FINANCIAL MODELING

HANDBOOK

STEP-BY-STEP GUIDE TO BUILDING YOUR FIRST FINANCIAL MODEL & VALUE COMPANIES FROM SCRATCH

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How to use this book?

- **Learn By Doing:** This book like any other book is designed in a Hands-on Manner. You learn the most when you actually do something along rather than just reading/listening about it. This book has practical templates and a detailed case study. Make sure you practice along to get the maximum value out of this book. Practice, practice, and practice. That is the key!

- **QR Codes and Explainer Videos:** At ZebraLearn we like to go the extra mile. For each topic, you have an Explainer Video as a QR code. You can use any QR code scanner to scan these and access them. You do not need to go through each Explainer Video. It is already covered in the text. But, wherever you face difficulty understanding the topic, scan the QR code next to the topic and you have your Explainer.

LET'S GET STARTED WITH OUR LEARNING. IT IS GOING TO BE AN AMAZING LEARNING EXPERIENCE!

Content

Introduction

1

Explainer Video

Hey there!

We're glad you have taken a step towards building your career in finance and decided to get better at analyzing and valuing companies. Not only will we teach you how to make and present a financial model, but we'll also make one along the way since we believe that learning something is best done by doing it. Let's dive right in!

Let's take a look at what we would be learning:

- **All about modelling:** We'll first learn what financial modelling is, what purpose it serves and who uses it.
- **Building business understanding:** In financial modelling, you'll be forecasting a real business and its numbers. So, before preparing any financial model, we must have an understanding of the business and the industry in which it operates.
- **Getting the data right:** We'll learn how to encode data from annual/quarterly reports into an Excel sheet and make it analyst friendly before using it.
- **Forecasting:** We'll learn how to reflect available information into our assumptions, which will help us forecast the value of a business in different scenarios.
- **Valuations:** Finally, we will learn about the different ways you can use to value a business. We'll also help you choose which technique to use at what times.

These jargons may seem intimidating to you. But don't worry, they are all fundamental concepts that you are going to learn with ease throughout this book. In the end, you'll be able to build a complete financial model from scratch! Are you excited?

1.1 What is a Financial Model?

Explainer Video

Welcome to the first module of the Financial Modelling Book! Let's start with knowing what a financial model is in the first place.

Financial modelling is a very detailed representation of a company's finances in the past, present and use of that to assumptions and forecast the future finances. This can then be used to take multiple decisions.

It essentially involves **analyzing the past and current conditions to make an educated guess for the future.** It is a **tool used for decision-making by individuals, companies, NGOs, government, or any other party.**

In our book, **we would be learning financial modelling from the perspective of valuing listed companies and their shares.** We make certain assumptions while building financial models, and **such assumptions are at the heart of the whole exercise. The aim should always be to make assumptions that are as close to reality as possible. The better the assumptions, the better the quality of decisions taken based on the model.**

A detailed definition of the Financial Model would be:

"**Financial Model** is **an elaborate spreadsheet (Microsoft Excel or Google Sheets)** that explains the business's past performance and helps forecast the future performance."

The **process of creating a detailed Financial Model with realistic assumptions** is called **Financial Modelling.** When we say a detailed financial model, we include everything - cost, revenue, users, assets, debt and so much more. We will understand all of this throughout the book.

Role of Financial Model

1. Detailed Financial Breakdown
[as detailed as possible]

3. Forecast Future Performance

2. Explains Past Performance

- **Trends in revenue in past years**
- **Different cost drivers in the company and its past trends**
- **Cashflow management in the company**
- **Types of assets in the company**

Things to keep in mind!

Past data cannot always be used to predict the future as nature of business keeps on changing. Instead of being perfect, we want to be as close to reality as possible.

Even if business does not change unforseen events like COVID 19 can make financial models irrelevant.

An ideal financial model

A good financial model should possess the following characteristics:

- It should be a **detailed spreadsheet.** 'Detailed' here means that it should identify the key financial items and should identify and track the factors that affect these. It should break down line items to understand each of them well.
- It should **explain the past performance of a business.** We'll learn about the different methods you can use to achieve this (eg: financial ratios)
- Forecasts for business performance should be based on **realistic assumptions.**
- You should at least **have a sense of direction** the business will move in while building a financial model, forecasts may or may not be accurate.

For example, you are projecting sales for Indian retail company D-Mart.

Assume that the sales for the previous 3 years are ₹20,800 crores, ₹24,000 crores, and ₹30,000 crores (hypothetical numbers). A good model for using this information may look like this:

Year	FY2020	FY2021	FY2022	FY2023E	FY2024E
Sales from Stores	15,000	16,000	20,500	26,000	30,000
Sales from Website	5,800	8,000	9,500	10,000	13,200
Total Sales	**20,800**	**24,000**	**30,000**	**36,000**	**43,200**
YoY Growth					
Sales from Stores		6.67%	28.13%	26.83%	28.13%
Sales from Website		37.93%	18.75%	5.26%	32%
Total Sales		**15.38%**	**25.00%**	**20.00%**	**20.00%**

Note that

- It is detailed, i.e. has a breakdown of where those revenues came from.
- We can even break it down further based on the purpose of modelling. For e.g. sales from stores can be broken down region wise.
- It explains past performance, i.e. YoY growth.
- Forecasts are based on historical average growth and the company's expansion plans. We will learn the different ways to forecast going ahead.

It is always a good practice to evaluate your financial model after the real numbers are out and make changes to your model so that you can take decisions accordingly. We will discuss how does a model evolve overtime further in the book.

Year	Forecasted Sales	Actual Sales
2021	₹ 10 Crores	₹ 8 Crores
2020	₹ 6 Crores	₹ 7.5 Crores

Comparing forecasted with actual numbers will give you an idea of how good and close to reality your assumptions were. With time, as we keep on making changes, we will see how it evolves.

Let's now look at a financial model and its components.

What does a financial model look like?

Explainer Video

Before we go ahead, it would be good to glance through a financial model. You must recollect that a financial model is a representation of a company's past; using which you can make an educated guess for its future. Though we will look at each of its components in detail throughout the book, here is an overview of different segments it has. Also this is a standard model for company evaluation but models keep on changing based on the purpose of financial modelling. The idea is, at the end, you should be comfortable with Financial Models in general and be able to adapt to whatever model you are working on.

Now, let's have a look at one!

Ratio Analysis

From the second column onwards, they represent the year for which the data is presented.

Having an 'A' at the end of the year stands for 'actual data'. The data in columns having an "A" in the title represent past financial information.

On the other hand, having an 'E' at the end of the year stands for 'expected or estimated data'.

In the growth factors section, we can see how the company has grown in the past years. For example, we can see how the EBITDA (Earnings Before Income Tax, Depreciation and Amortization), PAT (Profit After Tax), Gross Profit, and others have grown in the past and how is the future looking.

In the next section i.e., Liquidity Ratios, we can see how liquid is the company and how its working capital is managed.

Ratio Snapshot

(In INR Crores, unless otherwise stated)

Ratios	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E
GROWTH FACTORS											
Revenue Growth (%)		23.3%	12.9%	15.0%	15.0%	15.0%	15.0%	10.0%	8.0%	6.0%	5.0%
Gross Profit Growth (%)		29.9%	15.3%	11.5%	15.0%	15.0%	15.0%	10.0%	8.0%	6.0%	5.0%
EBITDA Growth (%)		40.6%	12.5%	10.5%	15.0%	15.0%	15.0%	10.0%	8.0%	6.0%	5.0%
EBIT Growth (%)		38.5%	9.1%	5.1%	11.0%	11.4%	11.8%	3.9%	0.7%	-3.0%	-5.3%
Pre-Tax Growth (%)		36.8%	14.7%	5.5%	13.5%	13.8%	14.0%	5.2%	1.7%	-2.1%	-4.2%
Adjusted PAT Growth (%)		40.1%	-2.8%	-1.7%	13.6%	13.8%	14.1%	5.2%	1.7%	-2.1%	-4.2%
MARGINS											
Gross Profit Margin (%)	36.4%	38.3%	39.1%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%
EBITDA Margin (%)	14.1%	16.1%	16.0%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%	15.4%
EBIT Margin (%)	10.1%	11.3%	10.9%	10.0%	9.6%	9.3%	9.1%	8.6%	8.0%	7.3%	6.6%
Pre-Tax Margin (%)	8.3%	9.2%	9.4%	8.6%	8.5%	8.4%	8.3%	7.9%	7.5%	6.9%	6.3%
Adjusted PAT Margin (%)	6.6%	7.5%	6.5%	5.5%	5.5%	5.4%	5.4%	5.1%	4.8%	4.5%	4.1%
Effective Tax Rate (%)	24.1%	22.2%	31.1%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
LIQUIDITY RATIOS											
Capex/Depreciation	2.5x	1.5x	2				1.7x	1.5x	1.4x	1.3x	1.2x
Current Ratio	0.9x	1.0x	1				1.1x	1.1x	1.2x	1.2x	1.3x
Quick Ratio	0.6x	0.7x	(				0.7x	0.8x	0.8x	0.9x	0.9x
Working Capital/Revenue	18.3%	13.1%	10				9.8%	9.5%	9.4%	9.2%	9.1%
Receivable Days	21	17					18	18	18	18	18
Inventory Days	64	69					67	67	67	67	67
Payable Days	137	146					138	138	138	138	138
Cash Operating Cycle (Days)	**(51)**	**(60)**					**(53)**	**(53)**	**(53)**	**(53)**	**(53)**

The company received its payments in 21 days in the year 2019, which reduced to 17-18 days in the following years. Thus, the company is receiving faster payments.

The sheet presented earlier is that of ratios. Financial ratios are nothing but multiples or numbers in percentage terms that aim to show a relationship between different line items present in the financial statements. Ratios can be used to calculate relationships from the past to forecast the future. There are several types of ratios, and each of them aims to reveal something about the performance of the business. There are some common ratios used by analysts widely:

You can also add industry-specific metrics to represent the performance of the company.

Use metrics like average revenue per subscriber to find out how much revenue is Jio able to churn out from each subscriber on an average.

The Income Statement

All the figures highlighted in yellow are the past figures and the ones unmarked are the future forecast figures.

Income Statement								
(in INR Crores, unless otherwise stated)								
PARTICULARS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY202
Net Sales	1,88,792.69	2,32,833.66	2,62,796.33	3,02,215.78	3,47,548.15	3,99,680.37	4,59,632.42	5,05,595.(
Cost of Sales / COGS	(1,20,088.05)	(1,43,586.41)	(1,59,920.01)	(1,87,505.48)	(2,15,631.30)	(2,47,975.99)	(2,85,172.39)	(3,13,689.(
Gross profit	**68,704.64**	**89,247.25**	**1,02,876.32**	**1,14,710.30**	**1,31,916.85**	**1,51,704.37**	**1,74,460.03**	**1,91,906.(
Operating Expenses								
Employee Cost / Benefits Expense	(16,632.19)	(21,556.42)	(25,548.96)	(27,995.27)	(32,194.56)	(37,023.75)	(42,577.31)	(46,835.(
Other Expenses 1	(35,648.33)	(43,810.11)	(50,617.72)	(57,380.21)	(65,987.25)	(75,885.33)	(87,268.13)	(95,994.9
Other Expenses 2	10,193.45	13,537.85	15,404.18	17,201.43	19,781.64	22,748.89	26,161.22	28,777.3
EBITDA	**26,617.57**	**37,418.57**	**42,113.82**	**46,536.24**	**53,516.68**	**61,544.18**	**70,775.81**	**77,853.3**
Depreciation And Amortization Expenses	(7,601.28)	(11,078.16)	(13,388.63)	(16,350.98)	(20,011.92)	(24,222.00)	(29,063.59)	(34,501.9
Operating Income (Loss)	**19,016.29**	**26,340.41**	**28,725.19**	**30,185.26**	**33,504.76**	**37,322.18**	**41,712.22**	**43,351.4**
Other Income/ (Expense)								
Other Income	815.59	828.59	898.74	1,224.51	1,400.05	1,632.98	1,932.57	2,260.(
Finance Cost	(3,560.25)	(4,749.44)	(4,861.49)	(5,490.68)	(5,490.68)	(5,490.68)	(5,490.68)	(5,490.(
Profit Before Exceptional Items And Tax	**16,271.63**	**22,419.56**	**24,762.44**	**25,919.09**	**29,414.13**	**33,464.48**	**38,154.11**	**40,120.7**
Extraordinary Item 1	(515.09)	(707.72)	(91.72)	-	-	-	-	-
Extraordinary Item 2	(87.62)	(224.16)	-	-	-	-	-	-
Extraordinary Item 3	-	(53.50)	(92.99)	-	-	-	-	-
Profit Before Tax From Continuing Operations	**15,668.92**	**21,434.18**	**24,577.73**	**25,919.09**	**29,414.13**	**33,464.48**	**38,154.11**	**40,120.7**
Income Tax (Expense) Benefit	(3,776.66)	(4,764.79)	(7,642.91)	(9,071.68)	(10,294.94)	(11,712.57)	(13,353.94)	(14,042.2
Net Earnings Including Noncontrolling Interests	**11,892.26**	**16,669.39**	**16,934.82**	**16,847.41**	**19,119.18**	**21,751.91**	**24,800.17**	**26,078.5**
Share Of Profit / (Loss) Of Associates (Net)	105.61	(53.71)	13.42	-	-	-	-	-
Minority Interest	(83.67)	(59.45)	(86.78)	(86.78)	(86.78)	(86.78)	(86.78)	(86.7
Net Earnings Attributable To Tatamotors	**11,914.20**	**16,556.23**	**16,861.46**	**16,760.63**	**19,032.40**	**21,665.13**	**24,713.39**	**25,991.7**
Adjusted Net Income	**12,516.91**	**17,541.61**	**17,046.17**	**16,760.63**	**19,032.40**	**21,665.13**	**24,713.39**	**25,991.7**
Earnings Per Share (Eps)								
A. Ordinary Shares (Face Value Inr 2 Each)								
Basic	21.02	43.51	43.44	43.18	49.03	55.81	63.67	66.(

The Balance Sheet

Balance Sheet								
(in INR Crores, unless otherwise stated)								
PARTICULARS	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	
Bank Balance	13,083.81	10,987.43	10,987.43	10,987.43	10,987.43	10,987.43	10,987.43	
Current Investment	9,572.28	14,096.24	14,096.24	14,096.24	14,096.24	14,096.24	14,096.24	
Accounts Receivable, Net	10,574.23	12,579.20	15,245.08	17,531.84	20,161.62	23,185.86	25,504.45	
Inventories	27,270.89	29,272.34	34,260.29	39,399.33	45,309.23	52,105.62	57,316.18	
Short-Term Loans And Advances	14,055.24	10,746.44	10,746.44	10,746.44	10,746.44	10,746.44	10,746.44	
Other Current Asset	4,660.90	2,948.42	2,948.42	2,948.42	2,948.42	2,948.42	2,948.42	
Total Current Assets	74,153.55	95,845.33	1,01,758.40	1,16,170.47	1,29,169.03	1,45,103.54	1,64,435.00	1,82,359.53
PPE, Net	32,728.95	40,694.29	52,326.21	62,510.12	74,157.10	87,486.59	1,02,750.99	1,18,964.72
Other Intangible Assets	18,680.41	23,418.55	31,456.29	36,799.57	41,800.58	46,407.98	50,562.72	53,178.05
Capital Work-In-Progress	4,345.11	10,137.30	9,330.47	9,330.47	9,330.47	9,330.47	9,330.47	9,330.47
Intangible Assets Under Development	14,108.44	23,125.26	19,309.62	19,309.62	19,309.62	19,309.62	19,309.62	19,309.62
Goodwill (On Consolidation)	4,102.37	4,978.83	4,696.99	4,696.99	4,696.99	4,696.99	4,696.99	4,696.99
Long-Term Investments	1,222.41	1,114.39	1,240.50	1,240.50	1,240.50	1,240.50	1,240.50	1,240.50
Deferred Tax Assets (Net)	4,428.93	2,347.08	2,733.20	2,733.20	2,733.20	2,733.20	2,733.20	2,733.20
Long-Term Loans And Advances	15,584.12	13,268.84	14,948.31	14,948.31	14,948.31	14,948.31	14,948.31	14,948.31
Other Assets	1,023.95	5,068.45	858.00	858.00	858.00	858.00	858.00	858.00
Total Assets	1,70,378.24	2,19,998.32	2,38,657.99	2,68,597.25	2,98,243.80	3,32,115.20	3,70,865.80	4,07,619.40
LIABILITIES & EQUITY								
Current Liabilities:								
Accounts Payable	44,912.35	57,315.73	57,407.28	70,760.97	81,375.12	93,581.39	1,07,618.60	1,18,380.46
Short-Term Borrowings	11,620.21	9,695.86	13,140.14	13,140.14	13,140.14	13,140.14	13,140.14	13,140.14
Other Current Liabilities	22,224.94	17,373.86	23,688.58	23,688.58	23,688.58	23,688.58	23,688.58	23,688.58
Short-Term Provisions	7,788.16	7,970.68	6,036.00	6,036.00	6,036.00	6,036.00	6,036.00	6,036.00
Total Current Liabilities	86,545.66	92,356.13	1,00,272.00	1,13,625.69	1,24,239.84	1,36,446.11	1,50,483.32	1,61,245.18
Long-Term Debt	32,155.29	45,258.61	56,071.34	56,071.34	56,071.34	56,071.34	56,071.34	56,071.34
Deferred Tax Liabilities (Net)	2,048.21	1,572.33	1,343.20	1,343.20	1,343.20	1,343.20	1,343.20	1,343.20

All the line items must be itemized accurately. Any financial statement must be as detailed as possible and should not be ambiguous.

The Cash Flow Statement **explains the inflows and outflows of cash in the business.**

Cash Flow Statement								
(in INR Crores, unless otherwise stated)								
PARTICULARS	FY2019 A	FY2020 A	FY2021 A	FY2022 A	FY2023 A	FY2024 A	FY2025 A	
Cash Flows From Operating Activities:								
Profit For The Year	9,892.61	13,991.02	13,986.29	16,760.63	19,032.40	21,665.13	24,713.39	2
Adjustments To Reconcile Net Income To Cash Provided By Operating Activities								
Depreciation & Amortization	7,596.76	11,073.64	13,386.36	16,350.98	20,011.92	24,222.00	29,063.59	3
Loss On Sale Of Assets (Including Assets Scrapped / Written Off)	23.89	46.52	351.46	-	-	-	-	
Profit On Sale Of Investments (Net)	(80.09)	(114.58)	(119.57)	-	-	-	-	
Provision For Doubtful Trade Receivables And Advances	87.62	224.16	-	-	-	-	-	
Share Of (Profit) / Loss Of Associate Companies (Net)	0.41	(1.05)	-	-	-	-	-	
Share Of Minority Interest	5.29	-	-	-	-	-	-	
Tax (Credit) / Expense		1,348.48	1,587.46	-	-	-	-	
Interest / Dividend (Net)		269.10	217.66	-	-	-	-	
Other Adjustments 1	(138.29)	(154.46)	(178.64)	-	-	-	-	
Other Adjustments 2	(105.61)	53.71	(13.42)	-	-	-	-	
Other Adjustments 3	83.67	59.45	86.78	-	-	-	-	
Other Adjustments 4	3,776.67	4,764.79	7,642.91	-	-	-	-	
Other Adjustments 5	2,828.30	4,019.77	4,082.32	-	-	-	-	
Other Adjustments 6	434.31	722.11	2,019.13	-	-	-	-	
Cash Provided/(Used) By Changes In Operating Assets And Liabilities:								
Increase In Inventories	(2,655.81)	(2,852.55)	(3,692.41)	(4,987.95)	(5,139.04)	(5,909.90)	(6,796.38)	(
(Increase) Decrease In Accounts Receivable	(2,697.57)	1,861.09	(3,008.02)	(2,665.88)	(2,286.76)	(2,629.78)	(3,024.24)	(
(Increase) Decrease In Finance Receivable	(2,479.10)	(1,416.03)	(170.97)	-	-	-	-	
Other Current And Non-Current Assets	(999.03)	1,123.90	(624.61)	-	-	-	-	
Trade Payables	8,132.19	4,693.90	3,597.82	13,353.69	10,614.15	12,206.27	14,037.21	1
Other Current And Non-Current Liabilities	(628.33)	(141.66)	423.83	-	-	-	-	
Provisions	1,324.79	888.18	(197.45)	-	-	-	-	
Cash Provided By Operating Activities	**24,402.68**	**40,459.49**	**39,376.93**	**38,811.47**	**42,232.66**	**49,553.73**	**57,993.56**	**6**
Income Taxes Paid (Net)	(2,240.07)	(4,308.33)	(4,194.04)	-	-	-	-	
Net Cash Provided By Operating Activities	**22,162.61**	**36,151.16**	**35,182.89**	**38,811.47**	**42,232.66**	**49,553.73**	**57,993.56**	**6**

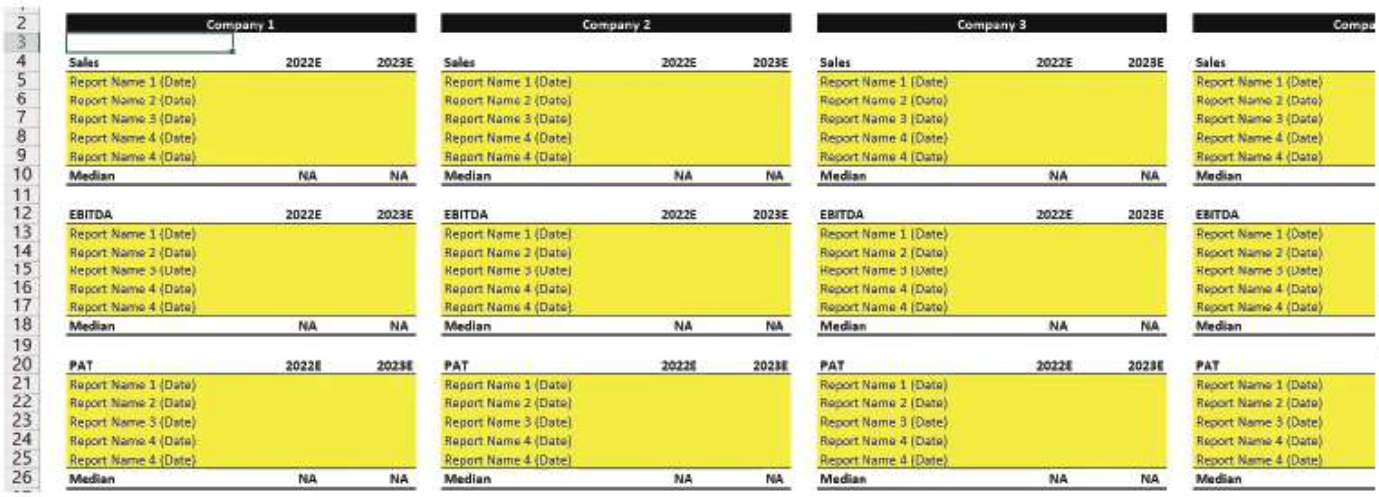
All the yellow cells so far are the ones where we need to enter raw data. Once we enter all yellow cells, the white ones will be filled based on input data. We will learn now to do this further.

There also exists an 'Assumptions Sheet' in a financial model. Such a sheet indicates all assumptions that you would make while forecasting numbers for the business you are analyzing. This is very important as we earlier saw, the assumptions are at the heart of the Financial Model and they will be used across the entire model. We want all the assumptions in one place i.e. assumptions sheet so that we can revisit them at a later point. We can tweak with the assumptions and see its impact across the model.

- **For example, we assume a certain amount of revenue growth.**
- **The cost of Sales that we expect,**
- **Depreciation Levels that we expect,**
- **Inventory levels that we expect**

Assumptions

PARTICULARS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E
Revenue Growth		23.3%	12.9%	15.0%	15.0%	15.0%	15.0%	10.0%	8.0%	6.0%	5.0%
Cost Of Sales	63.6%	61.7%	60.9%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%	62.0%
Employee Cost / Benefits Expense	8.8%	9.3%	9.7%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%
Other Expenses 1	18.9%	18.8%	19.3%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
Other Expenses 2	5.4%	5.8%	5.9%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
Interest Income	3.9%	2.8%	2.8%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Interest Expense	8.1%	8.6%	7.0%	7.9%	7.9%	7.9%	7.9%	7.9%	7.9%	7.9%	7.9%
Statutory Tax Rate	30.0%	30.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
BALANCE SHEET ASSUMPTIONS	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY2024 E**	**FY2025 E**	**FY2026 E**	**FY2027 E**	**FY2028 E**	**FY2029 E**
Assets											
Accounts Receivable	5.8%	4.5%	4.8%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Inventory	17.5%	19.0%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%	18.3%
Liabilities											
Accounts Payable	37.4%	39.9%	35.9%	37.7%	37.7%	37.7%	37.7%	37.7%	37.7%	37.7%	37.7%
Cash Flow Assumptions	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY2024 E**	**FY2025 E**	**FY2026 E**	**FY2027 E**	**FY2028 E**	**FY2029 E**
Depreciation (% Gross Assets)	5.5%	6.4%	6.4%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%
Amortization (% Gross Assets)	15.5%	17.2%	15.8%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%	16.1%
Capex / Sales (Tangible Assets)	5.1%	4.2%	7.9%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
Capex / Sales (Intangible Assets)	4.98%	2.98%	6.50%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%



Company 1			Company 2			Company 3			Compa
Sales	2022E	2023E	Sales	2022E	2023E	Sales	2022E	2023E	Sales
Report Name 1 (Date)			Report Name 1 (Date)			Report Name 1 (Date)			Report Name 1 (Date)
Report Name 2 (Date)			Report Name 2 (Date)			Report Name 2 (Date)			Report Name 2 (Date)
Report Name 3 (Date)			Report Name 3 (Date)			Report Name 3 (Date)			Report Name 3 (Date)
Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)
Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)
Median	NA	NA	Median	NA	NA	Median	NA	NA	Median
EBITDA	2022E	2023E	EBITDA	2022E	2023E	EBITDA	2022E	2023E	EBITDA
Report Name 1 (Date)			Report Name 1 (Date)			Report Name 1 (Date)			Report Name 1 (Date)
Report Name 2 (Date)			Report Name 2 (Date)			Report Name 2 (Date)			Report Name 2 (Date)
Report Name 3 (Date)			Report Name 3 (Date)			Report Name 3 (Date)			Report Name 3 (Date)
Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)
Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)
Median	NA	NA	Median	NA	NA	Median	NA	NA	Median
PAT	2022E	2023E	PAT	2022E	2023E	PAT	2022E	2023E	PAT
Report Name 1 (Date)			Report Name 1 (Date)			Report Name 1 (Date)			Report Name 1 (Date)
Report Name 2 (Date)			Report Name 2 (Date)			Report Name 2 (Date)			Report Name 2 (Date)
Report Name 3 (Date)			Report Name 3 (Date)			Report Name 3 (Date)			Report Name 3 (Date)
Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)
Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)			Report Name 4 (Date)
Median	NA	NA	Median	NA	NA	Median	NA	NA	Median

We can also create something called **Comparables and Comparables-Consensus.** We can also create customized sheets as well, where we can talk about other things like **KPI (Key Performance Indicators).**

For ex : Key Indicators for evaluating a hotel company would be:

- No of rooms
- Revenue generated per room
- occupancy rate

Comparables are used to conduct Relative Valuation. We will understand this later in the book.

In INR Lacs unless otherwise stated														
Updated as on	[DATE]													
Company	Sh. Price	TSO	Mkt. Cap	Debt	Minority	Cash &	Enterprise	Revenue			EBITDA			
	(INR)	(LAC)	(INR LAC)		Interest	Investments	Value	LTM Jun22	2022E	2023E	LTM Jun22	2022E	202	
Company 1			-				-		NA	NA		NA	N	
Company 2			-				-		NA	NA		NA	N	
Company 3			-				-		NA	NA		NA	N	
Company 4			-				-		NA	NA		NA	N	
Company 5			-				-		NA	NA		NA	N	
Company 6			-				-		NA	NA		NA	N	
Company 7			-				-		NA	NA		NA	N	
Company 8			-				-		NA	NA		NA	N	
Company 9			-				-		NA	NA		NA	N	
Company 10			-				-		NA	NA		NA	N	
Mean														
Median														

All else being constant, **remember that your financial model should reflect a company's past and estimated future based on your analysis and assumptions. The framework for a model is standard,** but it can be **tweaked and tailor-made according to your requirements.** A model made for credit analysis and one made for equity research will have different components and characteristics.

You will see different models for different purposes and different models for same purpose but in different companies. Before we get started with analyzing companies and modelling them, let's get ourselves aware of who uses these financial models and what purpose they serve.

1.2 Who uses Financial Modelling?

Explainer Video

Banks and Other Lenders

Project Finance, Credit Appraisal, Due Diligence

Private Equity/ Venture Capital

Investment Decisions, Performance Tracking, Valuations

Listed Equity Investors

Investment Decisions, Valuations, Investor Relations

Credit Rating

Credit Rating, Credit Outlook, Short Term and Long term outlook

Entrepreneurs

Fundraise, Operations, Performance Tracking, Valuations

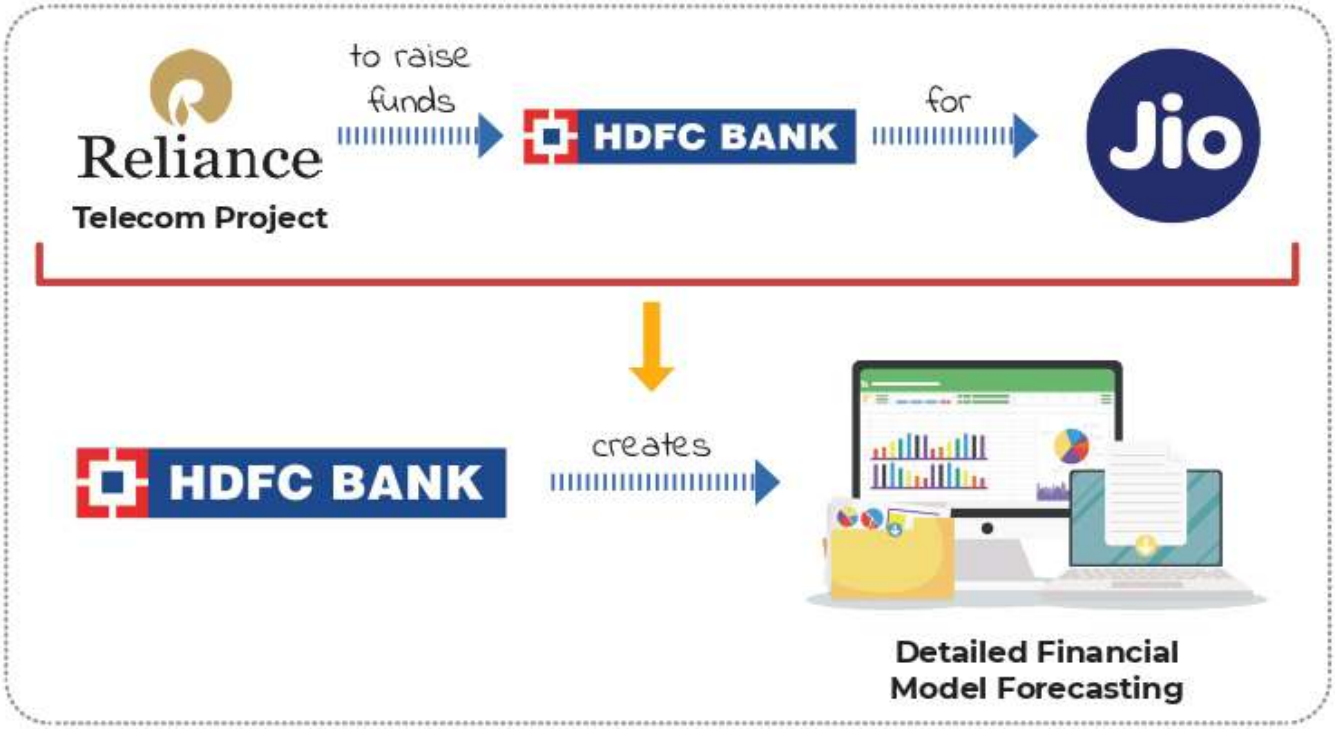
Business Owners

Fundraise, Operations, Performance Tracking, Valuations

Banks and Other Lenders

Project Finance

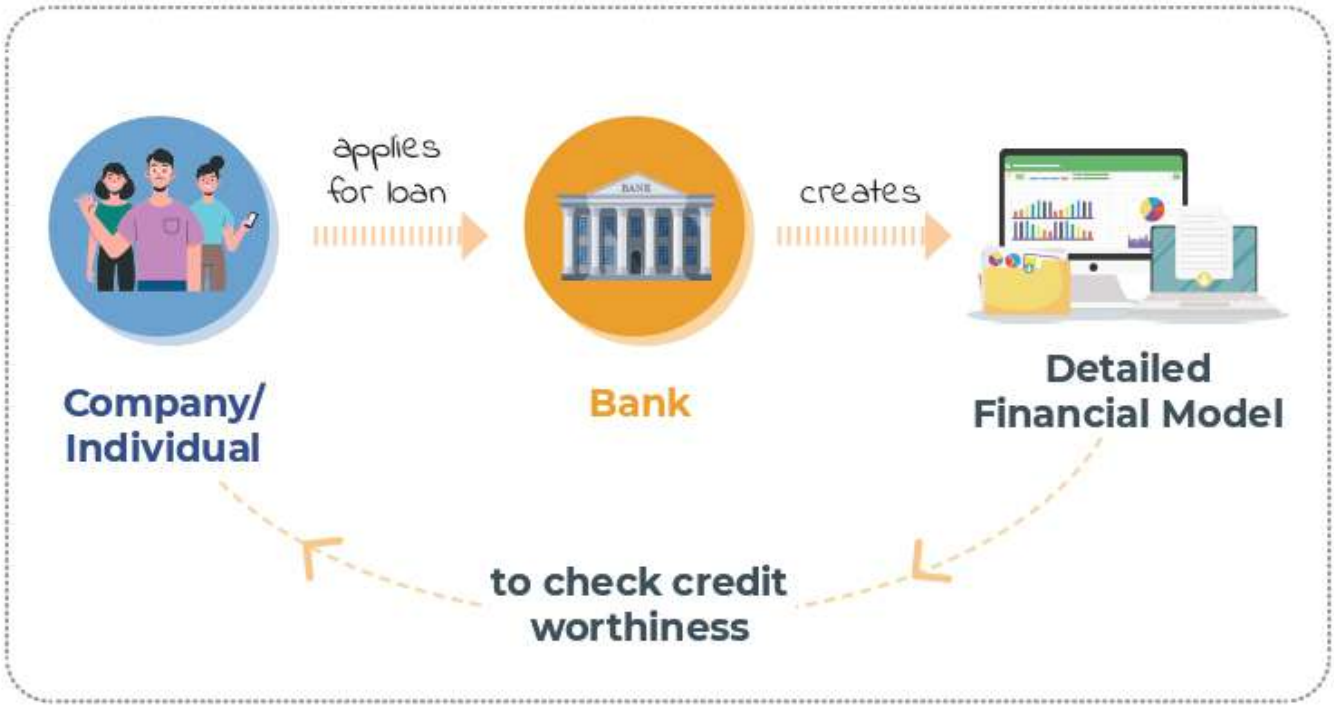
Banks use financial models for a variety of reasons. One such important reason is lending. A financial model is **created to decide how much credit should be given to an entity and what should be the ideal interest rate.** They create different financial models for different sets of projects. They also create multiple models for different scenarios. For example,



They would estimate revenues, costs, and other details of the company based on the management's commentary and proposed plan. If HDFC Bank concludes that Reliance would be able to repay its debt on time and without difficulty, it would go ahead and lend money to Reliance at an interest rate that justifies the risk that the bank is taking.

Credit Appraisal

A model can also be made for credit appraisal, which is the process of determining the economic viability and creditworthiness of a borrower. Such a borrower can be a small business or even an individual. Such a model can be made through the data available in the loan application.



Creation of Banking Products

The creation of Banking Products is not an easy task.

One needs to closely observe various sets of people, different factors at play, risks that may arise and run multiple scenario analysis to develop a good banking product that is profitable as well as not too risky for the bank.

This can only be **done with a very detailed and future forecasting**, which is essentially done with the help of financial modelling.

Due Diligence

Due Diligence technically means verification. Businesses at times have to submit their financials or key numbers for purpose of credit evaluation or even to raise external funds. So, these have to be checked or verified by banks or investors. This can be done by the bank themselves or third parties. To conduct such due diligence as well financial models are created. Similarly, a lot of banking products warrant the use of a financial model to check its viability.

For instance: When a company wants a loan, for say **Rs 5 crores, the bank employs a third party or sometimes an internal team member to perform a background verification of the borrower.**

The bank will appoint a third party or an internal team member to perform background verification.

Submit all the required documents along with the application.

Application for a loan to any bank or lending institutions.

The due diligence team will utilise a financial model to conduct their verification process.

A due diligence report is issued.

The loan amount will be sanctioned with the tenure, and the interest rate based on the due diligence report.

The bank **enquires and checks the accuracy of the information provided by the company or an individual** such as Past Sales figures, Profits, and other performance indicators. They ensure that the bank is not misled to lend money based on wrong data.

Private Equity/ Venture Capital

Another place where financial modelling is crucial is the private equity world.

invest in

Private Equity/ Venture Captial

Start Up/ Early Stage Companies

creates

Financial Model

- **Investment Decisions**
- **Track Performance**
- **Company Valuation**

It involves forecasting revenues, profits, economic climate, valuations, and other such necessary information that will help make an investment decision. Needless to say, financial modelling is a must-have skill if you're thinking of getting into the private equity space.

Listed Equity Investors

Probably the most widely used area of financial modelling is equity research. Financial modelling serves the same purpose for listed Equity investors as it did for private equity investors, except the fact that these people invest in listed stocks/equities.

Buy & Sell Side Analyst

to keep track of

NSE

BSE EXPERIENCE THE NEW

Listed Equity/Stocks

creates

Financial Model

The model concludes whether a share is currently overvalued or undervalued, based on which an investment decision can be taken.

- Here, publicly available information from the past and present is used to forecast a company's future.
- Different valuation methods are used to arrive at a valuation for a share of the company.

For example,

TATA ELXSI

₹ 1,000 < ₹ 1112

value of the share according to the financial model

value of the share at current market price

Hence, we conclude that the share is overvalued and it might not be wise to buy it.

Credit Rating Agencies

Credit rating agencies such as **CRISIL & ICRA, assign ratings to companies based on their credit worthiness.** For instance, if Reliance is issuing debt in the open market, CRISIL would rate reliance on their likeliness to repay their debt.

A credit rating agency assigns a credit rating, based on a debtor's ability to pay back debt determind by making timely principal and interest payments, and its likelihood of default. Similar to a bank's objective, such an agency prepares financial models to determine a company's credit worthiness and financial viability. Models here also involve scenario analysis, where the recovery of principal and interest is estimated based on a variety of scenarios. Based on such analysis, a rating is given to the company.

CRISIL conducts the entire analysis and would give ratings like AAA, AAA+ or AA, BBB, etc.

Company X

- ▲ High CRISIL Rating
- ▼ Low Interest

Company Y

- ▼ Low CRISIL Rating
- ▲ High Interest

A **higher rating from CRISIL** would mean that the companies get loans at **a lower interest from any financial institution.** Similarly, a company that is **likely to default would receive a lower rating and would need to pay a higher rate of interest** for any line of credit.

They also use financial modelling to determine how a company is likely to perform in the short term and long term, given its past operations and economic environment. Such short-term and long-term outlook helps a rating agency arrive at a rating that reflects the true creditworthiness of a company.

Entrepreneurs & Business Owners

Company A

Financial Model

Fundraising

Operations

Performance Tracking

Valuations

Fundraising
- An investor evaluates the business before taking any decision. They often ask for models and projections that reflect the entrepreneur's plan moving forward.

Operations
- Business owners often prepare models and plans for conducting operations and assigning budgets for different activities. They are used as a guiding light when taking decisions. They can also have targets that help track the progress of the business.

Tracking Performance
- Entrepreneurs can compare target values of a model like forecasted sales, profit margins, and other operating metrics to actual results to evaluate business performance. Such a model can help track the performance of the company and whether it is on track or not.

Valutions
- Entrepreneurs themselves can value their business using financial modelling methods to arrive at a fair valuation for their business. This helps them define valuations to investors while seeking external capital.

So, these are the different ways how Financial Modelling can be used in different places.

Lets have a look at a sample Financial Model, one we will learn to use going forward.

Scan to download
Financial Model Template

Scan to download
Britannia's Financial Model

Our Approach

We just named a few profiles where financial modelling is useful.

Although we will be learning modelling from a valuation perspective, the process is more or less similar for other roles having different agendas. It is a critical toolkit to have for any finance professional.

Basics of

Financial Model.

2

Introduction

Now that you know what a financial model is and why it is important, let's understand the basics of building one. But before that, we have to get into the right mindset to build an accurate financial model.

We shall go through the key points that should be kept in mind while making a financial model. We shall also look at the different types of mistakes beginners make. This is what we shall be focusing on in this chapter. Based on the above, we shall understand in a detailed manner the right mindset while preparing a financial model.

2.1 Building the right mindset for Financial Modelling.

Explainer Video

Building models appears to be a technical process. You may think that it requires a lot of calculations and many people may advise you that the more formulas you use, the better.

A good financial model is rarely about formulas. It should instead, be an accurate representation of what you think a company looks like inside out.

Building the right mindset means realizing one fundamental thing - There is a business behind that model and its not built out of thin air.

While it's easy to get engrossed in predicting future numbers, it is important to not lose sight of the real picture, i.e., the real business.

It makes sense to understand the drivers of those numbers rather than make believe the numbers or simply from the past numbers.

Real Business

If we take a look at the Balance Sheet, we can see that a lot of numbers and line items are reported. When looking and working with these numbers and financial statements for sometime, we often miss the bigger picture that there is a real business behind it. This particularly common when starting out.

We have to remember that the numbers are not materialised but there are real people who run these real businesses which the numbers represent.

This mistake is a very common one and must be avoided.

For example, take a model where a retail business is making gross margins of 36% consistently.

Usually, this margin exists if the company is manufacturing the product in-house.

	Ratios	FY2019 A	FY2020 A	F
10	EBIT Growth (%)		38.5%	
11	Pre-Tax Growth (%)		36.8%	
12	Adjusted PAT Growth (%)		40.1%	
13				
14	**MARGINS**			
15	Gross Profit Margin (%)	36.4%	38.3%	
16	EBITDA Margin (%)	14.1%	16.1%	
17	EBIT Margin (%)	10.1%	11.3%	
18	Pre-Tax Margin (%)	8.3%	9.2%	
19	Adjusted PAT Margin (%)	6.6%	7.5%	
20	Effective Tax Rate (%)	24.1%	22.2%	
21				

A said brand having a loyal customer base can truly churn high gross margins. And forecasting high margins around that number makes sense as the real business behind it, supports the numbers.

But imagine forecasting such margins for a trading company. Such a company makes lower margins as it doesn't make products in-house.

Trading companies do not make more than 5-10% margins. So it will be incorrect to forecast margins of 36% for a trading company.

	Ratios	19 A	FY2020 A	F
10	EBIT Growth (%		38.5%	
11	Pre-Tax Growth (%)		36.8%	
12	Adjusted PAT Growth (%)		40.1%	
13				
14	**MARGINS**			
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18	Pre-Tax Margin (%)	8.3%	9.2%	
19	Adjusted PAT Margin (%)	6.6%	7.5%	
20	Effective Tax Rate (%)	24.1%	22.2%	
21				

Forecasted numbers should be economically viable given the real business behind it. It should make logical sense and that is the first thing we need to keep in mind when starting out with Financial Models.

Instead of creating complex formulas it is better to understand the business and industry that we are creating the model for.

As another example, you may know that retail companies such as Trent, Amazon, and Big Bazar sell their goods purely on a cash basis and don't allow credit to customers.

