with this information?
3. What would happen to the other IT stocks in the market?

The answers to the above questions are quite simple. Before we answer these questions, let us analyze NASSCOM's statement in more detail.

NASSCOM says that the IT budget is likely to shrink by 15%. This means IT companies' revenues and profits will likely go down soon. This is not great news for the IT industry.

Let us now try and answer the above questions...

1.

1. Infosys is a leading IT major in the country and will react to this news. The reaction could be mixed because there was good news specific to Infosys earlier during the day. However, a 15% decline in revenue is a serious matter, and hence Infosys stocks are likely to trade lower.
2. At 3030, if one were to initiate a new trade based on the new information, it would be a sell on Infosys.
3. The information released by NASSCOM applies to the entire IT stocks and not just Infosys. Hence all IT companies are likely to witness selling pressure.

So as you notice, market participants react to news and events, and their reaction translates to price movements! This is what makes the stocks move.

At this stage, you may wonder what would happen to a company's share price if there is no news. Will the stock price stay flat and not move at all? The answer is yes and no, depending on the company in focus.

For example, let us assume there is no news concerning two different companies...

1.

1. Reliance Industries Limited
2. Shree Lakshmi Sugar Mills

As we all know, Reliance is one the largest companies in the country, and regardless of whether there is news or not, market participants would like to buy or sell the company's shares, and therefore the price moves constantly.

The second company is relatively unknown and, therefore, may not attract market participants' attention as there is no news or event surrounding this company. Under such circumstances, the stock price may not move, or even if it does, it may be very marginal.

To summarize, the price moves because of expectations of news and events. The news or events can be directly related to the company, industry, or the economy as a whole. For instance, the appointment of Narendra Modi as the Indian Prime Minister was perceived as positive news, and therefore the whole stock market moved.

In some cases, there would be no news, but still, the price could move due to the demand and supply situation.

6.4 – How does the stock get traded?

You have decided to buy 200 shares of Infosys at 3030 and hold on to it for one year.

How does it work? What is the exact process of buying the stock? What happens after you buy it?

Systems work seamlessly to ensure your transactions go smoothly.

With your decision to buy Infosys, you need to log in to your trading account (provided by your stock broker) and place an order to buy Infosys. Once you place an order, the following details are validated –

1.

1. Details of your trading account through which you intend to buy Infosys shares.
2. The price at which you intend to buy Infosys
3. The number of shares you intend to buy

Before your broker transmits this order to the exchange, the broker has to ensure you have sufficient money to buy these shares. If yes, then this order hits the stock exchange. Once the order hits the market, the stock exchange (through their order matching algorithm) tries to find a seller who is willing to sell you 200 shares of Infosys at 3030.

Now the seller could be one person willing to sell the entire 200 shares at 3030, or it could be ten people selling 20 shares each, or two people selling 1 and 199 shares, respectively. The permutation and combination do not matter. From your perspective, all

you need is 200 shares of Infosys at 3030, and you have placed an order for the same. The stock exchange ensures the shares are available to you as long as sellers are in the market.

Once the trade is executed, the shares will be electronically credited to your DEMAT account. Likewise, the shares will be electronically debited from the seller's DEMAT account.

6.5 – What happens after you own stock?

After you buy the shares, the shares will reside in your DEMAT account. You are now a part owner of the company to the extent of your shareholding. To give you a perspective, if you own 200 shares of Infosys, you own 0.000035% of Infosys at the time of writing this chapter.

By owning the shares, you are entitled to corporate benefits like dividends, stock splits, bonuses, rights issues, voting rights, etc. We will explore all these shareholder privileges at a later stage.

6.6 – A note on the holding period

The holding period is the period you intend to hold the stock. You may be surprised that the holding period could be as short as a few minutes to as long as 'forever.' When the legendary investor Warren Buffet was asked what his favorite holding period was, he replied 'forever.'

In the earlier example quoted in this chapter, we illustrated how Infosys stocks moved from 3000 to 3016 in 5 minutes. Well, this is not a bad return after all, for a 5 Minute holding period! If you are satisfied with it, you can close the trade and move on to find another opportunity. To remind you, this is very much possible in real markets. When things are hot, such moves are quite common.

6.7 – How to calculate returns?

Now, everything in markets boils down to one thing. Generating a reasonable rate of return! All past stock market sins are forgiven if your trade generates a good return. Returns are usually expressed in terms of annual yield. There are different kinds of returns that you need to be aware of. The following will give you a sense of what they are and how to calculate these returns.

Absolute Return – This is the return that your trade or investment generates in absolute terms. It helps you answer this question – I bought Infosys at 3030 and sold it at 3550. How much percentage return did I generate?

The formula to calculate is – [Ending Period Value / Starting Period Value – 1]*100

i.e. $[3550/3030 - 1] * 100$

$$= 0.1716 * 100$$

$$= 17.16\%$$

A 17.6% is not a bad return at all!

Compounded Annual Growth Rate (CAGR) – An absolute return can be misleading if you want to compare two investments. CAGR helps you answer this question – I bought Infosys at 3030, held the stock for two years, and sold it at 3550. At what rate did my investment grow over the last two years?

CAGR factors in the time component, which we had ignored when we computed the absolute return.

The formula to calculate CAGR is...

$$\text{CAGR} = \left(\frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\left(\frac{1}{\text{\# of years}} \right)} - 1$$

Applying this to answer the question...

$$\{[3550/3030]^{(1/2)} - 1\} = 8.2\%$$

This means the investment grew at a rate of 8.2% for two years. As of today, the bank fixed deposit market offers 5.5% with capital protection hence, 8.2% return looks ok compared to a fixed deposit.

So, always use CAGR to check returns over multiple years. Use absolute return when your time frame is for a year or lesser.

What if you bought Infosys at 3030 and sold it at 3550 within six months? In that case, you have generated 17.16% in 6 months, which translates to 34.32% ($17.16\% * 2$) for the year.

So the point is if you have to compare returns, it's best done when the return is expressed on an annualized basis.

6.8 – Where do you fit in?

Each market participant has a unique style of participating in the market. The style evolves as you progress as a participant and witness market cycles. The participation style is also defined by the risk you are willing to take in the market. Regardless of what you do, you can be categorized as a trader or investor.

A trader is a person who spots an opportunity and initiates the trade with an expectation of profitably exiting the trade at the earliest given opportunity. A trader usually has a short-term view of markets. Trader is alert and on their toes during market hours, constantly evaluating opportunities based on risk and reward. A trader is unbiased toward going long or going short. We will discuss what going long or short means at a later stage.

There are different types of traders :

1.

1. **Day Trader** – A day trader initiates and closes the position during the day. He does not carry forward trading positions overnight. A day trader is risk-averse and does not like taking an overnight risk. For example – Buy 100 shares of TCS at 2212 at 9:15 AM and sell it at 2220 at 3:20 PM, making a profit of Rs.800/- in this trade. A day trader usually trades 5 to 6 stocks per day, sometimes even more.
2. **Scalper** – A type of day trader. A scalper usually trades very large shares and holds the stock for less time to make a small but quick profit. For example – a scalper buys 10,000 shares of TCS at 2212 at 9:15 and sells it 2212.1 at 9.16, ending up making 1000/- profit in this trade. On any given day, the scalper trades multiple times during the day. As you may have noticed, a scalp trader is highly risk-averse.
3. **Swing Trader** – A swing trader holds on to the trade for a slightly longer; the duration can run anywhere between a few days to weeks. For example – Buy 100 shares of TCS at 2212 on 12th June and sell it at 2214 on 19th June.

Some of the successful traders are – George Soros, Ed Seykota, Paul Tudor, Micheal Steinhardt, Van K Tharp, Stanley Druckenmiller, and the late Rakesh Jhunjhunwala etc

An investor is a person who buys a stock expecting a significant appreciation in the stock. The investor is willing to wait for the investment to evolve. The typical holding period of investors usually runs into a few years. There are two popular types of investors.

1. **Growth Investors** – The objective here is to identify companies expected to grow significantly because of emerging industry and macro trends. A classic example in the Indian context would be buying Hindustan Unilever, Infosys, and Gillette India back in 1990s. These companies witnessed huge growth because of the change in the industry landscape, creating massive wealth for their shareholders.
2. **Value Investors** – The objective here is to identify good companies irrespective of whether they are in the growth or mature phase but beaten down significantly due to the short-term market sentiment, thereby making a great value buy. An example of this in recent times is stock tanking in the Covid crash of March 2020. Due to short-term negative sentiment, almost all the good stocks were beaten down significantly around March/April 2020, only to post a V-shaped recovery in the subsequent months.

A few successful investors are – Charlie Munger, Peter Lynch, Benjamin Graham, Thomas Rowe, Warren Buffett, John C Bogle, John Templeton, Mohnish Pabrai etc.

So what kind of market participant would you like to be?

Key takeaways from this chapter

1.
 1. A stock market is where a trader or an investor can transact (buy, sell) in shares.
 2. A stock market is a place where the buyer and seller meet electronically
 3. Different opinions make a market
 4. The stock exchange electronically facilitates the transaction of buyers and sellers.

5. News and events move the stock prices daily.
 6. Demand-supply mismatch also makes the stock prices move
 7. When you own a stock, you get corporate privileges like bonuses, dividends, rights, etc
 8. The holding period is defined as the period during which you hold your shares
 9. Use absolute returns when the holding period is one year or less. Use CAGR to identify the growth rate over multiple years
2. Traders and investors differ on risk-taking ability and the holding period.

The Stock Markets Index

7.1 – Overview

If I were to ask you to give me a real-time summary of the traffic situation in your city, how would you possibly do it?

Your city may have thousands of roads and junctions; it is unlikely you would check every road in the city to find the answer. The wiser thing for you to do would be to quickly check a few important roads and junctions across the city's four directions and observe how the traffic is moving. If you observe chaotic conditions across these roads, you can conclude the traffic situation is chaotic; else, traffic can be considered normal.

The few important roads and junctions you tracked to summarize the traffic situation served as a barometer for the entire city's traffic situation!

Drawing parallels, if I were to ask you how the stock market is moving today, how would you answer my question? There are approximately 5,000 listed companies on the Bombay Stock Exchange and about 2,000 on the National Stock Exchange. It would be clumsy to check every company, figure out if they are up or down for the day, and then give a detailed answer.

Instead, you would check a few important companies across key industrial sectors. If a majority of these companies are moving up, you would say markets are up; if the majority are down, you would say markets are down; and if there is a mixed trend, you would say markets are sideways or flat for the day.

So essentially, identify a few companies to represent the broader markets. Whenever someone asks you how the markets are doing, you check the general trend of these selected stocks and then answer. These companies that you have identified collectively make up the stock market index!



7.2 – The Index

Luckily you need not track these selected companies individually to get a sense of how the markets are doing. The important companies are pre-packaged and continuously monitored to give you this information. This pre-packaged market sentiment indicator is called the ‘Stock market Index.’

There are a few important indices in India. The **S&P BSE Sensex** represents the Bombay stock exchange, and **the Nifty 50** represents the National Stock exchange. Apart from these two, there is the **Nifty Bank Index** (Bank Nifty), which is quite popular. Bank Nifty represents the banking sector as a whole.

S&P stands for Standard and Poor’s, a global credit rating agency. S&P has the technical expertise in constructing the index they have licensed to the BSE. Hence the index also carries the S&P tag. NSE itself maintains the indices via a related company called NSE Indices Limited.

Nifty 50 consists of the most frequently traded stocks on the National Stock Exchange; we will soon discuss the methodology basis on which these indices are constructed. An ideal index gives us an updated, accurate representation of the market sentiment. The movements in the Index reflect the changing expectations of the market participants. When the index goes up, it is because the market participants think the future will be better. The index drops if the market participants perceive the future pessimistically.

7.3 – Practical uses of the Index

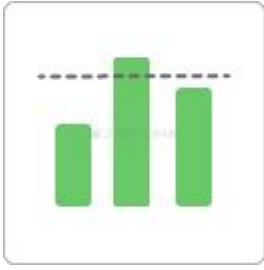
Some of the practical uses of Index are discussed below.



Information – The index reflects the overall sentiment and trend in the market. The index broadly represents the country's state of the economy. A stock market index that is up indicates people are optimistic about the future. Likewise, people are pessimistic about the future when the stock market index is down.

For example, the Nifty 50 value as of 21st November 2022 is 18150, but around six months ago, the Nifty 50 was at 15820. The index has moved 2300 points or about 14.75% higher in six months, indicating bullishness in the market. In other words, market participants have been optimistic about the Indian economic future.

The time frame for calculating the index can be for anything. For example, the Index at 9:30 AM on 21st November was 18140, but an hour later, it moved to 18099. A drop of nearly 40 within an hour. Such movement indicates that the market participants are not enthusiastic from a short-term perspective.



Benchmarking – A yardstick to measure the performance is required for all the trading or investing activity people do. Assume over the last year, you invested Rs.100,000/- and generated Rs.20,000 return to make your total corpus Rs.120,000/-. How do you think you performed? Well, on the face of it, a 20% return looks great. However, what if Nifty moved to 30% during the same year?

Well, suddenly, it may seem to you that you have underperformed in the market! Usually, the objective of market participants is to outperform the Index. Now, if not for the Index, you can't figure out how you performed in the stock market. It would be best if you had the index to benchmark the performance.



Trading – Trading on the index is probably one of the most popular uses of the index. Majority of the traders in the market trade the index. They take a broader call on the economy or general state of affairs and translate that into a trade. The trader usually takes a short-term call on the index to trade.

For example, imagine this situation. At 10:30 AM, the Finance Minister is expected to deliver the budget speech. An hour before the announcement Nifty index is at 18,150 points. You expect the budget to be favorable to the nation's economy. What do you think will happen to the index? Naturally, the index will move up. So to trade your point of view, you may want to buy the index at 18,150. After all, the index is the representation of the broader economy.

So as per your expectation, the budget is good, and the index moves to 18,450. You can now book your profits and exit the trade at a 300 points profit! Trades such as these are possible through what is known as the 'Derivative' segment of the markets. We are probably a bit early to explore derivatives, but for now, do remember that index trading is possible through the derivative markets.



Portfolio Hedging – Investors usually build a portfolio of stocks. A typical portfolio contains 15 – 20 held for the long term. While the stocks are held from a long-term perspective, they could foresee a prolonged adverse movement in the market (ex-2008), potentially eroding the capital in the portfolio. Investors can use the index to hedge the portfolio in such a situation. We will explore this topic in a futures trading module.

7.4 – Index construction methodology

Knowing how the index is constructed is important, especially if one wants to advance as an index trader. As we discussed, the Index is a composition of many stocks from different sectors representing the economy's state. To include a stock in the index, it should qualify for certain criteria. Once qualified as an index stock, it should continue to qualify on the stated criteria. If it fails to maintain the criteria, the stock gets replaced by another stock that qualifies the prerequisites.

Based on the selection procedure, the list of stocks is populated. Each stock in the index should be assigned a certain weightage. Weightage, in simpler terms, defines how much importance a certain stock in the index gets compared to the others. For example, if ITC Limited has a 3.85% weightage in the Nifty 50 index, it is as good as saying that 3.85% of Nifty's movement can be attributed to ITC. You can check the weights of all index stocks [here](#).

The obvious question is – How do we assign weights to the stock that make up the Index? There are many ways to assign weights, but the Indian stock exchange follows a **free-float market capitalization method**. The weights are assigned based on the company's free-float market capitalization. The larger the market capitalization, the higher the weight.

Free float market capitalization is the product of the total number of shares outstanding in the market and the stock price.

For example, company ABC has 100 shares outstanding in the market, and the stock price is at 50, then the free-float market cap of ABC is $100 \times 50 = \text{Rs.}5,000$.

At the time of writing this chapter, the following are the top 10 index heavyweight-

SI No	Name of the company	Industry	The weightage (%)
01	Reliance Industries Ltd	Oil & Gas	11.03
02	HDFC Bank Ltd	Bank	8.26
03	ICICI Bank Ltd	Bank	7.94
04	Infosys Ltd	IT	7.06
05	HDFC Ltd	Housing	5.62

06	TCS Ltd	IT	4.1
07	ITC Ltd	FMCG	3.85
08	Kotak Mahindra Bank	Bank	3.51
09	L&T Ltd	Infra	3.07
10	Axis Bank Ltd	Bank	3.0

As you can see, Reliance Industries Ltd has the highest weightage. This means the Nifty index is most sensitive to price changes in Reliance.

7.5 – Sector-specific indices

While the Sensex and Nifty represent the broader markets, certain indices represent specific sectors. These are called sectoral indices. For example, the Bank Nifty on NSE represents the mood specific to the banking industry. The CNX IT on NSE represents the behavior of all the IT stocks in the stock markets. Both BSE and NSE have sector-

specific indexes. The construction and maintenance of these indices are similar to the other major indices.

Key takeaways from this chapter

1. An index acts as a barometer of the whole economy.
2. An index going up indicates that the market participants are optimistic.
3. An index going down indicates that the market participants are pessimistic.
4. There are two main indices in India – The BSE Sensex and NSE's Nifty 50
5. An index can be used for various purposes – information, benchmarking, trading and hedging.
6. Index trading is probably the most popular use of the index.
7. India follows the free-float market capitalization method to construct the index.
8. There are sector-specific indices that convey the sentiment of specific sectors.

This chapter aims to help you familiarize yourself with a few commonly used market terminologies and their concepts.

Let's get started.

 **Bull Market (Bullish)** – If you expect the stock prices to go up, you are bullish on the stock price. From a broader perspective, if the stock market index is going up during a particular period, it is referred to as a bull market. Example – The market was bullish from mid-2020 to early 2022.

 Bear Market (Bearish) – If you expect the stock prices to go down, you are bearish on the stock price. From a broader perspective, if the stock market index goes down during a particular period, it is referred to as a bear market. Example – The market was bearish from early 2008 to late 2009.

 Trend – The term ‘trend’ usually refers to the general market direction and its associated momentum in the market. For example, if the market is declining fast, the trend is said to be bearish. If the market is trading flat with no movement, then the trend is said to be sideways.

 Face value of a stock – The face value (FV) or par value indicates the nominal value of a share. The face value is important from a corporate action perspective. We will discuss corporate action in a separate chapter. Usually, when dividends, stock splits, or bonuses are announced, they are issued, keeping the face value in perspective. For example, the FV of Infosys is 5, and if they announce an annual dividend of Rs.63/-, the dividend paid is 1260%^s (63 divided by 5).

 52-week high/low – 52-week high is the highest price point at which a stock has traded during the last 52 weeks (which also marks a full calendar year); likewise, a 52-week low marks the lowest price point at which the stock has traded during the last 52 weeks. The 52-week high and low gives a sense of the range within which the stock trades during the year. Many traders believe that if a stock price reaches 52 weeks high, it indicates a bullish trend for the foreseeable future. Similarly, if a stock hits 52 week low, some traders believe it indicates a bearish trend for the foreseeable future.

 All-time high/low – This is similar to the 52 weeks high and low, with the only difference being that the all-time high price is the highest price the stock had ever traded from when it was listed. Similarly, the all-time low price is the lowest price the stock had ever traded from when it was listed.

 Upper and Lower Circuit – The exchange sets up a price band within which the stock can be traded on a given trading day. The highest price the stock can reach on the day is the upper circuit limit, and the lowest price is the lower circuit limit. The limit for a stock is set to 2%, 5%, 10%, or 20% based on the exchange's selection criteria. The exchange places these restrictions to control excessive volatility when a stock reacts to certain news related to the company. The criteria (in terms of exchange restriction) changes for derivatives stocks (and index); more on that later.

 Long Position – Long position or going long is a reference to the direction of your trade. For example, if you have bought or intend to buy Biocon shares, you are long on Biocon or planning to go long on Biocon, respectively. If you have bought the Nifty Index with an expectation that the index will trade higher, you have a long position on Nifty. You are considered bullish if you are long on a stock or an index.

 Short Position – Going short or 'shorting' is a term used to describe a transaction carried out in a particular order. This is a slightly tricky concept. To help you understand the concept of shorting, I'd like to narrate an old incident at work; this happened around mid-2014, if I remember right.

If you are a gadget enthusiast like me, you would probably recollect that Xiaomi (a Chinese manufacturer of smartphones) entered into an exclusive partnership with Flipkart to sell their flagship smartphone model called Mi3 in India. The price of Mi3 was speculated to be around Rs.14,000/- . If one wished to buy Mi3, he/she had to be a registered Flipkart user as the phone was not available for a non-registered user, and the registration was open only for a short time. I had promptly registered to buy the phone, but my colleague Rajesh had not. Though he wanted to buy the phone, he could not because he had not registered on time.

Out of sheer desperation, Rajesh walked up to me and made an offer. He said he would buy the phone from me at Rs. 16,500/- . As a trader at heart, I readily agreed to sell him the phone! I even demanded he pays me the money right away.

After I pocketed the money, I thought to myself, what have I done?? Look at the situation I've put myself into. I've sold a phone to Rajesh, which I don't own yet!!

But then, it was not a bad deal after all. I agree I had sold a phone that I didn't own. However, I could always buy the phone on Flipkart and pass the new, unopened box to Rajesh. My only fear in this transaction was, what if the phone price is above Rs.16,500?? In that case, I'd make a loss and regret entering into this transaction with Rajesh. For example, if the phone were priced at Rs.18,000, my loss would be Rs.1,500 (18,000 – 16,500).

However, to my luck, as expected, the phone was priced at Rs.14,000/-, I promptly bought it on Flipkart, and upon delivery, I handed over the phone to Rajesh, and in the whole process, I made a clean profit of Rs.2,500/- ($16500 - 14000$)!

If you look at the transaction sequence, I first sold the phone (that I didn't own) to Rajesh, then bought it later on Flipkart and delivered it to Rajesh. I sold it first and bought it later! This type of transaction is called a 'Short Trade.'

The concept of shorting is very counter-intuitive to normal humans because we are not used to 'shorting' in our day-to-day activity unless we have a trader mentality

Going back to stock markets, think about this straightforward transaction – on day 1, you buy Wipro shares at Rs.405, two days later (day 3), the stock moves, and you sell your shares at Rs.425. You made a profit of Rs.20/- on this transaction.

In this transaction, your first leg was to buy Wipro at Rs.405, the second leg was to sell Wipro at Rs.425, and you were bullish on the stock.

On day 4, the stock is trading at Rs.425, and you are now bearish. You are convinced that the stock will go back to Rs.405. Is there a way you can profit from your bearish expectation? You could, and it can be done by shorting the stock.

You sell the stock at Rs.425, and 2 days later, assuming the stock trades at Rs.405, you repurchase it.

If you realize the trade's first leg was to sell at Rs.425, and the second leg was to buy the stock at Rs.405. This is always the case with shorting – you first sell at a price you perceive as high to buy it back at a lower price later.

You have executed the same trade as buying at Rs.405 and selling at Rs.425 but in reverse order.

An obvious question you may have is – How can one sell Wipro shares without owning them? You can do so, just like I sold a phone I did not own. So shorting is possible in the stock markets. The important point to remember is that when you short a stock, you must ensure that you buy back the stock the same day before the market closes. Of course, you can short a stock in the derivatives segment and carry forward the position for a few days. But at this point, ignore the derivatives bit and understand that all short positions in stocks (also called cash segment) have to be closed before the market closes. In other words, a short position in the cash market works only on an intraday basis.

To sum it all up...

1.

1. When you short, you have a bearish view of the stock. You profit if the stock price goes down. After you short, if the stock price goes up, you will end up making a loss.

2. When you short a stock, ensure you buy the stock back the same day before the market closes unless you use derivatives to short.
3. Shorting a stock is easy – you select the stock you wish to short and click on sell.

To summarize long and short positions...

Position	1st Leg	2nd Leg	Expectation	Make money when	You will lose money when
Long	Buy	Sell	Bullish	Stock goes up	Stock price drops
Short	Sell	Buy	Bearish	Stock goes down	Stock price goes up

Alright, let's continue our discussion on commonly used stock market jargon.

 Square off – Square off is a term used to indicate that you intend to close an existing position. If you are long on a stock squaring off the position means selling the stock. Note when you close a long position, you have to sell the stock, and this sale is not considered a short position. Here you are merely closing an existing long position!

Squaring off a position means repurchasing the stock when you are short on the stock. Remember, when you repurchase it, you are just closing an existing position, and you are not going long!

When you are	Square off position is
Long	Sell the stock
Short	Buy the stock

 Intraday position – This is a trading position you initiate with an expectation to square off the position within the same day. For example, all short positions in stocks are intraday positions.

 OHLC – OHLC in stock prices refers to open, high, low, and close. We will understand more about this in the technical analysis module. For now, open is the price at which the stock opens for the day, high is the highest price at which the stock trade during the day, low is the lowest price at which the stock trades during the day, and close is the closing price of the stock. For example, the OHLC of ACC on 17th June was 1486, 1511, 1467, and 1499.

 Volume – Volumes and their impact on stock prices are important concepts that we will explore in greater detail in the technical analysis module. Volumes represent the total transactions (buy and sell put together) for a particular stock on a particular day. For example, on 17th June, the volume on ACC was 5, 33,819 shares.



Market Segment – A market segment is a division within which a certain type of financial instrument is traded. Each financial instrument is characterized by its risk and reward parameters. The exchange operates in three main segments.

1.

1. Capital Market (CM) – Capital market segments offer tradable securities, such as stocks and exchange-traded funds (ETFs). So if you were to buy or sell shares of a company, you are essentially operating in the capital market segment. Shorting stocks, too, comes under the capital market segment. The cash market is sometimes referred to as the spot market.
2. Futures and Options (FO) – Futures and Options, generally referred to as the equity derivative segment, are where leveraged products are traded. We will explore the derivative markets in greater depth in the derivatives module (Futures modules and Options Module)
3. Currency Derivatives (CDS) – The CDS segment is where currency pairs like USD INR, EUR INR, JPY INR are traded. The trading is via futures and options; hence it's called the currency derivative market.
4. Wholesale Debt Market (WDM) – The wholesale debt market deals with fixed-income securities. Debt instruments include government securities, treasury bills, bonds issued by a public sector undertaking, corporate bonds, corporate debentures, etc.

These are some of the commonly used jargon. If you can think of any other, please comment below, and I'd be happy to decode that for you.

The Trading Terminal

9.1 – Trading Terminal

Over the last few chapters, we have understood several things related to the stock markets. It is time for us to figure out how one can actually transact in the stock markets. There are three options available for you to place a transaction in the stock market –

1.

1. Call your stocks broker (usually on the central support number), and request to buy or sell a stock; this is called "Call & Trade."
2. Use a web application
3. Use a mobile application

Regardless of which method you choose, the selected method gives you access to the stock market. Think of this access as a gateway. The gateway allows you to do multiple things, such as transact in shares, track your Profit & Loss, track market movements, manage your funds, view stock charts, access trading tools, etc. This chapter aims to familiarize you with this gateway, also called a 'Trading terminal'. To explain this chapter, I'll use Zerodha's trading terminal called 'Kite.' If you are with another broker, then the trading terminal provided to you will have (should have) similar features and functionality.



You can access the trading terminal by entering the URL on your browser. For Zerodha Kite, it is kite.zerodha.com. To access the trading terminal, you must have a trading account with your broker. A good trading terminal offers many features. We will start by understanding a few basic features. Let us set two basic tasks, and we will accomplish them using the trading terminal, and in the process, we learn the basics practically. Here are the two tasks –

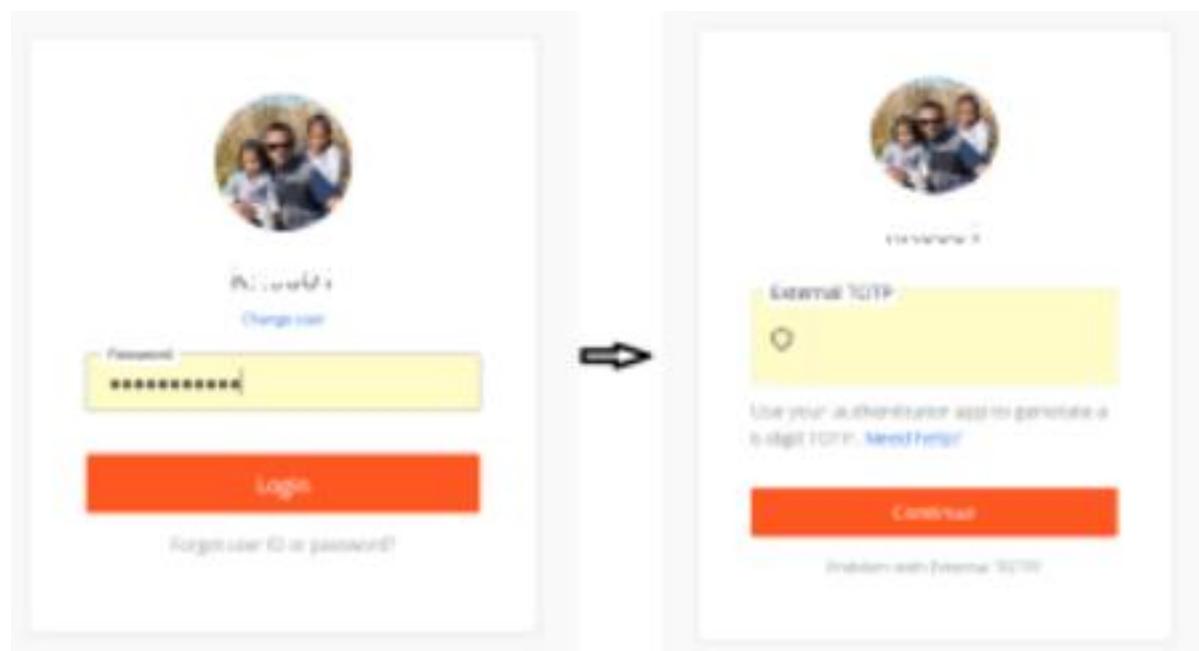
1.
 1. Buy one share of ITC, and
 2. Track the price of Infosys

While we achieve the above two tasks, we will also learn about all the relevant concepts.

9.2 – The login process

The trading terminal is quite sensitive as it contains information about all your securities and funds. SEBI has been working hard to ensure the relevant regulations are in place to prevent situations where access to the client's trading terminal is compromised. To ensure adequate security, brokers have to follow a stringent login process. The process involves entering your broker-provided user ID (it's referred to as the Kite ID in Zerodha), and a password.

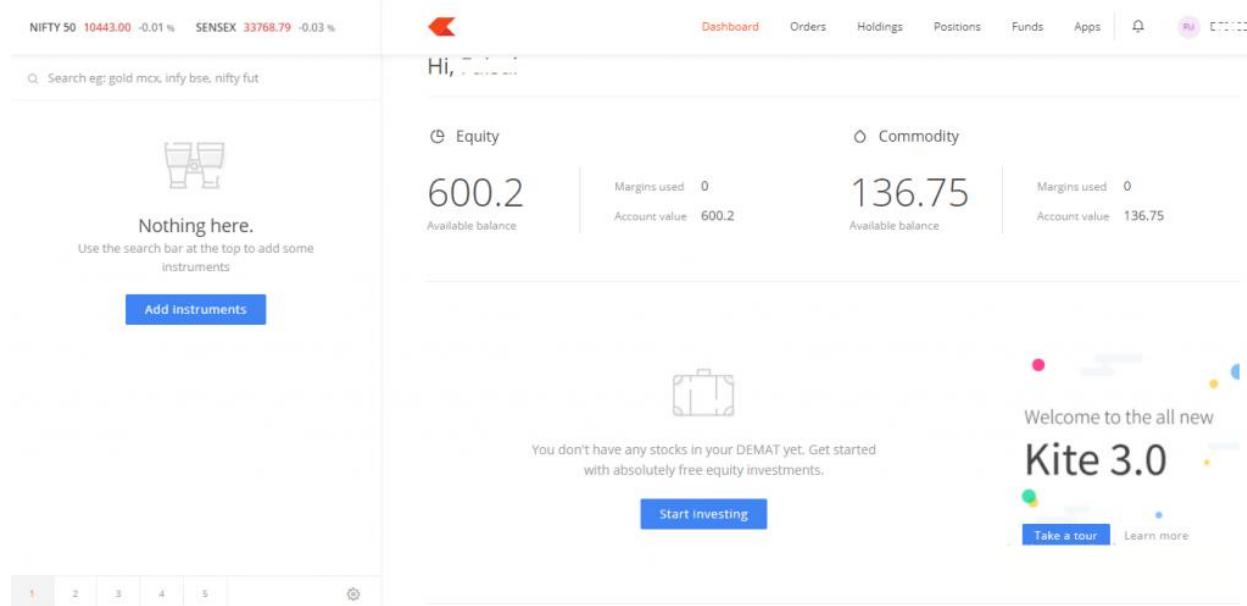
Once you click login, the user id and password are authenticated, and then you are prompted to enter an external TOTP (Time based one-time password). TOTPs, as the name suggests, are time sensitive and keep changing once in a few seconds. TOTPs can be set up using 3rd party authentication software like Google authenticator or Authy.



Once you validate the TOTP, you will instantly get access to your trading account. I'd encourage you to [read this article](#) to learn about TOTP, the general login process, and the need to safeguard your trading account.

9.3 – The Market watch

Once you successfully log in to the platform, you must populate the 'market watch' with the stocks you are interested in. Think about the market watch as a blank slate. Once the stock is loaded on the market watch, you can easily transact and query information about it. A blank market watch looks like this (this is also the screen that you see once you log in)



The screenshot shows the Kite 3.0 trading platform dashboard. At the top, it displays the NIFTY 50 index at 10443.00 (-0.01 %) and the SENSEX index at 33768.79 (-0.03 %). Below this is a search bar with placeholder text "Search eg: gold mcx, infy bse, nifty fut". To the left, there's a section titled "Nothing here." with a note: "Use the search bar at the top to add some instruments" and a blue "Add instruments" button. In the center, there are two main sections: "Equity" and "Commodity". The Equity section shows an available balance of 600.2, margins used of 0, and an account value of 600.2. The Commodity section shows an available balance of 136.75, margins used of 0, and an account value of 136.75. At the bottom, there's a message: "You don't have any stocks in your DEMAT yet. Get started with absolutely free equity investments." followed by a "Start investing" button. On the right, there's a promotional banner for "Kite 3.0" with the text "Welcome to the all new Kite 3.0" and buttons for "Take a tour" and "Learn more". Navigation icons at the bottom include a back arrow, a search icon, and a refresh/circular arrow icon.

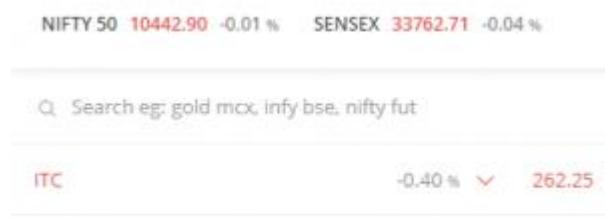
The 600.2 under equity and 136.75 under commodities indicate my fund balance. So 600 Rupees for Equity (to buy and sell stocks), and 136 Rupees to buy commodities.

You can add funds from your bank to your trading account or withdraw funds from your trading account back to your bank account by clicking on the fund tab on top.

Alright, let us work on the first task, i.e., to buy one share of ITC. As a first step, we will load ITC Ltd onto the market watch. To do this, we have to search for ITC in the search bar, and the drop-down will show the stock in different exchanges(NSE/BSE).



You only need to look for 'ITC'; other instruments, like ITC-BE, ITC-BL, or ITC6, are all different instruments. We will discuss more of that later. We are interested in buying one share of ITC (or ITC stock), and the relevant instrument is ITC. So let us click on the 'Add symbol' to add the stock to the Market Watch



The Marketwatch will display the last traded price, a percentage change of the stock.

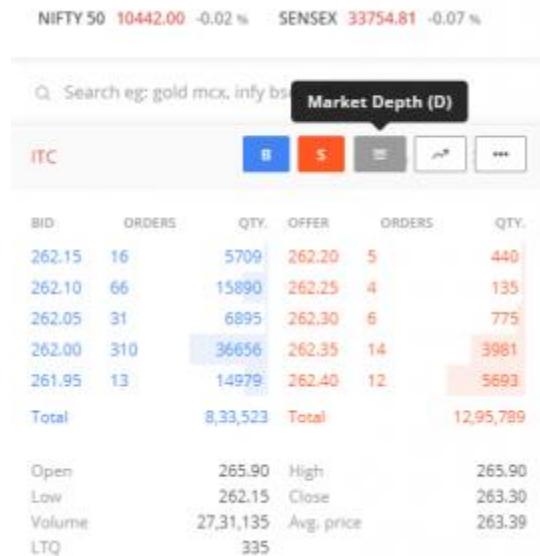
- The last traded price of the stock (LTP) – This gives us a sense of how much the stock is trading at the very moment.

- Percentage change – This indicates the percentage change in the LTP with respect to the previous day's close.

Some basic information that will be needed at this point would be:

- The previous day's close – As the name suggests, it's the previous day's close price.
- OHLC – Open, High, Low, and Close give us a sense of the range within which the stock is trading during the day. Do recollect we discussed OHLC in the previous chapter.
- Volumes – Gives a sense of how many shares are being traded at a particular time.

You can find this information under Market Depth. If you hover over the stock name from the left, you will find Buy, Sell, Market Depth, and chart options. If you click on Marketdepth, you will find the above information, including the best bid and offer price ladder. We will cover the Bid and Offer prices soon.



As you can see, the last traded price of ITC is Rs.262.25, and it is trading -0.40% lower than the previous day's close, which was Rs.263.30. The open for the day was at

Rs.265.90, the highest price and the lowest price at which the stock traded for the day was Rs.265.90 and Rs.262.15 respectively. The volume for the day is close to 27 lakh shares.

9.4 – Buying stock through the trading terminal

Our goal is to buy one share of ITC. We now have ITC in our trading terminal. The first step for this process would be to invoke what is called a buy order form.

o

- o Hover over the stock you want to Buy and click on the Buy Icon (B)
- o Clicking on the Buy icon invokes the buy order form, as seen below

The image shows a screenshot of a buy order form. At the top, it displays "Buy ITC x 1 Qty at ₹261" and "₹262.15 on NSE". Below this, there is a toggle switch. Underneath, there are several input fields and dropdown menus:

- Exchange selection: MIS (radio button) is unselected, CNC (radio button) is selected.
- Order type selection: MARKET (radio button) is unselected, LIMIT (radio button) is selected.
- Stop Loss selection: SL (radio button) is unselected, SL-M (radio button) is unselected.
- Quantity: "Qty." field contains "1".
- Price: "Price" field contains "261".
- Trigger price: "Trigger price" field contains "0".
- Disclosed quantity: "Disclosed qty." field contains "0".
- More options: A "More options" dropdown menu is shown.
- Action buttons: "Buy" (blue button) and "Cancel" (white button).

The order form is pre-populated with some information like the price and quantity. We need to modify this as per our requirements. Let us begin with the first drop-down option on the top. By default, the exchange specified would be NSE, but you can select BSE if you wish.

The next entry is the ‘order type.’ By clicking on the drop-down menu, you will see the following four options:

-
- Limit
- Market
- SL
- SL-Market

Let us understand what these options mean.

You can opt for a ‘**Limit**’ order when you are particular about the price you want to pay for a stock. In our case, the last traded price of ITC is Rs.262.25 but say we want to limit our buy price to Rs.261, twenty-five paisa lower than the LTP. In such a situation, I can use the limit feature and specify the price at which I want to buy the stock. The limit feature is great as it gives us control over the price at which we want to buy, but on the flip side, if the stock price does not fall to our limit price, i.e., 261, our order will not get executed, and we won’t get to buy. This is one of the drawbacks of a limit order. The limit order stays valid till the market closes, i.e., 3:30 PM, and then gets canceled.

You can also opt for a **market order** when you intend to buy at market-available prices instead of a limited price. So if you were to place a market order, as long as sellers are available, your order would go through, and ITC will be bought in and around Rs.262.25. Suppose the price goes up to Rs.265 coinciding with your market order placement, then you will get ITC at Rs.265. When you place a market order, you will never be sure of the

price at which you will transact, which could be quite dangerous if you are an active trader. A market order will always ensure your order goes through, unlike a limit order.

A stop-loss order protects you from an adverse movement in the market after initiating a position. Suppose you buy ITC at Rs.262.25 with an expectation that ITC will hit Rs.275 shortly. But instead, what if the price of ITC starts going down? We can protect our position by defining the worst possible loss you are willing to take. For instance, in the example, let us assume you don't want to take a loss beyond Rs.255

This means you have gone long on ITC at Rs.262.25, and the maximum loss you will take on this trade is Rs.6 (255). If the stock price drops to Rs.255, the stop loss order gets active and hits the exchange, and you will be out of the loss-making position. If the price is above 255, the stop-loss order will be dormant.

A stop-loss order is a passive order. To activate it, we need to enter a trigger price. A trigger price, usually above the stop-loss price, acts as a price threshold, and only after crossing this price does the stop-loss order transition from a passive order to an active order.

Going with the above example:

We are long at Rs.261. If the trade goes bad, we want to get rid of the position at Rs.255. Therefore 255 is the stop-loss price. The trigger price is specified so the stop-loss order would transition from passive to active. The trigger price has to be higher (or equal) to

the stop-loss price. We can set this to Rs.255 or higher. If the price drops below 255, the stop loss order gets active.

Returning to the main buy order entry form, we move directly to the quantity once the order type is selected. Remember the task is to buy one share of ITC; hence we enter 1 in the quantity box. We ignore the trigger price and disclosed quantity for now. The next thing to select is the product type.

Select CNC for delivery trades. If you intend to buy and hold the shares for multiple days/months/years, you must ensure the shares reside in your Demat account.

Selecting CNC is your way of communicating this to your broker.

Select MIS if you want to trade intraday. MIS is a margin product; we will understand more about this when we take up the derivatives module.

Once these details are filled in your order form, the order is good to hit the markets. The order gets transmitted to the exchange as soon as you press the submit button on the order form. A unique order ticket number is generated against your order.

Once the order is sent to the exchange, it will not get executed unless the price hits Rs.261. As soon as the price drops to Rs.261 (assuming sellers are willing to sell one share), your order gets through and is eventually executed. As soon as your order is executed, you will own one share of ITC.

9.5 – The order book and Trade book

Think of the order book and trade book as online registers within the trading terminal.

The order book keeps track of all the orders you have sent to the exchange, and the trade book tracks all the trades. Think of it this way – when you order goods on Amazon, you first add items to the cart. The cart is the order book. You can add items, delete, or modify the order from the cart (order book). But when you press the buy button on Amazon, the order gets placed, and a receipt is generated. The trade book is that receipt. You also get a detailed receipt emailed to you called a ‘Contract Note’; we will discuss that later; for now think about the trade book as a general receipt for all the trades you carry out on the terminal.

So the order book has all the details regarding your order. You can navigate to the order book by clicking the Orders tab.

	Time	Type	Instrument	Product	Qty.	LTP	Price	Status
<input type="checkbox"/>	14:01:17	BUY	ITC NSE	CNC	0 / 1	262.20	261.00	OPEN

The order book provides the details of the orders you have placed. You should access the order book to:

-
- Double-check the order details – quantity, price, order type, product type
- Modify the orders – For example, if you want to modify the buy order, say from 261 to 259.
- Check Status – After placing the order, you can check the status. The status would state open if the order is completed partially, it would state completed if the order has been completed, and it would state rejected if your order has been rejected. You can also see the details of the rejection in the order book.

If you notice, there is an open order to buy one share of ITC at Rs.261.

If you hover over the pending orders, you can find the option to modify or cancel the order.

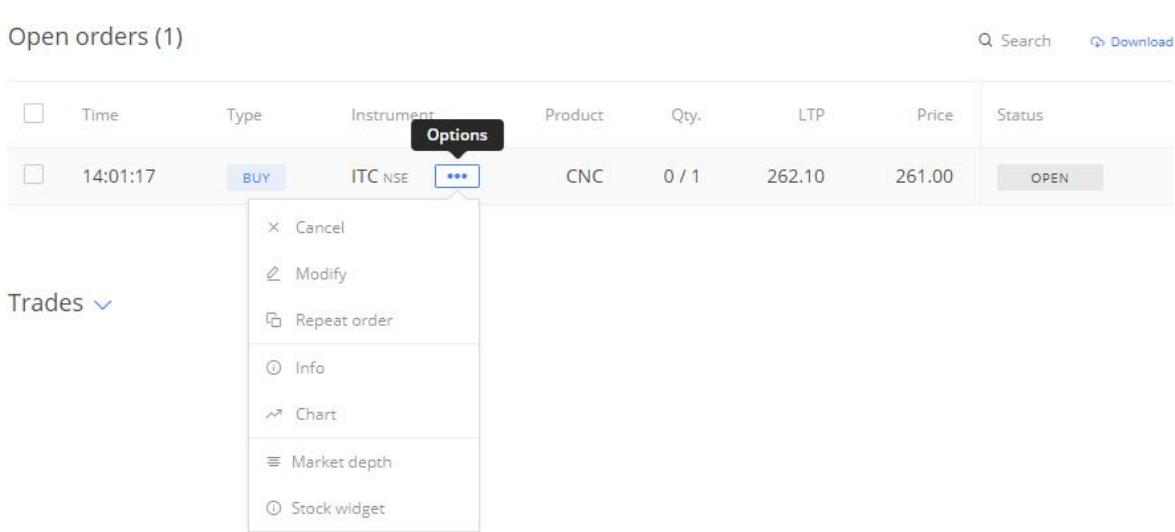
Open orders (1)

<input type="checkbox"/>	Time	Type	Instrument	Product	Qty.	LTP	Price	Status	
<input type="checkbox"/>	14:01:17	BUY	ITC NSE	...	CNC	0 / 1	262.10	261.00	OPEN

Trades ▾

-
-
-
-
-
-
-

Search Download



By clicking 'modify,' the order form will be invoked, and you can make the desired changes to the order.

Once the order is processed, and the trade has been executed, the trade details will be available in the trade book. You can find the trade book just below the order book.

Here is a snapshot of the trade book:

Trades ▾ (1)							<input type="text"/> Search		Historical	Download
Trade ID	Time	Type	Instrument	Qty.	Avg. Price	Product				
27264787	14:11:17	BUY	ITC NSE	1	262.2	CNC				

The trade book confirms that the user ordered to buy one share of ITC at Rs 262.2. Also, notice a unique exchange order number is generated for the trade.

So with this, our first task is complete!

We now officially own one share of ITC. This share will reside in our DEMAT account until you decide to sell it.

The next task is to track the price of Infosys. The first step would be to add Infosys to the market watch. We can do this by searching for Infosys in the search box.

NIFTY 50 10444.80 0.01 % SENSEX 33767.75 -0.03 %

The screenshot shows a search interface for 'Infy'. The search bar at the top contains the text 'Q Infy'. Below the search bar, there is a list of search results:

Symbol	Company Name	Exchange
INFY	INFOSYS	NSE
INFY-BE	INFOSYS	NSE
INFY-BL	INFOSYS	NSE
INFY	INFOSYS	BSE

Once we select Infy, we press add to add it to the market watch.

NIFTY 50 10445.25 0.01 % SENSEX 33771.07 -0.02 %

The screenshot shows a market dashboard with two stocks added to the watchlist: ITC and INFY. The search bar at the top contains the text 'Q Search eg: gold mcx, infy bse, nifty fut'. Below the search bar, the watchlist includes:

Symbol	Company Name	Change (%)	Price
ITC		-0.46 %	262.10
INFY		-0.16 %	1014.20

Below the watchlist, there is a detailed view of the INFY stock information:

BID	ORDERS	QTY.	OFFER	ORDERS	QTY.
1014.20	2	35	1014.30	4	614
1014.00	5	827	1014.40	2	25
1013.80	1	192	1014.50	7	508
1013.75	1	800	1014.60	3	1117
1013.70	1	192	1014.65	3	672
Total		2,57,370	Total		5,50,329

At the bottom of the INFY section, there is summary data:

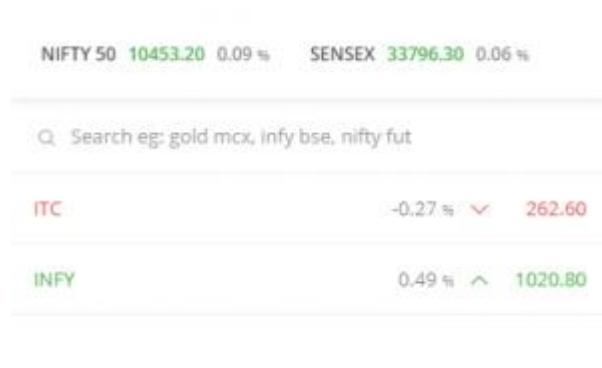
Open	1014.80	High	1028.95
Low	998.40	Close	1015.85
Volume	36,93,244	Avg. price	1011.68
LTQ	33		

Notice we have two stocks on the watchlist now – Infy and ITC. We can now track live price information on Infosys. The last trade price is Rs.1014.75; the stock is down - 0.11% from its previous day's close of Rs.1015.85. Infosys opened the day at Rs.1014.80, making a low of Rs.998.40 and a high of Rs.1028.95. The volumes were 3.6 million shares.

Please note while the open price will be fixed at Rs. 1014.80, the high and low prices change as and when the price of Infosys changes. For example, if Infosys moves from Rs.1014.2 to Rs.1050, the high price will reflect Rs. 1050 as the new high.

Notice below that the LTP of Infosys is in green, and ITC is in red. The cell is highlighted in green if the current LTP is higher than the previous close, and red otherwise.

Have a look at the snapshot below:



While writing this chapter, the price of Infosys moved from 1014.20 to 1020.80, and the color changed to red from blue.

Besides the basic information about the LTP, OHLC, and volume, we can also dig deeper to understand real-time market participation, which is available in market depth. I want to draw your attention to the blue and red numbers called the Bid and Offer prices.

9.6 – The Bid and Offer Price

If you want to buy a share, you need to buy it from a seller. The seller will offer the shares at a price that he or she thinks is fair. The price that the seller offers you is called

the '**Offer Price.**' The offer price is highlighted in red. Let us analyze this in a bit more detail.

SI No	Offer Price	Offer Quantity	Number of Sellers
01	3294.80	2	2
02	3294.85	4	2
03	3295.00	8	2
04	3296.20	25	1
05	3296.25	5	1

By default, the market depth window displays the top 5 bids and offer prices. In the table above, we have the top 5 offer prices.

The first offer price is Rs.3294.80. At this particular moment, this is the best price to buy the stock and there are only two shares available at this price being offered by two different sellers (both of them are selling one share each). The next best price is Rs.3294.85. At this price, four shares are offered by two different sellers. The third best price is Rs.3295, at which eight shares are available, and two sellers offer this. So on and so forth.

As you notice, the higher the asking price, the lower the priority. For example, the 5th position is an asking price of Rs.3296.25 for five shares. This is because the stock exchanges prioritize sellers willing to offer their shares at the lowest possible price.

Notice that even if you want to buy ten shares at Rs.3294.8, you can only buy two shares because only two are being offered at Rs.3294.8. However, if you are not particular about the price (aka limit price), you can place a market order. When you place a market order to buy 10 shares, this is how it will go -

- - Two shares are bought @ Rs.3294.8
 - Four shares are bought @ Rs.3294.85
 - Four shares are bought @ Rs.3295.00

The ten shares will be bought at three different prices. Also, in the process, the LTP of Infosys will jump to Rs.3295 from Rs.3294.8

If you want to sell a share, you need to sell it to a buyer willing to buy it from you. The buyer will buy the shares at a price that they think is fair. The price that the buyer expects is called the 'bid price.' The bid price is highlighted in blue. Let us analyze this part in a bit more detail:

SI No	Bid Price	Bid Quantity	Number of Buyers
01	3294.75	10	5
02	3294.20	6	1
03	3294.15	1	1
04	3293.85	6	1
05	3293.75	125	1

Again by default, the market depth window displays the top five bid prices. Notice the best price at which you can sell shares is Rs.3294.75, and at this price, you can only sell ten shares as only five buyers are willing to buy from you.

If you were to sell 20 shares at market price, the following would be the execution pattern :

- Ten shares sold @ Rs.3294.75
- Six shares sold @ Rs.3294.20
- One share sold @ Rs.3294.15
- Three shares sold @ Rs.3293.85

So, in a nutshell, the bid and offer prices give you information about the top 5 prices at which the buyers and sellers are stacked. You need to understand how buyers and sellers place their trades, especially if you are an intraday trader.

By default, the bid-offer is shown only for the top 5 prices. You can, however, get an insight into the top 20 bids and offers by looking at the 20-depth window. I have discussed 20 in-depth details in the last chapter of this module.

9.7 – Conclusion

The trading terminal is your gateway to markets. The trading terminal has many features that are useful to traders. We will explore these features as we progress through the various learning modules. At this stage, you should know how to set up a market watch,

transact (buy and sell) in stocks, view the order and trade book, and understand the market depth window.

One last thing before we wind up this chapter – the trading terminal is continuously evolving to ensure the user experience is smooth. A few years down the lane, the UI/UX may have changed, but the concepts of the order book, trade book, SL, limit order, etc, will remain the same.

Key takeaways from this chapter

1. A trading terminal is your gateway to markets. You must know the operations of a trading terminal if you aspire to become an active trader.
2. You can load the stock you are interested in on the market watch to track all the relevant information.
3. Some basic information on a market watch is – LTP, % change, OHLC, and volumes.
4. You must invoke a buy order form by pressing the 'B' key to buy a stock. Likewise, to sell a stock, you need to invoke a sell order form by pressing 'S' key.
5. You choose a limit order type when you are keen on transacting at a particular price; else, you can opt for a market order.
6. You choose CNC as the product type if you want to buy and hold the stock across multiple days. If you want to trade intraday, you choose MIS.
7. An order book lets you track orders that are both open and completed. You can modify the open orders by clicking on the modify button in the order book's bottom.

8. Once the order is completed, you can view the trade details in the trade book. In the case of a market order, you can view the exact trade price by accessing the trade book.
9. The market watch enables you to see bids and offer prices.
10. The bid & offer prices refer to the price at which you can buy and sell shares. The top 5 bid and offer prices are displayed in the market depth window by default.

Fundamental Analysis

1. Introduction to Fundamental Analysis

1.1 – Overview

Fundamental Analysis (FA) is a holistic approach to study a business. When an investor wishes to invest in a business for the long term (say 3 – 5 years), it becomes essential to

understand the business from various perspectives. It is critical for an investor to separate the daily short term noise in the stock prices and concentrate on the underlying business performance. Over the long term, a fundamentally strong company's stock prices tend to appreciate, thereby creating wealth for its investors.

We have many such examples in the Indian market. To name a few, one can think of companies such as Infosys Limited, TCS Limited, Page Industries, Eicher Motors, Bosch India, Nestle India, TTK Prestige etc. Each of these companies has delivered an average over 20% compounded annual growth return (CAGR) year on year for over 10 years. At a 20% CAGR, the investor would double his money in roughly about 3.5 years to give you a perspective. Higher the CAGR faster is the wealth creation process. Some companies such as Bosch India Limited have delivered close to 30% CAGR. Therefore, you can imagine the magnitude and the speed at which wealth is created if one would invest in fundamentally strong companies.

Here are long term charts of Bosch India, Eicher Motors, and TCS Limited that can set you thinking about long term wealth creation. Do remember these are just 3 examples amongst the many that you may find in Indian markets.



At this point, you may think that I am biased as I am selectively posting charts that look impressive. You may wonder how the long term charts of companies such as Suzlon

Energy, Reliance Power, and Sterling Biotech may look? Well here are the long term charts of these companies:





These are just 3 examples of the wealth destructors amongst the many you may find in the Indian Markets.

The trick has always been to separate the investment-grade companies which create wealth from the companies that destroy wealth. All investment-grade companies have a few common attributes that set them apart. Likewise, all wealth destructors have a few common traits which are clearly visible to an astute investor.

Fundamental Analysis is the technique that gives you the conviction to invest for a long term by helping you identify these attributes of wealth-creating companies.

1.2 – Can I be a fundamental analyst?

Of course, you can be. It is a common misconception that only chartered accountants and professionals from commerce background can be good fundamental analysts. This is not true at all. A fundamental analyst adds 2 and 2 to ensure it sums up to 4. To become a fundamental analyst, you will need a few basic skills:

1. Understanding the basic financial statements
2. Understand businesses concerning the industry in which it operates
3. Basic arithmetic operations such as addition, subtraction, division, and multiplication

This module's objective on Fundamental Analysis is to ensure that you gain the first two skill sets.

1.3 – I'm happy with Technical Analysis, so why bother about Fundamental Analysis?

Technical Analysis (TA) helps you garner quick short term returns. It helps you time the market for a better entry and exit. However, TA is not an effective approach to create wealth. Wealth is created only by making intelligent long term investments. However, both TA & FA must coexist in your market strategy. To give you a perspective, let me reproduce the chart of Eicher Motors:



Let us say a market participant identifies Eicher motors as a fundamentally strong stock to invest and therefore invests his money in the stock in 2006. You can see the stock made a relatively negligible move between 2006 and 2010. The real move in Eicher Motors started only from 2010. This also means FA based investment in Eicher Motors did not give the investor any meaningful return between 2006 and 2010. The market participant would have been better off taking short term trades during this time.

Technical Analysis helps the investor in taking short term trading bets. Hence both TA & FA should coexist as a part of your market strategy. In fact, this leads us to an important capital allocation strategy called "The Core Satellite Strategy".

Let us say, a market participant has a corpus of Rs.500,000/- . This corpus can be split into two unequal portions; for example, the split can be 60 – 40. The 60% of capital, Rs 300,000/- can be invested for a long term in fundamentally strong. This 60% of the investment makes up the core of the portfolio. One can expect the core portfolio to grow at least 12% to 15% CAGR year on year basis.

The balance 40% of the amount, which is Rs.200,000/- can be utilized for active short term trading using Technical Analysis technique on equity, futures, and options. The Satellite portfolio can be expected to yield at least 10% to 12% absolute return every year.



1.4 – Tools of FA

The tools required for fundamental analysis are fundamental, most of which are available for free. Specifically, you would need the following:

1. The company's annual report – All the information you need for FA is available in the annual report. You can download the annual report from the company's website for free
2. Industry-related data – You will need industry data to see how the company under consideration is performing concerning the industry. Basic data is available for free and is usually published in the industry's association website
3. Access to the news – Daily News helps you stay updated on the latest developments in the industry and the company you are interested in. A good business newspaper or services such as Google Alert can help you stay abreast of the latest news
4. MS Excel – Although not free, MS Excel can be extremely helpful in fundamental calculations

With just these four tools, one can develop a fundamental analysis that can rival institutional research. You can believe me when I say that you don't need any other tool to do good fundamental research. In fact, even at the institutional level, the objective is to keep the research simple and logical.

Key takeaways from this chapter

1. Fundamental Analysis is used to make long term investments.
2. Investment in a company with good fundamentals creates wealth.
3. Using Fundamental Analysis, one can separate an investment-grade company from a junk company.
4. All investment-grade companies exhibit a few common traits. Likewise, all junk companies exhibit common traits.
5. Fundamental analysis helps the analysts identify these traits.
6. Both Technical analysis and fundamental analysis should coexist as a part of your market strategy.
7. To become a fundamental analyst, one does not require any special skill. Common sense, basic mathematics, and a bit of business sense are all that is required.
8. A core-satellite approach to capital allocation is a prudent market strategy.
9. The tools required for FA are generally fundamental; most of these tools are available for free.

Mindset of an Investor

2.1– Speculator Vs Trader Vs Investor

Depending on how you would like to participate in the market, you can choose to speculate, trade or invest. All three types of participation are different from one another. One has to take a stance on the type of market participant he would like to be. Having clarity on this can have a huge impact on his Profit & Loss account.

To help you get this clarity, let us consider a market scenario and identify how each market participant (speculator, trader, and investor) would react to it.

SCENARIO

RBI in the next two days is expected to convene to announce their latest stance on the monetary policy. Owing to the high and sticky inflation, RBI has hiked the interest rates during the previous 4 monetary policy reviews. As we know, an increase in interest

rates means tougher growth prospects for Corporate India – hence corporate earnings would take a hit.

Assume there are three market participants – Sunil, Tarun, and Girish. Each of them views the above scenario differently and hence would take different actions in the market. Let us go through their thought process.

(Please note: I will briefly speak about option contracts here, this is only for illustration purpose. We will understand more about derivatives in the subsequent modules)



Sunil: He thinks through the situation, and his thought process is as follows:

- He feels the interest rate are at an unsustainably high level.
- High-interest rates hamper the growth of corporate India.
- He also believes that RBI has hiked the interest rates to a record high level and it would be really tough for RBI to hike the rate again.
- He looks at what the popular analysts on TV are opinionating about the situation, and he is happy to note that his thoughts and the analyst thoughts are similar.
- He concludes that RBI is likely to cut the rates if not for keeping the interest rates flat.
- As an outcome, he expects the market to go up.

To put his thoughts into action, he buys call options of State Bank of India.



Tarun: He has a slightly different opinion about the situation. His thought process is as below:

- He feels expecting RBI to cut the rates is wishful thinking. In fact, he thinks that nobody can clearly predict what RBI is likely to do
- He also identifies that the volatility in the markets is high. Hence he believes that option contracts are trading at very high premiums.
- He knows from his previous experience (via backtesting) that the volatility is likely to drop drastically just after RBI makes its announcement.

To put his thoughts into action, he sells 5 lots of Nifty Call options and expects to square off the position just around the announcement time.



Girish: He has a portfolio of 12 stocks which he has been holding for over 2 years.

Though he is a keen observer of the economy, he has no view on what RBI is likely to do. He is also not worried about the policy's outcome as he anyway plans to hold on to his shares for a long time. Hence with this perspective, he feels the monetary policy is another short-term passing tide in the market and will not have a major impact on his portfolio. Even if it does, he has both the time and patience to hold on to his shares.

However, Girish plans to buy more of his portfolio shares if the market overreacts to the RBI news and his portfolio stocks fall steeply after the announcement is made.

Now, what RBI will eventually decide and who makes money is not our concern. The point is to identify a speculator, a trader, and an investor based on their thought process. All three men seem to have a logic based on which they have taken a market action. Please note, Girish's decision to do nothing itself is market action.

Sunil seems to be highly certain on what RBI is likely to do, and therefore his market actions are oriented towards a rate cut. In reality, it is quite impossible to call a shot on what RBI (or for that matter any regulator) will do. These are complex matters and not straightforward to analyze. Betting on blind faith, without rational reasoning backing one's decision is speculation. Sunil seems to have done just that.

Tarun has arrived at what needs to be done based on a plan. If you are familiar with options, he is simply setting up a trade to take advantage of the high options premium. He clearly does not speculate on what RBI is likely to do as it does not matter to him. His view is simple – volatility is high; hence the premiums are attractive for an options seller. He is expecting the volatility to drop just before RBI decision.

Is he speculating on the fact that the volatility will drop? Not really, because he seems to have backtested his strategy for similar scenarios in the past. A trader designs all his trades and not just speculates on an outcome.

Girish, the investor, on the other hand, seems to be the least bit worked up on what RBI is expected to do. He sees this as a short term market noise which may not have any major impact on his portfolio. Even if it did have an impact, he believes that his portfolio

will eventually recover from it. Time is the only luxury markets offer, and Girish is keen on leveraging this luxury to the maximum. In fact, he is even prepared to buy more of his portfolio stocks in case the market overreacts. His idea is to hold on to his positions for a long period of time and not get swayed by short term market movements.

All the three of them have different mindsets which lead them to react differently to the same situation. This chapter's focus is to understand why Girish, the investor has a long-term perspective and not really bothered about short-term movements in the market.

2.2 – The compounding effect

To appreciate why Girish decided to stay invested and not really react to short term market movement, one must understand how money compounds. Compounding in simple terms is the ability of money to grow when year 1 are reinvested for year 2.

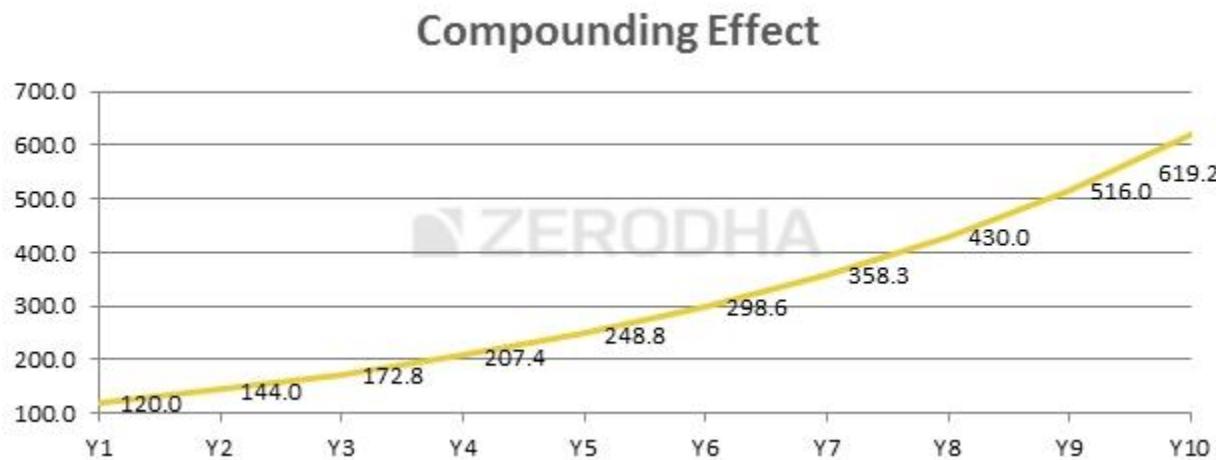
For example, consider investing Rs.100, which is expected to grow at 20% year on year (recall this is also called the CAGR). At the end of the first year, the money is expected to grow to Rs.120. At the end of year 1, you have two options:

1. Let Rs.20 in profits remain invested along with the original principal of Rs.100 or
2. Withdraw the profits of Rs.20.

You decide not to withdraw Rs.20 profit; instead, you decide to reinvest the money for the 2nd year. At the end of the 2nd year, Rs.120 grows to Rs.144. At the end of 3rd year, Rs.144 grows to Rs.173. So on and so forth.

Compare this with withdrawing Rs.20 profits every year. Had you opted to withdraw Rs.20 every year than at the end of 3rd year the profits would have been just Rs. 60.

However, since you decided to stay invested, the profits at the end of 3 years are Rs.173. A good Rs.13 or 21.7% over Rs.60 is generated because you opted to do nothing and decided to stay invested. This is called the compounding effect. Let us take this analysis a little further, have a look at the chart below:



The chart above shows how Rs.100 invested at 20% grows over a 10 year period. If you notice, it took almost 6 years for the money to grow from Rs.100 to Rs.300. However, the next Rs.300 was generated in only 4 years, i.e. from the 6th to 10th year.

This is, in fact, the most interesting property of the compounding effect. The longer you stay invested, the harder (and faster) the money works for you. This is exactly why Girish decided to stay invested – to exploit the luxury of time that the market offers.

All investments made based on fundamental analysis require the investors to stay committed for the long term. The investor has to develop this mindset while he chooses to invest.

2.3 – Does invest work?

Think about a sapling – if you give it the right amount of water, manure, and care would it not grow? Of course, it will. Likewise, think about a good business with healthy sales, great margins, innovative products, and ethical management. Is it not obvious that the share price of such companies would appreciate? In some situations, the price appreciation may delay (recall the Eicher Motors chart from the previous chapter), but it will always appreciate it. This has happened over and over again across markets in the world, including India.

An investment in a good company defined by **investable grade attributes** will always yield results. However, one has to develop an appetite to digest short term market volatility.

2.4 – Investible grade attributes? What does that mean?

Like we discussed briefly in the previous chapter, an investible grade company has a few distinguishable characteristics. These characteristics can be classified under two heads: the ‘Qualitative aspect’ and the ‘Quantitative aspects’. The process of evaluating a fundamentally strong company includes a study of both these aspects. In fact, I give

the qualitative aspects a little more importance over the quantitative aspects of my personal investment practice.

The Qualitative aspect mainly involves understanding the non-numeric aspects of the business. This includes many factors, such as:

1. **Management's background** – Who are they, their background, experience, education, do they have the merit to run the business, any criminal cases against the promoters etc
2. **Business ethics** – Is the management involved in scams, bribery, unfair business practices.
3. **Corporate governance** – Appointment of directors, organization structure, transparency etc
4. **Minority shareholders** – How does the management treat minority shareholders, do they consider their interest while taking corporate actions
5. **Share transactions** – Is the management buying/selling shares of the company through clandestine promoter groups.
6. **Related party transactions** – Is the company tendering financial favours to known entities such as promoter's relatives, friends, vendors etc. at the cost of the shareholder's funds?
7. **Salaries paid to promoters** – Is the management paying themselves a hefty salary, usually a percentage of profits.
8. **Operator activity in stocks** – Does the stock price display unusual price behaviour, especially when the promoter is transacting in the shares.

9. **Shareholders** – Who are the significant shareholders in the firm, who are the people with above 1% of the outstanding shares of the company

10. **Political affiliation** – Is the company or its promoters too close to a political party? Does the business require constant political support?

11. **Promoter lifestyle** – Are the promoters too flamboyant and loud about their lifestyle? Do they like to display their wealth?

A red flag is raised when any of the factors mentioned above do not fall in the right place.

For example, if a company undertakes too many related party transactions, it would send favouritism and malpractice. This is not good in the long run. So even if the company has great profit margins, malpractice is not acceptable. It would only be a matter of time before the market discovers matters about 'related party transactions' and punishes the company by bringing the stock price lower. Hence an investor would be better off not investing in companies with great margins if such a company scores low on corporate governance.

Qualitative aspects are not easy to uncover because these are very subtle matters.

However, a diligent investor can easily figure this out by paying attention to the annual report, management interviews, news reports etc. As we proceed through this module, we will highlight various qualitative aspects.

The quantitative aspects are matters related to financial numbers. Some of the quantitative aspects are straightforward, while some of them are not. For example, cash held in inventory is straight forward; however, 'inventory number of days' is not. This is a

metric that needs to be calculated. The stock markets pay a lot of attention to quantitative aspects. Quantitative aspects include many things, to name a few:

1. Profitability and its growth
2. Margins and its growth
3. Earnings and its growth
4. Matters related to expenses
5. Operating efficiency
6. Pricing power
7. Matters related to taxes
8. Dividends payout
9. Cash flow from various activities
10. Debt – both short term and long term
11. Working capital management
12. Asset growth
13. Investments
14. Financial Ratios

The list is virtually endless. In fact, each sector has different metrics. For example:

For a retail Industry:

1. Total number of stores
2. Average sales per store
3. Total sales per square foot
4. Merchandise margins

For an Oil and Gas Industry:

1. Oil to Natural Gas revenue ratio
2. Exploration costs
3. Opening oil balance (inventory)
4. Developed reserves

5. Owned store to franchisee ratio

5. Total production growth

Over the next few chapters, we will understand how to read the basic financial statements, as published in the annual report. As you may know, the financial statement is the source for all the number-crunching required to analyse quantitative aspects.

Key takeaways from this chapter:

1. The mindset of a trader and an investor is different.
2. The investor has to develop an investment mindset if he is serious about investing.
3. The investor should stay invested for a long period of time for the returns to compound.
4. The speed at which the money doubles increases drastically the more time you stay invested. This is one of the properties of compounding.
5. Every investment has to be evaluated on two aspects – qualitative & quantitative.
6. Qualitative aspects revolve around the non-numeric information related to the company.
7. The quantitative aspects involve analyzing numeric data. The financial statements are an important source of finding quantitative data.

How to Read the Annual Report of a Company

3.1 – What is an Annual Report?

The annual report (AR) is a yearly publication by the company and is sent to the shareholders and other interested parties. The annual report is published by the end of

the Financial Year, and all the data made available in the annual report is dated to 31st March. The AR is usually available on the company's website (in the investor's section) as a PDF document, or one can contact the company to get a hard copy of the same.

Since the company's annual report, whatever is mentioned in the AR is assumed to be official. Hence, any misrepresentation of facts in the annual report can be held against the company. To give you a perspective, AR contains the auditor's certificates (signed, dated, and sealed) certifying the sanctity of the financial data included in the annual report.

Potential investors and the present shareholders are the primary audiences for the annual report. Annual reports should provide the most pertinent information to an investor and communicate its primary message. For an investor, the annual report must be the default option to seek information about a company. Of course, many media websites claim to give financial information about the company; however, the investors should avoid seeking information from such sources. Remember the information is more reliable if we get it to get it directly from the annual report.

Why would the media website misrepresent the company information you may ask? Well, they may not do it deliberately, but they may be forced to do it due to other factors. For example, the company may like to include 'depreciation' in the expense side of P&L, but the media website may like to include it under a separate header. While this would not impact the overall numbers, it does interrupt the overall sequencing of data.

3.2 – What to look for in an Annual Report?

The annual report has many sections that contain useful information about the company. One has to be careful while going through the annual report as there is a fragile line between the company's facts and the marketing content that the company wants you to read.

Let us briefly go through the various sections of an annual report and understand what the company is trying to communicate in the AR. For the sake of illustration, I have taken the Annual Report of Amara Raja Batteries Limited, belonging to Financial Year 2013-2014. As you may know, Amara Raja Batteries Limited manufactures automobile and industrial batteries. You can download ARBL's FY2014 AR from here (<https://www.amararajabatteries.com/Investors/annual-reports/>)

Please remember, this chapter's objective is to give you a brief orientation on how to read an annual report. Running through every page of an AR is not practical; however, I would like to share insights into how I would personally read through an AR and understand what kind of information is required and what information we can ignore.

To better understand, I would urge you to download the Annual Report of ARBL and go through it simultaneously as we progress through this chapter.

ARBL's annual report contains the following 9 sections:

- Financial Highlights
- The Management Statement
- Management Discussion & Analysis
- 10-year Financial highlights

- Corporate Information
- Director's Report
- Report on Corporate governance
- Financial Section, and
- Notice

Note, no two annual reports are the same; they are all made to suit the company's requirement keeping in perspective the industry they operate in. However, some of the sections in the annual report are common across annual reports.

The first section in ARBL's AR is the **Financial Highlights**. Financial Highlights contains the bird's eye view on how the company's financials look for the year gone by.. The information in this section can be in the form of a table or a graphical display of data. This section of the annual report generally makes a multi-year comparison of the operating and business metrics.

Here is the snapshot of the same:



The details you see in the Financial Highlights section are basically an extract from its financial statement. Along with the extracts, the company can also include a few financial ratios calculated by the company itself. I briefly look through this section to get an overall idea, but I wouldn't say I like to spend too much time on it. The reason for looking at this section briefly is that, I would anyway calculate these and many other ratios myself, and while I do so, I would gain greater clarity on the company and its numbers. Over the next few chapters, we will understand how to read and understand its financial statements and how to calculate the financial ratios.

The next two sections, i.e. the '**Management Statement**' and '**Management Discussion & Analysis**', are quite important. I spend time going through these sections. These sections give you a sense of what the company's management has to say about their business and the industry in general. As an investor or a potential investor in the company, every word mentioned in these sections is important. In fact, some of the

details related to the 'Qualitative aspects' (as discussed in chapter 2), can be found in these two sections of the AR.

In the 'Management Statement' (sometimes called the Chairman's Message), the investor gets a perspective of how the man sitting right on top is thinking about his business. The content here is usually broad-based and gives a sense of how the business is positioned. When I read through this section, I look at how realistic the management is. I am very keen to see if the company's management has its feet on the ground. I also observe if they are transparent in discussing what went right and what went wrong.

One example that I explicitly remember was reading through the chairman's message of a well-established tea manufacturing company. In his message, the chairman was talking about revenue growth of nearly 10%. However, the historical revenue numbers suggested that the company's revenue grew by 4-5%. Clearly, in this context, the growth rate of 10% seemed like a celestial move. This also indicated that the man on top might not really be in sync with ground reality, so I decided not to invest in the company. Retrospectively when I look back at my decision not to invest, it was probably the right decision.

Here is Amara Raja Batteries Limited; I have highlighted a small part that I think is interesting. I would encourage you to read through the entire message in the Annual Report.



dear friends,

The Company's product sales are climbing; brands have been a resounding success; factories are buzzing with activity; people are happy and you, the shareholders, are satisfied.

Logic says we should be content. Rationality guides us to make incremental investments. Prudence advises cautious aggression.

At this crucial juncture, we can either be satisfied with the bountiful returns; or undertake the challenge of doing the extraordinary that transforms the perception of the brand and the corporate in the minds of the

whole. Here at Amara Raja, we have opted for the latter option. Case in point: we initiated our largest capacity augmentation exercise at a time when most corporates chose to put their capex investments on the backburner.

Because Amara Raja has relentlessly attempted to outperform the prevailing growth averages. And has inevitably made it happen through a combination of superior product quality, distinctive positioning, attractive price-value proposition, enduring OEM customer relationships, deeper distribution network, prudent fiscal management and a proactive ability to invest ahead of the curve.

The efficacy of this approach is reflected in the superior numbers that Amara Raja posted in 2013-14 – 16.15% increase in revenues, 28.16% in profit after tax, growth in return on capital employed by 78 bps - even as the Indian economy reported its second slowest growth of the last 10 years in 2013-14.

Recharged

Recharged – this single word aptly sums up the energy within Amara Raja's team, which provides assurance that our largest capacity augmentation investment will turn out to be an unprecedented success. For it is not

Moving ahead, the next section is the '**Management Discussion & Analysis**' or 'MD&A'.

This, in my opinion, is perhaps one of the most important sections in the whole of AR. The most standard way for any company to start this section is by talking about the macro trends in the economy. They discuss the overall economic activity of the country and the business sentiment across the corporate world. If the company has high exposure to exports, they even talk about global economic and business sentiment.

ARBL has both exports and domestic business interest; hence they discuss both these angles in their AR. See the snapshot below:



of our performance and plans

Global economy

The global economy remains subdued as global GDP growth decelerated for the third year – 3.9% in 2011 to 3.1% in 2012 and 3% in 2013. Most developed economies addressed the reality through appropriate remedial fiscal policy action. Besides, a number of emerging economies, which had already experienced a debilitating slowdown in the past two years, encountered new domestic and international headwinds during this period.

Prospects: Looking ahead, global growth is projected to strengthen to 3.6% in 2014 and 3.9% in 2015 (Source: IMF April 2014). Global activity is expected to improve during 2014-15, with much of the impetus coming from advanced economies. Many emerging market economies account for more than two-thirds of global growth and their output growth is likely to be lifted by exports to advanced economies. (Source: IMF, April 2014).

Challenge: Global recovery is still fragile despite improved prospects with significant downside risks. Among old risks, those related to emerging market economies increased. According to the Global Financial Stability Report, rapid normalization of the American monetary policy or renewed bouts of high risk aversion on the part of investors could result in further pain.

ARBL's view on the Indian economy:

Indian economy

India's economic growth of 4.7% in 2013-14 was marginally higher than the previous year due to an improved performance in the agriculture and allied sectors.

The slowdown was primarily due to an unsupportive external environment, regulatory policy logjam, structural constraints and inflation. Despite these challenges, there were positives which provided a foundation for resurgence.

The current account deficit contracted; the fiscal deficit target was met

India implemented substantive measures to narrow external and fiscal imbalances, tighten monetary policy, move forward on structural reforms and address market volatility to reduce vulnerability.

India built upon its foreign exchange reserves. The Indian economy is placed better than what it was in 2013. A dynamic government at the Centre strengthens optimism of robust economic growth, which is projected at 5.6% in 2014, rising to 6.0% in 2015 (Source: RBI).

User sectors

Telecom: India's telecom industry posted a 10.1% revenue growth in 2013-14 from 8.6% in the previous fiscal despite intense competition and call rates declining to an all-time low. The improvement was largely a result of growth in the wireless subscriber base, reduced churn levels and an improvement in revenue realisation. More importantly, 2013-14 will be regarded as a transformational year for the industry. The uncertainty of the previous years ended with fresh spectrum auctions taking place. The Department of Telecom, Government of India, announced significant initiatives - revision of the 'tower rollout policy' and the 'mergers and acquisitions'



Following this, the companies usually talk about industry trends and what they expect for the year ahead. This is an important section as we can understand what the company

perceives as threats and opportunities in the industry. Most importantly, I read through this and compare it with its peers to understand if the company has an advantage over its peers.

For example, if Amara Raja Batteries Limited is a company of interest, I would read through this part of the AR and read through what Exide Batteries Limited has to say in their AR.

Remember, until this point, the discussion in the Management Discussion & Analysis is broad-based and generic (global economy, domestic economy, and industry trends). However, in the future, the company would discuss various aspects related to its business. It talks about how the business had performed across various divisions, how it fares compared to the previous year, etc. The company, in fact, gives out specific numbers in this section.

Here is a snapshot of the same:

Overview	Products	Distribution network	Customers	Niche features
<p>Commenced operations in 2000 with technology from Johnson Controls Inc. USA</p> <p>Manufacturing facility is QS-9000, ISO-14001 and TS- 16949 certified</p>	<p>Passenger cars: Amaron® Pro, Amaron® Flo, Amaron® Go, Amaron® Black and Amaron® Fresh</p> <p>Commercial vehicles: Amaron® Hiway</p> <p>Tractors: Amaron® Harvest</p> <p>Two-wheelers: Amaron Pro Bike Rider™</p>	<p>Amaron® network comprises 294 franchised distributors, including 25,000-plus retailers</p> <p>PowerZone™ network comprises 1,100 retail outlets ensuring widespread semi-urban and rural presence</p>	<p>Major OEM customers: Ford, Maruti Suzuki, Hyundai, Honda, M&M, Tata, Volvo, Eicher, Daimler Benz, Tafe Tractors, Isuzu Motors among others</p> <p>Major private label customers: Bosch, Lucas, Cummins and AC Delco</p> <p>Leading player in the aftermarket segment among four-wheelers</p>	<p>Battery supplier to the entire 'Comfort Delgro' taxi fleet in Singapore</p> <p>100% share of business with Ford India and Daimler Benz</p> <p>100% share of business in Maruti A-Star exports and Hyundai EON</p> <p>First supplier of batteries to Mahindra and Mahindra for Scorpio micro hybrid vehicles</p> <p>First to introduce zero maintenance four-wheeler batteries and VRLA two-wheeler batteries</p> <p>First to provide extended warranties to consumers</p>

Some companies even discuss their guidelines and strategies for the year ahead across the various verticals. Do have a look at the snapshot below:

Rising rural income: The government shifted its focus towards rural sector development. The government's crop price support policy over the last five years has led to higher rural incomes.

Aftermarket

Every vehicle added on Indian roads creates an aftermarket opportunity as batteries need to be changed every few years. So while OE demand extends only to assembly, the aftermarket demand stays robust across useful asset life, making the aftermarket a significantly larger opportunity. And while the OE market may experience volatility consequent to economic and business

cycles, the aftermarket growth rate remains relatively stable.

Since the battery is a critical component in every automobile (including a two-wheeler), long life and reliability are the most important factors influencing purchase. With the organised sector providing a superior value-proposition, there is an increasing shift towards branched batteries in the aftermarket segment.

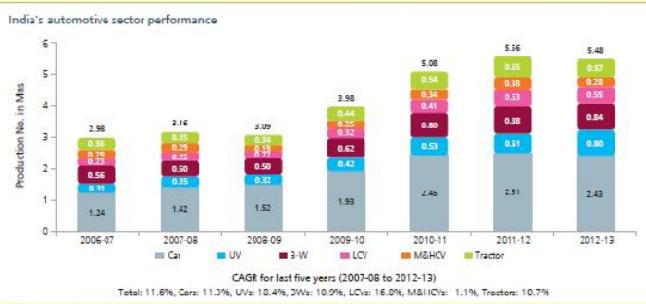
Amara Raja's strategy

Aftermarket: The Company's significant presence in the aftermarket segment de-risks it from sectoral cyclicality. Going forward, the Company will continue to

strengthen its distribution network by entering areas where its penetration is low, filling gaps in its product range and ensuring supply chain efficiency.

Moreover, the Company will continue to invest in brand promotion and ground-level initiatives to develop a stronger bond with customers, retailers and distributors.

OE market: While the aftermarket is the key revenue earner, the Company is also working to forge stronger relationships with leading and reputed OE players in the automotive market, which will increase its brand preference at the time of replacement.



(Source: SIAM)

After discussing these in 'Management Discussion & Analysis,' the annual report includes a series of other reports such as – Human Resources report, R&D report, Technology report etc. Each of these reports is important in the context of the industry the company operates in. For example, if I am reading through a manufacturing company annual report, I would be particularly interested in the human resources report to understand if the company has any labour issues. If there are serious signs of labour issues, it could lead to the factory being shut down, which is not good for its shareholders.

3.3 – The Financial Statements

Finally, the last section of the AR contains the financial statements of the company. As you would agree, the financial statements are perhaps one of the most important aspects of an Annual Report. There are three financial statements that the company will present namely:

1. The Profit and Loss statement
2. The Balance Sheet and
3. The Cash flow statement

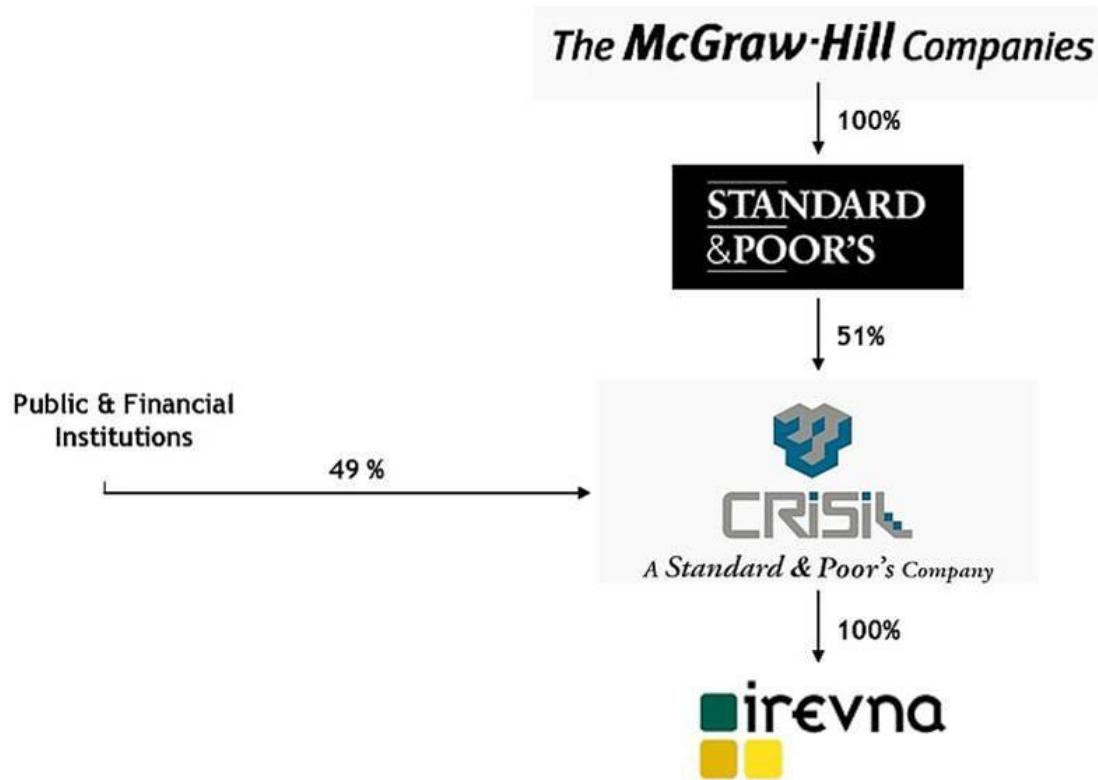
We will understand each of these statements in detail over the next few chapters. However, it is important to understand that the financial statements come in two forms at this stage.

1. Standalone financial statement or simply standalone numbers and

2. Consolidated financial statement or simply consolidated numbers

To understand the difference between standalone and consolidated numbers, we need to understand a company's structure.

Typically, a well-established company has many subsidiaries. These companies also act as a holding company for several other well-established companies. To help you understand this better, I have taken the example of CRISIL Limited's shareholding structure. You can find the same in CRISIL's annual report. As you may know, CRISIL is an Indian company with a major focus on corporate credit rating services.



As you can see in the above shareholding structure:

1. Standard & Poor's (S&P), a US-based rating agency holds a 51% stake in CRISIL. Hence S&P is the 'Holding company' or the 'Promoter' of CRISIL.
2. Public and other Financial institutions hold the balance of 49% of shares of CRISIL.
3. However, S&P itself is 100% subsidiary of another company called 'The McGraw-Hill Companies'
 1. This means McGraw Hill fully owns S&P, and S&P owns 51% of CRISIL.
4. Further, CRISIL itself fully owns (100% shareholding) another company called 'Irevna'.

Keeping the above in perspective, think about this hypothetical situation. Assume, for the financial year 2014, CRISIL makes a loss of Rs.1000 Crs and Irevna, its 100% subsidiary makes a profit of Rs.700 Crs. What do you would be the overall profitability of CRISIL?

Well, this is quite simple – CRISIL on its own made a loss of Rs.1000 Crs, but its subsidiary Irevna made a profit of Rs.700 Crs, hence the overall P&L of CRISIL is (Rs.1000 Crs) + Rs.700 Crs = (Rs.300 Crs).

Thanks to its subsidiary, CRISIL's loss is reduced to Rs.300 Crs instead of a massive loss of Rs.1000 Crs. Another way to look at it is that CRISIL on a **standalone** basis made a loss of Rs.1000 Crs, but on a **consolidated** basis, it made a loss of Rs.300 Crs.

Hence, Standalone Financial statements represent the company's standalone numbers/financials and do not include its subsidiaries' financials. However, the consolidated

numbers include the companies (i.e. standalone financials) and its subsidiaries financial statements.

I personally prefer to look through the consolidated financial statements to represent the company's financial position better.

3.4 – Schedules of Financial Statements

When the company reports its financial statements, they usually report the full statement and then follow it up with a detailed explanation.

Have a look at the snapshot of one of ARBL's financial statement (balance sheet):

Balance Sheet as at March 31, 2014		₹ million	
Particulars	Note No.	As at March 31, 2014	As at March 31, 2013
EQUITY AND LIABILITIES			
Shareholders' funds			
Share capital	2	170.81	170.81
Reserves and surplus	3	13,456.20	10,427.33
		13,627.01	10,598.14
Non-current liabilities			
Long-term borrowings	4	759.47	773.13
Deferred tax liabilities (net)	5	301.33	195.09
Long-term provisions	6	369.57	376.41
		1,430.37	1,344.63
Current liabilities			
Short-term borrowings	7	83.83	98.63
Trade payables	8	1,277.79	1,362.84
Other current liabilities	9	2,156.68	1,807.26
Short-term provisions	6	2,818.73	2,493.20
		6,337.03	5,761.93
Total		21,394.41	17,704.70

Each particular in the financial statement is referred to as the line item. For example, the first line item in the Balance Sheet (under Equity and Liability) is the share capital (as pointed out by the green arrow). If you notice, there is a note number associated with

share capital. These are called the 'Schedules' related to the financial statement.

Looking into the above statement, ARBL states that the share capital stands at Rs.17.081 Crs (or Rs.170.81 Million). As an investor, I would obviously be interested in knowing how ARBL arrived at Rs.17.081 Crs as their share capital. To figure this out, one needs to look into the associated schedule (note number 2). Please look at the snapshot below:

Notes forming part of the Financial Statements

NOTE 2: SHARE CAPITAL

Particulars	₹ million	
	As at March 31, 2014	As at March 31, 2013
Equity share capital		
Authorised		
200,000,000 Equity shares of ₹1 each	200.00	200.00
Issued	-	-
175,028,500 Equity shares of ₹1 each	175.03	175.03
Subscribed and paid up	-	-
170,812,500 Equity shares of ₹1 each	170.81	170.81
Total	170.81	170.81

Of course, considering you may be new to financial statements, jargon like share capital makes much sense. However, the financial statements are straightforward to understand, and over the next few chapters, you will understand how to read the financial statements and make sense of it. But for now, remember that the main financial statement gives you the summary and the associated schedules give the details about each line item.

Key takeaways from this chapter

1. The Annual Report (AR) of a company is an official communication from the company to its investors and other stakeholders.

2. The AR is the best source to get information about the company; hence AR should be the default choice for the investor to source company-related information.
3. The AR contains many sections, with each section highlighting a certain aspect of the business.
4. The AR is also the best source to get information related to the qualitative aspects of the company.
5. The management discussion and analysis is one of the most important sections in the AR. It has the management's perspective on the country's overall economy, their outlook on the industry they operate in for the year gone by (what went right and what went wrong), and what they foresee for the year ahead.
6. The AR contains three financial statements – Profit & Loss Statement, Balance Sheet, and Cash Flow statement.
7. The standalone statement contains the financial numbers of only the company into consideration. However, the consolidated numbers contain the company and its subsidiaries financial numbers.

Understanding the P&L Statement(Part1)

4.1 – Overview of the financial statements

You can think about the financial statements from two different angles:

1. From the maker's perspective
2. From the user's perspective

A maker prepares financial statements. He is typically a person with an accounting background. His job involves preparing ledger entries, matching bills and receipts, tallying the inflows versus the outflows, auditing etc. The final objective is to prepare transparent financial statements that best represent the company's true financial position.

To prepare such a financial statement, certain skills are required. Usually, these skills are developed through the rigour of a Chartered Accountant's training program.

On the other hand, the user just needs to be in a position to understand what the maker has prepared. He is just the user of the financial statements. He need not really know the details of the journal entries or the audit procedure. His main concern is to read what is being stated and use it to make his decisions.

To put this in context, think about Google. Most of us do not understand Google's complex search engine algorithm that runs in the backend. However, we all know how to use Google effectively. Such is the distinction between the maker and the user of financial statements.

A common misconception amongst the market participants is that they believe the fundamental analyst needs to be thorough with financial statement preparation concepts. While knowing this certainly helps, it is not really required. To be a fundamental analyst, one needs to be the user and not the financial statement maker.

There are three main financial statements that a company showcases to represent its performance.

1. The Profit and Loss statement

2. The Balance Sheet
3. The Cash flow statement

Over the next few chapters, we will understand each of these statements from the user's perspective.

4.2 – The Profit and Loss statement

The Profit and Loss statement is also popularly referred to as the P&L statement, Income Statement, Statement of Operations, and Statement of Earnings. The Profit and Loss statement shows what has transpired during a time period. The P&L statement reports information on:

1. The revenue of the company for the given period (yearly or quarterly)
2. The expenses incurred to generate the revenues
3. Tax and depreciation
4. The earnings per share number

From my experience, the financial statements are best understood by looking at the actual statement and figuring out the information. Hence, here is the P&L statement of Amara Raja Batteries Limited (ARBL). Let us understand every line item.

Statement of Profit and Loss for the year ended March 31, 2014

₹ million

Particulars	Note No.	Year ended March 31, 2014	Year ended March 31, 2013
REVENUE			
Sale of products		38,041.27	32,949.37
Less: Excise duty		4,005.15	3,512.45
Net sale of products		34,036.12	29,436.92
Sale of services		309.32	137.02
Other operating revenue		21.15	15.21
Net revenue from operations	17	34,366.59	29,589.15
Other income	18	455.14	465.51
Total Revenue		34,821.73	30,054.66
EXPENSES			
Cost of materials consumed	19	21,011.95	17,603.12
Purchases of stock-in-trade	20	2,113.69	2,632.54
Changes in inventories of finished goods, work-in-process and stock-in-trade	20	(292.10)	(320.89)
Employee benefits expense	21	1,583.16	1,262.30
Finance costs	22	7.18	2.69
Depreciation and amortisation expense [includes impairment loss of ₹Nil (PY ₹75.52 million)]	23	645.71	660.92
Other expenses	24	4,346.60	3,904.24
Total Expenses		29,416.19	25,744.92
Profit before exceptional items and tax		5,405.54	4,309.74
Less: Exceptional items (net)	33	38.84	91.57
Profit before tax		5,366.70	4,218.17
Less: Tax expense			
Current tax		1,580.00	1,377.97
Deferred tax (credit) / expense		106.23	(24.51)
Earlier year's (excess) / short provision		6.11	(2.34)
Profit for the year		3,674.36	2,867.05
Basic and diluted earnings per equity share of ₹1 each	37	21.51	16.78

4.3 – The Top Line of the company (Revenue)

You may have heard analysts talk about the top line of a company. When they do so, they are referring to the revenue side of the P&L statement. The revenue side is the first set of numbers the company presents in the P&L.



Before we start understanding the revenue side, let us notice a few things mentioned on the header of the P&L statement:

Statement of Profit and Loss for the year ended March 31, 2014			
Particulars	Note No.	Year ended March 31, 2014	Year ended March 31, 2013
		₹ million	₹ million

The header clearly states:

1. The statement of P&L for the year **ending** March 31, 2014, hence this is an annual statement and not a quarterly statement. Also, since it is as of March 31st 2014, it is evident that the statement is for the Financial Year 2013 – 2014 or it can be referred to as the FY14 numbers.
2. All currency is denominated in Rupee Million. Note – 1 Million Rupees is equal to Ten Lakh Rupees. It is upto the company's discretion to decide which unit they would prefer to express their numbers in

3. The particulars show all the main headings of the statement. Any associated note to the particulars is present in the note section (also called the schedule). An associated number is assigned to the note (Note Number)
4. By default, when companies report the numbers in the financial statement, they present the current year number on the left-most column and the previous year number to the right. In this case, the numbers are for FY14 (latest) and FY13 (previous)

The first line item on the revenue side is called the **Sale of Products**.