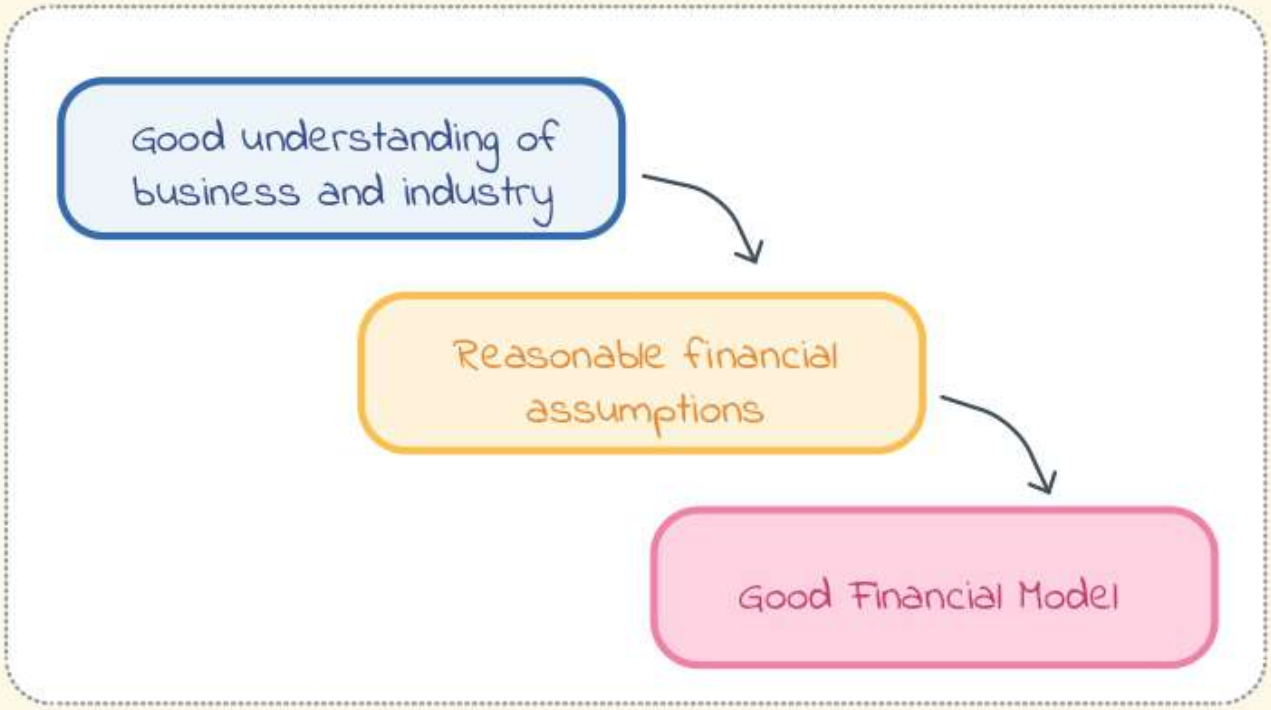
So if you see or calculate account receivables of 21 days, you must know that there's a mistake somewhere.

This is exactly why you shouldn't blindly follow model numbers, but understand the business behind it and then build your model.

22	**LIQUIDITY RATIOS**										
23	Capex/Depreciation	2.5x	1.5x	2.8x	1.9x	1.8x	1.7x	1.7x	1.5x	1.4x	1.3x	1.2x
24	Current Ratio	0.9x	1.0x	1.0x	1.0x	1.0x	1.1x	1.1x	1.1x	1.2x	1.2x	1.3x
25	Quick Ratio	0.6x	0.7x	0.7x	0.7x	0.7x	0.7x	0.7x	0.8x	0.8x	0.9x	0.9x
26	Working Capital/Revenue	18.3%	13.1%	10.7%	11.2%	10.7%	10.2%	9.8%	9.5%	9.4%	9.2%	9.1%
27	Receivable Days	21	17	17	18	18	18	18	18	18	18	18
28	Inventory Days	64	69	67	67	67	67	67	67	67	67	67
29	Payable Days	137	146	131	138	138	138	138	138	138	138	138
30	**Cash Operating Cycle (Days)**	**(51)**	**(60)**	**(47)**	**(53)**	**(53)**	**(53)**	**(53)**	**(53)**	**(53)**	**(53)**	**(53)**
31												

The aim is to understand the economic reason behind the numbers

The numbers and figures represents a real-life business and should make business and economic sense. Closer the numbers are to reality, better will be our financial model.

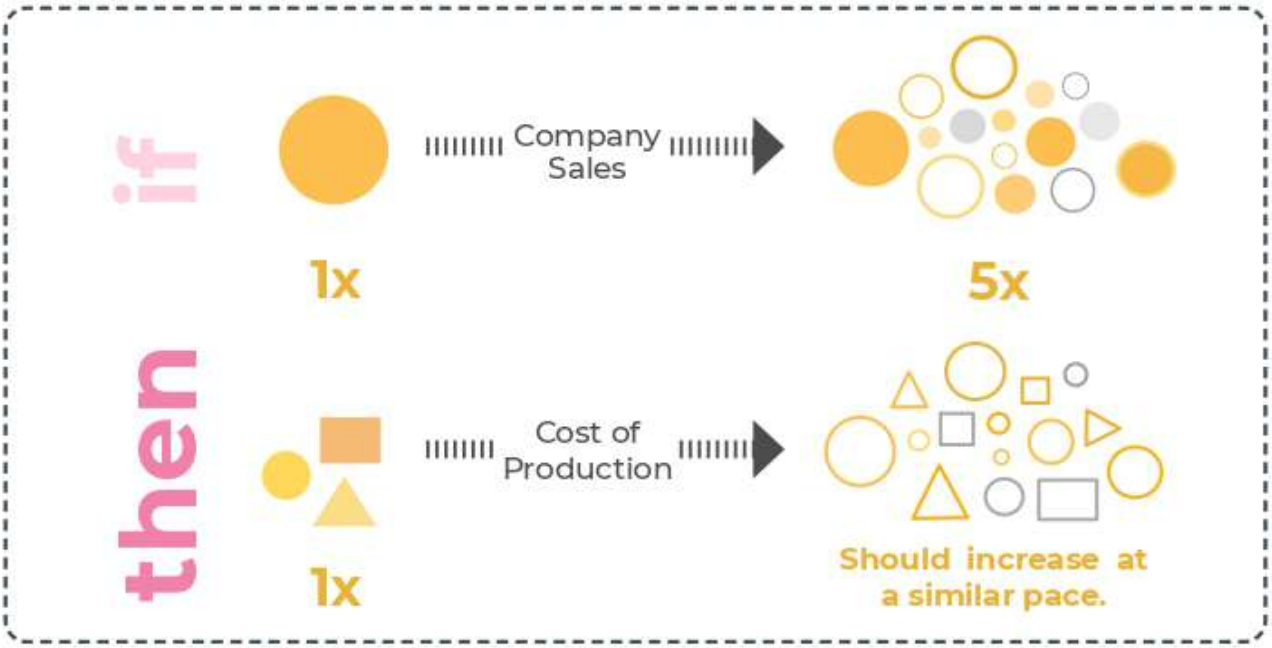


	DMart	Meta
Revenue depends on	No. of stores	Time spent per user
	Revenue per store	User Base

Do you think it would be fair to use the exact same method for both these companies in predicting their future statements? No, right?

This tells us the importance of understanding a company and its industry before getting started with the modelling process.

Now let us look at the Sales figures,



If a company's sales have increased by 5 times, then the cost of producing the goods would have changed on similar lines. Unless you have very specific reasons, for example, the company is a tech or a media company, the cost-revenue relation should hold true. So, such things need to be checked and we need to understand if its economically correct or not.

Here is a list of things you can do to ensure that you understand the business to build a financial model:

- Spend some time researching the industry. Get a grip on the basic industry situation, prices, average margins, etc.
- Understand the business model of the company.
- Compare the numbers of the company under consideration with its peers.
- Make your assumptions about the future of the business only after you understand the industry, business, and environment in which it operates.
- Always check your projected margins, asset turnovers, and other ratios with those of peer companies. If they are far below or above average, then have very clear reasons on why that difference exists.

To understand and evaluate the business, we shall spend some time studying the business. The context under which a financial model is being created needs to be kept in mind. Only then, a model will be created that is close to reality and serves its purpose.

Explainer Video

2.2 Follow principles not rules.

Before preparing a detailed financial model, one has to invest time in it to understand and the company and the industry. Basis this, they will find that different industries require different approaches to create a model and generate rules do not apply anywhere.

You will come across many rules in this reading that would help you build an ideal framework for your model. But as much as they are helpful, beware of them. They are just guidelines and are not to be treated as hard and fast rules.

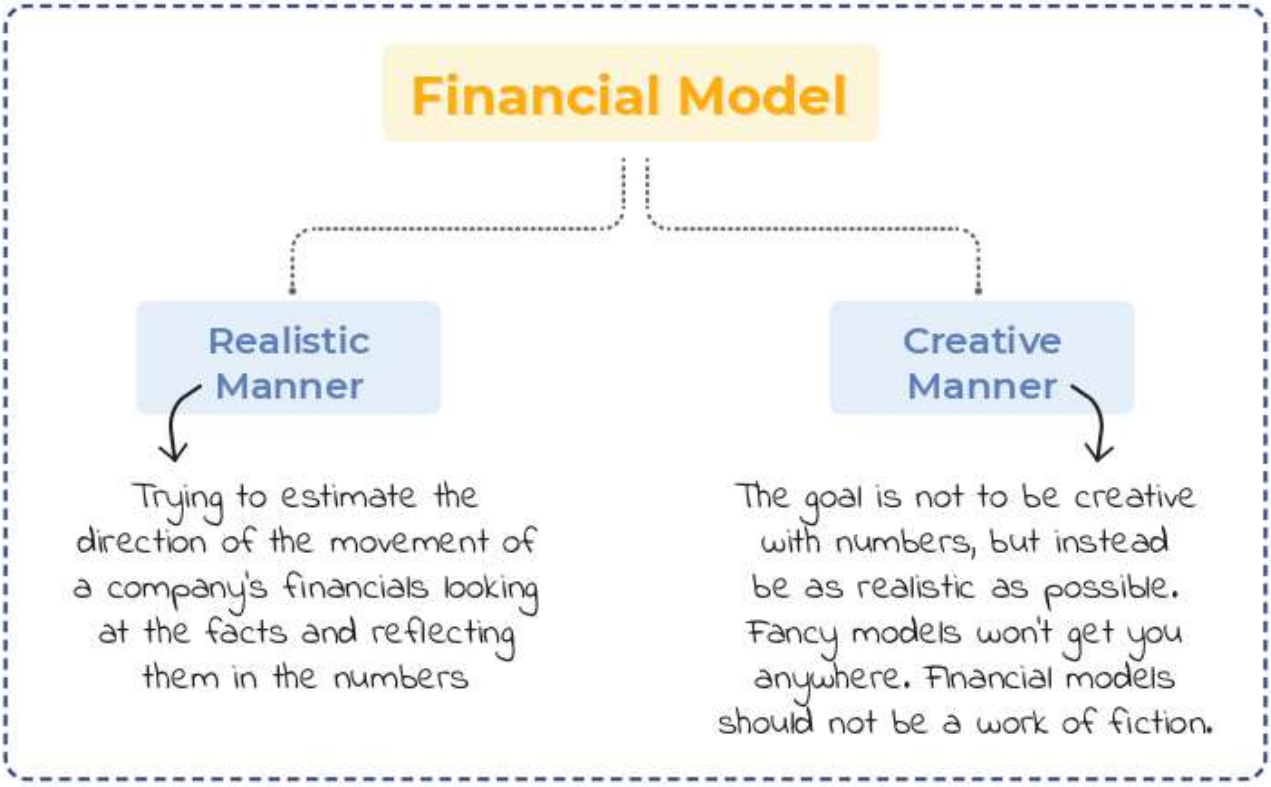
You should take the liberty of deviating from such rules to create a model that suits the industry and company. Fundamentally, the logic should be correct, the method can be adapted accordingly.

Rules have to be used in the right context.

Research and preliminary analysis of an enterprise will help you choose which rules are relevant. Some of how you can analyze the business are:

- Analyzing the company's profitability, efficiency, liquidity, solvency and performance using appropriate ratios.
- Understanding the competitive forces of the industry the company operates in.
- Talking to customers, suppliers, investors, creditors and other stakeholders of the company.
- Understand the macroeconomic factors that govern its performance.

We will go through these in detail in a further chapter.



A realistic representation of the ground reality is more important than a fictional and creative depiction. Although the latter may look better it can lead to poor-long term decisions. **So, we should not follow any HARD and FAST RULES.** There is no correct way when creating a financial model. Instead know the rules and make changes to it so that it represents the reality as closely as possible.

"Don't be exactly wrong, but roughly correct."

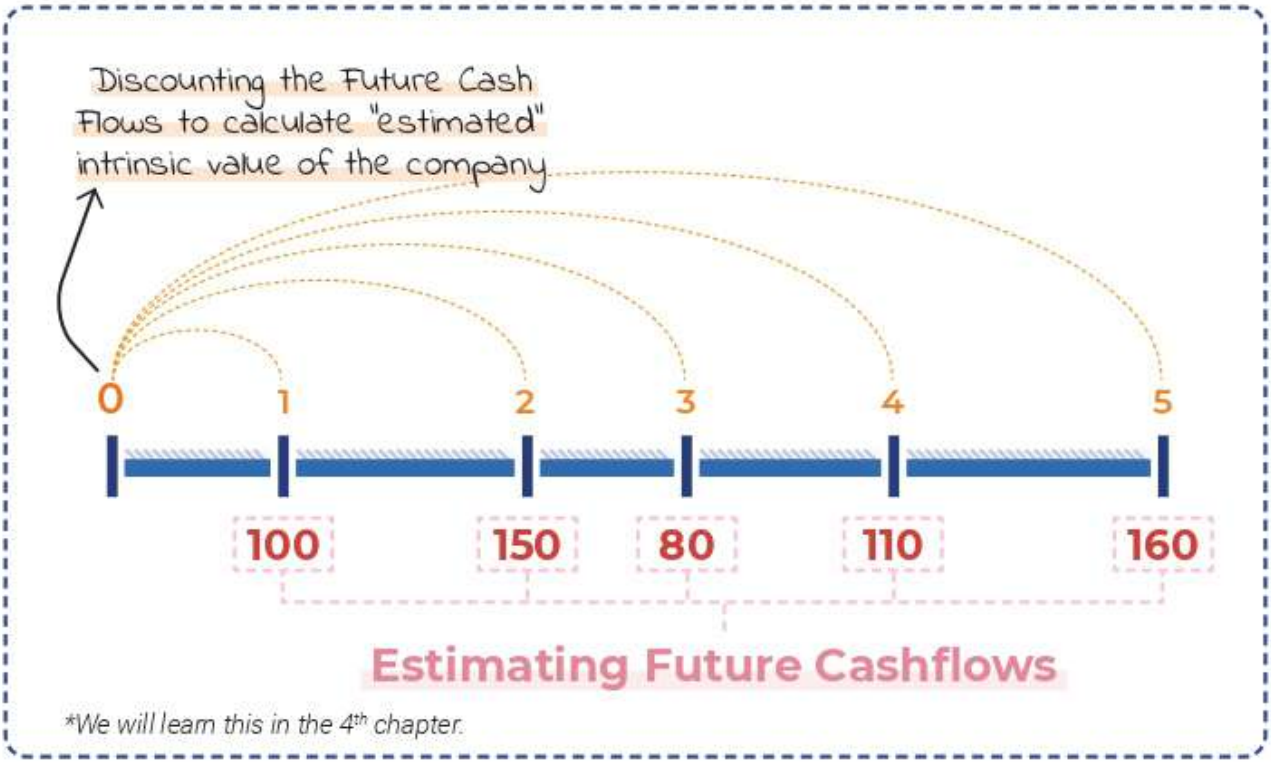
- Anonymous

Using the rules as a guide to understand the rationale of concepts will serve you better. But take the liberty to make changes to it, for it to depict the reality as closely as possible.

2.3 Be Realistic. Neither conservative nor aggressive.

Explainer Video

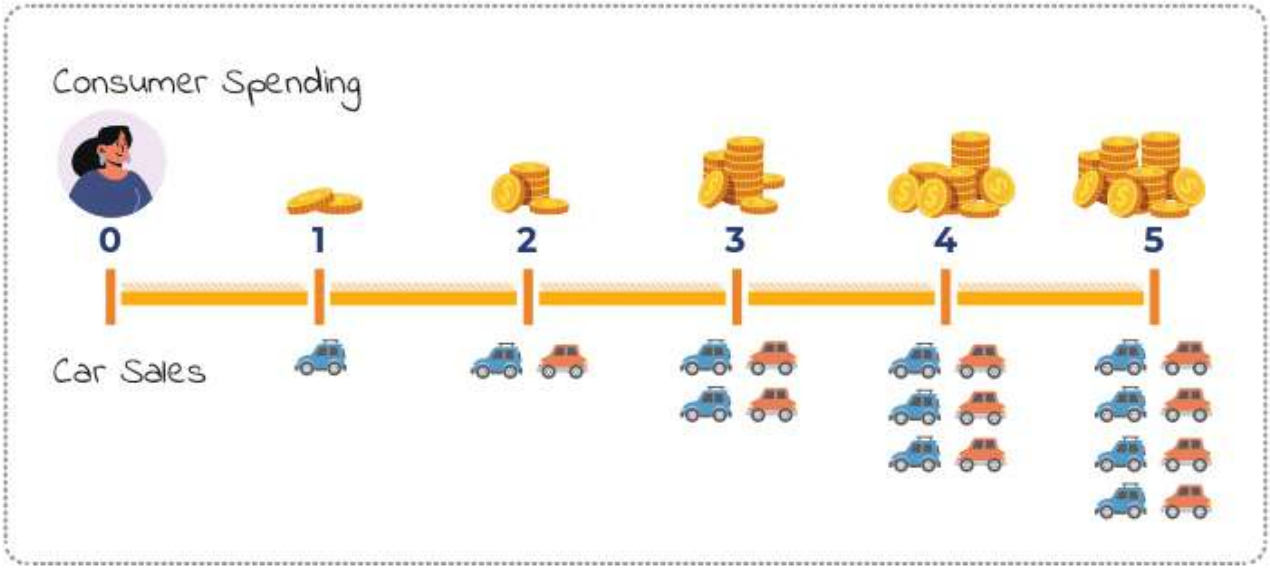
Building financial models is all about



*We will learn this in the 4th chapter.

You don't know what will happen in the future with certainty, so you make some assumptions.

For example, if you assume that consumer spending on cars is going to improve in the upcoming years, you will project growing revenues for a car company. But if your assumptions don't turn out to be true, that is if you find out that consumer spending is not growing in line with what you had anticipated, your projected numbers turn out to be grossly wrong.



The assumptions of a financial model is where most of the expertise lies and it goes without saying that experienced analysts, in general, have more accurate assumptions.

A lot of times analysts are tempted to have a predetermined value that they feel is fair. And then they end up reverse-engineering the assumptions of the model. At other times, they are too, aggressive or too conservative with their assumptions.

Aggressive Approach

Company A

its Book value

Assets
₹ 8,00,00,000
−
₹ 3,00,00,000
Liabilities

₹ 5,00,00,000

Assumes -
- The company's sales and profits will increase rapidly.
- The company will repay liabilities.
- The company has a long high growth period ahead.

Analyst 1

Makes high growth assumptions to suit his requirements.

Assets
₹12,00,00,000
−
₹ 2,00,00,000
Liabilities

₹10,00,00,000

This model truly does not reflect the assumptions of analysts. It is influenced and too aggressive.

If you have an overly optimistic opinion about the company you are modelling, you would tend to have assumptions that increase the company's projected value, like above average growth in its revenues and fewer liabilities. This is known as being aggressive.

On the other hand, if you have an unfavorable or questionable opinion about the company, you would tend to build assumptions that decrease the company's projected value. This may be reflected in the model as having below average growth in its revenues and increase in liabilities overtime. This is known as having a conservative approach. A conservative approach can be noticed in the following example:

Company A

its Book value

Assets
₹ 8,00,00,000
−
₹ 3,00,00,000
Liabilities

₹ 5,00,00,000

Assumes -
- Company's sales and profits will grow at a slow pace.
- The company will take on additional liability.

Analyst 1

Makes low growth assumptions due to caution.

Assets
₹10,00,00,000
−
₹ 4,00,00,000
Liabilities

₹ 6,00,00,000

Estimating a value which is lower than the actual expected number, just like this one, is known to follow a conservative approach.

Estimating future value of a company

Analysts often get too aggressive in assumptions when they are biased towards the company or have a pre-determined value that they want to reverse engineer. On the other end, they might get too conservative for the sake of caution. Neither of them is the right approach. A financial model should be as close to our realistic assumptions as possible. Neither aggressive due to our bias, nor conservatice due to our caution, but realistic.

A good model is one that does not reflect your first opinion, but one that reflects reality as accurately as possible.

Realistic/Balanced assumptions

Aggressive Assumptions

Conservative Assumptions

The more information you have, the more realistic your assumptions are.

2.4 You will never know everything.

Explainer Video

Research is like a rabbit hole. You will never be able to find out each and everything about a company. At times, due to lack of data & other times, just due to lack of time.

There is always some information asymmetry between the managers and stakeholders.

The earlier you accept this, the better.

- But there is some good news here. You can access all the publicly available information, which is exactly the same information others have access to as well. So it's a level playing field.
- Your job as an analyst is to make the best decision with whatever information you can avail. It is here that your thought process and analytical skills are put to the test.

All the below points have to be kept in mind as well while developing a Financial Model:

- Finance is all about making the best possible decisions with whatever information is available.
- Dynamic Process - Keep making changes as and when new information is available.
- For Financial Model as well, only limited information will be available.
- You will often be incorrect. Be okay with that. Direction is more important. Be roughly correct and then keep on making changes as facts become more clean.

Tip

Talking to the management/employees of a company can reveal a lot of information outside its financial statements.

For example you are modelling a fast growing cab service company like OLA Cabs.

Assuming that you are in the pre Covid era, there was no chance you could have predicted a pandemic like Covid where transport ceased to exist for a long time. You would have predicted growing business for it in the subsequent years, only to be proved wrong later. You can see the difference in the following timelines:

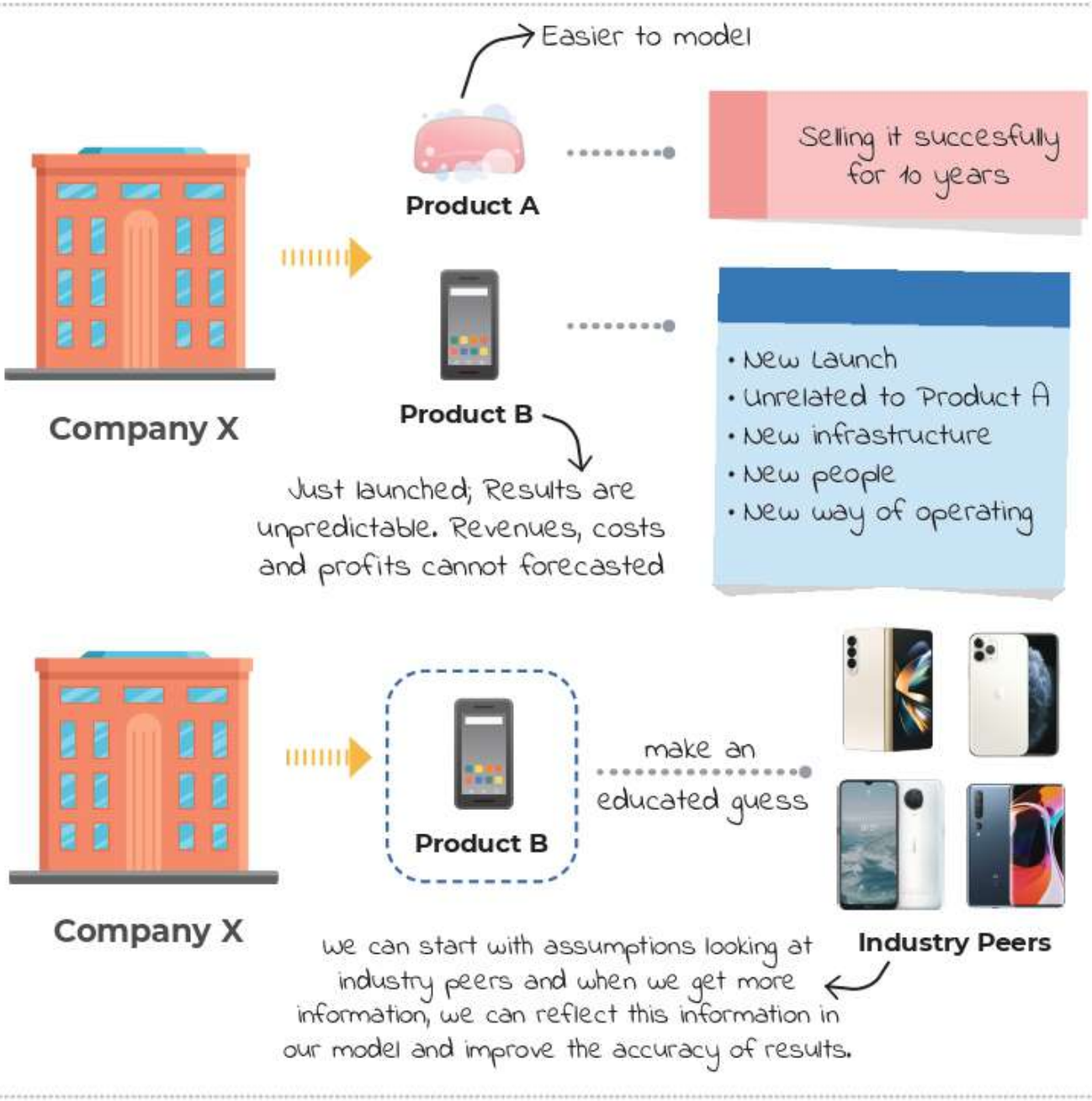
Modeled Revenues for Ola Cabs before Pandemic
(in billion ₹)

2018	2019	2020	2021
18.48	**25.44**	**32.5**	**40.5**

Modeled Revenues for Ola Cabs after the news of COVID 19
(in billion ₹)

2018	2019	2020	2021
18.48	**25.44**	**8.4**	**12**

Your aim when preparong models must be to reflect all publicly available information you can lay your hands on. Remember that financial modelling is a dynamic process, and you can tweak your assumptions to reflect the information you have as of today that you keep on receiving after creating the first model..



In the end, understand that you are human, and regardless of how much you try, predicting the future with certainty is impossible. Even the best in the business go wrong with their estimates. Your aim is to estimate the direction correctly at least (growth or degrowth).

Knowledge Box

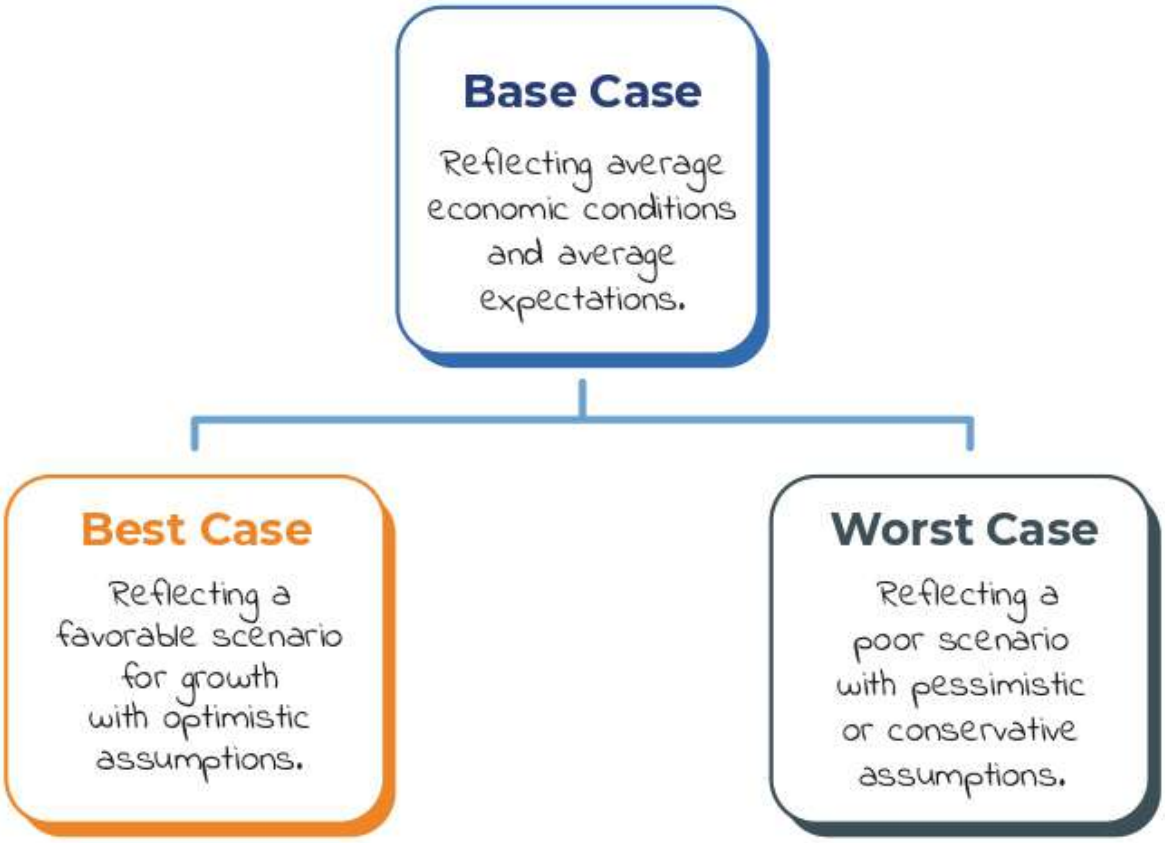
Information asymmetry occurs when substantial information about a company is known by its managers but not its stakeholders (creditors, investors).

2.5 Scenario Analysis

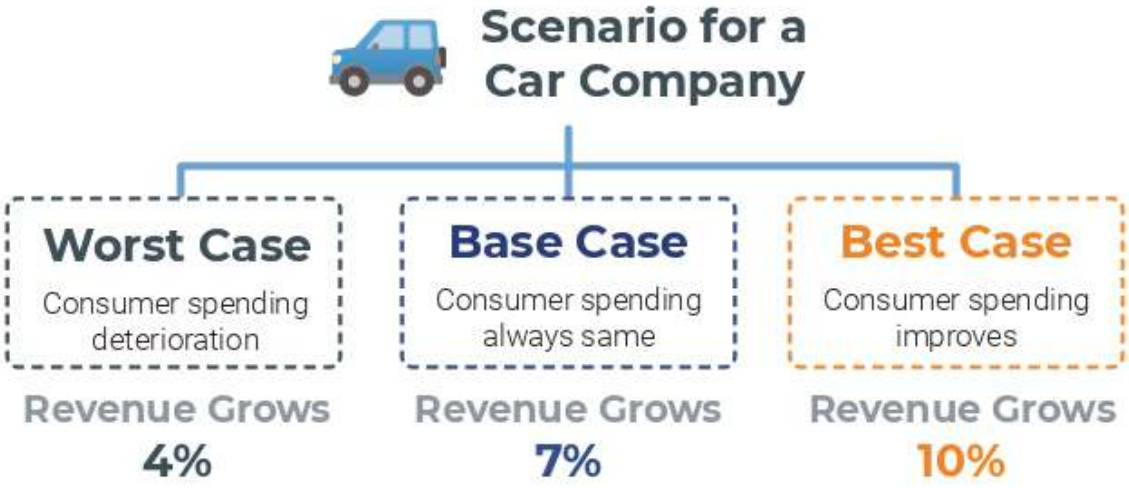
Explainer Video

Forecasting numbers perfectly is impossible, but estimating a range is quite achievable. There is one practice that helps you do just that...**Enter scenario analysis.** Scenario analysis, as the name suggests, means establishing different possible scenarios for the future of a company and forecasting outcomes for each. One can also estimate the probability of each scenario.

Standard scenarios most analysts work with are:



For example,



An even broader approach would be to estimate ranges instead of exact numbers.

The advantages of scenario analysis can be best explained with an example. Suppose you are analyzing a pharmaceutical enterprise. You notice that there is heavy expenditure being undertaken on research and development.

This means that there may be a new drug being developed. But you aren't so sure of whether it would be a success.

Here is where scenario analysis comes to the rescue. You can build the following scenarios:

You can see how different scenarios can impact the drug company's profits in different ways?

Work with ranges

- **Working with a range can be very important in certain situations!**
- **A range acts as a safety net and helps in reducing errors because if the actual figures are not 100% accurate, they might fall in this range.** However, we must understand the different scenarios while working with a range and allow for different outcomes.
- Range allows for uncertainity within the model itself.

It always a Dynamic Exercise

Creating a financial model is a dynamic exercise. We start with limited information and as time passes and more information appears, the models need to be improved based on the assumptions.

Now that we have understood certain things that we need to keep in mind while creating a model, lets move to the next chapter and start with the basics of financial models and the terms related to it.

Notes

Concepts of

Financial Modeling

3

Introduction

With a basic mindset in place, let's get ourselves equipped with concepts and terms that are required for financial modelling.

Some essential terms to get you started

There are some terms that will help you understand financial models well. Actually, these terms are what models are made up of in the first place. Being aware of them and their meaning will help you in understanding the financial information of a business rather easily. Needless to say, most analysts use these terms on a day to day basis.

We will learn about

- Financial Statements and its types
- Time Value of Money
- Free Cash Flow
- Weighted Average Cost of Capital
- Cost of Equity
- Discounted Cash Flow
- Types of Valuation Methods - Relative Valuation and Absolute Valuation

If you are familiar with any topic, you can safely skip it.

3.1 Financial Statements

Explainer Video

To learn about a company in and out (and of course to model it), the first thing you must analyse is its financial statements. In the literal sense, financial statements are written records that convey the operations and financial transactions of a business. They aim to show the financial performance of a company during a given period. This information includes everything from how much did the company sell, how much cost did it incur, size of loans it has taken/given and even describes the assets that it holds.

Income Statement

List of all the sales and expenses incurred by the company during the year resulting in net profit or loss.

Balance Sheet

List of all that the company owns [assets] and owes [liabilities] at a given point of time.

Cash Inflows

List of Cash Inflows and Outflows from the company during the year.

There are 2 types of financial statements - standalone and consolidated. If a company has multiple businesses under it (called subsidiaries), then the standalone statements reveal the performance of the parent company. To know how all the subsidiaries and the parent company have performed, one can look at its consolidated statements. It reports its performance as a consolidated, single entity. We will always use consolidated financial statements for our analysis unless specifically mentioned to use standalone.

You can find financial statements of listed companies on multiple websites, but here are a list of the most reliable ones (for Indian listed companies):

Screenr
(https://www.screener.in/)

NSE Website
(https://www.nseindia.com/)

BSE Website
(https://www.bseindia.com/)

Financial statements for unlisted and private companies can be found at the Ministry of Corporate Affairs website by paying a nominal fee:

Ministry of Corporate Affairs Website
https://www.mca.gov.in/content/mca/global/en/home.html

Make sure to get financial data directly from Annual Reports (usually in a pdf format), directly obtaining them from the company website, NSE, BSE or screener.in.

Income Statement

Let us look at **the income statement of a listed company as seen in their Annual Reports.** We can find the total income for the current year and the previous year. We can also read the notes along with the given income sheet available to us in the annual report.

HIRA
GODAWARI POWER & ISPAT

Corporate Overview | Statutory Reports | Financial Statements

Consolidated Statement of Profit & Loss for the year ended 31st March, 2021

(₹ in Lacs)

	Notes	2020-21	2019-20
INCOME			
Revenue from operations	21	4,07,191.94	3,28,852.59
Other Income	22	403.74	465.45
TOTAL REVENUE (I)		**4,07,595.58**	**3,29,318.04**
EXPENSES			
Cost of materials consumed	23	1,79,985.98	1,68,149.22
Purchases of Stock-in-Trade		7,467.32	8,807.66
Changes in Inventories of Work in Progress, Stock in Trade and Finished Goods	24	(2,682.62)	4,491.14
Employees benefits expense	25	14,280.24	13,041.76
Finance costs	26	16,394.17	21,193.41
Depreciation and amortization expense	27	13,845.13	13,689.81
Other Expenses	28	95,261.37	71,937.56
TOTAL EXPENSES (II)		**3,13,541.59**	**3,01,310.57**
Profit/(loss) before share of associates & joint ventures, exceptional items and tax		94,053.99	28,007.48
Add: Share of profit/(loss) of associates and Joint Ventures, net of tax		3,002.66	280.69
Profit/(loss) before exceptional items and tax		97,056.66	28,288.16
Exceptional items (refer note - 31)		-	1,028.49
Profit/(loss) before tax		97,056.66	27,259.67
Tax expenses			
Current tax		17,578.64	4,952.25
Deferred Tax		14,026.73	4,583.77
Total tax expenses		**31,605.37**	**9,536.02**
Profit/(loss) for the year		**65,451.28**	**17,723.65**
Other Comprehensive Income			
A (i) Items that will not be reclassified to profit or loss			
Remeasurements gains/(losses) on defined benefit plans		4.96	(169.29)
Share of other comprehensive income in associates and Joint Ventures			
to the extent not to be classified into profit or loss		16.05	(1.27)
Income tax relating to items that will not be reclassified to profit or loss		(34.09)	57.35
		(11.08)	**(113.20)**
Fair value of financial assets		(16.93)	(358.14)
Share of other comprehensive income in associates and Joint Ventures			
to the extent to be classified into profit or loss		3,593.72	(767.05)
Income tax relating to items that will be reclassified to profit or loss		(96.22)	125.52
		3,480.57	**(999.68)**
Total Comprehensive Income for the period Comprising Profit/(Loss) and Other Comprehensive Income for the period)		**68,920.78**	**16,610.77**
Profit/(loss) attributable to:			
Equity holders of the parents		63,838.75	16,677.51
Non-controlling interests		1,612.54	1,046.14
		65,451.28	**17,723.65**
Other Comprehensive Income attributable to:			
Equity holders of the parents		3,485.06	(1,077.33)
Non-controlling interests		(15.57)	(35.55)
		3,469.50	**(1,112.88)**
Total Comprehensive Income attributable to:			
Equity holders of the parents		67,323.81	15,600.18
Non-controlling interests		1,596.97	1,010.60
		68,920.78	**16,610.77**
Earnings per equity share [nominal value of share @ ₹10/- (31st March, 2020: ₹10)	29		
Basic		181.17	47.33
Diluted		181.17	47.33
Summary of significant accounting policies	2		

For example, lets take a look at a detailed note to accounts -

Note 21

Consolidated Notes to financial statements for the year ended 31st March, 2021

21. Revenue from operations

(₹ in Lacs)

	2020-21	2019-20
Revenue from operations		
Sale of products		
Manufacturing Goods and By-Products	3,88,307.17	3,05,509.65
Electricity	11,427.74	9,934.70
Traded Goods	5,424.76	9,199.05
Others	1,715.77	1,715.45
Other operating revenue		
Scrap & Other sales	316.39	2,499.73
Revenue from operations	4,07,191.84	3,28,852.59

From Note 21, we see **a complete breakdown of the revenue which will explain everything in detail.**
The revenue has been completely broken down into different segments.

The income statement of a company, also known as the profit and loss statement, shows the different revenue streams, expenditures and profits/losses of the business over a specified period of time. It is one of the most important statements for analysts and stakeholders. Let's look at some major line items:

Revenues or Sales

Also known as 'top line', revenues of a company represent the total goods and services sold by the business during the year. If a company sells 500 units of goods worth ₹ 1000 each, its total sales for the year is ₹ 5,00,000 (₹1000*500).

Cost of Goods Sold

This line item refers to the direct cost of producing the goods. If a company buys an article for ₹ 600 and sells it for ₹ 1000, it's cost is ₹ 600. Costs can change over time depending on nature and scale of the business.

Gross Profit

The direct profit made by the company after incurring costs of making/ buying the goods is called the gross profit. Essentially, Gross Profit = Revenues - Cost of Goods Sold. In our example, gross profit is ₹ 2,00,000 (5,00,000 - 3,00,000).

Selling, General and Administrative Expenses

These are everyday expenses incurred to run the business smoothly. It can include office expenses, rent, etc.

Earnings before interest, taxes, depreciation and amortization

Also known as EBITDA, this line item represents what is left with the company after all its operating expenses have been taken care of. Interest on loans taken and depreciation charged on assets are not taken into consideration. Assuming that selling, general and administrative expenses are ₹ 90,000; EBITDA equals ₹1,10,000 (2,00,000 - 90,000).

Interest

Interest expense is the interest that a company would pay on the loans it has taken. Only the interest part (not the principal) is recorded here. If a the company has taken a loan of ₹ 10,00,000 at a 3% interest rate, it would pay an interest expense of ₹ 30,000 (3% * 10,00,000). Companies not having debt on their books would not have this line item.

Depreciation

Depreciation is basically the reduction in the value of an asset over time, mostly attributable to wear and tear. It is a way in which a company can distribute the cost of an asset over its life. If a company owns assets of ₹ 11,00,000 and depreciation charge works out to be 5%, then a depreciation expense of ₹ 55,000 will be recorded on its statements.

Profit before Taxes (PBT)

A very popular line item to judge a company's profitability, profits before taxes represent the profits made by the company before counting for tax. Essentially, PBT = EBITDA - Interest - Depreciation. In our example, PBT = ₹1,10,000 - ₹30,000 - ₹55,000 = ₹25,000.

Tax

Quite intuitively, this represents the corporate taxes paid by the company to the government. Assuming a 30% effective tax rate, the tax expense for our company = ₹25,000 * 30% = ₹7,500

Profit after Tax

Also known as 'net profit' or 'bottom line', this line item tells us how much profits a company has made over a period of time, after incurring all expenses. In our example, Net Profit = PBT - Taxes = ₹24,000 - ₹7,500 = ₹16,500.

The different line items on the profit and loss statement in combination tell us how the company is conducting its business.

Balance Sheet

A detailed list of the assets, liabilities and equity forms the balance sheet of a company. It is the representation of the financial position of a company at a particular date.

Components of Balance Sheet

Assets

- **Short Term/Current Assets** (Cash, Short Term Investments, etc.)
- **Long Term Assets** (Fixed Investments, Machinery like Plant and Equipment, Land, etc.)

Liabilities

- **Short Term Liabilities** (Credit Lines and Loans from Suppliers, Credit Card debts ,Trade Payables)
- **Long Term Liabilities** (Bank Loans)
- **Shareholders' Debt and Information.**
- **Deposits in Banks and other sources.**
- **Equity from various owners and Capital contributors.**

Knowledge Box

Remember that the balance sheet always balances, that is the assets and liabilities side always equal each other. This statement reveals to us the sources of funds for the company (equity and liabilities) and its application (assets). It tells us about the company's financial strength. It is often known as the 'backbone' of a company.

Here is a snapshot of the Balance Sheet of a listed company.

HIRA
GODAWARI POWER & ISPAT

Corporate Overview | Statutory Reports | Financial Statements

GODAWARI POWER AND ISPAT LIMITED

Consolidated Balance sheet as at 31.03.2021

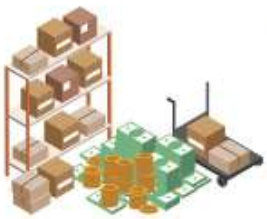
(₹ in Lacs)

Particulars	Note No	As at 31.03.2021	As at 31.03.2020
ASSETS			
Non -current assets			
(a) Property, Plant and Equipment	3	1,91,984.91	2,16,461.99
(b) Capital work-in-progress	3	14,417.42	13,745.67
(c) Other intangible assets	4	9,293.26	10,468.98
(d) Investments in associates and joint ventures	5	27,346.86	11,157.84
(e) Financial assets			
- Investments	6	401.54	1,189.87
(f) Other non-current assets	7	1,128.67	1,805.77
		2,44,572.69	**2,54,830.12**
Current-assets			
(a) Inventories	8	50,367.46	55,740.16
(b) Financial assets			
(i) Trade Receivables	9	27,523.30	17,678.11
(ii) Cash and cash equivalents	10	859.46	225.09
(iii)Bank Balances other than cash and cash equivalents mentioned above	10	5,162.03	2,670.93
(iv)Other financial assets	11	1,783.58	1,783.58
(c) Current tax assets (net)		11.85	52.51
(d) Other current assets	7	17,075.03	15,169.73
		1,02,782.73	**93,320.11**
Total Assets		**3,47,355.42**	**3,48,150.23**
EQUITY AND LIABILITIES			
Equity			
(a) Equity share capital	12A	3,411.12	3,411.12
(b) Other equity	12B	2,00,148.09	1,34,372.52
Equity attributable to owners of the Company		**2,03,559.21**	**1,37,783.65**
Non-controlling interest		7,242.19	12,471.76
Total equity		**2,10,801.41**	**1,50,255.40**
Liabilities			
Non-current liabilities			
(a) Financial Liabilities			
- Borrowings	13	77,105.52	1,46,448.53
- Other non-current financial liabilities	14	295.44	206.69
(b) Provisions	15	1,427.63	1,359.62
(c) Deferred Tax Liabilities (net)	16	16,782.00	4,482.10
		95,610.60	**1,52,496.93**
Current liabilities			
(a) Financial Liabilities			
(i) Borrowings	17	8,138.59	16,038.75
(ii) Trade Payables	18		
- total outstanding dues of micro enterprises and small enterprises"		85.10	27.62
- total outstanding dues of creditors other than micro enterprises and small enterprises		19,533.83	17,797.53
(iii)Other Financial Liabilities	19	9,166.24	10,957.18
(b) Other current liabilities	20	972.56	495.45
(c) Provisions	15	79.82	81.35
(d) Current tax liabilities (net)		2,967.28	-
		40,943.42	**45,397.89**
Total Equity and Liabilities		**3,47,355.42**	**3,48,150.23**
Summary of significant accounting policies	2		

**For educational purposes only*

We must spend sufficient time making ourselves familiar with all these terms and components. Going through multiple financial statements of different years of four to five companies can help in getting familiar with the financial statements.