Since we know, we are dealing with a batteries company. Clearly, the sale of products means the Rupee value of all the battery sales the company has sold during FY14. The sales stand at Rs.38,041,270,000/- or about Rs.3,804 Crore. The company sold batteries worth Rs.3,294 Cr in the previous financial year, i.e. FY13.

Please note, I will restate all the numbers in Rupee Crore as I believe this is more intuitive to understand.

The next line item is the excise duty. This is the amount (Rs.400 Crs) the company would pay to the government; hence, the revenue must be adjusted.

The revenue adjusted after the excise duty is the **net sales of the company**. The net sales of ARBL are Rs.3403 Crs for FY14. The same was Rs.2943 Crs for FY13.

Apart from the sale of products, the company also draws revenue from services. This could probably be in the form of annual battery maintenance. The revenue from the sale of services stands at Rs.30.9Crs for FY14.

The company also includes "other operating revenues" at Rs.2.1crs. This could be revenues through the sale of products or services that is incidental to the company's core operations.

Finally, the revenue from Sale of products + Sale of services + Other operating revenues sums up to give the company's **total operating revenue**. This is reported at Rs.3436 Crs for FY14 and Rs.2959Crs for FY13. Interesting, there is a note; numbered 17 associated with "Net Revenue from Operations" will help us inspect this aspect further.

Do recall, in the previous chapter we had discussed notes and schedules of the financial statement.

The following snapshot gives the details of note 17.

Notes forming part of the Financial Statements

NOTE 17: REVENUE FROM OPERATIONS		₹ million	
Particulars	Year ended March 31, 2014	Year ended March 31, 2013	
a) Sale of products			
Storage batteries (finished goods)	35,237.83	30,363.83	
Storage batteries (stock-in-trade)	2,089.86	1,493.93	
Home UPS (stock-in-trade)	713.58	1,091.61	
Gross revenue from sale of products	38,041.27	32,949.37	
Less: Excise duty	4,005.15	3,512.45	
Net revenue from sale of products	34,036.12	29,436.92	
b) Sale of services			
Installation and commissioning	49.14	17.36	
Annual maintenance	146.91	96.09	
Preventive maintenance	15.41	5.75	
Other services	97.86	17.82	
Net revenue from sale of services	309.32	137.02	
c) Other operating revenue			
Sale of process scrap	21.15	15.21	
Net revenue from operations	34,366.59	29,589.15	

The notes clearly give a more detailed analysis of the split-up of **revenues from operations** (does not include other income details). As you can see under the particulars, section 'a' talks about the split up under sales of products.

1. Sale of storage batteries in the form of finished goods for the year FY14 is Rs.3523 Crs versus Rs.3036 Crs in FY13.
2. Sale of Storage batteries (stock in trade) is Rs.208 Crs in FY14 versus 149 Crs. Stock in trade refers to finished goods of previous financial year being sold in this financial year.
3. Sale of home UPS (stock in goods) is at Rs.71 Crs in FY14 versus Rs.109 Crs FY13
4. Net sales from sales of products adjusted for excise duty amounts to Rs.3403 Crs, matching the number reported in the P&L statement.
5. Likewise, you can notice the split up for revenue from services. The revenue number of Rs.30.9 tallies with the number reported in the P&L statement
6. In the note, the company says the "Sale of Process Scrap" generated revenue of Rs.2.1 Cr. Note that the sale of process scrap is incidental to the operations of the company, hence reported as 'Other operating revenue'.
7. Adding up all the revenue streams of the company, i.e. Rs.3403 Crs+ Rs.30.9 Crs +Rs.2.1 Crs gets us the Net revenue from operations = Rs.3436 Crs.
8. You can also find similar split up for FY13

If you notice the P&L statement, apart from net revenue from operations, ARBL also reports 'Other Income' of Rs.45.5 Crs. Note number 18 reproduced below explains what the other income is all about.

NOTE 18: OTHER INCOME

Particulars	₹ million	
	Year ended March 31, 2014	Year ended March 31, 2013
Interest Income		
On bank and other deposits	131.22	112.29
Against trade receivables	6.72	10.27
Dividend income		
On current investments - mutual funds	142.68	143.96
On long term investments - equity instruments	1.51	1.31
Net gain on foreign currency transactions and translations	89.88	91.71
Insurance claims	32.27	13.48
Scrap Sales (non-process)	14.07	6.94
Cash discount earned on early payments	10.74	43.35
Provisions and credit balances written back	3.90	6.44
Bad debts recovered	15.15	0.25
Profit on sale of tangible fixed assets written off/discharged	4.49	0.04
Provision on doubtful trade receivables/advances written back	0.30	35.06
Royalty income	0.94	-
Sundry income	1.27	0.41
Total	455.14	465.51

As we can see, the other income includes income that is not related to the company's main business. It includes interest on bank deposits, dividends, insurance claims, royalty income etc. Usually the other income forms (and it should) a small portion of the total income. A large 'other income' usually draws a red flag, demanding a further investigation.

So adding up revenue from operations (Rs.3436 Crs) and other income (Rs.45 Crs), we have the total revenue for FY14 at Rs.3482Crs.

Key takeaways from this chapter

1. The financial statement provides information and conveys the financial position of the company.
2. A complete set of financial statements include the Profit & Loss Account, Balance Sheet and Cash Flow Statement.

3. A fundamental Analyst is a financial statement user, and he needs to know what the maker of the financial statements states.
4. The profit and loss statement gives the profitability of the company for the year under consideration.
5. The P&L statement is an estimate, as the company can revise the numbers at a later point. Also, by default, companies publish data for the current year and the previous year, side by side.
6. The revenue side of the P&L is also called the top line of the company.
7. Revenue from operations is the main source of revenue for the company.
8. Other operating income includes revenue incidental to the business.
9. The other income includes revenue from non-operating sources.
10. The sum of revenue from (operations less of duty) and other operating income gives the "net revenue from operations".

Understanding P&L Statement (Part 2)

5.1 – The Expense details

In the previous chapter, we had learnt about the revenues a company generates.

Moving further on the P&L statement, in this chapter, we will look at the expense side of the Profit and Loss Statement along with the associated notes. Expenses are generally classified according to their function, which is also called the cost of sales method or based on the expense's nature. An analysis of the expenses must be shown in the Profit

and Loss statement or the notes. As you can see in the extract below, almost all the line items have a note associated with it.

EXPENSES			
Cost of materials consumed	19	21,011.95	17,603.12
Purchases of stock-in-trade	20	2,113.69	2,632.54
Changes in inventories of finished goods, work-in-process and stock-in-trade	20	(292.10)	(320.89)
Employee benefits expense	21	1,583.16	1,262.30
Finance costs	22	7.18	2.69
Depreciation and amortisation expense [includes impairment loss of ₹Nil (PY ₹75.52 million)]	23	645.71	660.92
Other expenses	24	4,346.60	3,904.24
Total Expenses		29,416.19	25,744.92

The first line item on the expense side is 'Cost of materials consumed'; this is invariably the raw material cost that the company requires to manufacture finished goods. As you can see, the cost of raw material consumed/raw material is the company's largest expense. This expense stands at Rs.2101 Crs for the FY14 and Rs.1760 Crs for the FY13. Note number 19 gives the associated details for this expense; let us inspect the same.

NOTE 19: COST OF MATERIALS CONSUMED (Contd.)

a) Materials consumed comprise

Particulars	₹ million	Year ended March 31, 2014	Year ended March 31, 2013
Lead	9,882.97	8,221.83	
Lead alloys	8,183.44	6,646.43	
Separator	895.49	799.95	
Others	2,050.05	1,934.91	
Total	21,011.95	17,603.12	

As you can see, note 19 gives us the details of the material consumed. The company uses lead, lead alloys, separators and other items, all of which adds up to Rs.2101 Crs.

The next two line items talk about 'Purchases of Stock in Trade' and 'Change in Inventories of finished goods, work-in-process & stock-in-trade'. Both these line items are associated with the same note (Note 20).

Purchases of stock in the trade refer to all the purchases of finished goods that the company buys towards conducting its business. This stands at Rs.211 Crs. I will give you more clarity on this line item shortly.

Change in the inventory of finished goods refers to the costs of manufacturing incurred by the company in the past, but the goods manufactured in the past were sold in the present/current financial year. This stands at (Rs.29.2) Crs for the FY14.

A negative number indicates that the company produced more batteries in the FY14 than it managed to sell. To give a sense of proportion (in terms of sales and sales costs), the company deducts the cost incurred in manufacturing the extra goods from the current year costs. The company will add this cost when they manage to sell these extra products sometime in future. This cost, which the company adds back later, will be included in the "Purchases of Stock in Trade" line item.

Here is an extract of Note 20 which details the above two line items:

NOTE 20: PURCHASES OF STOCK IN TRADE AND CHANGES IN INVENTORIES OF FINISHED GOODS, WORK-IN-PROCESS AND STOCK-IN-TRADE

a) PURCHASE OF STOCK-IN-TRADE

Particulars	₹ million	
	Year ended March 31, 2014	Year ended March 31, 2013
Storage batteries	1,619.44	1,437.71
Home UPS	494.25	1,194.83
Total	2,113.69	2,632.54

b) CHANGES IN INVENTORIES OF FINISHED GOODS, WORK-IN-PROCESS AND STOCK-IN-TRADE

Particulars	Year ended March 31, 2014		Year ended March 31, 2013	
Work-in-process				
Opening stock	- Storage batteries	828.95		811.41
Less: Closing stock	- Storage batteries	1,052.11	(223.16)	828.95
				(17.54)
Finished goods				
Opening stock	- Storage batteries	536.44		563.49
Less: Closing stock	- Storage batteries	941.75		536.44
		(405.31)		27.05
	Less: Excise Duty on (increase) / decrease of finished goods	(41.95)	(363.36)	6.12
				20.93
Stock-in-trade				
Opening stock	- Storage batteries	145.01		21.15
	- Home UPS	223.97		23.55
		368.98		44.70
Less: Closing stock	- Storage batteries	36.73		145.01
	- Home UPS	37.83		223.97
		74.56	294.42	368.98
			(292.10)	(324.28)
Net increase in inventories				(320.89)

The details mentioned in the above extract are quite straightforward and is easy to understand. At this stage, it may not be necessary to dig deeper into this note. It is good to know where the total lies. However, when we take up 'Financial Modeling' as a separate module, we will delve deeper into this aspect.

The next line item on the expense side is "Employee Benefits Expense". This is quite intuitive as it includes expense incurred in terms of the salaries paid, contribution towards provident funds, and other employee welfare expenses. This stands at Rs.158 Crs for the FY14. Have a look at the extract of note 21, which details the 'Employee Benefits Expense'.

NOTE 21: EMPLOYEE BENEFITS EXPENSE

Particulars	₹ million	
	Year ended March 31, 2014	Year ended March 31, 2013
Salaries and wages	1,361.32	1,086.99
Contribution to provident and other funds:	81.54	69.81
Staff welfare expenses	140.30	105.50
Total	1,583.16	1,262.30

Here is something for you to think about – A company generating Rs.3482 Crs is spending only Rs.158 Crs or just 4.5% of its sales on its employees. In fact, this is the pattern across most companies (at least non IT). Perhaps it is time for you to rethink about that entrepreneurial dream you may have nurtured.

The next line item is the “Finance Cost / Finance Charges/ Borrowing Costs”. Finance cost is interest costs and other costs that an entity pays when it borrows funds. The interest is paid to the lenders of the company. The lenders could be banks or private lenders. The company’s finance cost stands at Rs.0.7 Crs for the FY14. We will discuss the debt and related matters more when we take up the chapter on the balance sheet later.

Following the finance cost, the next line item is “Depreciation and Amortization” costs which stand at Rs.64.5 Crs. To understand depreciation and amortization, we need to understand the concept of tangible and intangible assets.

A tangible asset has a physical form and provides an economic value to the company—for example, a laptop, a printer, a car, plants, machinery, buildings etc.

An intangible asset does not have a physical form but still provides an economic value to the company such as brand value, trademarks, copyrights, patents, franchises, customer lists etc.

An asset (tangible or intangible) has to be depreciated over its useful life. Useful life is defined as the period during which the asset can provide economic benefit to the company. For example, the useful life of a laptop could be 4 years. Let us understand depreciation better with the help of the following example.

Zerodha, a stockbroking firm generates Rs.100,000/- from the stockbroking business. However, Zerodha incurred Rs.65,000/- towards the purchase of a high-performance computer server. The economic life (useful life) of the server is expected to be 5 years. Now if you were to look into the earning capability of Zerodha it appears that on the one hand, Zerodha earned Rs.100,000/- and on the other hand, spent Rs.65,000/- and therefore retained just Rs.35,000/-. This skews the earnings data for the current year and does not really reflect the company's true earning capability.

Remember the asset even though purchased this year, would continue to provide economic benefits over its useful life. Hence it makes sense to spread the cost of acquiring the asset over its useful life. This is called depreciation. This means instead of showing an upfront lump sum expense (towards the purchase of an asset), the company can show a smaller amount spread across the useful life of an asset.

Thus Rs.65,000/- will be spread across the server's useful life, which is 5. Hence $65,000 / 5 = \text{Rs.}13,000/-$ would be depreciated every year over the next five years. By depreciating the asset, we are spreading the upfront cost. Hence after the depreciation

computation, Zerodha would now show its earnings as Rs.100,000 – Rs.13,000 = Rs.87,000/-.

We can do a similar exercise for non-tangible assets. The depreciation equivalent for non-tangible assets is called amortization.

Here is an important idea – Zerodha depreciates the cost of acquiring an asset over its useful life. However, there is an actual outflow of Rs.65,000/- paid towards the asset purchase in reality. But now, it seems like the P&L is not capturing this outflow. As an analyst, how do we get a sense of the cash movement? The cash movement is captured in the cash flow statement, which we will understand in the later chapters.

Here is the snapshot of Note 23, detailing the depreciation cost.

Particulars	₹ million	
	Year ended March 31, 2014	Year ended March 31, 2013
Depreciation	634.41	652.72
Amortisation	11.30	8.20
Total	645.71	660.92

Note: Depreciation includes impairment provision on freehold land of ₹NIL (PY ₹75.52 million).

The last line item on the expense side is “other expenses” at Rs.434.6 Crs. This is a huge amount classified under ‘other expenses’. Hence it deserves a detailed inspection.

NOTE 24: OTHER EXPENSES

Particulars		Year ended March 31, 2014	Year ended March 31, 2013	₹ million
A. Manufacturing expenses				
a. Stores and spares consumed (including packing material)		449.41	378.41	
b. Power and fuel		922.56	978.14	
c. Insurance		8.49	7.29	
d. Repairs and maintenance to				
i) Machinery	44.46		55.79	
ii) Buildings	18.72	63.18	14.28	70.07
Total (A)		1,443.64		1,433.91
B. Selling expenses				
a. Advertisement and promotion		275.85	154.41	
b. Freight outward		595.20	553.25	
c. Commission on sales		8.40	10.13	
d. Service expenses		219.36	94.16	
e. Warehousing and secondary freight		250.50	223.43	
f. Other sales expenses		242.15	155.81	
g. Royalty on sales		-	0.05	
h. Product warranties		383.15	494.62	
Total (B)		1,974.61		1,685.86

NOTE 24: OTHER EXPENSES (Contd.)

Particulars		Year ended March 31, 2014	Year ended March 31, 2013	₹ million
C. Administrative expenses				
a. Rent		114.10	98.31	
b. Commission to Non-Executive Chairman		175.99	140.88	
c. Payment to Auditors (Refer Note No. 28)		3.92	2.73	
d. Research and development expenses		4.00	2.83	
e. Donations		135.42	112.23	
f. Travel and conveyance		147.00	116.70	
g. Repairs and maintenance to office equipment		18.50	10.27	
h. Communication expenses		18.81	16.58	
i. Consultancy charges		34.45	39.18	
j. Information technology expenses		26.62	18.71	
k. Office maintenance expenses		92.79	83.24	
l. Loss on sale of current investments		0.20	-	
m. Sundry expenses		96.52	77.71	
Total (C)		868.32		719.37
D. Other expenses				
a. Provision for doubtful trade receivables		0.07	-	
b. Bad debts and irrecoverable advances written off	32.33		4.84	
Less: Opening provision reversed	30.27	2.06	3.63	1.21
c. Tangible fixed assets written off		24.90		44.27
d. Premium on forward contracts		1.08		-
Total (D)		28.11		45.48
E. Rates and taxes (excluding Income tax)				
a. Rates, taxes and licenses		5.57	3.63	
b. Duties and taxes (indirect taxes)		24.35	14.16	
c. Wealth tax		2.00	1.83	
Total (E)		31.92		19.62
Grand Total (A+B+C+D+E)		4,346.60		3,904.24

From the note, it is quite clear that other expenses include manufacturing, selling, administrative and other expenses. The details are mentioned in the note. For example,

Amara Raja Batteries Limited (ARBL) spent Rs.27.5 Crs on advertisements and promotional activities.

Adding up all the expenses mentioned in the expense side of P&L, it seems that Amara Raja Batteries has spent Rs.2941.6 Crs.

5.2 – The Profit before tax

It refers to the net operating income after deducting operating expenses but before deducting taxes and interest. Proceeding further on the P&L statement, we can see that ARBL has mentioned their profit before tax and exceptional item numbers.

Put the profit before tax (PBT) is:

Profit before Tax = Total Revenues – Total Operating Expenses

= Rs.3482 – Rs.2941.6

=Rs.540.5

However, there seems to be an exceptional item/ extraordinary item of Rs.3.8 Crs, which needs to be deducted. Exceptional items/ extraordinary items are expenses occurring at one odd time for the company, and the company does not foresee this as a recurring expense. Hence they treat it separately on the P&L statement.

Hence profit before tax and extraordinary items will be:

= 540.5 – 3.88

= Rs.536.6 Crs

The snapshot below (extract from P&L) shows the PBT(Profit Before Tax) of ARBL:

Profit before exceptional items and tax		5,405.54	4,309.74
Less: Exceptional items (net)	33	38.84	91.57
Profit before tax		5,366.70	4,218.17

5.3 – Net Profit after tax

After-tax, the net operating profit is defined as its operating profit after deducting its tax liability. We are now looking into the last part of the P&L statement, the profit after tax. This is also called the bottom line of the P&L statement.

Profit before tax		5,366.70	4,218.17
Less: Tax expense			
Current tax		1,580.00	1,377.97
Deferred tax (credit) / expense		106.23	(24.51)
Earlier year's (excess) / short provision		6.11	(2.34)
Profit for the year		3,674.36	2,867.05
Basic and diluted earnings per equity share of ₹1 each	37	21.51	16.78

As you can see from the snapshot above, to arrive at the profit after tax (PAT), we need to deduct all the applicable tax expenses from the PBT. Current tax is the corporate tax applicable for the given year. This stands at Rs.158 Crs. Besides this, there are other taxes that the company has paid. All taxes together total upto Rs.169.21 Crs. Deducting the tax amount from the PBT of Rs.536.6 gives us the profit after tax (PAT) at Rs.367.4 Crs.

Hence Net PAT = PBT – Applicable taxes.

The last line in the P&L statement talks about basic and diluted earnings per share. The EPS is one of the most frequently used statistics in financial analysis. EPS also serves to assess the stewardship and management role performed by the company directors and managers. The earnings per share (EPS) is a very sacred number which indicates how much the company is earning per face value of the ordinary share. It appears that ARBL is earning Rs.21.51 per share. The detailed calculation is as shown below:

NOTE 37: EARNINGS PER SHARE

Particulars	Year ended March 31, 2014	Year ended March 31, 2013
Numerator - Earnings		
Net profits for the period in ₹ million	3,674.36	2,867.05
Denominator - Equity shares		
Number of shares at the beginning of the year	17,08,12,500	17,08,12,500
Add: Shares issued during the year	-	-
Less: Shares forfeited / bought back during the year	-	-
Number of shares outstanding at the end of the year	17,08,12,500	17,08,12,500
Weighted average number of shares outstanding at the end of the year (Basic and Diluted)	17,08,12,500	17,08,12,500
Basic and diluted earnings per equity share of ₹1 each	₹21.51	₹16.78

The company indicates that 17,08,12,500 shares are outstanding in the market. Dividing the total profit after tax number by the outstanding number of shares, we can arrive at the earnings per share number. In this case:

Rs.367.4 Crs divided by 17,08,12,500 yields Rs.21.5 per share.

5.4 – Conclusion

Now that we have gone through all the line items in the P&L statement, let us relook at it in its entirety.

Statement of Profit and Loss for the year ended March 31, 2014

₹ million

Particulars	Note No.	Year ended March 31, 2014	Year ended March 31, 2013
REVENUE			
Sale of products		38,041.27	32,949.37
Less: Excise duty		4,005.15	3,512.45
Net sale of products		34,036.12	29,436.92
Sale of services		309.32	137.02
Other operating revenue		21.15	15.21
Net revenue from operations	17	34,366.59	29,589.15
Other income	18	455.14	465.51
Total Revenue		34,821.73	30,054.66
EXPENSES			
Cost of materials consumed	19	21,011.95	17,603.12
Purchases of stock-in-trade	20	2,113.69	2,632.54
Changes in inventories of finished goods, work-in-process and stock-in-trade	20	(292.10)	(320.89)
Employee benefits expense	21	1,583.16	1,262.30
Finance costs	22	7.18	2.69
Depreciation and amortisation expense [includes impairment loss of ₹Nil (PY ₹75.52 million)]	23	645.71	660.92
Other expenses	24	4,346.60	3,904.24
Total Expenses		29,416.19	25,744.92
Profit before exceptional items and tax		5,405.54	4,309.74
Less: Exceptional items (net)	33	38.84	91.57
Profit before tax		5,366.70	4,218.17
Less: Tax expense			
Current tax		1,580.00	1,377.97
Deferred tax (credit) / expense		106.23	(24.51)
Earlier year's (excess) / short provision		6.11	(2.34)
Profit for the year		3,674.36	2,867.05
Basic and diluted earnings per equity share of ₹1 each	37	21.51	16.78

Hopefully, the statement above should look more meaningful to you by now. Remember, almost all line items in the P&L statement will have an associated note. You can always look into the notes to seek greater clarity. Also, we have just understood how to read the P&L statement at this stage, but we still need to analyze what the numbers mean. We will do this when we take up the financial ratios. The P&L statement is also very closely connected with the other two financial statements, i.e. the balance sheet and the cash flow statement. We will explore these connections at a later stage.

Key takeaways from this chapter:

1. The P&L statement's expense statement contains information on all the expenses incurred by the company during the financial year.
2. Each expense can be studied concerning a note which you can explore for further information.
3. Depreciation and amortization is a way of spreading the cost of an asset over its useful life.
4. The cost of interest and other charges paid when the company borrows money for its capital expenditure.
5. $PBT = \text{Total Revenue} - \text{Total Expense} - \text{Exceptional items (if any)}$
6. Net PAT = PBT – applicable taxes
7. EPS reflects the earning capacity of a company on a per-share basis. Earnings are profit after tax and preferred dividends.
8. $EPS = \text{PAT} / \text{Total number of outstanding ordinary shares}$

Understanding Balance Sheet Statement

(Part 1)



6.1 – The balance sheet equation

While the P&L statement gives us information about the company's profitability, the balance sheet gives us information about the assets, liabilities, and shareholders equity. The P&L statement, as you understood, discusses the profitability for the financial year under consideration. Hence it is good to say that the P&L statement is standalone. However, the balance sheet is prepared on a flow basis, meaning, it has financial information about the company right from the time it was incorporated. Thus while the P&L talks about how the company performed in a particular financial year; the balance sheet, on the other hand, discusses how the company has evolved financially over the years.

Have a look at the balance sheet of Amara Raja Batteries Limited (ARBL):

Balance Sheet as at March 31, 2014

Particulars	Note No.	As at March 31, 2014	As at March 31, 2013	₹ million
EQUITY AND LIABILITIES				
Shareholders' funds				
Share capital	2	170.81	170.81	
Reserves and surplus	3	13,456.20	10,427.33	
		13,627.01		10,598.14
Non-current liabilities				
Long-term borrowings	4	759.47	773.13	
Deferred tax liabilities (net)	5	301.33	195.09	
Long-term provisions	6	369.57	376.41	
		1,430.37		1,344.63
Current liabilities				
Short-term borrowings	7	83.83	98.63	
Trade payables	8	1,277.79	1,362.84	
Other current liabilities	9	2,156.68	1,807.26	
Short-term provisions	6	2,818.73	2,493.20	
		6,337.03		5,761.93
Total		21,394.41		17,704.70
ASSETS				
Non-current assets				
Fixed assets	10			
Tangible assets		6,198.94	3,554.97	
Intangible assets		32.96	33.69	
Capital work-in-progress		1,443.60	1,024.97	
Intangible assets under development		3.14	4.84	
		7,678.64	4,618.47	
Non-current investments	11	160.76	160.76	
Long-term loans and advances	12	567.69	353.52	
Other non-current assets	13	1.22	3.43	
		8,408.31		5,136.18
Current assets				
Inventories	14	3,350.08	2,928.58	
Trade receivables	15	4,527.89	3,806.77	
Cash and bank balances	16	2,945.67	4,107.90	
Short-term loans and advances	12	2,119.30	1,656.78	
Other current assets	13	43.16	68.49	
		12,986.10		12,568.52
Total		21,394.41		17,704.70
Significant accounting policies	1			

Statement on significant accounting policies and notes are an integral part of the financial statements

As you can see, the balance sheet contains details about the assets, liabilities, and equity.

We had discussed assets in the previous chapter. **Assets**, both tangible and intangible, are owned by the company. An asset is a resource controlled by the company and is expected to have an economic value in the future. Typical examples of assets include plants, machinery, cash, brands, patents etc. Assets are of two types, current and non-current, we will discuss these later in the chapter.

Liability, on the other hand, represents the company's obligation. The company takes up the obligation because it believes these obligations will provide economic value in the long run. Liability in simple words is the loan that the company has taken, and it is obligated to repay. Typical examples of obligation include short term borrowing, long term borrowing, payments due etc. Liabilities are of two types, namely current and non-current. We will discuss the kinds of liabilities later on in the chapter.

In any typical balance sheet, the company's total assets should be equal to the company's total liabilities. Hence,

$$\text{Assets} = \text{Liabilities}$$

The equation above is called the balance sheet equation or the accounting equation. In fact, this equation depicts the balance sheet's key property, i.e. the balance sheet, should always be balanced. In other words, the Assets of the company should be equal to the Liabilities of the company. This is because everything that a company owns (Assets) has to be purchased either from either the owner's capital or liabilities.

Owners Capital is the difference between the Assets and Liabilities. It is also called the 'Shareholders Equity' or the 'Net worth'. Representing this in the form of an equation :

$$\text{Shareholders equity} = \text{Assets} - \text{Liabilities}$$

6.2 –A quick note on shareholders' funds

As we know, the balance sheet has two main sections, i.e. the assets and the liabilities.

The liabilities, as you know, represent the obligation of the company. The shareholders' fund, which is integral to the balance sheet's liabilities side, is highlighted in the snapshot below. Many people find this term a little confusing.

Balance Sheet as at March 31, 2014		₹ million	
Particulars	Note No.	As at March 31, 2014	As at March 31, 2013
EQUITY AND LIABILITIES			
Shareholders' funds			
Share capital	2	170.81	170.81
Reserves and surplus	3	13,456.20	10,427.33
		13,627.01	10,598.14
Non-current liabilities			
Long-term borrowings	4	759.47	773.13
Deferred tax liabilities (net)	5	301.33	195.09
Long-term provisions	6	369.57	376.41
		1,430.37	1,344.63
Current liabilities			
Short-term borrowings	7	83.83	98.63
Trade payables	8	1,277.79	1,362.84
Other current liabilities	9	2,156.68	1,807.26
Short-term provisions	6	2,818.73	2,493.20
		6,337.03	5,761.93
Total		21,394.41	17,704.70

On the one hand, if you think about it, we are discussing liabilities that represent the company's obligation. On the other hand, we discuss the shareholders' fund, which represents the shareholders' wealth. This is quite counter-intuitive, isn't it? How can liabilities and shareholders' funds appear on the 'Liabilities' side of the balance sheet? After all the shareholder's funds represent the funds belonging to its shareholders' which in the true sense is an asset and not really a liability.

To make sense of this, you should change how you look at a company's financial statement. Think about the entire company as an individual, whose sole job is to run its core operation and create wealth for its shareholders'. By thinking this way, you are in fact separating the shareholders' (which also includes its promoters) and the company. With this new perspective, now think about the financial statement. You will appreciate that the financial statements are a statement published by the company (which is an entity on its own) to communicate to the world about its financial well being.

This also means the shareholders' funds do not belong to the company as it rightfully belongs to its shareholders'. Hence from the company's perspective, the shareholders' funds are an obligation payable to shareholders'. Hence this is shown on the liabilities side of the balance sheet.

6.3 -The liability side of the balance sheet

The liabilities side of the balance sheet details all the liabilities of the company. Within liabilities, there are three sub-sections – shareholders' fund, non-current liabilities, and current liabilities. The first section is the shareholders' funds.

Balance Sheet as at March 31, 2014		₹ million	
Particulars	Note No.	As at March 31, 2014	As at March 31, 2013
EQUITY AND LIABILITIES			
Shareholders' funds			
Share capital	2	170.81	170.81
Reserves and surplus	3	13,456.20	10,427.33
		13,627.01	10,598.14

To understand share capital, think about a fictional company issuing shares for the first time. Imagine, Company ABC issues 1000 shares, with each share having a face value of Rs.10 each. In this case, the share capital would be $\text{Rs.}10 \times 1000 = \text{Rs.}10,000/-$ (Face value X number of shares).

In the case of ARBL, the share capital is Rs.17.081 Crs (as published in the Balance Sheet), and the Face Value is Rs.1/- . I got the FV value from the NSE's website:

Amara Raja Batteries Limited					
Series: EQ			Market Tracker		
634.70	Pr. Close	Open	High	Low	Close
▼ -4.05 -0.63%	638.75	631.05	641.90	624.05	-
Trade Snapshot		Company Information		Peer Comparison	
		Print		Historical Data	
VWAP	633.86	Order Book		Intra-day Chart	Stock V/s Index Chart
Face Value	1.00	Buy Qty.		Sell Price	Quarterly Charts
Traded Volume (shares)	1,04,215	3	634.70	635.00	32
Traded Value (lacs)	660.58	25	633.20	635.30	50
Free Float Market Cap(Crs)	5,230.41	10	633.15	635.55	72
52 week high	674.95 (12-SEP-14)	10	633.10	635.60	15
52 week low	288.00 (01-OCT-13)	12	632.80	635.70	50
Adjusted 52 week high	-	30,213	Total Quantity	35,663	
Adjusted 52 week low	-				
Lower Price Band	511.00				
Upper Price Band	766.50				
Note:					

+ Security-wise Delivery Position (19SEP2014)
+ Value at Risk (VaR in %)

I can use the FV and share capital value to calculate the number of shares outstanding.

We know:

$$\text{Share Capital} = \text{FV} * \text{Number of shares}$$

Therefore,

$$\text{Number of shares} = \text{Share Capital} / \text{FV}$$

Hence in case of ARBL,

Number of shares = 17,08,10,000 / 1

= **17,08,10,000 shares**

The next line item on the Balance Sheet's liability side is the 'Reserves and Surplus'.

Reserves are usually money earmarked by the company for specific purposes. The surplus is where all the profits of the company reside. The reserves and surplus for ARBL stand at Rs.1,345.6 Crs. The reserves and surplus have an associated note, numbered 3. Let us look into the same.

NOTE 3: RESERVES AND SURPLUS

₹ million

Particulars	As at March 31, 2014	As at March 31, 2013
Capital reserve	0.01	0.01
Securities premium account	311.86	311.86
General reserve		
As per last Balance Sheet	1,817.27	1,530.56
Add: Transfer from surplus in the Statement of Profit and Loss	367.44	286.71
	2,184.71	1,817.27
Surplus in the Statement of Profit and Loss		
As per last Balance Sheet	8,298.19	6,221.45
Add: Profit for the year	3,674.36	2,867.05
Amount available for appropriation	11,972.55	9,088.50
Less: Appropriations		
Transfer to general reserve	367.44	286.71
Proposed dividend	551.72	430.45
Dividend tax on proposed dividend	93.77	73.15
	10,959.62	8,298.19
Total	13,456.20	10,427.33

As you can notice from the note, the company has earmarked funds across three kinds of reserves:

- Capital reserves** – Usually earmarked for long term projects. Clearly, ARBL does not have much amount here. This amount belongs to the shareholders, but cannot be distributed to them.
- Securities premium reserve/account** – This is where the premium over and above the shares' face/par value sits. ARBL has an Rs.31.18 Crs under this reserve
- General reserve** – This is where all the company's accumulated profits, which is not yet distributed to the shareholder, reside. The company can use the money here as a buffer. As you can see, ARBL has Rs.218.4 Crs in general reserves.

The next section deals with the surplus. As mentioned earlier, the surplus holds the profits made during the year. Couple of interesting things to note:

1.

- As per the last year (FY13) balance sheet, the surplus was Rs.829.8Crs. This is what is stated as the opening line under a surplus. See the image below:

NOTE 3: RESERVES AND SURPLUS			₹ million
Particulars	As at March 31, 2014	As at March 31, 2013	
Capital reserve	0.01	0.01	
Securities premium account	311.86	311.86	
General reserve			
As per last Balance Sheet	1,817.27	1,530.56	
Add: Transfer from surplus in the Statement of Profit and Loss	367.44	286.71	
		2,184.71	1,817.27
Surplus in the Statement of Profit and Loss			
As per last Balance Sheet	8,298.19	6,221.45	
Add: Profit for the year	3,674.36	2,867.05	
Amount available for appropriation	11,972.55	9,088.50	
Less: Appropriations			
Transfer to general reserve	367.44	286.71	
Proposed dividend	551.72	430.45	
Dividend tax on proposed dividend	93.77	73.15	
		10,959.62	8,298.19
Total	13,456.20	10,427.33	

- The current year (FY14) profit of Rs.367.4 Crs is added to previous years closing balance of surplus. Few things to take note here:

1. Notice how the bottom line of P&L is interacting with the balance sheet. This highlights a significant fact – all three financial statements are closely related.
 2. Notice how the previous year balance sheet number is added up to this year's number. This highlights that the balance sheet is prepared on a flow basis, adding the carrying forward numbers year on year.
2. Previous year's balance plus this year's profit adds up to Rs.1197.2 Crs. The company can choose to apportion this money for various purposes.
 1. The first thing a company does is transfer some money from the surplus to general reserves so that it will come handy for future use. They have transferred close to Rs.36.7 Crs for this purpose.
 2. After transferring to general reserves, they have distributed Rs.55.1 Crs as dividends over which they have to pay Rs.9.3 Crs as dividend distribution taxes.
 3. After making the necessary apportionments the company has Rs.1095.9 Crs as surplus as closing balance. This, as you may have guessed, will be the opening balance for next year's (FY15) surplus account.
 4. Total Reserves and Surplus = Capital reserve + securities premium reserve + general reserves + surplus for the year. This stands at Rs.1345.6 Crs for the FY 14 against Rs.1042.7 Crs for the FY13

The total shareholders' fund is a sum of share capital and reserves & surplus. Since this amount on the balance sheet's liability side represents the money belonging to shareholders', this is called the 'shareholders funds'.

6.4 – Non-Current Liabilities

Non-current liabilities represent the long term obligations, which the company intends to settle/ pay off not within 365 days/ 12 months of the balance sheet date. These obligations stay on the books for a few years. Non-current liabilities are generally settled after 12 months after the reporting period.

Here is the snapshot of the non-current liabilities of Amara Raja batteries Ltd.

Non-current liabilities				
Long-term borrowings	4	759.47	773.13	
Deferred tax liabilities (net)	5	301.33	195.09	
Long-term provisions	6	369.57	376.41	
		1,430.37		1,344.63

The company has three types of non-current liabilities; let us inspect each one of them.

The long term borrowing (associated with note 4) is the first line item within the non-current liabilities. Long term borrowing is one of the most important line items in the entire balance sheet as it represents the amount of money that the company has borrowed through various sources. Long term borrowing is also one of the key inputs while calculating some of the financial ratios. Subsequently, in this module, we will look into the financial ratios.

Let us look into the note associated with 'Long term borrowings':

NOTE 4: LONG-TERM BORROWINGS

₹ million

Particulars	Non-current portion		Current maturities	
	As at March 31, 2014	As at March 31, 2013	As at March 31, 2014	As at March 31, 2013
Deferred payment liabilities				
Interest free sales tax deferment (Unsecured)	759.47	773.13	13.66	9.27
Total	759.47	773.13	13.66	9.27

Interest free sales tax deferment

The Company has availed interest free sales tax deferment under Andhra Pradesh sales tax deferment scheme (Target 2000) from the financial year 1997-98 as per the eligibility norms in respect of expanded capacities. The Company has availed total deferment of ₹811.40 million since March, 1998, which is repayable after a period of 14 years from the date of each availment in annual installments.

- Eligible amount of interest free sales tax deferment - ₹813.33 million
- Period eligible for availment - January 1998 till September 2015

From the note, it is quite clear that the 'Long term borrowings' is in the form of 'interest-free sales tax deferment'. To understand what interest-free sales tax deferment really means, the company has explained the note below (I have highlighted the same in a red box). It appears to be some tax incentive from the state government. The company plans to settle this amount over a period of 14 years.

You will find that there are many companies which do not have long term borrowings (debt). While it is good to know that the company has no debt, you must also question why there is no debt? Is it because the banks are refusing to lend to the company? Or is it because the company is not taking initiatives to expand its business operations. Of course, we will deal with the analysis part of the balance sheet later in the module.

Do recollect; we looked at 'Finance Cost' as a line item when we looked at the P&L statement. If the debt of the company is high, then the finance cost will also be high.

The next line item within the non-current liability is '**Deferred Tax Liability**'. The deferred tax liability is basically a provision for future tax payments. The company foresees a

situation where it may have to pay additional taxes in the future; hence they set aside some funds for this purpose. Why do you think the company would put itself in a situation where it has to pay more taxes for the current year at some point in the future? This happens because of the difference in the way depreciation is treated as per the Company's act and Income tax. We will not get into this aspect as we will digress from our objective of becoming users of financial statements. But do remember, deferred tax liability arises due to the treatment of depreciation.

The last line item within the non-current liability is the '**Long term provisions**'. Long term provisions are usually money set aside for employee benefits such as gratuity; leave encashment, provident funds etc.

6.5 – Current liabilities

Current liabilities are a company's obligations which are expected to be settled within 365 days (less than 1 year). The term 'Current' is used to indicate that the obligation will be settled soon, within a year. Going by that 'non-current' clearly means obligations that extend beyond 365 days.

Think about this way – if you buy a mobile phone on EMI (via a credit card) you obviously plan to repay your credit card company within a few months. This becomes your 'current liability'. However, if you buy an apartment by seeking a 15 year home loan from a housing finance company, it becomes your 'non-current liability'.

Here is the snapshot of ARBL's current liabilities:

Current liabilities				
Short-term borrowings	7	83.83		98.63
Trade payables	8	1,277.79		1,362.84
Other current liabilities	9	2,156.68		1,807.26
Short-term provisions	6	2,818.73		2,493.20

As you can see, there are 4 line items within the current liabilities. The first one is the short term borrowings. As the name suggests, these are short term obligations of the company usually undertaken by the company to meet day to day cash requirements (also called working capital requirements). Here is the extract of note 7, which details what short term borrowings mean:

NOTE 7: SHORT-TERM BORROWINGS

Particulars	₹ million	
	As at March 31, 2014	As at March 31, 2013
Loans repayable on demand		
Cash credit from banks (Secured)		
State Bank of India	56.57	98.63
Andhra Bank	27.26	-
Total	83.83	98.63

The working capital facilities from State Bank of India, State Bank of Hyderabad, Andhra Bank and The Bank of Nova Scotia are secured by hypothecation of all current assets of the Company. The fixed assets of the Company are provided as collateral security by way of pari-passu second charge for the working capital facilities availed from State Bank of India.

Clearly, as you can see, these are short-term loans available from the State bank of India and Andhra Bank towards meeting the working capital requirements. It is interesting to note that the short term borrowing is also kept at a low level, at just Rs.8.3Crs.

The next line item is Trade Payable (also called account payable) at Rs.127.7 Crs. These are obligations payable to vendors who supply to the company. The vendors

could be raw material suppliers, utility companies providing services, stationery companies etc. Have a look at note 8 which gives the details:

NOTE 8: TRADE PAYABLES		₹ million	
Particulars		As at March 31, 2014	As at March 31, 2013
(Unsecured)			
Trade payables			
i) Dues to Micro, Small and Medium Enterprises		4.87	7.17
ii) Others		1,272.92	1,355.67
Total		1,277.79	1,362.84

Notes relating to Micro, Small and Medium Enterprises

Based on, and to the extent of information received from the suppliers with regard to their status under Micro, Small and Medium Enterprises Development Act, 2006 (MSMED Act), on which the auditors have relied, the disclosure requirements of Schedule VI to the Companies Act, 1956 with regard to the payments made/due to Micro, Small and Medium Enterprises are given below:

The next line item says 'Other current liabilities' which stands at Rs.215.6 Crs. Usually 'Other current Liabilities' are obligations associated with the statutory requirements and obligations that are not directly related to the company's operations. Here is note 9 associated with 'Other current liabilities':

Notes forming part of the Financial Statements

NOTE 9: OTHER CURRENT LIABILITIES		₹ million	
Particulars		As at March 31, 2014	As at March 31, 2013
(Unsecured)			
Unclaimed dividends*		17.04	13.22
Other payables			
a) Employee related payables	370.12	311.60	
b) Outstanding liabilities	860.06	643.10	
c) Commission payable to Non-Executive Chairman	175.99	140.88	
d) Excise duty/Service tax payable	15.36	4.17	
e) Sales tax payables	169.88	200.39	
f) TDS/TCS payables	31.31	14.48	
g) Advances from customers	25.02	42.52	
h) Creditors for capital goods/services	176.30	214.15	
i) Other non-trade payables	301.94	2,125.98	1,784.77
Sub-Total		2,143.02	1,797.99
Add: Current maturities of long-term debt (Refer Note No. 4)			
Interest free sales tax deferment (Unsecured) repayable within 12 months		13.66	9.27
Total		2,156.68	1,807.26

*The unclaimed dividends represent those relating to the years 2006-07 to 2012-13 (for previous year from 2005-06 to 2011-12) and no part thereof has remained unpaid or unclaimed for a period of seven years or more from the date they became due for payment requiring transfer to the Investor Education and Protection Fund.

The last line item in current liabilities is the 'Short term provisions' which stands at Rs.281.8 Crs. Short term provisions are quite similar to long term provisions, which deals with setting aside funds for employee benefits such as gratuity, leave encashment, provident funds etc. Interestingly the note associated with 'Short term Provisions' and the 'Long term provisions' is the same. Have a look at the following:

Non-current liabilities				
Long-term borrowings	4	759.47	773.13	
Deferred tax liabilities (net)	5	301.33	195.09	
Long-term provisions	6	369.57	376.41	
		1,430.37		1,344.63
Current liabilities				
Short-term borrowings	7	83.83	98.63	
Trade payables	8	1,277.79	1,362.84	
Other current liabilities	9	2,156.68	1,807.26	
Short-term provisions	6	2,818.73	2,493.20	

Since note 6 is detailing both long and short term provisions, it runs into several pages; hence, for this reason, I will not represent an extract of it. Those who are curious to look into the same can refer to pages 80, 81, 82 and 83 in the FY14 Annual report for Amara Raja Batteries Limited.

However, from the user of a financial statement perspective, all you need to know is that these line items (short and long term provisions) deal with the employee and related benefits. Please note, one should always look at the associated note to run through the details.

We have now looked through half of the balance sheet, which is broadly classified as the Balance sheet's Liabilities side. Let us relook at the balance sheet once again to get a perspective:

Balance Sheet as at March 31, 2014

Particulars	Note No.	₹ million	
		As at March 31, 2014	As at March 31, 2013
EQUITY AND LIABILITIES			
Shareholders' funds			
Share capital	2	170.81	170.81
Reserves and surplus	3	13,456.20	10,427.33
		13,627.01	10,598.14
Non-current liabilities			
Long-term borrowings	4	759.47	773.13
Deferred tax liabilities (net)	5	301.33	195.09
Long-term provisions	6	369.57	376.41
		1,430.37	1,344.63
Current liabilities			
Short-term borrowings	7	83.83	98.63
Trade payables	8	1,277.79	1,362.84
Other current liabilities	9	2,156.68	1,807.26
Short-term provisions	6	2,818.73	2,493.20
		6,337.03	5,761.93
Total		21,394.41	17,704.70
ASSETS			
Non-current assets			
Fixed assets	10		
Tangible assets		6,198.94	3,554.97
Intangible assets		32.96	33.69
Capital work-in-progress		1,443.60	1,024.97
Intangible assets under development		3.14	4.84
		7,678.64	4,618.47
Non-current investments	11	160.76	160.76
Long-term loans and advances	12	567.69	353.52
Other non-current assets	13	1.22	3.43
		8,408.31	5,136.18
Current assets			
Inventories	14	3,350.08	2,928.58
Trade receivables	15	4,527.89	3,806.77
Cash and bank balances	16	2,945.67	4,107.90
Short-term loans and advances	12	2,119.30	1,656.78
Other current assets	13	43.16	68.49
		12,986.10	12,568.52
Total		21,394.41	17,704.70
Significant accounting policies	1		

Statement on significant accounting policies and notes are an integral part of the financial statements

Clearly,

Total Liability = Shareholders' Funds + Non Current Liabilities + Current Liabilities

$$= 1362.7 + 143.03 + 633.7$$

Total Liability = Rs.2139.4 Cars

Key takeaways from this chapter

1. A Balance sheet also called the Statement of Financial Position is prepared on a flow basis that depicts the company's financial position at any given point in time. It is a statement which shows what the company owns (assets) and what the company owes (liabilities)
2. A business will generally need a balance sheet when it seeks investors, applies for loans, submits taxes etc.
3. Balance sheet equation is Assets = Liabilities + Shareholders' Equity.
4. Liabilities are obligations or debts of a business from past transactions, and Share capital is the number of shares * face value.
5. Reserves are the funds earmarked for a specific purpose, which the company intends to use in future.
6. The surplus is where the profits of the company reside. This is one of the points where the balance sheet and the P&L interact. Dividends are paid out of the surplus.
7. Shareholders' equity = Share capital + Reserves + Surplus. Equity is the claim of the owners on the assets of the company. It represents the assets that remain after deducting the liabilities if you rearrange the Balance Sheet equation, $\text{Equity} = \text{Assets} - \text{Liabilities}$.
8. Non-current liabilities or the long-term liabilities are expected to be settled in not less than 365 days or 12 months of the balance sheet date.
9. Deferred tax liabilities arise due to the discrepancy in the way the depreciation is treated. Deferred tax liabilities are amounts of income taxes payable in the future concerning taxable differences as per accounting books and tax books.

10. Current liabilities are the company's obligations to settle within 365 days /12 months of the balance sheet date.

11. In most cases, both long and short term provisions are liabilities dealing with employee-related matters

12. Total Liability = Shareholders' Funds + Non-Current Liabilities + Current Liabilities. . Thus, total liabilities represent the total amount of money the company owes to others

Understanding the Balance Sheet

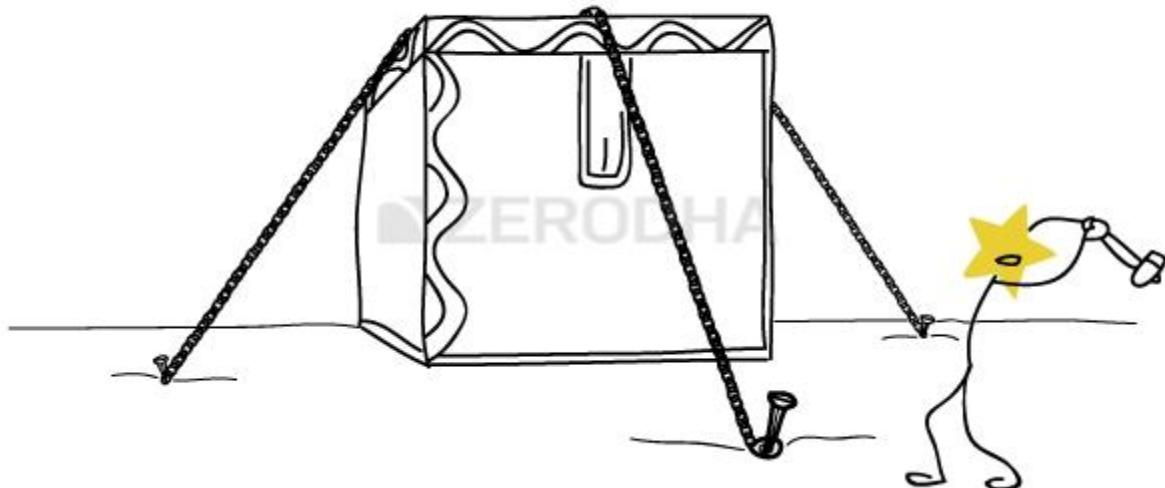
Statement (Part 2)

7.1 – The Assets side of Balance Sheet

In the previous chapter, we looked at the liability side of the balance sheet in detail. We will now understand the 2nd half of the balance sheet, i.e. the Asset side of the balance sheet. The Asset side shows us all the company's assets (in different forms) right from its inception. Assets in simple terms are the resources held by a company, which help in generating the revenues. Here is the snapshot of the Assets side of the balance sheet:

ASSETS				
Non-current assets				
Fixed assets	10			
Tangible assets		6,198.94	3,554.97	
Intangible assets		32.96	33.69	
Capital work-in-progress		1,443.60	1,024.97	
Intangible assets under development		3.14	4.84	
		7,678.64	4,618.47	
Non-current investments	11	160.76	160.76	
Long-term loans and advances	12	567.69	353.52	
Other non-current assets	13	1.22	3.43	
		8,408.31	5,136.18	
Current assets				
Inventories	14	3,350.08	2,928.58	
Trade receivables	15	4,527.89	3,806.77	
Cash and bank balances	16	2,945.67	4,107.90	
Short-term loans and advances	12	2,119.30	1,656.78	
Other current assets	13	43.16	68.49	
		12,986.10	12,568.52	
Total		21,394.41	17,704.70	

As you can see, the Asset side has two main sections, i.e. Non-current assets and Current assets. Both these sections have several line items (with associated notes) included within. We will look into each one of these line items.



7.2 – Non-current assets (Fixed Assets)

Similar to what we learnt in the previous chapter, non-current assets talk about the company's assets, the economic benefit of which is enjoyed over a long period (beyond 365 days). Remember, an asset owned by a company is expected to give the company an economic benefit over its useful life.

If you notice within the non-current assets, there is a subsection called "Fixed Assets" with many line items under it. Fixed assets are assets (both tangible and intangible) that the company owns, which cannot be converted to cash easily or which cannot be liquidated easily. Typical examples of fixed assets are land, plant and machinery, vehicles, building etc. Intangible assets are also considered fixed assets because they benefit companies over a long period of time. If you see, all the line items within fixed assets have a common note, numbered 10, which we will explore in great detail shortly.

Here is the snapshot of fixed assets of Amara Raja Batteries Limited:

Fixed assets	10		
Tangible assets	6,198.94	3,554.97	
Intangible assets	32.96	33.69	
Capital work-in-progress	1,443.60	1,024.97	
Intangible assets under development	3.14	4.84	
	7,678.64	4,618.47	

The first line item 'Tangible Assets' is valued at Rs.619.8Crs. Tangible assets consist of assets which have a physical form. In other words, these assets can be seen or touched. This usually includes plant and machinery, vehicles, buildings, fixtures etc.

Likewise, the next line item reports the value of Intangible assets valued at Rs.3.2 Crs. Intangible assets are assets which have an economic value but do not have a physical nature. This usually includes patents, copyrights, trademarks, designs etc.

Remember, when we discussed the P&L statement we discussed depreciation.

Depreciation is a way of spreading the cost of acquiring the asset over its useful life. The value of the assets depletes over time, as the assets lose their production capacity due to obsolescence and physical wear and tear. This value is called the Depreciation expense, shown in the Profit and Loss Account and the Balance Sheet.

All the assets should be depreciated over its useful life. Keeping this in perspective, when the company acquires an asset, it is called the 'Gross Block'. Depreciation should be deducted from the Gross block, after which we can arrive at the 'Net Block'.

$$\text{Net Block} = \text{Gross Block} - \text{Accumulated Depreciation}$$

Note, the term 'Accumulated' is used to indicate all the depreciation value since its incorporation.

When we read tangible assets at Rs.619.8 Crs and Intangible assets at Rs.3.2 Crs, remember the company is reporting its Net block, which is Net of Accumulated depreciation. Have a look at Note 10, which is associated with fixed assets.

NOTE 10: FIXED ASSETS & DEPRECIATION

Particulars	GROSS BLOCK			DEPRECIATION / AMORTISATION				IMPAIRMENT			NET BLOCK			
	As at March 31, 2013	Additions during the year	Deductions during the year	As at March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	As at March 31, 2014	As at March 31, 2013
A. Tangible assets														
Land and land development														
- Freehold land	170.17	-	-	170.17	-	-	-	75.52	-	-	75.52	94.65	94.65	
- Leasehold land*	133.65	267.86	-	401.51	0.84	2.22	3.06	-	-	-	-	398.45	132.81	
Buildings	934.48	858.44	6.68	1,786.24	172.70	28.42	3.76	197.36	-	-	-	1,588.88	761.78	
R&D buildings	9.90	9.03	-	18.93	4.59	0.48	-	5.07	-	-	-	13.86	5.31	
Plant & machinery	4,549.43	1,950.56	121.13	6,378.86	2,527.37	522.95	105.11	2,945.21	-	-	-	3,433.65	2,022.06	
R&D plant & machinery	118.84	36.85	9.75	145.94	81.90	12.84	8.95	85.79	-	-	-	60.15	36.94	
Electrical installations	468.15	58.55	4.52	522.18	153.50	31.08	4.24	180.34	-	-	-	341.84	314.65	
Furniture	79.25	21.56	0.002	100.81	42.45	4.87	0.002	47.32	-	-	-	53.49	36.80	
Vehicles	105.50	37.65	12.54	130.61	33.81	9.73	10.07	33.47	-	-	-	97.14	71.69	
Office equipment	181.06	63.16	6.71	237.51	102.78	24.09	6.19	120.68	-	-	-	116.83	78.28	
Total	6,750.43	3,303.66	161.33	9,892.76	3,119.94	636.68	138.32	3,618.30	75.52	-	75.52	6,198.94	3,554.97	
Previous year	6,181.26	724.78	155.61	6,750.43	2,656.46	578.04	114.56	3,119.94	-	75.52	-	75.52	3,554.97	
B. Intangible assets														
Brands/trademarks	0.12	-	-	0.12	0.12	-	-	0.12	-	-	-	-	-	
Computer software	52.08	10.30	-	62.38	18.39	11.04	-	29.43	-	-	-	32.96	33.69	
Total	52.20	10.30	-	62.50	18.51	11.04	-	29.55	-	-	-	32.96	33.69	
Previous year	31.23	20.97	-	52.20	10.31	8.20	-	18.51	-	-	-	33.69	20.92	
Grand Total (A+B)	6,802.63	3,313.96	161.33	9,955.26	3,138.45	647.72	138.32	3,647.85	75.52	-	75.52	6,231.90	3,588.66	
Previous year	6,212.49	745.75	155.61	6,802.63	2,666.77	586.24	114.56	3,138.45	-	75.52	-	75.52	3,588.66	
C. Capital work-in-progress														
D. Intangible assets under development														

*Leasehold land represents one time lease rental paid for 99 years. Amortisation of leasehold land rent of ₹2.85 million is capitalised/include in capital work-in-progress as part of pre-operative expenses.

At the top of the note, you can see the Gross Block, Depreciation/amortization, and a Net block is highlighted. I have also highlighted two netblock numbers which tally with what was mentioned in the balance sheet.

Let us look at a few more interesting aspects of this note. Notice under Tangible assets you can see the list of all the assets the company owns.

Particulars	GROSS BLOCK			DEPRECIATION / AMORTISATION				IMPAIRMENT			NET BLOCK		
	As at March 31, 2013	Additions during the year	Deductions during the year	As at March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	As at March 31, 2013
A. Tangible assets													
Land and land development													
- Freehold land	170.17	-	-	170.17	-	-	-	75.52	-	-	75.52	94.65	94.65
- Leasehold land*	133.65	267.86	-	401.51	0.84	2.22	3.06	-	-	-	-	398.45	132.81
Buildings	934.48	858.44	6.68	1,786.24	172.70	28.42	3.76	197.36	-	-	-	1,588.88	761.78
R&D buildings	9.90	9.03	-	18.93	4.59	0.48	-	5.07	-	-	-	13.86	5.31
Plant & machinery	4,549.43	1,950.56	121.13	6,378.86	2,527.37	522.95	105.11	2,945.21	-	-	-	3,433.65	2,022.06
R&D plant & machinery	118.84	36.85	9.75	145.94	81.90	12.84	8.95	85.79	-	-	-	60.15	36.94
Electrical installations	468.15	58.55	4.52	522.18	153.50	31.08	4.24	180.34	-	-	-	341.84	314.65
Furniture	79.25	21.56	0.002	100.81	42.45	4.87	0.002	47.32	-	-	-	53.49	36.80
Vehicles	105.50	37.65	12.54	130.61	33.81	9.73	10.07	33.47	-	-	-	97.14	71.69
Office equipment	181.06	63.16	6.71	237.51	102.78	24.09	6.19	120.68	-	-	-	116.83	78.28
Total	6,750.43	3,303.66	161.33	9,892.76	3,119.94	636.68	138.32	3,618.30	75.52	-	75.52	6,198.94	3,554.97
Previous year	6,181.26	724.78	155.61	6,750.43	2,656.46	578.04	114.56	3,119.94	-	75.52	-	75.52	3,554.97
B. Intangible assets													
Brands/trademarks	0.12	-	-	0.12	0.12	-	-	0.12	-	-	-	-	-
Computer software	52.08	10.30	-	62.38	18.39	11.04	-	29.43	-	-	-	32.96	33.69
Total	52.20	10.30	-	62.50	18.51	11.04	-	29.55	-	-	-	32.96	33.69
Previous year	31.23	20.97	-	52.20	10.31	8.20	-	18.51	-	-	-	33.69	20.92
Grand Total (A+B)	6,802.63	3,313.96	161.33	9,955.26	3,138.45	647.72	138.32	3,647.85	75.52	-	75.52	6,231.90	3,588.66
Previous year	6,212.49	745.75	155.61	6,802.63	2,666.77	586.24	114.56	3,138.45	-	75.52	-	75.52	3,588.66
C. Capital work-in-progress													
D. Intangible assets under development													

*Leasehold land represents one time lease rental paid for 99 years. Amortisation of leasehold land rent of ₹2.85 million is capitalised/include in capital work-in-progress as part of pre-operative expenses.

For example, the company has listed 'Buildings' as one of its tangible assets. I have highlighted this part:-

Particulars	GROSS BLOCK			DEPRECIATION / AMORTISATION			IMPAIRMENT			NET BLOCK				
	As at March 31, 2013	Additions during the year	Deductions during the year	As at March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	As at March 31, 2014	As at March 31, 2013
A. Tangible assets														
Land and land development														
- Freehold land	170.17	-	-	170.17	-	-	-	-	75.52	-	-	75.52	94.65	94.65
Leasehold land*	133.65	267.85	-	401.51	0.84	2.22	-	3.06	-	-	-	398.45	132.81	
Buildings	934.48	858.44	6.68	1,786.24	172.70	28.42	3.76	197.36	-	-	-	1,588.88	761.78	
R&D buildings	9.90	9.03	-	18.93	4.59	0.48	-	5.07	-	-	-	13.86	5.31	
Plant & machinery	4,549.43	1,950.56	121.13	6,378.86	2,527.37	522.95	105.11	2,945.21	-	-	-	3,423.65	2,022.06	
R&D plant & machinery	118.84	36.85	9.75	145.94	81.90	12.84	8.95	85.79	-	-	-	60.15	36.94	
Electrical installations	468.15	58.55	4.52	522.18	153.50	31.08	4.24	180.34	-	-	-	341.84	314.65	
Furniture	79.25	21.56	0.002	100.81	42.45	4.87	0.002	47.32	-	-	-	53.49	36.80	
Vehicles	105.50	37.65	12.54	130.61	33.81	9.73	10.07	33.47	-	-	-	97.14	71.69	
Office equipment	181.06	63.16	6.71	237.51	102.78	24.09	6.19	120.68	-	-	-	116.83	78.28	
Total	6,750.43	3,303.66	161.33	9,892.76	3,119.94	636.68	138.32	3,618.30	75.52	-	-	75.52	6,198.94	3,554.97
Previous year	6,181.26	724.78	155.61	6,750.43	2,656.46	578.04	114.56	3,119.94	-	75.52	-	75.52	3,554.97	3,524.80
B. Intangible assets														
Brands/trademarks	0.12	-	-	0.12	0.12	-	-	0.12	-	-	-	-	-	-
Computer software	52.08	10.30	-	62.38	18.39	11.04	-	29.43	-	-	-	32.96	33.69	
Total	52.20	10.30	-	62.50	18.51	11.04	-	29.55	-	-	-	32.96	33.69	
Previous year	31.23	20.97	-	52.20	10.31	8.20	-	18.51	-	-	-	33.69	20.92	
Grand Total (A+B)	6,802.63	3,313.96	161.33	9,955.26	3,138.45	647.72	138.32	3,647.85	75.52	-	-	75.52	6,231.90	3,588.66
Previous year	6,212.49	745.75	155.61	6,802.63	2,666.77	586.24	114.56	3,138.45	-	75.52	-	75.52	3,588.66	3,545.72
C. Capital work-in-progress													1,443.60	1,024.97
D. Intangible assets under development													3.14	4.84

*Leasehold land represents one-time lease rental paid for 99 years. Amortisation of leasehold land rent of ₹2.85 million is capitalised/include in capital work-in-progress as part of pre-operative expenses.

As of 31st March 2013 (FY13), ARBL reported the building's value at Rs.93.4 Crs. During the FY14 the company added Rs.85.8Crs worth of building, this amount is classified as 'additions during the year'. Further, they also wound up 0.668 Crs worth of building; this amount is classified as 'deductions during the year'. Hence the current year value of the building would be:

Previous year's value of building + addition during this year – deduction during the year

$$93.4 + 85.8 - 0.668$$

$$= 178.5 \text{ Crs}$$

You can notice this number is highlighted in blue in the above image. Do remember this is the gross block of the building. One needs to deduct the accumulated depreciation

from the gross block to arrive at the 'Net Block'. In the snapshot below, I have highlighted the depreciation section belonging to the 'Building'.

NOTE 10: FIXED ASSETS & DEPRECIATION

Particulars	GROSS BLOCK			DEPRECIATION / AMORTISATION				IMPAIRMENT			NET BLOCK		
	As at March 31, 2013	Additions during the year	Deductions during the year	As at March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	As at March 31, 2013
A. Tangible assets													
Land and land development													
- Freehold land	170.17	-	-	170.17	-	-	-	75.52	-	-	75.52	94.65	94.65
- Leasehold land*	133.65	267.86	-	401.51	0.84	2.27	3.06	-	-	-	-	398.45	132.81
Buildings	934.48	858.44	6.68	1,786.24	172.70	28.42	3.76	197.36	-	-	-	1,588.88	761.78
R&D buildings	9.90	9.03	-	18.93	4.59	0.48	-	5.07	-	-	-	13.86	5.31
Plant & machinery	4,549.43	1,950.56	121.13	6,378.86	2,527.37	522.95	105.11	2,945.21	-	-	-	3,433.65	2,022.06
R&D plant & machinery	118.84	36.85	9.75	145.94	81.90	12.84	8.95	85.79	-	-	-	60.15	36.94
Electrical installations	468.15	58.55	4.52	522.18	153.50	31.08	4.24	180.34	-	-	-	341.84	314.65
Furniture	79.25	21.56	0.002	100.81	42.45	4.87	0.002	47.32	-	-	-	53.49	36.80
Vehicles	105.50	37.65	12.54	130.61	33.81	9.73	10.07	33.47	-	-	-	97.14	71.69
Office equipment	181.06	63.16	6.71	237.51	102.78	24.09	6.19	120.68	-	-	-	116.83	78.28
Total	6,750.43	3,303.66	161.33	9,892.76	3,119.94	636.68	138.32	3,618.30	75.52	-	-	75.52	6,198.94
Previous year	6,181.26	724.78	155.61	6,750.43	2,656.46	578.04	114.56	3,119.94	-	75.52	-	75.52	3,554.97
B. Intangible assets													
Brands/trademarks	0.12	-	-	0.12	0.12	-	-	0.12	-	-	-	-	-
Computer software	52.08	10.30	-	62.38	18.39	11.04	-	29.43	-	-	-	32.96	33.69
Total	52.20	10.30	-	62.50	18.51	11.04	-	29.55	-	-	-	32.96	33.69
Previous year	31.23	20.97	-	52.20	10.31	8.20	-	18.51	-	-	-	33.69	20.92
Grand Total (A+B)	6,802.63	3,313.96	161.33	9,895.26	3,138.45	647.72	138.32	3,647.85	75.52	-	-	75.52	6,231.90
Previous year	6,212.49	745.75	155.61	6,802.63	2,666.77	586.24	114.56	3,138.45	-	75.52	-	75.52	3,588.66
C. Capital work-in-progress													1,443.60
D. Intangible assets under development													3.14
													4.84

*Leasehold land represents one time lease rental paid for 99 years. Amortisation of leasehold land rent of ₹2.85 million is capitalised/include in capital work-in-progress as part of pre-operative expenses.

As of 31st March 2013 (FY13), ARBL has depreciated Rs.17.2 Crs, to which they need to add Rs.2.8 Crs belonging to the year FY14, adjust 0.376 Crs as the deduction for the year. Thus, the Total Depreciation for the year is:-

Previous year's depreciation value + Current year's depreciation – deduction for the year

$$= 17.2 + 2.8 - 0.376$$

Total Depreciation= Rs.19.736 Crs. This is highlighted in red in the image above.

So, we have to build gross block at Rs.178.6 Crs and depreciation at Rs.19.73 Crs which gives us a netblock of Rs.158.8 Crs (178.6– 19.73). The same has been highlighted in the image below:

NOTE 10: FIXED ASSETS & DEPRECIATION

₹ million

Particulars	GROSS BLOCK			DEPRECIATION / AMORTISATION				IMPAIRMENT			NET BLOCK				
	As at March 31, 2013	Additions during the year	Deductions during the year	As at March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	Upto March 31, 2013	For the year	On Deductions	Upto March 31, 2014	As at March 31, 2014	As at March 31, 2013	
A. Tangible assets															
Land and land development															
- Freehold land	170.17	-	-	170.17	-	-	-	75.52	-	-	75.52	94.65	94.65		
- Leasehold land*	133.65	267.86	-	401.51	0.84	2.22	3.06	-	-	-	-	398.45	132.81		
Buildings	934.48	858.44	6.68	1,786.24	172.70	28.42	3.76	197.36	-	-	-	1,588.88	761.78		
R&D buildings	9.90	9.03	-	18.93	4.59	0.48	-	5.07	-	-	-	13.86	5.31		
Plant & machinery	4,549.43	1,950.56	121.13	6,378.86	2,527.37	522.95	105.11	2,945.21	-	-	-	3,433.65	2,022.06		
R&D plant & machinery	118.84	36.85	9.75	145.94	81.90	12.84	8.95	85.79	-	-	-	60.15	36.94		
Electrical installations	468.15	58.55	4.52	522.18	153.50	31.08	4.24	180.34	-	-	-	341.84	314.65		
Furniture	79.25	21.56	0.002	100.81	42.45	4.87	0.002	47.32	-	-	-	53.49	36.80		
Vehicles	105.50	37.65	12.54	130.61	33.81	9.73	10.07	33.47	-	-	-	97.14	71.69		
Office equipment	181.06	63.16	6.71	237.51	102.78	24.09	6.19	120.68	-	-	-	116.83	78.28		
Total	6,750.43	3,303.66	161.33	9,892.76	3,119.94	636.68	138.32	3,618.30	75.52	-	-	75.52	6,198.94	3,554.97	
Previous year	6,818.26	724.78	155.61	6,750.43	2,656.46	578.04	114.56	3,119.94	-	75.52	-	75.52	3,554.97	3,524.80	
B. Intangible assets															
Brands/trademarks	0.12	-	-	0.12	0.12	-	-	0.12	-	-	-	-	-	-	
Computer software	52.08	10.30	-	62.38	18.39	11.04	-	29.43	-	-	-	32.96	33.69		
Total	52.20	10.30	-	62.50	18.51	11.04	-	29.55	-	-	-	32.96	33.69		
Previous year	31.23	20.97	-	52.20	10.31	8.20	-	18.51	-	-	-	33.69	20.92		
Grand Total (A+B)	6,802.63	3,313.96	161.33	9,955.26	3,138.45	647.72	138.32	3,647.85	75.52	-	-	75.52	6,231.90	3,588.66	
Previous year	6,212.49	745.75	155.61	6,802.63	2,666.77	586.24	114.56	3,138.45	-	75.52	-	75.52	3,588.66	3,545.72	
C. Capital work-in-progress													1,443.60	1,024.97	
D. Intangible assets under development													3.14	4.84	

*Leasehold land represents one time lease rental paid for 99 years. Amortisation of leasehold land rent of ₹2.85 million is capitalised/included in capital work-in-progress as part of pre-operative expenses.

The same exercise is carried out for all the other tangible and intangible assets to arrive at the Total Net block number.

The next two line items under the fixed assets are Capital work in progress (CWIP) and Intangible assets under development.

CWIP includes building under construction, machinery under assembly etc. at the time of preparing the balance sheet. Hence it is aptly called the “Capital Work in Progress”.

This amount is usually mentioned in the Net block section. CWIP is the work that is not yet complete but where capital expenditure has already been incurred. As we can see, ARBL has Rs.144.3 Crs under CWIP. Once the construction process is done, and the asset is put to use, the asset is moved to tangible assets (under fixed assets) from CWIP.

The last line item is ‘Intangible assets under development’. This is similar to CWIP but for intangible assets. The work in the process could be patent filing, copyright filing, brand

development etc. This is at a minuscule cost of 0.3 Crs for ARBL. All these costs are added to arrive at the total fixed cost of the company.

7.3 – Non-current assets (Other line items)

Besides the fixed assets under the non-current assets, there are other line items as well.

Here is a snapshot of the same:

Non-current investments	11	160.76	160.76
Long-term loans and advances	12	567.69	353.52
Other non-current assets	13	1.22	3.43

Non-current investments are investments made by ARBL with a long term perspective.

This stands at Rs.16.07 Crs. The investment could be anything – buying listed equity shares, minority stake in other companies, debentures, mutual funds etc. Here is the partial (as I could not fit the entire image) snapshot of Note 11. This should give you a perspective.

NOTE 11: NON-CURRENT INVESTMENTS		₹ million	
Particulars		As at March 31, 2014	As at March 31, 2013
A. In Equity Instruments			
a. Quoted - Non trade at cost			
i) 125 Fully paid up equity shares of ₹1 each in Standard Batteries Limited		0.01	0.01
Less: Provision for diminution in value		0.01	0.01
	-	-	-
ii) 25 Fully paid up equity shares of ₹2 each in Nicco Corporation Limited		0.001	0.001
iii) 10,000 Fully paid up equity shares of ₹1 each in Exide Industries Limited		0.04	0.04
iv) 5,500 Fully paid up equity shares of ₹1 each in HBL Power Systems Limited		0.01	0.01
v) 160,000 Fully paid up equity shares of ₹2 each in IVRCL Limited		0.21	0.21
vi) 23,749 Fully paid up equity shares of ₹10 each in IDBI Bank Limited		1.01	1.01
vii) 227,900 Fully paid up equity shares of ₹10 each in Andhra Bank		2.28	3.55
	2.28	3.55	2.28
b. Unquoted - Non trade at Cost			
i) 1,128 Fully paid up equity shares of ₹10 each in Indian Lead Limited		0.03	0.03
Less: Provision for diminution in value		0.03	-
c. Unquoted - Trade at Cost			
i) 1,206,000 Fully paid up equity shares of ₹10 each in Andhra Pradesh Gas Power Corporation Limited		157.14	157.14
B. In Government Securities - Non trade at Cost			
a) 6 years National Savings Certificates (Lodged as security with Government departments.			

The next line item is long term loans and advances which stand at Rs.56.7Crs. These are loans and advances given out by the company to other group companies, employees, suppliers, vendors etc.

The last line item under the Non-current assets is 'Other Non-current assets' which is at Rs. 0.122 Crs. This includes other miscellaneous long term assets.



7.4 – Current assets

Current assets are assets that can be easily converted to cash, and the company foresees a situation of consuming these assets within 365 days. Current assets are the assets that a company uses to fund its day to day operations and ongoing expenses.

The most common current assets are cash and cash equivalents, inventories, receivables, short term loans and advances and sundry debtors.

Here is the snapshot of the current assets of ARBL:

Current assets	14	3,350.08	2,928.58	
Inventories	14	3,350.08	2,928.58	
Trade receivables	15	4,527.89	3,806.77	
Cash and bank balances	16	2,945.67	4,107.90	
Short-term loans and advances	12	2,119.30	1,656.78	
Other current assets	13	43.16	68.49	

The first line item on the Current assets is Inventory which stands at Rs.335.0 Crs.

Inventory includes all the finished goods manufactured by the company, raw materials in stock, goods that are manufactured incompletely etc. Inventories are goods at various

stages of production and hence have not been sold. When any product is manufactured in a company, it goes through various raw material processes to work in progress to finished good. Snapshot of Note 14 associated with the inventory of the company is as shown below:

NOTE 14: INVENTORIES		₹ million
Particulars	As at March 31, 2014	As at March 31, 2013
(Valued at lower of cost or net realisable value)		
Raw materials	826.36	666.18
Add: Raw materials in transit	120.73	264.64
Total Raw materials	947.09	930.82
Work-in-process	1,052.11	828.95
Finished goods	941.75	536.44
Stock-in-trade	74.56	368.98
Stores and spares	323.27	255.22
Loose tools	6.07	4.39
Secondary packing materials and others	5.23	3.78
Total	3,350.08	2,928.58

As you can see, a bulk of the inventory value comes from 'Raw material' and 'Work-in-progress'.

The next line item is 'Trade Receivables' also referred to as 'Accounts Receivables'. This represents the amount of money that the company is expected to receive from its distributors, customers and other related parties. The trade receivable for ARBL stands at Rs.452.7 Crs.

The next line item is the Cash and Cash equivalents, which are considered the most liquid assets found in any company's Balance sheet. Cash comprises of cash on hand and cash on demand. Cash equivalents are short term, highly liquid investments with a maturity date of fewer than three months from its acquisition date. This stands at

Rs.294.5 Crs. Note 16 associated with Cash and bank balances is as shown below. As you can see, the company has cash parked in various types of accounts.

NOTE 16: CASH AND BANK BALANCES		₹ million	
Particulars		As at March 31, 2014	As at March 31, 2013
a) Cash and cash equivalents			
i) Balances with banks			
in current accounts	156.95	238.37	
in deposit accounts	2,445.79	3,652.00	
in exchange earner's foreign currency account	56.65	30.23	
ii) Cheques/drafts on hand	268.15	172.61	
iii) Cash on hand	1.09	2,928.63	1.47
b) Other bank balances in earmarked accounts			4,094.68
Unclaimed dividends		17.04	13.22
Total		2,945.67	4,107.90

The next line item is short-term loans and advances that the company has tendered and is expected to be repaid to the company within 365 days. It includes various items such as advances to suppliers, loans to customers, loans to employees, advance tax payments (income tax, wealth tax) etc. This stands at Rs.211.9 Crs. Following this is the last line item on the Assets side and on the Balance sheet itself. This is the 'Other current assets' which are not considered important, hence termed 'Other'. This stands at Rs.4.3 Crs.

To sum up, the Total Assets of the company would now be:-

Fixed Assets + Current Assets

= Rs.840.831 Crs + Rs.1298.61 Crs

= Rs. 2139.441 Crs, which is exactly equal to the liabilities of the company.

With this, we have now run through the Balance sheet's entire Assets side, and in fact the whole of Balance sheet itself. Let us relook at the balance sheet in its entirety:

Balance Sheet as at March 31, 2014		₹ million	
Particulars	Note No.	As at March 31, 2014	As at March 31, 2013
EQUITY AND LIABILITIES			
Shareholders' funds			
Share capital	2	170.81	170.81
Reserves and surplus	3	13,456.20	10,427.33
		13,627.01	10,598.14
Non-current liabilities			
Long-term borrowings	4	759.47	773.13
Deferred tax liabilities (net)	5	301.33	195.09
Long-term provisions	6	369.57	376.41
		1,430.37	1,344.63
Current liabilities			
Short-term borrowings	7	83.83	98.63
Trade payables	8	1,277.79	1,362.84
Other current liabilities	9	2,156.68	1,807.26
Short-term provisions	6	2,818.73	2,493.20
		6,337.03	5,761.93
Total		21,394.41	17,704.70
ASSETS			
Non-current assets			
Fixed assets	10		
Tangible assets		6,198.94	3,554.97
Intangible assets		32.96	33.69
Capital work-in-progress		1,443.60	1,024.97
Intangible assets under development		3.14	4.84
		7,678.64	4,618.47
Non-current investments	11	160.76	160.76
Long-term loans and advances	12	567.69	353.52
Other non-current assets	13	1.22	3.43
		8,408.31	5,136.18
Current assets			
Inventories	14	3,350.08	2,928.58
Trade receivables	15	4,527.89	3,806.77
Cash and bank balances	16	2,945.67	4,107.90
Short-term loans and advances	12	2,119.30	1,656.78
Other current assets	13	43.16	68.49
		12,986.10	12,568.52
Total		21,394.41	17,704.70
Significant accounting policies	1		

Statement on significant accounting policies and notes are an integral part of the financial statements

As you can see in the above, the balance sheet equation holds for ARBL's balance sheet,

$$\text{Asset} = \text{Shareholders' Funds} + \text{Liabilities}$$

Do remember, over the last few chapters we have only inspected the balance sheet and the P&L statements. However, we have not analyzed the data to infer if the numbers are good or bad. We will do the same when we look into the financial ratio analysis chapter.

The next chapter will look into the last financial statement, which is the cash flow statement. However, before we conclude this chapter, we must look into the many ways the Balance sheet and the P&L statement are interconnected.

7.5 – Connecting the P&L and Balance Sheet

Let us now focus on the Balance Sheet and the P&L statement and the multiple ways they are connected (or affect) to each other.

Have a look at the following image:



In the image above, we have the line items on a typical standard P&L statement on the left-hand side. Corresponding to that on the right-hand side, we have some of the standard Balance Sheet items. From the previous chapters, you already know what each of these line items means. However, we will now understand how the P&L and Balance Sheet line items are connected.

To begin with, consider the **Revenue from Sales**. When a company makes a sale, it incurs expenses. For example, if the company undertakes an advertisement campaign to spread awareness about its products, the company has to **spend cash** on the

campaign. The money spent tends to decrease the cash balance. If the company makes a sale on credit, the **Receivables** (Accounts Receivables) go higher.

Operating expenses include the purchase of raw material, finished goods and other similar expenses. When a company incurs these expenses, to manufacture goods, two things happen. If the purchase is on credit (which invariably is), then the **Trade payables** (accounts payable) go higher. Two, the **Inventory** level also gets affected. Whether the inventory value is high or low, depends on how much time the company needs to sell its products.

When companies purchase Tangible assets or invest in Brand building exercises (Intangible assets), the company spreads the asset's purchase value over the asset's economic useful life. This tends to increase the **depreciation** mentioned in the Balance sheet. Do remember the Balance sheet is prepared on a flow basis. Hence the Depreciation in the balance sheet is accumulated year on year. Please note, Depreciation in the Balance sheet is referred to as the **Accumulated depreciation**.

Other income includes monies received in interest income, sale of subsidiary companies, rental income etc. Hence, when companies undertake **investment** activities, other incomes tend to get affected.

When the company undertakes **Debt** (it could be short term or long term), the company obviously spends money towards financing the debt. The money that goes towards

financing the debt is called the **Finance Cost/Borrowing Cost**. Hence, when debt increases the finance cost also increases and vice versa.

Finally, as you may recall the **Profit after tax (PAT)** adds to the company's surplus, which is a part of the **Shareholders equity**.

Key takeaways from this chapter

1. The Assets side of the Balance sheet displays all the assets the company owns
2. Assets are expected to give an economic benefit during its useful life.
3. Assets are classified as Non-current and Current asset.
4. The useful life of Non-current assets is expected to last beyond 365 days or 12 months.
5. Current assets are expected to pay off within 365 days or 12 months.
6. Assets inclusive of depreciation are called the 'Gross Block.'
7. Net Block = Gross Block – Accumulated Depreciation
8. The sum of all assets should equal the sum of all liabilities. Only then the Balance sheet is said to have balanced.
9. The Balance sheet and P&L statement are inseparable. They are connected in many ways.

The Cash Flow statement

8.1 – Overview

The Cash flow statement is a significant financial statement, as it reveals how much cash the company is actually generating. Is this information not revealed in the P&L statement you may think? Well, the answer is both a yes and a no.

Consider the following scenario.

Assume a simple coffee shop selling coffee and short eats. All the shop's sales are mostly on a cash basis, meaning if a customer wants to have a cup of coffee and a snack, he needs to have enough money to buy what he wants. On a particular day, assume the shop manages to sell Rs.2,500/- worth of coffee and Rs.3,000/- worth of snacks. The shop's income is Rs.5,500/- for that day. Rs.5,500/- is reported as revenues in P&L, and there is no ambiguity with this.

Now think about another business that sells laptops. For the sake of simplicity, let us assume that the shop sells only 1 type of laptop at a standard fixed rate of Rs.25,000/- per laptop. Assume on a certain day; the shop manages to sell 20 such laptops. Clearly the revenue for the shop would be $Rs.25,000 \times 20 = Rs.500,000/-$. But what if 5 of the 20 laptops were sold on credit? A credit sale is when the customer takes the product today but pays the cash at a later point in time. In this situation here is how the numbers would look:

Cash sale: $15 * 25000 = Rs.375,000/-$

Credit sale: $5 * 25000 = \text{Rs.}125,000/-$

Total sales: $\text{Rs.}500,000/-$

If this shop were to show its total revenue in its P&L statement, you would see revenue of $\text{Rs.}500,000/-$ which may seem good on the face of it. However, how much of this $\text{Rs.}500,000/-$ is actually present in the company's bank account is not clear. What if this company had a loan of $\text{Rs.}400,000/-$ that had to be repaid urgently? Even though the company has a sale of $\text{Rs.}500,000$, it has only $\text{Rs.}375,000/-$ in its account. This means the company has a cash crunch, as it cannot meet its debt obligations.

The cash flow statement captures this information. A statement of cash flows should be presented as an integral part of an entity's financial statements. Hence in this context evaluation of the cash flow statement is highly critical as it reveals, amongst other things, the true cash position of the company.

To sum up, every company's financial performance is not so much dependent on the profits earned during a period, but more realistically on liquidity or cash flows.



8.2 – Activities of a company

Before we understand the cash flow statement, it is important to understand ‘the activities’ of a company. If you think about a company and the various business activities, you will realize that the company’s activities can be classified under one of the three standard baskets. We will understand this in terms of an example.

Imagine a business, maybe a very well established fitness centre (Talwalkars, Gold’s Gym etc.) with a sound corporate structure. What are the typical business activities you think a fitness centre would have? Let me go ahead and list a few business activities:

1. Display advertisements to attract new customers
2. Hire fitness instructors to help clients in their fitness workout
3. Buy new fitness types of equipment to replace worn-out equipment.
4. Seek short term loan from bankers
5. Issue a certificate of deposit for raising funds
6. Issue new shares to a few known friends to raise fresh capital for expansion (also called preferential allotment)
7. Invest in a startup company working towards innovative fitness regimes
8. Park excess money (if any) in fixed deposits
9. Invest in a building coming up in the neighbourhood, for opening a new fitness centre sometime in the future
10. Upgrade the sound system for a better workout experience

As you can see, the above-listed business activities are quite diverse; however, they are all related to the business. We can classify these activities as:

1. **Operational activities (OA):** Activities related to the daily core business operations are called operational activities. Typical operating activities include sales, marketing, manufacturing, technology upgrade, resource hiring etc.
2. **Investing activities (IA):** Activities about investments that the company makes intending to reap benefits at a later stage. Examples include parking money in interest-bearing instruments, investing in equity shares, investing in land, property, plant and equipment, intangibles and other non-current assets etc.
3. **Financing activities (FA):** Activities about all financial transactions of the company such as distributing dividends, paying interest to service debt, raising fresh debt, issuing corporate bonds etc

All activities a legitimate company performs can be classified under one of the above three mentioned categories.

Keeping the above three activities in perspective, we will now classify each of the above-mentioned activities into three categories /baskets.

1. Display advertisements to attract new customers – **OA**
2. Hire fitness instructors to help customers with their fitness workout – **OA**
3. Buy new fitness equipment to replace worn-out equipment – **OA.**
4. Seek a short term loan from bankers – **FA**
5. Issue a certificate of deposit (CD) for raising funds – **FA**
6. Issue new shares to few known friends to raise fresh capital for expansion (also called preferential allotment) – **FA**
7. Invest in a startup company working towards innovative fitness regimes – **IA**

8. Park excess money (if any) in fixed deposit - **IA**

9. Invest in a building coming up in the neighbourhood for opening a new fitness centre sometime in the future - **IA**

10. Upgrade the sound system for better workout experience- **OA**

Now think about the cash moving in and out of the company and its impact on the cash balance. Each activity that the company undertakes has an impact on cash. For example "Upgrade the sound system for a better workout experience" means the company has to pay money towards purchasing a new sound system. Hence the cash balance decreases. It is also interesting to note that the new sound system itself will be treated as a company asset.

Keeping this in perspective, we will now understand for the example given above how the various activities listed would impact the cash balance and how would it impact the balance sheet.

Activity No	Activity Type	Rational	Cash Balance	On Balance Sheet
01	OA	Expenditure on advertisement	Decreases	Treated as an asset as it increases brand value
02	OA	Expenditure towards recruits	Decreases	Treated as an asset as it increases

company's intellectual capital

03	OA	Expenditure on new equipment	Decreases	Treated as asset
04	FA	Loan means cash inflow to business	Increases	The loan is a liability
05	FA	Deposits via CD means cash inflow	Increases	CD is a liability
06	FA	Issue of fresh capital means cash inflow	Increases	Treated as a liability as share capital increases
07	IA	Investment in a startup means cash outflow	Decreases	Investment is an asset
08	IA	Money parked in FD means cash going out of business	Decreases	Equivalent to cash, hence considered an asset

09	IA	Investment in the building means cash going out of business	Decreases	Gross block considered an asset
10	OA	Expenditure towards the sound system	Decreases	Treated as an asset

The table above is colour coded:

1. Increase in cash is colour coded in blue
2. The decrease in cash is colour coded in red
3. Assets are colour coded in green and
4. Liabilities are colour coded in purple.

If you look through the table and start correlating the 'Cash Balance' and 'Asset/Liability' you will observe that:

1. Whenever the liabilities of the company increases, the cash balance also increases.
 1. This means if the liabilities decreases, the cash balance also decreases.
2. Whenever the asset of the company increases, the cash balance decreases.
 1. This means if the assets decreases, the cash balance increases.

The above conclusion is the key concept while constructing a cash flow statement. Also, extending this further, you will realize that each company's activity is its operating activity, financing activity, or investing activity either produces cash (net increase in cash) or reduces (net decrease in cash) the cash for the company.

Hence the total cash flow for the company will be:-

Cash Flow of the company = Net cash flow from operating activities + Net Cash flow from investing activities + Net cash flow from financing activities

8.3 – The Cash Flow Statement

Having some insight into the cash flow statement, you would now appreciate that you need to look into the cash flow statement to review the company from a cash perspective.

Typically when companies present their cash flow statement, they split the statement into three segments to explicitly show how much cash the company has generated across the three business activities. Continuing with our example from the earlier chapters, here is the cash flow statement of Amara Raja Batteries Limited (ARBL):

Particulars	Year ended March 31, 2014	Year ended March 31, 2013		
I. CASH FLOW FROM OPERATING ACTIVITIES				
Profit before tax from continuing operations	5,366.70	4,218.17		
Add/(Less): Adjustments for				
a. Depreciation	636.69	577.20		
b. Amortisation	11.04	8.20		
c. Impairment loss	-	75.52		
d. Net income on sale of tangible fixed assets	(2.26)	(0.04)		
e. Tangible fixed assets written off	24.90	44.27		
f. Donation of tangible fixed asset	0.03	-		
g. Interest paid on working capital facilities	0.03	0.11		
h. Provisions and credit balances written back	(3.90)	(6.44)		
i. Bad debts written off	32.33	4.84		
j. Provision for doubtful trade receivables and advances (net)	(30.50)	(38.69)		
k. Exchange gain on restatement - other than borrowings (net)	(33.81)	(13.18)		
l. Provision for leave encashment	14.83	33.43		
m. Provision for gratuity	6.75	8.74		
n. Provision for warranty	(40.22)	156.14		
o. Dividend received	(144.19)	(145.27)		
p. Interest received on bank and other deposits	(137.94)	(112.29)		
q. Interest on income tax	6.70	2.03		
r. Provision for wealth tax	2.00	342.48	1.83	596.40
Operating profit before working capital changes	5,709.18	4,814.57		
Add/(Less): Adjustments for working capital changes				
a. Increase in inventories	(421.50)	(262.41)		
b. Increase in trade receivables	(711.71)	(571.57)		
c. Increase in loans and advances	(445.72)	(421.49)		
d. Increase/(decrease) in trade payables	(77.73)	490.32		
e. Increase in other current liabilities	341.23	(1,315.43)	671.36	(93.79)
Cash generated from operations	4,393.75	4,720.78		
Less: a. Income tax	1,604.42	1,365.95		
b. Wealth tax	1.83	1,606.25	0.18	1,366.13
Net cash from operating activities - A	2,787.50	3,354.65		

I will skip going through each line item, as most of them are self-explanatory. However, please notice that ARBL has generated Rs.278.7 Crs from operating activities. Note, a company with a positive cash flow from operating activities is always a sign of financial well being.

Here is the snapshot of ARBL's cash flow from investing activities:

II. CASH FLOW FROM INVESTING ACTIVITIES			
a. Purchase of tangible fixed assets	(3,303.66)	(724.78)	
b. Purchase of intangible fixed assets	(10.30)	(20.97)	
c. Increase in capital work-in-progress	(423.26)	(718.50)	
d. Decrease/(increase) in intangible assets under development	1.69	(0.25)	
e. Sale of tangible fixed assets	4.98	1.80	
g. Interest received on bank and other deposits	137.94	112.29	
h. Dividend received	144.19	145.27	
Net cash from investing activities - B	(3,448.42)	(1,205.14)	

As you can see, ARBL has consumed Rs.344.8 Crs in its investing activities. This is quite intuitive as investing activities tend to consume cash. Also, remember healthy investing activities foretells the investor that the company is serious about its business expansion. Of course, how much is considered healthy and how much is not, is something we will understand as we proceed through this module.

Finally, here is the snapshot of ARBL's cash balance from financing activities:

Particulars	Year ended March 31, 2014	Year ended March 31, 2013
III. CASH FLOW FROM FINANCING ACTIVITIES		
a. Short term borrowings from banks availed / repaid	(13.70)	42.59
b. Interest free sales tax deferment repaid	(13.67)	(16.92)
c. Interest paid on working capital facilities	(0.03)	(0.11)
d. Dividend paid	(430.45)	(322.84)
e. Dividend tax paid	(73.15)	(52.37)
Net cash from financing activities - C	(531.00)	(349.65)

ARBL consumed Rs.53.1Crs through its financing activities. If you notice the bulk of the money went in paying dividends. **Also, if ARBL takes on new debt in the future, it would increase the cash balance** (remember the increase in liabilities, increases cash balance). We know from the balance sheet that ARBL did not undertake any new debt.

Let us summarize the cash flow from all the activities:

Cash Flow from	Rupees Crores (2013-14)	Rupees Crores (2012-13)
Operating Activities	278.7	335.4
Investing Activities	(344.8)	(120.05)
Financing Activities	(53.1)	(34.96)
Total	(119.19)	179.986

This means the company consumed total cash of Rs.119.19 Crs for the financial year 2013 -2014. Fair enough, but what about the cash from the previous year? As we can see, the company generated Rs.179.986 Crs through all its activities from the previous year. Here is an extract from ARBL's cash flow statement:

Opening cash and cash equivalents	4,094.68	2,283.19
Add: Net increase/(decrease) in cash and cash equivalents	(1,191.92)	1,799.86
Add: Effect of foreign exchange differences on restatement of cash and cash equivalents	25.87	11.63
Closing cash and cash equivalents	2,928.63	4,094.68

Look at the section highlighted in green (for the year 2013-14). It says the opening balance for the year is Rs.409.46Crs. How did they get this? Well, this happens to be the closing balance for the previous year (refer to the arrow marks). Add to this the current year's cash equivalents (Rs.119.19) Crs along with a minor forex exchange difference of Rs.2.58 Crs we get the company's total cash position which is Rs.292.86 Crs. This means, while the company guzzled cash every year, they still have adequate cash, thanks to the previous year's carry forward.

Note, the closing balance of 2013-14 will now be the opening balance for the FY 2014 – 15. You can watch out for this when ARBL provides its cash flow numbers for the year ended 31st March 2015.

At this point, let us run through a few interesting questions and answers:

1. What does Rs.292.86 Crs actually state?
 1. This literally shows how much cash ARBL has in its various bank accounts.
2. What is cash?
 1. Cash comprises cash on hand and demand deposits. Obviously, this is a liquid asset of the company.
3. What are liquid assets?
 1. Liquid assets are assets that can be easily converted to cash or cash equivalents.
4. Are liquid assets similar to 'current items' that we looked at in the Balance sheet?
 1. Yes, you can think of it that way.

5. If cash is current and cash is an asset, shouldn't it reflect under the Balance sheet's current asset?

1. Exactly and here it is. Look at the balance sheet extract below.

ASSETS				
Non-current assets				
Fixed assets	10			
Tangible assets		6,198.94	3,554.97	
Intangible assets		32.96	33.69	
Capital work-in-progress		1,443.60	1,024.97	
Intangible assets under development		3.14	4.84	
		7,678.64	4,618.47	
Non-current investments	11	160.76	160.76	
Long-term loans and advances	12	567.69	353.52	
Other non-current assets	13	1.22	3.43	
		8,408.31	5,136.18	
Current assets				
Inventories	14	3,350.08	2,928.58	
Trade receivables	15	4,527.89	3,806.77	
Cash and bank balances	16	2,945.67	4,107.90	
Short-term loans and advances	12	2,119.30	1,656.78	
Other current assets	13	43.16	68.49	
		12,986.10	12,568.52	

Clearly, we can now infer that the cash flow statement and the balance sheet interact with each other. This is in line with what we had discussed earlier, i.e. all the three financial statements are interconnected.

8.4 – A brief on the financial statements

Over the last few chapters, we have discussed the company's three important financial statements, i.e. the P&L statement, the Balance Sheet and the Cash Flow statement of the company. While the Cash flow and P&L statement are prepared on a standalone basis (representing the given year's financial position), the Balance Sheet is prepared on a flow basis.

The P&L statement discusses how much the company earned as revenues versus how much the company expanded in terms of expenses. The company's retained earnings,

also called the surplus of the company, are carried forward to the balance sheet. The P&L also incorporates the depreciation number. The depreciation mentioned in the P&L statement is carried forward to the balance sheet.

The Balance Sheet details the company's assets and liabilities. On the liabilities side of the Balance sheet, the company represents the shareholders' funds. The assets should always be equal to the liabilities; only then do we say the balance sheet has balanced.

One of the key details on the balance sheet is the cash and cash equivalents of the firm. This number tells us how much money the company has in its bank account. This number comes from the cash flow statement.

The cash flow statement provides information to the users of the financial statements about the entity's ability to generate cash and cash equivalents and indicates the cash needs of a company. Cash flows are prepared on a historical basis providing information about the cash and cash equivalents, classifying cash flows into operating, financing and investing activities. The final number of cash flow tells us how much money the company has in its bank account.

We have so far looked into how to read the financial statements and what to expect from each of them. We have not yet ventured into how to analyze these numbers. One of the ways to analyze the financial numbers is by calculating a few important financial ratios. In fact, we will focus on the financial ratios in the next few chapters.

Key takeaways from this chapter

1. The Cash flow statement gives us a picture of the true cash position of the company.
2. A legitimate company has three main activities – operating activities, investing activities and the financing activities.
3. Each activity either generates or drains money for the company.
4. The company's net cash flow is the sum of operating activities, investing activities, and financing activities.
5. Investors should specifically look at the cash flow from operating activities of the company.
6. When the liabilities increase, cash level increases and vice versa
7. When the assets increase, cash level decreases and vice versa.
8. The net cash flow number for the year is also reflected in the balance sheet.
9. The Statement of Cash flow is a useful addition to a company's financial statements because it indicates the company's performance.

The Financial Ratio Analysis (Part 1)

9.1 – A note on Financial Ratios

Over the last few chapters, we have understood how to read financial statements. We will now focus our attention on analyzing these financial statements. The best way to analyze the financial statements is by studying the 'Financial Ratios'. The theory of

financial ratios was made popular by Benjamin Graham, who is popularly known as the fundamental analysis father. Financial ratios help interpret the results and compare with previous years and other companies in the same industry.