Let's look at the major line items:



Current Assets

Cash and other assets that are expected to be converted to cash within 1 year or less are classified as current assets. Bank balances, accounts receivables, prepaid expenses, inventory, etc. are some examples of current assets. Current Assets are required as working capital in the business.

Non-current Assets

Non-current assets are those that are held by the company for more than one year. They can be tangible assets like buildings, factories, plant and equipment or intangible assets like goodwill and patents. Non-current assets form the Fixed Assets required for functioning of the company.

Current Liabilities

The debts and obligations of a company, essentially the amounts that are due to be paid to creditors within one year are referred to as current liabilities. They are also known as short term debts. Accounts payable is an example of current liabilities. Current liabilities also include expenses that are pending or had not been paid when they were due, like outstanding rent or outstanding salaries.

Non-current Liabilities

Non-current liabilities are financial obligations that are not to be paid within one year. This can include long term loans from banks, bonds payable, debentures, etc. Non-current liabilities shows the debt capital raised by the company to fulfil its capital requirements.

Shareholder's Equity

Equity on a balance sheet shows the amount that the owners of the company have invested in their business. Shareholder's equity can either be capital invested by shareholders or else what the company has retained through earnings. Equity is the net assets left after paying all liabilities i.e. Equity = Assets - Liabilities.

Cash Flow Statements

A Cash Flow Statement is on similar lines to an Income Statement. The only difference is that we **only consider the cash transactions in CFS.** The cash flow statement is one that deserves a lot of importance. It is a list of transactions of the business over the year on a cash basis, i.e., when cash is actually received or paid. For example, **if the goods are bought on credit, they are mentioned and accounted for in the Income Statement as sales but the sales won't reflect in the Cash Flow Statement until the payment is received in cash.**

Cash Flow Statement for the year ended 31st March, 2021

(₹ in Lacs)

		2021	2020
Cash Flow from operating activities			
Profit/(loss) before share of associates & joint ventures and tax		94,053.99	28,007.48
Non-cash adjustment to reconcile profit before tax to net cash flows			
Depreciation/amortization		13,845.13	13,689.81
Loss/(profit) on sale of property, plant & equipment		(53.96)	(132.12)
Loss/(profit) on sale of non current investment		-	(5.21)
Provision for employee benefits		249.28	171.39
Investment written off		1.00	-
Provision/Allowances for credit loss on debtors		767.32	(397.56)
Finance costs		15,394.17	21,193.41
Interest Income		(241.91)	(324.06)
Exceptional items		-	(1,028.49)
OPERATING PROFIT BEFORE WORKING CAPITAL CHANGES		**1,24,015.03**	**61,174.64**
Movements in working capital			
Increase/(decrease) in trade payables		6,556.18	(2,471.62)
Increase/(decrease) in other financial liabilities		1,708.72	112.40
Increase/(decrease) in other current liabilities		483.45	(814.08)
Increase/(decrease) in Other non-current financial liabilities		88.76	47.01
Decrease/(increase) in trade receivables		(11,763.77)	(2,378.38)
Decrease/(increase) in inventories		(5,310.95)	5,902.79
Decrease/(increase) in other financial assets		-	512.85
Decrease/(increase) in other current assets		(4,341.88)	382.98
Decrease/(increase) in other non-current assets		123.01	(297.31)
Cash generated from/(used in) operations		**1,11,558.55**	**62,151.26**
Direct taxes paid (net of refunds)		(14,680.48)	(7,068.63)
Net Cash flow from/(used in) operating activities	A	**96,878.07**	**55,082.63**
Cash flows from investing activities			
Purchase of PPE, including intangible assets and CWIP		(5,154.39)	(16,576.14)
Proceeds from sale of property, plant & equipment		1,199.10	241.34
Proceeds from sale of non-current other investments		-	15.21
Proceeds/(investment) from/in bank deposits (having original maturity of more than three months)		(2,508.79)	983.27
Interest received		241.91	324.06
Net cash flow from/(used in) investing activities	B	**(6,222.16)**	**(15,012.25)**
Cash flows from financing activities			
Redemption of debenture		-	(3,219.00)

Cash Flow Statement is a list of all cash inflow and outflow from the business.

The Cash Flow Statement has 3 parts:

Cash Flow from Operating Activities

Cash Flow from Operations, also known as CFO is a list of all cash transactions of the company, relating to day to day operations of the company - buying and selling of goods and services. CFO includes cash used or generated as profit or loss, working capital changes in the business and the direct taxes paid. CFO shows how profitable are the company's operations.

Cash Flow from Investing Activities

Changes in long term assets are recorded in this part of the cash flow statement. When a company buys or sells a long term item, or profits from the same or incurs a loss, all these are recorded here.

Cash Flow from Financing Activities

Cash Flow from financing related to all financing decisions of the company - when they rate equity, debt, or repay anything. It even includes dividends, interests and share repurchases, These items together form the Cash Flow from Financing Activities.

One thing that comes from the cash flow statement is that it presents the true picture of a business and its operations. Most of the time, more cash means a business is more robust. It shows a business ability to generate cash.

Looking at the financial statements of a company can give you an idea of their operations, but you can discover much more about it by looking through its statements over the years. Looking at its story over time, you can realize how its numbers are changing and it will also give you an indication of the direction that they will follow over the next few years.

Looking at so much data at a time may feel intimidating when starting. However, you will get more comfortable with it if you regularly read financial statements. To be precise, you will know how to skim through them and which line items to focus on with practice.

It is also advisable to read financial statements of a variety of industries since each one of them have different characteristics.

DLF

Consolidated Balance Sheet as at 31 March 2021

(₹ in lakhs)

	Notes	As at 31 March 2021	As at 31 March 2020
ASSETS			
Non-current assets			
Property, plant and equipment	4(a)	**91,875.58**	117,677.51
Right-of-use assets	56	**29,301.72**	31,922.96
Capital work-in-progress	4(b)	**9,423.80**	8,870.19
Investment properties	5	**255,446.08**	259,546.59
Goodwill	6	**94,425.34**	94,425.34
Other intangible assets	7(a)	**14,577.43**	15,114.69
Intangible assets under development	7(b)	**70.15**	-

Quick Heal
Security Simplified

CONSOLIDATED BALANCE SHEET

AS AT MARCH 31, 2022

(All amounts are in ₹ Crores, unless otherwise stated)

Particulars	Notes	As at March 31, 2022	As at March 31, 2021
ASSETS			
Non-current assets			
(a) Property, plant and equipment	5	105.94	140.47
(b) Capital work-in-progress		-	2.11
(c) Intangible assets	6	5.74	5.28
(d) Investment Property	7	25.36	-
(e) Financial assets			
(i) Investments	8	27.46	32.19

Real estate companies would have more land and related assets on their balance sheet while technology companies would hardly have any tangible fixed assets.

CONSOLIDATED INCOME STATEMENTS

Dr.Reddy's

(All amounts in Indian Rupees millions, except share and per share data)

Particulars	For the year ended 31 March 2022	For the year ended 31 March 2021	For the year ended 31 March 2020
Revenues	214,391	189,722	174,600
Cost of revenues	100,551	86,645	80,591
Gross profit	**113,840**	**103,077**	**94,009**
Selling, general and administrative expenses	62,081	54,650	50,129
Research and development expenses	17,482	16,541	15,410
Impairment of non-current assets	7,562	8,588	16,767
Other income, net	(2,761)	(982)	(4,290)
Total operating expenses	**84,364**	**78,797**	**78,016**
Results from operating activities (A)	29,476	24,280	15,993
Finance income	3,077	2,623	2,461
Finance expense	(958)	(970)	(983)
Finance income, net (B)	**2,119**	**1,653**	**1,478**
Share of profit of equity accounted investees, net of tax **(C)**	703	480	561
Profit before tax [(A)+(B)+(C)]	**32,298**	**26,413**	**18,032**
Tax expense/(benefit), net	8,730	9,175	(1,466)
Profit for the year	**23,568**	**17,238**	**19,498**

efficiency ones.

VIII. Improvement in energy usage efficiency in lighting systems by changing over to efficient lighting solutions such as Light Emitting Diodes (LEDs)

IX. Process improvements to enhance productivity and reduce specific energy consumption across Businesses.

b) Steps taken for utilising alternate sources of energy:

Some of the renewable energy initiatives undertaken during the year are as follows:

I. Commissioning of 14.9MW offsite solar photovoltaic power plant in Tamil Nadu.

II. Commissioning of additional rooftop solar photovoltaic power plants.

III. Continued use of biomass-based fuels in existing biomass boilers for thermal energy generation to reduce dependency on fossil fuels across Businesses.

In addition, the Company also commissioned a state-of-the-art and future-ready High Pressure Recovery Boiler at the Bhadrachalam mill, replacing conventional soda recovery boilers. This intervention will reduce the carbon footprint of the unit's operations through significantly lower coal consumption.

These investments have helped achieve renewable energy share of 42%.

Businesses.

b) Benefits derived:

I. Cycle time reduction and productivity enhancement

II. World-class quality and differentiated products

III. Addressing market specific end-use applications

IV. Conservation of resources and improved efficiencies

c) The expenditure incurred on Research and Development:

	For the year ended 31st March, 2022
Expenditure on R&D:	**(₹ in Lakhs)**
i) Capital	2,016.68
ii) Revenue	14,358.55
Total	**16,375.23**
Total R&D Expenditure (as a % of Gross Revenue)	0.28%

On behalf of the Board

S. PURI *Chairman & Managing Director*

R. TANDON *Director*

18th May, 2022 Kolkata, India

Pharmaceutical companies typically incur heavy research and development expenditure while that may not be the case for an FMCG business.

Now that you know about the financial statements, let us see how to find that data and how to get the same, ready for financial modelling.

Knowledge Box

You may notice a column to the left of the amount column of each of the financial statements. Rows contain a 1-2 digit number. These numbers are referring to something called the 'notes to the financial statements'. These notes provide further explanation for the line items. For example, if revenues for a company are Rs.5,00,000; then the notes would provide you the breakdown of that amount, i.e., how much of revenue has been generated from which of the activities.

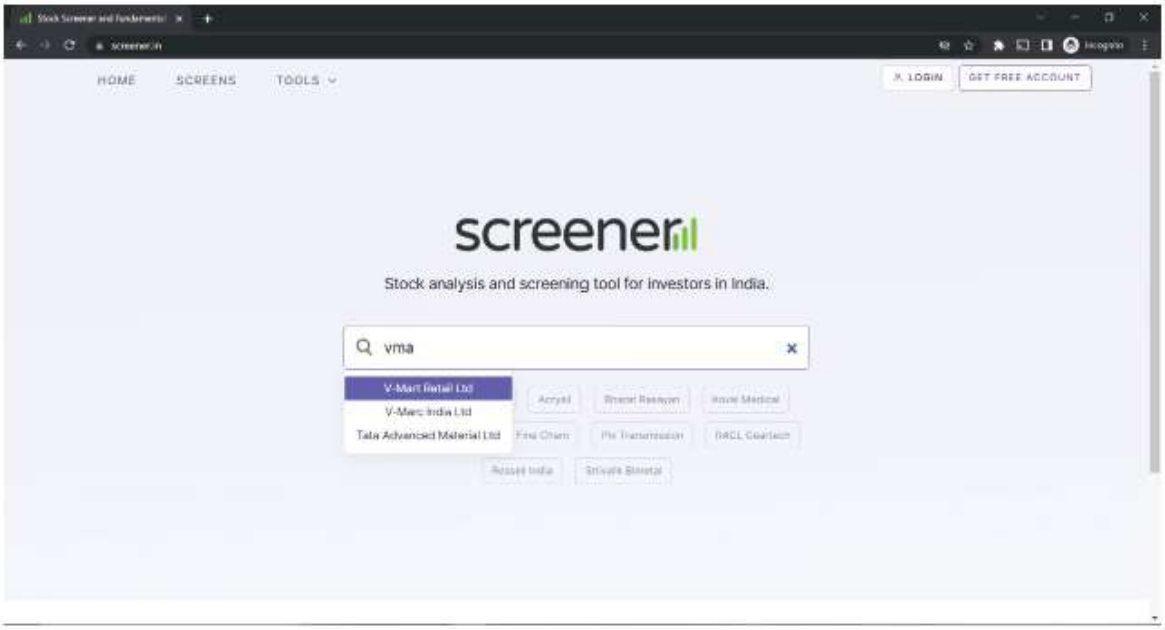
3.2 Let's deal with data better.

Explainer Video

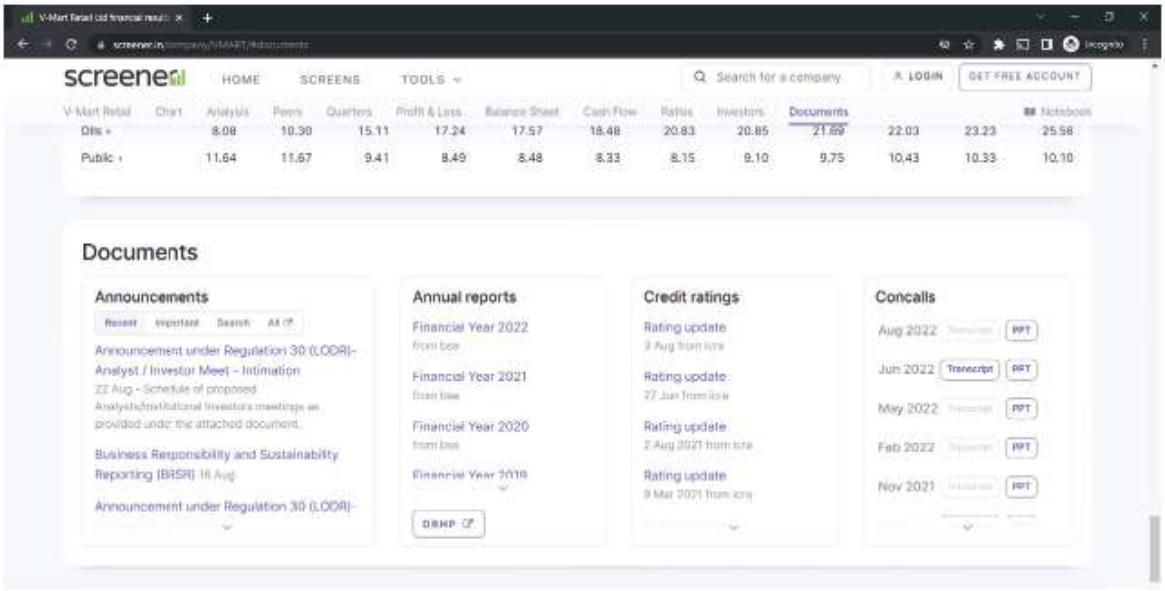
Getting the Data

It is always advisable to work with raw data, i.e., straight out of the annual report pdfs that the company has released. You can find this on the official company website or on the documents section of Screener. Here's how:

1. Search for the company on screener.com



2. Scroll to the 'Documents' section and open the latest annual report



Data from Paid Subscriptions

There are many paid tools available that provide in depth information about a company and present modified financial statements. An important benefit of these is that they can be downloaded as excel. Some of the preferable ones are:

Ace Analyser
(http://www.aceanalyser.com/)

Capitaline Databases
(https://www.capitaline.com/)

Reuters
(https://www.reuters.com/)

Despite the credibility of these databases, it is better to manually create the excels from raw data, particularly in the initial years.

Doing so has certain advantages:

- Seeing the financial numbers of the company more often builds familiarity with the financial statements of different industries.
- You will start to discover relationships between different line items and try to analyze them even before starting the process.
- You will start noticing trends over time, like whether the revenue is improving or not and whether the costs are growing in line with revenues or economies of scale are present.
- You will be able to spot one-off items. These are line items that do not appear in the regular course of business, but occasionally. It is necessary to get good at this particular skill.

Knowledge Box

Manually entering each and every line item into Excel can be a tedious job, we won't lie. But the good part is that your speed will dramatically improve after doing this 4-5 times. It will assist you in establishing your foundation as an analyst and creating models. You will develop an affinity towards the numbers.

Non-recurring items

Oftentimes we may notice that some line items appear just once in the life of a company or just a few times. Such items can be income or expenses and are not a regular part of the business, but appear occasionally. They are referred to as non-recurring items.

Fire in a Chemical Manufacturing Company

Insurance Company

Do you think you can forecast such an item for the chemical company as a in upcoming quarters?

It's impossible! Events like a fire, compliance expenses due to a new regulation coming into effect, and other such one-off items are not to be modeled, because there are no chances you can predict them.

Hence, they should be omitted from your model since they would not be of any help while forecasting. We will even adjust past accounting for such one time items to show the true numbers of the company. **This process is called normalising** and we will see more about it going forward.

Here are a few signs that a line item is non-recurring:

The easiest way to spot such items is by realizing that such items, whether revenue or expenses, can be seen only in a single year within the range of 5-10 years.

'Extraordinary items' or 'Exceptional items on the income statement can also be a part this.

	Sales revenues	₹1,00,000
	COGS	(₹60,000)
	Gross Profit	**₹40,000**
	Rental Expense	(₹10,000)
	Depreciation	(₹4,000)
	Operating Income	**₹26,000**
	Gains on sales of assets	₹34,000
	Interest Income	₹3,000
	Interest Expense	(₹2,000)
	Income Before Tax	**₹61,000**
	Tax Provisions	(₹15,000)
	Income from Continuing Ops	**₹46,000**
	Income from Discontinued Ops	₹23,000
	Loss from Lawsuit	(₹15,000)
	Net Income	**₹54,000**
	Notes: *Changes in estimates...*	

Recurring Items

Non-recurring

All items that are one-time and non-operating in nature need to be 'normalised'. We will learn this going forward.

Unusual or infrequent items

Discontinued operations
Extraordinary Items

Accounting Changes

Discontinued Operations

We may also notice that sometimes companies, especially those operating in several businesses, may discontinue a particular line of business.

Revenues and expenses of the discontinued business may appear for a few years and abruptly disappear the next.

These items need to be taken care of while creating a model. Just like non-recurring items, you cannot model for these line items, simply because they have ceased to exist!

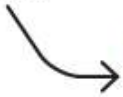
Spotting discontinued operations is pretty easy because according to accounting standards, information on discontinued operations has to be mandatorily disclosed.

The following example illustrates that:

	Restated (in million $)	Original (in million $)
Revenue	90	100
COGS	45	50
GM	45	50
SGA	9	10
Income before Tax	**36**	**40**
Tax (40%)	14	16
Income from Continued Operations	22	24
Income from Discontinued Operations	**02**	-
Tax (40%)	**24**	**24**

The rationale for 'normalising' non-recurring items and line items about discontinued operations is simple. These are exceptional items that have occurred rarely in the past, and there is no way you can forecast such items, simply because there is no basis for you to know if they will occur or not. Also, the financials for part of business that has been discontinued is no more relevant when projecting company's future. So, it should not be used while forming assumptions about the future and as a result should be removed from the model.

Remember that non-recurring items and discontinued operations can be hidden within larger items. For example, there may be a small part of the revenue that exists one year and ceases to exist the next.



You can easily spot such items by comparing the notes to the financial statements.

3.3 Time Value of Money

One of the most profound, yet simple concepts used in finance, the time value of money is the mathematical foundation on which the financial industry operates. It is the base for not only simple calculations in financial modelling but also for complex formulas used across fields in the finance sector.

Explainer Video

What is the Time Value of Money?

With time, the value of money changes. The change in value is understood by the time value of money.

₹ 100 = 10 Units

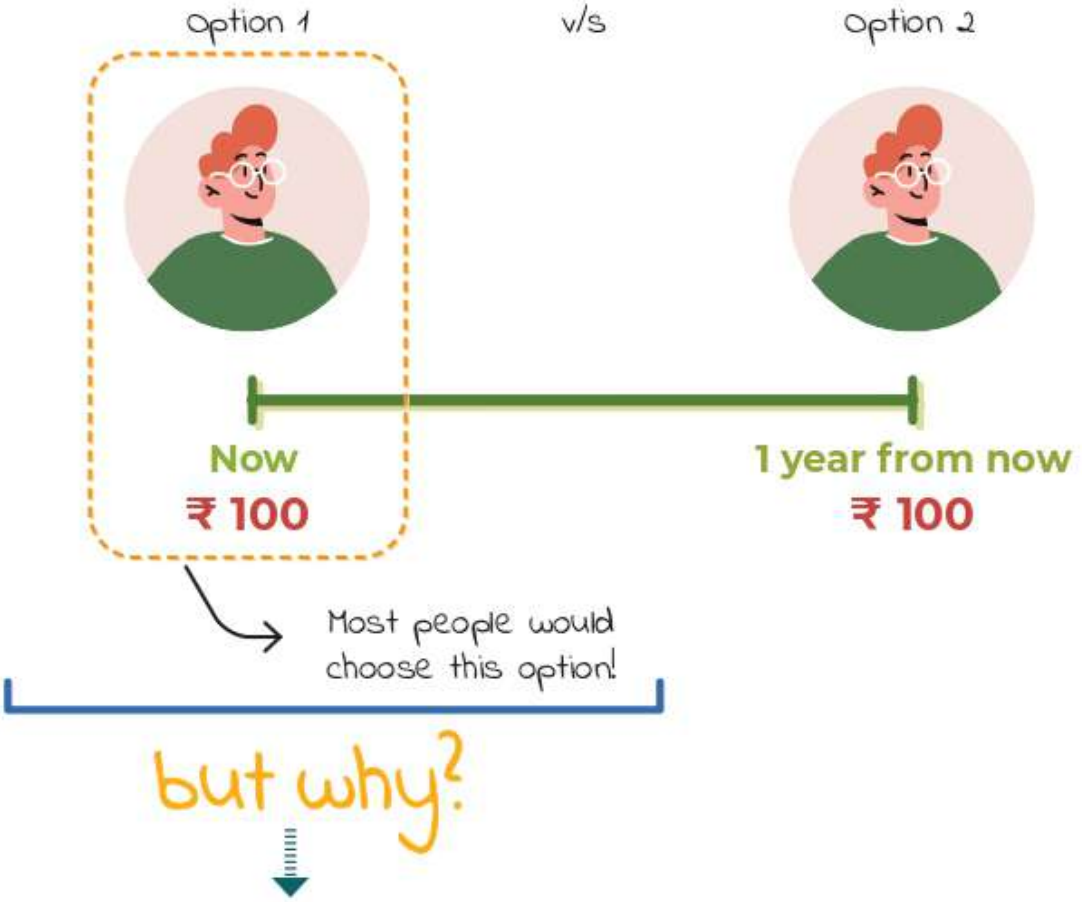
For example, let's say apples are for ₹10 each and ₹100 gets us 10 apples in the market. But in the future, the price of apple increases due to inflation. Let's say the cost is ₹12.5. Then we can only buy 8 apples. So, we see that the value of the same ₹100 reduces overtime. Today it could buy 10 apples but later it can buy only 8. **So, ₹ 100 today is more valuable compared to the same ₹100 in the future. This is the time value of money.**

₹ 100 = 8 Units

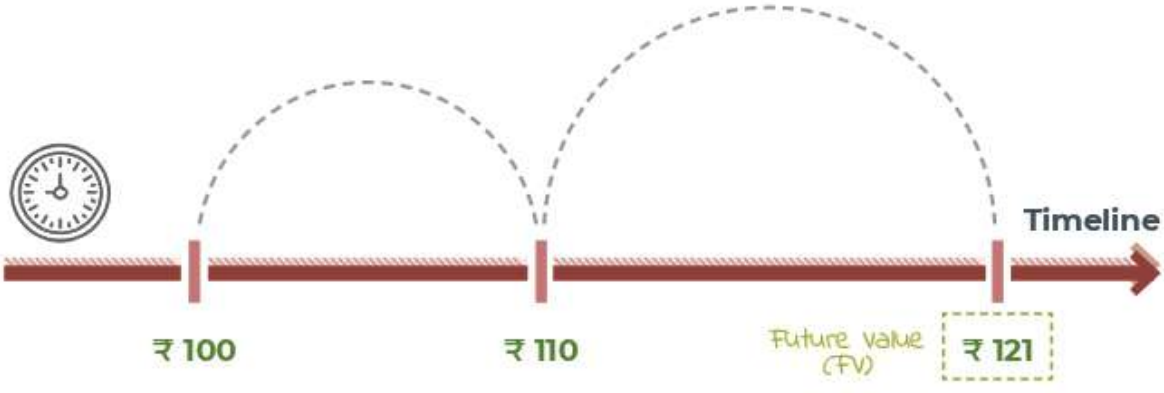
Therefore, if a person gives you an option of receiving Rs. 100 either today or a year later, **we must always choose 'Today' as the value of Rs 100 will decrease with time - mainly due to inflation.**

Another way to look at it, you could invest this Rs.100 in a bank and earn 5% interest and you would have Rs.105 after a year. So, we can say that,

₹ 100 TODAY = ₹ 105 ONE YEAR FROM NOW



The reason is simple. If you chose option 1 and invest that money, it will earn an interest and you would have more by the next year. Assuming an annual interest rate of 10%, the ₹100 you have today will become ₹110 by next year. There is no reason to accept anything less than that one year from now. You should be indifferent if you are getting ₹100 and ₹110 one year from today. The value of ₹100 today is the same as ₹110, one year from today.



FV of future cash flows = PV [1 + r]$^{\text{no. of years}}$

Essentially, the formula for compound interest is:

Amount at the end of time period = **Principal [1 + Rate of return]$^{\text{No. of periods}}$**

Assuming you have ₹100 at the start with a 10% rate of interest for 1 year. According to the formula,

Amount at the end of 1 year = 100 $(1+0.1)^1$ = 110.

Using the same formula, you would have ₹121 at the end of the second year.

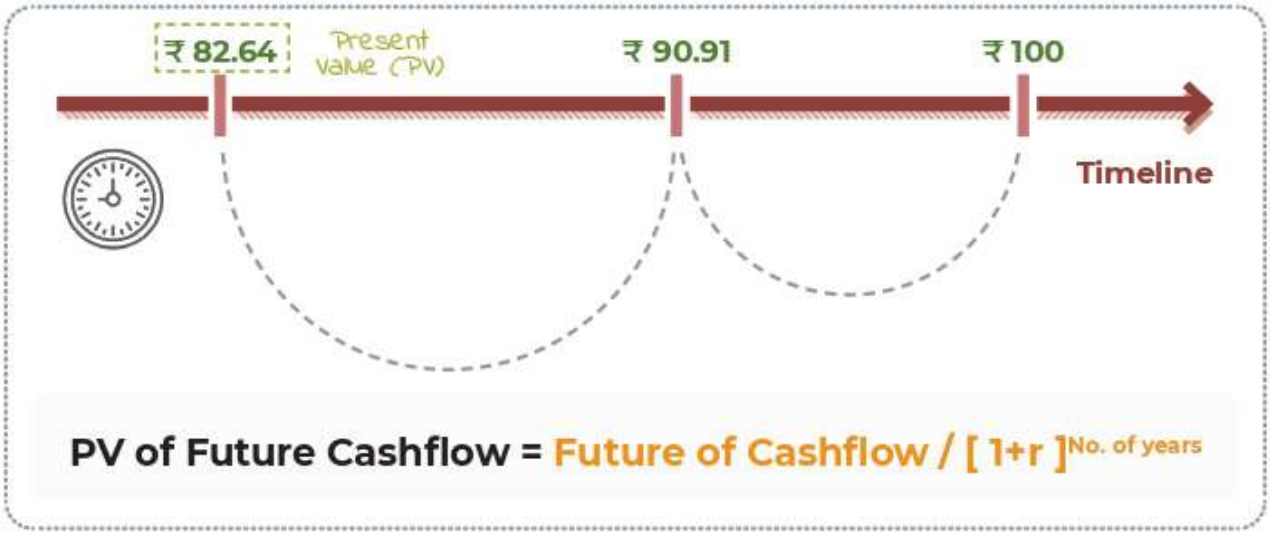
Amount at the end of 1 year = 110 $(1+0.1)^1$ = 121.

And so on...
The growth using compound interest over a period of time can look like this:

The formula to calculate Future value for every year is

$$100[\,1+r\,]^t$$

Here, r = rate of interest and t = no. of years.



PV of Future Cashflow = Future of Cashflow / [1+r]$^{\text{No. of years}}$

This is also called Discounting.

The activity of estimating the present value of a future cash flow or a series of future cash flows is called discounting. The rate at which future cash flows are discounted is known as the discount rate. Most valuation methods make use of this technique to determine the present value of the company.

Now that you know what you will receive 1 and 2 years from now, can you calculate the value of such a sum in today's terms?

Inverting the compound interest formula can give you the answer.
Say you are receiving ₹100 2 years from now, then its value today, at a rate of return of 10% would be:

$$\text{PV of Future Cashflow} = \text{Future Value} / [1 + \text{Rate of return}]^{\text{No. of periods}}$$

In our example,

$$\text{Amount at the end of 2 years} = 100 / (1+0.1)^2 = 82.64$$

Instead of multiplying as you did while calculating the future value, you have to divide while calculating the present value.

The concept of compounding and discounting is fundamental to finance. All valuation techniques you would be learning to incorporate this concept. Take time to understand it thoroughly.

Knowledge Box

Remember that compounding and discounting are opposites of each other. For every period, the value of money is going to be different. Compounding is used to find out the future cash flow of a sum today while discounting is used to estimate the present value of future expected cash flows.

Let's dive deeper into some terms related to time value of money.

3.4 Important Terms of Time Value of Money

Explainer Video

Time value of money is an important concept. Let's look at the important terms related of Time Value of Money.

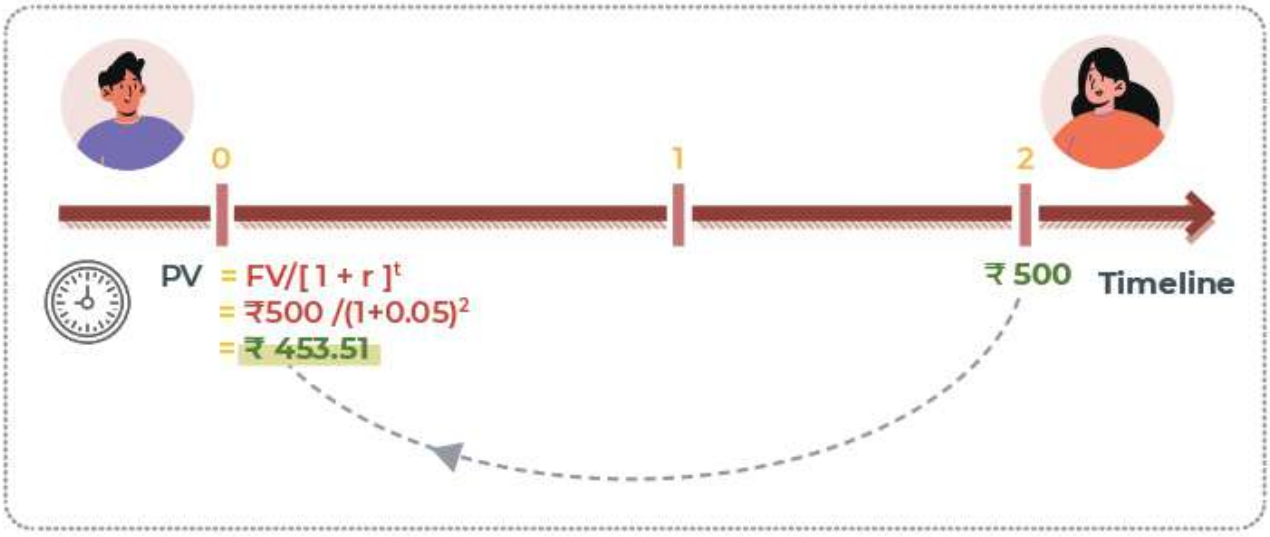
Present Value

The present value of cash flow is the current value of cash to be received in future, discounted at an appropriate rate.

Consider that a friend has agreed to pay you ₹500 2 years from now. Assuming the rate of return to be 5%,

$$\text{PV of Future Cashflow} = \text{Future Value} / [1 + \text{Rate of return}]^{\text{No. of periods}}$$

$$\text{PV of } ₹500 = ₹500 / (1+0.05)^2 = ₹\ 453.51$$



Hence, the present value of ₹500 2 years from now is ₹453.51

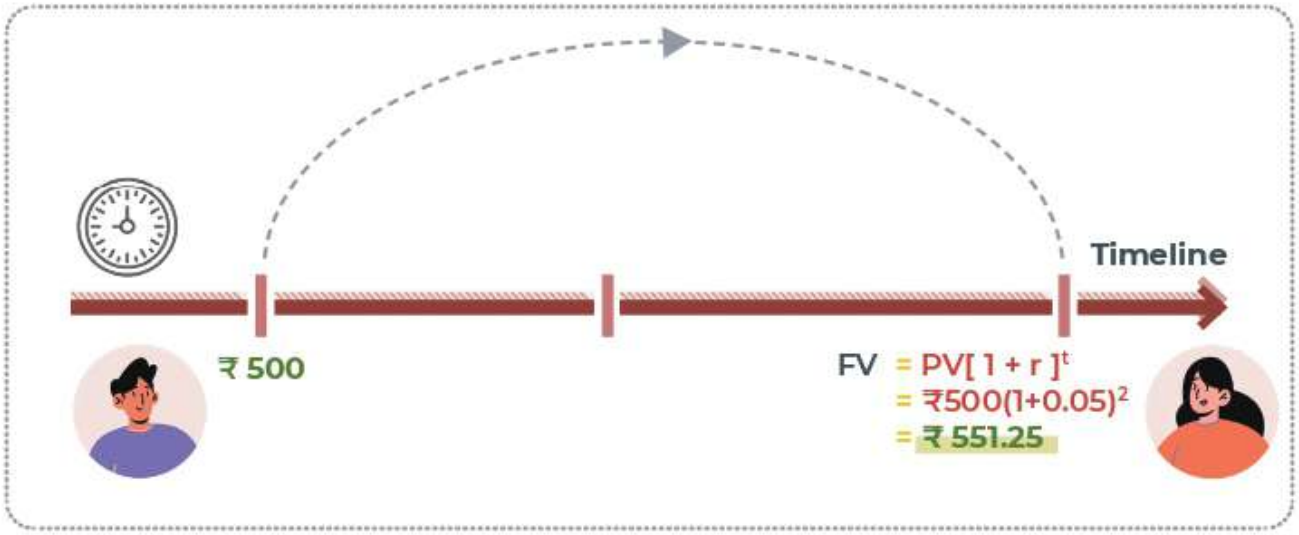
Future Value

The future value of a sum of money today is its value after a period of time, compounded at an appropriate rate of interest.

Consider a friend who borrows ₹500 from you today and promises to pay you back 2 years later. Assuming the rate of return to be 5%,

$$\text{Future Value} = \text{Present Value}[1 + \text{Rate of return}]^{\text{No. of periods}}$$

$$\text{FV of } ₹500 = ₹500(1+0.05)^2 = ₹\ 551.25$$



Hence, the future value of ₹500 2 years from now is ₹551.25

Interest Rate

The interest rate (known as the rate of return while compounding and discount rate while discounting) is a very important part of the discounting and compounding equation. It is the rate of return at which money grows in a particular period.

Usually, the risk-free rate is used as the rate of return. For example, it the interest rate quoted on a government bond is 10%, then it can be considered a risk free rate of interest.

Time Period

The time period in a discounting equation means nothing but the number of periods for which cash inflows or outflows are predicted.

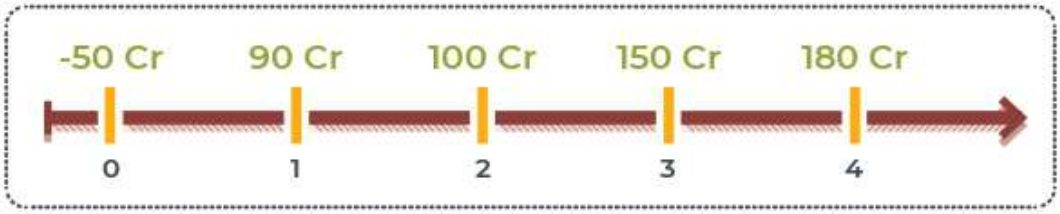
The longer the time period of cash flows, the higher will be the impact of discounting and compounding.

In the real world, however, and especially for businesses, single cash flows as used in the example are hardly the case. Forecasts are done for multiple cash flows, spanning over several years.

The total value of a business today is estimated as the sum of the present values of its future cash flows. Let's take an example.

Look at the following timeline. It is estimated that a company invests ₹50 crores this year and will generate ₹40 crores in the next 1 year, ₹100 crores in 2 years, ₹150 crores in 3 years, and ₹180 crores in 4 years.

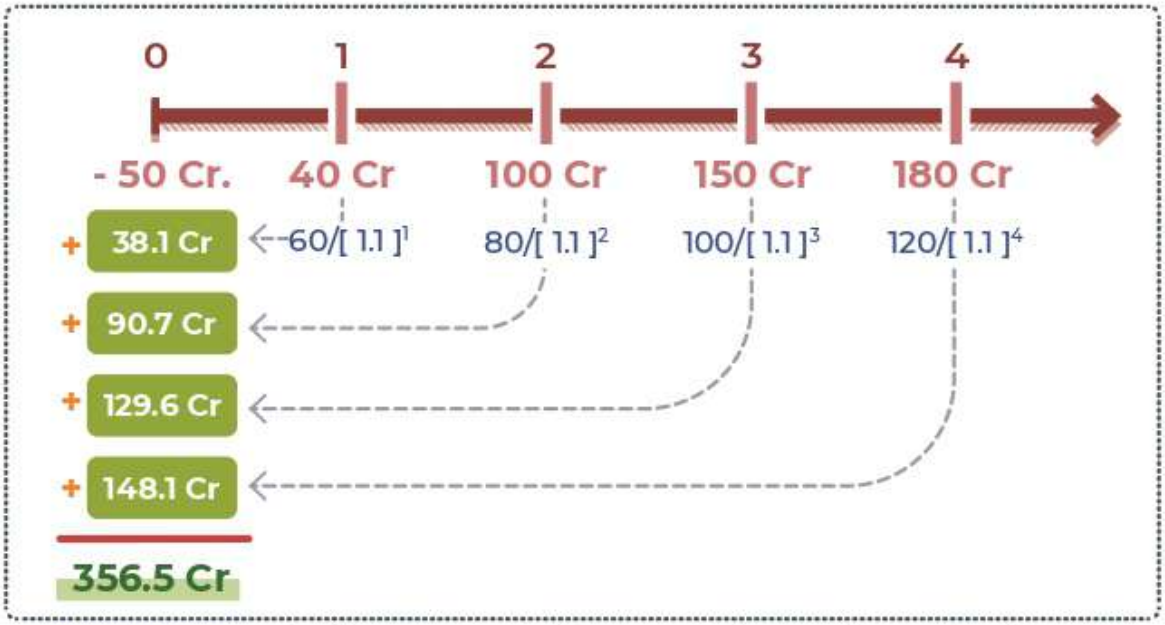
What will be the total present value of this business?



3 simple steps for estimating the present value of the business are:

1. **Estimate the discounting rate. Let's assume this to be 5%**
2. **Calculate the present value of each of the future cash flows. Remember that the discounting rate is the same, but the number of periods for each are different.**
3. **Add all the present values to get the total value of all future cash flows.**

Look at this completed timeline below. It's estimated PV is ₹356.5 crores.



This is a very basic example of how company valuations are done. Understanding this is important as it will help us arrive at a value for the company.

3.5 Understanding Free Cash Flows

Explainer Video

Cash Flow

Free Cash Flow

Surplus cash generated after meeting all investment needs of the business.

FCF = CFO - CFI

FFCF

Free Cash Flow to Firm.

FCF = CFO - CFI + Interest Expenses

FFCE

Free Cash Flow to Equity Shareholders.

FCF = CFO - CFI + Net Borrowings

An irreplaceable topic in the world of valuations, free cash flows are defined as the surplus cash left with a company after they have met all their investment needs.

Textile Company

Software Company

CFO

Let us take an example of a textile and a software company with a profit or sale i.e. **CFO (Cash flow from Operating Activities) of Rs. 100 cr.**

Every year the textile company has to make an investment to either upgrade or buy new machinery for growth, **which accounts for 40% of their cash flow from operations.**

The software company does not need such investments. **So let us assume that they spend around 5% of their CFO on updating their hardware.**

CFI

This money is called Cash Flow for Investment Activities (CFI).

Free Cash Flow (FCF)
= ₹100 crores - ₹40 crores
= ₹60 crores

Free Cash Flow (FCF)
= ₹100 crores - ₹5 crores
= ₹95 crores

This is referred to as Free Cash Flow.

FCF = CFO - CFI

Despite having the same CFO, each of the companies have different free cash flows as their investments needs are different.

This does not mean that the software company is a better company than the textile company. Every industry functions differently and companies should be compared to their industry peers for better evaluation.

Some points to keep in mind while calculating a company's free cash flows:

This is a cash flow item. Figures should be extracted from the cash flow statement, and not the income statement.

'Investments' include only operational investments like machines, hardware, etc. Financial investments such as those incurred to buy stocks, mutual funds, or bank certificates should not be counted.

A business can use this surplus cash the way it wants. A few common uses of free cash flows by companies are:

- **Paying extra dividends to common shareholders**
- **Buying back their shares to increase their shareholders' wealth**
- **Paying off its long-term debt**

As can be guessed, the free cash flow of a business shows the surplus funds left with the company after meeting its investment needs. This can be deployed in whatever way the company seems fit.

Free Cash Flow ⟶ **Wealth for the Stakeholders**

We would extensively use free cash flows in our valuation techniques. We will discount different types of free cash flow to arrive at a valuation.

Company A

increase free cash flow ⟶

- improving the cash inflow from its business operations
- lower investment requirements to generate that cash.

Either of the two can be leveraged to increase free cash flow for company.

3.6 Types of Free Cash Flows

Explainer Video

Based on the stakeholder they belong to, they are of 2 types:

- **Free cash flows to firm (FCFF)**
- **Free cash flows to equity (FCFE)**

Free Cash Flow to the Firm (FCFF)

Free cash flows to the firm are the free cash flows that belong to both debt and equity holders of the company. Both can decide how this cash will be used since both have a right to it.

$$FCFF = CFO - CFI + Interest\ Expenses$$

Interest expenses should form part of FCFF because they represent a return to debt holders, one of the stakeholders of a business. As debt holders also have rights over FCFF, interest expenses need to be included in this.

Free Cash Flow to Equity (FCFE)

Free cash flows to equity are the free cash flows that belong solely to equity holders of the company. Only equity shareholders have a claim on it and can decide how / where these funds will be deployed.

$$FCFE = CFO - CFI + Net\ Borrowings$$

For example, a company pays off a certain amount of debt and also issues new debt in a particular year. **Therefore the net amount of borrowings is added to the FCF and we arrive at FCFE.**

Interest expenses are not included here since equity shareholders do not have a right over interest payments.

These formulas can look scary at first, but you will get used to them once you use them repeatedly. Focus on understanding the concept well instead of mugging up the formulas. You can always look up the formula when you need it.