A typical financial ratio utilizes data from the financial statement to compute its value. Before we start understanding the financial ratios, we need to be aware of certain financial ratios' attributes.

On its own merit, the financial ratio of a company conveys very little information. For instance, assume Ultratech Cements Limited has a profit margin of 15%, how useful do you think this information is? Well, not much, really. 15% profit margin is good, but how would I know if it is the best?

However, assume you figure out ACC Cement's profit margin is 12%. Now, as we are comparing two similar companies, comparing the profitability makes sense. Clearly, Ultratech Cements Limited seems to be a more profitable company between the two. I am trying to drive across that more often than not, Financial Ratios on its own is quite mute. The ratio makes sense only when you compare the ratio with another company of a similar size or when you look into the financial ratio trend. This means that once the ratio is computed, the ratio must be analyzed (either by comparison or tracking the ratio's historical trend) to get the best possible inference.

Also, here is something that you need to be aware off while computing ratios. Accounting policies may vary across companies and different financial years. A

fundamental analyst should be cognizant of this fact and adjust the data accordingly before computing the financial ratio.

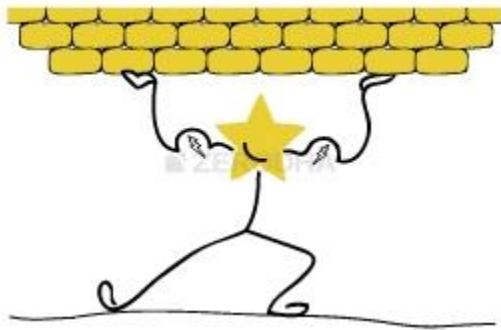
9.2 – Financial Ratios

Financial ratios can be ‘somewhat loosely’ classified into different categories, namely –

1. Profitability Ratios
2. Leverage Ratios
3. Valuation Ratios
4. Operating Ratios



The Profitability ratios help the analyst measure the profitability of the company. The ratios convey how well the company can perform in terms of generating profits. The profitability of a company also signals the competitiveness of the management. As the profits are needed for business expansion and to pay dividends to its shareholders, a company's profitability is an important consideration.



The Leverage ratios also referred to as solvency ratios/ gearing ratios measures the company's ability (in the long term) to sustain its day to day operations. Leverage ratios measure the extent to which the company uses the debt to finance growth. Remember for the company to sustain its operations, it has to pay its bills and obligations. Solvency ratios help us understand the company's long term sustainability, keeping its obligation in perspective.



The Valuation ratios compare the company's stock price with either the profitability of the company or the company's overall value to get a sense of how cheap, or expensive the stock is trading. Thus, this ratio helps us analyse whether the company's current share price is perceived as high or low. In simpler words, the valuation ratio compares the cost of security with the perks of owning the stock.



The Operating Ratios also called the 'Activity Ratios' measures the efficiency at which a business can convert its assets (both current and noncurrent) into revenues. This ratio helps us understand how efficient the management of the company is. For this reason, Operating Ratios are sometimes called the 'Management Ratios'.

Strictly speaking, ratios (irrespective of the category it belongs to) convey a certain message, usually related to the company's financial position. For example, 'Profitability Ratio' can convey the company's efficiency, which is usually measured by computing the 'Operating Ratio'. Because of such overlaps, it is difficult to classify these ratios. Hence the ratios are 'somewhat loosely' classified.

9.3 – The Profitability Ratios

We will look into the following ratios under 'The Profitability Ratio':

1. EBITDA Margin (Operating Profit Margin)
 - o EBITDA Growth (CAGR)
2. PAT Margin
 - o PAT Growth (CAGR)

3. Return on Equity (ROE)
4. Return on Asset (ROA)
5. Return on Capital Employed (ROCE)

EBITDA Margin:

The Earnings before Interest Tax Depreciation & Amortization (EBITDA)

margin indicates the efficiency of the management. It tells us how efficient the company's operating model is. EBITDA Margin tells us how profitable (in percentage terms) the company is at an operating level. It always makes sense to compare the company's EBITDA margin versus its competitor to get a sense of the management's efficiency in terms of managing their expense.

To calculate the EBITDA Margin, we first need to calculate the EBITDA itself.

$$\text{EBITDA} = [\text{Operating Revenues} - \text{Operating Expense}]$$

$$\text{Operating Revenues} = [\text{Total Revenue} - \text{Other Income}]$$

$$\text{Operating Expense} = [\text{Total Expense} - \text{Finance Cost} - \text{Depreciation & Amortization}]$$

$$\text{EBITDA Margin} = \text{EBITDA} / [\text{Total Revenue} - \text{Other Income}]$$

Continuing the example of Amara Raja Batteries Limited, the EBITDA Margin calculation for the FY14 is as follows:

We first calculate EBITDA, which is computed as follows:

[Total Revenue – Other Income] – [Total Expense – Finance Cost – Depreciation & Amortization]

Note: Other income is income under investments and other non-operational activity.

Including other income in EBITDA calculation would clearly skew the data. For this reason, we have to exclude Other Income from Total Revenues.

[3482 – 46] – [2942 – 0.7 – 65]

= [3436] – [2876]

= 560 Crores

Hence the EBITDA Margin is:

560 / 3436

= 16.3%

I have two questions for you at this stage:

1. What do an EBITDA of Rs.560 Crs and an EBITDA margin of 16.3% indicate?
2. How good or bad an EBITDA margin of 16.3% is?

The first question is fairly simple. An EBITDA of Rs.560 Crs means that the company has retained Rs.560 Crs from its operating revenue of Rs.3436 Crs. This also means out of Rs.3436 Crs the company spent Rs.2876 Crs towards its expenses. In percentage

terms, the company spent 83.7% of its revenue towards its expenses and retained 16.3% of the revenue at the operating level, for its operations.

Now for the 2nd question, hopefully, you should **not** have an answer.

Remember, we did discuss this point earlier in this chapter. A financial ratio on its own conveys very little information. To make sense of it, we should either see the trend or compare it with its peers. Going with this, a 16.3% EBITDA margin conveys very little information.

To makes some sense of the EBITDA margin, let us look at Amara Raja's EBITDA margin trend for the last 4 years, (all numbers in Rs Crs, except EBITDA margin):

Year	Operating Revenues	Operating Expense	EBITDA	EBITDA Margin
2011	1761	1504	257	14.6%
2012	2364	2025	340	14.4%
2013	2959	2508	451	15.2%

2014	3437	2876	560	16.3%
------	------	------	-----	-------

It appears that ARBL has maintained its EBITDA at an average of 15%, and in fact, on a closer look it is clear the EBITDA margin is increasing. This is a good sign as it shows consistency and efficiency in the management's operational capabilities.

In 2011 the EBITDA was Rs.257 Crs, and in 2014 the EBITDA is Rs.560Crs. This translates to a 4 year **EBITDA CAGR growth** of 21%.

Please note, we have discussed the formula for CAGR in [module 1](#).

Clearly, it appears that both the EBITDA margin and EBITDA growth are quite impressive. However, we still do not know if it is the best. To find out if it is the best one needs to compare these numbers with its competitors. In the case of ARBL, it would be Exide batteries Limited. I would encourage you to do the same for Exide and compare the results.

PAT Margin:

While the EBITDA margin is calculated at the operating level, the Profit After Tax (PAT) margin is calculated at the final profitability level. At the operating level, we consider only the operating expenses; however, other expenses such as depreciation and finance costs are not considered. Along with these expenses, there are tax expenses as well.

When we calculate the PAT margin, all expenses are deducted from the company's Total Revenues to identify the company's overall profitability.

PAT Margin = [PAT/Total Revenues]

PAT is explicitly stated in the Annual Report. ARBL's PAT for the FY14 is Rs.367 Crs on the overall revenue of Rs.3482 Crs (including other income). This translates to a PAT margin of:

$$= 367 / 3482$$

$$= 10.5 \%$$

Here is the PAT and PAT margin trend for ARBL:

Year	PAT (in INR Crs)	PAT Margin
2011	148	8.4%
2012	215	8.9%

2013	287	9.6%
2014	367	10.5%

The PAT and PAT margin trend seems impressive as we can clearly see a margin expansion. The 4-year CAGR growth stands at 25.48%, which is again good. Needless to say, it always makes sense to compare ratios with its competitors.

Return on Equity (RoE):

The Return on Equity (RoE) is a critical ratio, as it helps the investor assess the return the shareholder earns for every unit of capital invested. RoE measures the entity's ability to generate profits from the shareholder's investments. In other words, RoE shows the efficiency of the company in terms of generating profits to its shareholders. Obviously, the higher the RoE, the better it is for the shareholders. In fact, this is one of the key ratios that help the investor identify investable attributes of the company. The average RoE of top Indian companies varies between 14 – 16% to give you a perspective. I personally prefer to invest in companies that have an RoE of 18% upwards. This ratio is compared with the other companies in the same industry and is also observed over time.

Also note, if the RoE is high, a good amount of cash is being generated by the company. Hence the need for external funds is less. Thus a higher ROE indicates a higher level of management performance.

RoE can be calculated as: [Net Profit / Shareholders Equity* 100]

There is no doubt that RoE is an important ratio to calculate, but like any other financial ratios, it also has a few drawbacks. To help you understand its drawbacks, consider this hypothetical example.

Assume Vishal runs a Pizza store. To bake pizza's Vishal needs an oven which costs him Rs.10,000/- . The oven is an asset to Vishal's business. He procures the oven from his own funds and seeks no external debt. You would agree on his balance sheet that he has shareholder equity of Rs.10,000 and an asset equivalent to Rs.10,000.

Now, assume in his first year of operation, Vishal generates a profit of Rs.2500/- . What is his RoE? This is quite simple to compute:

$$\text{RoE} = 2500/10000 * 100$$

$$=25.0\%.$$

Now let us twist the story a bit. Vishal has only Rs.8000/- he borrows Rs.2000 from his father to purchase an oven worth Rs.10000/- . How do you think his balance sheet would look?

On the liability side, he would have:

Shareholder Equity = Rs.8000

Debt = Rs.2000

This makes Vishal's total liability Rs. 10,000. Balancing this on the asset side, he has an asset worth Rs.10,000. Let us see how his RoE looks now:

$\text{RoE} = 2500 / 8000 * 100$

= 31.25%

With an additional debt, the RoE shot up quite significantly. Now, what if Vishal had only Rs.5000 and borrowed the additional Rs.5000 from his father to buy the oven. His balance sheet would look like this:

On the liability side, he would have:

Shareholder Equity = Rs.5000

Debt = Rs.5000

Vishal's total liability is Rs. 10,000. Balancing this on the asset side, he has an asset worth Rs.10,000. Let us see how his RoE looks now:

$\text{RoE} = 2500 / 5000 * 100$

=50.0%

Clearly, higher the debt Vishal seeks to finance his asset, (which in turn is required to generate profits) higher is the RoE. A high RoE is great, but certainly not at the cost of high debt. The problem is with a high amount of debt, running the business gets very risky as the finance cost increases drastically. For this reason, inspecting the RoE closely becomes extremely important. One way to do this is by implementing a technique called the '**DuPont Model**' also called **DuPont Identity**.

This model was developed in the 1920s by the DuPont Corporation. DuPont Model breaks up the RoE formula into three components, representing a certain aspect of the business. The DuPont analysis uses both the P&L statement and the Balance sheet for the computation.

The RoE as per DuPont model can be calculated as:

$$\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Avg Total Assets}} \times \frac{\text{Avg Total Assets}}{\text{Shareholder Equity}}$$

If you notice the above formula, the denominator and the numerator cancel out with one another eventually leaving us with the original RoE formula which is:

$$\text{RoE} = \text{Net Profit} / \text{Shareholder Equity} * 100$$

However, in decomposing the RoE formula, we gained insights into three distinct aspects of the business. Let us look into the three components of the DuPont model that makes up the RoE formula :

- **Net Profit Margin = Net Profits/ Net Sales*100**

This is the first part of the DuPont Model, and it expresses the company's ability to generate profits. This is nothing but the PAT margin we looked at earlier in this chapter. A low Net profit margin would indicate higher costs and increased competition.

- **Asset Turnover = Net Sales / Average Total asset.**

Asset turnover ratio is an efficiency ratio that indicates how efficiently the company is using its assets to generate revenue. Higher the ratio, it means the company is using its assets more efficiently. Lower the ratio, it could indicate management or production problems. The resulting figure is expressed as several times per year.

- **Financial Leverage = Average Total Assets / Shareholders Equity**

Financial leverage helps us answer this question – 'For every unit of shareholders equity, how many units of assets does the company have'. For example, if the financial leverage is 4, for every Rs.1 of equity, the company supports Rs.4 worth of assets. Higher the financial leverage, along with increased amounts of debt, will indicate the company is highly leveraged, and hence the investor should exercise caution. The resulting figure is expressed as several times per year.

As you can see, the DuPont model breaks up the RoE formula into three distinct components, with each component giving an insight into the company's operating and financial capabilities.

Let us now proceed to implement the DuPont Model to calculate Amara Raja's RoE for FY 14. For this, we need to calculate the values of the individual components.

Net Profit Margin: As I mentioned earlier, this is same as the PAT margin. From our calculation earlier, we know the Net Profit Margin for ARBL is **9.2%**

Asset Turnover = Net Sales / Average Total Assets.

We know from the FY14 Annual Report, Net sales of ARBL stands at Rs.3437 Crs.

The denominator has Average Total Assets which we know can be sourced from the Balance Sheet. But what does the word 'Average' indicate?

From ARBL's balance sheet, the total asset for FY14 is Rs.2139Crs. The reported number is for the Financial Year 2014, which starts from 1st of April 2013 and close on 31st March 2014. This implies that at the start of the financial year 2014 (1st April 2013), the company must have commenced its operation with assets carried forward from the previous financial year (FY 2013). During the financial year (FY 2014), the company has acquired some more assets which, when added to the previous year's (FY2013) assets totalled to Rs.2139 Crs. Clearly, the company started the financial year with a certain rupee value of assets but closed the year with a totally different rupee value of assets.

Keeping this in perspective, if I were to calculate the asset turnover ratio, which asset value should I consider for the denominator? Should I consider the asset value at the beginning of the year or the asset value at the end of the year? To avoid confusion, the practice is to take an average of the two financial years' asset values.

Do remember this technique of averaging line items, as we will be using this across other ratios.

From ARBL's annual report, we know:

Net Sales in FY14 is Rs.3437Cr

Total Assets in FY13 is Rs.1770 Cr

Total Assets in FY14 is Rs.2139 Cr

$$\text{Average Assets} = (1770 + 2139) / 2$$

$$= 1955$$

$$\text{Asset Turnover} = 3437 / 1955$$

$$= \mathbf{1.75 \text{ times}}$$

This means for every Rs.1 of asset deployed; the company is generating Rs.1.75 in revenues.

We will now calculate the last component, that is the Financial Leverage.

$$\text{Financial Leverage} = \text{Average Total Assets} / \text{Average Shareholders Equity}$$

We know the average total assets is Rs.1955. We just need to look into the shareholder's equity. For reasons similar to taking the "Average Assets" instead of just the current year assets, we will consider "Average Shareholder equity" as opposed to just the current year's shareholder equity.

Shareholders Equity for FY13 = Rs.1059 Crs

Shareholders Equity for FY14 = Rs.1362 Crs

Average shareholder equity = Rs.1211 Crs

Financial Leverage = 1955 / 1211

= **1.61 times**

Considering ARBL has little debt, Financial Leverage of 1.61 is indeed an encouraging number. The number above indicates that for every Rs.1 of Equity, ARBL supports Rs.1.61 of assets.

We now have all the inputs to calculate RoE for ARBL; we will now proceed to do the same:

RoE = Net Profit Margin X Asset Turnover X Financial Leverage

= 9.2% * 1.75 * 1.61

~ 25.9%. Quite impressive, I must say!

I understand this is a lengthy way to calculate RoE, but this is perhaps the best way to calculate RoE, we can develop valuable insights into the business. DuPont model not only answers what the return is but also the quality of the return.

However, if you wish to do a quick RoE calculation, you can do so the following way:

RoE = Net Profits / Avg shareholders Equity

From the annual report we know for the FY14 the PAT is Rs.367 Cr.

$$\text{RoE} = 367 / 1211$$

$$= 30.31\%$$

Return on Asset (RoA):

Having understood the DuPont Model, understanding the next two ratios should be simple. Return on Assets (RoA) evaluates the effectiveness of the entity's ability to use the assets to create profits. A well-managed entity limits investments in non-productive assets. Hence RoA indicates the management's efficiency at deploying its assets.

Needless to say, the higher the ROA, the better it is.

$$\text{RoA} = [\text{Net income} + \text{interest} * (1 - \text{tax rate})] / \text{Total Average Assets}$$

From the Annual Report, we know:

Net income for FY 14 = Rs.367.4 Crs

And we know from the Dupont Model the Total average assets (FY13 and FY14) = Rs.1955 Cr.

So what does **interest *(1- tax rate)** mean? Well, think about it, the loan taken by the company is also used to finance the assets, which in turn is used to generate profits. So in a sense, the debtholders (entities who have given a loan to the company) are also a part of the company. From this perspective, the interest paid out also belongs to a

stakeholder of the company. The company also benefits in terms of paying lesser taxes when interest is paid out; this is called a ‘tax shield’. For these reasons, we need to add interest (by accounting for the tax shield) while calculating the ROA.

The Interest amount (finance cost) is Rs.7 Crs, accounting for the tax shield it would be

$$= 7 * (1 - 32\%)$$

$$= 4.76 \text{ Cr. Please note, } 32\% \text{ is the average tax rate.}$$

Hence ROA would be –

$$\text{RoA} = [367.4 + 4.76] / 1955$$

$$\sim 372.16 / 1955$$

~19.03%

Return on Capital Employed (ROCE):

The Return on Capital employed indicates the company’s profitability, taking into consideration the overall capital it employs.

Overall capital includes both equity and debt (both long term and short term).

$$\text{ROCE} = [\text{Profit before Interest & Taxes} / \text{Overall Capital Employed}]$$

Overall Capital Employed = Short term Debt + Long term Debt + Equity.

From ARBL’s Annual Report, we know:

Profit before Interest & Taxes = Rs.537.7 Crs

Overall Capital Employed:

Short term debt: Rs.8.3 Cr

Long term borrowing: Rs.75.9 Cr

Shareholders equity = Rs.1362 Cr

Overall capital employed: $8.3 + 75.9 + 1362 = 1446.2$ Crs

ROCE = $537.7 / 1446.2$

= **37.18%**

Key takeaways from this chapter:

1. A Financial ratio is a useful financial metric of a company. On its own merit, the ratio conveys very little information
2. It is best to study the ratio's recent trend or compare it with the company's peers to develop an opinion
3. Financial ratios can be categorized into 'Profitability', 'Leverage', 'Valuation', and 'Operating' ratios. Each of these categories gives the analyst a certain view on the company's business
4. EBITDA is the amount of money the company makes after subtracting the operational expenses of the company from its operating revenue
5. EBITDA margin indicates the percentage profitability of the company at the operating level

6. PAT margin gives the overall profitability of the firm
7. Return on Equity (ROE) is a precious ratio. It indicates how much return the shareholders are making over their initial investment in the company
8. A high ROE and high debt is not a great sign
9. DuPont Model helps in decomposing the ROE into different parts, with each part throwing light on different aspects of the business
10. DuPont method is probably the best way to calculate the ROE of a firm
11. Return on Assets is an indicator of how efficiently the company is utilizing its assets
12. Return on Capital employed indicates the overall return the company generates considering both the equity and debt.
13. For the ratios to be useful, it should be analyzed compared to other companies in the same industry.
14. Also, ratios should be analyzed both at a single point in time and as an indicator of broader trends over time

The Financial Ratio Analysis (Part 2)

10.1 – The Leverage Ratios

We touched upon the topic of financial leverage while discussing Return on Equity and the DuPont analysis. The use of leverage (debt) is like a double edged sword.

Well managed companies seek debt if they foresee a situation where, they can deploy the debt funds in an environment which generates a higher return in contrast to the interest payments the company has to make to service its debt. Do recollect a judicious use of debt to finance assets also increases the return on equity.

However if a company takes on too much debt, then the interest paid to service the debt eats into the profit share of the shareholders. Hence there is a very thin line that separates the good and the bad debt. Leverage ratios mainly deal with the overall extent of the company's debt, and help us understand the company's financial leverage better.

We will be looking into the following leverage ratios:

1. Interest Coverage Ratio
2. Debt to Equity Ratio
3. Debt to Asset Ratio
4. Financial Leverage Ratio

So far we have been using Amara Raja Batteries Limited (ARBL) as an example, however to understand leverage ratios, we will look into a company that has a sizable debt on its balance sheet. I have chosen Jain Irrigation Systems Limited (JISL), I would encourage you calculate the ratios for a company of your choice.

Interest Coverage Ratio:

The interest coverage ratio is also referred to as debt service ratio or the debt service coverage ratio. The interest coverage ratio helps us understand how much the company is earning relative to the interest burden of the company. This ratio helps us interpret how easily a company can pay its interest payments. For example, if the company has an interest burden of Rs.100 versus an income of Rs.400, then we clearly know that the company has sufficient funds to service its debt. However a low interest coverage ratio could mean a higher debt burden and a greater possibility of bankruptcy or default.

The formula to calculate the interest coverage ratio:

[Earnings before Interest and Tax / Interest Payment]

The 'Earnings before Interest and Tax' (EBIT) is:

EBITDA – Depreciation & Amortization

Let us apply this ratio on Jain Irrigation Limited. Here is the snapshot of Jain Irrigation's P&L statement for the FY 14, I have highlighted the Finance costs in red:

CONSOLIDATED STATEMENT OF PROFIT AND LOSS FOR THE YEAR ENDED 31-MARCH-2014



	Note No.	2013-2014	₹ in Million 2012-2013
Revenue from operations	22	59,859.48	51,334.07
Less: Excise duty		(1,578.17)	(1,116.91)
Revenue from operations (net)		58,281.31	50,217.16
Other income	23	462.99	667.78
Total revenue		58,744.30	50,884.94
Expenses			
Cost of materials consumed	24	33,910.43	27,938.45
Changes in inventories of finished goods and work in progress	25	(501.88)	285.83
Employee benefit expenses	26	6,141.30	5,018.79
Finance costs	27	4,676.45	4,855.21
Depreciation and amortisation expense	13	2,045.40	1,695.59
Other expenses	28	11,404.66	9,921.82
Cost of self-generated capital equipment		(372.87)	(201.13)
Total expenses		57,303.49	49,514.56
Profit/(Loss) before exceptional and extraordinary items and tax		1,440.81	1,370.38
Exceptional items		2,300.37	1,245.09
Profit/(Loss) before tax		(859.56)	125.29
Tax expense			
- Current tax	29	233.03	175.08
- Deferred tax		(694.67)	(94.96)
Prior period expense		-	-
Profit/(Loss) for the year before minority interest		(397.92)	45.17
Share of loss in associate		-	(6.53)
Minority interest		(0.28)	(7.84)
Profit/(Loss) for the year		(398.20)	30.80
Earnings per share: (Face value ₹ 2 per share)	30		
Basic		(0.87)	0.07
Diluted		(0.87)	0.07

We know EBITDA = [Revenue – Expenses]

To calculate the expenses, we exclude the Finance cost (Rs.467.64Crs) and Depreciation & Amortization cost (Rs.204.54) from the total expenses of Rs.5730.34 Crs.

Therefore EBITDA = Rs.5828.13 – 5058.15 Crs

EBITDA = Rs. 769.98 Crs

We know EBIT = EBITDA – [Depreciation & Amortization]

= Rs.769.98 – 204.54

= Rs. 565.44

We know Finance Cost = Rs.467.64,

Hence Interest coverage is:

= 565.44/ 467.64

= **1.209x**

The 'x' in the above number represents a multiple. Hence 1.209x should be read as 1.209 'times'.

Interest coverage ratio of 1.209x suggests that for every Rupee of interest payment due, Jain Irrigation Limited is generating an EBIT of 1.209 times.

Debt to Equity Ratio:

This is a fairly straightforward ratio. Both the variables required for this computation can be found in the Balance Sheet. It measures the amount of the total debt capital with

respect to the total equity capital. A value of 1 on this ratio indicates an equal amount of debt and equity capital. Higher debt to equity (more than 1) indicates higher leverage and hence one needs to be careful. Lower than 1 indicates a relatively bigger equity base with respect to the debt.

The formula to calculate Debt to Equity ratio is:

[Total Debt/Total Equity]

Please note, the total debt here includes both the short term debt and the long term debt.

Here is JSIL's Balance Sheet, I have highlighted total equity, long term, and short term debt:

CONSOLIDATED BALANCE SHEET AS AT 31-MARCH-2014



	Note No.	31-Mar-2014	₹ in Million 31-Mar-2013
EQUITY AND LIABILITIES			
Shareholders' Funds			
Share capital	2	924.83	909.83
Reserves and surplus	3	20,830.66	20,607.97
Money received against share warrants	4	-	161.81
		21,755.49	21,679.61
Minority Interest		204.77	
Non-current liabilities			
Long term borrowings	5	14,976.63	14,329.38
Deferred tax liabilities (net)	6	1,411.72	1,841.30
Other long term liabilities	7	177.85	75.12
Long term provisions	8	64.30	49.14
		16,630.50	16,294.94
Current liabilities			
Short term borrowings	9	21,889.15	19,840.56
Trade payables	10	13,432.69	13,378.84
Other current liabilities	11	7,579.49	6,522.43
Short term provisions	12	552.38	491.46
		43,453.71	40,233.29
TOTAL		82,044.47	78,207.84

Total debt = Long term borrowings + Short term borrowings

$$= 1497.663 + 2188.915$$

= Rs.3686.578Crs

Total Equity is Rs.2175.549 Crs

Thus, Debt to Equity ratio will be computed as follows:

$$= 3686.578 / 2175.549$$

$$= 1.69$$

Debt to Asset Ratio:

This ratio helps us understand the asset financing pattern of the company. It conveys to us how much of the total assets are financed through debt capital.

The formula to calculate the same is:

Total Debt / Total Assets

For JSIL, we know the total debt is Rs.3686.578Crs.

From the Balance Sheet, we know the total assets as Rs.8204.447 Crs:

ASSETS		
Non-current assets		
Fixed assets		
Goodwill on consolidation	13[A]	2,192.12
Tangible assets	13[B]	25,003.91
Intangible assets	13[C]	575.41
Capital work-in-progress		806.88
		28,578.32
Non-current investments	14	14.16
Deferred tax assets (net)	6	1,194.25
Long term loans and advances	15	3,260.87
Other non-current assets	16	1,050.66
		26,835.03
Current assets		
Inventories	17	17,230.64
Trade receivables	18	17,994.04
Cash and bank balances	19	1,968.15
Short term loans and advances	20	5,557.59
Other current assets	21	4,062.55
		46,446.42
TOTAL		82,044.47
		78,207.84

Hence the Debt to Asset ratio is:

$$= 3686.578 / 8204.44$$

$$= 0.449 \text{ or } \sim 45\%.$$

This means roughly about 45% of the assets held by JSIL is financed through debt capital or creditors (and therefore 55% is financed by the owners). Needless to say, higher the percentage the more concerned the investor would be as it indicates higher leverage and risk.

Financial Leverage Ratio

We briefly looked at the financial leverage ratio in the previous chapter, when we discussed about Return on Equity. The financial leverage ratio gives us an indication, to what extent the assets are supported by equity.

The formula to calculate the Financial Leverage Ratio is:

Average Total Asset / Average Total Equity

From JSIL's FY14 balance sheet, I know the average total assets is Rs.8012.615. The average total equity is Rs.2171.755. Hence the financial leverage ratio or simply the leverage ratio is:

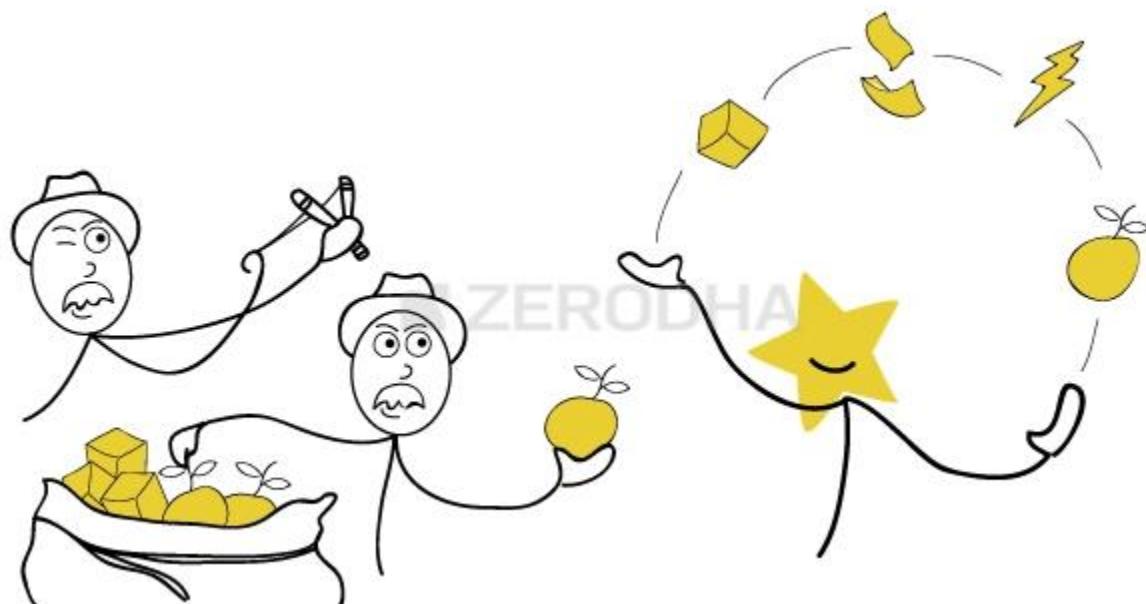
$$8012.615 / 2171.755$$

$$= 3.68$$

This means JSIL supports Rs.3.68 units of assets for every unit of equity. Do remember higher the number, higher is the company's leverage.

10.2 – Operating Ratios

Operating Ratios also called 'Activity ratios' or the 'Management ratios' indicate the efficiency of the company's operational activity. To some degree, the operating ratios reveal the management's efficiency as well. These ratios are called the Asset Management Ratios, as these ratios indicate the efficiency with which the assets of the company are utilized.



Some of the popular Operating Ratios are:

1. Fixed Assets Turnover Ratio
2. Working Capital Turnover Ratio
3. Total Assets Turnover Ratio
4. Inventory Turnover Ratio
5. Inventory Number of Days
6. Receivable Turnover Ratio

7. Days Sales Outstanding (DSO)

The above ratios combine data from both the P&L statement and Balance sheet. We will understand these ratios by calculating them for Amara Raja Batteries Limited.

To get a true sense of how good or bad the operating ratios of a company are, one must compare the ratios with the company's peers /competitors or these ratios should be compared over the years for the same company.

Fixed Assets Turnover

The ratio measures the extent of the revenue generated in comparison to its investment in fixed assets. It tells us how effectively the company uses its plant and equipment.

Fixed assets include the property, plant and equipment. Higher the ratio, it means the company is effectively and efficiently managing its fixed assets.

Fixed Assets Turnover = Operating Revenues / Total Average Asset

The assets considered while calculating the fixed assets turnover should be net of accumulated depreciation, which is nothing but the net block of the company. It should also include the capital work in progress. Also, we take the average assets for reasons discussed in the previous chapter.

From ARBL's FY14 Balance Sheet:

ASSETS				
Non-current assets				
Fixed assets	10			
Tangible assets		6,198.94		3,554.97
Intangible assets		32.96		33.69
Capital work-in-progress		1,443.60		1,024.97
Intangible assets under development		3.14		4.84
		7,678.64		4,618.47

$$= (767.864 + 461.847)/2$$

$$= \text{Rs.}614.855 \text{ Crs}$$

We know the operating revenue for FY14 is Rs.3436.7 Crs, hence the Fixed Asset Turnover ratio is:

$$= 3436.7 / 614.85$$

$$= 5.59$$

While evaluating this ratio, do keep in mind the stage the company is in. For a very well established company, the company may not be utilizing its cash to invest in fixed assets. However for a growing company, the company may invest in fixed assets and hence the fixed assets value may increase year on year. You can notice this in case of ARBL as well, for the FY13 the Fixed assets value is at Rs.461.8 Crs and for the FY14 the fixed asset value is at Rs.767.8 Crs.

This ratio is mostly used by capital intensive industries to analyze how effectively the fixed assets of the company are used.

Working Capital Turnover

Working capital refers to the capital required by the firm to run its day to day operations. To run the day to day operations, the company needs certain type of assets. Typically such assets are – inventories, receivables, cash etc. If you realize these are current assets. A well managed company finances the current assets by current liabilities. The difference between the current assets and current liabilities gives us the working capital of the company.

Working Capital = Current Assets – Current Liabilities

If the working capital is a positive number, it implies that the company has **working capital surplus** and can easily manage its day to day operations. However if the working capital is negative, it means the company has a **working capital deficit**.

Usually if the company has a working capital deficit, they seek a working capital loan from their bankers.

The concept of 'Working Capital Management' in itself is a huge topic in Corporate Finance. It includes inventory management, cash management, debtor's management etc. The company's CFO (Chief Financial Officer) strives to manage the company's working capital efficiently. Of course, we will not get into this topic as we will digress from our main topic.

The working capital turnover ratio is also referred to as Net sales to working capital. The working capital turnover indicates how much revenue the company generates for every unit of working capital. Suppose the ratio is 4, then it indicates that the company generates Rs.4 in revenue for every Rs.1 of working capital. Needless to say, higher the number, better it is. Also, do remember all ratios should be compared with its peers/competitors in the same industry and with the company's past and planned ratio to get a deeper insight of its performance.

The formula to calculate the Working Capital Turnover:

$$\text{Working Capital Turnover} = [\text{Revenue} / \text{Average Working Capital}]$$

Let us implement the same for Amara Raja Batteries Limited. To begin with, we need to calculate the working capital for the FY13 and the FY14 and then find out the average.

Here is the snapshot of ARBL's Balance sheet, I have highlighted the current assets (red) and current liabilities (green) for both the years:

Current liabilities			
Short-term borrowings	7	83.83	98.63
Trade payables	8	1,277.79	1,362.84
Other current liabilities	9	2,156.68	1,807.26
Short-term provisions	6	2,818.73	2,493.20
		6,337.03	5,761.93
Total		21,394.41	17,704.70
ASSETS			
Non-current assets			
Fixed assets	10		
Tangible assets		6,198.94	3,554.97
Intangible assets		32.96	33.69
Capital work-in-progress		1,443.60	1,024.97
Intangible assets under development		3.14	4.84
		7,678.64	4,618.47
Non-current investments	11	160.76	160.76
Long-term loans and advances	12	567.69	353.52
Other non-current assets	13	1.22	3.43
		8,408.31	5,136.18
Current assets			
Inventories	14	3,350.08	2,928.58
Trade receivables	15	4,527.89	3,806.77
Cash and bank balances	16	2,945.67	4,107.90
Short-term loans and advances	12	2,119.30	1,656.78
Other current assets	13	43.16	68.49
		12,986.10	12,568.52

The average working capital for the two financial years can be calculated as follows:

Current Assets for the FY13

Rs.1256.85

Current Liabilities for the FY13

Rs.576.19

Working Capital for the FY13

Rs.680.66

Current Asset for the FY14

Rs.1298.61

Current Liability for the FY14

Rs.633.70

Working Capital for the FY14

Rs.664.91

Average Working Capital

Rs.672.78

We know the revenue from operations for ARBL is Rs.3437 Crs. Hence the working capital turnover ratio is:

$$= 3437 / 672.78$$

= 5.11 times

The number indicates that for every Rs.1 of working capital, the company is generating Rs.5.11 in terms of revenue. Higher the working capital turnover ratio the better it is, as it indicates the company is generating better sales in comparison with the money it uses to fund the sales.

Total Assets Turnover

This is a very straight forward ratio. It indicates the company's capability to generate revenues with the given amount of assets. Here the assets include both the fixed assets as well as current assets. A higher total asset turnover ratio compared to its historical data and competitor data means the company is using its assets well to generate more sales.

Total Asset Turnover = Operating Revenue / Average Total Assets

The average total assets for ARBL is as follows –

Total Assets for FY 13 – Rs.1770.5 Crs and Total Assets for FY 14 – 2139.4 Crs. Hence the average assets would be Rs. 1954.95 Crs.

Operating revenue (FY 14) is Rs. 3437 Crs. Hence Total Asset Turnover is:

$$= 3437 / 1954.95$$

= 1.75 times

Inventory Turnover Ratio

Inventory refers to the finished goods that a company maintains in its store or showroom with an expectation of selling the finished goods to prospective clients. Typically, the company besides keeping the goods in the store would also keep some additional units of finished goods in its warehouse.

If a company is selling popular products, then the goods in the inventory gets cleared rapidly, and the company has to replenish the inventory time and again. This is called the 'Inventory turnover'.

For example think about a bakery selling hot bread. If the bakery is popular, the baker probably knows how many pounds of bread he is likely to sell on any given day. For example, he could sell 200 pounds of bread daily. This means he has to maintain an inventory of 200 pounds of bread every day. So, in this case the rate of replenishing the inventory and the inventory turnover is quite high.

This may not be true for every business. For instance, think of a car manufacturer. Obviously selling cars is not as easy as selling bread. If the manufacturer produces 50 cars, he may have to wait for sometime before he sells these cars. Assume, to sell 50 cars (his inventory capacity) he will need 3 months. This means, every 3 months he turns over his inventory. Hence in a year he turns over his inventory 4 times.

Finally, if the product is really popular the inventory turnover would be high. This is exactly what the 'Inventory Turnover Ratio' indicates.

The formula to calculate the ratio is:

$$\text{Inventory Turnover} = [\text{Cost of Goods Sold} / \text{Average Inventory}]$$

Cost of goods sold is the cost involved in making the finished good. We can find this in the P&L Statement of the company. Let us implement this for ARBL.

To evaluate the cost of goods sold, I need to look into the expense of the company, here is the extract of the same:

EXPENSES			
Cost of materials consumed	19	21,011.95	17,603.12
Purchases of stock-in-trade	20	2,113.69	2,632.54
Changes in inventories of finished goods, work-in-process and stock-in-trade	20	(292.10)	(320.89)
Employee benefits expense	21	1,583.16	1,262.30
Finance costs	22	7.18	2.69
Depreciation and amortisation expense [includes impairment loss of ₹Nil (PY ₹75.52 million)]	23	645.71	660.92
Other expenses	24	4,346.60	3,904.24

Cost of materials consumed is Rs.2101.19 Crs and purchases of stock-in-trade is Rs.211.36 Crs. These line items are directly related to the cost of goods sold. Along with this I would also like to inspect 'Other Expenses' to identify any costs that are related to the cost of goods sold. Here is the extract of Note 24, which details 'Other Expenses'.

NOTE 24: OTHER EXPENSES		₹ million	
Particulars	Year ended March 31, 2014	Year ended March 31, 2013	
A. Manufacturing expenses:			
a. Stores and spares consumed (including packing material)	449.41	378.41	
b. Power and fuel	922.56	978.14	
c. Insurance	8.49	7.29	
d. Repairs and maintenance to:			
i) Machinery	44.46	55.79	
ii) Buildings	18.72	63.18	14.28
Total (A)	1,443.64	1,433.91	
B. Selling expenses:			
a. Advertisement and promotion	275.85	154.41	
b. Freight outward	595.20	553.25	
c. Commission on sales	8.40	10.13	
d. Service expenses	219.36	94.16	
e. Warehousing and secondary freight	250.50	223.43	
f. Other sales expenses	242.15	155.81	
g. Royalty on sales	-	0.05	
h. Product warranties	383.15	494.62	
Total (B)	1,974.61	1,685.86	

There are two expenses that are directly related to manufacturing i.e. Stores & spares consumed which is at Rs.44.94 Crs and the Power & Fuel cost which is at Rs.92.25Crs.

Hence the Cost of Goods Sold = Cost of materials consumed + Purchase of stock in trade + Stores & spares consumed + Power & Fuel

$$= 2101.19 + 211.36 + 44.94 + 92.25$$

COGS= Rs.2449.74 Crs

This takes care of the numerator. For the denominator, we just take the average inventory for the FY13 and FY14. From the balance sheet – Inventory for the FY13 is Rs.292.85 Crs and for the FY14 is Rs.335.00 Crs. The average works out to Rs.313.92 Crs

The Inventory turnover ratio is:

$$= 2449.74 / 313.92$$

= 7.8 times

~ 8.0 times a year

This means Amara Raja Batteries Limited turns over its inventory 8 times in a year or once in every 1.5 months. Needless to say, to get a true sense of how good or bad this number is, one should compare it with its competitor's numbers.

Inventory Number of days

While the Inventory turnover ratio gives a sense of how many times the company 'replenishes' their inventory, the 'Inventory number of Days' gives a sense of how much time the company takes to convert its inventory into cash. Lesser the number of days, the better it is. A short inventory number of day's number implies, the company's products are fast moving. The formula to calculate the inventory number of days is:

Inventory Number of Days = 365 / Inventory Turnover

The inventory number of days is usually calculated on a yearly basis. Hence in the formula above, 365 indicates the number of days in a year.

Calculating this for ARBL:

$$= 365 / 7.8$$

$$= 46.79 \text{ days}$$

~ 47.0 days

This means ARBL roughly takes about 47 days to convert its inventory into cash.

Needless to say, the inventory number of days of a company should be compared with its competitors, to get a sense of how the company's products are moving.

Now here is something for you to think about – What would you think about the following situation?

1. A certain company under consideration has a high inventory turnover ratio
2. Because of a high inventory turnover ratio, the inventory number of days is very low

On the face of it, the inventory management of this company looks good. A high inventory turnover ratio signifies that the company is replenishing its inventory quickly, which is excellent. Along with the high inventory turnover, a low inventory number of days indicate that the company is quickly able to convert its goods into cash. Again, this is a sign of great inventory management.

However, what if the company has a great product (hence they are able to sell quickly) but a low production capacity? Even in this case the inventory turnover will be high and

inventory days will be low. But a low production capacity can be a bit worrisome as it raises many questions about the company's production:

1. Why is the company not able to increase their production?
2. Are they not able to increase production because they are short of funds?
3. If they are short of funds, why can't they seek a bank loan?
4. Have they approached a bank and are not been able to raise a loan successfully?
5. If they are not able to raise a loan, why?
6. What if the management does not have a great track record, hence the banks hesitation to give a loan?
7. If funds are not a problem, why can't the company increase production?
8. Is sourcing raw materials difficult? Is the raw material required regulated by government (like Coal, power, Oil etc.).
9. Difficult access to raw material – does that mean the business is not scalable?

As you can see, if any of the points above is true, then a red flag is raised, hence investing in the company may not be advisable. To fully understand the production issues (if any), the fundamental analyst should read through the annual report (especially the management discussion & analysis report) from the beginning to the end.

This means whenever you see impressive inventory numbers, always ensure to double check the production details as well.

Accounts Receivable Turnover Ratio

Having understood the inventory turnover ratio, understanding the receivable turnover

ratio should be quite easy. The receivable turnover ratio indicates how many times in a given period the company receives money/cash from its debtors and customers.

Naturally a high number indicates that the company collects cash more frequently.

The formula to calculate the same is:

Accounts Receivable Turnover Ratio = Revenue / Average Receivables

From the balance sheet we know,

Trade Receivable for the FY13 : Rs.380.67 Crs

Trade Receivable for the FY14 : Rs. 452.78 Crs

Average Receivable for the FY13 : Rs.416.72

Operating Revenue for the FY14 : Rs.3437 Crs

Hence the Receivable Turnover Ratio is:

= $3437 / 416.72$

= 8.24 times a year

~ 8.0 times

This means ARBL receives cash from its customers roughly about 8.24 times a year or once every month and a half.

Days Sales Outstanding (DSO))/ Average Collection Period/ Day Sales in Receivables

The days sales outstanding ratio illustrates the average cash collection period i.e the time lag between billing and collection. This calculation shows the efficiency of the

company's collection department. Quicker/faster the cash is collected from the creditors, faster the cash can be used for other activities. The formula to calculate the same is:

Days Sales outstanding = 365 / Receivable Turnover Ratio

Solving this for ARBL,

$$= 365 / 8.24$$

$$= 44.29 \text{ days}$$

This means ARBL takes about 45 days from the time it raises an invoice to the time it can collect its money against the invoice.

Both Receivables Turnover and the DSO indicate the credit policy of the firm. A efficiently run company, should strike the right balance between the credit policy and the credit it extends to its customers.

Key takeaways from this chapter

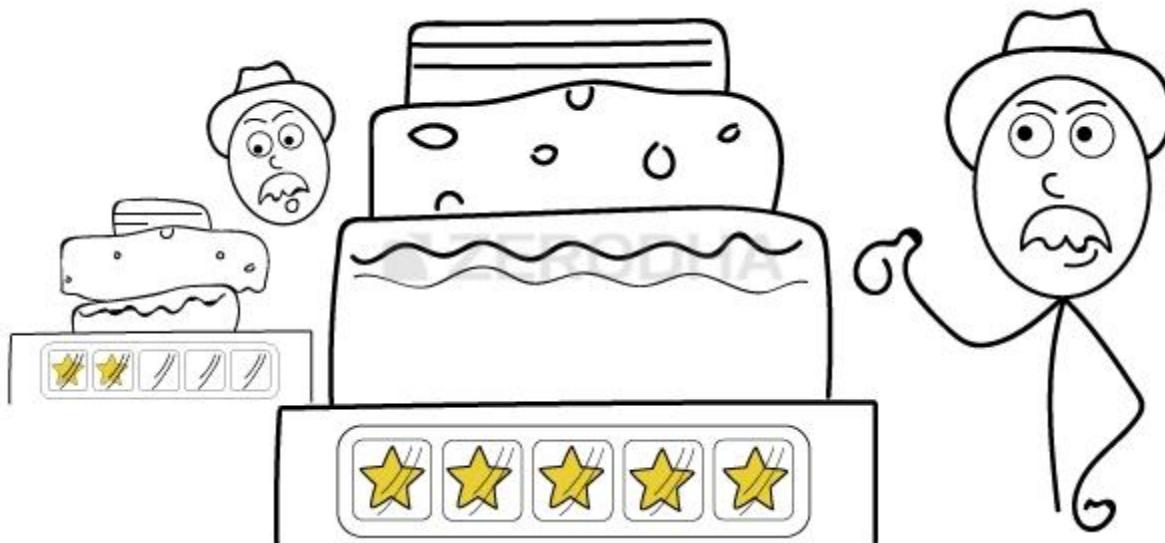
1. Leverage ratios include Interest Coverage, Debt to Equity, Debt to Assets and the Financial Leverage ratios
2. The Leverage ratios mainly study the company's debt with respect to the company's ability to service the long term debt
3. Interest coverage ratio inspects the company's earnings ability (at the EBIT level) as a multiple of its finance costs
4. Debt to equity ratio measures the amount of equity capital with respect to the debt capital. Debt to equity of 1 implies equal amount of debt and equity
5. Debt to Asset ratio helps us understand the asset financing structure of the company (especially with respect to the debt)

6. The Financial Leverage ratio helps us understand the extent to which the assets are financed by the owner's equity
7. The Operating Ratios also referred to as the Activity ratios include – Fixed Assets Turnover, Working Capital turnover, Total Assets turnover, Inventory turnover, Inventory number of days, Receivable turnover and Day Sales Outstanding ratios
8. The Fixed asset turnover ratio measures the extent of the revenue generated in comparison to its investment in fixed assets
9. Working capital turnover ratio indicates how much revenue the company generates for every unit of working capital
10. Total assets turnover indicates the company's ability to generate revenues with the given amount of assets
11. Inventory turnover ratio indicates how many times the company replenishes its inventory during the year
12. Inventory number of days represents the number of days the company takes to convert its inventory to cash
 1. A high inventory turnover and therefore a low inventory number of days is a great combination
 2. However make sure this does not come at the cost of low production capacity
13. The Receivable turnover ratio indicates how many times in a given period the company receives money from its debtors and customers
14. The Days sales outstanding (DSO) ratio indicates the Average cash collection period i.e the time lag between the Billing and Collection

The Financial Ratio Analysis (Part 3)

11.1 – The Valuation Ratio

Valuation, in general, is the estimate of the ‘worth’ of something. In the context of investments, ‘something’ refers to the price of a stock. When making an investment decision, irrespective of how attractive the business appears, what matters finally is the business’s valuation. Valuations dictate the price you pay to acquire a business. Sometimes, a mediocre business at a ridiculously cheap valuation may be a great investment option instead of an exciting business with an extremely high valuation. The valuation ratios help us develop a sense of how the market participants value the stock price. These ratios help us understand the attractiveness of the stock price from an investment perspective. The point of valuation ratios is to compare the price of a stock viz a viz the benefits of owning it. Like all the other ratios we had looked at, a company’s valuation ratios should be evaluated alongside the company’s competitors.



Valuation ratios are usually computed as a ratio of the company's share price to an aspect of its financial performance. We will be looking at the following three important valuation ratios:

1. Price to Sales (P/S) Ratio
2. Price to Book Value (P/BV) Ratio and
3. Price to Earnings (P/E) Ratio

Continuing with the Amara Raja Batteries Limited (ARBL) example, let us implement these ratios to see how ARBL fares. The stock price of ARBL is a vital input used to calculate the valuation ratios. As I write this chapter on 28th of Oct 2014, ARBL trades at Rs.661 per share.

We also need the total number of shares outstanding in ARBL to calculate the above ratios. If you recollect, we have calculated the same in chapter 6. The total number of shares outstanding is 17,08,12,500 or 17.081Crs

Price to Sales (P/S) Ratio

In many cases, investors may use sales instead of earnings to value their investments. The earnings figure may not be true as some companies might be experiencing a cyclical low in their earning cycle. Additionally, due to some accounting rules, a profitable company may seem to have no earnings at all, due to the huge write-offs applicable to that industry. So, investors would prefer to use this ratio. This ratio compares the stock price of the company with the company's sales per share. The formula to calculate the P/S ratio is:

Price to sales ratio = Current Share Price / Sales per Share

Let us calculate the same for ARBL. We will take up the denominator first:

Sales per share = Total Revenues / Total number of shares

We know from ARBL's P&L statement:

Total Revenue = Rs.3482 Cr

Number of Shares = 17.081 Cr

Sales per share = 3482 / 17.081

Therefore the Sales per share = Rs. 203.86

This means for every share outstanding, ARBL does Rs.203.86 worth of sales.

Price to Sales Ratio = 661 / 203.86

= 3.24x or 3.24 times

A P/S ratio of 3.24 times indicates that, for every Rs.1 of sales, the stock is valued

Rs.3.24 times higher. Obviously, the higher the P/S ratio, the higher is the valuation of the firm. One has to compare the P/S ratio with its competitors to get a fair sense of how expensive or cheap the stock is.

Here is something that you need to remember while calculating the P/S ratio. Assume there are two companies (Company A and Company B) selling the same product. Both

companies generate a revenue of Rs.1000/-each. However, Company A retains Rs.250 as PAT and Company B retains Rs.150 as PAT. In this case, Company A has a profit margin of 25% versus Company B's, which has a 15% profit margin. Hence, Company A's sales are more valuable than Company B. Hence, if Company A is trading at a higher P/S. The valuation may be justified because every rupee of sales Company A generates, a higher profit is retained.

Whenever you feel a particular company is trading at a higher valuation from the P/S ratio perspective, do remember to check the profit margin for cues.

Price to Book Value (P/BV) Ratio

Before we understand the Price to Book Value ratio, we need to understand the term 'Book Value' means.

Consider a situation where the company has to close down its business and liquidate all its assets. What is the minimum value the company receives upon liquidation? The answer to this lies in the "Book Value" of the firm.

The "Book Value" of a firm is simply the amount of money left on the table after the company pays off its obligations. Consider the book value as the salvage value of the company. Suppose the book value of a company is Rs.200Crs, then this is the amount of money the company can expect to receive after it sells everything and settles its debts. Usually, the book value is expressed on a per-share basis. For example, if the book

value per share is Rs.60, then Rs.60 per share is what the shareholder can expect if the company decides to liquidate. The 'Book Value' (BV) can be calculated as follows:

BV = [Share Capital + Reserves (excluding revaluation reserves) / Total Number of shares]

Let us calculate the same for ARBL:

From ARBL's balance sheet, we know:

Share Capital = Rs.17.1 Crs

Reserves = Rs.1345.6 Crs

Revaluation Reserves = 0

Number of shares: 17.081

Hence the Book Value per share = $[17.1+1345.6 - 0] / 17.081$

= Rs.79.8 per share

This means if ARBL were to liquidate all its assets and pay off its debt, Rs.79.8 per share is what the shareholders can expect.

Moving ahead, if we divide the stock's current market price by the book value per share, we will get the price to the firm's book value. The P/BV indicates how many times the

stock is trading over and above the firm's book value. Clearly, the higher the ratio, the more expensive the stock is.

Let us calculate this for ARBL. We know:

The stock price of ARBL = Rs.661 per share

BV of ARBL = 79.8 per share

P/BV = 661/79.8

= 8.3x or 8.3 times

This means ARBL is trading over 8.3 times its book value.

A high ratio could indicate that the firm is overvalued relative to the company's equity/book value. A low ratio could indicate the company is undervalued relative to the equity/book value.

Price to Earning (P/E) Ratio

The Price to Earnings ratio is perhaps the most popular financial ratio. Everybody likes to check the P/E of a stock. Because of the popularity, the P/E ratio enjoys, it is often considered the 'financial ratio superstar'.

The P/E of a stock is calculated by dividing the **current stock price** by the **Earning Per Share (EPS)**. Before we proceed to understand the PE ratio, let us understand what "Earnings per Share" (EPS) stands for.

EPS measures the profitability of a company on a per-share basis. For example, assume a certain company with 1000 shares outstanding generates a profit of Rs.200000/- . Then the earnings on a per-share basis would be:

$$=200000 / 1000$$

$$= \text{Rs.}200 \text{ per share.}$$

Hence the EPS gives us a sense of the profits generated on a per-share basis. Clearly, higher the EPS, better it is for its shareholders.

If you divide the current market price with EPS, we get the Price to Earnings ratio. The P/E ratio measures the market participants' willingness to pay for the stock, for every rupee of profit that the company generates. For example, if the P/E of a certain firm is 15, it simply means that the company earns the market participants for every unit of profit the company earns, the market participants are willing to pay 15 times. Higher the P/E, more expensive is the stock.

Let us calculate the P/E for ARBL. We know from its annual report –

$$\text{PAT} = \text{Rs.}367\text{Crs}$$

$$\text{Total Number of Shares} = 17.081 \text{ Cr}$$

$$\text{EPS} = \text{PAT} / \text{Total Number of shares}$$

$$= 367 / 17.081$$

= Rs.21.49

Current Market Price of ARBL = 661

Hence P/E = 661 / 21.49

= 30.76 times

This means for every unit of profit generated by ARBL; the market participants are willing to pay Rs.30.76 to acquire the share.

Now assume, ARBL's price jumps to Rs.750 while the EPS remains at Rs.21.49, the new P/E would be:

= 750/21.49

= 34.9 times

While the EPS stayed flat at Rs.21.49 per share, the stock's P/E jumped. Why do you think this happened?

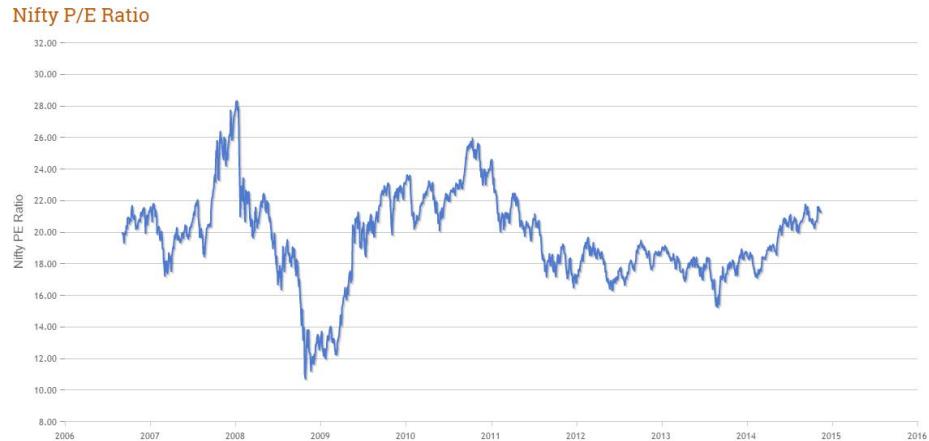
Clearly, the P/E Ratio jumped because of the increase in the stock price as we know the company's stock price increases when the expectations from the company increase.

Remember, P/E Ratio is calculated with 'earnings' in its denominator. While looking at the P/E ratio, do remember the following key points:

1. P/E indicates how expensive or cheap the stock is trading at. Never buy stocks that are trading at high valuations. Personally, I wouldn't say I like to buy stocks that are trading beyond 25 or at the most 30 times its earnings, irrespective of the company and the sector it belongs to
2. The denominator in P/E ratio is the 'Earnings', and the earnings can be manipulated.
3. Make sure the company is not changing its accounting policy too often – this is one way the company tries to manipulate its earnings.
4. Pay attention to the way depreciation is treated. Provision for lesser depreciation can boost earnings.
5. If the company's earnings are increasing but not its cash flows and sales, something is clearly not right.

11.2 – The Index Valuation

Like a stock, the stock market indices such as the BSE Sensex and the CNX Nifty 50 have their valuations measured by the P/E, P/B and Dividend Yield ratios. The stock exchanges usually publish the Index valuation daily. The index valuations give us a sense of how cheap or expensive the market is trading at. To calculate the CNX Nifty 50 P/E ratio, the National Stock Exchange combines the market capitalization for all the 50 stocks and divides that amount by the combined earnings for all the 50 stocks. Tracking the Index P/E ratio gives a sense of the market's current state as perceived by the market participants. Here is the historical chart of Nifty 50 P/E ratio* –



* Source – Creytheon

From the P/E chart above, we can make a few important observations –

1. The peak Index valuation was 28x (early 2008), what followed this was a major crash in the Indian markets
2. The corrections drove the valuation down to almost 11x (late 2008, early 2009). This was the lowest valuation the Indian market had witnessed in the recent past
3. Usually the Indian Indices P/E ratio ranges between 16x to 20x, with an average of 18x
4. As of today (2014) we are trading around 22x, which is above the average P/E ratio

Based on these observations, the following conclusions can be made –

1. One has to be cautious while investing in stocks when the market's P/E valuations are above 22x
2. Historically the best time to invest in the markets is when the valuations are around 16x or below.

One can easily find out the Index P/E valuation daily by visiting the National Stock Exchange (NSE) website.

On NSE's home page click on Products > Indices > Historical Data > P/E, P/B & Div > Search

In the search field, enter today's date, and you will get the latest P/E valuation of the market. Do note; the NSE updates this information around 6:00 PM every day.

Here is a snapshot of the search result –

P/E, P/B & Div Yield values

Select the index you want:

Select Index: CNX NIFTY

Select a time period: 13-11-2014 To 13-11-2014

P/E P/B Div Yield All

Get Data

Historical CNX NIFTY P/E, P/B & Div. Yield values			
For the period 13-11-2014 to 13-11-2014			
Date	P/E	P/B	Div Yield
13-Nov-2014	21.26	3.53	1.27

[Download file in csv format](#)

Clearly, as of today (13th Nov 2014), the Indian market is trading close to the higher end of the P/E range; history suggests that we need to be cautious while taking investment decisions at this level.

Key takeaways from this chapter

1. Valuation, in general, is the estimate of the 'worth' of something.
2. Valuation ratios involve inputs from both the P&L statement and the Balance Sheet.

3. The Price to Sales ratio compares the company's stock price with the company's sales per share.
 - o Sales per share is simply the Sales divided by the Number of shares.
4. Sales of a company with a higher profit margin are more valuable than the sales of a company with lower profit margins.
5. If a company is going bankrupt, the 'Book Value' of a firm is simply the amount of money left on the table after the company pays off its obligations.
6. Book value is usually expressed on a per-share basis.
7. The Price/BV indicates how many times the stock price is trading over and above the firm's book value.
8. EPS measures the profitability of a company on a per-share basis
9. The P/E ratio indicates market participants' willingness to pay for a stock, keeping the company's earnings in perspective.
10. One has to be cautious about earning manipulation while evaluating the P/E ratio.
11. The Indices have a valuation which can be measured by the P/E, P/B or Dividend Yield ratio.
12. It is advisable to exercise caution when the Index is trading at a valuation of 22x or above.
13. A valuation gets attractive when the index is trading at 16x or below.
14. NSE publishes the index valuations on their website daily

Technical Analysis

1.1 – Overview

The previous module on the Basics of the stock market set us on a great starting point.

Taking cues from the previous module, we know that developing a well-researched point of view is critical for success in the stock market. A good point of view should have a directional view and should also include information such as:

1.

1. Price at which one should buy or sell stocks
2. Expected Risk
3. Expected reward
4. Expected holding period

Technical Analysis (also abbreviated as TA) is a popular technique that allows you to do just that. It helps you develop a point of view on a particular stock or index and helps you define the trade in terms of entry price, exit price, and risk.

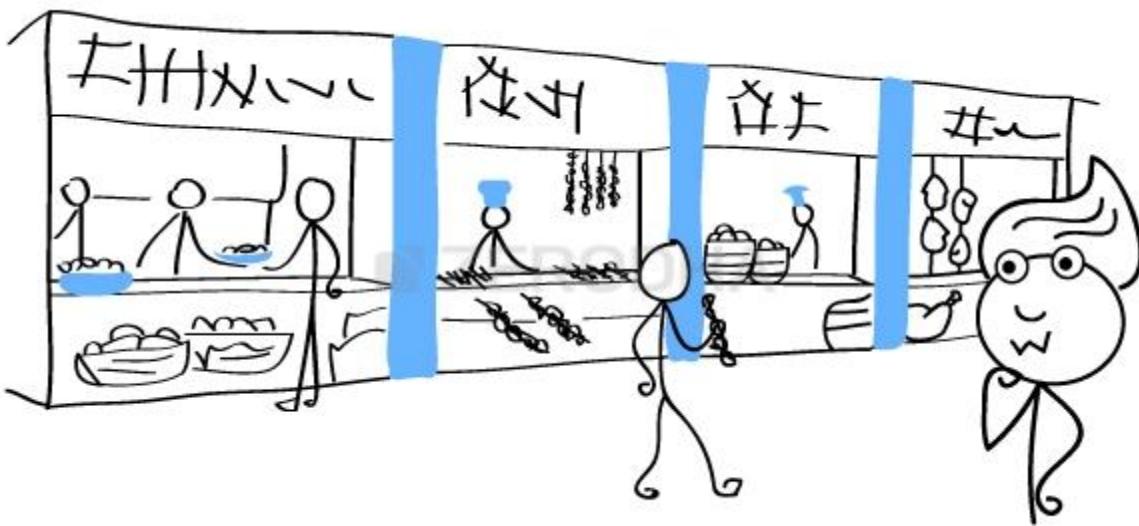
Like all stock market research techniques, Technical Analysis also comes with a few associated conditions and assumptions, some of which can be highly complex. However, technology makes it easy to understand and execute trades based on TA. We will discover these conditions as we proceed along with this module.

1.2 – Technical Analysis, what is it?

Consider this analogy.

Imagine you are vacationing in a foreign country where everything, including the language, culture, weather, and food, is new to you. On day 1, you do the regular touristy activities, and by evening you are starving and craving food. You want to end your day by having a great dinner. You ask around for a good restaurant, and you are told about a vibrant food street close by. You decide to give it a try.

To your surprise, the food street has 100s of vendors selling different varieties of food. Everything looks different and interesting. You are clueless as to what to eat for dinner. To add to your dilemma, you cannot ask around as you do not know the local language. So given all this, how will you decide on what to eat?



Well, you have two options to figure out what to eat.

Option 1: You visit a vendor and figure out what they are cooking. Check on the ingredients used, figure out the cooking style, taste a bit, and determine if you like the food. You repeat this exercise across a few vendors, after which you would most likely eat at a place that satisfies you the most.

The advantage of this technique is that you know exactly what you are eating since you have researched it independently. However, on the flip side, the methodology you adopted is not scalable. There could be about 100-odd vendors, and with limited time at your disposal, you can probably cover about 4 or 5 vendors. Hence there is a high probability of missing out on the best-tasting food on the street!

Option 2: You stand in a corner and observe all the vendors. You try and find a vendor who is attracting the maximum crowd. Once you find such a vendor, you make a simple assumption -'The vendor is attracting so many customers, which means they must be

making the best food!" Based on that assumption and the crowd's preference, you decide to go to that particular vendor for dinner. The chances are that you could be eating the best-tasting food available on the street.

The advantage of this method is its scalability. You need to spot the vendor with the maximum number of customers and bet that it is good based on the crowd's preference. However, on the flip side, the crowd need not always be right.

In the world of stock markets, option 1 is very similar to Fundamental Analysis, where you research a few companies thoroughly. We will explore the Fundamental Analysis in greater detail in the next module.

Option 2 is similar to Technical Analysis, where one scans for opportunities based on the current trend, aka the market's preference.

Technical Analysis is a research technique to identify trading opportunities in the market based on market participants' actions. The actions of market participants can be visualized in stock charts. Over time, patterns form in these charts, and each pattern conveys a certain message. The job of a technical analyst is to identify these patterns and develop a point of view.

Like any research technique, technical analysis stands on a bunch of assumptions. As a technical analysis practitioner, you must trade the markets, keeping these assumptions in perspective. Of course, we will understand these assumptions in detail as we proceed along.

Also, at this point, it makes sense to throw some light on a matter concerning FA and TA. Often, people argue that a particular research technique is a better approach to the market. However, there is no such thing as the best research approach. Every research method has its own merits and demerits. It would be futile to compare TA and FA to figure out a better approach.

Both techniques are different and not comparable. A prudent trader would educate on both techniques to identify great trading or investing opportunities.

1.3 – Setting expectations

Market participants often approach technical analysis as a quick and easy way to profit. On the contrary, technical analysis is anything but quick and easy. If done right, consistently generating profits is possible, but to get to that stage, one must put in the required effort to learn the technique.

A trading catastrophe is bound to happen if you approach TA as a quick and easy way to make money in markets. When a trading debacle happens, more often than not, the blame is on technical analysis and not on the trader's inability to efficiently apply Technical Analysis. Hence before you start delving deeper into technical analysis, it is important to set expectations on what can and cannot be achieved with technical analysis.

1.

1. **Trades** – TA is best used to identify short-term trades. Do not use TA to identify long-term investment opportunities. Long-term investment opportunities are best identified using fundamental analysis. Also, If you are a fundamental analyst, use TA to calibrate the entry and exit points.
 2. **Return per trade** – TA-based trades are usually short-term in nature. Do not expect huge returns within a short duration of time. The right way to use TA is to identify frequent short-term trading opportunities that can give you small but consistent profits.
 3. **Holding Period** – Trades based on technical analysis can last between a few minutes to a few weeks, usually not beyond that. We will explore this aspect when we discuss the topic of timeframes.
 4. **Risk** – Often, traders initiate a trade for a certain reason; however, in case of an adverse movement in the stock, the trade starts to lose money. Usually, in such situations, traders hold on to their loss-making trade with the hope they can recover the loss. Remember, TA-based trades are short-term; if the trade goes bad, do remember to cut the losses and move on to identify the next opportunity.
-

Key takeaways from this chapter

1. Technical Analysis is a popular method to develop a point of view on markets. Besides, TA also helps in identifying entry and exit points.
2. Technical Analysis visualizes the actions of market participants in the form of stock charts.

3. Patterns are formed within the charts, and these patterns help a trader identify trading opportunities.
4. TA works best when we keep a few core assumptions in perspective.
5. TA is used best to identify short terms trades.

Introducing Technical Analysis

2.1– Overview

In the previous chapter, we briefly understood technical analysis and the main difference between technical and fundamental analysis. In this chapter, we will dig a bit deeper and explore the assumptions technical analysis is based upon.

2.2 – Application on asset types

One of the greatest advantages of technical analysis is that you can apply TA on any asset class as long as the asset type has historical time series data. Time series data in technical analysis is the price information, namely – open, high, low, close, volume, etc.

Here is an analogy that may help. Think about learning how to drive a car. Once you learn how to drive a car, you can drive any car, whether a Mahindra XUV or a Maruti Swift. Likewise, you only need to learn technical analysis once. Once you do so, you can apply TA on any asset class – equities, commodities, foreign exchange, fixed income, etc.

The fact that TA can be applied to multiple assets is probably one of the biggest advantages of TA compared to the other stock market research techniques. For example, one has to study the profit and loss, balance sheet, and cash flow statements when it comes to the fundamental analysis of equity. However, the fundamental analysis of commodities is completely different.

When dealing with an agricultural commodity like Coffee or Pepper, the fundamental analysis includes analyzing rainfall, harvest, demand, supply, inventory etc. However, the fundamentals of metal commodities are different, so it is for energy commodities. So every time you choose a commodity, the fundamentals change.

On the other hand, the concept of technical analysis will remain the same irrespective of the asset you are studying. For example, an indicator such as ‘Moving average convergence divergence (MACD) or ‘Relative strength index (RSI) is used the same way on equity, commodity, or currency.

2.3 – Assumption in Technical Analysis

Unlike fundamental analysts, technical analysts don’t worry about the company’s valuation. The only thing that matters is the stock’s historical trading data (price and volume) and the insights the past data provides about the future movement in stock price.

Technical Analysis is based on a few key assumptions. You need to know these assumptions to ensure you use technical analysis effectively.

1) Markets discount everything – This assumption tells us that all known and unknown information in the public domain is reflected in the latest stock price. For example, an insider

could buy the company's stock in large quantities in anticipation of a good quarterly earnings announcement. While the insider does this secretly, the price reacts, revealing to the technical analyst that something is about to happen in the stock price.

2) The 'how' is more important than the 'why' – This is an extension of the first assumption. Going with the same example discussed above – the technical analyst would not be interested in questioning **why** the insider bought the stock as long as the technical analyst knows **how** the price reacted to the insider's action.

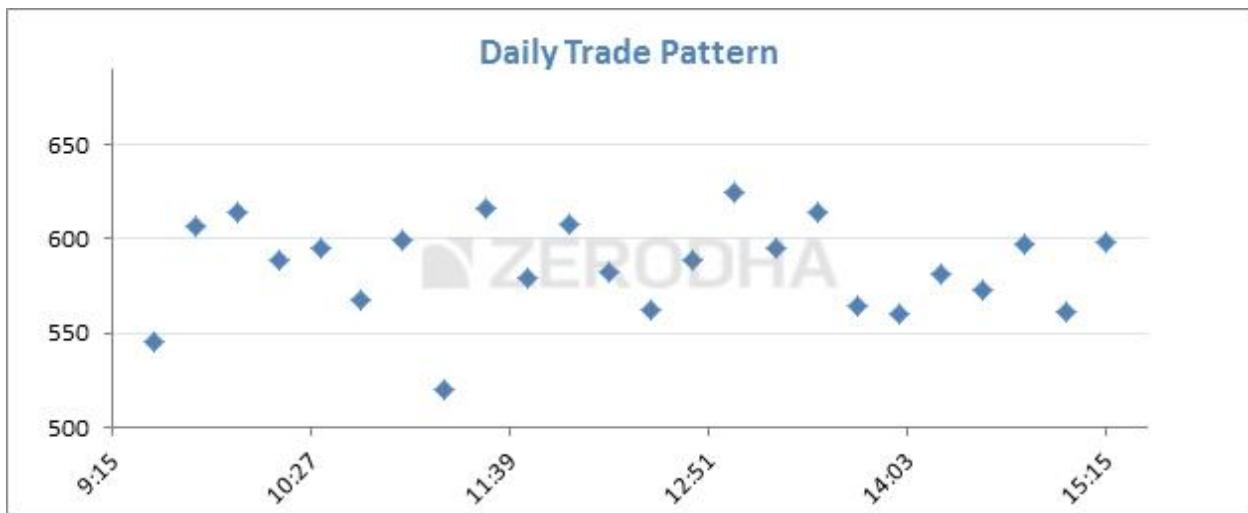
3) Price moves in trend – All major moves in the market are an outcome of a trend. The concept of trend is the foundation of technical analysis. For example, the recent upward movement in the NIFTY 50 Index to 18500 from 14750 did not happen overnight. This move happened in a phased manner in over 11 months. Another way to look at it is that once the trend is established, the price moves in the direction of the trend.

4) History tends to repeat itself – In the technical analysis context, the price trend tends to repeat itself. This happens because the market participants consistently react to price movements in remarkably similar ways every time the price moves in a certain direction. For example, in an uptrend, market participants get greedy and want to buy irrespective of the high price. Likewise, market participants want to sell in a downtrend irrespective of the low and unattractive prices. This human reaction has been the same towards stock prices over time, ensuring that history repeats itself.

2.4 – The Trade Summary

The Indian stock market is open from 9:15 AM to 03:30 PM. During the 6 hours 15-minute market session, millions of trades occur. Think about an individual stock – every minute, a trade gets executed on the exchange. As market participants do we need to keep track of all the different price points at which a trade is executed?

To illustrate this further, let us consider this imaginary stock in which many trades exist. Look at the picture below. Each point refers to a trade being executed at a particular time. If one manages to plot a graph that includes every second from 9:15 AM to 3:30 PM, the graph will be cluttered with many points. I've tried to represent this in the chart below –



The market opened at 9:15 AM and closed at 3:30 PM, during which there were many trades. It will be practically impossible to track all these different price points. One needs a summary of the trading action and not the details on all the different price points.

We can summarise the price action by tracking the Open, high, low, and close.

Open Price – When the markets open for trading, the first price a trade executes is called the opening price.

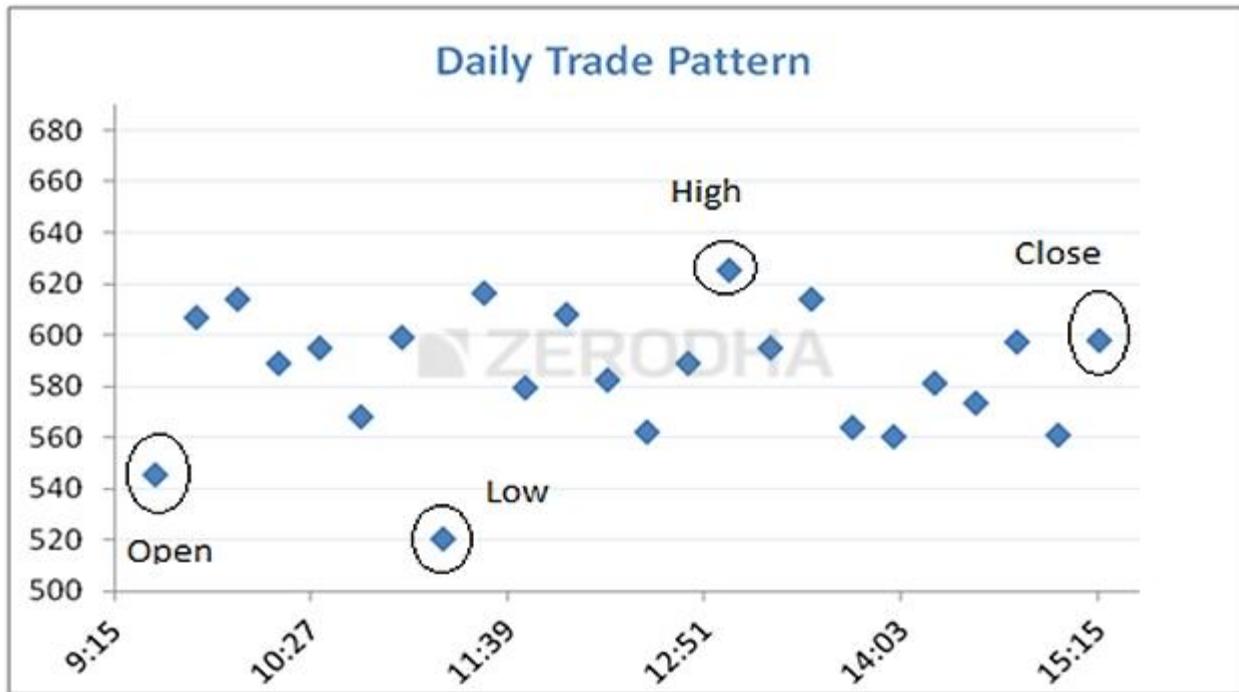
The High Price – This represents the highest price at which a trade occurred for the given day.

The Low Price – This represents the lowest price at which a trade occurred for the given day.

The Close Price – This is the most important price because it is the final price at which the market closes for the day. The close indicates the intraday strength and a reference price for the next day. If the close is higher than the open, it is considered a positive day; otherwise negative. Of course, we will deal with this in greater detail as we progress through the module.

The closing price also shows the market sentiment and serves as a reference point for the next day's trading. For these reasons, closing is more important than the opening, high or low prices.

The main data points from the technical analysis perspective are open, high, low, and close prices. Each of these prices has to be plotted on the chart and analyzed.



Key takeaways from this chapter

1. Its scope does not bind to technical Analysis. The TA concepts can be applied across asset classes as long as it has time-series data.
2. TA is based on a few core assumptions.
 1. Markets discount everything
 2. The how is more important than the why
 3. Price moves in trends
 4. History tends to repeat itself.
3. A good way to summarize the daily trading action is by marking the open, high, low, and close prices, usually abbreviated as OHLC

The Chart Types

3.1- Overview

Having recognized that the Open (O), high (H), low (L), and close (C) serves as the best way to summarize the trading action for the given period, we need a charting technique that displays this information in the most comprehensible way. If not for a good charting technique, charts can get quite complex. Each trading day has four data points, ' i.e. the OHLC. If we are looking at a 10-day chart, we need to visualize 40 data points (1-day x 4 data points per day). So you can imagine how complex it would be to visualize 6 months or a year's data.

As you may have guessed, the regular charts that we are generally used to – like the column chart, pie chart, area chart etc. do not work for technical analysis. The only exception to this is the line chart.

The regular charts don't work mainly because they display one data point at a given point in time. However, Technical Analysis requires four data points to be displayed at the same time.

Below are some of the chart types:

1. Line chart
2. Bar Chart
3. Japanese Candlestick

This module's focus will be on the Japanese Candlesticks; however, before we get to candlesticks, we will understand why we don't use the line and bar chart.

3.2 – The Line and Bar chart

The line chart is the most basic chart type, and it uses only one data point to form the chart. When it comes to technical analysis, a line chart is formed by plotting a stock's closing prices or an index. A dot is placed for each closing price, and a line then connects the various dots.

If we are looking at 60-day data, then the line chart is formed by connecting the closing prices' dots for 60 days.



The line charts can be plotted for various time frames, namely monthly, weekly, hourly etc. So, if you wish to draw a weekly line chart, you can use weekly closing prices of securities and other time frames.

The advantage of the line chart is its simplicity. With one glance, the trader can identify the general trend of security. However, the disadvantage of the line chart is also its simplicity. Besides giving the analysts a view on the trend, the line chart does not provide any additional detail. Plus the line chart takes into consideration only the closing prices ignoring the open, high and low. For this reason, traders prefer not to use the line charts.

The bar chart, on the other hand, is a bit more versatile. A bar chart displays all four price variables: open, high, low, and close. A bar has three components.

1. The central line – The top of the bar indicates the highest price the security has reached.
The bottom end of the bar indicates the lowest price for the same period.
2. The left mark/tick – indicates the open.
3. The right mark/tick – indicates the close.

For example, assume the OHLC data for a stock as follows:

Open – 65

High – 70

Low – 60

Close – 68

For the above data, the bar chart would look like this:



As you can see, in a single bar, we can plot four different price points. If you wish to view 5 days chart, we will have 5 vertical bars as you would imagine. So on and so forth.



Note that the left and right mark on the bar chart varies based on how the market has moved for the given day.

If the left mark, which represents the opening price, is lower than the right mark, it indicates that the close is higher than the open ($\text{close} > \text{open}$), hence a positive day for the markets. For example consider this: $O = 46, H = 51, L = 45, C = 49$. To indicate it is a bullish day, the bar is represented in blue colour.



Likewise, if the left mark is higher than the right mark, it indicates that the close is lower than the open (close < open), hence a negative day for markets. For example consider this: O = 74, H=76, L=70, C=71. To indicate it is a bearish day, the bar is represented in red colour.



The length of the central line indicates the range for the day. A range can be defined as the difference between the high and low. Longer the line, bigger the range, shorter the line, smaller is the range.

While the bar chart displays all the four data points, it still lacks a visual appeal. This is probably the biggest disadvantage of a bar chart. It becomes tough to spot potential

patterns brewing when one is looking at a bar chart. The complexity increases when a trader has to analyze multiple charts during the day.

Hence, for this reason, the traders do not use bar charts. However, it is worth mentioning that there are traders who prefer to use bar charts. But if you are starting fresh, I would strongly recommend the use of Japanese Candlesticks. Candlesticks are the default option for the majority in the trading community.

3.3 – History of the Japanese Candlestick

Before we jump in, it is worth spending time to understand in brief the history of the Japanese Candlesticks. As the name suggests, the candlesticks originated from Japan. The earliest use of candlesticks dates back to the 18th century by a Japanese rice merchant named Homma Munehisa.

Though the candlesticks have been in existence for a long time in Japan, and are probably the oldest form of price analysis, the western world traders were clueless about it. It is believed that sometime around 1980's a trader named Steve Nison accidentally discovered candlesticks, and he introduced the methodology to the rest of the world. He authored the first-ever book on candlesticks titled "Japanese Candlestick Charting Techniques" which is still a favourite amongst many traders.

Most of the candlesticks pattern still retains the Japanese names; thus giving an oriental feel to technical analysis.

3.4 – Candlestick Anatomy

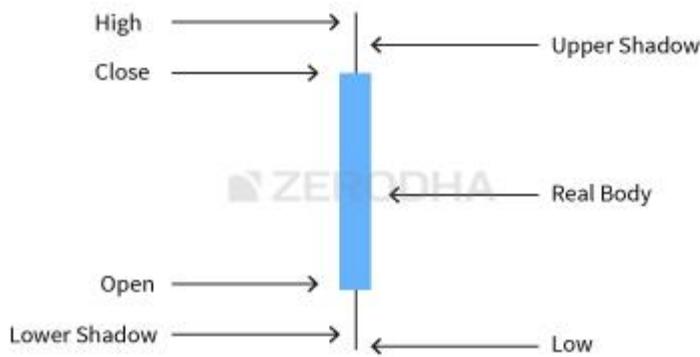
While in a bar chart the open and the close prices are shown by a tick on the left and the right sides of the bar respectively, however in a candlestick the open and close prices are displayed by a rectangular body.

In a candlestick chart, candles can be classified as a bullish or bearish candle usually represented by blue/green/white and red/black candles. Needless to say, the colours can be customized to any colour of your choice; the technical analysis software allows you to do this. This module has opted for the blue and red combination to represent bullish and bearish candles, respectively.

Let us look at the **bullish candle**. The candlestick, like a bar chart, is made of 3 components.

1. The Central real body – The real body, rectangular connects the opening and closing price.
2. Upper shadow – Connects the high point to the close.
3. Lower Shadow – Connects the low point to the open.

Have a look at the image below to understand how a bullish candlestick is formed:



This is best understood with an example. Let us assume the prices as follows.

Open = 62

High = 70

Low = 58

Close = 67

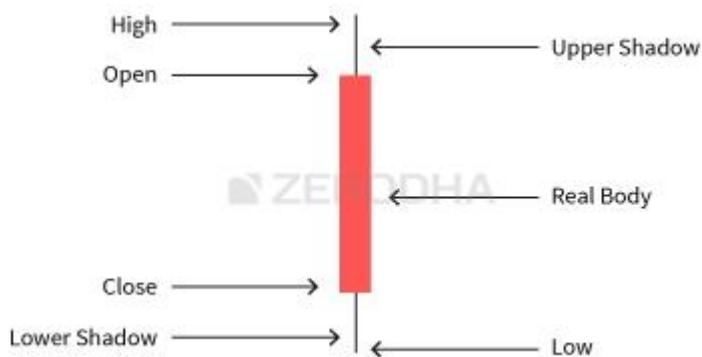


Likewise, the bearish candle also has 3 components:

1. The Central real body – The real body, rectangular which connects the opening and closing price. However, the opening is at the top end, and the closing is at the rectangle's bottom end.
2. Upper shadow – Connects the high point to the open.

3. Lower Shadow – Connects the Low point to the close.

This is how a bearish candle would look like:



This is best understood with an example. Let us assume the prices as follows.

Open = 456

High = 470

Low = 420

Close = 435



Here is a little exercise to help you understand the candlestick pattern better. Try and plot the candlesticks for the given data.

Day	Open	High	Low	Close
Day 1	430	444	425	438
Day 2	445	455	438	450
Day 3	445	455	430	437

If you find any difficulty in doing this exercise, please ask your query in the comments at the end of this chapter.

Once you internalize the way candlesticks are plotted, reading the candlesticks to identify patterns becomes a lot easier.

This is how the candlestick chart looks like if you were to plot them on a time series. The blue candle indicates bullishness and red indicates bearishness.



Also note, a long-bodied candle depicts strong buying or selling activity. A short-bodied candle depicts less trading activity and hence less price movement.

To sum up, candlesticks are easier to interpret in comparison to the bar chart. Candlesticks help you quickly visualize the relationship between the open and close and the high and low price points.

3.5 – A note on time frames

A time frame is defined as the time duration during which one chooses to study a particular chart. Some of the popular time frames that technical analysts use are:

- Monthly Charts
- Weekly charts
- Daily or End of day charts
- Intraday charts – 30 Mins, 15 mins and 5 minutes

One can customize the time frame as per their requirement. For example, a high-frequency trader may want to use a 1-minute chart instead of any other time frame.

Here is a quick note on different types of time frames.

Time Frame	Open	High	Low	Close	No of Candles
Monthly	The opening price on the first day of the month	The highest price at which the stock traded during the entire month	The lowest price at which the stock traded during the entire month	The closing price on the last day of the month	12 candles for entire year

Monthly	The opening price on the first day of the month	The highest price at which the stock traded during the entire month	The lowest price at which the stock traded during the entire month	The closing price on the last day of the month	12 candles for entire year
---------	---	---	--	--	----------------------------

Weekly	Monday's Opening Price	The highest price at which the stock traded during the entire week	The lowest price at which the stock traded during the entire week	The closing price on Friday	52 candles for entire year
Daily or EOD	The opening price of the day	The highest price at which the stock traded during the day	The lowest price at which the stock traded during the entire day	The closing price of the day	One candle per day 252 candles for entire year
Intraday 30 minutes	The opening price at the beginning of the 1st minute	The highest price at which the stock traded during the 30-minute duration	The lowest price at which the stock traded during the 30-minute duration	The closing price as on the 30th minute	Approximately 30 candles per day
Intraday 15 minutes	The opening price at the beginning of the 1st minute	The highest price at which the stock traded during the 15-minute duration	The lowest price at which the stock traded during the 15-minute duration	The closing price as on the 15th minute	25 candles per day
Intraday 5 minutes	The opening price at the beginning of the 1st minute	The highest price at which the stock traded during the 5-minute duration	The lowest price at which the stock traded during the 5-minute duration	The closing price as on the 5th minute	75 candles per day

As you can see from the table above, the number of candles (data points) increases when the time frame reduces. Based on the type of trader you are, you need to take a stand on the time frame you need.

The data can either be information or noise. As a trader, you need to filter information from noise. For instance, a long term investor is better off looking at weekly or monthly charts as this would provide information. While on the other hand an intraday trader executing 1 or 2 trades per day is better off looking at the end of the day (EOD) or at best 15 mins charts. Likewise, for a high-frequency trader, 1-minute charts can convey a lot of information.

So based on your stance as a trader, you need to choose a time frame. This is extremely crucial for your trading success because a successful trader looks for information and discards the noise.

Key takeaways from this chapter

1. Conventional chart type cannot be used for technical analysis as we need to plot 4 data points simultaneously.
2. A line chart can be used to interpret trends, but no other information can be derived.
3. Bar charts lack visual appeal, and one cannot identify patterns easily. For this reason, bar charts are not very popular.
4. There are two types of candlesticks – Bullish candle and Bearish candle. The structure of the candlestick, however, remains the same.

5. When close > open = It is a Bullish candle. When close < open = It is a Bearish candle.
6. Time frames play a very crucial role in defining trading success. One has to choose this carefully.
7. The number of candle increases as and when the frequency increases
8. Traders should be in a position to discard noise from relevant information

Getting Started with Candlesticks

4.1 – History tends to repeat itself – The big assumption

As mentioned earlier, one of the key assumptions in technical analysis is that we rely on the fact that history tends to repeats itself. This probably is one of the most important assumptions in Technical Analysis.

It would make sense to explore this assumption in greater detail at this juncture as candlestick patterns are heavily dependent on it.

Assume today, the 7th of July 2014 few things are happening in a particular stock. Let us call this factor:

1. **Factor 1** – The stock has been falling for the last 4 consecutive trading sessions

2. **Factor 2** – Today (7th July 2014) is the 5th session, and the stock is falling on relatively lower volumes
3. **Factor 3** – The range in which the stock trades today is quite small compared to the last four days.

With these factors playing in the background, let us assume that on the next day (8th July 2014) the fall in stock gets arrested and the stock rallies towards a positive close. So, as an outcome of the 3 factors, the stock went up on the 6th day.

Time passes and let's say after a few months, the same set of factors is observed for 5 consecutive trading sessions. What would you expect for the 6th day?

According to the assumption – History tends to repeat itself. However, we need to make an addendum to this assumption. When a set of factors that have panned out in the past tends to repeat itself in the future, we expect the same outcome to occur, as was observed in the past, provided the factors are the same.

Therefore, based on this assumption, we can expect the stock price to go up on the 6th trading session even this time around.

4.2 – Candlestick patterns and what to expect

The candlesticks are used to identify trading patterns. Patterns, in turn, help the technical analyst to set up a trade. The patterns are formed by grouping two or more candles in a certain sequence. However, sometimes powerful trading signals can be identified by just a single candlestick pattern.

Hence, candlesticks can be broken down into single candlestick pattern and multiple candlestick patterns.

Under the single candlestick pattern, we will be learning the following...

1. Marubozu
 1. Bullish Marubozu
 2. Bearish Marubozu
2. Doji
3. Spinning Tops
4. Paper umbrella
 1. Hammer
 2. Hanging man
5. Shooting star

Multiple candlestick patterns are a combination of multiple candles. Under the multiple candlestick patterns, we will learn the following:

1. Engulfing pattern
 1. Bullish Engulfing
 2. Bearish Engulfing
2. Harami
 1. Bullish Harami
 2. Bearish Harami
3. Piercing Pattern
4. Dark cloud cover
5. Morning Star
6. Evening Star

Of course, you must be wondering what these names mean. As I had mentioned in the previous chapter, some of the patterns retain the original Japanese name.

Candlestick patterns help the trader develop a complete point of view. Each pattern comes with an in-built risk mechanism. Candlesticks give an insight into both entry and stop-loss price.

4.3 – Few assumptions specific to candlesticks

Before we jump in and start learning about the patterns, there are few more assumptions that we need to keep in mind. These assumptions are specific to candlesticks. Do pay a lot of attention to these assumptions as we will keep referring back to these assumptions quite often later.

At this stage, these assumptions may not be obvious to you. I will explain them in greater detail as and when we proceed. However, do keep these assumptions in the back of your mind:

- **Buy strength and sell weakness** – Strength is represented by a bullish (blue) candle and weakness by a bearish (red) candle. Hence whenever you are buying ensure, it is a blue candle day and whenever you are selling, ensure it's a red candle day.
- **Be flexible with patterns (quantify and verify)** – While the textbook definition of a pattern could state certain criteria, there could be minor variations to the pattern owing to market conditions. So one needs to be a bit flexible. However, one needs to be flexible within limits, and hence it is always required to quantify the flexibility.

- **Look for a prior trend** – If you are looking at a bullish pattern, the prior trend should be bearish, and likewise, if you are looking for a bearish pattern, the prior trend should be bullish.

In the next chapter, we will begin by learning about single candlestick patterns.

Key takeaways from this chapter

1. History tends to repeat itself – we modified this assumption by adding the factor angle.
2. Candlestick patterns can be broken down into single and multiple candlestick patterns.
3. There are three important assumptions specific to candlestick patterns.
 1. Buy strength and sell weakness.
 2. Be flexible – quantify and verify.
 3. Look for a prior trend.

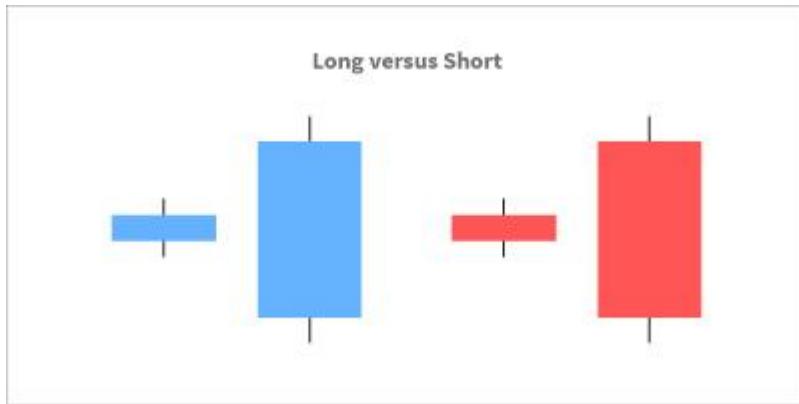
Single Candlestick patterns (Part 1)

5.1 – Overview

As the name suggests, a single candlestick pattern is formed by just one candle. So as you can imagine, the trading signal is generated based on 1 day's trading action. The trades based on a single candlestick pattern can be extremely profitable provided the pattern has been identified and executed correctly.

One needs to pay some attention to the length of the candle while trading based on candlestick patterns. The length signifies the range for the day. In general, the longer the candle, the more intense is the buying or selling activity. If the candles are short, it can be concluded that the trading action was subdued.

The following picture gives a perspective on the long/short – bullish, and bearish candle.



The trades have to be qualified based on the length of the candle as well. One should avoid trading based on subdued short candles. We will understand this perspective as and when we learn about specific patterns.

5.2 – The Marubozu

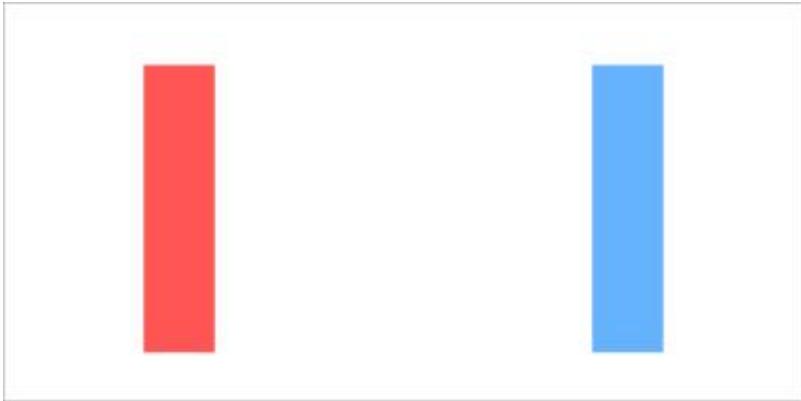
The Marubozu is the first single candlestick pattern that we will understand. The word Marubozu means “Bald” in Japanese. We will understand the context of the terminology soon. There are two types of marubozu – the bullish marubozu and the bearish marubozu.

Before we proceed, let us lay down the three important rules about candlesticks. We looked at it in the previous chapter; I’ve reproduced the same for quick reference:

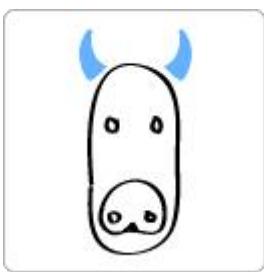
1. Buy strength and sell weakness.
2. Be flexible with patterns (verify and quantify)
3. Look for the prior trend.

Marubozu is probably the only candlestick pattern that violates rule number 3, i.e., looking for a prior trend. A Marubozu can appear anywhere in the chart irrespective of the prior trend; the trading implication remains the same.

The textbook defines Marubozu as a candlestick with no upper and lower shadow (therefore appearing bald). A Marubozu has just the real body, as shown below. However, there are exceptions to this. We will look into these exceptions shortly.



The red candle represents the bearish marubozu, and the blue represents the bullish marubozu.



5.3 – Bullish Marubozu

The absence of the upper and lower shadow in a bullish marubozu implies that the low is equal to the open and the high is equal to the close. Hence whenever the **Open = Low and High = close**, a bullish marubozu is formed.

A bullish marubozu indicates that there is so much buying interest in the stock that the market participants were willing to buy the stock at every price point during the day, so much so that the stock closed near its high point for the day. It does not matter what the prior trend has been, the action on the marubozu day suggests that the sentiment has changed and the stock is now bullish.

The expectation is that with this sudden change in sentiment, there is a surge of bullishness, and this bullish sentiment will continue over the next few trading sessions. Hence a trader should look at buying opportunities with the occurrence of a bullish marubozu. The **buying price** should be around the closing price of the marubozu.