FCFF and FCFE values will be used along with the time value of money to arrive at the present value of a business. The series of 'future values' used for discounting are nothing but these free cash flows. It'll get interesting when we learn when to use FCFF and FCFE based on different companies and situations. You will really enjoy it when you see all this falling together later.

Now you know that you must use one of the types of free cash flows (FCFF or FCFE) to arrive at the right valuation of a business. But at what rate will you discount these cash flows to get their present value?

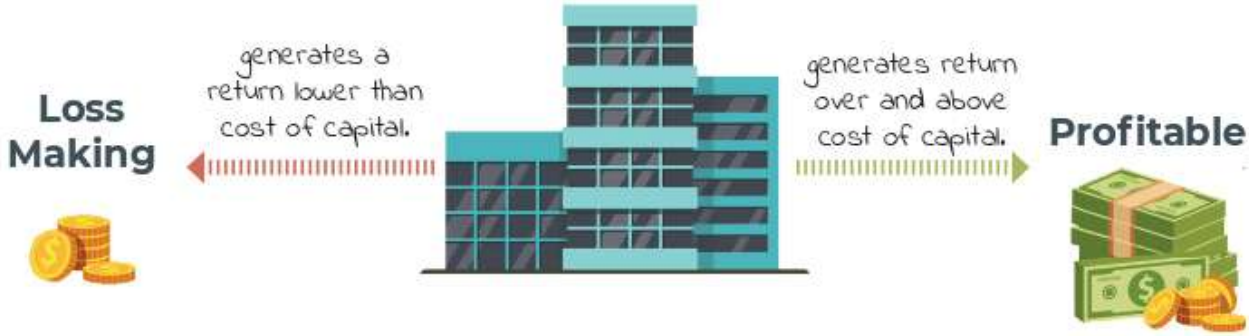
This is answered by WACC, another concept to be introduced in the next chapter.

3.7 WACC

Explainer Video

Weighted Average Cost of Capital (WACC)

The Weighted Average Cost of Capital refers to the rate that a company is expected to pay on an average to all its security holders to finance its assets. **The Weighted Average Cost of Capital (WACC) represents a firm's average cost of capital from all sources, including different types of equity and debt holders.**



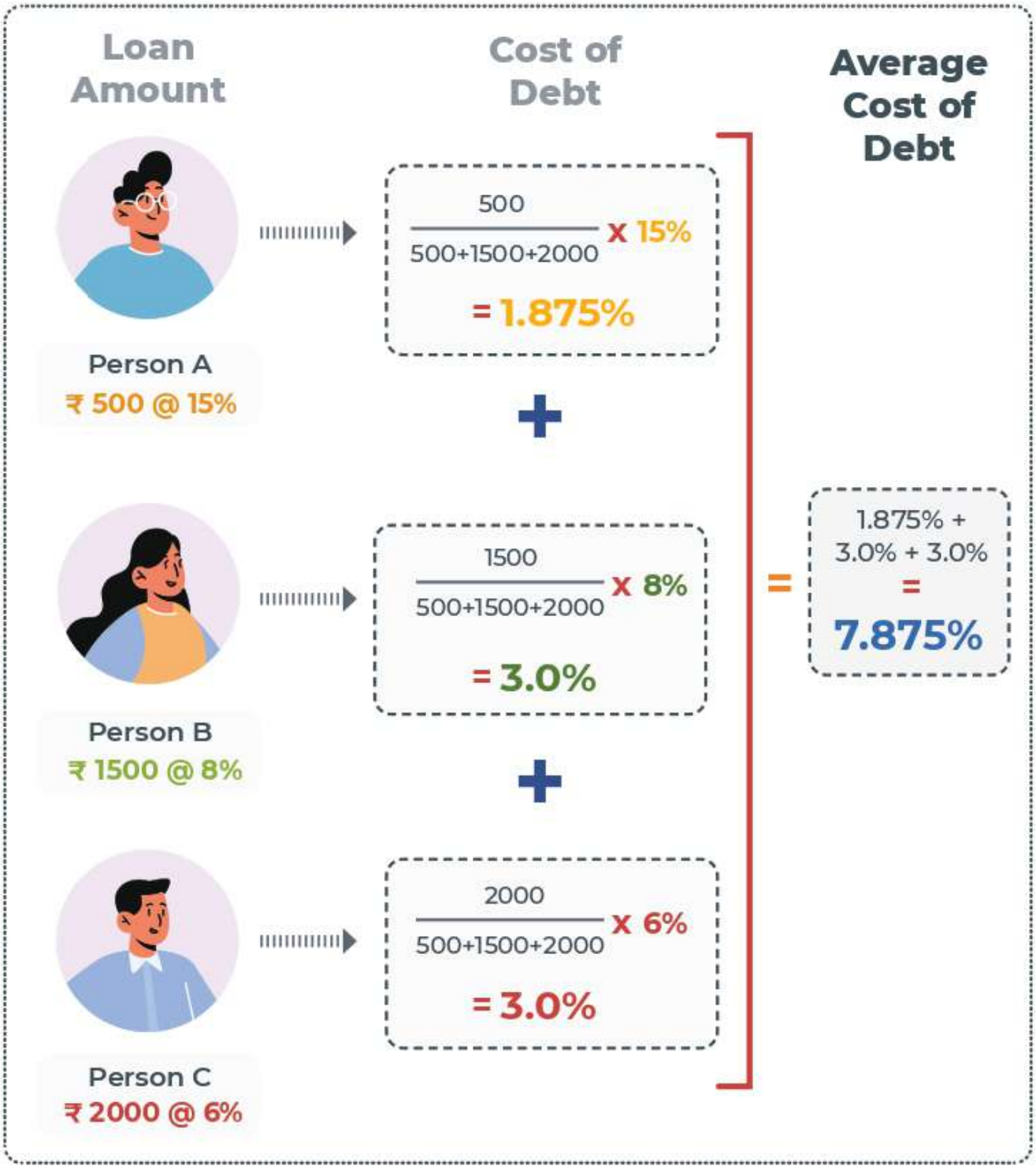
For example, **a company takes a debt of ₹ 100 at an interest rate of 8% p.a. Therefore, this 8% refers to the Cost of Debt for the ₹ 100 borrowings for the company.**

The company can have other borrowings from various other sources. All of these have different costs associated with them, based on the amount that is borrowed and the interest rate charged upon them.

When all these are put together, or better yet, these weighted averages are put together, **it gives us the total cost of all debt required to calculate the WACC.**

Cost of Debt refers to the weighted average of interest all the borrowings that a company has.

For example,A company has secured loans and debt from various sources - **₹ 500 from person A at 15%, ₹ 1500 from person B at 8%, and ₹ 2000 from person C at 6%.**



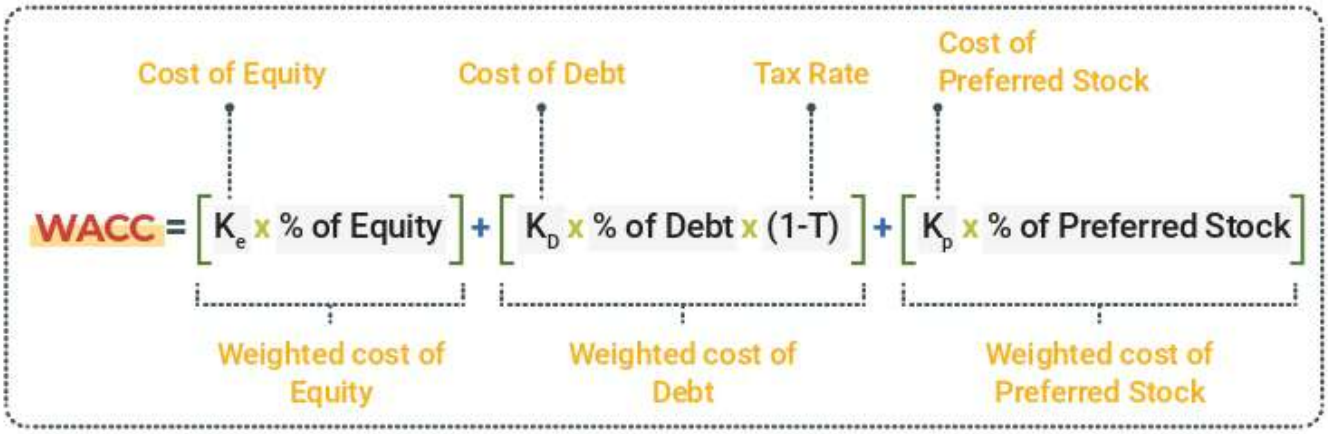
The total average cost of debt would be the weighted average of the interest rates. Hence, in this case the Cost of Debt would be 7.875% as calculated above.

Cost of Equity (K_e) ⟶ **Cost of equity is the rate of return expected by equity investors for their investment based on the risk they are taking.**

Higher the risk, the higher the cost of equity. We will learn how to estimate the cost of equity in the next chapter. For now, let's understand how it is used to calculate WACC.

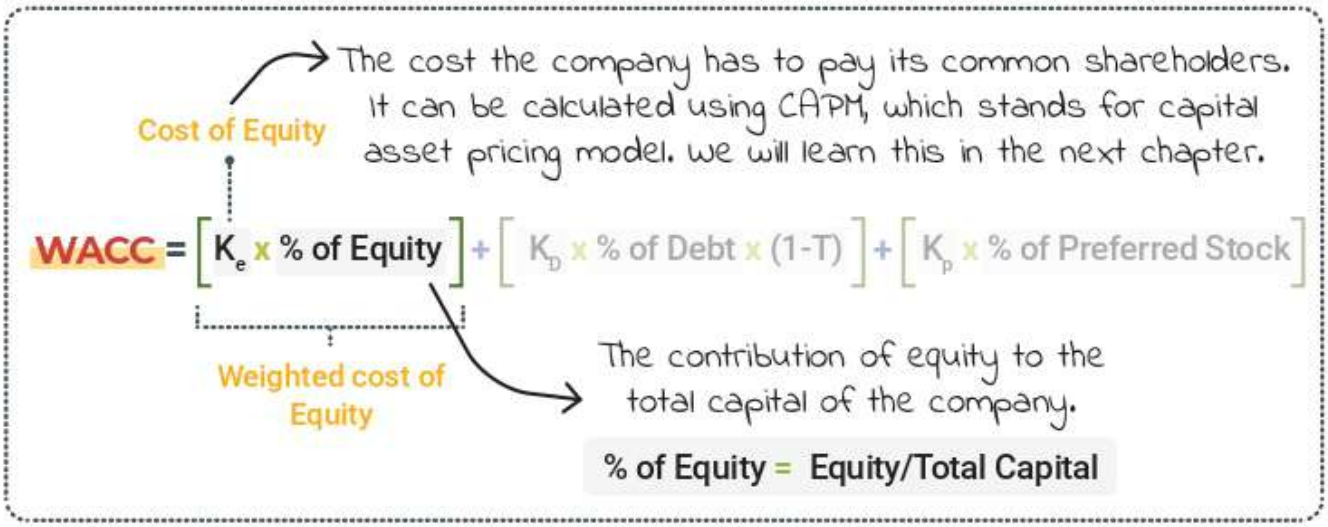
WACC Calculation

Being a weighted average, it is the sum of the cost of equity, cost of debt, and cost of preferred stock; in their respective proportions. Have a look at its formula:



Breaking down the 3 components,

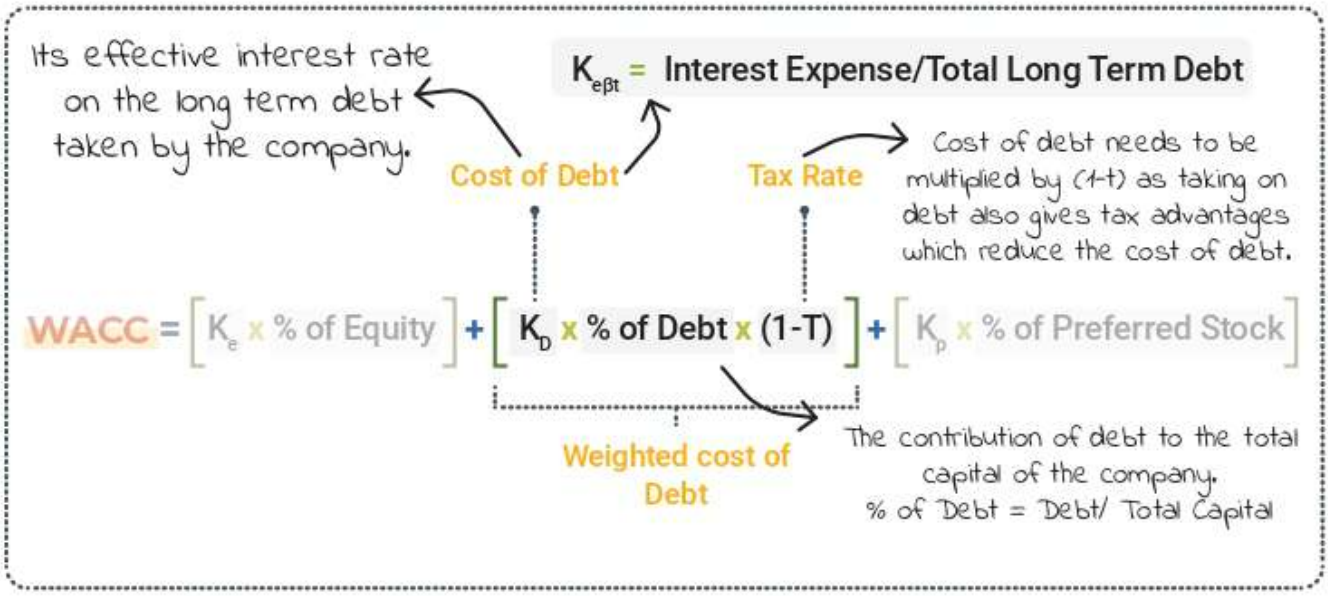
1 Cost of equity × Proportion of equity in total capital



For example, a company has

Equity = ₹ 90,000
Total Capital = ₹ 2,00,000
% of Equity = ₹ 90,000 / ₹ 2,00,000 = 45%

2 Cost of debt × Proportion of debt in total capital × tax relief



For example, a company has

Debt = ₹ 80,000
Total Capital = ₹ 2,00,000
% of Debt = ₹ 80,000 / ₹ 2,00,000 = 40%

Whenever a company pays interest to service debt, it can be used as a deduction while calculating its tax. As a result, tax savings due to interest reduces the cost of debt.

For example, if a company borrows of ₹ 100 at 8%, then it owes ₹ 108 in one year. If the company's profits are ₹ 50, will reduce to ₹ 42 as ₹ 8 is an interest expense and thus we do not pay tax for this.

The tax payable is for instance 30% of the company profits.

SCENARIO 1	SCENARIO 2
Profit = ₹ 50	Profit = ₹ 42
Tax Payable = ₹ 15	Tax Payable = ₹ 12.6
[30% of ₹ 50]	[30% of ₹ 42]

As a result, the company saved the tax amount paid.
We paid interest of ₹ 8 and saved tax of ₹ 2.4. As a result, the effective cost of debt is ₹5.6 i.e. K_D (1-t)

3 Cost of preferred stock × Proportion of preferred stock in total capital

Cost of preferred stock is the rate of return the company has to pay its preferred shareholders. This cost is less than the cost of common equity, but more than the cost of debt.

Cost of Preferred Stock

$$WACC = [K_e \times \%\ of\ Equity] + [K_D \times \%\ of\ Debt \times (1-T)] + [K_p \times \%\ of\ Preferred\ Stock]$$

The proportion of preferred stock to the total capital of the company.

Weighted cost of Preferred Stock

% of Preferred Stock = Preferred Equity/Total Capital

For example, a company has

Preferred Equity = ₹ 30,000
Total Capital = ₹ 2,00,000
% of Preferred Stock = ₹ 30,000 / ₹ 2,00,000 = 15%

Estimating the WACC for a company

Let's assume a company has

Equity = ₹ 90,000
Debt = ₹ 80,000
Preferred Equity = ₹ 30,000
The cost of equity using the CAPM Method = 9%
Cost of Preferred Equity = 7%
Cost of Debt = 5%
Effective Tax Rate = 30%

$$WACC = [K_e \times \%\ of\ Equity] + [K_D \times \%\ of\ Debt \times (1-T)] + [K_p \times \%\ of\ Preferred\ Stock]$$

Total Capital = ₹ 90,000 + ₹ 30,000 + ₹ 80,000
= ₹ 2,00,000

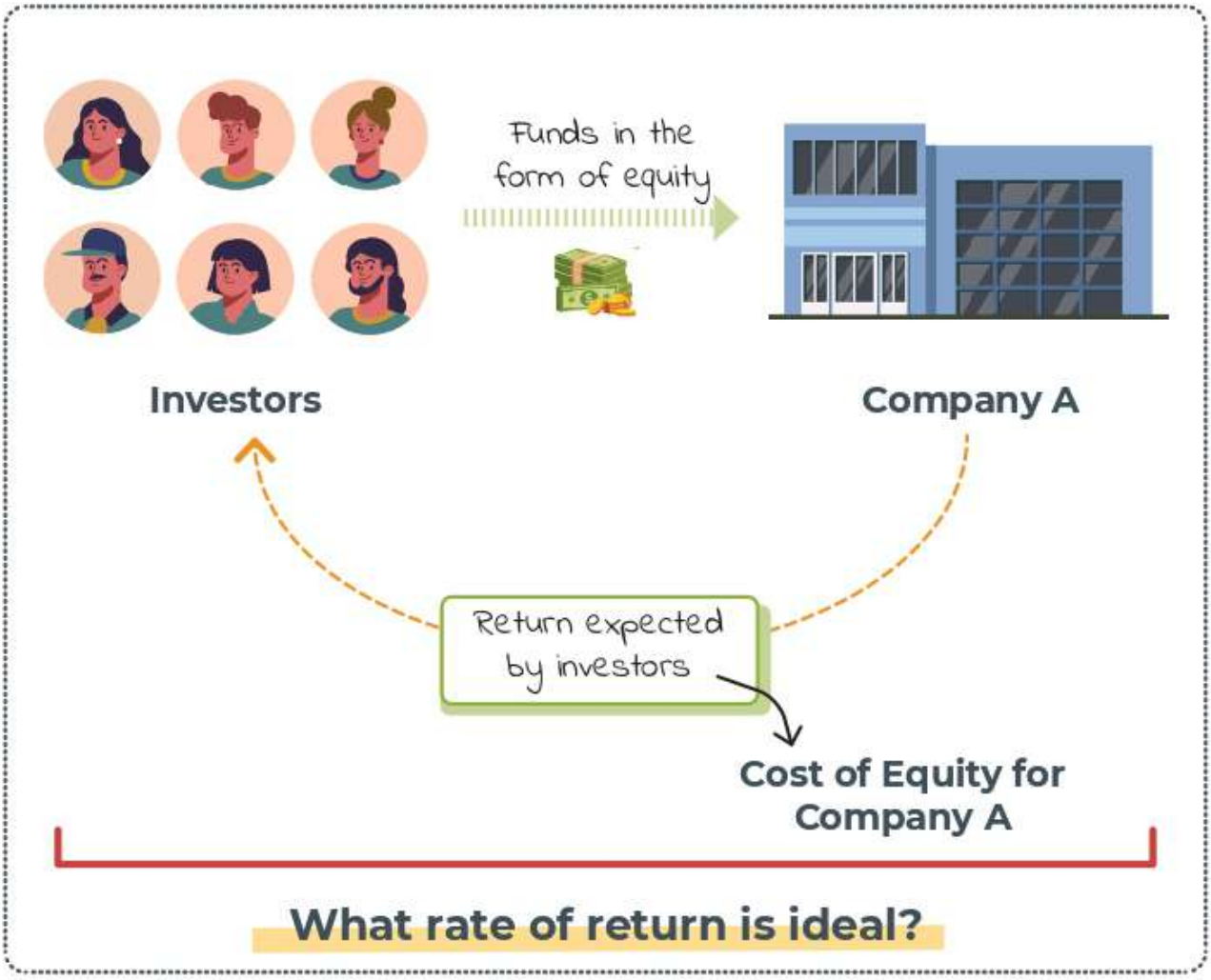
$$WACC = [9\% \times ₹90,000/ ₹2,00,000] + [5\% \times ₹80,000/ ₹2,00,000 \times (1-30\%)] + [7\% \times ₹30,000/ ₹2,00,000]$$

$$= 4.05\% + 2\% + 1.05\% = 7.1\%$$

3.8 Estimating the cost of equity using CAPM

Explainer Video

Now that you know the concept of weighted average cost of capital (WACC), let's understand how one can arrive at a good estimate for the cost of equity.



This question is addressed by **capital asset pricing model (CAPM). It is the 'required return' by equity stakeholders of the company.** Though there are numerous ways to calculate the cost of equity for a company, **the CAPM method is by far the most sensible and preferred amongst the most common ones and that is the one that we will use.**

The CAPM method may sound and look intimidating, but it is a simple model in reality. This simple model is used to find the expected return of different assets, especially equity.

Components of CAPM

Lets first understand the different items that help calculate the cost of capital using CAPM.

1 Risk-free rate (R_f)

Risk free rate of return is the return generated by investing in risk-less assets i.e. government bonds. This is the minimum return any asset should earn.

2 Market Premium (R_m-R_f)

Investing in the stock markets is riskier than government bonds, hence you expect a higher reward. The additional return geenrated from taking additional risk and investing in markets is called market premium. **It is calculated as 10 year SENSEX returns - 10 year bond yield.**

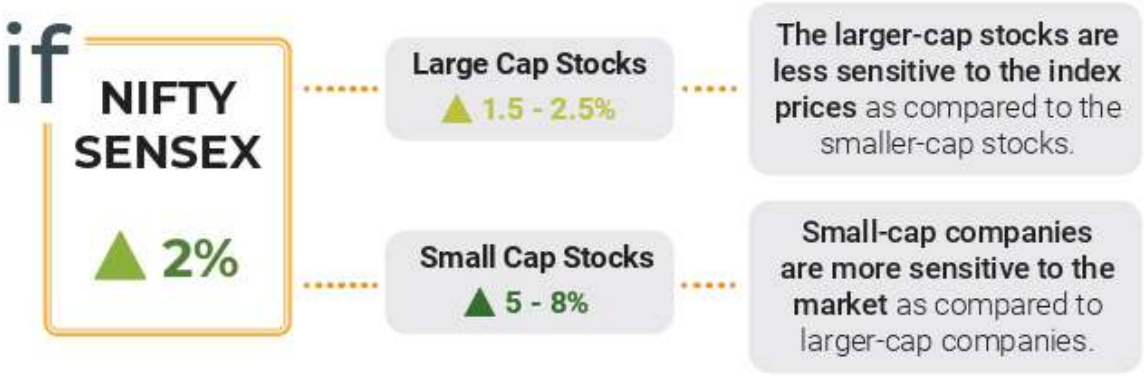
Market Premium = Market return - Risk-free rate

3 Company Beta (β)

The beta of a company signifies its volatility. It is the sensitivity of the company's stock price to changes in price of i.e. SENSEX. For example, if Company A's stock price goes up by 1.5% when the market goes up by just 1%, then Company A's beta is 1.5. Higher the beta, more volatile is the company's share against the overall market and higher is the return expectation by the investors.

What is β ?

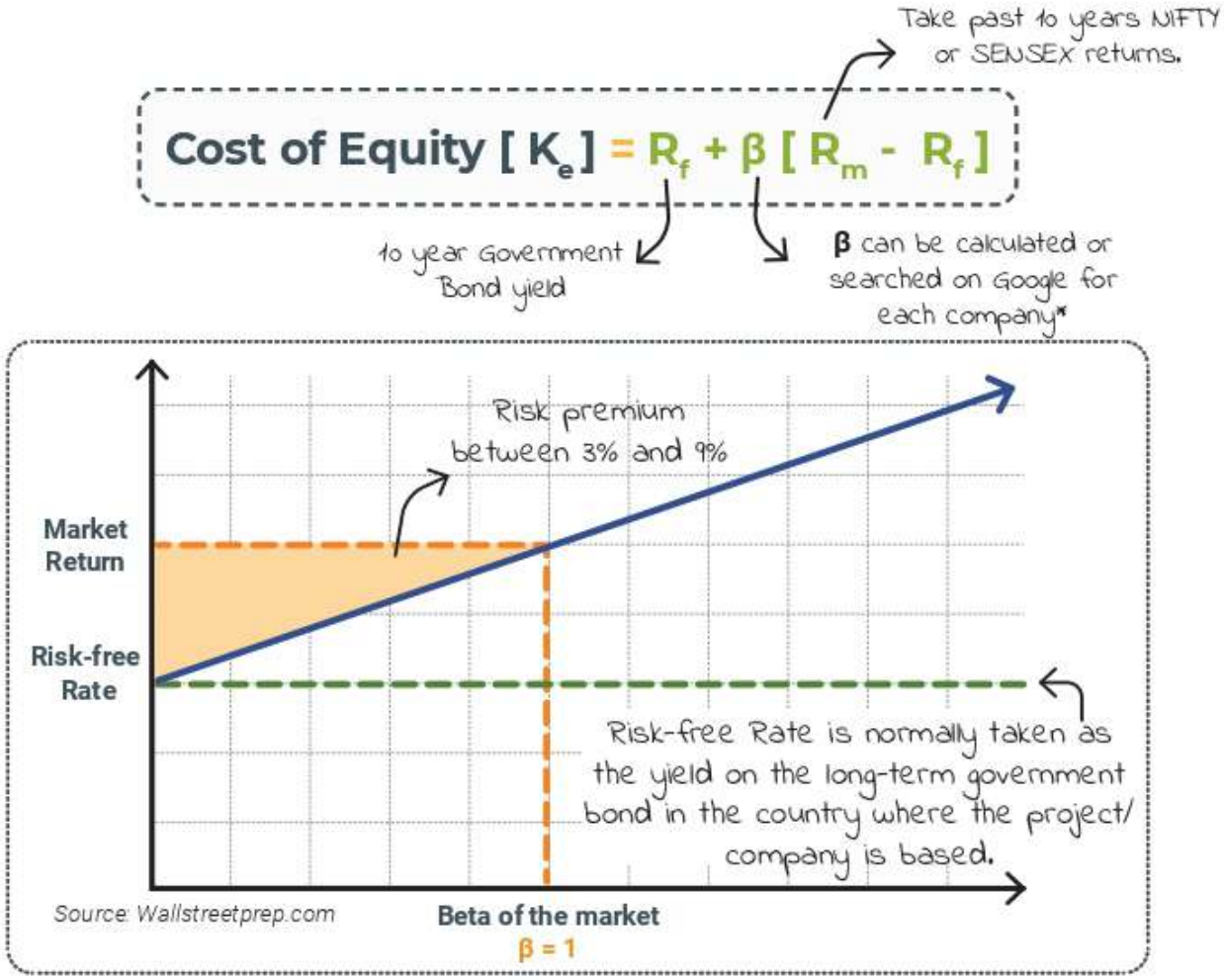
β refers to **the value that tells us the sensitivity of the stock's price against the market prices (or) index prices.**



The higher the Beta (β), the higher the return expectation for investors.

Capital Asset Pricing Model (CAPM)

All of the mentioned components come together to form the Capital Asset Pricing Model. The cost of equity of a company is the risk-free rate + a market premium adjusted for its volatility. Such an equation appropriately calculates the overall returns expected by equity investors.



X-axis is the beta and the Y-axis stands for expected return. The upward sloping line is the cost of equity.

Let's calculate the cost of equity for Company A:

Risk-free rate = 4%
β = 1.5 (Assuming it is 1.5x volatile as Nifty)
Market Premium = 12% - 7.5% = 4.5%
(Assuming the average annual return on Nifty is 12%)

Company A's Cost of Equity = 4% + 1.5 (4.5%)
= 0.04 + 1.5 (0.045)
= 10.75%

Now you know that Company A has a cost to equity of 10.75%.

**Beta (β) is a vast and complicated topic and there are verious methods and indices against which it can be calculated, that is beyond the scope of what we are learning.*

3.9 Discounted Cash Flows

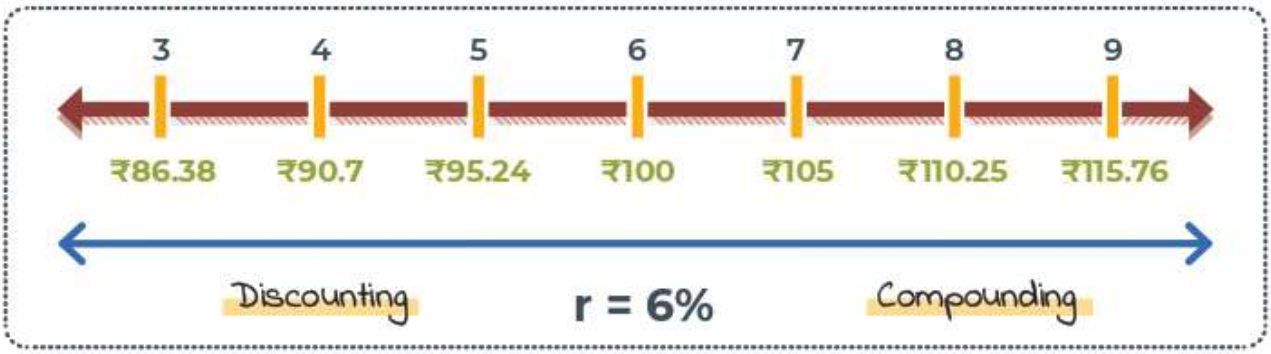
Explainer Video

So far, we have learned about discounting, free cash flows, the WACC, and CAPM. We'll now move on to discounted cash flows, which is a combination of all the concepts we have learned so far.

If you have a financial background, feel free to skip this chapter, but revision is always better. For those coming from other diverse backgrounds, you might want to stick around.

Compounding in finance tells us that the future value of today's cash flow will increase, given positive interest rates. Discounting, as you may recollect, is the inverse of compounding, and that is used to calculate the present value of future cash flows. Given positive interest rates, the present value is always less than its future value.

If the different values of money were drawn on a single timeline, compounding is done by moving ahead in the timeline, and discounting is done by moving backward. Look at this illustration:



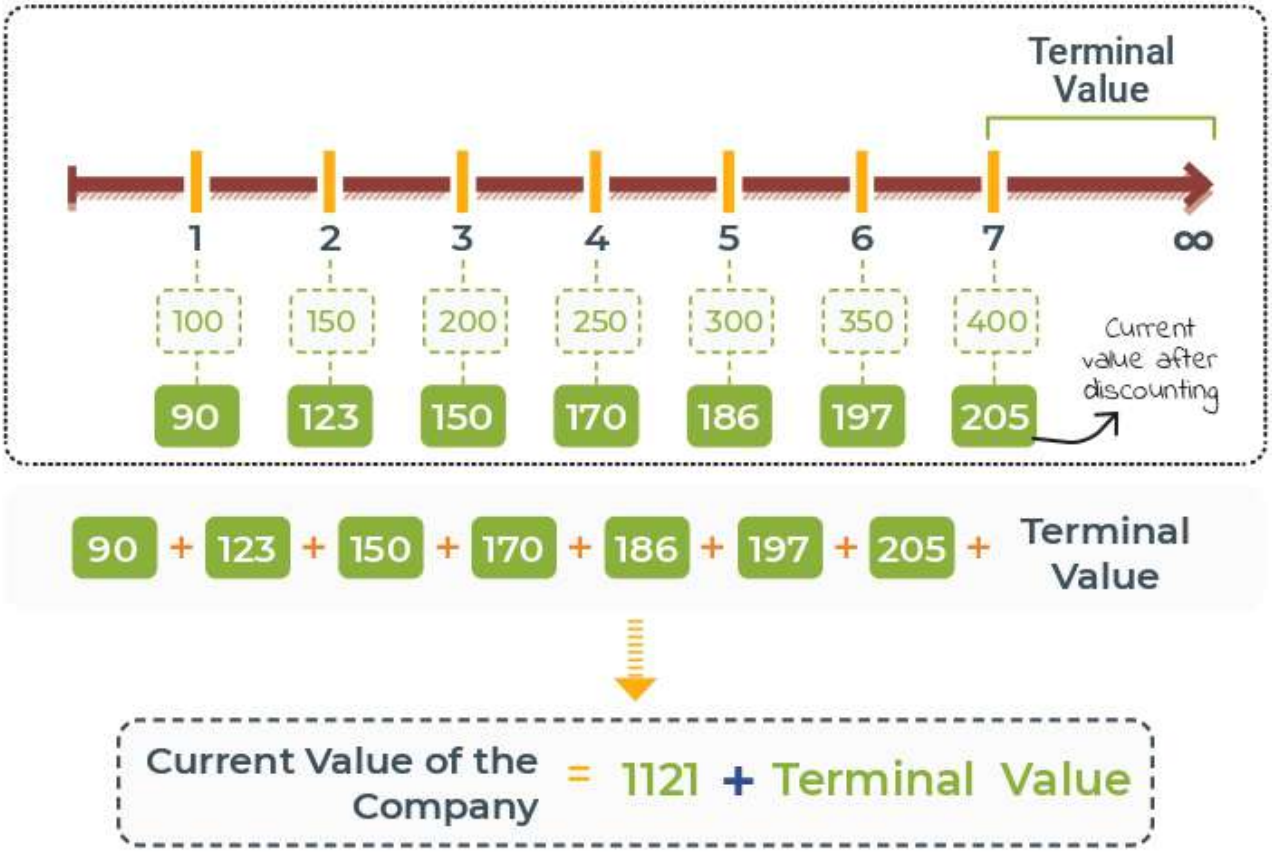
Knowing about free cash flows and discounting, can you combine these concepts to determine the value of a business today? The value of a company today is the present value of as all its future cash flows.

Let us take the example of "Company A". The company may run for an unknown number of years. **The concept of "Going Concern" in accounting tells us to always assume that a company or a business shall go on perpetually as time goes on.** So all the **companies are valued as "Going Concerns" that is they are expected to operate forever.**

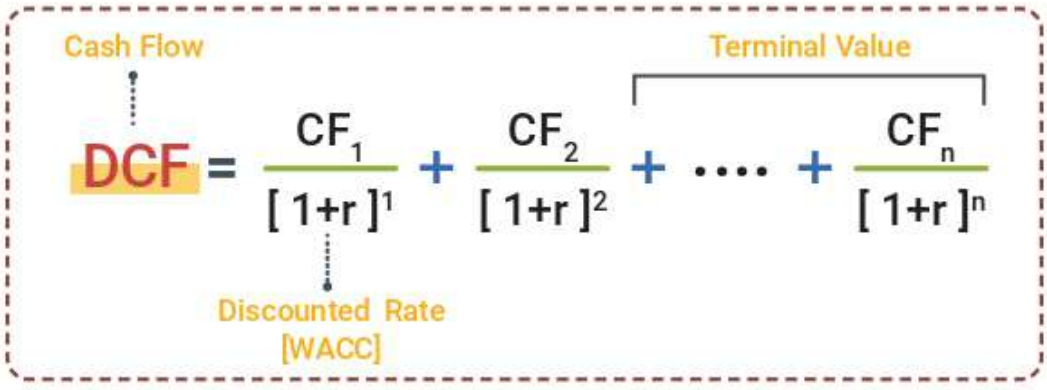
Let us say for "Company A", we have forecasted what company shall generate cash flow the for the next seven years. We are not able to forecast cashflows beyond this point.

We shall expect the company to have a cash flow of ₹ 100 in the first year, followed by 150, 200, 250, 300, 350 and 400 respectively in the next six years. Each year's cash flow shall be discounted to the current year.

The pictorial representation is given below:
The value of the company is - the current value of all the cash flows from 7 years + the value of the time frame which we can't forecast.



Discounted Cash Flow Formula



Explainer Video

DCF [V_0] is called the Value of the company. To arrive at this value, we discount the cash flows from different years of the company as we discussed in the earlier example.

The CF_1 (Cash Flow for year 1) would be 100 as discussed in the previous example and CF_2 is 150 and CF_7 is 400. R refers to the rate at which we discount the cash flows. **The time frame which cannot be forecast is called Terminal Value. In the previous example, we cannot forecast our cashflow after 7 years, therefore the period from the 8th year till perpetuity is called 'Terminal Value'.** Next we need to calculate terminal value for the company.

Terminal Value

In the previous example, we forecasted our cash flows for seven years and had to calculate from the eighth year till perpetuity that is the Terminal Value.

$$\text{Terminal Value} = \frac{CF_8}{[r-g]} = \frac{CF_7 .[1+g]}{[r-g]}$$

r = Rate of Interest
g = Long Term Growth Rate

After seven years, the company is expected to grow, at a slower rate till perpetuity, which will be an assumption that is made by us. This is called the Long Term Growth Rate. This is generally long term GDP growth

As per the calculation with the help of the formula:
Here, WACC = r = 0.10 and g = 0.05 i.e. 5%
CF_8 = [400(1+0.05)] / [0.1-0.05] = 8400

Now, we need to discount this 8400 for 8 years, which comes to an approximate amount of let us assume ₹ 5000.

Hence,
the Total Value of the company would be ₹ 1121 (the discounted value for the first seven years, which is an estimate and assumption by us) + ₹ 5000 (the terminal value from the eighth year till perpetuity) = ₹ 6121.
This is the basic method of how we calculate company value using discounted cashflows.

Once again, you should focus on the concept instead of mugging up the formulas. You can always re-visit them once we start building models on real companies.

3.10 Important terms related to Discounted Cash Flows

So far, we have learned about the types of cash flows, discounting, and how to discount future cash flows to the present to find the value of a business. Let's now brush up on some of the terms that you should be aware of.

Explainer Video

Terminal Value

Value of a business after the projection period ends. This is because the business will continue to make money beyond the forecasting period.

Enterprise Value

Total value of the firm owned by the shareholders as well as debt holders.

Equity Value

Total value of the part of firm that is owned by the shareholders only, i.e. after paying off the debt-holders.

Equity Value + Net Debt [Debt - Cash] = Enterprise Value

FCFE (Free Cash flow from Equity)

The value of equity i.e. market value of equity shares is denoted by Equity Value. If one wants to buy a share or stock of a company, this is the value to look at. **For example, 25,000 Cr. worth shares is called Equity Shares.**

FCFF (Free Cash flow for Firm)

If the market value is ₹ 25,000 Cr and the debt value is ₹ 10,000 Cr, then **the total ENTERPRISE VALUE is ₹ 35,000 Cr.**

Next, we'll learn about a few more valuation techniques.

3.11 Types of Valuation Methods

Explainer Video

DDM

Dividend Discount Model is another valuation method. It is similar to DCF but only discounts Dividends instead of FCF. DDM and DCF are types of absolute valuation methods that we will see going further.

Relative Valuation

Valuation by comparison of multiples like Price/Earnings, Price/Sales, Price/User etc. Here, the analyst does not try to estimate the exact value of the asset.

Absolute Valuation

Valuation when an analyst tries to estimate the current value of an asset with the current facts. An exact value or range is achieved. DDM and DCF are types of absolute Valuation.

Lets look at the these in detail.

DCF, although a good valuation technique, may not be suitable enough to value all types of companies. A few that are used pretty extensively along with DCF are

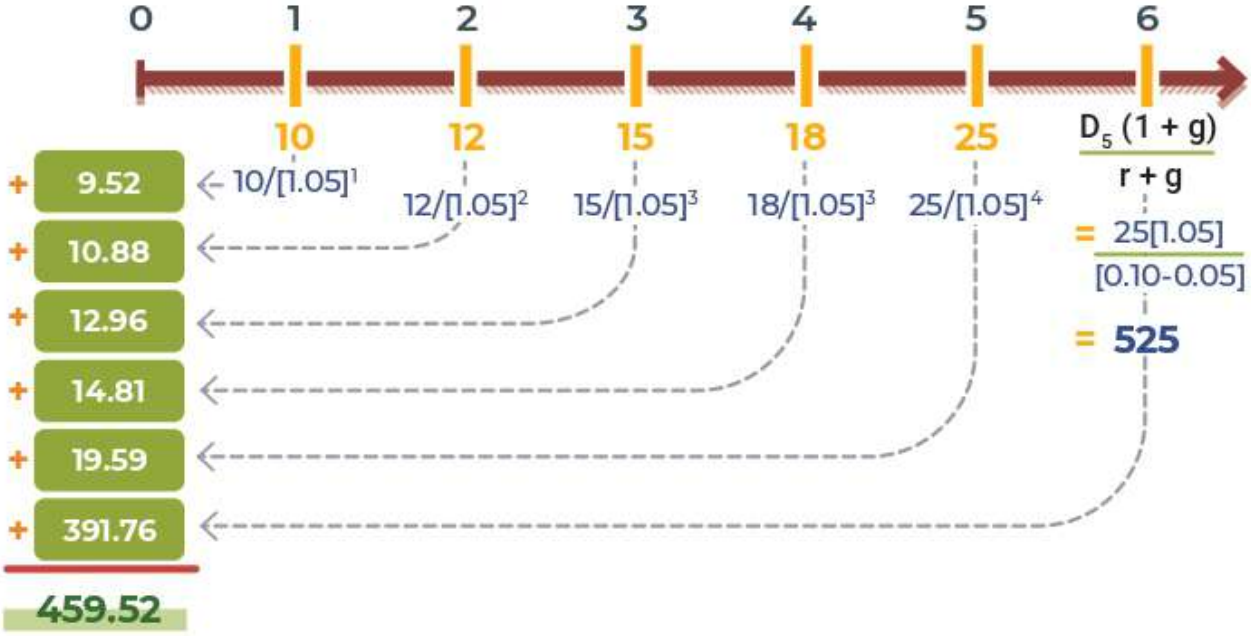
DDM [Dividend Discount Model]

A dividend is a distribution of profits by a company to its shareholders. When a company earns a profit or surplus, it can pay a proportion of the profit as a dividend to shareholders. **If a company pays regular dividends, then it can be valued using a dividend discount model (DDM). A DDM is a valuation method where estimated future dividends are discounted to the present to find the value of a company.**

The formula looks like this:

$$P = \frac{D_1}{r - g}$$

The method to calculate value using dividends is very similar to DCF. Suppose a company pays dividends of ₹10, ₹12, ₹15, ₹18, and ₹25 per share for the first, second, third, fourth, and fifth year. Let's assume that the dividend perpetually grows at 5% and its cost of equity is 10%. We calculate its per share value to be:



The Dividend Discount Model or **DDM model price is the stock's intrinsic value.** If the stock pays no dividends, then the expected future cash flow will be the sale price of the stock. DDM falls under the category of Absolute Valuation.

Explainer Video

Relative Valuation

A relative valuation is a business valuation method that compares a company's value to that of its competitors or industry peers to assess if the firm is overvalued or undervalued. Different ratios are used for this analysis.

Here, one doesn't try to estimate the exact value of a business, but instead compares a company's different parameters to its peers or its own performance in the past.

Name	TCS	HCL Technologies
PE Ratio	31.64	19.16
Dividend Yield	1.28%	3.34%
EV/EBITDA	21.02	11.71

From the example above, it seems that TCS is relatively attractively valued compared to HCL technologies.

Like absolute value models, investors may use relative valuation models when determining whether a company's stock is a good buy. **One of the most popular relative valuation multiples is the price-to-earnings (P/E) ratio.**

A closer look at Relative Valuation

To summarize, relative valuation is a technique that compares the value of a business to those of its peers. Some common ways to conduct relative valuation are:

Name	Numerator	Denominator	Rationale
PE Ratio	Price per share	Earnings per share	Shows what the market is willing to pay today for a stock for each rupee of earning.
PB Ratio	Price per share	Book Value per share	Compares market valution relative to its book value.
EV/EBITDA	Enterprise value	EBITDA	Shows what the market is valuing ech rupee of EBITDA for companies.

Key Performance Indicators

Key performince indicators are operations metrics that help us understand the nature of a business and compare its operations, assets, values and other industry specific ratios to its peers. They usually differ by industry.

common metrics

- **Tariff per room**
- **Occupancy rate** (number of occupied rooms / total number of rooms)
- **Revenue per customer** (total revenue/number of customers)

Hotel Industry

For this purpose, we may use price per room or price per customer in hotel industry. In this way we can identify industry ratios to see which companies are cheap and which are expensive.

Comparables

Comparables is a term given to the peers against which the company under consideration is compared. Companies with their main operations in a similar sector usually form part of a peer group. Finding comparables means finding companies that are similar to each other.

Vodafone Idea and Airtel are good comparables for Jio (an Indian telecom company).