In the chart above (ACC Limited), the encircled candle is a bullish marubozu. Notice the bullish marubozu candle does not have a visible upper and a lower shadow. The OHLC data for the candle is: Open = 971.8, High = 1030.2, Low = 970.1, Close = 1028.4

Please notice the textbook definition of a marubozu **Open = Low, and High = Close**. However, in reality, there is a minor variation to this definition. The price variation is not much when measured in percentage terms, for example, the variation between high and close is 1.8, which as a percentage of high is just 0.17%. **This is where the 2nd rule applies – Be flexible, Quantify and Verify.**

With this occurrence of a marubozu the expectation has turned bullish, and hence one would be a buyer of the stock. The trade setup for this would be as follows:

Buy Price = Around 1028.4 and Stoploss = 970.0

As it is evident, candlestick patterns do not give us a target. However, we will address the issue of setting targets at a later stage in this module.

Having decided to buy the stock, when do we actually buy the stock? The answer to this depends on your risk appetite. Let us assume two types of a trader with different risk profiles – the risk-taker and the risk-averse.

The risk-taker would buy the stock on the same day as the marubozu is being formed. However, the trader needs to validate the occurrence of a marubozu. Validating is quite simple. Indian markets close at 3:30 PM. So, around 3:20 PM one needs to check if the **current market price (CMP) is approximately equal to the high price for the day, and the opening price of the day is approximately equal to the low price the day**. If this condition is satisfied, you know the day is forming a marubozu, you can buy the stock around the closing price. It is also essential to note that the risk-taker is buying on a bullish/blue candle day, thereby following rule 1, i.e., buying on strength and selling on weakness.

The **risk-averse** trader would buy the stock on the next day, i.e. the day after the pattern has been formed. However, before buying the trader, ensure that the day is a bullish day to comply with rule number 1. This means the risk-averse buyer can buy the stock only around the close of the day. The disadvantage of buying the next day is that the buy price is way above the suggested buy price, and therefore the stoploss is quite deep. However, as a trade-off, the risk-averse trader is buying only after doubly confirming that the bullishness is indeed established.

As per the ACC's chart above, both the risk taker and the risk-averse would have been profitable in their trades.

Here is another example (Asian Paints Ltd) where both the risk-taker, and the risk-averse trader would have been profitable.



Here is an example where the risk-averse trader would have benefited :



Notice in the chart above, a bullish marubozu has been encircled. The risk-taker would have initiated a trade to buy the stock on the same day around the close, only to book a loss on the next day. However, the risk-averse would have avoided buying the stock entirely because the next day happened to be a red candle day. Going by the rule, we should buy only on a blue candle day and sell on a red candle day.

5.4 – The Stoploss on Bullish Marubozu

What if after buying, the market reverses its direction and the trade goes wrong? Like I had mentioned earlier, candlestick patterns come with an inbuilt risk management mechanism. In case of a bullish marubozu, the low of the stock acts as a stoploss. So after you initiate a buy trade, if the markets move in the opposite direction, you should exit the stock if price breaches the low of the marubozu.

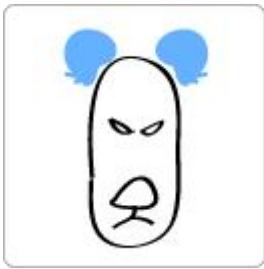
Here is an example where the bullish marubozu qualified as a buy for both the risk-averse and the risk-taker. The OHLC is : O = 960.2, H = 988.6, L = 959.85, C = 988.5.



But the pattern eventually failed, and one would have booked a loss. The stoploss for this trade would be the low of marubozu, i.e. 959.85.

Booking a loss is a part of the game. Even a seasoned trader goes through this. However, the best part of following the candlestick is that the losses cannot run indefinitely. There is a clear agenda as to what price one has to get out of trade provided the trade starts to move in the opposite direction. In this particular case booking a loss would have been the most prudent thing to do as the stock continued to go down.

Of course, there could be instances where the stoploss gets triggered, and you pull out of the trade. But the stock could reverse direction and start going up after you pulled out of the trade. But unfortunately, this is also a part of the game, and one cannot really help it. No matter what happens, the trader should stick to the rules and not find excuses to deviate from it.



5.5 – Bearish Marubozu

Bearish Marubozu indicates extreme bearishness. Here the open is equal to the high and close the is equal to low. Open = High, and Close = Low.

A bearish marubozu indicates that there is so much selling pressure in the stock that the market participants actually sold at every price point during the day, so much so that the stock closed near its low point of the day. It does not matter what the prior trend has been, the action on the marubozu day suggests that the sentiment has changed and the stock is now bearish.

The expectation is that this sudden change in sentiment will be carried forward over the next few trading sessions, and hence one should look at shorting opportunities. The selling price should be around the closing price of the marubozu.



In the chart above (BPCL Limited), the encircled candle indicates the presence of a bearish marubozu. Notice the candle does not have an upper and a lower shadow. The OHLC data for the candle is as follows:

Open = 355.4, High = 356.0, Low = 341, Close = 341.7

As we had discussed earlier, a minor variation between the OHLC figures leading to small upper and lower shadows is ok as long as it is within a reasonable limit.

The trade on the bearish marubozu would be to short BPCL approximately at 341.7 with a stoploss at the high point of the candle. In this case, the stoploss price is 356.0. Of course, we still haven't dealt with setting targets at this stage, and we will figure that out much later in this module.

Remember this: Once a trade is initiated, you should hold on to it until either the target is hit or the stoploss is breached. If you attempt to do something else before any one of these event triggers, your trade could most likely go bust. So staying on the course of the plan is extremely crucial.

Trade can be initiated based on the risk appetite of the person. The risk-taker can initiate a short trade on the same day around the closing. Of course, he has to make sure that the candle is forming a bearish marubozu. To do this at 3:20 PM, the trader must confirm if the open is approximately equal to the high and the current market price is equal to the low price. If the condition is validated, then it is a bearish marubozu, a short position can be initiated.

If the trader is risk-averse, he can wait till the next day's closing. The short trade will go through only by 3:20 PM next day after ensuring that the day is a red candle day. This is also to ensure that we comply with 1st rule – Buy strength, and Sell weakness.

In the BPCL chart above, both risk taker and risk-averse would have been profitable.

Here is another chart, Cipla Limited, where the bearish marubozu has been profitable for both risk-taker, and a risk-averse trader. Remember these are short term trades and one needs to be quick in booking profits.



Here is a chart showing a bearish marubozu pattern that would not have worked out for the risk-taker, but a risk-averse trader would have avoided initiating the trade, thanks to rule 1.



5.6 – The trade trap

Earlier in this chapter, we did discuss the length of the candle. One should avoid trading during a minimal (below 1% range) or long candle (above 10% range).

A small candle indicates subdued trading activity, and hence it would be difficult to identify the direction of the trade. On the other hand, a long candle indicates extreme activity. The problem with lengthy candles would be the placement of stoploss. The stoploss would be deep, and in case the trade goes wrong, the penalty for paying would be painful. For this reason, one should avoid trading on candles that are either too short or too long.

Key takeaways from this chapter

1. Remember the rules based on which candlesticks work.
2. Marubozu is the only pattern which violates rule number 3, i.e. Look for the prior trend.
3. A bullish marubozu indicates bullishness.
 1. Buy around the closing price of a bullish marubozu
 2. Keep the low of the marubozu as the stoploss
4. A bearish marubozu indicates bearishness.
 1. Sell around the closing price of a bearish marubozu
 2. Keep the high of the marubozu as the stoploss
5. An aggressive trader can place the trade on the same day as the pattern forms.
6. Risk-averse traders can place the trade on the next day after ensuring that it obeys rule number 1, i.e. Buy strength, and Sell weakness.
7. Abnormal candle lengths should not be traded.
 1. Short candle indicates subdued activity.

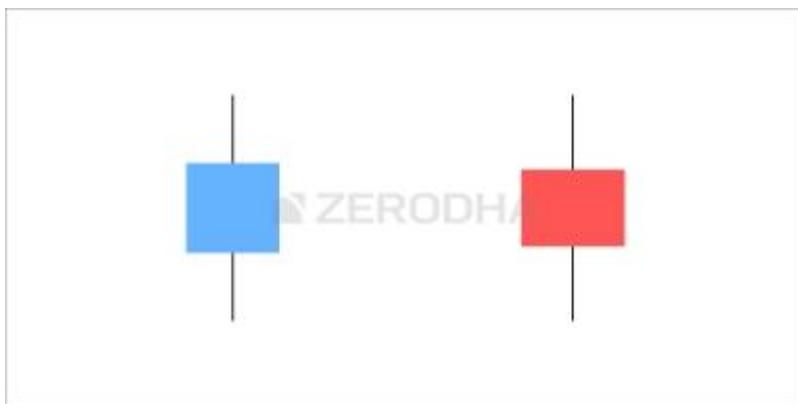
2. Long candle indicates extreme activity; however, placing stoploss becomes an issue.

Single Candlestick patterns (Part 2)

6.1 – The Spinning Top

The spinning top is a very interesting candlestick. Unlike the Marubuzo, it does not give the trader a trading signal with specific entry or an exit point. However, the spinning top gives out useful information concerning the current situation in the market. The trader can use this information to position himself in the market.

A spinning top looks like the candle shown below. Take a good look at the candle. What observations do you make concerning the structure of the candle?



Two things are quite prominent...

- The candles have a small real body.
- The upper and lower shadow is almost equal.

What do you think would have transpired during the day that leads to creating a spinning top? On its face, the spinning top looks like a humble candle with a small real body, but in reality, there were a few dramatic events that took place during the day.

Let us follow these events:

1. **Small real body** – This indicates that the open price and close price are quite close. For instance, the open could be 210, and the close could be 213. Or the open could be 210 and close at 207. Both these situations lead to creating a small real body because a 3 point move on a 200 Rupee stock is not much. Because the open and close price points are nearby to one another, the colour of the candle does not really matter. It could be a blue or a red candle, what really matters is that the open prices and close prices are near to one another.
2. **The upper shadow** – The upper shadow connects the real body to the high point of the day. If it is a red candle, the high and open are connected. If it is a blue candle, the high and close are connected. If you think about the real body in conjunction with the upper shadow ignoring the lower shadow, what do you think had happened? The presence of the upper shadow tells us that the bulls did attempt to take the market higher. However, they were not really successful in their endeavour. If the bulls were truly successful, then the real body would have been a long blue candle and not really a short candle. Hence this can be treated as an attempt by the bulls to take the markets higher, but they were not really successful at it.
3. **The lower shadow** – The lower shadow connects the real body to the low point of the day. If it is a red candle, the low and close are connected. If it is a blue candle, the low

and open are connected. What do you think had happened if you think about the real body in conjunction with the lower shadow ignoring the upper shadow? This is pretty much the same thing that happened with the bulls. The presence of the lower shadow tells us that the bears did attempt to take the market lower. However, they were not really successful in their endeavour. If the bears were truly successful, then the real body would have been long red candle and not really a short candle. Hence, the bears' attempt to take the markets lower can be treated as an attempt, but they were not really successful.

Now think about the spinning top as a whole along with all its components, i.e. real body, upper shadow, and lower shadow. The bulls made a futile attempt to take the market higher. The bears tried to take the markets lower, and it did not work either. Neither the bulls nor the bears could establish any influence on the market as this is evident with the small real body. Thus Spinning tops are indicative of a market where indecision and uncertainty prevails.

If you look at a spinning top in isolation, it does not mean much. **It just conveys indecision as both bulls and bears were not able to influence the markets.** However, when you see the spinning top concerning the chart trend, it gives out a compelling message based on which you can position your stance in the markets.

6.2 – Spinning tops in a downtrend

What if the spinning tops were to occur when the stock is in a downtrend?

In a downtrend, the bears are in absolute control as they manage to grind the prices lower. With the spinning top in the downtrend, the bears could be consolidating their

position before resuming another bout of selling. The bulls have also attempted to arrest the price fall and have tried to hold on to their position, though not successfully. After all, if they were successful, the day would have resulted in a good blue candle and not really a spinning top.

So what stance would you take considering that there are spinning tops in a downtrend? The stance depends on what we expect going forward. Clearly, there are two foreseeable situations with an equal probability:

1. Either there will be another round of selling.
2. Or the markets could reverse its directions, and the prices could increase.

Clearly, with no clarity on what is likely to happen, the trader needs to be prepared for both the situations, i.e. reversal and continuation.

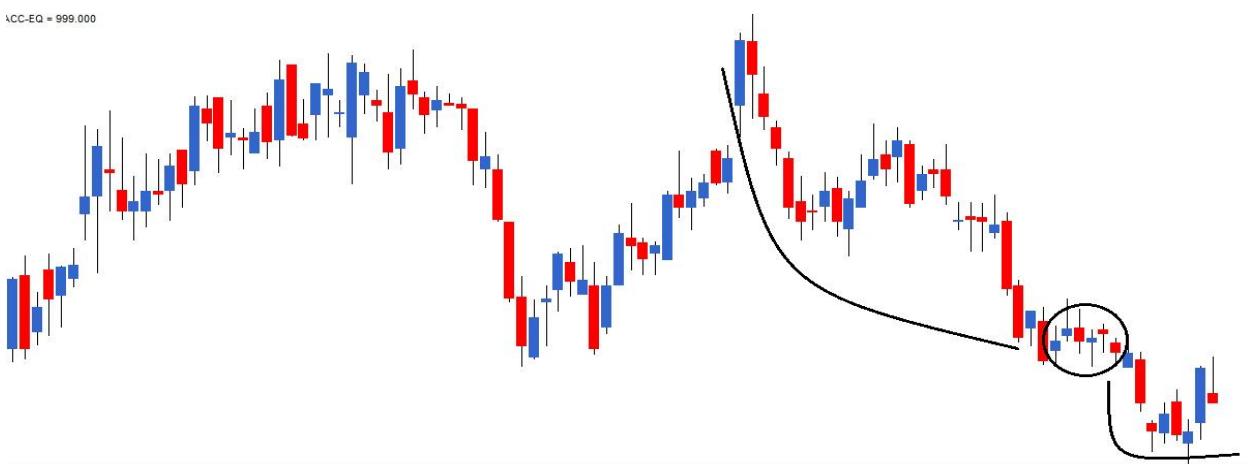
If the trader has been waiting for an opportunity to go long on the stock, probably this could be his opportunity to do so. However, to play safe, he could test the waters with only half the quantity. If the trader wants to buy 500 shares, he could probably enter the trade with 250 shares and wait and watch the market. If the market reverses its direction, and the prices start going up, then the trader can average up by buying again. If the prices reverse, the trader would most likely have bought the stocks at the lowest prices.

If the stock starts to fall, the trader can exit the trade and book a loss. At least the loss is just on half the quantity and not really on the entire quantity.

Here is a chart, which shows the downtrend followed by a set of spinning tops. The stock rallied post the occurrence of the spinning top.



Here is another chart which shows the continuation of a downtrend after the occurrence of spinning tops.



So, think about the spinning top as “The calm before the storm”. The storm could be in the form of a continuation or a reversal of the trend. In which way, the price will eventually move is not certain; however, what is certain is the movement itself. One needs to be prepared for both situations.

6.3 – Spinning tops in an uptrend

A spinning top in an uptrend has similar implications as the spinning top in a downtrend, except that we look at it slightly differently. Look at the chart below, what can you see and what would be the inference?



An obvious observation is that there is an uptrend in the market, which implies the bulls have been in absolute control over the last few trading sessions. However, with the occurrence of the recent spinning tops, the situation is a bit tricky:

1. The bulls are no longer in control; spinning tops would not be formed on the charts if they were.
2. With the formation of spinning tops, the bears have made an entry to the markets.

Though not successful, the emphasis is on the fact that the bulls gave leeway to bears.

Having observed the above, what does it actually mean, and how do you position yourself in the market?

1. The spinning top basically conveys indecision in the market, i.e. neither the bulls nor the bears can influence the markets.
2. Placing the above fact in the context of an uptrend, we can conclude two things...
 1. The bulls could be consolidating their position before initiating another leg of the up move.
 2. Or the bulls are fatigued and may give way to bears. Hence a correction could be around the corner.
 3. The chances of both these events taking place are equal, i.e. 50%

Having said that, what should you do? The chances of both events playing out are equal, how are you going to take a stance? Well, in such a situation, you should prepare for both the outcomes!

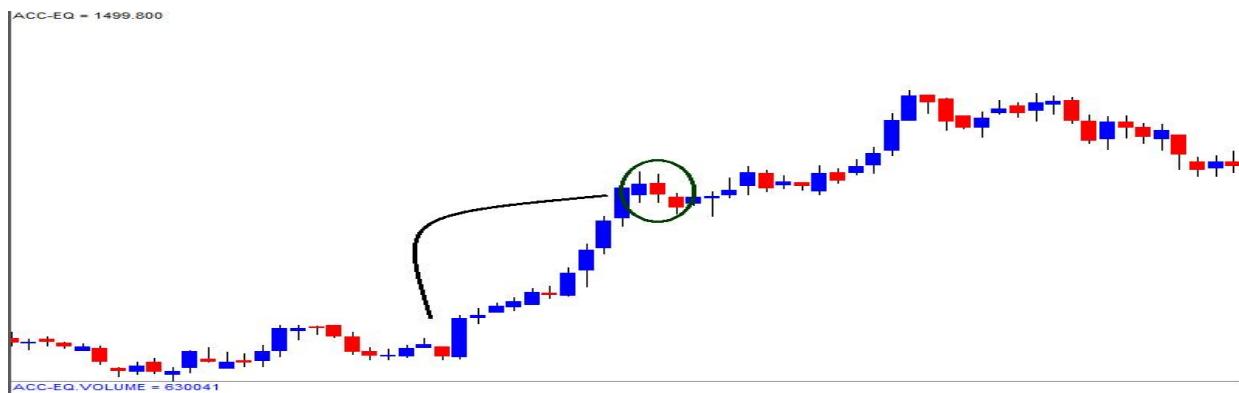
Assume you had bought the stock before the rally started; this could be your chance to book some profits. However, you do not book profits on the entire quantity. Assume you own 500 shares; you can use this opportunity to book profits on 50% of your holding, i.e. 250 shares. Two things can happen after you do this:

1. The bears make an entry – When this happens the market starts to slide down, and as you have booked 50% profits at a higher price, and can now choose to book profits on the balance 50% as well. Your net selling price will anyway be higher than the current market price.

2. The bulls make an entry – It turns out that the bulls were indeed taking a pause and the rally continues, at least you are not completely out of the market as you still have the balance 50% of your holdings invested in the markets.

The stance you take helps you tackle both the outcomes.

Here is a chart showing an uptrend, and after spinning tops, the stock rallied. By being invested 50%, you can continue to ride the rally.



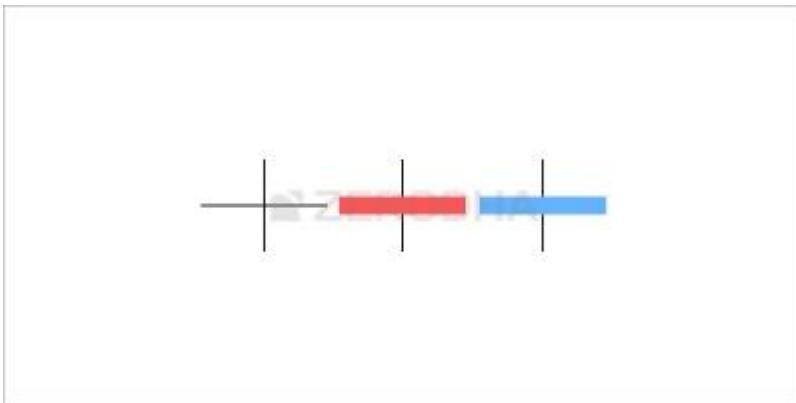
To sum up, the spinning top candle shows confusion and indecision in the market with an equal probability of reversal or continuation. Until the situation becomes clear, the traders should be cautious and minimize their position size.



6.4 – The Dojis

The Doji's are very similar to the spinning tops, except that it does not have a real body.

This means the open and close prices are equal. Doji's provide crucial information about the market sentiments and is an important candlestick pattern.



The classic definition of a Doji suggests that the open price should be equal to the close price with virtually a non-existent real body. The upper and lower wicks can be of any length.

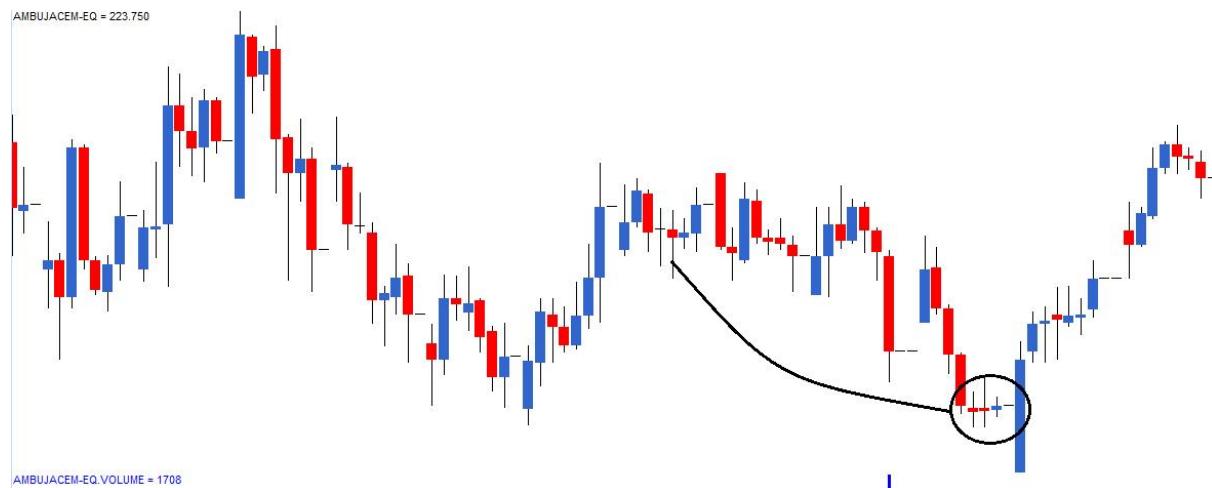
However keeping in mind the 2nd rule, i.e. 'be flexible, verify and quantify' even if there is a wafer-thin body, the candle can be considered a Doji.

Obviously, the colour of the candle does not matter in case of a wafer-thin real body.

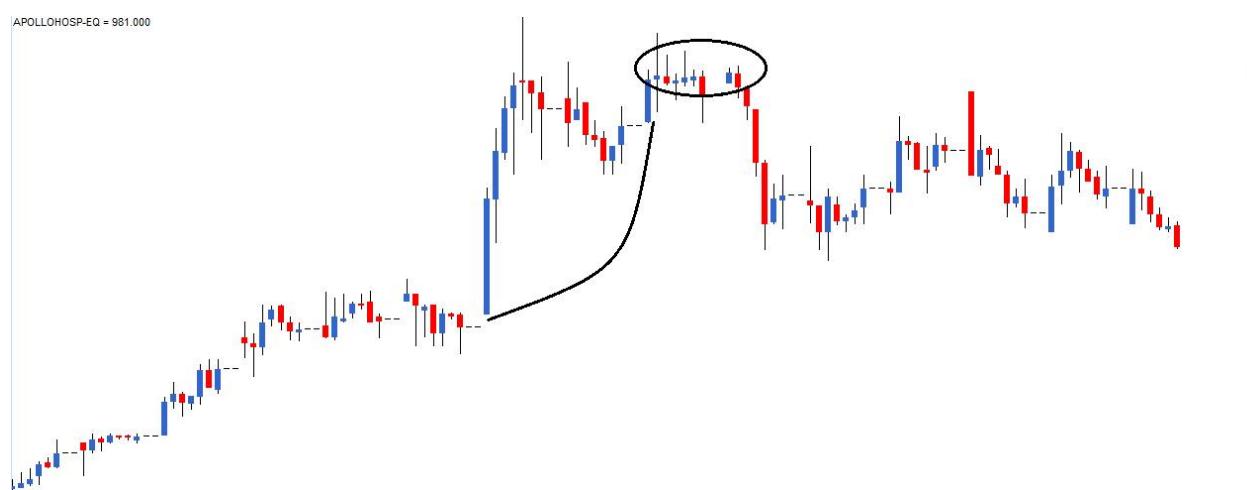
What matters is the fact that the open and close prices were very close to each other.

The Dojis have similar implications as the spinning top. Whatever we learnt for spinning tops applies to Dojis as well. In fact, more often than not, the dojis and spinning tops appear in a cluster indicating indecision in the market.

Have a look at the chart below, where the doji appears in a downtrend indicating indecision in the market before the next big move.



Here is another chart where the doji appears after a healthy uptrend after which the market reverses its direction and corrects.



So the next time you see either a Spinning top or a Doji individually or in a cluster, remember there is indecision in the market. The market could swing either way, and you need to build a stance that adapts to the expected movement in the market.

Key takeaways from this chapter

1. A spinning top has a small real body. The upper and lower shadows are almost equal in length.
2. The colour of the spinning top does not matter. What matters is the fact that the open and close prices are very close to each other.
3. Spinning tops convey indecision in the market with both bulls and bears being in equal control.
4. Spinning top at the top end of the rally indicates that either the bulls are pausing before they can resume the uptrend further or the bears are preparing to break the trend. In either case, the trader's stance has to be cautious. If the trader intends to buy, he is better off buying only half the quantity, and he should wait for the markets to move in his direction.
5. Spinning top at the bottom end of the rally indicates that either the bears are pausing before they can resume the downtrend further or the bulls are preparing to break the trend and take the markets higher. Either case, the trader's stance has to be cautious. If the traders intend to buy, he is better off buying only half the quantity, and he should wait for the markets to make a move.

6. Doji's are very similar to spinning tops. Doji also conveys indecision in the market. By definition, dojis do not have a real body. However, in reality, even if a wafer-thin body appears, it is acceptable.
7. A trader's stance based on dojis is similar to the stance taken when a spinning top occurs.

Single Candlestick patterns (Part 3)

7.1 – Paper Umbrella

The paper umbrella is a single candlestick pattern which helps traders in setting up directional trades. The interpretation of the paper umbrella changes based on where it appears on the chart.



A paper umbrella consists of two trend reversal patterns, namely the hanging man and the hammer. The hanging man pattern is bearish, and the hammer pattern is relatively bullish. A paper umbrella is characterized by a long lower shadow with a small upper body.

If the paper umbrella appears at the bottom end of a downward rally, it is called the '**Hammer**'.

If the paper umbrella appears at the top end of an uptrend rally, it is called the '**Hanging Man**'.

To qualify a candle as a paper umbrella, the lower shadow's length should be at least twice the length of the real body. This is called the '**shadow to real body ratio**'.

Let us look at this example: Open = 100, High = 103, Low = 94, Close = 102 (bullish candle).

Here, the real body's length is **Close – Open**, i.e. **102-100 = 2** and the length of the lower shadow is **Open – Low**, i.e. **100 – 94 = 6**. As the length of the lower shadow is more than twice the real body; hence we can conclude that a paper umbrella has formed.

7.2 – The Hammer formation

The bullish hammer is a significant candlestick pattern that occurs at the bottom of the trend. A hammer consists of a small real body at the upper end of the trading range with a long lower shadow. The longer, the lower shadow, the more bullish the pattern.

The chart below shows the presence of two hammers formed at the bottom of a downtrend.



Notice the blue hammer has a very tiny upper shadow, which is acceptable considering the “Be flexible – quantify and verify” rule.

A hammer can be of any colour as it does not really matter as long as it qualifies 'the shadow to real body' ratio. However, it is slightly more comforting to see a blue-coloured real body.

The prior trend for the hammer should be a downtrend. The prior trend is highlighted with the curved line. The thought process behind a hammer is as follows:

1. The market is in a downtrend, where the bears are in absolute control of the markets.
2. During a downtrend, every day the market would open lower compared to the previous day's close and again closes lower to form a new low
3. On the day the hammer pattern forms, the market as expected trades lower, and makes a new low
4. However, at the low point, some amount of buying interest emerges, which pushes the prices higher to the extent that the stock closes near the high point of the day.
5. The price action on the hammer formation day indicates that the bulls attempted to break the prices from falling further, and were reasonably successful.
6. This action by the bulls has the potential to change the sentiment in the stock. Hence one should look at buying opportunities.

The trade setup for the hammer is as follows:

1. A hammer formation suggests a long trade.
2. The trader's entry time depends on the risk appetite of the trader. If the trader is a risk-taker, he can buy the stock the same day. Remember, the real body's colour in hammer does not matter; hence there is no violation of Rule 1. If the trader is risk-averse, he can

buy the stock the day after the pattern has formed only after ensuring that the day is a blue candle day

1. Risk takers can qualify the day as a hammer by checking the following condition at 3:20 PM on the hammer day...
 1. Open and close should be almost the same (within 1-2% range)
 2. Lower shadow length should be at least twice the length of the real body.
 3. If both these conditions are met, then the pattern is a hammer, and the risk-taker can go long.
2. The risk-averse trader should evaluate the OHLC data on the 2nd If it's a blue candle, the trade is valid so that he can go long.
3. The low of the hammer acts as the stoploss for the trade.

The chart below shows a hammer's formation where both the risk taker and the risk-averse would have set up a profitable trade. This is a 15 minutes intraday chart of Cipla Ltd.



The trade set up would be as follows:

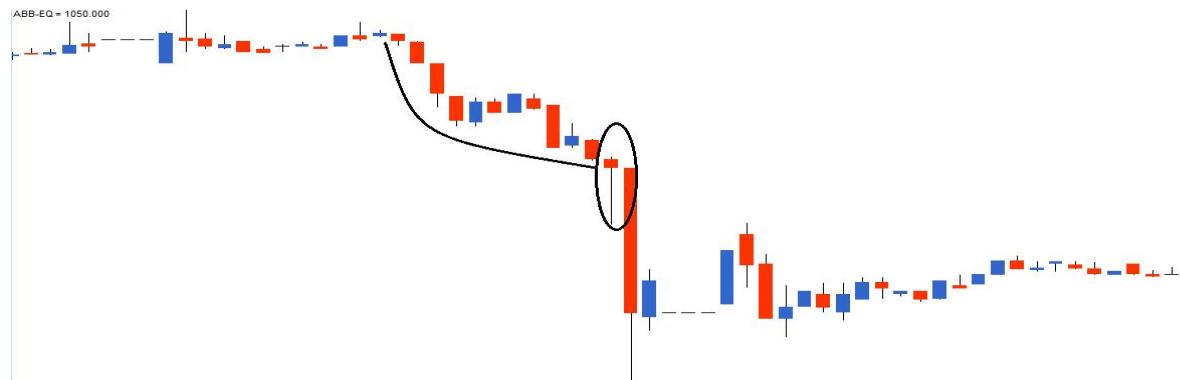
Buy Price for a risk-taker – He takes the trade on the Hammer candle itself at – Rs.444/-

Buy price for a risk-averse – He takes the trade on the next candle after evaluating that the candle is blue at – Rs. 445.4/-

Stoploss for both the traders is at Rs.441.5/-, which is the low of the hammer formation.

Do notice how the trade has evolved, yielding a desirable intraday profit.

Here is another chart where the risk-averse trader would have benefited under the 'Buy strength and Sell weakness' rule.



Here is another interesting chart with two hammer formation.



Both the hammers qualified on the preconditions of a hammer, i.e.:

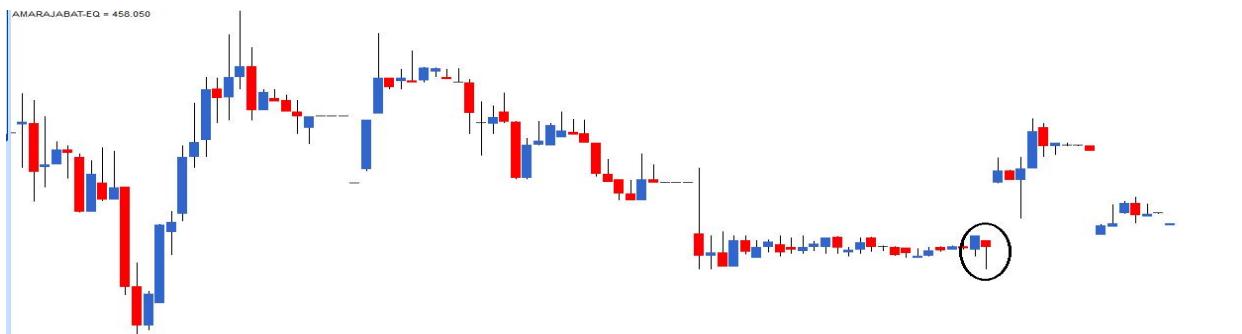
1. The prior trend to be a downtrend
2. Shadow to real body ratio

The risk-averse trader would have saved himself from a loss-making trade on the first hammer, thanks to Rule 1 of candlesticks. However, the second hammer would have enticed both the risk-averse and risk-taker to enter a trade. After initiating the trade, the stock did not move up; it stayed nearly flat and cracked down eventually.

Please note once you initiate the trade you stay in it until either the stop loss or the target is reached. It would help if you did not tweak the trade until one of these events occurs.

The loss in this particular trade (first hammer) is inevitable. But remember this is a calculated risk and not a mere speculative risk.

Here is another chart where a perfect hammer appears; however, it does not satisfy the prior trend condition, and hence **it is not a defined pattern**.



7.3 – The Hanging man

If a paper umbrella appears at the top end of a trend, it is called a Hanging Man. The bearish hanging man is a single candlestick and a top reversal pattern. A hanging man signals a market high. The hanging man is classified as a hanging man **only if an**

uptrend precedes it. Since the hanging man is seen after a high, the bearish hanging man pattern signals to sell pressure.



A hanging man can be of any colour, and it does not really matter as long as it qualifies 'the shadow to real body' ratio. The hanging man's prior trend **should be an uptrend**, as highlighted by the curved line in the chart above. The thought process behind a hanging man is as follows:

1. The market is in an uptrend. Hence the bulls are in absolute control.
2. New highs and higher lows characterize the market.
3. The day the hanging man pattern appears, the bears have managed to make an entry.
4. This is emphasized by a long lower shadow of the hanging man.
5. The entry of bears signifies that they are trying to break the stronghold of the bulls.

Thus, the hanging man makes a case for shorting the stock. The trade set up would be as follows:

1. For the risk-taker, a short trade can be initiated the same day around the closing price.
2. For the risk-averse, a short trade can be initiated at the close of the next day after ensuring that a red candle would appear.
 1. The method to validate the candle for the risk-averse, and risk-taker is the same as explained in a hammer pattern.

Once the short has been initiated, the candle's high works as a stoploss for the trade.



In the chart above, BPCL Limited has formed a hanging man at 593. The OHLC details are –

Open = 592, High = 593.75, Low = 587, Close = 593. Based on this, the trade set up would be as follows:

- The risk-taker initiates the short trade on the day the pattern appears (at 593)
- The risk-averse initiates the short trade on the next day at closing prices after ensuring it is a red candle day
- Both the risk-taker and the risk-averse would have initiated their respective trades

- The stoploss price for this trade would be the high price, i.e. above 593.75

The trade would have been profitable for both the risk types.

7.4 -My experience with a paper umbrella

While both the hammer and the hanging man are valid candlestick patterns, my dependence on a hammer is a little more as opposed to a hanging man. All else equal, if there were two trading opportunities in the market, one based on the hammer and the other based on hanging man I would prefer to place my money on the hammer. The reason to do so is based on my experience in trading with both the patterns.

My only concern with a hanging man is that if the bears were indeed influential during the day, why did the price go up after making a low? This, in my opinion, re-establishes the bull's supremacy in the market.

I would encourage you to develop your own thesis based on observations that you make in the markets. This will help you calibrate your trade more accurately and help you develop structured market thinking.



7.5 – The shooting star

The shooting star is the last single candlestick pattern that we will learn about before moving to multiple candlestick patterns. The shooting star's price action is quite powerful, thus making the shooting star a trendy candlestick pattern to trade.

The shooting star looks just like an inverted paper umbrella.



Unlike a paper umbrella, the shooting star does not have a long lower shadow. Instead, it has a long upper shadow where the shadow's length is at least twice the length of the real body. The body's colour does not matter, but the pattern is slightly more reliable if the real body is red. The longer the upper wick, the more bearish is the pattern. The small real body is a common feature between the shooting star and the paper umbrella.

Going by the textbook definition, the shooting star should not have a lower shadow.

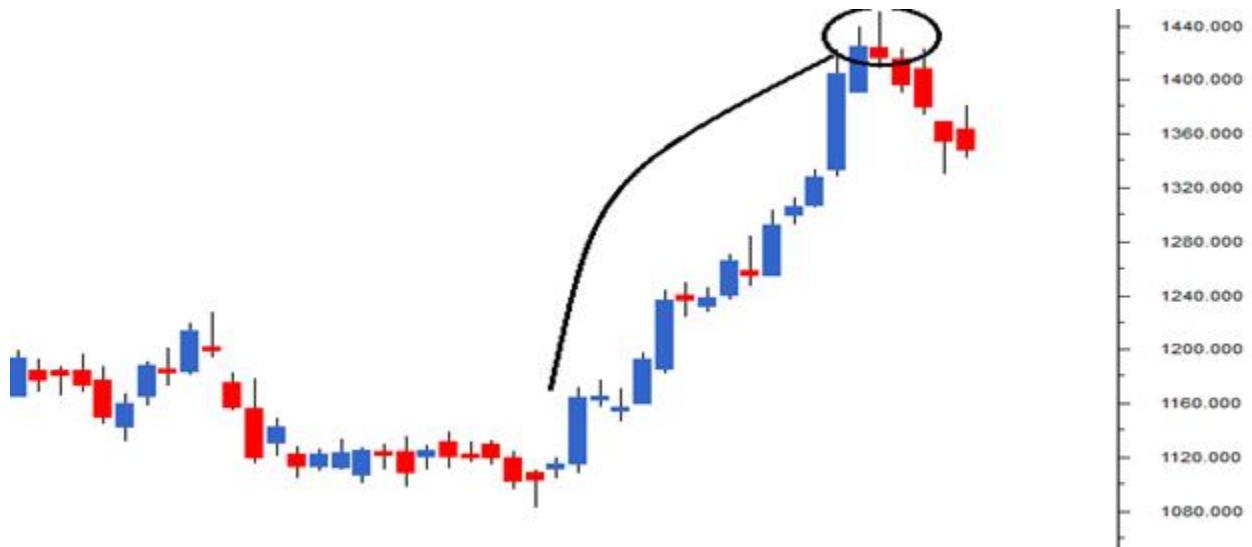
However, a small lower shadow, as seen in the chart above, is considered alright. The shooting star is a bearish pattern; **hence the prior trend should be bullish.**

The thought process behind the shooting star is as follows:

- The stock is in an uptrend implying that the bulls are in absolute control. When bulls are in control, the stock or the market tends to make a new high and higher low.
- On the day the shooting star pattern forms, the market as expected trades higher, and in the process makes a new high
- However, at the high point of the day, there is a selling pressure where the stock price recedes to close near the low point of the day, thus forming a shooting star.
- The selling indicates that the bears have made an entry, and they were actually quite successful in pushing the prices down. This is evident by the long upper shadow.
- The expectation is that the bears will continue selling over the next few trading sessions.

Hence the traders should look for shorting opportunities.

Take a look at this chart where a shooting star has been formed right at the top of an uptrend.



The OHLC data on the shooting star is; open = 1426, high = 1453, low = 1410, close = 1417. The short trade set up on this would be:

1. The risk-taker will initiate the trade-in 1417, basically on the same day the shooting star forms.
 1. The risk-taker initiates the trade the same day after ensuring that the day has formed a shooting star. To confirm this, the trader has to validate:
 1. If the current market price is more or less equal to the low price
 2. The length of the upper shadow is at least twice the length of the real body.
 2. The risk-averse will initiate the trade on the next day, only after ensuring that the 2nd day a red candle has formed.
2. Once the trade has been initiated, the stoploss is to be placed at the pattern's high. In the case, the stop loss is at 1453

As we have discussed this before, once a trade has been set up, we should wait for either the stoploss or the target to be triggered. It is advisable not to do anything else,

except for maybe trailing your stoploss. Of course, we still haven't discussed trailing stoploss yet. We will discuss it at a later stage.

Here is a chart where both the risk taker and the risk-averse would have made a remarkable profit on a trade based on a shooting star.



Here is an example, where both the risk-averse and the risk-taker would have initiated the trade based on a shooting star. However, the stoploss has been breached. Do remember, when the stop-loss triggers, the trader will have to exit the trade, as the trade no longer stands valid. More often than not, exiting the trade is the best thing to do when the stoploss triggers.



Key takeaways from this chapter

1. A paper umbrella has a long lower shadow and a small real body. The lower shadow and the real body should maintain the 'shadow to real body' ratio. In the case of the paper umbrella, the lower shadow should be at least twice the real body's length.
2. Since the open and close prices are close to each other, the paper umbrella's colour should not matter.
3. If a paper umbrella appears at the bottom of a downtrend, it is called the 'hammer.'
4. If the paper umbrella appears at the top end of an uptrend, it is called the hanging man.
5. The hammer is a bullish pattern, and one should look at buying opportunities when it appears.
 1. The low of the hammer acts as the stop-loss price trade.
6. The hanging man is a bearish pattern which appears at the top end of the trend, and one should look at selling opportunities when it appears.
 1. The high of the hanging man acts as the stop loss price for the trade.

7. The shooting star is a bearish pattern which appears at the top end of the trend. One should look at shorting opportunities when a shooting star appears.

1. The high of the shooting star will be the stop loss price for the trade.

The Support and Resistance

While discussing candlestick patterns, we had learnt about the entry and the stoploss points. However, the target price was not discussed. We will discuss the same in this chapter.

The best way to identify the target price is to identify the support and resistance points. The support and resistance (S&R) are specific price points on a chart expected to attract the maximum amount of either buying or selling. The support price is a price at which one can expect more buyers than sellers. Likewise, the resistance price is a price at which one can expect more sellers than buyers.

On a standalone basis, traders can use S&R to identify trade entry points as well.

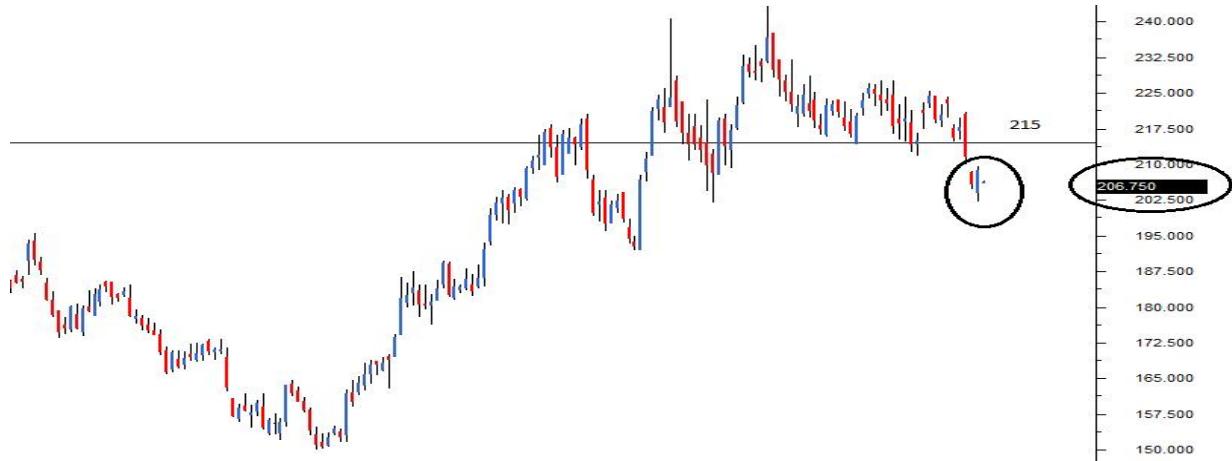


11.1 – The Resistance

As the name suggests, resistance is something which stops the price from rising further. The resistance level is a price point on the chart where traders expect maximum supply (in terms of selling) for the stock/index. **The resistance level is always above the current market price.**

The likelihood of the price rising to the resistance level, consolidating, absorbing all the supply, and declining is high. The resistance is one of the critical technical analysis tools which market participants look at in a rising market. The resistance often acts as a trigger to sell.

Here is the chart of Ambuja Cements Limited. The horizontal line coinciding at Rs.215 on the chart, marks the resistance level for Ambuja Cements.



I have deliberately compressed the chart to include more data points, the reasons for which I will shortly explain. But before that there are two things that you need to pay attention to while looking at the above chart:

1. The resistance level, indicated by a horizontal line, is higher than the current market price.
2. While the resistance level is at 215, the current candle is at 206.75. The current candle and its corresponding price level are encircled for your reference

For a moment let us imagine Ambuja cement at Rs.206 forming a bullish marubuzo with a low of 202. We know this is a signal to initiate a long trade, and we also know that the stoploss for this trade is at 202. With the new-found knowledge on resistance, we now know that we can set 215 as a possible target for this trade!

Why 215 you may wonder? The reasons are simple:-

1. The resistance of 215 implies there is a likelihood of excess supply.
2. Excess supply builds selling pressure.
3. Selling pressure tends to drag the prices lower.

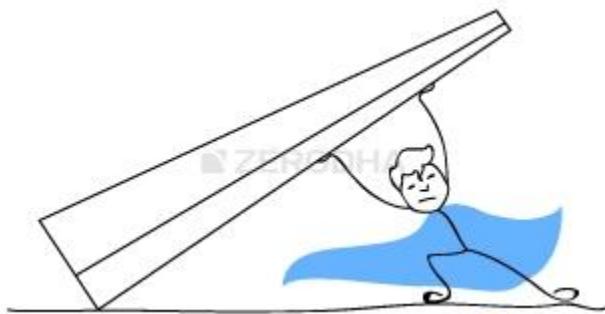
Hence for reasons stated above, when a trader is long, he can look at resistance points to set targets and to set exit points for the trade.

Also, with the identification of the resistance, the long trade can now be completely designed as follows:

Entry – 206, Stoploss – 202, and Target – 215.

The next obvious question is, how do we identify the resistance level? Identifying price points as either a support or resistance is extremely simple. The identification process is the same for both support and resistance. If the current market price is below the identified point, it is called a resistance point; else it is called a support point.

Since the process is the same, let us proceed to understand ‘support’, and we will follow it up with the procedure to identify S&R.



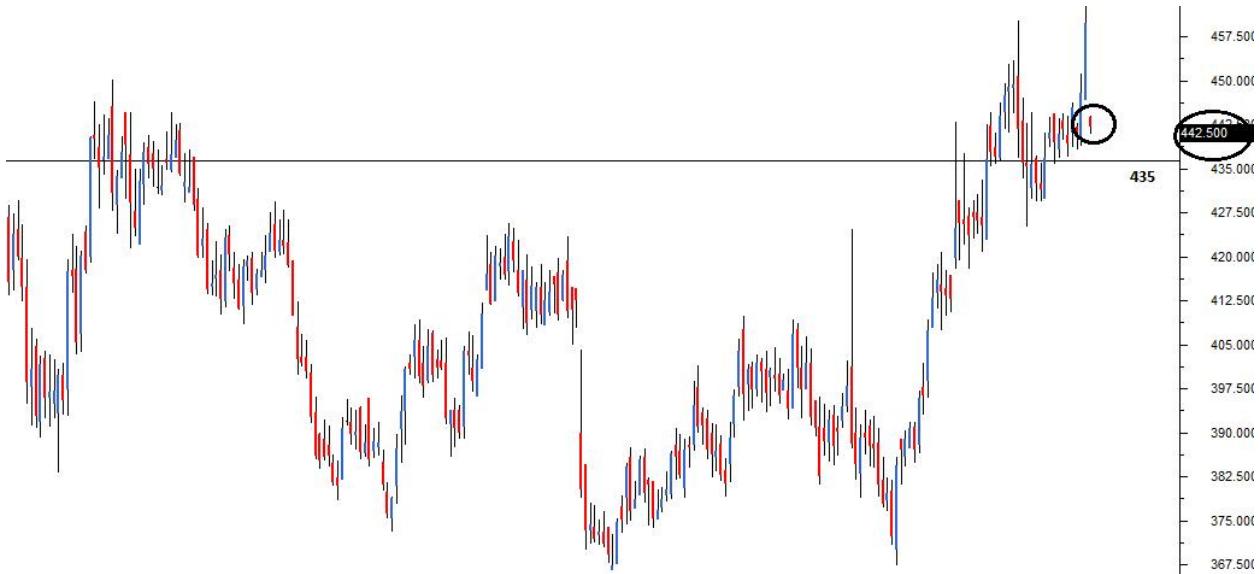
11.2 – The Support

Having learnt about resistance, understanding the support level should be quite simple and intuitive. As the name suggests, support is something that prevents the price from

falling further. The support level is a price point on the chart where the trader expects maximum demand (in terms of buying) coming into the stock/index. Whenever the price falls to the support line, it is likely to bounce back. The support level is **always below** the current market price.

There is a maximum likelihood that the price could fall until the support, consolidate, absorb all the demand, and then start moving upwards. The support is one of the critical technical level market participants look for in a falling market. The support often acts as a trigger to buy.

Here is the chart of Cipla Limited. The horizontal line coinciding at 435 on the chart marks the support level for Cipla.



Few things that you need to notice on the chart above:

1. The support level, indicated by the horizontal line is below the current market price.

2. While the support level is at 435, the current candle is at 442.5. The current candle and its corresponding price level are encircled for your reference

Like we did while understanding resistance, let us imagine a bearish pattern formation – perhaps a shooting star at 442 with a high of 446. Clearly, with a shooting star, the call is too short Cipla at 442, with 446 as the stoploss. Since we know 435 the immediate support, we can set the target at 435.

So what makes Rs.435 target worthy? The following reasons back the decision:

1. Support at 435 implies there is a maximum likely hood of excess demand to emerge.
2. Excess demand builds buying pressure.
3. Buying pressure tends to drag the price higher.

Hence for the reasons stated above, when a trader is short, he can look at support points to set targets and to set exit points for the trade.

Also, with the identification of the support, the short trade is now completely designed.

Entry – 442, stoploss – 446, and target – 435.

11.3 – Construction/Drawing of the Support and Resistance level

Here is a 4 step guide to help you understand how to identify and construct the support and the resistance line.

Step 1) Load data points – If the objective is to identify short term S&R load at least 3-6 months of data points. If you want to identify long term S&R, load at least 12 – 18

months of data points. When you load many data points, the chart looks compressed.

This also explains why the above two charts look squeezed.

1. Long term S&R – is useful for swing trading.
2. Short term S&R – is useful intraday and BTST trades.

Here is a chart where I have loaded 12 months of data points

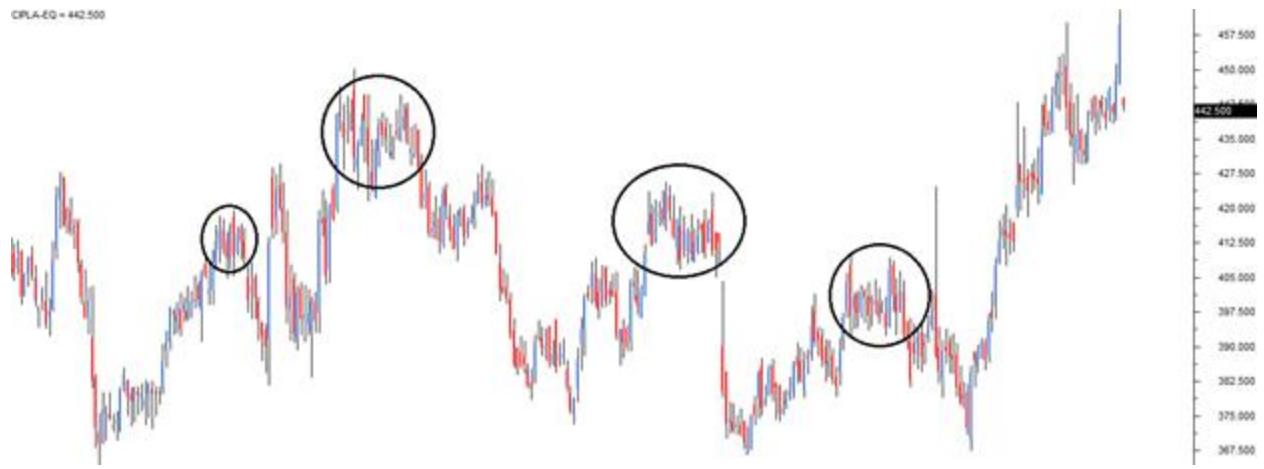


Step 2) Identify at least 3 price action zones – A price action zone can be described as 'sticky points' on the chart where the price has displayed at least one of the behaviours:

1. Hesitated to move up further after a brief up move
2. Hesitated to move down further after a brief down move
3. Sharp reversals at a particular price point

Here are a series of charts that identifies the above 3 points in the same order:

In the chart below, the encircled points indicate the price hesitating to move up further after a brief up move:



In the chart below, the encircled points indicate the price hesitating to move down further after a brief down move:



In the chart below, the encircled points indicate sharp price reversals:

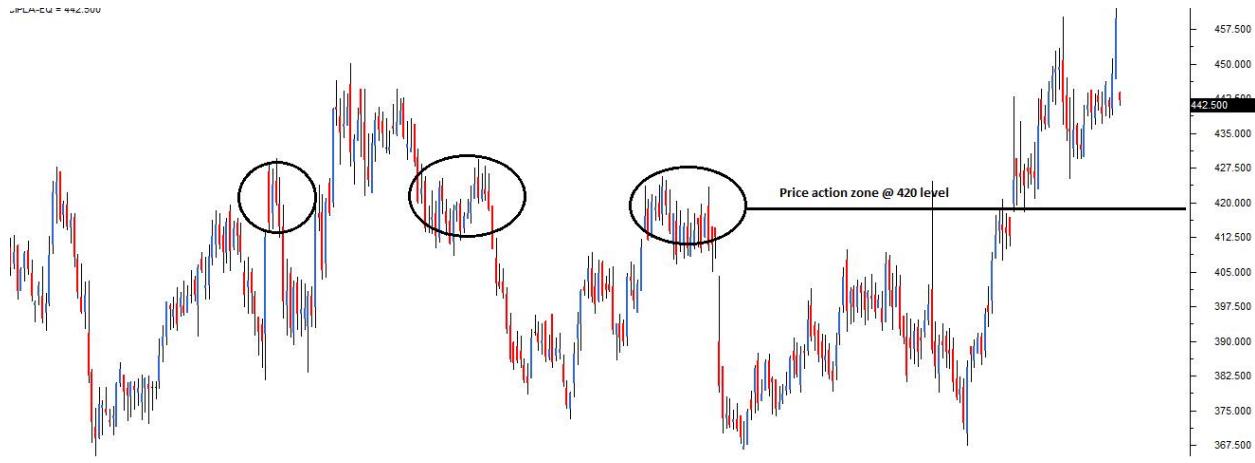


Step 3) Align the price action zones – When you look at a 12-month chart, it is common to spot many price action zones. But the trick is to identify at least 3 price action zones at the same price level.

For example here is a chart where two price action zones are identified, but they are not at the same price point.



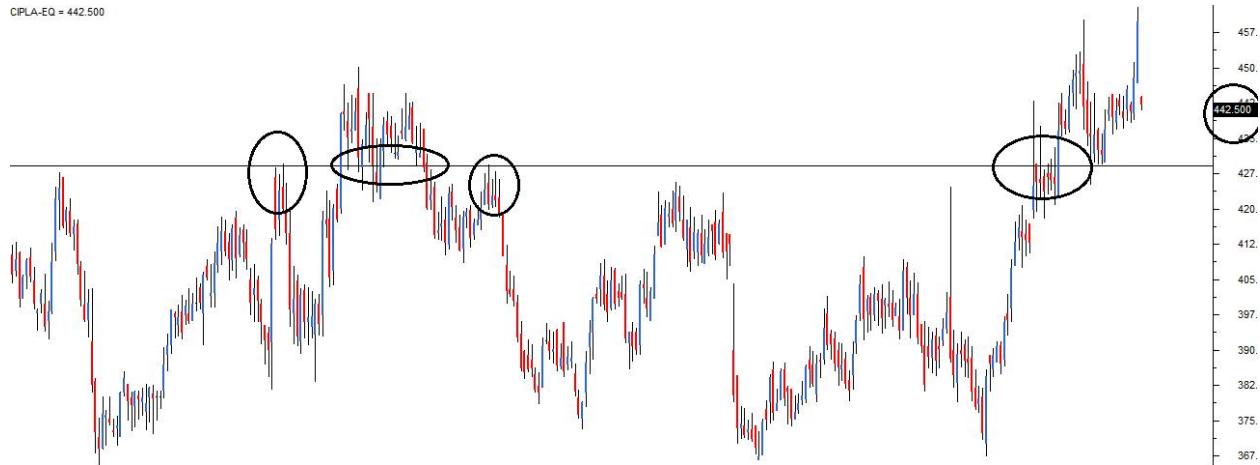
Look at the following chart, I have encircled 3 price action zones that are around the same price points:



A critical point to note while identifying these price action zones is to make sure these price zones are well spaced in time. Meaning, if the 1st price action zone is identified on 2nd week on May, then it will be meaningful to identify the 2nd price action zone at any point after 4th week of May (well spaced in time). The more distance between two price action zones, the more powerful is the S&R identification.

Step 4) Fit a horizontal line – Connect the three price action zones with a horizontal line. Based on where this line fits in concerning the current market price, it either becomes support or resistance.

Have a look at this chart



Starting from left:

1. The 1st circle highlights a price action zone where there is a sharp reversal of price.
2. The 2nd circle highlights a price action zone where the price is sticky.
3. The 3rd circle highlights a price action zone where there is a sharp reversal of price.
4. The 4th circle highlights a price action zone where the price is sticky.
5. The 5th circle highlights the current market price of Cipla – 442.5

In the above chart, all the 4 price action zones are around the same price points, i.e. at 429. Clearly, the horizontal line is below the current market price of 442.5, making 429 an immediate support price for Cipla.

Please note that whenever you run a visual exercise in Technical Analysis such as identifying S&R, you run the approximation risk. Hence always give room for error. The price level is usually depicted in a range and not at a single price point. It is actually a zone or an area that acts as support or resistance.

Going by the above logic, I would be happy to consider a price range around 426 to 432 as a support region for Cipla. There is no specific rule for this range; I just subtracted and added 3 points to 429 to get my price range for the support!

Here is another chart, where both S&R have been identified for Ambuja Cements Limited.



The current price of Ambuja is 204.1, the support is identified at 201 (below current market price), and the resistance at 214 (above current market price). So if one were too short Ambuja at 204, the target, based on support, can be at 201. Probably this would be a good intraday trade. For a trader going long at 204, 214 can be a reasonable target expectation based on resistance.

Notice in both the support and the resistance level, there are at least 3 price action zones identified at the price level, all of which are well spaced in time.

11.4 – Reliability of S&R

The support and resistance lines are only indicative of a possible reversal of prices. They by no means should be taken for granted. Like anything else in technical analysis, one should weigh the possibility of an event occurring (based on patterns) in terms of probability.

For example, based on the chart of Ambuja Cements –

Current Market Price = 204

Resistance = 214

The expectation here is that if Ambuja cement starts to move up at all, it is likely to face resistance at 214. Meaning, at 214 sellers could emerge who can potentially drag the prices lower. What is the guarantee that the sellers would come in at 214? In other words, what is the dependence of the resistance line? Honestly, your guess is as good as mine.

However, historically it can be seen that whenever Ambuja reached 214, it reacted in a peculiar way leading to the formation of a price action zone. The comforting factor here is that the price action zone is well spaced in time. This mean **214 stands as a time tested price action zone**. Therefore keeping the very first rule of technical analysis in perspective, i.e. **“History tends to repeat itself”** we go with the belief that support and resistance levels will be reasonably honoured.

Purely from my personal trading experience, well constructed S&R points are usually well respected.

11.5 – Optimization and checklist

Perhaps, we are now at the most important juncture in this module. We will start discovering a few optimization techniques which will help us identify high-quality trades. Remember, when you seek quality, quantity is always compromised, but this is a

compromise that is worth making. The idea is to identify quality trading signals as opposed to identifying plenty but worthless trades.

Optimization, in general, is a technique wherein you fine-tune a process for best possible results. The process in this context is about identifying trades.

Let us go back to candlesticks patterns, maybe to the very first we learnt – bullish marubuzo. A bullish marubuzo suggests a long trade near the close of the marubuzo, with the low of the marubuzo acting as the stoploss.

Assume the following credentials for the bullish marubuzo:

Open = 432, High = 449, Low = 430, Close = 448

Hence the entry for the long trade is approximately at 448, with 430 as the stoploss.

Now, what if the low of the marubuzo also coincides with a good time tested support? Do you see a remarkable confluence of two technical theories here?

We have a double confirmation to go long. Think about it on the following terms:

1. A recognized candlestick pattern (bullish marubuzo) suggests the trader initiate a long trade.
2. Support near the stoploss price suggests the trader the presence of significant buying interest around the low.

While dealing with a fairly random environment such as the markets, what a trader really needs is a well-crafted trade setup. The occurrence of the above two conditions

(marubuzo + support near the low) suggests the same action, i.e. to initiate a long trade in this case.

This leads us to an important idea. What if we had a checklist (call it a framework if you like) for every trade we consider? The checklist would act as a guiding principle before initiating a trade. The trade should comply with the conditions specified in the checklist. If it does, we take the trade; else we drop it and look for another trade opportunity that complies with the checklist.

Discipline, they say makes up for the 80% of the trader's success. In my opinion, the checklist forces you to be disciplined; it helps you avoid taking an abrupt and reckless trading decision.

In fact, to begin with, we have the first two critical factors of the checklist:

1. The stock should form a recognizable candlestick pattern.
 1. Note: We have learnt some of the popular patterns in this module. To begin with, you can use just these patterns to comply with the checklist
2. S&R should confirm to the trade. The stoploss price should be around S&R.
 1. For a long trade, the low of the pattern should be around the support.
 2. For a short trade, the high of the pattern should be around the resistance.

From now on in this module, as and when we learn new TA concepts, we will build this checklist. But to quench your curiosity, the final checklist will have 6 checklist points. In fact, when we have the grand 6 checklist points, we will weigh down each one of them.

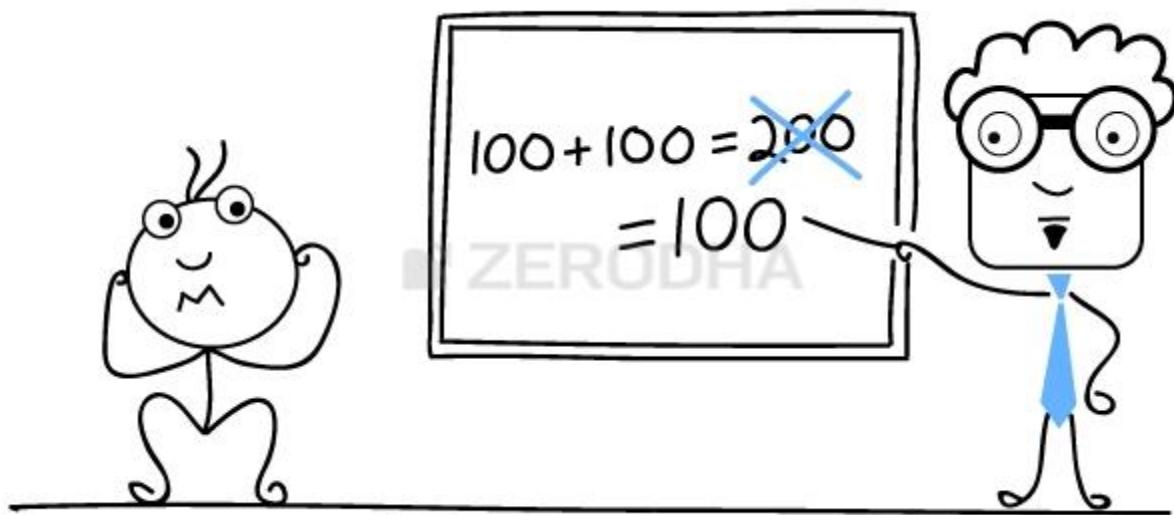
For example, checklist point number 4 may not be as important as point number 1, but it is more important than 100 other factors that distract the trader.

Key takeaways from this chapter

1. S&R are price points on the chart
2. Support is a price point below the current market price that indicate buying interest.
3. Resistance is a price point above the current market price that indicate selling interest.
4. To identify S&R, place a horizontal line in such a way that it connects at least 3 price action zones, well-spaced in time. The more number of price action zones (well spaced in time) the horizontal line connects, the stronger is S&R
5. S&R can be used to identify targets for the trade. For a long trade, look for the immediate resistance level as the target. For a short trade, look for the immediate support level as the target.
6. Lastly, comply with the checklist for optimal trading results

Volume plays a very integral role in technical analysis as it helps us to confirm trends and patterns. Consider volumes as a means to gain insights into how other participants perceive the market.

Volumes



Volumes indicate how many shares are bought and sold over a given period of time. The more active the share, the higher would be its volume. For example, you decide to buy 100 shares of Amara Raja Batteries at 485, and I decide to sell 100 shares of Amara Raja Batteries at 485. There are a price and quantity match, which results in a trade. You and I together have created a volume of 100 shares. Many people tend to assume volume count as 200 (100 buys + 100 sells), which is not the right way to look at volumes. The following fictional example should help you understand how volumes add up on a typical trading day:

SI No	Time	Buy Quantity	Sell Quantity	Price	Volume	Cumulative Volume
01	9:30 AM	400	400	62.20	400	400

01 9:30 AM 400 400 62.20 400 400

02	10:30 AM	500	500	62.75	500	900
03	11:30 AM	350	350	63.10	350	1,250
04	12:30 PM	150	150	63.50	150	1,400
05	1:30 PM	625	625	63.75	625	2,025
06	2:30 PM	475	475	64.20	475	2,500
07	3:30 PM	800	800	64.50	800	3,300

At 9:30 AM there were 400 shares exchanged at the price of 62.20. An hour later, 500 shares were traded at 62.75. At 10:30 AM if you were to check the total volume for the day, it would be 900 ($400 + 500$). Likewise, 350 shares at 63.10 were traded at 11:30 AM, and up to 11:30 AM, the volume was 1,250 ($400+500+350$). So on, and so forth.

Here is a screenshot from the live market highlighting the volumes for some of the shares. The screenshot was taken around 2:55 PM on 5th of August 2014.



The screenshot shows a 'Market Watch' interface for the NSE. The table displays real-time data for several stocks, including their symbols, percentage change, Last Traded Price (LTP), and various trading metrics like Bid/Ask rates and volumes. A circled cell in the 'Volum...' column for Cummins India Limited (CUMMINSSIN...) highlights a value of 1272737. The table also includes columns for Previous day's volume, Open interest, Total bid volume, Total ask volume, Predictive Close, and a chart icon.

Trading sym...	%Change	LTP	Bid qty	Bid rate	Ask rate	Ask qty	Open	High	Low	Prev clo...	Volum...	Open int...	Total bi...	Total as...	Predictive Clos...	Chart
CUMMINSSIN...	6.84	669.50	25	669.50	669.75	40	634.90	689.85	634.90	626.65	1272737	0	57443	60226	669.42	
AMARAJABAT...	2.17	496.50	278	496.50	496.70	91	486.20	502.50	486.20	485.95	251213	0	30501	32160	496.75	
THOMASCOO...	1.26	137.00	670	137.00	137.05	1	136.00	141.00	134.00	135.30	909927	0	70253	144193	136.93	
ITC-EQ	0.45	356.10	1145	356.10	356.30	299	356.00	357.20	348.55	354.50	2710598	0	323394	635449	356.28	
OPLA-EQ	0.14	441.40	45	441.45	441.50	114	442.55	443.20	435.00	440.85	642951	0	86604	114350	441.36	
TCS-EQ	-0.13	2522.70	29	2522.65	2522.70	3	2544.90	2545.00	2490.10	2526.05	554603	0	49898	64877	2522.84	
NAUKRI-EQ	-0.17	700.00	10	696.60	700.70	34	704.90	705.00	691.25	701.20	85427	0	18289	20364	700.31	
WPRO-EQ	0.07	549.05	33	549.05	549.25	629	549.80	551.65	543.75	548.65	892777	0	95387	127062	549.07	

If you notice, the volume on Cummins India Limited is 12,72,737 shares. Likewise, the volume on Naukri (Info Edge India Limited) is 85,427 shares.

The volume information that you see here is the cumulative volume. Meaning, at 2:55 PM, a total of 12,72,737 shares of Cummins were traded at various price points ranging from 634.90 (low) and 689.85 (high).

With 35 minutes left for the markets to close, it is only logical to expect the volumes to increase (assuming traders continue to trade the stock for the rest of the day). In fact here is another screenshot taken at 3:30 PM for the same set of stocks with volume highlighted.

Market Watch																News Reader
NSE		NORMAL	EQ	KPIIT		CE				KPIIT-EQ				Add		
Trading sym...	%Change	LTP	Bid qty	Bid rate	Ask rate	Ask qty	Open	High	Low	Prev clo...	Volum...	Open int...	Total bi...	Total as...	Predictive Cis...	Chart
CUMMINSIN...	0.00	670.75	199	669.20	670.00	219	634.90	689.85	634.90	670.75	1349736	0	47355	51452	670.06	
AMARAJABAT...	0.00	497.70	120	497.35	497.90	255	486.20	502.50	486.20	497.70	296044	0	26838	26745	497.28	
THOMASCOO...	0.00	136.95	525	136.15	136.50	250	136.00	141.00	134.00	136.95	1127454	0	49217	125862	136.93	
ITC-EQ	0.00	356.00	390	355.35	355.60	1000	356.00	357.20	348.55	356.00	3189281	0	223708	520007	355.98	
CPLA-EQ	0.00	440.50	111	439.70	440.15	1000	442.55	443.20	435.00	440.50	784899	0	67819	71621	440.60	
TCS-EQ	0.00	2523.70	39	2524.00	2524.50	2	2544.90	2545.00	2490.10	2523.70	702219	0	40869	39951	2523.62	
NAUKRI-EQ	0.00	698.60	95	695.50	697.95	80	704.90	705.00	691.25	698.60	86712	0	13421	8064	698.35	
WIPRO-EQ	0.00	549.55	258	548.25	548.55	485	549.80	551.65	543.75	549.55	1050542	0	78516	87850	549.55	

As you can see, the volume for Cummins India Limited has increased from 12,72,737 to 13,49,736. Therefore, for Cummins India, the volume for the day is 13,49,736 shares. The volume for Naukri has increased from 85,427 to 86,712, making 86,712 shares as the volume for the day. You need to note that the volumes shown here are cumulative.

12.1 – The volume trend table

Volume information on its own is quite useless. For example, we know that the volumes on Cummins India are 13,49,736 shares. So how useful is this information when read in isolation? If you think about it, it has no merit and hence would actually mean nothing. However, when you associate today's volume information with the preceding price and volume trend, volume information becomes more meaningful.

In the table below, you will find a summary of how to use volume information:

SI No	Price	Volume	What is the expectation?

01	Increases	Increases	Bullish
02	Increases	Decreases	Caution – weak hands buying
03	Decreases	Increases	Bearish
04	Decreases	Decreases	Caution – weak hands selling

The first line in the table above says, when the price increases along with an increase in volume, the expectation is bullish.

Before we understand the table above in detail, think about this – we are talking about an ‘increase in the volume’. What does this actually mean? What is the reference point? Should it be an increase over the previous day’s volume number or the previous week’s aggregate volume?

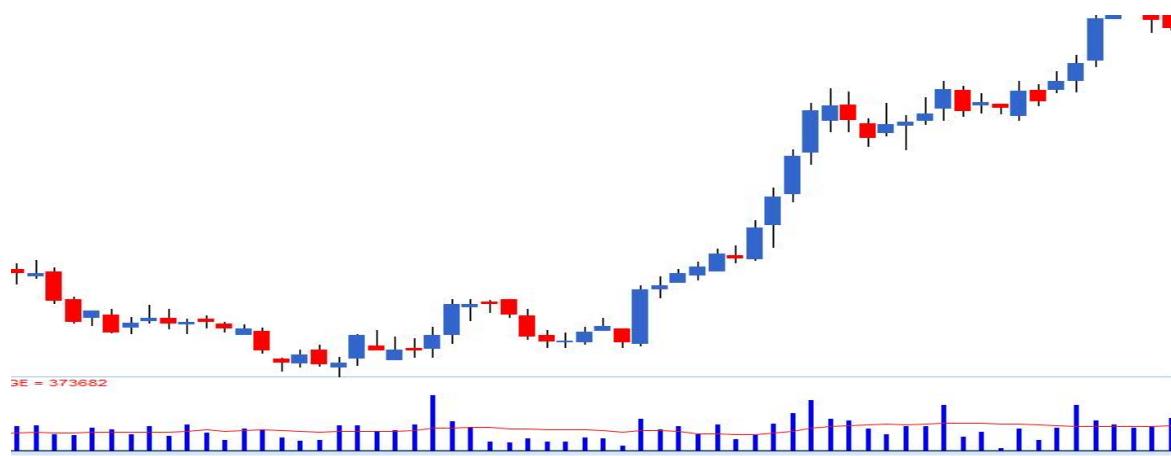
As a practice, traders usually compare today’s volume over the average of the last 10 days volume. Generally, the rule of thumb is as follows:

High Volume = Today's volume > last 10 days average volume

Low Volume = Today's volume < last 10 days average volume

Average Volume = Today's volume = last 10 days average volume

To get the last 10-day average, all you need to do is draw a moving average line on the volume bars, and the job is done. Of course, we will discuss moving averages in the next chapter.



In the chart above, you can see that volumes are represented by blue bars (at the bottom of the chart). The red line overlaid on the volume bars indicates the 10-day average. As you notice, all the volume bars that are over and above the 10-day average can be considered as the increased volume where some institutional activity (or large participation) has taken place.

Keeping this in perspective, I would suggest you now look at the volume – price table.

12.2 – The thought process behind the volume trend table

When institutional investors buy or sell, they obviously do not transact in small chunks.

For example, think about India's LIC; they are one of India's biggest domestic institutional investors. If they would buy shares of Cummins India, would you think they would buy 500 shares? Obviously not, they would probably buy 500,000 shares or even more. If they were to buy 500,000 shares from the open market, it would start reflecting in volumes. Besides, because they are buying a large chunk of shares, the share price also tends to go up. Usually, institutional money is referred to as "smart money". It is perceived that 'smart money' always makes wiser moves in the market than retail traders. Hence following the smart money seems like a wise idea.

If both the price and the volume are increasing this only means one thing – a big player is showing interest in the stock. Going by the assumption that smart money always makes smart choices, the expectation turns bullish, and hence one should look at buying opportunity in the stock.

Or as a corollary, whenever you decide to buy, ensure that the volumes are substantial. This means that you are buying along with the smart money.

This is exactly what the **1st row** in the volume trend table indicates – expectation turns bullish when both the price and volume increases.

What do you think happens when the price increases but the volume decreases as indicated in the **2nd row**?

Think about it on the following terms:

1. Why is the price increasing?
 1. Because market participants are buying
2. Are there any institutional buyers associated with the price increase?
 1. Not likely
3. How would you know that there is no meaningful purchase by institutional investors?
 1. Simple, if they were buying, then the volumes would have increased and not decrease.
4. So what does a price increase, associated by decreasing volumes indicate?
 1. It means the price is increasing because of small retail participation and not really influential buying. Hence it would help if you were cautious as this could be a possible bull trap.

Going forward, the **3rd row** says, a decrease in price along with an increase in volume sets a bearish expectation. Why do you think so?

A price decrease indicates that market participants are selling the stock. Increase in volumes indicates the presence of smart money. Both events occurring together (decrease in price + increase in volumes) imply that smart money is selling stocks.

Going by the assumption that smart money always makes smart choices, the expectation is bearish, and hence one should look at selling opportunity in the stock.

Or as a corollary, whenever you decide to sell, ensure that the volumes are good. This means that you too, are selling, along with the smart money.

Moving forward, what do you think happens when both volume and price decrease as indicated in the **4th row?**

Think about it in on following terms:

1. Why is the price decreasing?
 1. Because market participants are selling.
2. Are there any institutional sellers associated with the price decrease?
 1. Not likely
3. How would you know that there are no meaningful sell orders by institutional investors?
 1. Simple, if they were selling, then the volume would increase and not decrease.
4. So how would you infer a decline in price and a decline in volume?
 1. It means the price decreases because of small retail participation, and not really influential (read as smart money) selling. Hence it would help if you were cautious as this could be a possible bear trap.

12.3 – Revisiting the checklist

Let us revisit the checklist and evaluate from the perspective of the volume. Imagine this hypothetical technical situation in a stock:

1. The occurrence of a bullish engulfing pattern – this suggests a long trade for reasons discussed previously

2. A support level around the low of bullish engulfing – support indicates demand. Therefore the occurrence of a bullish engulfing pattern near the support area suggests there is indeed a strong demand for the stock, and hence the trader can look at buying the stock.
 1. With a recognizable candlestick pattern and support near the stoploss, the trader gets a double confirmation to go long.

Now along with support near the low, imagine high volumes on the 2nd day of the bullish engulfing pattern, i.e. on P2 (blue candle). What can you infer from this?

The inference is quite clear – high volumes and a price increase confirm that large, influential market participants are positioning themselves to buy the stock.

With all three independent variables, i.e. candlesticks, S&R, and volumes, suggest taking the same action, i.e. to go long. If you realize this is a triple confirmation!

I want to drive across the fact that volumes are compelling as it helps the trader confirm a trade. For this reason, it is an important factor and therefore, must be included in the checklist.

Here is how the updated checklist now stands:

1. The stock should form a recognizable candlestick pattern
2. S&R should confirm the trade. The stoploss price should be around S&R
 1. For a long trade, the low of the pattern should be around the support
 2. For a short trade, the high of the pattern should be around the resistance
3. Volumes should confirm to the trade
 1. Presence of above average volumes on both buy and sell day

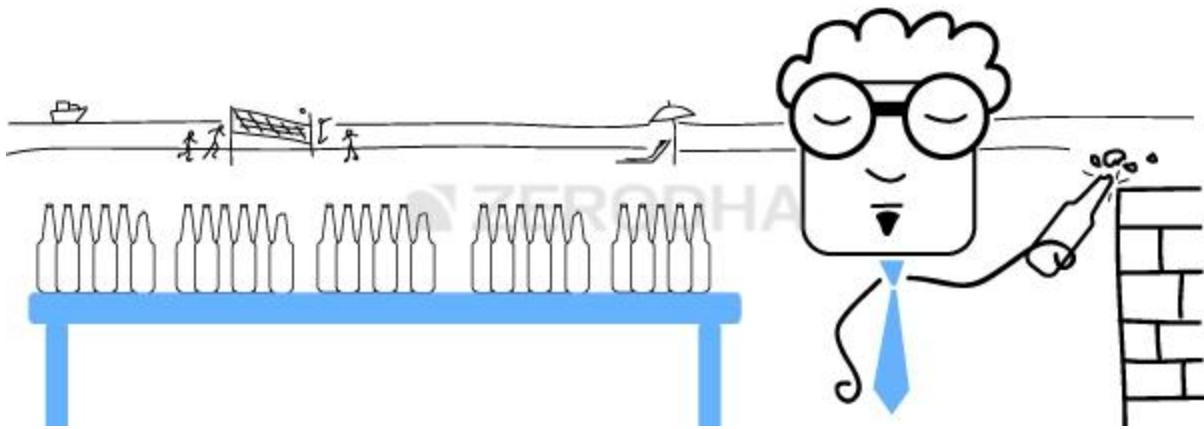
-
- 2. Low volumes are not encouraging and hence do feel free to hesitate to take a trade where the volumes are low

Key takeaways from the chapter

- 1. Volumes are used to confirm a trend
- 2. 100 share buy and 100 shares sell the total volume 100, not 200
- 3. The end of day volumes indicates the cumulative volume across trades executed throughout the day
- 4. High volumes indicate the presence of smart money
- 5. Low volumes indicate retail participation
- 6. When you initiate a trade to either go long or short always make sure if volumes confirm
- 7. Avoid trading on low volume days

Moving Averages

We have all learnt about averages in school, moving average is just an extension of that. Moving averages are trend indicators and are frequently used due to their simplicity and effectiveness. Before we learn moving averages, let us have a quick recap on how averages are calculated.



Assume 5 people are sitting on a nice sunny beach enjoying a nice chilled bottled beverage. The sun is so bright and nice that each one of them ends up drinking several bottles of the beverage. Assume the final count to be something like this:

SI No	Person	No of Bottles
01	A	07
02	B	05
03	C	06
04	D	03

Total # of bottles consumed

29

Assume a 6th person walks in to find out 29 bottles of beverages lying around them. He can quickly get a sense of 'roughly' how many bottles each of them consumed by dividing **[the total number of bottles]** by **[total number of people]**.

In this case, it would be:

$$=29/5$$

=5.8 bottles per head.

So, the average, in this case, tells us roughly how many bottles each person had consumed. Obviously, there would be few of them who had consumed above and below the average. For example, Person E drank 8 bottles of beverage, which is way above the average of 5.8 bottles. Likewise, person D drank just 3 bottles of beverage, which is way below the average of 5.8 bottles. Therefore the average is just an estimate, and one cannot expect it to be accurate.

Extending the concept to stocks, here are the closing prices of ITC Limited for the last 5 trading sessions. The last 5-day average close would be calculated as follows:

Date	Closing Price
14/07/14	344.95
15/07/14	342.35
16/07/14	344.20
17/07/14	344.25
18/07/14	344.0
Total	1719.75

$$= 1719.75 / 5$$

$$= 343.95$$

Hence the average closing price of ITC over the last 5 trading sessions is 343.95.

13.1 – The ‘moving’ average (also called the simple moving average)

Consider a situation where you want to calculate the average closing price of Marico Limited for the **latest 5 days**. The data is as follows:

Date	Closing Price
21/07/14	239.2
22/07/14	240.6
23/07/14	241.8
24/07/14	242.8
25/07/14	247.9

Total	1212.3

$$= 1212.3 / 5$$

$$= 242.5$$

Hence the average closing price of Marico over the last 5 trading sessions is 242.5

Moving forward, the next day, i.e. 28th July (26th and 27th were Saturday and Sunday respectively) we have a new data point. This implies now the 'new' latest 5 days would be 22nd, 23rd, 24th, 25th and 28th. We will drop the data point belonging to the 21st as our objective is to calculate the latest 5-day average.

Date	Closing Price
22/07/14	240.6
23/07/14	241.8
24/07/14	242.8

25/07/14	247.9
----------	-------

28/07/14	250.2
----------	-------

Total	1223.3
-------	--------

$$= 1223.3 / 5$$

$$= 244.66$$

Hence the average closing price of Marico over the last 5 trading sessions is 244.66

As you can see, we have included the latest data (28th July) and discarded the oldest data (21st July) to calculate the 5-day average. On 29th, we would include 29th data and exclude 22nd data, on 30th we would include 30th data point but eliminate 23rd data, so on.

We are essentially moving to the latest data point and discarding the oldest to calculate the latest 5-day average. Hence the name “moving” average!

In the above example, the calculation of the moving average is based on the closing prices. Sometimes, moving averages are also calculated using other parameters such as high, low, and open. However, the closing prices are used mostly by the traders and investors as it reflects the price at which the market finally settles down.

Moving averages can be calculated for any time frame, from minutes, hours to years. Any time frame can be selected from the charting software-based of your requirements.

For those of you familiar with excel, here is a screenshot of how moving averages are calculated on MS Excel. Notice how the cell reference moves in the average formula, eliminating the oldest to include the latest data points.

Cell Ref	Date	Close Price	5 Day Average	Average Formula
D3	1-Jan-14	1287.7		
D4	2-Jan-14	1279.25		
D5	3-Jan-14	1258.95		
D6	6-Jan-14	1249.7		

D7	7-Jan-14	1242.4		
D8	8-Jan-14	1268.75	1263.6	=AVERAGE(D3:D7)
D9	9-Jan-14	1231.2	1259.81	=AVERAGE(D4:D8)
D10	10-Jan-14	1201.75	1250.2	=AVERAGE(D5:D9)
D11	13-Jan-14	1159.2	1238.76	=AVERAGE(D6:D10)
D12	14-Jan-14	1157.25	1220.66	=AVERAGE(D7:D11)
D13	15-Jan-14	1141.35	1203.63	=AVERAGE(D8:D12)

D14	16-Jan-14	1152.5	1178.15	=AVERAGE(D9:D13)
D15	17-Jan-14	1139.6	1162.41	=AVERAGE(D10:D14)
D16	20-Jan-14	1140.6	1149.98	=AVERAGE(D11:D15)
D17	21-Jan-14	1166.35	1146.26	=AVERAGE(D12:D16)
D18	22-Jan-14	1165.4	1148.08	=AVERAGE(D13:D17)
D19	23-Jan-14	1168.25	1152.89	=AVERAGE(D14:D18)

As it is evident, the moving average changes as and when the closing price changes. As calculated above, a moving average is called a 'Simple Moving Average' (SMA). Since we are calculating it as per the latest 5 days of data, it is called referred to as 5 Day SMA.

The averages for the 5 days (or it could be anything like 5, 10, 50, 100, 200 days) are then joined to form a smooth curving line known as the moving average line, and it continues to move as the time progresses.

In the chart shown below, I have overlaid a 5 day SMA over ACC's candlestick graph.



So what does a moving average indicator, and how does one use it? There are many moving average applications, and shortly I will introduce a simple trading system based on moving averages. But before that, let us learn about the Exponential Moving Average.

13.2 – The exponential moving average

Consider the data points used in this example,

Date	Closing Price
22/07/14	240.6
23/07/14	241.8
24/07/14	242.8
25/07/14	247.9
28/07/14	250.2
Total	1214.5

When one calculates the average across these numbers, there is an unstated assumption. We are essentially giving each data point equal importance. We are

assuming that the data point on 22nd July is as important as the data point on 28th July.

However, when it comes to markets, this may not always be true

Remember the basic assumption of technical analysis – markets discount everything.

This means the latest price you see (on 28th July) discounts all the known and unknown information. This also implies the price on 28th is more sacred than the price on 25th.

One would like to assign weightage to data points based on the ‘newness’ of the data.

Therefore the data point on 28th July gets the highest weightage, 25th July gets the next highest weightage, 24th July gets the 3rd highest, and so on.

By doing so, I have essentially scaled the data points according to its newness – the latest data point gets the maximum attention, and the oldest data point gets the least attention.

The average calculated on this scaled set of numbers gives us the Exponential Moving Average (EMA). I deliberately skipped the EMA calculation part, simply because most of the technical analysis software lets us drag and drop the EMA on prices. Hence we will focus on EMA’s application as opposed to its calculation.

Here is a chart of Cipla Ltd. I have plotted a 50 day SMA (black) and a 50 day EMA (red) on Cipla’s closing prices. Though both SMA and EMA are for a 50 day period, you can notice that the EMA is more reactive to the prices and sticks closer to the price.



EMA is quicker to react to the current market price because EMA gives more importance to the most recent data points. This helps the trader to take quicker trading decisions.

Hence, for this reason, traders prefer the use of the EMA over the SMA.

13.3 – A simple application of moving average

The moving average can be used to identify buying and selling opportunities with its own merit. When the stock price trades above its average price, it means the traders are willing to buy the stock at a price higher than its average price. This means the traders are optimistic about the stock price going higher. Therefore one should look at buying opportunities.

Likewise, when the stock price trades below its average price, it means the traders are willing to sell the stock at a price lesser than its average price. This means the traders are pessimistic about the stock price movement. Therefore one should look at selling opportunities.

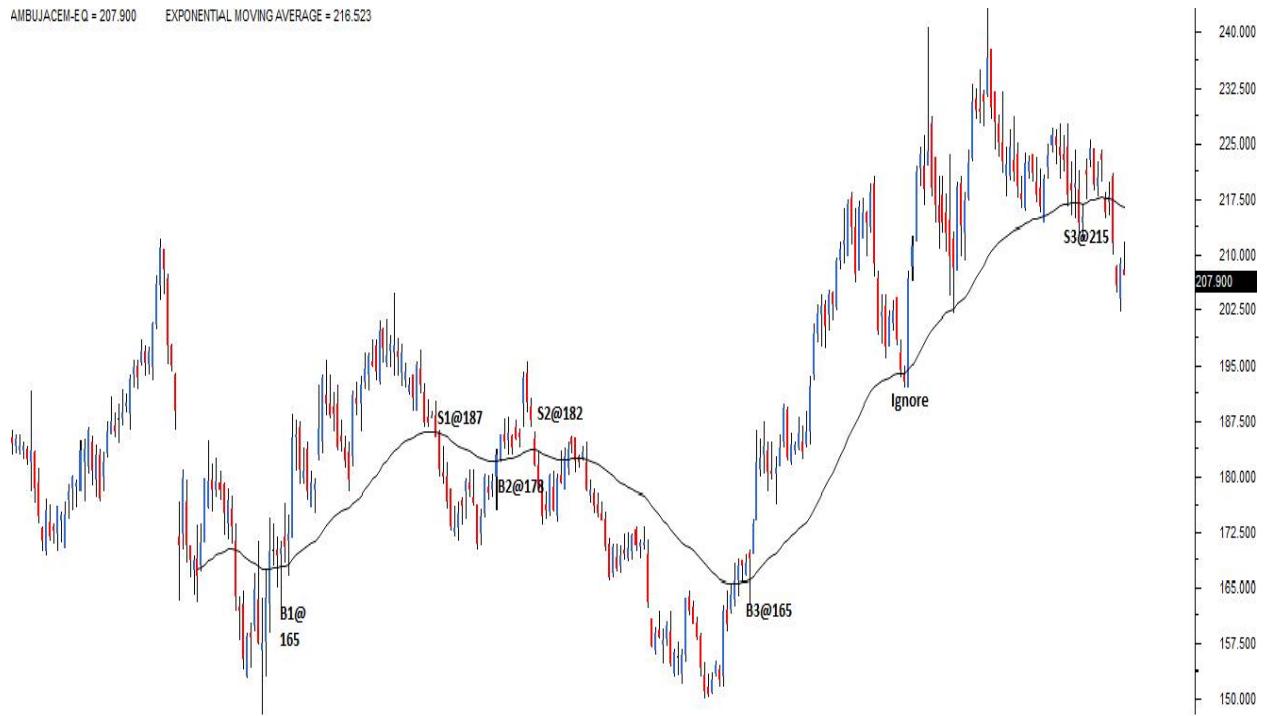
We can develop a simple trading system based on these conclusions. A trading system can be defined as a set of rules that help you identify entry and exit points.

We will now try and define one such trading system based on a 50-day exponential moving average. Remember a good trading system gives you a signal to enter a trade and a signal to close out the trade. We can define the moving average trading system with the following rules:

Rule 1) Buy (go long) when the current market price turns greater than the 50 days EMA. Once you go long, you should stay invested till the necessary sell condition is satisfied.

Rule 2) Exit the long position (square off) when the current market price turns lesser than the 50 days EMA.

Here is a chart that shows the application of the trading system on Ambuja cement. The black line on the price chart is the 50-day exponential moving average.



Starting from left, the first opportunity to buy originated at 165, highlighted on the charts as B1@165. Notice, at point B1, the stock price moved to a point higher than its 50 days EMA. Hence as per the trading system rule, we initiate a fresh long position.

We stay invested by the trading system till we get an exit signal, which we eventually got at 187, marked as S1@187. This trade generated a profit of Rs.22 per share.

The next signal to go long came at B2@178, followed by a signal to square off at S2@182. This trade was not as impressive as it resulted in a profit of just Rs.4. However, the last trade, B3@165, and S3@215 were quite impressive, resulting in a profit of Rs.50.

Here is a quick summary of these trades based on the trading system fared:

SI No	Buy Price	Sell Price	Gain/Loss	% Return
01	165	187	22	13%
02	178	182	04	2.2%
03	165	215	50	30%

From the above table, it is obvious that the first and last trades were profitable, but the 2nd trade was not so profitable. If you inspect why this happened, it is evident that the stock was trending during the 1st and the 3rd trade, but during the 2nd trade, the stock moved sideways.

This leads us to a significant conclusion about the moving averages. Moving averages works brilliantly when there is a trend and fails to perform when the stock moves sideways. This basically means the 'Moving average' in its simplest form is a trend following system.

From my own personal experience of trading based on moving averages, I have noticed a few important characteristics:

1. Moving averages gives you many trading signals (buy and sell) during a sideways market.
Most of these signals result in marginal profits, if not for losses
2. However usually one of those many trades results in a massive rally (like the B3@165 trade) leading to impressive gains
3. It would be tough to segregate the big winner from the many small trades
4. Hence the trader should not be selective in terms of selecting signals that moving average system suggest. In fact, the trader should trade all the trades that the system suggests
5. Remember the losses are minimized in a moving average system, but that 1 big trade is good enough to compensate for all the losses and can give you sufficient profits
6. The profit-making trade ensures you are in the trend as long as the trend lasts.

Sometimes even upto several months. For this reason, MA can be used as a proxy for identifying long term investment ideas

7. The key to MA trading system is to take all the trades and not be judgmental about the signals being generated by the system.

Here is another example of BPCL, where the MA system suggested multiple trades during the sideways market; however, none of them was really profitable. However, the last trade resulted in a 67% profit in about 5 months.



13.4 – Moving average crossover system

As it's evident now the problem with the plain vanilla moving average system is that it generates far too many trading signals in a sideways market. A moving average crossover system is an improvisation over the plain vanilla moving average system. It helps the trader to take fewer trades in a sideways market.

Instead of the usual single moving average in a MA crossover system, the trader combines two moving averages. This is usually referred to as 'smoothing'.

A typical example of this would be to combine a 50 day EMA, with a 100 day EMA. The shorter moving average (50 days in this case) is also referred to as the faster-moving average. The longer moving average (100 days moving average) is referred to as the slower moving average.

The shorter moving average takes a lesser number of data points to calculate the average, and hence it tends to stick closer to the current market price and therefore reacts more quickly. A longer moving average takes more data points to calculate the average, and hence it tends to stay away from the current market price. Hence the reactions are slower.

Here is the Bank of Baroda chart, showing you how the two moving averages stack up when loaded on a chart.



As you can see, the black 50 day EMA line is closer to the current market price (as it reacts faster) compared to the pink 100 days EMA (as it reacts slower).

Traders have modified the plain vanilla MA system with the crossover system to smoothen out the entry and exit points. The trader gets far fewer signals in the process, but the chances of the trade being profitable are quite high.

The entry and exit rules for the crossover system is as stated below:

Rule 1) – Buy (fresh long) when the short term moving averages turns greater than the long term moving average. Stay in the trade as long as this condition is satisfied

Rule 2) – Exit the long position (square off) when the short term moving average turns lesser than the longer-term moving average

Let us apply the MA crossover system to the same BPCL example that we looked at. For ease of comparison, I have reproduced the BPCL's chart with a single 50 day MA.



Notice, when the markets were moving sideways, MA suggested at least 3 trading signals. However, the 4th trade was the winner which resulted in 67% profit.

The chart shown below shows the application of a MA crossover system with 50 and 100 days EMA.



The black line plots the 50-day moving average and the pink line plots the 100-day moving average. As per the cross overrule, the signal to go long originates when the 50-day moving average (short term MA) crosses over the 100-day moving average (long term MA). The crossover point has been highlighted with an arrow. Please do notice how

the crossover system keeps the trader away from the 3 unprofitable trades. This is the biggest advantage of a cross over system.

A trader can use any combination to create a MA cross over system. Some of the popular combinations for a swing trader would be:

1. 9 day EMA with 21 days EMA – use this for short term trades (upto few trading session)
2. 25 day EMA with 50 days EMA – use this to identify medium-term trade (upto few weeks)
3. 50 day EMA with 100 Day EMA – use this to identify trades that lasts upto few months
4. 100 day EMA with 200 days EMA – use this to identify long term trades (investment opportunities), some of them can even last for over a year or more.

Remember, longer the time frame, the lesser the number of trading signals.

Here is an example of a 25 x 50 EMA crossover. Three trading signals qualify under the crossover rule.



Needless to say, the MA crossover system can also be applied for intraday trading. For instance, one could use the 15 x 30 minutes crossover to identify intraday opportunities. A more aggressive trader could use a 5 x 10-minute crossover.

You may have heard this popular saying in the markets – “The trend is your, friend”. Well, the moving averages help you identify this friend.

Remember, MA is a trend following system – as long as there is a trend, the moving averages work brilliantly. It does not matter which time frame you use or which cross over combination you use.

Key takeaways from this chapter

1. A standard average calculation is a quick approximation of a series of numbers
2. In an average calculation where the latest data is included, and the oldest is excluded called a Moving Average
3. The simple moving average (SMA) gives equal weightage to all data points in the series
4. An exponential moving average (EMA) scales the data according to its newness. Recent data gets the maximum weightage, and the oldest gets the least weightage
5. For all practical purposes, use an EMA as opposed to SMA. This is because the EMA gives more weightage to the most recent data points
6. The outlook is bullish when the current market price is greater than the EMA. The outlook turns bearish when the current market price turns lesser than the EMA
7. In a non-trending market, moving averages may result in whipsaws, thereby causing frequent losses. To overcome this, an EMA crossover system is adopted

8. In a typical crossover system, the price chart is overlaid with two EMAs. The shorter EMA is faster to react, while the longer EMA is slower to react
9. The outlook turns bullish when the faster EMA crosses and is above the slower EMA. Hence one should look at buying the stock. The trade lasts upto a point where the faster EMA starts going below, the slower EMA
10. The longer the time frame one chooses for a crossover system, the lesser the trading signals.