Constructing a good peer group is essential for conducting effective relative valuation.

Absolute Valuation

Absolute Valuation, refers to a business valuation method that uses discounted cash flow (DCF) analysis to determine a company's financial worth. Here, one tries to estimate the exact value of the business. Absolute valuation includes forecasting of future cash flows, discounting it and coming up with current value of the company.

Investors can determine if a stock is currently under or overvalued by comparing the stock's absolute value to its current price.

Example for Absolute Value:

Consider Company X, which currently trades on the market for **₹370.50.**
After running a **DCF analysis** on its estimated future cash flows, an analyst determines that the absolute value of the firm is **₹450.30.**
Based on the numbers, an investor is led to believe that it is a buying opportunity as the stocks of Company X are under-valued in the current situation.

Challenges of using Absolute Value:

- Estimating a company's absolute value does not come without its setbacks.
- Forecasting the cash flows with certainty and projecting how long the cash flows will remain on a growth trajectory is challenging.
- In addition, predicting an accurate growth rate, evaluating an appropriate discount rate to calculate the present value can be difficult.

- Since the absolute valuation approach determines a stock's worth strictly based on the characteristics and fundamentals of the company under analysis, there is no scope for comparison to other companies.
- The best way to evaluate a stock's real value is to incorporate a mix of absolute and relative valuation methods.

Now that we have understood the terms better, lets get started with the FInancial Models and how to do the things we have witnessed.

Notes

Getting started with

Financial Modeling

Templates

4

Explainer Video

Introduction

So after going through the basic concepts required to understand, Financial Modelling for valuation purposes, lets move on and see financial modelling templates.

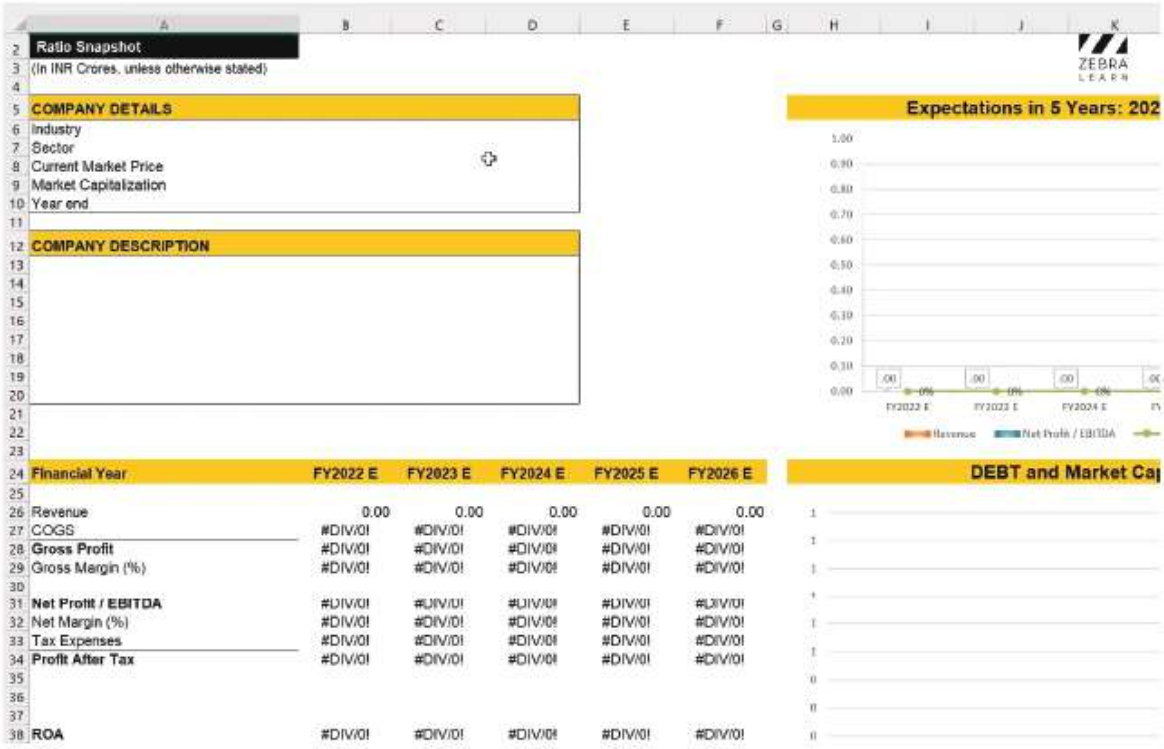
First, what is a template?

A template is a form, mold, or pattern, that can be used as a guide to making something. Essentially, a financial modelling template is something which you can use as a reference to build your models.

The entire financial modelling process is based on a template. It's like the skeleton of a model on which you can build based on your objective and tweak it to accommodate company-specific requirements.

Remember, there are different templates for different objectives. Also, different companies have different templates for similar objectives too.

Remember that Microsoft Excel would be our best friend while modelling because most templates are built on that. The popularity of Excel comes from its intelligent capabilities and its ease of use. Look how in the pictures below, the template has formulas in place already. You need to put the right inputs and voilà! Your final model is ready!



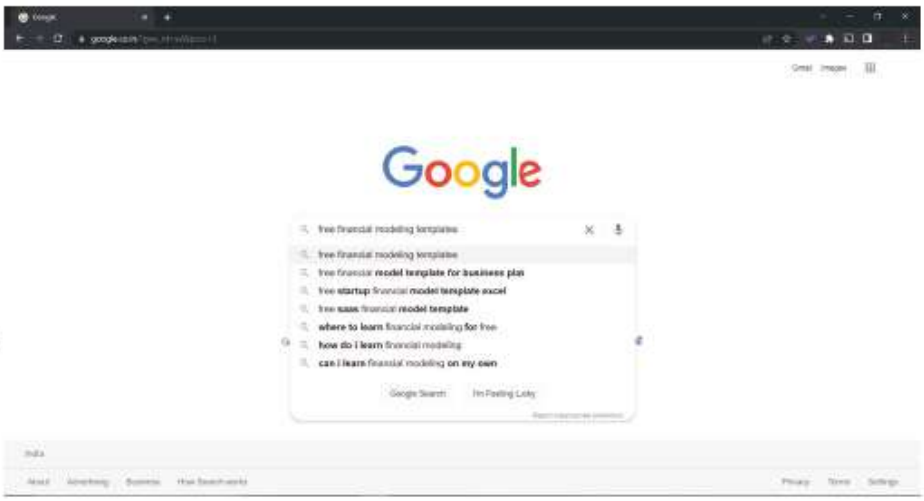
2	Ratio Snapshot					
3	(In INR Crores, unless otherwise stated)					
5	COMPANY DETAILS					
6	Industry					
7	Sector					
8	Current Market Price					
9	Market Capitalization					
10	Year end					
12	COMPANY DESCRIPTION					
24	Financial Year	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E
26	Revenue	0.00	0.00	0.00	0.00	0.00
27	COGS	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
28	Gross Profit	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
29	Gross Margin (%)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
31	Net Profit / EBITDA	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
32	Net Margin (%)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
33	Tax Expenses	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
34	Profit After Tax	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
38	ROA	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Finding templates for financial modelling

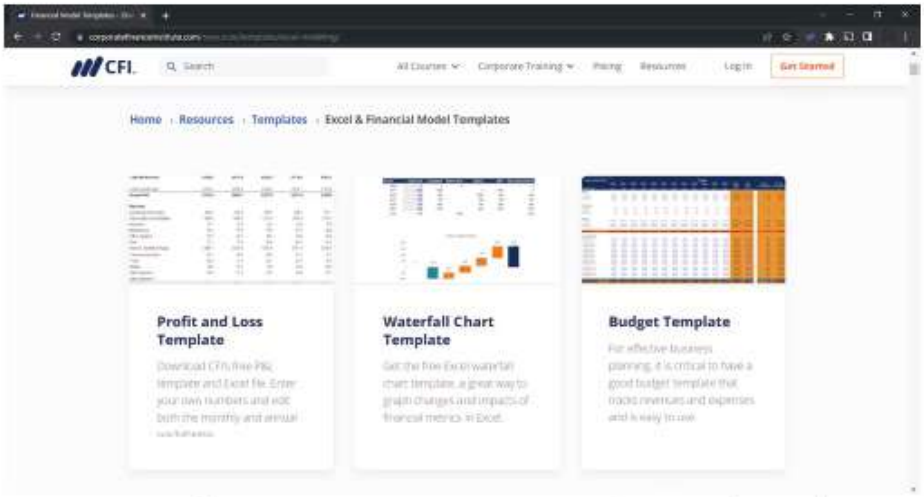
Though we have provided you with our financial modelling template to get started on your modelling journey, we suggest you go through the different types of models available on the internet. 'Financial model' is a wide subject and there are so many topics that use modelling. You may find many different models, all having their agenda - ranging from financial statement analysis to loan schedules, budgeting, and a whole lot more.

Let's find a template on Google:

1 **Search for 'free financial modelling templates' on Google.**

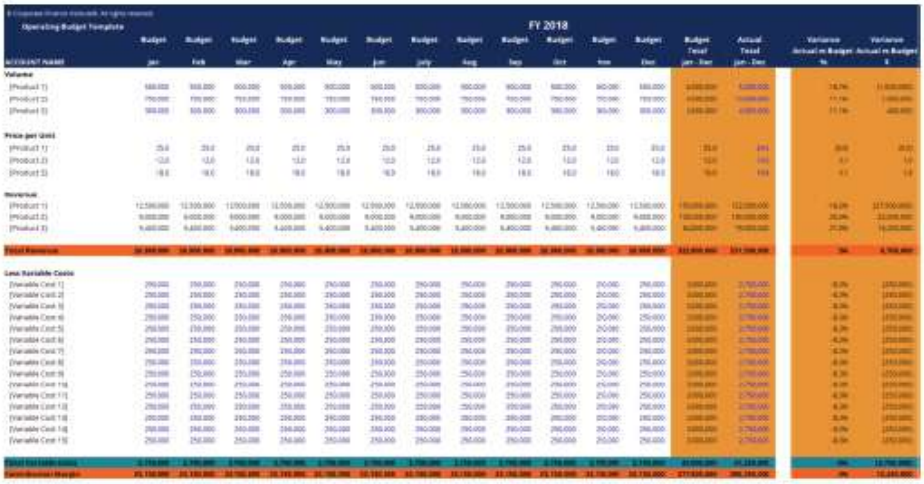


2 You would find really good models here -



https://corporatefinanceinstitute.com/resources/templates/excel-modelling/

Here is a budgeting emplate:



Source: https://corporatefinanceinstitute.com/resources/templates/excel-modelling/operating-budget/

All these templates are similar and relatively easy to switch. Once you get a grip on financial modelling, you will need only 15-20 minutes to familiarize yourself with any given template.

All these numbers may look a little scary, for now! But it's just a matter of getting used to looking at such data frequently. We suggest you go through the different components of a model. Looking at different types of models and their composition will develop your understanding of how financial models are constructed and put to use. This will also make you familiar and more comfortable with different templates.

Most likely when you start working in a job, your employee will have model that they use. But it would be a good practice to try and make your model as well. Start from scratch. Add a component that will meet your scope of analysis. It does not have to be final. You can keep refining it as and when you want to make meaningful changes to it. The key is to have a tailor-made template that can help you effectively analyze the company you want. But this won't happen on day one. This takes time and practice. Meanwhile, start with other financial models that you see around.

Assignment for Practice

Please follow these steps mentioned and collect different financial templates and go through them for both education and ease of understanding.

There are multiple agendas and types of templates available like:

- Valuation
- Loan Amortization
- Financial Statement Analysis
- Budget preparation

Next, we look at how to analyze businesses so that we can enter numbers in the model with a better business understanding.

Notes

Understanding a

Business

5

Explainer Video

Introduction

You have learned the framework required for a financial model. Now let's understand the business analysis part.

Financial modelling is both an art and a science. Techniques will help you build a model, but accurate forecasting demands on good business and industry understanding.

An important aspect of this activity is to understand the context in which we are building models. A lot of people make the mistake of forecasting just based on historical trends. But one needs to realize that the past is not always a representation of the future. You need to know the environment in which those numbers were reported. For situations where business, company or industry is evolving, Past numbers are not good representations. Here, business understanding is necessary. This is what we will understand in this chapter.

A good model-building process looks like this:

1. **Understand the past. Financial information from the past helps understand trends from the past and the performance of the company. This can be used to understand the future performance too.**

2. **Next, we try to forecast what the business will look like in the years ahead. This is the tricky part. The current economic environment, management commentary, news, and other information can be used along with past data to estimate a future for the business that'll be close to reality. However, an understanding of industry and business helps us forecast more accurately.**

3. **Finally, we value the business using a suitable valuation technique, based on the forecasted cashflows.**

Understanding the business and industry context in each of these stages is vital.

You have to look at four crucial aspects while analyzing a business. Again, we can have another book to understand how to analyse an industry or a business. But for our purpose, we will focus on few basic parameters.

Stage

A company operates differently at every stage.

Startup | Small Companies | Large Listed Company

Business Model and Competitive Position

You need to develop a basic understanding of how the business makes money and what drives its revenues. How unique are its products? Does the company have any cost advantage?

Industry and Capital Intensity

Every industry has different characteristics and growth opportunities. A capital-heavy business operates differently than a capital-light business. Also, industry characteristics influence how the future of companies in the industry size be like.

Peer Group

Comparison with its peer group helps determine the strengths and weaknesses of a company. Also, it allows us to carry out relative valuation for the company.

Knowledge Box

A good model represents reality as closely as possible. And that requires good research. Better research will help you make realistic assumptions and forecasted numbers. However, it would not be possible to study every company in as much detail. However, try to understand the basics of the company and industry atleast.

"Good research is not about spending more hours, it's about asking the right questions."

Lets understand these in greater detail and once we have this background, we can finally jump to creating financial models.

5.1 The different stages of a Company

Explainer Video

A company goes through different stages during its life. We will learn about the different stages of a company and talk about how financial models are is different at each stage.

Startup

A startup is a newly established business. This is the first stage of any company. **At this stage, the founder and their team are just testing its products and the market. Business processes are not established, and the business is considered risky and volatile. Many variables are unknown even to the founding team. Such businesses are very difficult to model from outside.**

Small Business

A small business is relatively more mature than a startup. Processes and variables are relatively better known is small business and they generally have more historical data to create a model.

Large Listed Companies

A large listed company gets listed on the stock exchange. These big companies, have a proven business and have data to create financial models. However, having said that, the assumptions we make play a critical part.

Creating a financial model for any stage is very different from any other stage.

Preparing a financial model for a startup,

You need to understand the industry it operates in and understand the numbe rof other players in the industry.

Only management information (although never 100% accurate) will help you make forecasts. Creating models as a complete outside is extremely difficult when evaluating startup.

Growth in a startup is non-linear.

Being a high-risk / high-reward business, discounting rates can be as high as 40% sometimes.

The key is to understand the drivers of growth and costs of the company and to have knowledge about the industry.

Preparing Financial model for a small business,

Here, the management has gone through a trial and error process and now knows what is working for the business. Variables of the business are better known.

Operations are better managed, though aren't very efficient.

At such a stage, earnings are less volatile than a startup and the past still cannot be relied on completely to forecast the future.

Management commentary is helpful and reliable.

Preparing a financial model for a large listed comany,

Large businesses have been in the market for a very long time, therefore, their past data can be used to predict their performance in the next 5 -10 years.

Large businesses have relatively stable cash flows (differs by industry).

We may observe that a lot of our future predictions would be on similar lines as the past data. However, we need to be careful if someday has changed.

Management guidance plays a significant role in predicting the future cash flows.

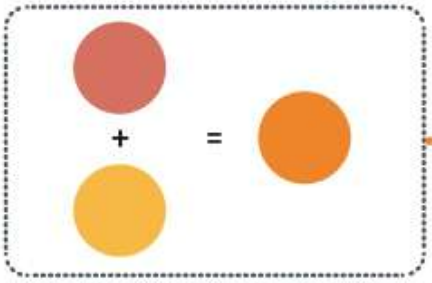
In our book, we focus on preparing models and valuing these types of companies. Once you get used to these, you can adapt to almost any type of model.

5.2 Financial Models for transaction

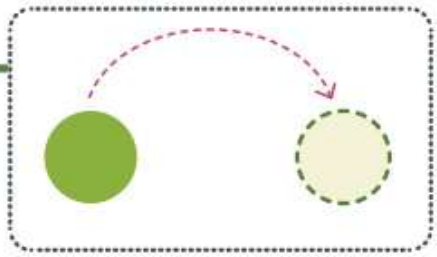
Explainer Video

One of the most common uses of financial modelling is during events like - acquisition, mergers, JV, etc. Hence, past data is not very effective in forecasting the future. This is creating ginancial models for transactions.

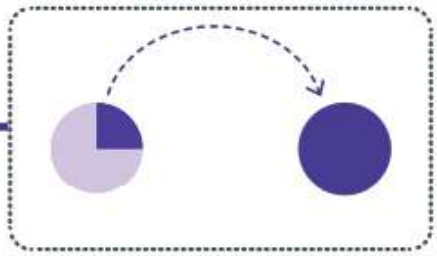
For exmaple, consider that company A is buying company B, or company A is acquiring company B. Now, you cannot model company A based just on its past. Given the new transaction, both companies will behave differently. Due to the recent acquisition of B, there will be certain changes. Usually, mergers and acquisitions occur so that two companies can take advantage of newly developed synergies. The different types of transactions with generalized examples could be:



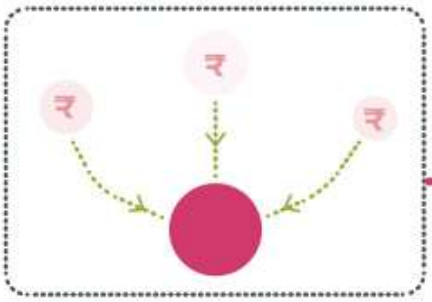
Company A and Company B merge to form a new entity called Company C



Company A is acquiring Company B



Company A sells a part of itself to Company B.



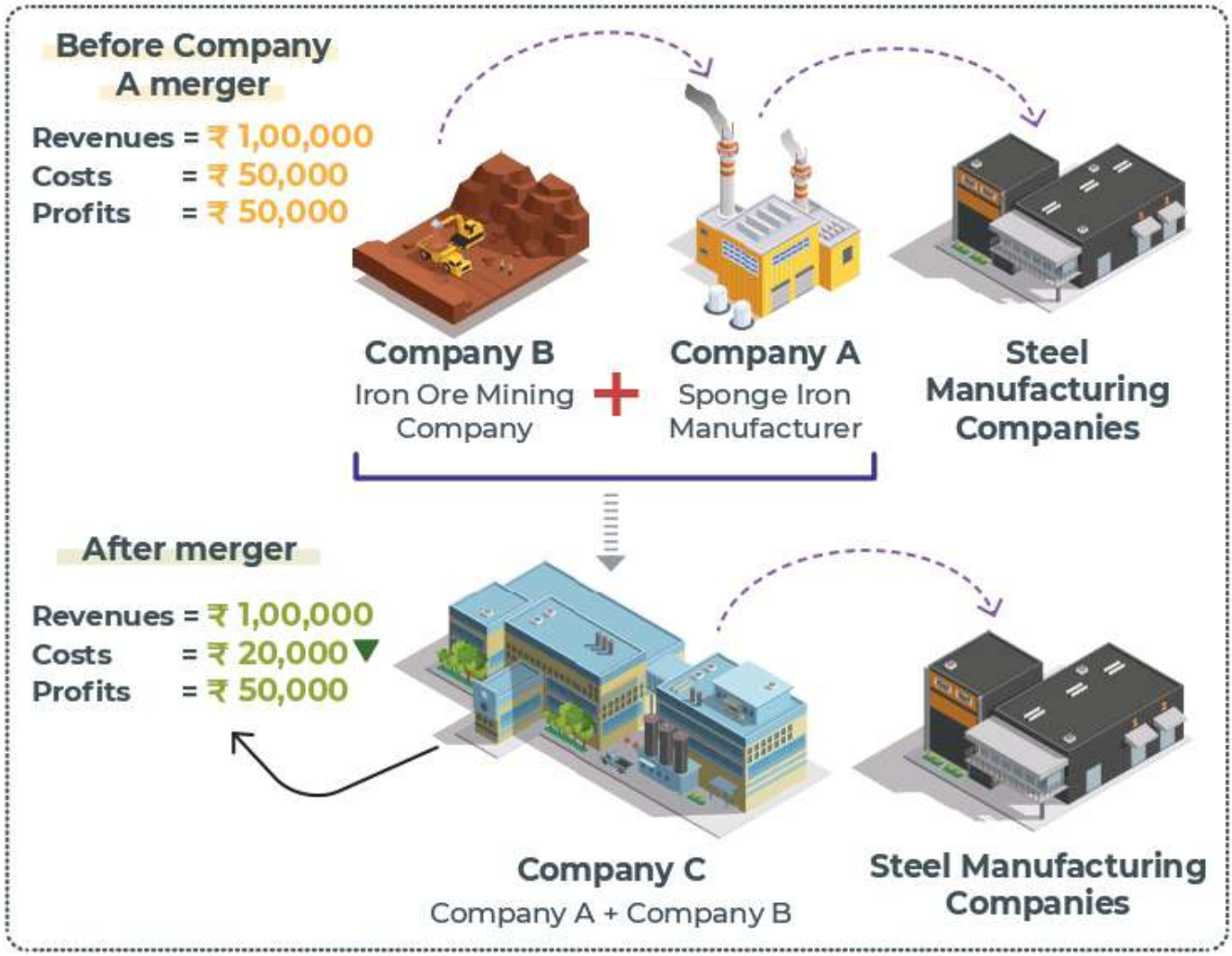
Company B raises funds from other corporate entities.

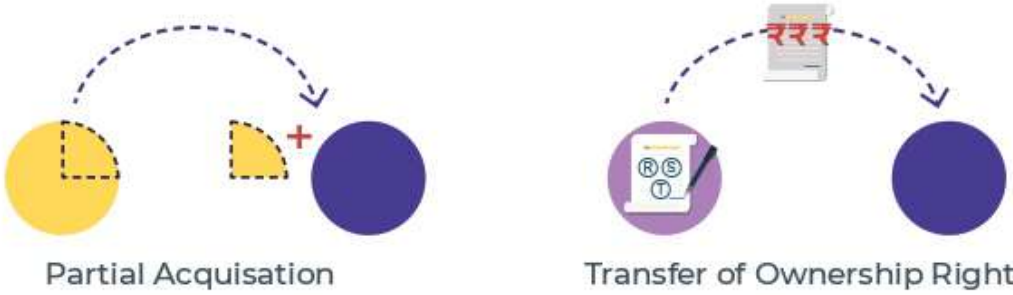
Each transaction has a different impact on its business activities and its market position. **The "Status Quo" of the company might change depending on the transaction.**

While forecasting the future of a company whose composition has changed, we have to try and analyse on the newly created business. Revenues may grow exponentially, new assets may be added and costs may come down. Past metrics and ratios will not work. We have to create a model for the new business by keeping in mind the business implications of the recent transaction.

Synergies due to Transactions

Consider that company A is a sponge iron manufacturer and company B is a iron ore mining company.





Past data can be used in situations such as partial acquisition and transfer of ownership rights. The old data cannot be used in the case of a merger and a complete acquisition.

We must be careful while viewing and analyzing companies and stocks because **mergers and acquisitions are an integral part of any business.** One needs to understand the synergies between the companies to create a financial model post transaction.

5.3 Understanding the Business

Explainer Video

We need to know things like:

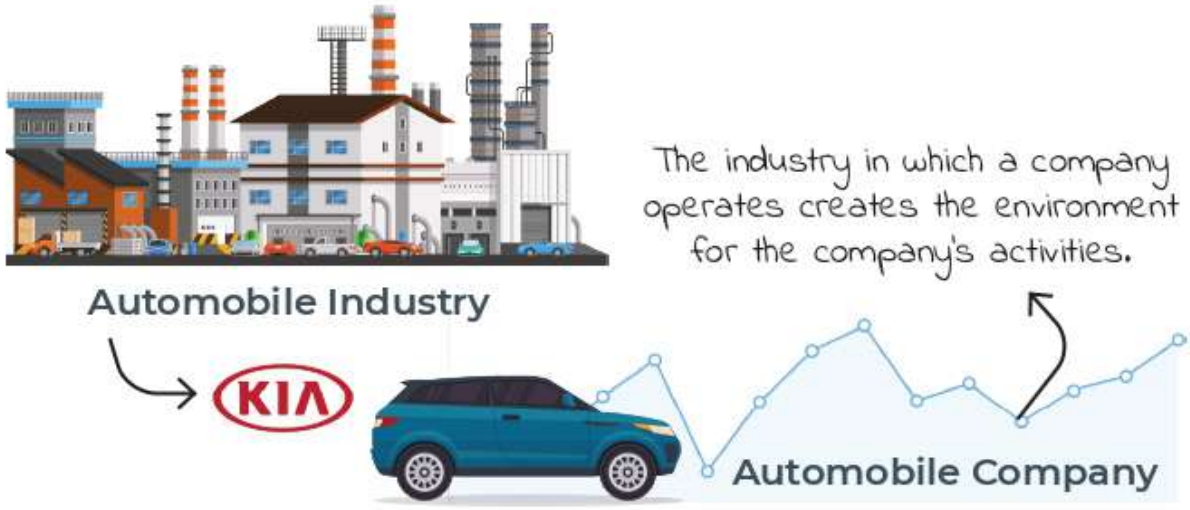
- Basic Industry Understanding
- Cash Flow of Company
- Competitive Position
- Capital Intensity of the Business
- Peer Group
- Product Life Cycle

To build a detailed and realistic model, we need to have the right context in which the business operates. Researching a business and understanding **its industry, revenue model, cost structure, assets, etc.** is very helpful, and doing so will help us in forecasting its future in a more realistic manner.

Having projections on past numbers alone would not guarantee a good model. Such a model may be far from reality. Qualitative understanding of a business is important if you want to forecast the future financials of a business. That being said, you don't need to days analysing it. **Though more research = better understanding = realistic model, your aim should be to develop a basic understanding of the business to start with.**

Here are a few aspects you should look at while understanding a business:

Industry Analysis

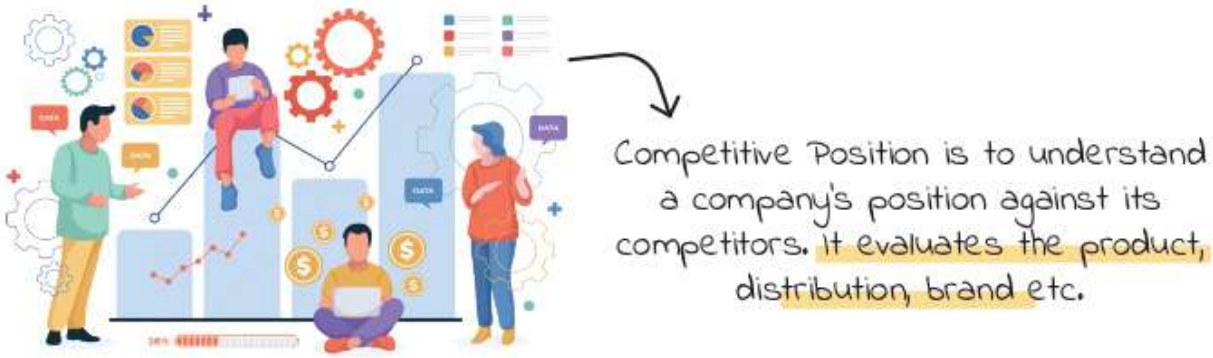


We will learn more about how to have a basic understanding of the industry, shortly.

Cash Flow

You must recollect that the cash flow statement records transactions of a business on a cash basis. A company may be 'earning' revenues, but is it making enough cash? Looking at the cash health of a business would help us determine the quality of its earnings. Not just health, you also need to understand cashflow in the industry, investment required, cash generated and so on.

Competitive Position



Capital Intensity

Knowing the capital requirements of a company will help you create better financial models.

Capital Intensity

Capital Intensive

Companies operating in infrastructure, aviation, mining, etc. require huge amounts of capital to run and grow. These are capital intensive business.

Capital Light

while others like technology or service-based businesses are asset-light as they do not require as much assets to grow.

Let us take an example of Companies A & B, where A is a Windmill Company and B is a Software Company.

Company A

This is a very capital-intensive business. Initially, we will have to invest a large amount of money as capital and towards installation charges to just start the business.

SUZLON

Vestas

Company B

This is a software company that does not require large capital investments from us to start the business when compared to the windmill industry.

Microsoft

Meta

Peer Group

Valuations and performance are mostly relative concepts. Comparing a business to its peers reveals its competitive strengths and weaknesses. To identify the right companies which are in similiar business as the company we are referring to are peer groups and is an extremely important step in creating financial models.

Product Life Cycle

From the introduction to maturity, each product goes through its life cycle. Identifying the stage in which a company is currently operating would help build a more representative financial model.

The idea is to get a grip on the above factors to model the future of a company as accurately as possible.

Having built the framework for business analysis, let's now dive deep into each of the points.

5.4 Basics of Industry Research

Explainer Video

Here we want to understand the basics of industry research to analyse a business. We need to understand basics of industry to help create realistic models. We don't need a very detailed analysis here. Casually speaking, an industry is a group of similar types of businesses. Industry research is the study of an industry and its dynamics to understand how companies within it operate. **Lets look at some points that will help us understand an industry better.**

Industry Research

Market Size

How big is the market's opportunity?

Market Stability

Do market winners remain market winners for long or do they keep changing?

Market Size

Market size refers to the total amount of sales in a given industry over a year. The more sales and customers, the larger an industry's size. The current market size of an industry and its growth rate determines the future of a business to a large extent. A growing industry means more opportunities for a business. A declining industry means less opportunities for all companies.

JK LAKSHMI CEMENT Ltd.

Before investing or preparing a Financial Model, we must **understand the company along with its competitors and the industry.**

UltraTech CEMENT

Zuari Cement

Therefore, we need to look at competitors such as **Ultra Tech** and **Zuari too while analysing JK Lakshmi Cement.**

Simultaneously, we need to have a general idea about the Cement industry to know what we are getting ourselves into.

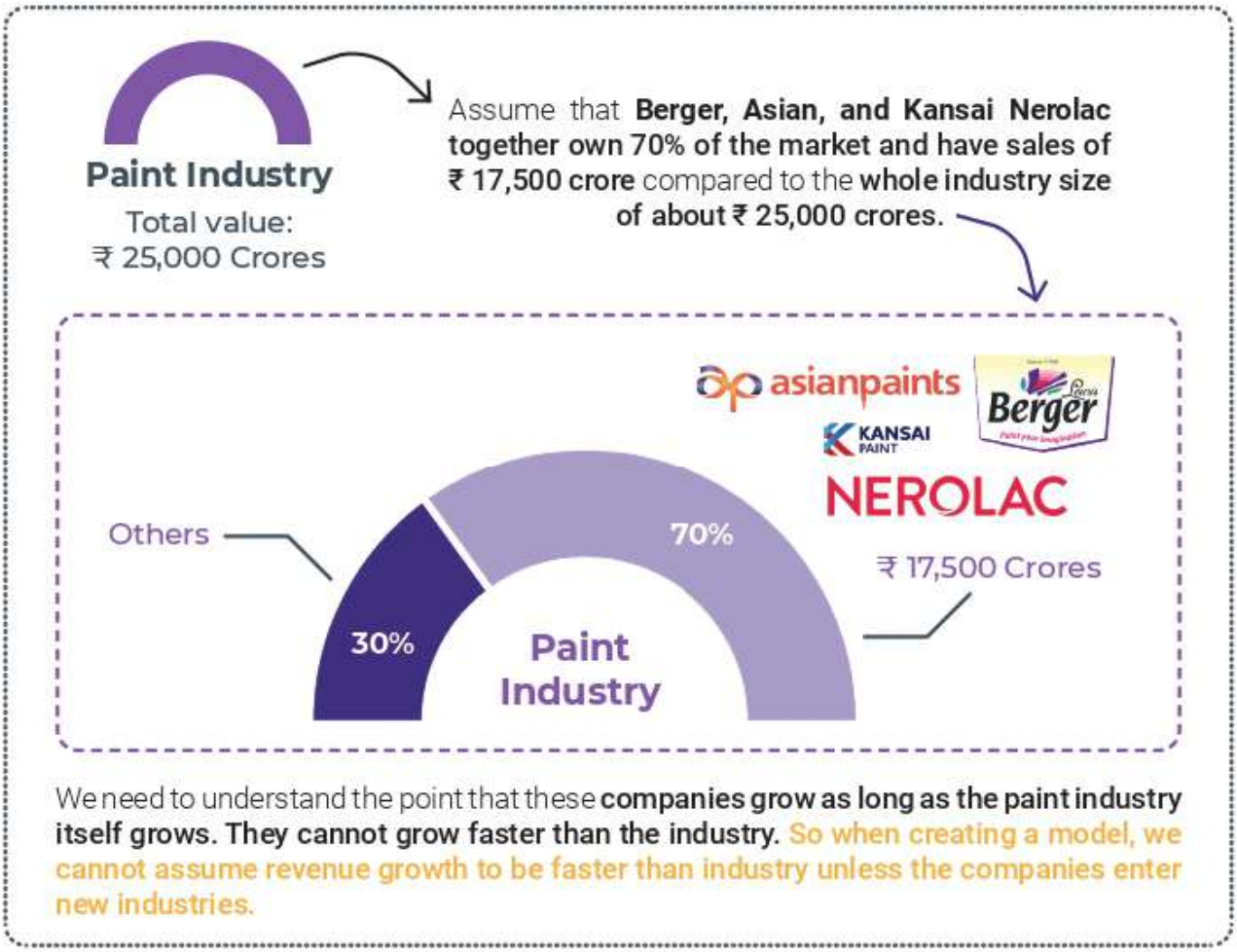
Some questions to ask:

- What is the **MARKET SIZE?**
- How long can the company keep growing?
- What is the quantity of cement sold by competitors?

However, for purpose of financial modelling, we will not dig too deep in industry competition. A basic understanding is helpful.

Overall industry size and also its growth is something that is very important any company's overall growth. In large industries, companies can grow faster than the industry. In small industries, industry size starts becoming a problem for growth.

Let us take another example of the Paints Industry. *(all numbers are hypothetical)*



We need to understand the point that these **companies grow as long as the paint industry itself grows. They cannot grow faster than the industry.** So when creating a model, we cannot assume revenue growth to be faster than industry unless the companies enter new industries.

Market Stability

Market stability in the context of industrial research means the stability of the current competitive environment. How long can leaders remain as leader or do they keep on changing?

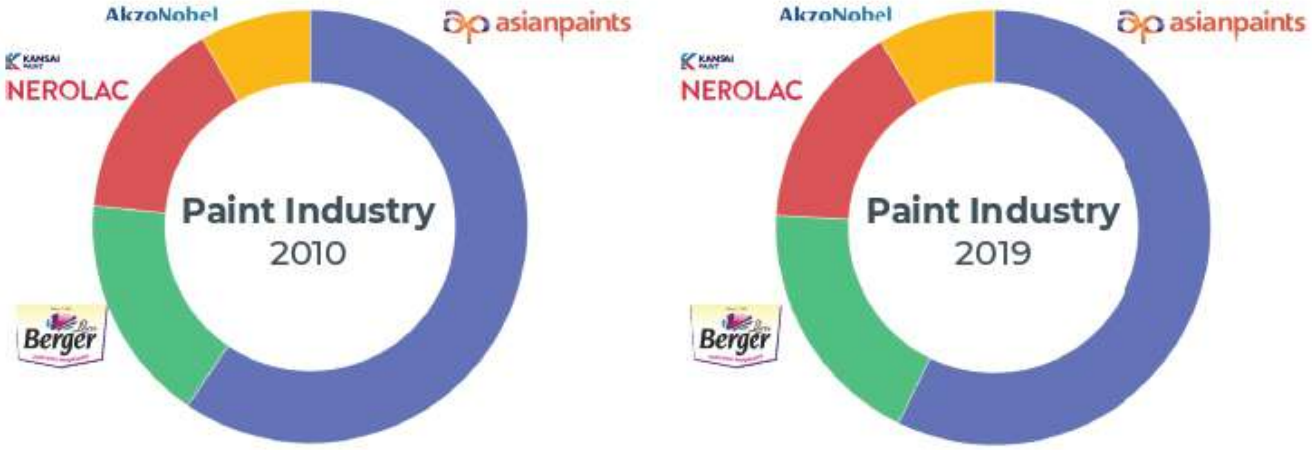
- **Are winners able to sustain market share for an extended period?**
- **Can market leaders remain leaders for long?**
- **Can past numbers be used to forecast the future, i.e. is the industry predictable?**

Yes!

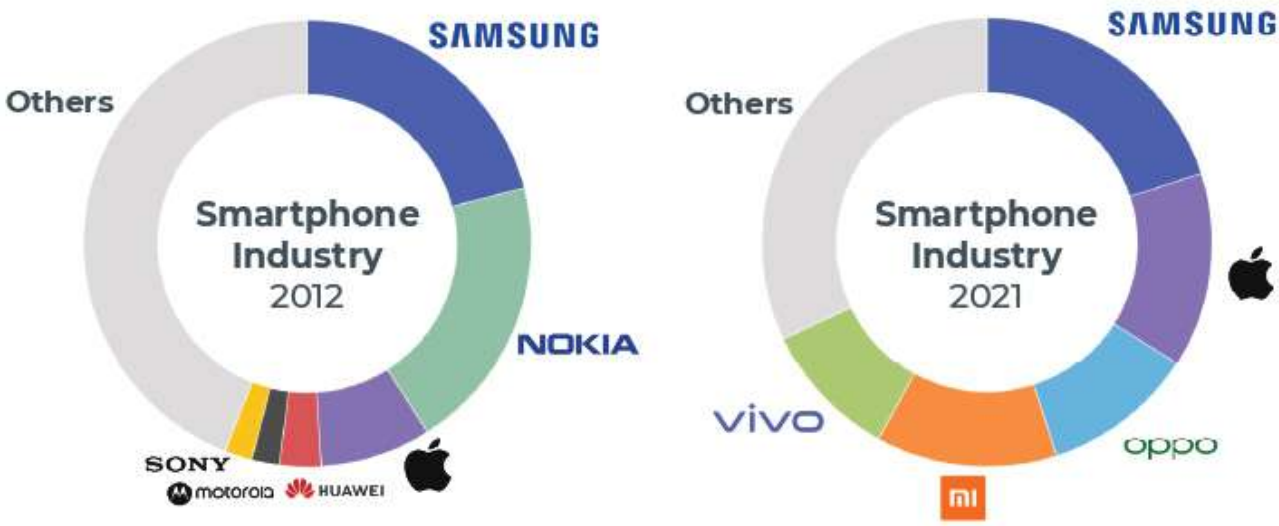
The industry is a stable one.

No!

Instability and chances of disruption by new entrants.



Considering the paint industry, **Asian Paints has been the market leader for 9 years.** There has been very little change in market share of the comapnies over time. The leaders has remained as a leader. So, we can say that paint as industry is stable.



Now let us consider the smartphone market. **A decade back, NOKIA was the market leader.** However, if we take a look now, OnePlus, Samsung and Apple have grown and won the market while NOKIA is nowhere on the list. **Even subsidiaries of BBK Technologies like Oppo, Realme, and IQOO have become market leaders for budget phones.** So, we can say that the smartphone industry is relatively less stable.

For stable industries, we can rely on the past data to forecast the future whereas for unstable industries, we can't rely on past data for financial forecasting.

A product that is highly regulated or has high switching costs for customers often creates a stable industry. More often than not, companies of stable industries are easier to create financial models than companies of unstable ones. This is because stable industries have more predictable behaviour as compared to unstable ones.

Health of Other Players in the Industry

Average performers in a good industry generally perform better than good performers in average industry.

Indicates the health of the industry.

Industry Outlook

Major Risks

Growth Outlook

User Behaviour

Peer Analysis

Next factor to understand an industry is - the health of other companies in it which tells us about the general health of the industry. Some industries offer decent returns to all players (for example healthcare), while others (like telecom) reward winners poorly as well.

If most companies in an industry are financially strong, it generally means that the industry as a whole is healthy.

Industry Outlook

Industry outlook is the prospective future for the industry. It reflects the industry's growth, potential, risks, trends, etc.

The growth potential must be calculated for the future. Such understanding helps us understand the factors influencing the industry's future, whether the outlook is positive or not. These will help us form realistic assumptions and thus a better financial model.

5.5 Competitive Positioning

Next, we need to understand competitive positioning of a company. The purpose of such research is to learn about a business and its competitors within an industry. It helps us understand which companies are competitively strong, and which ones are not. There are many aspects of a business that you can research. But most of them mainly revolve around these 4 pillars:

Explainer Video

Competitive Research tells us about the **company's position in the market against its competitors.** It tells how well its products are well positioned, how large is the distribution and so on.

Product Innovation

The success of a business depends on how innovative and unique the product is; but most importantly, how well it serves its customers. Try and figure out why a company sells what it sells and how well it does that. The key question to ask is - can the product be copied by anyone or is it unique. Unique products enjoy able average profit margins for long periods of time. Duplicable products do not enjoy such high margins.

Unique Product

Easier to maintain market position.

Can assume high returns in the model for long period

Product that can be copied

Difficult to sustain market share

- Below average or average profits
- Cannot assume high returns in the model for long period

- We need to check for **the uniqueness of the product or the service.**
- Does it have **any specialty?**
- Does it have **any unique style of manufacturing,** if it is a product?
- **How easy is it for the competitors to copy the process?**
- **Does it have a patent** or a secret recipe? (like Coca-Cola)

A unique product ensures a strong position in the market for the company.

Distribution

Distribution is the process of making a product or service available to consumers. The ease with which a consumer can access a company's products speaks a lot about the company. Often sales are a direct function of distribution.

Distribution in the modern world can be both, **through stores and online**. A good distribution strategy can be a huge competitive advantage for any company.

PARLE

ITC Limited

Hindustan Unilever Limited

FMCG giants Parle, ITC and HUL products reach the nooks and corners of India.

A unique distribution strategy can also work wonders.

boAt

D2c, Distribution by Boat allowed them to reach the customers directly.

This later translated into onffline push for the products too.

- How many **stores to sell the product of the company?**
- Does the company have **any distribution-related advantages?**
- Do they have **a pre-existing online market presence?**
- What are the **distribution channels already available for similar products** in the market?
- If not, **how much time would it take** to build a new network?

A strong distribution ensures reach for the product and is very difficult for competitors to copy and get into.

Cost Advantage

Costs directly determine the margins and profitability of a business. It also allows the company to sell more if they have cost advantages.

Different types of costs a company incurs

Sometimes a company can reduce its per unit cost by increasing volumes. Known as economies of scale, this happens due to the decrease in fixed costs as a proportion. Being aware of the cost structure of a company helps us forecast its costs and profitability for future years.

- Do they have **any significant cost advantages?**
- Do they have **any cheaper labor or raw materials?**
- Do they have **any manufacturing or service-providing location available at a cheaper cost?**
- Do they have **any logistic advantage available at lower costs?**

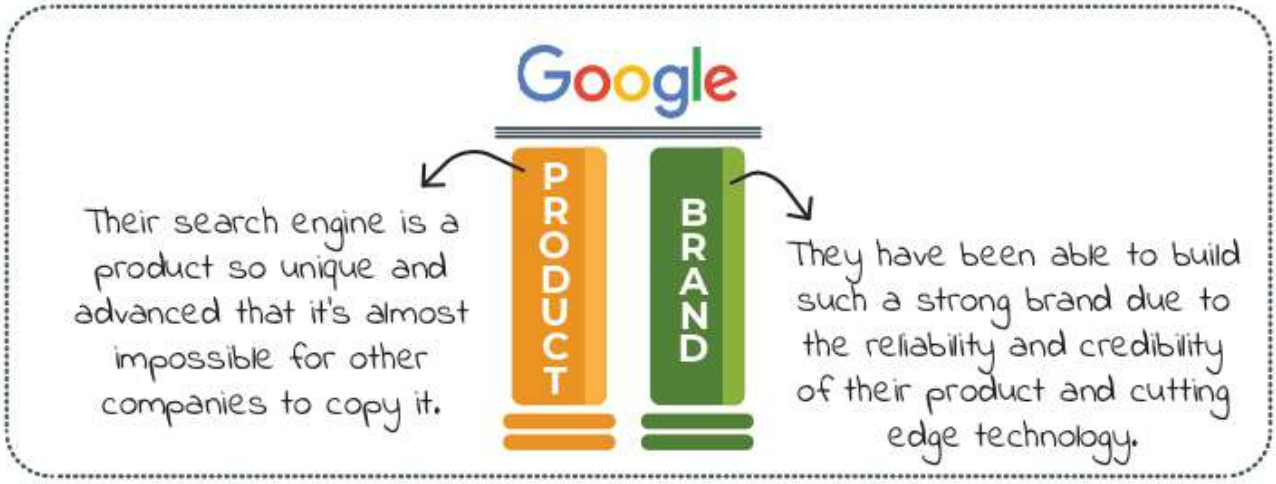
All these factors give an advantage to the company. A good understanding of the company's cost, how it moves with scale and different factors affecting it - helps us create better financial models.

Brand

A brand is an identity a customer associates with a company's products or services. Brand is how a consumer perceives the company and its products. A strong brand allows companies to sell more as compared to a competitor and also at a higher price. **Strong brand can be built through**

- Forming a relationship with clients
- Great marketing
- Prompt after-sales service
- Excellent quality of products and services

A business with a strong brand can drive sales, command high margins and maintain market share for sustained periods. Successful companies possess a distinct advantage in at least one of the above-mentioned areas. Companies that have advantage in the categories, go on to do really well.



Competitive research will help you develop an overall understanding of the company. You can build on this by industry-specific or company-specific metrics. However, such understanding of company and its position should be instrumental in building financial models.

- How strong is the **brand value of the company?**
- Can this strong presence be used in any way **to improve the sales and profit figures?**
- **How high is the brand loyalty** shown by its customers?

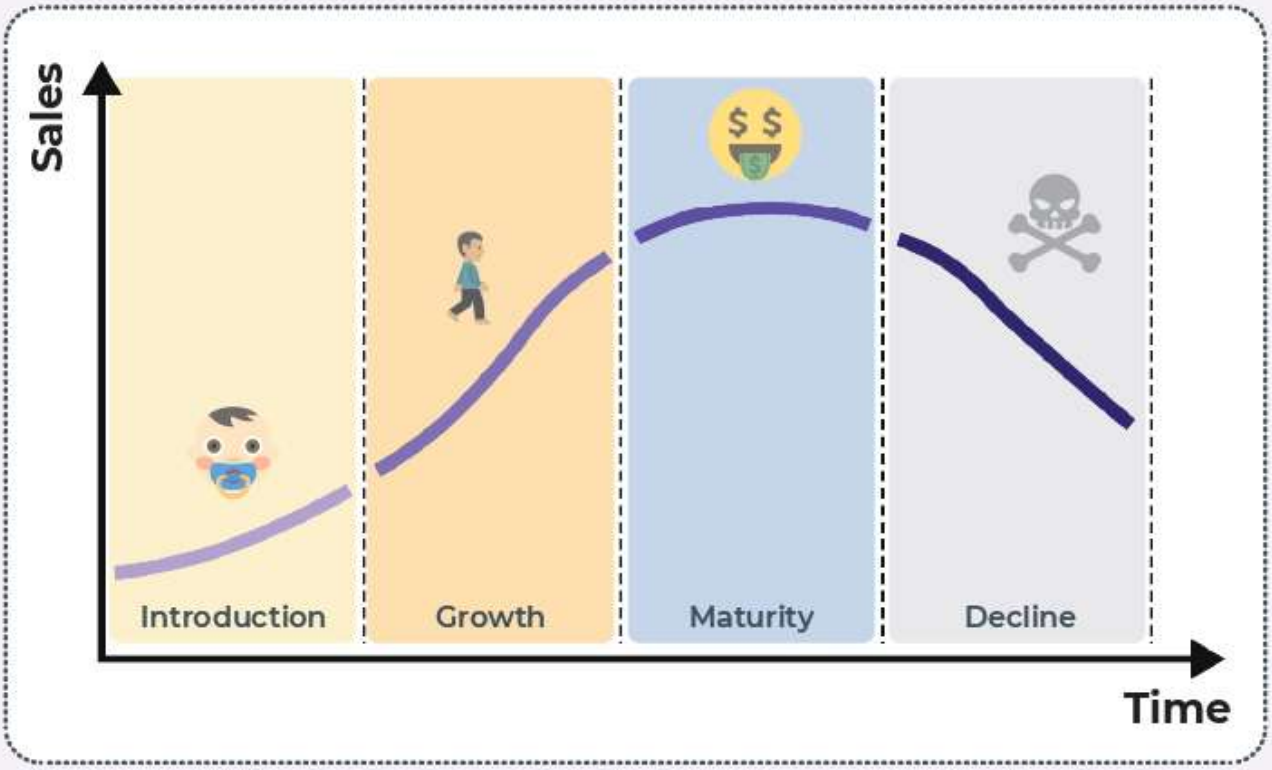
Let's now move on to understand the concept of a product life cycle.

5.6 Product Life Cycle

Explainer Video

Just like we as humans have a life cycle of being born, growing up, living, and dying; products have their life cycle too. No product is immortal and each product goes through various stages.

Theoretically, a product life cycle is a time from when a product is first introduced to customers until it is obsolete in the market. The cycle is broadly divided into 4 parts. Every stage has its characteristics. The 4 stages are:



Introduction (Birth): When a company introduces a new product in the market, it is said to be in the introduction stage. Here, the majority of the time is spent in research and development to develop a good product and test the market. Growth is slow and there are negligible revenues.

Growth (Acceptance): In the growth stage, the product starts gaining acceptance and we can see more people buying it. Revenues improve at a fast pace and the growth phase can last for weeks or even years.

Maturity (Saturation): When a product reaches maturity, growth starts to plateau. Growth slows down significantly. Competition starts fighting for market share.

Decline (Decline): The last stage of a product life cycle, the decline stage comes after maturity. Here, customers have found better or cheaper alternatives to the product. The product starts to become obsolete and better value propositions come to the model.

Let's now look at each stage in detail.

Explainer Video

Introduction

- Low and Slow Sales
- Lack of Awareness
- Low Profits
- High Product Development Expenses
- High Promotional Expenses
- Negative Cash Flows

The introduction phase is the first stage in the product life cycle. A new product is introduced in the market. Characteristics of an introduction phase are:

- **Extensive promotions:** A business spends huge sums of money on advertising and promoting the product because the goal is not to make profits right away but to get feedback and improve on it. The cost of acquisition per customer is high as well.

- **Low sales:** The introduction stage is characterized by low sales and slow growth. Here, the product is still in the experimentation stage and getting refined.

- **Negative cash flow:** Such high spending on promotions and product development results in **negative cash flows** for businesses in the introduction phase.

Product Development

- **High Spend:** Initial phases require high experimentation as a result companies here incur heavy research and product development cost.

If you are creating a model for a company in the introduction phase, assumptions like slow growth, negative cash flow, etc. should be reflected.

Growth

- Rapid Increase in Sales
- Product Improvements
- Increase in Competition
- Increase in Profits
- Reduction in Price
- Heavy Cash Outflow
- Inefficient Operations

The growth phase for a product is indicated by customer acceptance. It is when more and more people start to buy the product and the pace of sales growth picks up. Characteristics of a growth phase are:

- **Growing sales and reduced costs:** Customers start accepting the product. Promotions help the product reach customers across areas. Costs come down due to economies of scale. However, profits are still low since the current aim is growth and not profits. The focus here is to gain as much market as possible before competition picks up. Many unprofitable startups, fall in this category.

zomato

Zomato, a food delivery service company is one of them.

- **Product enhancements:** The company is now getting a lot of feedback because of increased traction. It works to polish the product further.

SAMSUNG

- **Competition:** Noticing the growth opportunities and success of a product, **new companies enter the market.** Competing brands enter the market and competitive pressure is built.

EV Sector

- **Cash flow situation: The cash flow in growth phase is still negative or close to breaking even.** This is because extensive promotions and product development expenses are being incurred whereas sales is still not that high.

- **Operations:** Since growth and expansion is fast, the business may not be able to maintain operations at the same pace. **Systems are still inefficient and costs are not fully optimized.**

Explainer Video

Maturity

Slow Increase in Sales

Normal Product Improvements

Surplus Cash Produced

Low Investment Requirements

Low Promotional Expenses

The maturity phase is a time in the product life cycle when the sales reach a plateau. A company tapped into most of its customer base and growth rate becomes slow. Characteristics of a maturity phase are:

- **Slowing sales growth:** Here, sales begin to level off after the rapid growth period. It is because most of the target audience is already captured. **'Growth' as such is not seen.**
- **Product:** Since the product is already refined by now, **few new features are introduced. Only minor enhancements take place,** such that a differentiated product is maintained. Product has been built and developed.
- **Cash flow:** The company has reached a period of profitability now. **Cash flow is positive and no major investment spending is required.** Companies often give good dividends during this period.

Companies love the growth phase and always try to delay maturity as much as possible. Some companies keep introducing new features and products, thus starting a new product cycle. Maturity phase can last for ages. You never know when an alternative product or industry can replace an existing one.

Kodak Camera

replaced by

Smartphone

Decline

Decrease in Sales

Little to no Promotional Expenses

Positive Cash Flow

Frees up Investment tied up earlier

The stage in a product life cycle when a product starts to shrink due to decreased or negative growth is identified as the decline stage. Characteristics of a decline phase are:

- **Sales decrease:** By this time in the product life cycle, **competing brands have entered with refined products.** Customers start migrating to better alternatives. Hence, sales decrease in such a period.

- **No new investment opportunities:** There are **no new profitable investments visible** to the management around the product. The company is unable to delay decline with additional features.

- **Positive but reducing cash flow: Cash flow is positive and intact, but it is not growing.** The survival of the product is under threat. Here, the company will free up cash from the working capital which they should look to deploy elsewhere.

When creating financial model, we must understand the stage of company's product and build keeping the characteristics in mind.

5.7 Is the business Capital Light or Capital Intensive?

Explainer Video

Let's now talk about capital intensity. Capital intensity is the amount of fixed capital and working capital required to run a business. Every industry hasdifferent capital requirements. Some require more and others require less. We need to understand this while creating a financial model.

Capital-intensive Business

Capital Intensive Business	A company having huge capital requirements to run is a capital-intensive business.	
Examples	TATA STEEL, adani Ports and Logistics, VISTARA, IndianOil, SUZLON	
Features	 For example, infrastructure, energy, manufacturing etc.	
	 Generally has high debt and high fixed assets. It will be next to impossible to put up equity for entire plant/project.	
Ratios	**Asset Turnover**	**Debt-Equity**
	Low	**High**

One way to identify a capital intensified business is that

Ratio = Revenue/Total Assets < 3

Capital-light Business

Capital Light Business	• A company having relatively less capital requirements to run is a capital-light business. • Their capital structure usually has a high amount of equity,low debt and they do not very high assets.	
Examples	wipro, CDSL (Convenient • Dependable • Secure), HCL, PayPal, BharatPe	
Features	 Found in industries like technology, services, marketplaces, etc.	
	 They have relatively less assets. These businesses have high operating capital requirements.	
Ratios	**Asset Turnover**	**Debt-Equity**
	High	**Low**

They incur high employee expenses that needs to be tracked.

One way to identify a capital light business is that

→ **Ratio = Revenue/Total Assets > 3**

You can see how businesses with different capital structures operate and behave differently. A financial model should reflect the inherent capital structure of a business. You should forecast its future keeping in mind its capital intensity and related effects.You should keep in mind the capital required to grow and adequately provision that in the business.

Let's now explore the seasonality of products and businesses.

5.8 Is the business seasonal?

Explainer Video

Seasonal Business

Affects Cash Requirements of the company

High cash and capacity requirements at the peak

Low Cash and Capacity requirements at the other times

A seasonal business makes the bulk of its revenues during selected times of the year.

Sun Umbrellas, an umbrella-making company makes most of its money during monsoons.

Non-seasonal Business

Good and Stable Cash Flow throughout the year

Follow regular trends

Evens out sales for each month of the year

A non-seasonal business is one whose products sell throughout the year. It requires steady cash and capacity at all times.

Natraj, Apsara, Classmate and Navneet are some such companies engaged in non-seasonal business.

Let's now learn about one more crucial aspect before building financial models - working capital.

5.9 Capital Requirements - Working & Fixed Capital

Explainer Video

The last section of this chapter is about working capital and fixed capital requirements.

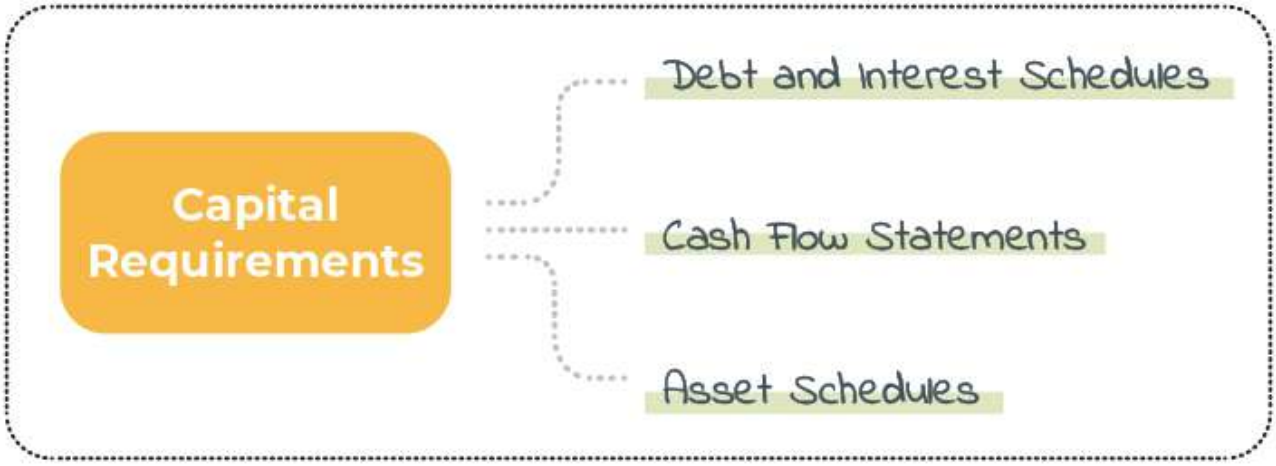
The capital of a business used in its day-to-day operations is known as working capital. As per theory,

Working Capital = Current Assets - Current Liabilities

Current Assets → Short term Assets

Current Liabilities → Short term Liabilities

How working capital and fixed capital impacts Financial Model?



Our aim should be to know how different factors affect working and fixed capital and how companies manage their capital requirements at different times.

You don't need to research too much about each component, just a broad understanding is enough. Being aware of the factors affecting the working and fixed capital structures helps us model a business better.

With this, we come to the end of this chapter. We now understand the basics of industry and business. We can move on to building its financial model based on that understanding.

Creating

Financial Models

6

Explainer Video

Introduction

In the last chapter, we talked about the importance of understanding the basics of the industry and business. Now that we know the background of a company's operations, let's get started with actually making a financial model. From now on, we will be dealing with Microsoft Excel. It's better to get familiar with Excel functions and shortcuts before learning how to make a model.

The idea of what we are about to learn is to grasp the concepts of modelling so well that we can create a financial model for any company. Also, we will "Learn by Doing". We already have downloaded the sample template. Lets now go about building a model using it.

Tip

As we explain the steps and processes of building a financial model, try recreating the same model on your laptop/computer. It's better to 'do and learn' rather than 'read and learn'.

Making a model for company valuation has 3 steps:

Step 1

Filling up historical data from past years' financial statements

Step 2

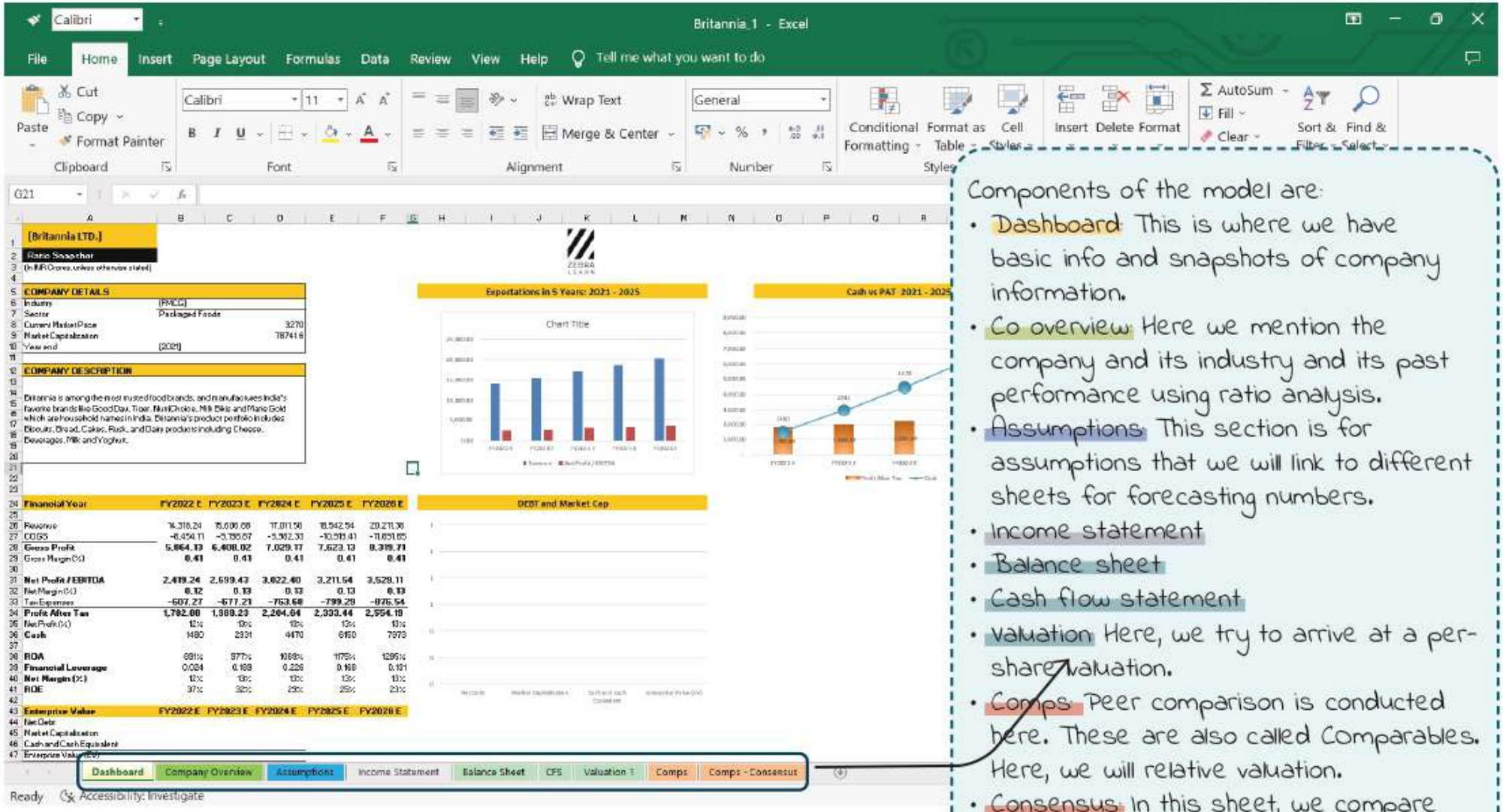
Making assumptions and forecasting for the future

Step 3

Selecting an appropriate valuation method, valuing the company's shares, and conducting a consensus analysis.

We have created a template that you can use, find it here:

The first page of the template looks something like this:



You can notice by looking at the template that each of these sheets and its components is divided into columns resembling past and future years.

Next, we will talk about how to get data and fill in past numbers.

6.1 Filling Up the past numbers, normalizing inputs, and KPIs

Let's start with filling up past data in the template.

Data Source

The first and foremost thing we need **to get right is the source of data.** Make sure that for your initial models, you use **the original annual report and quarterly results** as uploaded by the company.


BRITANNIA

3rd June, 2022

The Secretary
BSE Limited
Phiroze Jeejeebhoy
Towers, Dalal Street
Fort, Mumbai - 400 001

The Manager
Listing Department
National Stock Exchange of India Limited
Exchange Plaza, 5th Floor
Plot No. C/1, G Block
Bandra Kurla Complex
Bandra (E), Mumbai - 400 051

Dear Sir/Madam,

Sub : Annual Report for the financial year 2021-22 and Notice convening the 103rd Annual General Meeting

Ref : Regulation 34, 53 and other applicable provisions of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015

Pursuant to the provisions of Regulation 34, 53 and other applicable provisions of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, please find enclosed herewith the Annual Report for F.Y. 2021-22 and the Notice convening the 103rd Annual General Meeting (AGM) of the Company.

Pursuant to relevant circulars issued by the Ministry of Corporate Affairs and the Securities and Exchange Board of India, the Annual Report of the Company for F.Y. 2021-22 and Notice of 103rd AGM is e-mailed through e-mail to all the Members whose Email IDs are registered with the Company/Depository Participant(s).

The Annual Report for F.Y. 2021-22 and Notice of 103rd Annual General Meeting is also uploaded on the Company's website at http://britannia.co.in/investors/annual-report.

Request you to take the above information / documents on records.

Yours faithfully,
For Britannia Industries Limited

T.V.Thulsidas
Company Secretary
Membership No.: A20827

Encl: As Above

Britannia Industries Limited

Punching in the numbers manually would help you understand the nitty-gritty of the company financials. We can see how the numbers have moved over the years.

Once you get the gist of it, you can move to paid services like **Capitaline and Ace Equity** to pull out financials directly into excel format and work with the same. However, to begin with, make sure to punch data manually.

CAPITALINE DATABASES

ACE ANALYSER

Simple tools like Screener also have export features.

screener.in

Remember that regardless of how you enter data, you will have to go to each line item and normalize them so that it stays correct. We will see how to do this, shortly.

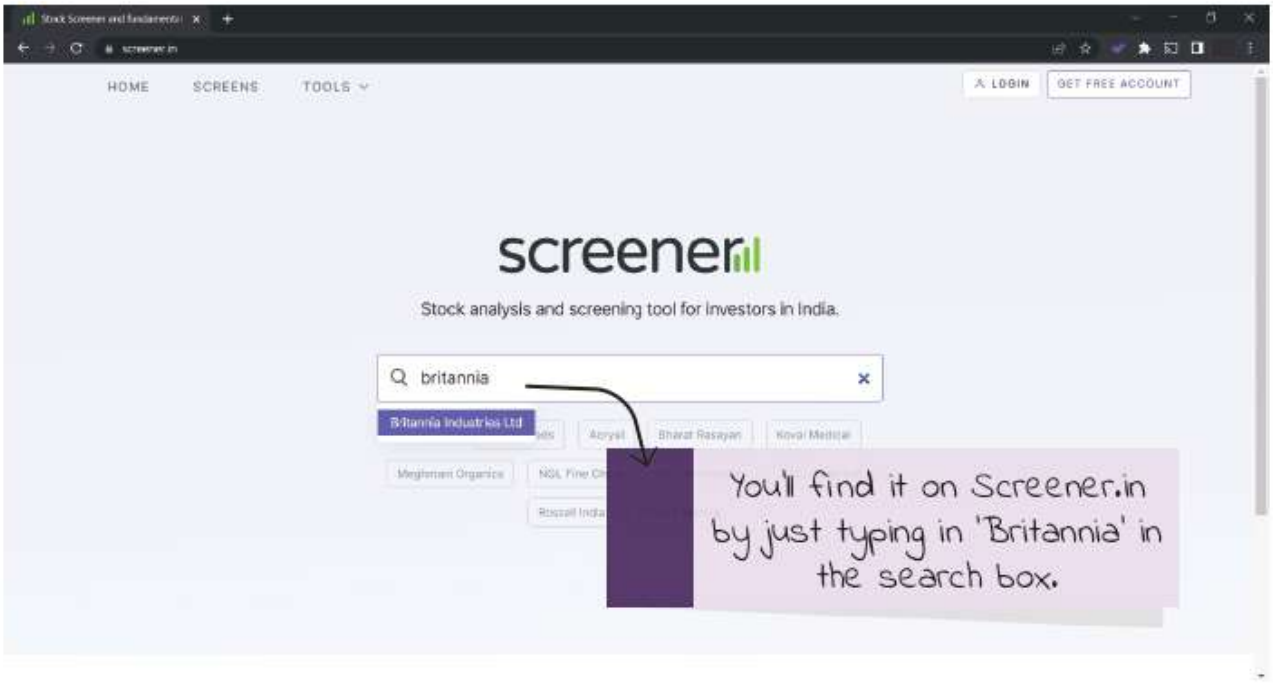
Categorize correctly

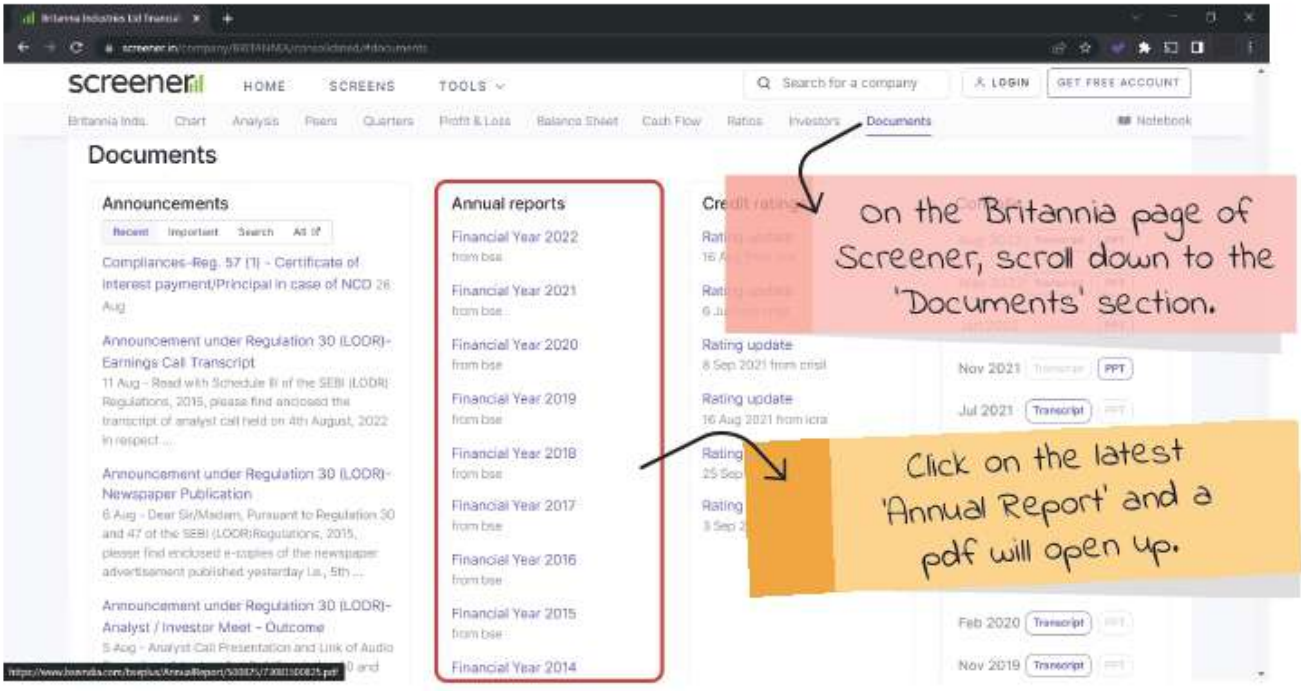
When we enter inputs we need to categorise line items under different categories. It is also important to correctly categorize line items in your model. This is done to ensure comparability over years.

You need to categorize each item, in the same way, each year. This means if you have categorized power expense under the cost of goods sold, that should be the case each year.

Explainer Video

Let's make a financial model for Britannia, a FMCG company.

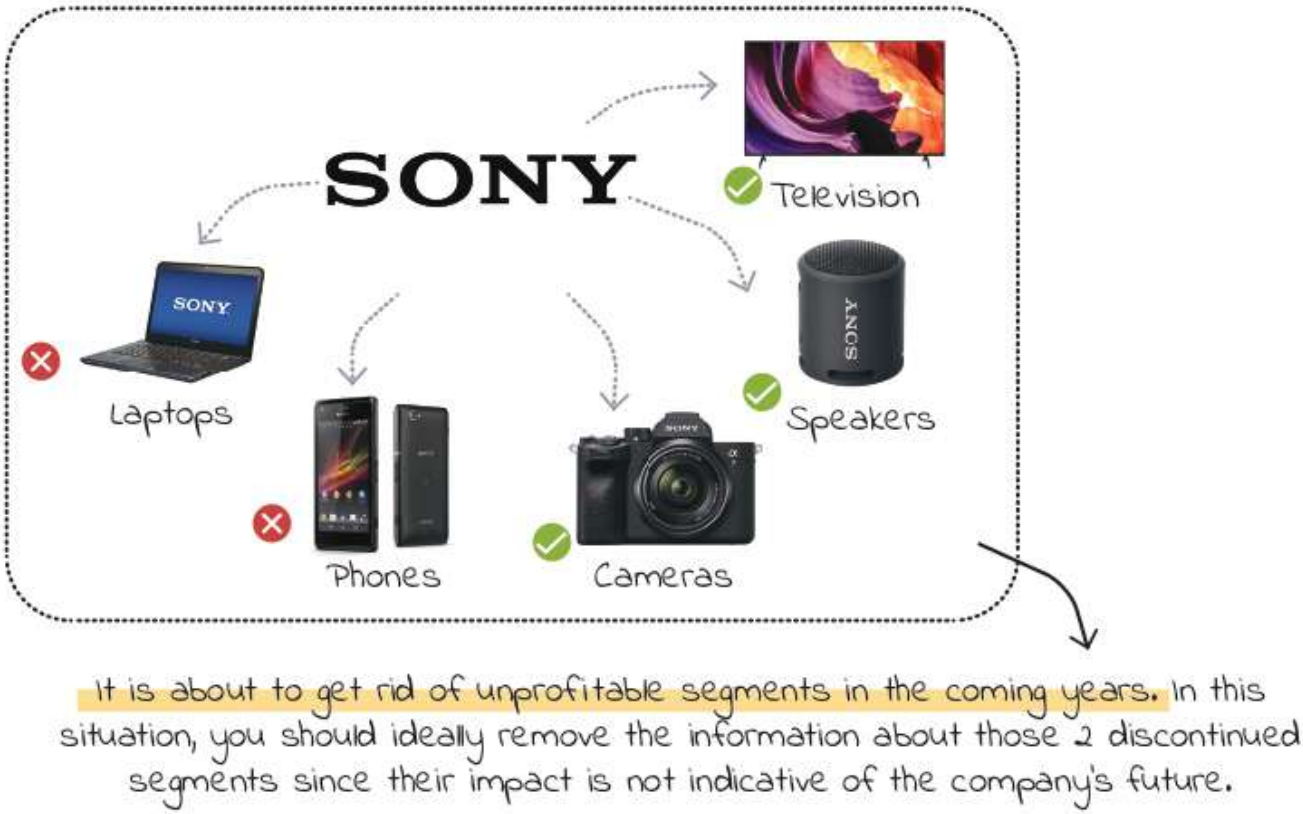




We would be using numbers from here as raw inputs for our model. After that, we need to normalize the data.

To normalize, first, we need to remove all one-off items since we need to create the model for the company only based on recurring line items.

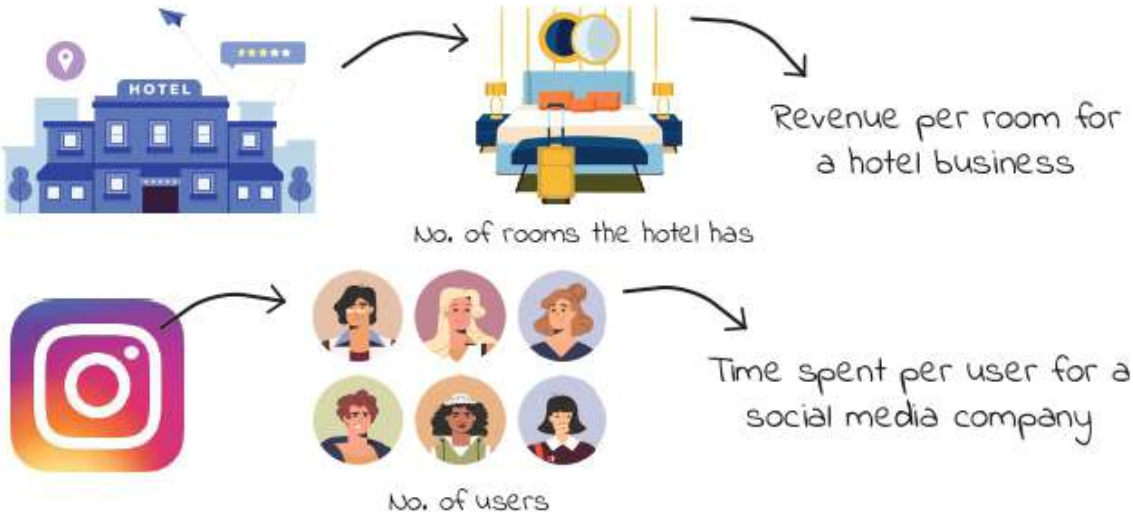
Profit/loss due to the sale of assets, insurance claims, and windfall gains are an example of other one-off items. Next, remove discontinued items.



We remove one-time and discontinued line items to ensure that the company's past only includes items that will also continue in the future. As a result, past data will more closely resemble future numbers.

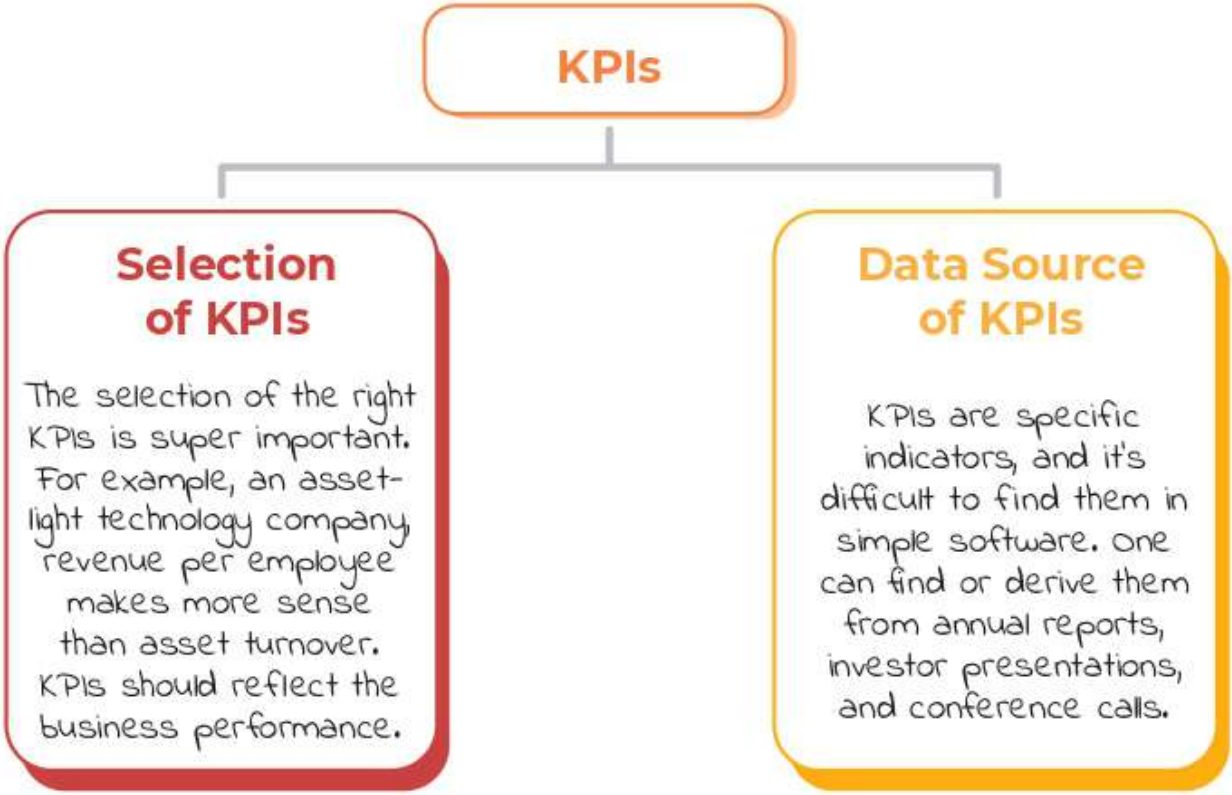
KPIs

Industry-specific data points that further help us understand and track a business are **key performance indicators (KPIs)**. KPIs are quantifiable numbers that indicates how the business is performing on different fronts. Different industries have different KPIs and they can together indicate the overall health of different companies.



These indicators can then be included in the financial model and we can create forecasts for these KPIs too.

2 things to remember while using KPIs are:



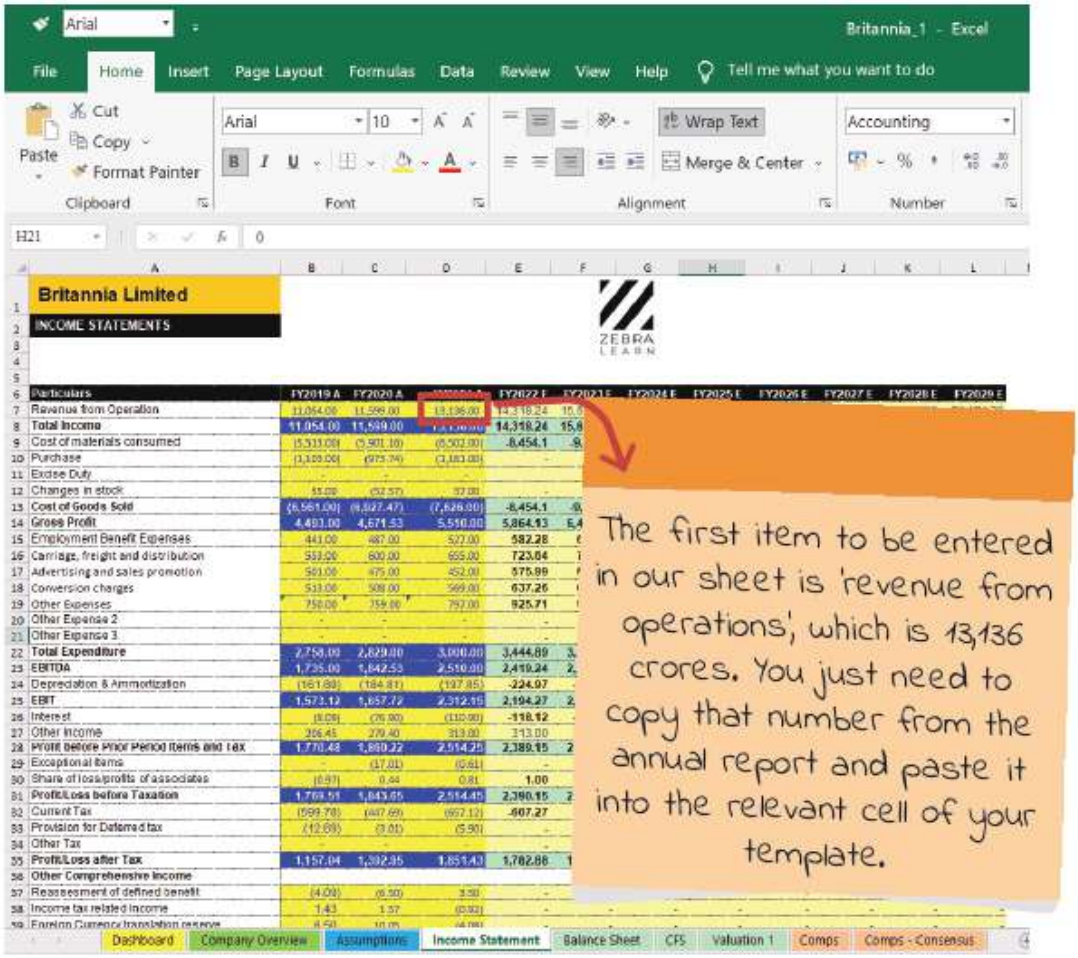
Now that we know what data we need and where to get it from, let's start entering the line items from Britannia's reports into our model.

6.2 Filling Profit and Loss Sheet

Explainer Video

Let's continue to build a model for Britannia. We would be entering **the financial statements for the last 3 years**. The more data you have, the clearer the trend is. It is **common to use past 5 years of financial data.** Remember to always use the consolidated statements of any company since that represents the entire operations of the company.

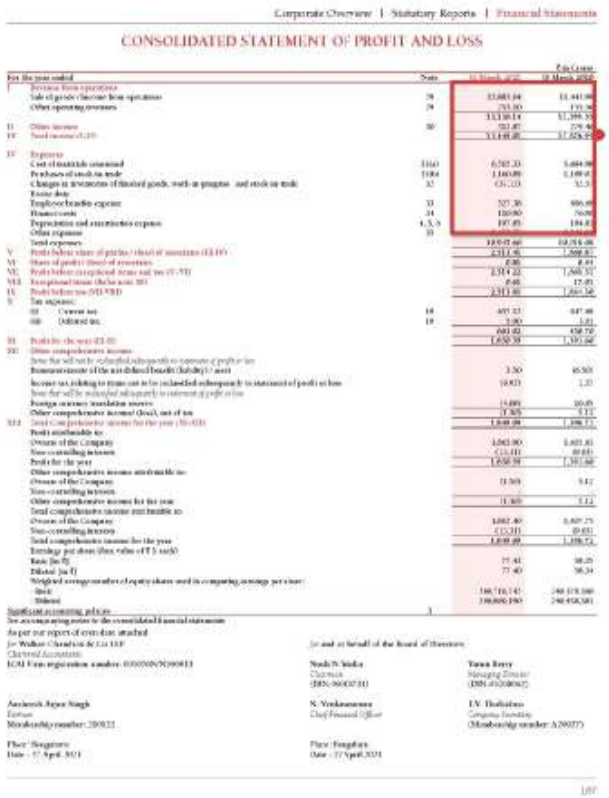
Let's start with the income statement. We would start entering line items for the year 2021 and move on to 2020 and 2019. Given below is the income statement as in the template:



You can refer to the comparison picture above. This is a time consuming process, but it would be worth it. By the end of it, you would have read all the line items. And your speed too will pick up after doing this exercise 2-3 times. We will manually enter the line items related to past data in the template.

Tip

Make it a habit to always mention the currency and units in your headings.



CONSOLIDATED STATEMENT OF PROFIT AND LOSS

In similar manner, as we entered the revenue, we will also add the other line items in the Income Statement.

You can see how we have filled in the cost of raw materials, purchases of stock in trade and change in stock in our sheet to calculate the gross profit. After entering the line items for depreciation and amortization, our income statement would look like the one below.

A22 | fx | EBIT

	A	B	C	D
4				
5	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**
6	**Revenue from Operation**	-	-	12,883.00
7				
8	Cost of materials consumed	-	-	6,502.00
9	Purchase of stock in Trade	-	-	1,161.00
10	Excise Duty	-	-	-
11	Changes in stock	-	-	(37.00)
12	**Cost of Goods Sold**	-	-	7,626.00
13	**Gross Profit**	-	-	20,509.00
14	**Expenses :**			
15	Employment Benefit Expenses	-	-	527.00
16	Other Expenses 1	-	-	-
17	Other Expenses 2	-	-	-
18	Other Expenses 3	-	-	-
19	**Total Expenditure**	-	-	8,153.00
20	**EBITDA**	-	-	21,036.00
21	Depreciation and Ammortization	-	-	198.00
22	**EBIT**	-	-	21,234.00
23	Interest	-	-	110.00

Dashboard | Company Overview | Assumptions | Income Statement | Balance She

Corporate Overview | Statutory Reports | Financial Statements

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

₹ in Crores

For the year ended	31 March 2021	31 March 2020
Note 35 : Other expenses		
Consumption of stores and spares	38.08	38.66
Power and fuel	162.29	177.30
Rent [Refer note 37 (a)]	36.85	34.05
Repairs and maintenance:		
- Plant and equipment (a)	29.22	33.56
- Buildings (a)	4.09	3.35
- Others	33.69	26.50
Insurance	8.94	5.42
Rates and taxes, net	9.14	8.50
Carriage, freight and distribution	655.81	600.12
Auditors' remuneration: (b)		
- Audit fees	1.45	1.40
- Other services	0.16	0.28
- Expenses reimbursed	0.05	0.18
Corporate social responsibility [Refer note 44]	33.40	29.24
Advertising and sales promotion	451.46	475.39
Conversion charges	569.13	508.61
Allowance for doubtful receivables and loans, net	0.55	0.26
Miscellaneous	421.12	399.10
	2,473.37	2,342.21
(a) Includes stores and spares consumed	8.28	10.89
(b) Excluding applicable taxes		

Note 36 Contingent liabilities and commitments:

(i) Contingent liabilities:

(a) Claims / demands against the Group not acknowledged as debts including excise duty, income tax, sales tax and trade and other demands of ₹ 93.89 (31 March 2020: ₹ 93.05).

(b) Bank guarantee and letter of credit for ₹ 84.62 (31 March 2020: ₹ 44.90).

Notes:

(i) Contingent liabilities disclosed above represent possible obligations where possibility of cash outflow to settle the obligations is not remote.

(ii) The above does not include non-quantifiable industrial disputes and other legal disputes pending before various judicial authorities [Also refer note 40 and 53].

(iii) The Supreme court of India in the month of February 2019 had passed a judgement relating to definition of wages under the Provident Fund Act, 1952. Considering that there are numerous interpretative issues relating to this judgement and in the absence of reliable measurement of the provision for the earlier periods, the Company had made a suitable provision for provident fund contribution during the Financial Year 2018-19. The Company will evaluate its position and update its provision, if required, on receiving further clarity on the subject. The Company does not expect any material impact of the same.

(ii) Commitments:

(a) Estimated amount of contracts remaining to be executed on capital account and not provided for ₹ 405.82 (31 March 2020: ₹ 135.70).

If you look at 'other expenses' in the annual report, you will see that it is relatively a large number compared to other items. Referring to note number 35 of the statements reveals its components.

Companies often include a large number of expenses in 'other expenses'. we can break it down and includelarge expenses individually in the Financial Model. Expenses like carriage, freight, advertising conversion charges can have their own entry and smaller expenses we can show as one item - 'other expenses'.

D20 =SUM(D15:D19)+D12

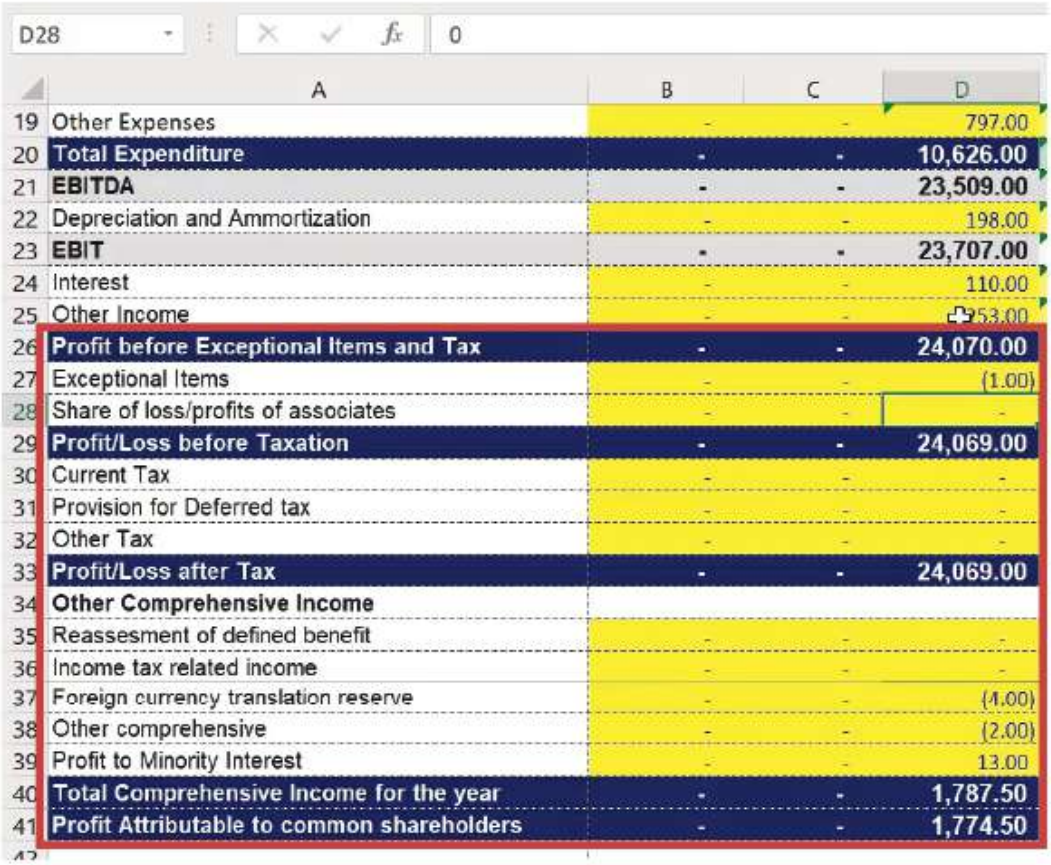
	A	B	C	D
8	Cost of materials consumed	-	-	6,502.00
9	Purchase of stock in Trade	-	-	1,161.00
10	Excise Duty	-	-	-
11	Changes in stock	-	-	(37.00)
12	**Cost of Goods Sold**	**-**	**-**	**7,626.00**
13	**Gross Profit**	**-**	**-**	**20,509.00**
14	**Expenses :**			
15	Employment Benefit Expenses	-	-	527.00
16	Carriage, freight and distribution	-	-	655.00
17	Advertising and sales promotion	-	-	452.00
18	Conversion charges			569.00
19	Other Expenses	-	-	797.00
20	**Total Expenditure**	**-**	**-**	**10,626.00**
21	**EBITDA**	**-**	**-**	**23,509.00**
22	Depreciation and Ammortization	-	-	198.00
23	**EBIT**	**-**	**-**	**23,707.00**
24	Interest	-	-	110.00
25	Other Income	-	-	253.00
26	**Profit before Exceptional Items and Tax**	**-**	**-**	**24,070.00**
27	Exceptional Items	-	-	-

Dashboard | Company Overview | Assumptions | Income Statement | Balance She

We also need to ensure that excel formulas in the template are not broken while entering the numbers

The sheet on the previous page is how it looks after adjusting the 'other expenses' items:

An even detailed model can be created, but this level of detail is enough for forecasting in most cases.



D28 | 0

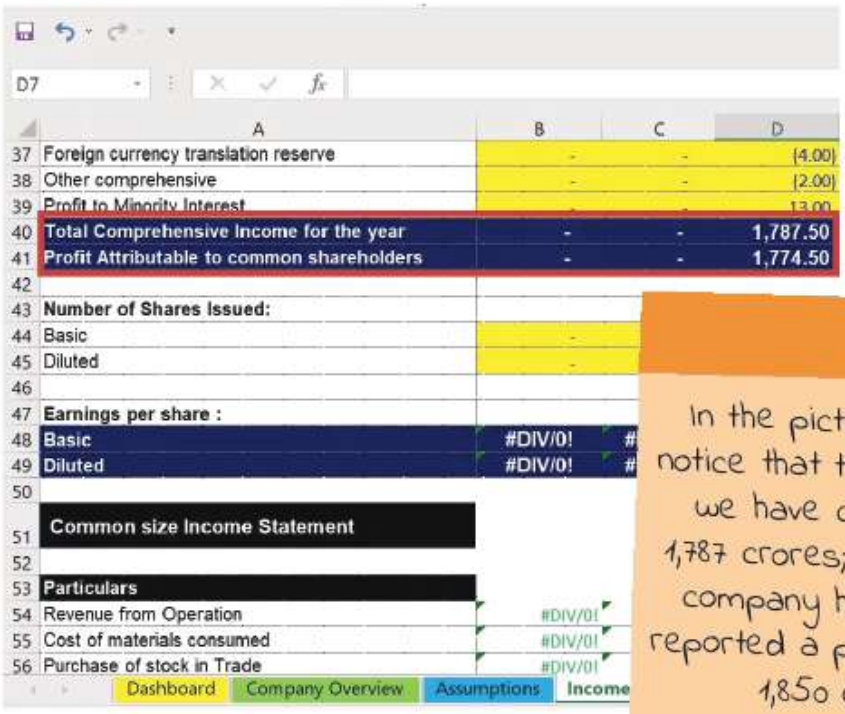
	A	B	C	D
19	Other Expenses	-	-	797.00
20	**Total Expenditure**	-	-	10,626.00
21	**EBITDA**	-	-	23,509.00
22	Depreciation and Ammortization	-	-	198.00
23	**EBIT**	-	-	23,707.00
24	Interest	-	-	110.00
25	Other Income	-	-	253.00
26	**Profit before Exceptional Items and Tax**	-	-	24,070.00
27	Exceptional Items	-	-	(1.00)
28	Share of loss/profits of associates	-	-	-
29	**Profit/Loss before Taxation**	-	-	24,069.00
30	Current Tax	-	-	-
31	Provision for Deferred tax	-	-	-
32	Other Tax	-	-	-
33	**Profit/Loss after Tax**	-	-	24,069.00
34	**Other Comprehensive Income**			
35	Reassesment of defined benefit	-	-	-
36	Income tax related income	-	-	-
37	Foreign currency translation reserve	-	-	(4.00)
38	Other comprehensive	-	-	(2.00)
39	Profit to Minority Interest	-	-	13.00
40	**Total Comprehensive Income for the year**	-	-	1,787.50
41	**Profit Attributable to common shareholders**	-	-	1,774.50

Let's also enter 'exceptional items', 'share of associates', 'current tax', and 'deferred tax' from the report. Remember that all the expenses and tax items should be negative; since they are reduced from income while arriving at profits.

Also these items are found in the Income Statement directly. We don't need to look anywhere else. After filling up other comprehensive income items like 'reassessment of defined benefit', 'income tax related income', 'foreign currency reserve', and 'minority interest'; we would arrive at the profit attributable to common shareholders.

We will find all the above items directly in Income Statement. If an item does not exist, than we can ignore the same.

Always cross-check your numbers and formulas. Your final profit should be the same as in the report. It's common to make mistakes. If you see a mistake, try to reverse engineer and figure out what went wrong.



	A	B	C	D
37	Foreign currency translation reserve	-	-	(4.00)
38	Other comprehensive	-	-	(2.00)
39	Profit to Minority Interest	-	-	13.00
40	**Total Comprehensive Income for the year**	-	-	1,787.50
41	**Profit Attributable to common shareholders**	-	-	1,774.50
42				
43	**Number of Shares Issued:**			
44	Basic	-		
45	Diluted	-		
46				
47	**Earnings per share :**			
48	**Basic**	#DIV/0!	#DIV/0!	
49	**Diluted**	#DIV/0!	#DIV/0!	
50				
51	**Common size Income Statement**			
52				
53	**Particulars**			
54	Revenue from Operation	#DIV/0!		
55	Cost of materials consumed	#DIV/0!		
56	Purchase of stock in Trade	#DIV/0!		

Dashboard | Company Overview | Assumptions | Income

Mistakes in entering numbers is very common do not worry if your numbers don't match.

In the picture, you can notice that the total profit we have calculated is 1,787 crores; whereas the company has officially reported a profit close to 1,850 crores.

Let's solve this discrepancy...

	A	B	C	D
25	Other Income	-	-	313.00
26	**Profit before Exceptional Items and Tax**	-	-	2,441.00
27	Exceptional Items	-	-	(1.00)
28	Share of loss/profits of associates	-	-	1.00
29	**Profit/Loss before Taxation**	-	-	2,441.00
30	Current Tax	-	-	(657.00)
31	Provision for Deferred tax	-	-	(6.00)
32	Other Tax			
33	**Profit/Loss after Tax**	-	-	1,778.00
34	**Other Comprehensive Income**			
35	Reassesment of defined benefit	-	-	3.50
36	Income tax related income	-	-	(1.00)
37	Foreign currency translation reserve	-	-	(4.00)
38	Other comprehensive	-	-	(2.00)
39	Profit to Minority Interest	-	-	13.00
40	**Total Comprehensive Income for the year**	-	-	1,787.50
41	**Profit Attributable to common shareholders**	-	-	1,774.50
42				
43	**Number of Shares Issued:**			
44	Basic	-	-	
45	Diluted			

Dashboard | Company Overview | Assumptions | Income Statement | Balance Sh

A very common error in entering numbers is the wrong sign being entered, or amount omitted. Check for these.

This is what the actual consolidated profit and loss statement for the year 2021-22 of Britannia looks like. We have taken inputs from the same in our financial model. We will also use it for previous years to enter data in the template.

CONSOLIDATED STATEMENT OF PROFIT AND LOSS

₹ in Crores

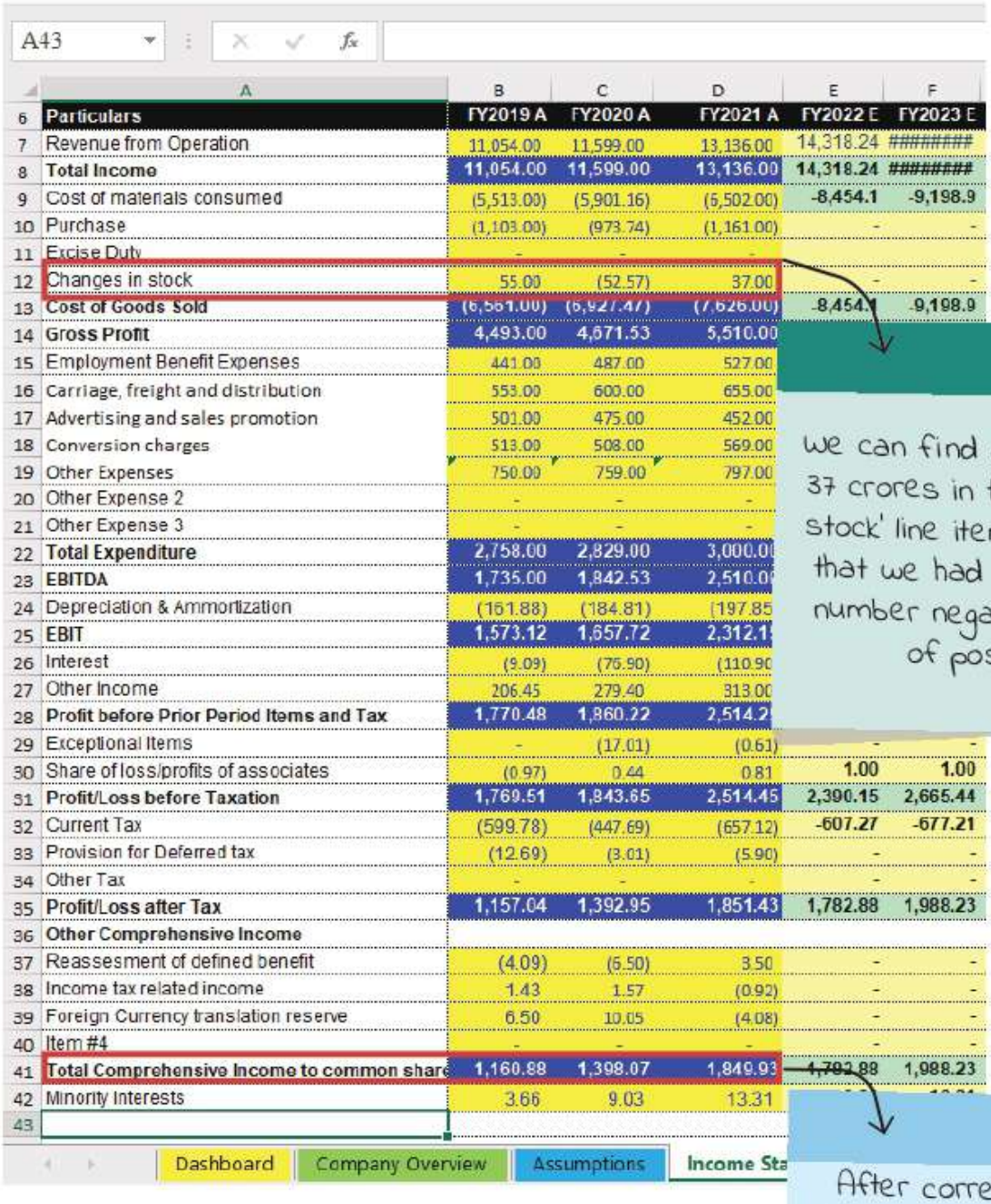
For the year ended		Note	31 March 2021	31 March 2020
I	Revenue from operations			
	Sale of goods / Income from operations	29	12,883.04	11,443.99
	Other operating revenues	29	253.10	155.56
			13,136.14	11,599.55
II	Other income	30	312.87	279.40
III	Total income (I+II)		13,449.01	11,878.95
IV	Expenses			
	Cost of materials consumed	31(a)	6,502.33	5,684.98
	Purchases of stock-in-trade	31(b)	1,160.89	1,189.92
	Changes in inventories of finished goods, work-in-progress and stock-in-trade	32	(37.12)	52.57
	Excise duty			
	Employee benefits expense	33	527.38	486.69
	Finance costs	34	110.90	76.90
	Depreciation and amortisation expense	4, 5, 6	197.85	184.81
	Other expenses	35	2,473.37	2,342.21
	Total expenses		10,935.60	10,018.08
V	Profit before share of profits / (loss) of associates (III-IV)		2,513.41	1,860.87
VI	Share of profit / (loss) of associates		0.81	0.44
VII	Profit before exceptional items and tax (V+VI)		2,514.22	1,861.31
VIII	Exceptional items (Refer note 56)		0.61	17.01
IX	Profit before tax (VII-VIII)		2,513.61	1,844.30
X	Tax expense:			
	(i) Current tax	19	657.12	447.69
	(ii) Deferred tax	19	5.90	3.01
			663.02	450.70
XI	Profit for the year (IX-X)		1,850.59	1,393.60
XII	Other comprehensive income			
	Items that will not be reclassified subsequently to statement of profit or loss			
	Remeasurements of the net defined benefit (liability) / asset		3.50	(6.50)
	Income-tax relating to items not to be reclassified subsequently to statement of profit or loss		(0.92)	1.57
	Items that will be reclassified subsequently to statement of profit or loss			
	Foreign currency translation reserve		(4.08)	10.05
	Other comprehensive income/ (loss), net of tax		(1.50)	5.12
XIII	Total Comprehensive income for the year (XI+XII)		1,849.09	1,398.72
	Profit attributable to:			
	Owners of the Company		1,863.90	1,402.63
	Non-controlling interests		(13.31)	(9.03)
	Profit for the year		1,850.59	1,393.60
	Other comprehensive income attributable to:			
	Owners of the Company		(1.50)	5.12
	Non-controlling interests		-	-
	Other comprehensive income for the year		(1.50)	5.12
	Total comprehensive income attributable to:			
	Owners of the Company		1,862.40	1,407.75
	Non-controlling interests		(13.31)	(9.03)
	Total comprehensive income for the year		1,849.09	1,398.72
	Earnings per share (face value of ₹ 1 each)			
	Basic [in ₹]		77.43	58.35
	Diluted [in ₹]		77.40	58.34
	Weighted average number of equity shares used in computing earnings per share:			
	- Basic		240,716,747	240,379,360
	- Diluted		240,800,190	240,438,381
Significant accounting policies		3		

See accompanying notes to the consolidated financial statements

we saw that there is a discrepancy between our model and the profit reported by the company. The best way to solve this error is to find the amount of the error, i.e. the difference between the profit reported by the company and our profit as per financial model. Then look for line items that are of same value or half the value of the amount of difference.

Also, if you made adjustments due to normalising, the net profit will have that difference and that is correct.

Profit as per our model was 1787 crores and as per company is 1850 crores. So, the difference is approximately 63 crores. So, we will look for line items around 63 crores in value or 30 crores and see if we have made an error.



	A	B	C	D	E	F
6	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**
7	Revenue from Operation	11,054.00	11,599.00	13,136.00	14,318.24	########
8	**Total Income**	**11,054.00**	**11,599.00**	**13,136.00**	**14,318.24**	**########**
9	Cost of materials consumed	(5,513.00)	(5,901.16)	(6,502.00)	-8,454.1	-9,198.9
10	Purchase	(1,103.00)	(973.74)	(1,161.00)	-	-
11	Excise Duty	-	-	-		
12	Changes in stock	55.00	(52.57)	37.00	-	-
13	**Cost of Goods Sold**	(6,561.00)	(6,927.47)	(7,626.00)	-8,454.1	-9,198.9
14	**Gross Profit**	4,493.00	4,671.53	5,510.00		
15	Employment Benefit Expenses	441.00	487.00	527.00		
16	Carriage, freight and distribution	553.00	600.00	655.00		
17	Advertising and sales promotion	501.00	475.00	452.00		
18	Conversion charges	513.00	508.00	569.00		
19	Other Expenses	750.00	759.00	797.00		
20	Other Expense 2	-	-	-		
21	Other Expense 3	-	-	-		
22	**Total Expenditure**	2,758.00	2,829.00	3,000.00		
23	**EBITDA**	1,735.00	1,842.53	2,510.00		
24	Depreciation & Ammortization	(161.88)	(184.81)	(197.85		
25	**EBIT**	1,573.12	1,657.72	2,312.1		
26	Interest	(9.09)	(76.90)	(110.90		
27	Other Income	206.45	279.40	313.00		
28	**Profit before Prior Period Items and Tax**	1,770.48	1,860.22	2,514.2		
29	Exceptional Items	-	(17.01)	(0.61)	-	-
30	Share of loss/profits of associates	(0.97)	0.44	0.81	1.00	1.00
31	**Profit/Loss before Taxation**	1,769.51	1,843.65	2,514.45	2,390.15	2,665.44
32	Current Tax	(599.78)	(447.69)	(657.12)	-607.27	-677.21
33	Provision for Deferred tax	(12.69)	(3.01)	(5.90)	-	-
34	Other Tax	-	-	-	-	-
35	**Profit/Loss after Tax**	1,157.04	1,392.95	1,851.43	1,782.88	1,988.23
36	**Other Comprehensive Income**					
37	Reassesment of defined benefit	(4.09)	(5.50)	3.50	-	-
38	Income tax related income	1.43	1.57	(0.92)	-	-
39	Foreign Currency translation reserve	6.50	10.05	(4.08)	-	-
40	Item #4	-	-	-	-	-
41	**Total Comprehensive Income to common share**	1,160.88	1,398.07	1,849.93	1,782.88	1,988.23
42	Minority Interests	3.66	9.03	13.31		
43						

Dashboard | Company Overview | Assumptions | Income Sta

We can find a line item of 37 crores in the 'change in stock' line item and notice that we had entered the number negative instead of positive.

A little difference is fine since we have not entered decimal values in each of the line items and these will done due to rounding off errors..

After correcting it, you will notice the final profit number changes to 1,848 crores; which is close to the number reported and therefore, the company reported and profit as per template match.

EPS (Earnings per Share)

EPS = Net Profit / No. of shares outstanding

22	**Total Expenditure**	2,758.00	2,929.00	3,000.00	3,444.89
23	**EBITDA**	1,735.00	1,842.53	2,510.00	2,419.24
24	Depreciation & Ammortization	(161.88)	(184.81)	(197.85)	-224.97
25	**EBIT**	1,573.12	1,657.72	2,312.15	2,194.27
26	Interest	(9.09)	(76.90)	(110.90)	-118.12
27	Other Income	206.45	279.40	313.00	313.00
28	**Profit before Prior Period Items and Tax**	1,770.48	1,860.22	2,514.25	2,389.15
29	Exceptional Items	-	(17.01)	(0.61)	-
30	Share of loss/profits of associates	(0.97)	0.44	0.81	1.00
31	**Profit/Loss before Taxation**	1,769.51	1,843.65	2,514.45	2,390.15
32	Current Tax	(599.78)	(447.69)	(657.12)	-607.27
33	Provision for Deferred tax	(12.69)	(3.01)	(5.90)	-
34	Other Tax	-	-	-	-
35	**Profit/Loss after Tax**	1,157.04	1,392.95	1,851.43	1,782.88
36	**Other Comprehensive Income**				
37	Reassesment of defned benefit	(4.09)	(6.50)	3.50	-
38	Income tax related income	1.43	1.57	(0.92)	-
39	Foreign Currency translation reserve	6.50	10.05	(4.08)	
40	Item #4	-	-	-	
41	**Total Comprehensive Income to common share**	1,160.88	1,398.07	1,849.93	
42	Minority Interests	3.66	9.03	13.31	
43					
44	**Number of Shares Issued:**				
45	Basic	24.02	24.03	24.07	
46	Diluted	24.04	24.04	24.08	
47					
48	**Earnings per share :**				
49	Basic	48.33	58.18	76.86	
50	Diluted	48.29	58.16	76.82	
51	**Dividends**	(354.38)	(432.53)	(2,823.75)	
52					

Dashboard | Company Overview | Assumptions | Income Stat

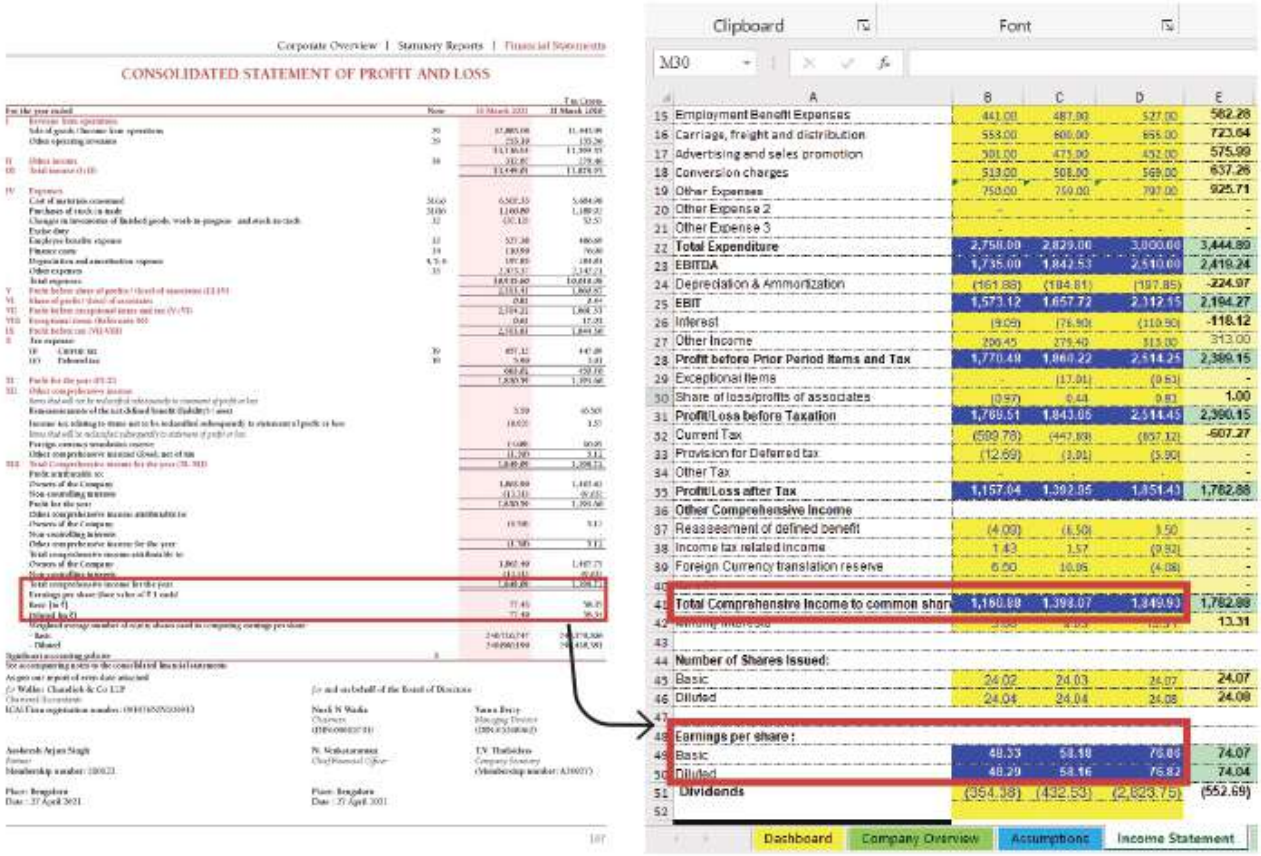
Let's now get done with the pending line items on the income statement, like finding the number of equity shares and earnings per share. We can easily find it at the end of the income statement reported by the company.

However, if you don't find it there for previous years, you can always find it in the notes to the statements or use the 'Find' function by pressing on 'Ctrl + F' while on the company annual report.

Knowledge Box

Basic shares are those shares issued by the company in the past. A company also issues options to employees, investors, or other stakeholders. Diluted shares are total numbers of shares after such options are also added to basic shares. Both, basic and diluted EPS is to be calculated.

In the comparison picture below, you will find a slight difference between the EPS value in the company's annual report and our financial model. This is because the company has used 'Total Comprehensive Income' to calculate its EPS while we have used 'Profit Attributable to Common Shareholders'.



CONSOLIDATED STATEMENT OF PROFIT AND LOSS

Total Comprehensive Income to common shar	1,180.88	1,398.07	1,349.93	1,782.88
				13.31
Number of Shares issued:				
Basic	24.02	24.03	24.07	24.07
Diluted	24.04	24.04	24.08	24.08
Earnings per share :				
Basic	48.33	58.18	76.86	74.07
Diluted	48.29	58.16	76.82	74.04
Dividends	(354.38)	(432.53)	(2,823.75)	(552.69)

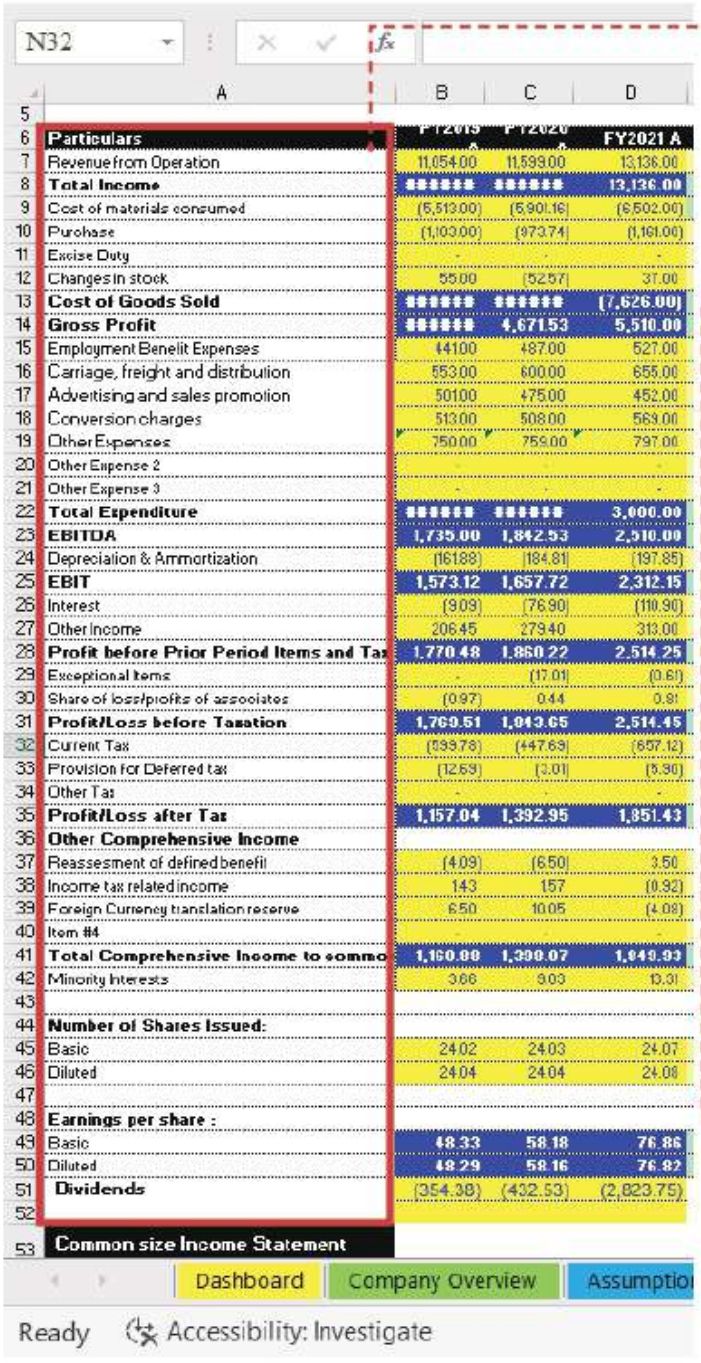
No normalization was required while entering statements for the year 2021 since there were no one-off or discontinued items. But remember that if there are such items and we remove them, the numbers on our sheet would not match those on the company's annual report. And that is fine till the time you are normalising statements.

- We suggest that you take a pause and enter the numbers for the previous 2 years by yourself to accelerate your learning curve.
- You can compare it with ours in the next chapter.
- Companies usually report financial statements of the current as well as the past year in one report. Hence, you can get data for 2 years in the same place.

We hope you have followed our advice and entered the numbers for FY '20 and FY '19.

Explainer Video

Adding the numbers this time would have been an easier process. After entering all these; this is what your statement would look like:



Particulars	FY2019 A	FY2020 A	FY2021 A
Revenue from Operation	11,054.00	11,599.00	13,136.00
Total Income	######	######	**13,136.00**
Cost of materials consumed	(5,513.00)	(6,901.16)	(6,502.00)
Purchase	(1,100.00)	(973.74)	(1,161.00)
Excise Duty	-	-	-
Changes in stock	55.00	(52.57)	31.00
Cost of Goods Sold	######	######	**(7,626.00)**
Gross Profit	######	**4,671.53**	**5,510.00**
Employment Benefit Expenses	441.00	487.00	527.00
Carriage, freight and distribution	553.00	600.00	655.00
Advertising and sales promotion	501.00	475.00	452.00
Conversion charges	513.00	508.00	569.00
Other Expenses	750.00	758.00	797.00
Other Expense 2	-	-	-
Other Expense 3	-	-	-
Total Expenditure	######	######	**3,000.00**
EBITDA	**1,735.00**	**1,842.53**	**2,510.00**
Depreciation & Ammortization	(161.88)	(184.81)	(197.85)
EBIT	**1,573.12**	**1,657.72**	**2,312.15**
Interest	(90.9)	(76.90)	(110.90)
Other Income	206.45	279.40	313.00
Profit before Prior Period Items and Tax	**1,770.48**	**1,860.22**	**2,514.25**
Exceptional Items	-	(17.01)	(0.61)
Share of loss/profits of associates	(0.97)	0.44	0.91
Profit/Loss before Taxation	**1,769.51**	**1,843.65**	**2,514.45**
Current Tax	(599.78)	(447.69)	(657.12)
Provision for Deferred tax	(12.69)	(3.01)	(5.90)
Other Tax	-	-	-
Profit/Loss after Tax	**1,157.04**	**1,392.95**	**1,851.43**
Other Comprehensive Income			
Reassesment of defined benefit	(4.09)	(6.50)	3.50
Income tax related income	1.43	1.57	(0.92)
Foreign Currency translation reserve	6.50	10.05	(4.08)
Item #4			
Total Comprehensive Income to comno	**1,160.80**	**1,398.07**	**1,849.93**
Minority Interests	3.66	9.03	13.31
Number of Shares Issued:			
Basic	24.02	24.03	24.07
Diluted	24.04	24.04	24.08
Earnings per share :			
Basic	**48.33**	**58.18**	**76.86**
Diluted	**48.29**	**58.16**	**76.92**
Dividends	(354.38)	(432.53)	(2,823.75)
Common size Income Statement			

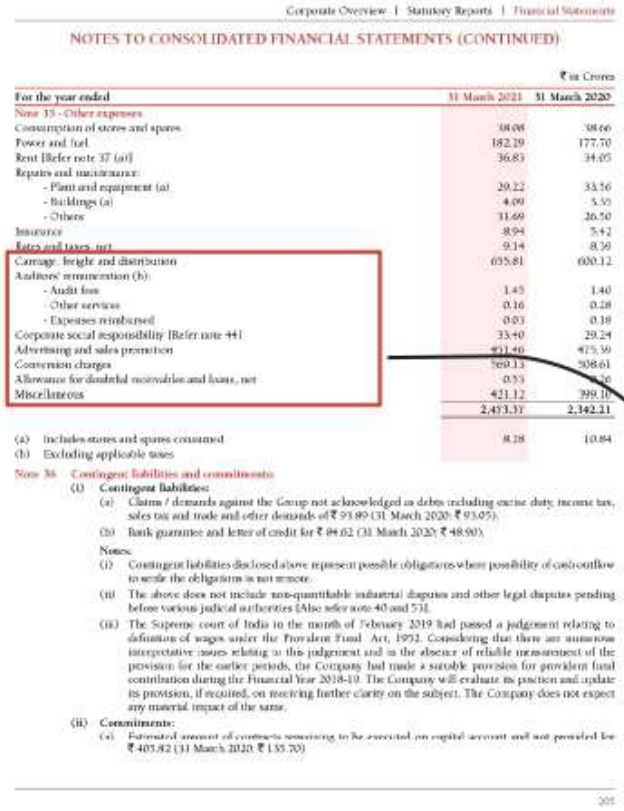
Dashboard | Company Overview | Assumptio

Ready | Accessibility: Investigate

- The revenue from operations,
- Cost of materials consumed,
- Purchases of stock-in-trade,
- Changes in inventory,
- Excise duty,
- Employee benefit expenses,
- Depreciation and amortization,
- Finance costs, other income,
- Exceptional items,
- Shares of profits in associates,
- Current tax, deferred income,
- other taxes, other comprehensive income,
- Foreign currency translation,
- Minority interest,
- Profit attributable to non-controlling owners and number of shares issued.

Note

FY '19 didn't have an exceptional item. But FY'20 and FY'21 did so, we would normalize this line item and remove exceptional items for FY '20 and FY '21. After this change, our profits would be slightly different from those reported in the annual report.



Corporate Overview | Statutory Reports | Financial Statements

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

₹ in Crores

For the year ended	31 March 2021	31 March 2020
Note 35 - Other expenses		
Consumption of stores and spares	38.08	38.66
Power and fuel	182.29	177.70
Rent [Refer note 37 (a)]	36.83	34.05
Repairs and maintenance:		
- Plant and equipment (a)	29.22	33.56
- Buildings (a)	4.09	5.35
- Others	31.69	26.50
Insurance	8.94	5.42
Rates and taxes, net	9.14	8.39
Carriage, freight and distribution	655.81	600.12
Auditors' remuneration (b):		
- Audit fees	1.45	1.40
- Other services	0.16	0.28
- Expenses reimbursed	0.03	0.18
Corporate social responsibility [Refer note 44]	33.40	29.24
Advertising and sales promotion	411.46	475.39
Conversion charges	569.13	508.61
Allowance for doubtful receivables and loans, net	0.53	0.26
Miscellaneous	421.12	399.10
	2,453.37	2,342.21
(a) Includes stores and spares consumed	8.28	10.84
(b) Excluding applicable taxes		

Note 36 Contingent liabilities and commitments

(i) Contingent liabilities:

(a) Claims / demands against the Group not acknowledged as debts including excise duty, income tax, sales tax and trade and other demands of ₹ 93.89 (31 March 2020: ₹ 93.05).

(b) Bank guarantees and letter of credit for ₹ 84.02 (31 March 2020: ₹ 48.90).

Notes:

(i) Contingent liabilities disclosed above represent possible obligations where possibility of cash outflow to settle the obligations is not remote.

(ii) The above does not include non-quantifiable industrial disputes and other legal disputes pending before various judicial authorities [Also refer note 40 and 53].

(iii) The Supreme court of India in the month of February 2019 had passed a judgement relating to definition of wages under the Provident Fund Act, 1952. Considering that there are numerous interpretative issues relating to this judgement and in the absence of reliable measurement of the provision for the earlier periods, the Company had made a suitable provision for provident fund contribution during the Financial Year 2018-19. The Company will evaluate its position and update its provision, if required, on receiving further clarity on the subject. The Company does not expect any material impact of the same.

(ii) Commitments:

(a) Estimated amount of contracts remaining to be executed on capital account and not provided for ₹ 405.82 (31 March 2020: ₹ 155.70)

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we will now enter the carriage, advertising & sales promotion, conversion charges, and other expenses like we did for FY 21. Let's have a look at note number 35 to get a deeper insight into these line items.

M30

	A	B	C
15	Employment Benefit Expenses	441.00	487.00
16	Carriage, freight and distribution	553.00	600.00
17	Advertising and sales promotion	501.00	475.00
18	Conversion charges	513.00	508.00
19	Other Expenses	750.00	759.00
20	Other Expense 2	-	-
21	Other Expense 3	-	-
22	**Total Expenditure**	2,758.00	2,829.00
23	**EBITDA**	1,735.00	1,842.53
24	Depreciation & Ammortization	(161.88)	(184.81)
25	**EBIT**	1,573.12	1,657.72
26	Interest	(9.09)	(76.90)
27	Other Income	206.45	279.40
28	**Profit before Prior Period Items and Tax**	1,770.48	1,860.22
29	Exceptional Items	-	(17.01)
30	Share of loss/profits of associates	(0.97)	0.44
31	**Profit/Loss before Taxation**	1,769.51	1,843.65
32	Current Tax	(599.78)	(447.69)
33	Provision for Deferred tax	(12.69)	(3.01)
34	Other Tax	-	-
35	**Profit/Loss after Tax**	1,157.04	1,392.95
36	**Other Comprehensive Income**		
37	Reassesment of defined benefit	(4.09)	(6.50)
38	Income tax related income	1.43	1.57
39	Foreign Currency translation reserve	6.50	10.05
40	Item #1		
41	**Total Comprehensive Income to common share**	1,160.88	1,398.07

The total profit we obtain stands at Rs.1,398.56 crores, which is the same as the annual report.

Repeating the same process for the income statement of FY 2019, you will be ready with historical income statement data for the Britannia financial model.

Always remember these points while filling in past numbers from any income statement:

The first year always takes the most time while entering raw data from the annual report. But as and when you get familiarized with the line items and nature of numbers, it gets easy.

Next, we will enter the numbers for Britannia's balance sheet.

6.3 Filling
Balance Sheet

Explainer Video

Now, we will be filling up line items for the balance sheet. The process is quite similar to the profit and loss sheet. In the consolidated financial statements, scroll down to the balance sheet for FY 2021. All figures are in INR crores. Here is the consolidated Balance Sheet for the eyar 2020-21 from Britannia's annual report

Britannia Industries Limited — Annual Report 2020-21

CONSOLIDATED BALANCE SHEET

₹ in Crores

As at		Note	31 March 2021	31 March 2020
I	**Assets**			
(1)	Non-current assets			
	(a) Property, plant and equipment	4	1,634.30	1,716.37
	(b) Capital work-in-progress	4	116.52	39.55
	(c) Investment property	5	14.21	14.47
	(d) Goodwill	6	135.90	138.97
	(e) Other intangible assets	6	8.54	8.37
	(f) Investment in associates	7	2.29	1.48
	(g) Financial assets			
	(i) Investments	8	1,385.15	1,882.98
	(ii) Loans receivable	9	74.58	202.95
	(iii) Other financial assets	10	30.13	31.33
	(h) Deferred tax assets, (net)	19	9.66	19.56
	(i) Income-tax assets, (net)	19	71.84	68.77
	(j) Other non-current assets	11	105.98	42.46
	Total non-current assets		3,589.10	4,167.26
(2)	Current assets			
	(a) Inventories	12	1,091.49	740.96
	(b) Financial assets			
	(i) Investments	13	1,393.25	1,008.77
	(ii) Trade receivables	14	257.27	320.36
	(iii) Cash and cash equivalents	15	142.74	81.23
	(iv) Bank balances other than (iii) above	15	68.60	41.62
	(v) Loans receivable	16	946.56	1,110.11
	(vi) Other financial assets	17	397.76	229.75
	(c) Other current assets	18	122.01	142.17
	Total current assets		4,419.68	3,674.97
	Total assets		8,008.78	7,842.23
II	**Equity and liabilities**			
(1)	Equity			
	(a) Equity share capital	20	24.09	24.05
	(b) Other equity	21	3,523.57	4,378.78
	Equity attributable to equity holders of the parent		3,547.66	4,402.83
	Non-controlling interests		36.34	35.65
	Total equity		3,584.00	4,438.48
(2)	Liabilities			
	(A) Non-current liabilities			
	(a) Financial liabilities			
	(i) Borrowings	22	747.75	766.06
	(ii) Other financial liabilities	23	54.07	46.54
	(b) Deferred tax liabilities, (net)	19	8.69	12.69
	Total non-current liabilities		810.51	825.29
	(B) Current liabilities			
	(a) Financial liabilities			
	(i) Borrowings	24	1,339.42	747.99
	(ii) Trade payables	25		
	(a) total outstanding dues of micro enterprises and small enterprises		28.44	8.53
	(b) total outstanding dues of creditors other than micro enterprises and small enterprises		1,286.31	1,038.47
	(iii) Other financial liabilities	26	356.01	311.91
	(b) Other current liabilities	27	140.54	150.08
	(c) Provisions	28	387.47	273.70
	(d) Current tax liabilities, (net)	19	76.08	47.78
	Total current liabilities		3,614.27	2,578.46
	Total liabilities		4,424.78	3,403.75
	Total equity and liabilities		8,008.78	7,842.23
Significant accounting policies		3		

See accompanying notes to the consolidated financial statements

As per our report of even date attached

Lets enter different parts of the Balance Sheet in our model referring to the Balance Sheet on the previous page. All amounts are in INR Crores.

Current Liabilities

- Accounts payable would be a sum of 1286 + 28 = 1314
- Here, 1286 is total outstanding dues of creditors other than micro enterprises and small enterprises. 28 is total outstanding dues of micro and small enterprises.
- Short term borrowings would be 1339
- other current liabilities would be a sum of 356 + 140 = 496
- Short term provisions would be 387
- Since there are no other current liabilities, we will replace that line items with 'current tax liabilities' of 76
- Total current liabilities is the sum of all the above. we obtain a sum of 3614, similar to that reported in the Annual Report.

	A	B	C	D	E	F	G	H
1	[Britannia LTD.]							
2	Balance Sheet							
3	(in INR Crores)							
4								
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E
31	Other items 3	-	-	-				
32	**Total Non-Current Assets**	2,715.48	4,167.26	3,589.10	3,572.47	3,577.03	3,584.61	3,586.59
33	**Total Assets**	6,241.82	7,842.23	8,008.78	9,379.02	10,931.58	12,649.45	14,463.65
34								
35	**LIABILITIES & EQUITY**							
36								
37	Accounts Payable	1,140.51	1,116.28	1,314.75	1,428.15	1,539.49	1,692.37	1,841.04
38	Short-Term Borrowings	76.10	747.99	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42
39	Other Current Liabilities	364.42	461.99	496.55	524.48	593.84	637.61	693.07
40	Short-Term Provisions	196.51	191.26	387.47	387.47	387.47	387.47	387.47
41	Current tax Liabilities	73.16	47.78	76.08	76.08	76.08	76.08	76.08
42	Governmnet Grant	0.71	-	-	-	-	-	-
43	**Total Current Liabilities**	1,851.41	2,565.30	3,614.27	3,755.60	3,936.29	4,132.96	4,337.08
44								
45	Long-Term Debt	61.92	766.06	747.75	747.75	747.75	747.75	747.75
46	Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.69	8.69	8.69	8.69
47	Other Long-Term Liabilities	27.24	46.54	54.07	54.07	54.07	54.07	54.07
48	Long-Term Provisions	11.45	13.16	-	-	-	-	-
49	Other items	-	-	-	-	-	-	-
50	Other Items	-	-	-	-	-	-	-
51	**Total Non-Current Liabilities**	104.48	838.45	810.51	810.51	810.51	810.51	810.51
52	**Total Liabilities**	1,955.89	3,403.75	4,424.78	4,566.11	4,746.80	4,943.47	5,147.59

Non-current Liabilities

- Financial borrowings of 747.
- other financial liabilities of 54.
- Deferred tax liabilities of 9 (rounded off).
- we obtain a total of non current liabilities as 810, same as that on the annual report.

Total liabilities (sum of current and non-current) is 4424.78

Equity

- Share capital is 24.
- Reserves and surplus of 3523.
- Minority interest of 36.
- Total equity stands at 3584.

P47

	A	B	C	D	E	F	G	H
1	[Britannia LTD.]							
2	Balance Sheet							
3	(in INR Crores)							
4								
5	**Particular**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY2024 E**	**FY2025 E**
31	Other items 3	-	-	-				
32	**Total Non-Current Assets**	2,715.48	4,167.26	3,589.10	3,572.47	3,577.03	3,584.61	3,586.59
33	**Total Assets**	6,241.82	7,842.23	8,008.78	9,379.02	10,931.58	12,649.45	14,463.65
34								
35	**LIABILITIES & EQUITY**							
36								
37	Accounts Payable	1,140.51	1,116.28	1,314.75	1,428.15	1,539.49	1,692.37	1,841.04
38	Short-Term Borrowings	76.10	747.99	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42
39	Other Current Liabilities	364.42	461.99	496.55	524.48	593.84	637.61	693.07
40	Short-Term Provisions	196.51	191.26	387.47	387.47	387.47	387.47	387.47
41	Current tax Liabilities	73.16	47.78	76.08	76.08	76.08	76.08	76.08
42	Governmnet Grant	0.71	-	-	-	-	-	-
43	**Total Current Liabilities**	1,851.41	2,565.30	3,614.27	3,755.60	3,936.29	4,132.96	4,337.08
44								
45	Long-Term Debt	61.92	766.06	747.75	747.75	747.75	747.75	747.75
46	Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.69	8.69	8.69	8.69
47	Other Long-Term Liabilities	27.24	46.54	54.07	54.07	54.07	54.07	54.07
48	Long-Term Provisions	11.45	13.16	-	-	-	-	-
49	Other items	-	-	-	-	-	-	-
50	Other Items	-	-	-	-	-	-	-
51	**Total Non-Current Liabilities**	104.48	838.45	810.51	810.51	810.51	810.51	810.51
52	**Total Liabilities**	1,955.89	3,403.75	4,424.78	4,566.11	4,746.80	4,943.47	5,147.59
53								
54	**Shareholder'S Equity:**							
55	Share Capital	24.03	24.05	24.09	24.09	24.09	24.09	24.09
56	Reserves And Surplus	4,229.22	4,378.78	3,523.57	4,753.75	6,125.63	7,646.83	9,256.91
57	**Total Shareholder'S Equity**	4,253.25	4,402.83	3,547.66	4,777.84	6,149.72	7,670.92	9,281.00
58	Minority Interest	32.68	35.65	36.34	36.34	36.34	36.34	36.34
59	**Total Equity**	4,285.93	4,438.48	3,584.00	4,814.18	6,186.06	7,707.26	9,317.34
60	**Total Liabilities And Equity**	6,241.82	7,842.23	8,008.78	9,380.30	10,932.86	12,650.73	14,464.93
61								

The sum of liabilities and equity is calculated as 8008.78, which should be equal to the total assets.

We have entered the current and non-current liabilities of the balance sheet for FY '21. Let's now complete the balance sheet by entering of current and non-current assets. In the consolidated balance sheet, scroll down to the balance sheet for FY 2021.

All figures are in INR crores.

Explainer Video

Current Assets

- Cash and cash equivalents would be 142.
- Bank balance would be 68.
- Current investments would be 1393.
- Accounts receivable would be 257.
- Short term loans and advances would be 946.
- Other items on our template can be renamed to other financial assets recording 397.
- Other current assets would be 122.
- Investments would be 1091.

	Particular	FY2020 A	FY2021 A
6	**Assets**		
7			
8	Cash And Cash Equivalents	81.23	142.74
9	Bank Balance	41.62	68.60
10	Current Investment	1,008.77	1,393.25
11	Accounts Receivables	320.36	257.27
12	Inventories	740.96	1,091.49
13	Short-Term Loans And Advances	1,110.11	946.56
14	Other Current Assets	142.17	397.76
15	Other Financial Assets	229.75	122.01
16	Other Items 2	-	-
17	Other Current Assets 3	-	-
18	Total Current Assets	3,674.97	4,419.68
19			
20	PPE, Net	1,716.37	1,634.30
21	Other Intangible Assets	8.37	8.54
22	Capital Work-In-Progress	39.55	116.52
23	Investment Property	14.47	14.21
24	Goodwill on Consolidation	138.97	135.90
25	Long-Term Investments	1,882.98	1,385.15
26	Deferred Tax Assets (Net)	19.56	81.50
27	Long-Term Loans And Advances	202.95	74.58
28	Investment In Associates	1.48	2.29
29	Other Financial Assets	31.33	30.13
30	Other Non Current Assets	111.23	105.98
31	Other items 3	-	-
32	**Total Non-Current Assets**	4,167.26	3,589.10
33	**Total Assets**	7,842.23	8,008.78
34			

Dashboard | Company Overview | Assumptions | Income Stater

In our sheet, the total of current assets would be 4419, vs. 4414 as in the annual report. This slight difference is due to rounding error.

In our sheet, the total of current assets would be 3586, vs. 3589 as in the annual report. This slight difference is due to rounding error.

Non-current Assets

- Property plant and equipment would be 1634.
- Capital work in progress would be 116.
- Investment property would be 14.
- Goodwill would be 135.
- Long term investments would be 1385. You can add investment in associates (2 crores) to the line items, cumulatively represented as 1387.
- Intangible assets would be 8.
- Loans and advances would be 74.
- Other financial assets would be 30 (renamed).
- Deferred tax assets would be 10.
- Income tax assets would be 72.
- Other non current assets would be 106.

All these numbers are obtained from the company reported Balance Sheet.

Total assets (current + non current) are calculated as 8002, which is equal to the total liabilities and equity.

Note how the total of assets is equal to the total of liabilities and equity. You are free to add more line items if you wish to dissect numbers further. But remember that your 'total' of the utilities and equity side and the assets side must be same.

Tip

Remember the golden rule:
Assets = Liabilities + Equity

Just like you filled the income statement, we would urge you to fill up the balance sheet items for FY '19 and FY '20; and check your model if Equity + Liabilities = Assets. If they don't match, we are making an error.

Here is a summary of balance sheet line items as entered by us for FY '20. **We have used the data** from the right column of the annual report of 2021, that pertains to FY '20.

Current Assets

- Investments would be 740.
- Current investments would be 1008.
- Accounts receivables would be 320.
- Short term loans and advances would be 1110.
- Other current assets would be 142.
- Other financial assets would be 230.
- Cash and cash equivalents would be 81.
- Bank balance would be 42.

Explainer Video

Particular	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY20
Assets						
Cash And Cash Equivalents	81.23	142.74	1,480.38	2,931.18	4,489.80	6,1
Bank Balance	41.62	68.60	68.60	68.60	68.60	
Current Investment	1,008.77	1,393.25	1,393.25	1,393.25	1,393.25	1,3
Accounts Receivables	320.36	257.27	372.53	372.48	388.41	4
Inventories	740.96	1,091.49	1,025.45	1,122.71	1,278.45	1,3
Short-Term Loans And Advances	1,110.11	946.56	946.56	946.56	946.56	9
Other Current Assets	142.17	397.76	397.76	397.76	397.76	3
Other Financial Assets	229.75	122.01	122.01	122.01	122.01	1
Other Items 2	-	-	-	-	-	
Other Current Assets 3	-	-	-	-	-	
Total Current Assets	3,674.97	4,419.68	5,806.55	7,354.55	9,064.84	10,8

Total current assets stand at 3673 vs a figure of 3674 in the annual report; a slight error due to rounding difference.

Non-current Assets

- Property plant and equipment would be 1716.
- Other intangible assets would be 8.
- Capital work in progress would be 39.
- Investment property would be 14.
- Goodwill would be 139.
- Long term investments would be 1884 (It includes investments in associates of 2 crores).
- Loans receivable would be 203.
- Other financial assets would be 32.
- Long term assets would be 68.
- Other non current assets would be 42.
- Deferred tax assets would be 20.
- Other non current assets are 111.

20	PPE, Net	1,716.37	1,634.30	1,606.67	1,598.07	1,591.63	1,5
21	Other Intangible Assets	8.37	8.54	155.44	168.60	182.62	1
22	Capital Work-In-Progress	39.55	116.52	116.52	116.52	116.52	1
23	Investment Property	14.47	14.21	14.21	14.21	14.21	
24	Goodwill on Consolidation	138.97	135.90	-	-	-	
25	Long-Term Investments	1,882.98	1,385.15	1,385.15	1,385.15	1,385.15	1,3
26	Deferred Tax Assets (Net)	19.56	81.50	81.50	81.50	81.50	
27	Long-Term Loans And Advances	202.96	74.58	74.58	74.58	74.58	
28	Investment In Associates	1.48	2.29	2.29	2.29	2.29	
29	Other Financial Assets	31.33	30.13	**30.13**	**30.13**	**30.13**	
30	Other Non Current Assets	111.23	105.98	105.98	105.98	105.98	1
31	Other items 3	-	-				
32	**Total Non-Current Assets**	4,167.26	3,589.10	3,572.47	3,577.03	3,584.61	3,5
33	**Total Assets**	7,842.23	8,008.78	9,379.02	10,931.58	12,649.45	14,4
34							

Total non current assets would be 4167; which matches the annual report figure.

Current Liabilities

- Short term borrowings would be 747.
- Account payables would be 1116.
- Other current liabilities would be 461.
- Short term provisions would be 191.
- Current tax liabilities would be 48.
- Total current liabilities stand at 2565.

5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY
35	LIABILITIES & EQUITY								
36									
37	Accounts Payable	1,140.51	1,116.28	1,314.75	1,428.15	1,539.49	1,692.37	1,841.04	
38	Short-Term Borrowings	76.10	747.99	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	
39	Other Current Liabilities	364.42	461.99	496.55	524.48	593.84	637.61	693.07	
40	Short-Term Provisions	196.51	191.26	387.47	387.47	387.47	387.47	387.47	
41	Current tax Liabilities	73.16	47.78	76.08	76.08	76.08	76.08	76.08	
42	Governmnet Grant	0.71	-	-	-	-	-	-	
43	Total Current Liabilities	1,851.41	2,565.30	3,611.27	3,755.60	3,936.29	4,132.96	4,337.08	

Non-current Liabilities

- Long term debt would be 766.
- Other long term liabilities would be 46.
- Deferred tax liabilities would be 13.
- Long term provisions would be 13.
- Total non current liabilities stand at 838.

5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY
45	Long-Term Debt	61.92	766.06	747.75	747.75	747.75	747.75	747.75	
46	Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.69	8.69	8.69	8.69	
47	Other Long-Term Liabilities	27.24	46.54	54.07	54.07	54.07	54.07	54.07	
48	Long-Term Provisions	11.45	13.16	-	-	-	-	-	
49	Other items	-	-	-	-	-	-	-	
50	Other Items	-	-	-	-	-	-	-	
51	**Total Non-Current Liabilities**	104.48	838.45	810.51	810.51	810.51	810.51	810.51	
52	**Total Liabilities**	1,955.89	3,403.75	4,424.78	4,566.11	4,746.80	4,943.47	5,147.59	

Equity and Liabilities

- Share capital is 24.
- Reserves and surplus are 4378.
- Minority interest is 36.
- The total equity (along with minority interest) stands at 4438.

5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY
54	**Shareholder'S Equity:**								
55	Share Capital	24.03	24.05	24.09	24.09	24.09	24.09	24.09	
56	Reserves And Surplus	4,229.22	4,378.78	3,523.57	4,753.75	6,125.63	7,646.83	9,256.91	
57	**Total Shareholder'S Equity**	4,253.25	4,402.83	3,547.66	4,777.84	6,149.72	7,670.92	9,281.00	
58	Minority Interest	32.68	35.65	36.34	36.34	36.34	36.34	36.34	
59	**Total Equity**	4,285.93	4,438.48	3,584.00	4,814.18	6,186.06	7,707.26	9,317.34	
60	**Total Liabilities And Equity**	6,241.82	7,842.23	8,008.78	9,380.30	10,932.86	12,650.73	14,464.93	

The total assets and the total liabilities each stand at 7842.

Other than a slight rounding error difference, we have been successful in entering the balance sheet data for FY 20 in our financial data.

You can now fill in the FY '19 line items as well, the process is the same. This way, we will now have the past data entered for the Income Statement as well as the Balance Sheet. We have entered past data into the model for 3 years, but the same can also be done for 5 years.

6.4 Filling in the Cash Flow Statement

Explainer Video

Now, we will enter the line items for the last part of financial statements, the cash flow statement. The process would be pretty much similar. Let's do it for FY '21. Remember to enter your numbers from the consolidated financial statements. **Here is the consolidated Cash Flow Statement of Operating Activities for the year 2021-22 from Britannia's Annual Report.**

CONSOLIDATED STATEMENT OF CASH FLOWS

₹ in Crores

For the year ended	31 March 2021	31 March 2020
Cash flows from operating activities		
Profit before tax and share of profits / (loss) of associates and after exceptional item	2,512.80	1,843.86
Adjustments for :		
Depreciation and amortisation expense	197.85	184.81
Share based payment expense	18.94	21.58
Net gain on financial asset measured at fair value through Statement of Profit and Loss	(65.47)	(89.88)
(Profit) / Loss on sale of property, plant and equipment	(0.33)	(0.11)
Interest income from financial assets carried at amortised cost	(234.66)	(176.77)
Finance costs	110.90	76.90
Changes in		
Inventories	(351.44)	42.99
Trade receivables	61.40	78.85
Loans receivable, other financial assets, other bank balances and other assets	(170.82)	(23.66)
Accounts payables, other financial liabilities, other liabilities and provisions	404.71	29.21
Cash generated from operating activities	**2,483.88**	**1,987.78**
Income-tax paid, net of refund	(632.81)	(503.25)
Net cash generated from operating activities	**1,851.07**	**1,484.53**
Cash flow from investing activities		
Acquisition of property, plant and equipment and other intangible assets	(242.07)	(244.17)
Proceeds from sale of property, plant and equipment	2.17	0.73
Sale/ (Purchase) of investments, net	178.82	(1,326.63)
Inter-corporate deposits placed	(1,202.50)	(1,293.41)
Inter-corporate deposits redeemed	1,491.41	1,204.24
Interest received	233.43	127.62
Net cash generated from / (used in) investing activities	**461.26**	**(1,531.62)**
Cash flow from financing activities		
Proceeds from share allotment	103.15	23.97
Principal payment of lease liabilities**	(2.55)	(2.03)
Interest paid on lease liabilities	(1.04)	-
Interest paid	(101.30)	(35.99)
Issue of bonus debentures	-	720.95
Proceeds from borrowings, net*	567.80	640.72
Contribution from non-controlling interest	14.00	12.00
Dividends paid (including dividend distribution tax)	(2,823.75)	(432.53)
Payment of bonus debentures (including dividend distribution tax)	-	(869.15)

Cash Flow from Operating Activities *(All numbers in INR crores)*

- Profit for the year: 2512

Changes for non-cash items

- Depreciation and amortization: 198
- Share based payment expenses: 19
- Net gain on financial assets measured at fair value through income statement: -65
- Profit / loss on sale of property, plant, and equipment: -1
- Interest income from financial assets carried at amortized cost: -235
- Financing costs: 111

	[Britannia LTD.]		
	Cash Flow Statement		
	(in INR Crores, unless otherwise stated)		
5	**Particular**	**FY2020 A**	**FY2021 A**
6	**Cash Flows From Operating Activities:**		
7	Profit For The Year	1,843.86	2,512.80
8	**Adjustments To Reconcile Net Income To Cash Provided By Operating Activitie**		
9	Depreciation & Amortization	184.81	197.85
10	Profit On Sale Of Assets (Including Assets Scrapped / Written Off)	(0.11)	(0.33)
11	Profit On Sale Of Investments (Net)	-	-
12	Provision For Doubtful Trade Receivables And Advances	-	-
13	Share Of (Profit) / Loss Of Associate Companies (Net)	-	-
14	Share Of Minority Interest	-	-
15	Interest / Dividend (Net)	(176.77)	(234.66)
16	Esop expense	-	-
17	Net gain on financial asset measured	(89.88)	(65.47)
18	Interest Income	-	-
19	Finance cost	76.90	110.90
20	Share Based Payment	21.58	18.94
21	Other Adjustments 6	-	-
22	**Adjustment for working capital**		
23	Increase In Inventories	42.99	(351.44)
24	(Increase) Decrease In Accounts Receivable	78.85	61.40
25	(Increase) Decrease In Finance Receivable	-	-
26	Other Current And Non-Current Assets	(23.66)	(170.82)
27	Trade Payables	-	-
28	Other Current And Non-Current Liabilities	29.21	404.71
29	Provisions	-	-
30	**Cash Provided By Operating Activities**	1,987.78	2,483.88
31	Income Taxes Paid (Net)	(503.25)	(632.81)
32	**Net Cash Flow From Operating Activities**	1,484.53	1,851.07

Adjustment for working capital

- Increase in inventory: -351
- Decrease in Accounts receivables: 61
- other current and non current assets: -171
- Trade payables: 404
- Taxes paid: -633
- Net cash from operating activities stands at 1851.

Cash Flow from Investing Activities

Here is the consolidated Cash Flow Statement of Investing Activities for the year 2021-22 from Britannia's Annual Report.

Accounts payables, other financial liabilities, other liabilities and provisions	404.71	29.21
Cash generated from operating activities	**2,483.88**	**1,987.78**
Income-tax paid, net of refund	(632.81)	(503.25)
Net cash generated from operating activities	**1,851.07**	**1,484.53**
Cash flow from investing activities		
Acquisition of property, plant and equipment and other intangible assets	(242.07)	(244.17)
Proceeds from sale of property, plant and equipment	2.17	0.73
Sale/ (Purchase) of investments, net	178.82	(1,326.63)
Inter-corporate deposits placed	(1,202.50)	(1,293.41)
Inter-corporate deposits redeemed	1,491.41	1,204.24
Interest received	233.43	127.62
Net cash generated from / (used in) investing activities	**461.26**	**(1,531.62)**
Cash flow from financing activities		
Proceeds from share allotment	103.15	23.97
Principal payment of lease liabilities**	(2.55)	(2.03)
Interest paid on lease liabilities	(1.04)	-

- Acquisition of property, plant, and equipment / payment for fixed assets: -242
- Proceeds from the sale of fixed assets: 2
- Sale of investments: 178
- Inter-corporate deposits: -1202
- Inter-corporate deposits redeemed: 1491
- Interest received: 233
- Net cash flow from investing activities stands at 460, vs. 461 reported in the annual report.

5	Particular	FY2020 A	FY2021 A
33			
34	**Cash Flows From Investing Activities:**		
35	Payments For Fixed Assets	(244.17)	(242.07)
36	Proceeds From Sale Of Fixed Assets	0.73	2.17
37	Purchase/sale of investment	(1,326.63)	178.82
38	Inter corporate deposit	(1,293.41)	(1,202.50)
39	Redeem of inter corporate deposit	1,204.24	1,491.41
40	Interest received	127.62	233.43
41	Other Investing Activity 5	-	-
42	Other Investing Activity 6	-	-
43	Other Investing Activity 7	-	-
44	Other Investing Activity 8	-	-
45	Other Investing Activity 9	-	-
46	Other Investing Activity 10	-	-
47	**Net Cash Flow From Investing Activities**	(1,531.62)	461.26
48			

Cash Flow from Financing Activities

Here is the consolidated Cash Flow Statement of Financing Activities for the year 2021-22 from Britannia's Annual Report.

CONSOLIDATED STATEMENT OF CASH FLOWS

₹ in Crores

For the year ended	31 March 2021	31 March 2020
Cash flows from operating activities		
Profit before tax and share of profits / (loss) of associates and after exceptional item	2,512.80	1,843.86
Adjustments for :		
Depreciation and amortisation expense	197.85	184.81
Share based payment expense	18.94	21.58
Net gain on financial asset measured at fair value through Statement of Profit and Loss	(65.47)	(89.88)
(Profit) / Loss on sale of property, plant and equipment	(0.33)	(0.11)
Interest income from financial assets carried at amortised cost	(234.66)	(176.77)
Finance costs	110.90	76.90
Changes in		
Inventories	(351.44)	42.99
Trade receivables	61.40	78.85
Loans receivable, other financial assets, other bank balances and other assets	(170.82)	(23.66)
Accounts payables, other financial liabilities, other liabilities and provisions	404.71	29.21
Cash generated from operating activities	**2,483.88**	**1,987.78**
Income-tax paid, net of refund	(632.81)	(503.25)
Net cash generated from operating activities	**1,851.07**	**1,484.53**
Cash flow from investing activities		
Acquisition of property, plant and equipment and other intangible assets	(242.07)	(244.17)
Proceeds from sale of property, plant and equipment	2.17	0.73
Sale/ (Purchase) of investments, net	178.82	(1,326.63)
Inter-corporate deposits placed	(1,202.50)	(1,293.41)
Inter-corporate deposits redeemed	1,491.41	1,204.24
Interest received	233.43	127.62
Net cash generated from / (used in) investing activities	**461.26**	**(1,531.62)**
Cash flow from financing activities		
Proceeds from share allotment	103.15	23.97
Principal payment of lease liabilities**	(2.55)	(2.03)
Interest paid on lease liabilities	(1.04)	-
Interest paid	(101.30)	(35.99)
Issue of bonus debentures	-	720.95
Proceeds from borrowings, net*	567.80	640.72
Contribution from non-controlling interest	14.00	12.00
Dividends paid (including dividend distribution tax)	(2,823.75)	(432.53)
Payment of bonus debentures (including dividend distribution tax)	-	(869.15)
Net cash (used in) / generated from financing activities	**(2,243.69)**	**57.94**

- Proceeds from share allotment: 103.
- Principal redeemed of lease liabilities: -3.
- Interest paid on lease liabilities: -1.
- Interest paid: -101.
- Repayment of long term borrowings: 567.
- Contributions from non controlling interest: 14.
- Dividends paid including taxes: -2823.
- Net cash flow from financing activities stands at 2244, which exactly matches the annual report.

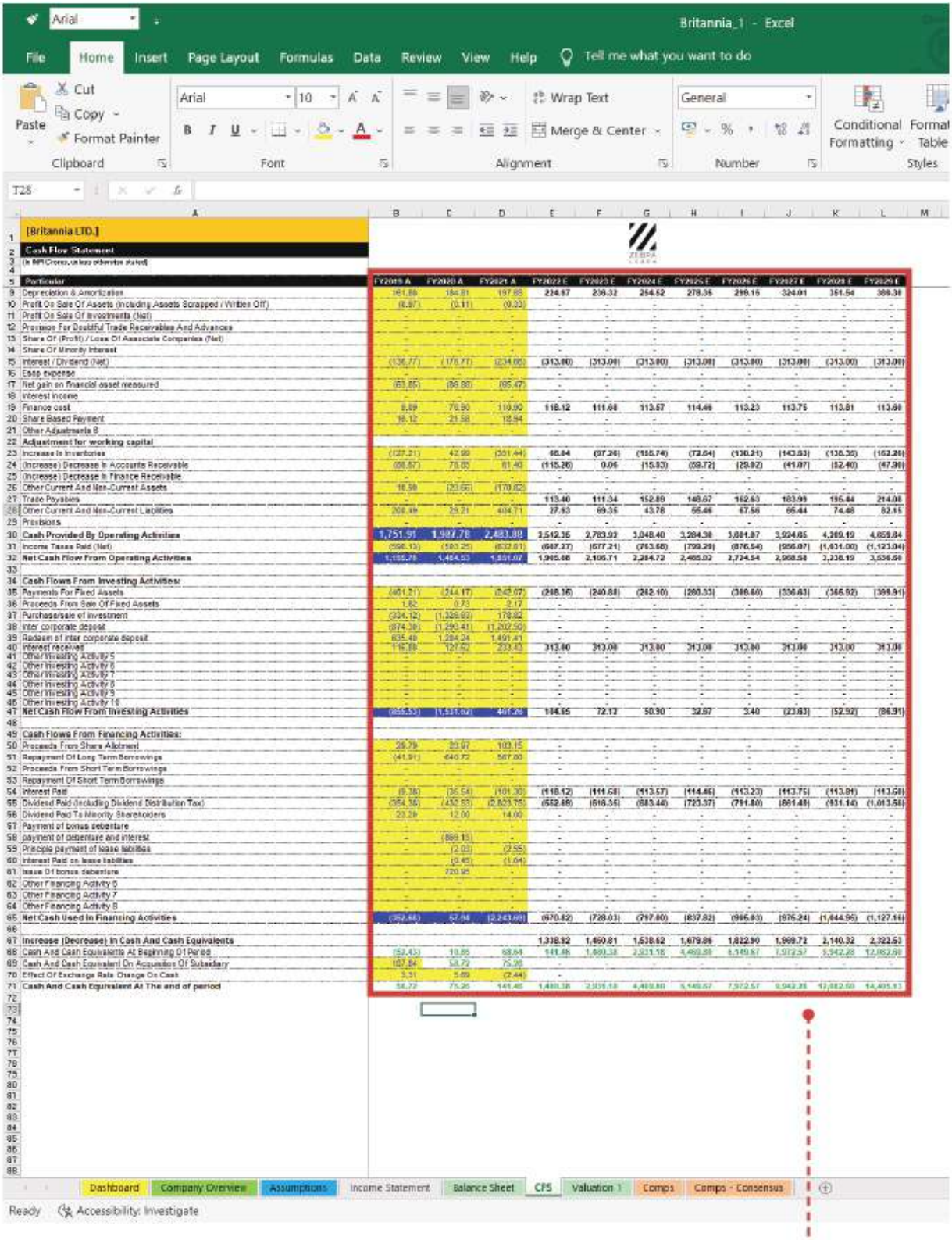
5	Particular	FY2020 A	FY2021 A
49	**Cash Flows From Financing Activities:**		
50	Proceeds From Share Allotment	23.97	103.15
51	Repayment Of Long Term Borrowings	640.72	567.80
52	Proceeds From Short Term Borrowings	-	-
53	Repayment Of Short Term Borrowings	-	-
54	Interest Paid	(35.54)	(101.30)
55	Dividend Paid (Including Dividend Distribution Tax)	(432.53)	(2,823.75)
56	Dividend Paid To Minority Shareholders	12.00	14.00
57	Payment of bonus debenture	-	-
58	payment of debenture and interest	(869.15)	-
59	Principle payment of lease liabilities	(2.03)	(2.55)
60	Interest Paid on lease liabilities	(0.45)	(1.04)
61	Issue Of bonus debenture	720.95	-
62	Other Financing Activity 6	-	-
63	Other Financing Activity 7	-	-
64	Other Financing Activity 8	-	-
65	**Net Cash Used In Financing Activities**	57.94	(2,243.69)
66			
67	**Increase (Decrease) In Cash And Cash Equivalents**		
68	Cash And Cash Equivalents At Beginning Of Period	10.85	68.64
69	Cash And Cash Equivalent On Acquisition Of Subsidiary	58.72	75.26
70	Effect Of Exchange Rate Change On Cash	5.69	(2.44)
71	**Cash And Cash Equivalent At The end of period**	75.26	141.46
72			

- Cash at the beginning of the year is 75.
- Cash at the end of the year is 140.
- Our answer for the net change in cash is calculated as 65 crores, vs. a 68 crores in the annual report. The slight difference is attributable to rounding error.

Tip

Recall this formula:

Change in cash and cash equivalents = Net cash from operating activities + net cash from financing activities + net cash from investing activities.



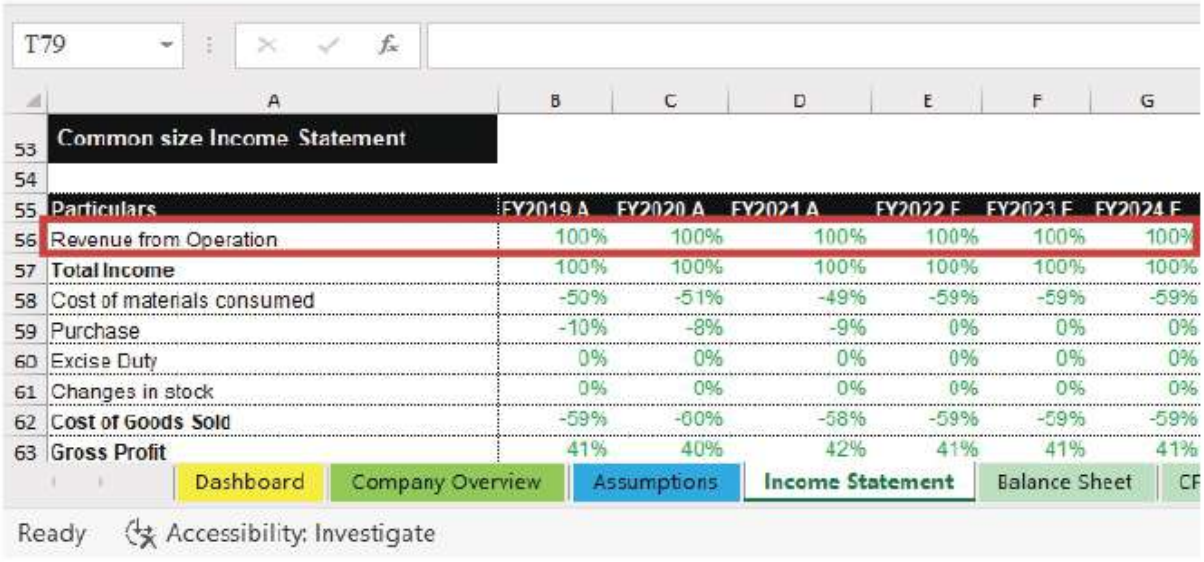
You might see that the template has forecasted numbers for future years. Don't worry about that now, since we would be learning about how to set assumptions for each of the line items and forecast them in the chapters going forward. Go ahead and repeat the activity for FY '19 and FY '20. Once you are done entering the line items for FY '19 and FY '20, you have complete the financial statements for past 3 years completed in your model. We will use this to analyse past performance of the company as well as to forecast the future.

6.5 Analyzing the Financial Statements

Explainer Video

We have learned how to fill in historical financial numbers for the major financial statements. Let's now try to analyze and understand them quickly. We will use two methods:

Common Size Analysis

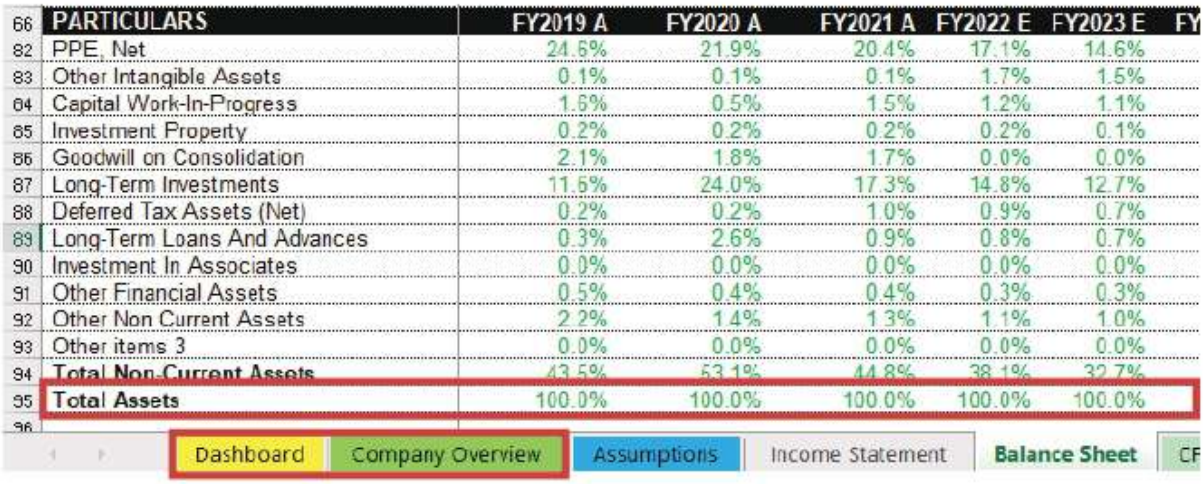


T79

	A	B	C	D	E	F	G
53	**Common size Income Statement**						
54							
55	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY2024 E**
56	Revenue from Operation	100%	100%	100%	100%	100%	100%
57	**Total Income**	100%	100%	100%	100%	100%	100%
58	Cost of materials consumed	-50%	-51%	-49%	-59%	-59%	-59%
59	Purchase	-10%	-8%	-9%	0%	0%	0%
60	Excise Duty	0%	0%	0%	0%	0%	0%
61	Changes in stock	0%	0%	0%	0%	0%	0%
62	**Cost of Goods Sold**	-59%	-60%	-58%	-59%	-59%	-59%
63	**Gross Profit**	41%	40%	42%	41%	41%	41%

Dashboard | Company Overview | Assumptions | **Income Statement** | Balance Sheet | CF

Ready Accessibility: Investigate



66	PARTICULARS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY
82	PPE, Net	24.6%	21.9%	20.4%	17.1%	14.6%	
83	Other Intangible Assets	0.1%	0.1%	0.1%	1.7%	1.5%	
84	Capital Work-In-Progress	1.6%	0.5%	1.5%	1.2%	1.1%	
85	Investment Property	0.2%	0.2%	0.2%	0.2%	0.1%	
86	Goodwill on Consolidation	2.1%	1.8%	1.7%	0.0%	0.0%	
87	Long-Term Investments	11.6%	24.0%	17.3%	14.8%	12.7%	
88	Deferred Tax Assets (Net)	0.2%	0.2%	1.0%	0.9%	0.7%	
89	Long-Term Loans And Advances	0.3%	2.6%	0.9%	0.8%	0.7%	
90	Investment In Associates	0.0%	0.0%	0.0%	0.0%	0.0%	
91	Other Financial Assets	0.5%	0.4%	0.4%	0.3%	0.3%	
92	Other Non Current Assets	2.2%	1.4%	1.3%	1.1%	1.0%	
93	Other items 3	0.0%	0.0%	0.0%	0.0%	0.0%	
94	**Total Non-Current Assets**	43.5%	53.1%	44.8%	38.1%	32.7%	
95	**Total Assets**	100.0%	100.0%	100.0%	100.0%	100.0%	

Dashboard | Company Overview | Assumptions | Income Statement | **Balance Sheet** | CF

A common size income statement and balance sheet has already been created in the respective sheets in the template. In a common size statement, each line item is shown as a percentage of the main line item -

- **Revenues in the case of income statement and**
- **Total assets in the case of a balance sheet.**

Such common size analysis helps us understand the business and its past performance as well. You can also see a list of important ratios listed and calculated in the Company Overview tab.

Ratio Analysis

A16 — Working Capital

[Britannia LTD.]

Ratio Snapshot

(In INR Crores, unless otherwise stated)

HIGHLIGHTS FROM INCOME STATEMENT	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Revenue	11,054.00	11,599.00	13,136.00	14,318.24	15,606.88	17,011.50
EBITDA	1,735.00	1,842.53	2,510.00	2,419.24	2,699.43	3,022.40
EBIT	1,573.12	1,657.72	2,312.15	2,194.27	2,463.12	2,767.88
PBT	1,769.51	1,843.65	2,514.45	2,390.15	2,665.44	2,968.31
PAT	1,157.04	1,392.95	1,851.43	1,782.88	1,988.23	2,204.64

HIGHLIGHTS FROM BALANCE SHEET	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Fixed Assets	1,535.58	1,716.37	1,634.30	1,606.67	1,598.07	1,591.63
Cash & Cash Equivalents	60.32	81.23	142.74	1,480.38	2,931.18	4,469.80
Working Capital	1,674.93	1,109.67	805.41	2,050.94	3,418.26	4,931.88
Long Term Debts and Borrowing	61.92	766.06	747.75	747.75	747.75	747.75
Equity	24.03	24.05	24.09	24.09	24.09	24.09
Share holders fund	4,229.22	4,378.78	3,523.57	4,753.75	6,125.63	7,646.83

GROWTH	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Revenue Growth y-o-y		4.93%	13.25%	9.00%	9.00%	9.00%
EBIT Growth y-o-y		5.38%	39.48%	-5.10%	12.25%	12.37%
PAT growth y-o-y		20.39%	32.91%	-3.70%	11.52%	10.88%

MARGINS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Gross Profit Margin (%)	40.6%	40.3%	41.9%	41.0%	41.1%	41.3%
EBITDA Margin (%)	15.7%	15.9%	19.1%	16.9%	17.3%	17.8%
EBIT Margin (%)	14.2%	14.3%	17.6%	15.3%	15.8%	16.3%
Pre-Tax Margin (%)	16.0%	15.9%	19.1%	16.7%	17.1%	17.4%
PAT Margin (%)	10.5%	12.0%	14.1%	12.5%	12.7%	13.0%

EXPENDITURE RATIOS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Cost of Goods Sold as % of Revenue	59.4%	59.7%	58.1%	59.0%	58.9%	58.7%
Employee Expenses as % of Revenue	4.6%	4.4%	4.3%	4.5%	4.4%	4.4%
Advertisement Expenses as % of Revenue	4.5%	4.1%	3.4%	4.0%	3.9%	3.8%

RETURNS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Return on Avg Cap Employed (%)	35.8%	31.4%	52.6%	39.0%	35.2%	32.5%
Return on Assets	7.20	6.76	8.04	8.91	9.77	10.69
Return On Equity (%)	27.1%	31.5%	51.6%	37.0%	32.1%	28.6%

DuPONT ANALYSIS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
PAT Margin (%)	10.5%	12.0%	14.1%	12.5%	12.7%	13.0%
Asset Turnover (x)	7.20	6.76	8.04	8.91	9.77	10.69
Financial Leverage	0.024	0.189	0.226	0.168	0.131	0.105
Return On Equity (%)	27.1%	31.5%	51.6%	37.0%	32.1%	28.6%

LIQUIDITY	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Receivable Days	13	10	7	9	9	8
Inventory Days	43	39	52	44	45	47
Payable Days	38	35	37	36	36	36
Cash Operating Cycle (Days)	19	14	23	17	17	19

SOLVENCY RATIOS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Interest Coverage Ration	190.9x	24.0x	22.6x	20.5x	24.2x	26.6x
Net Debt/Equity	0.0x	0.2x	0.2x	0.2x	0.1x	0.1x

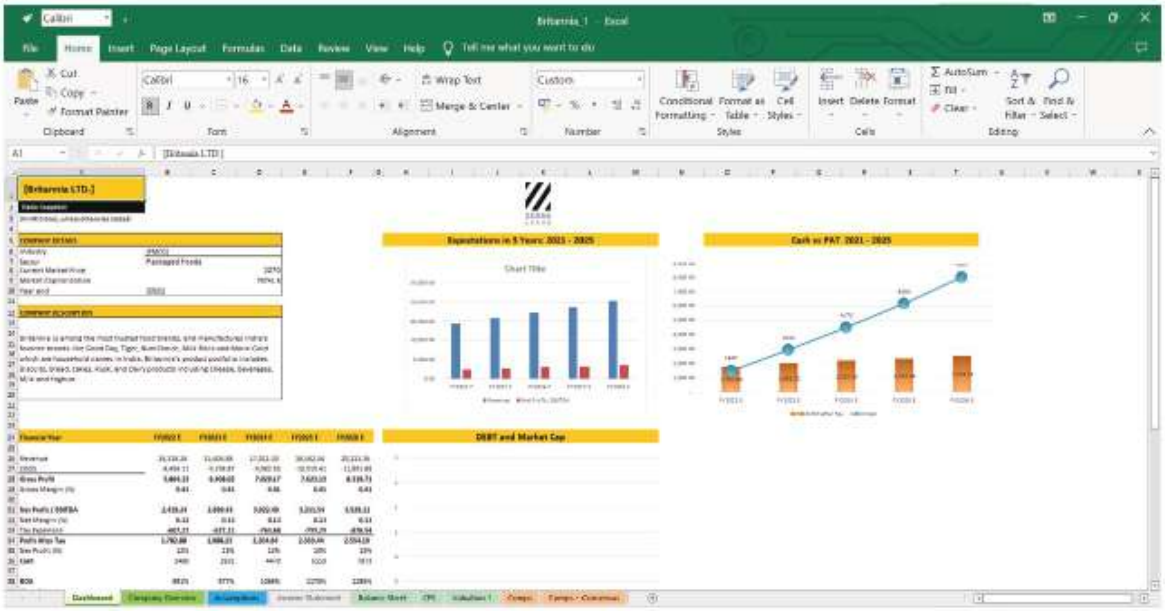
TURNOVER RATIOS	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
Working Capital Turnover Ratio	7	10	16	7	5	3

Dashboard | Company Overview | Assumptions | Income Statement | Balance Sheet | CFS

Ready — Accessibility: Investigate

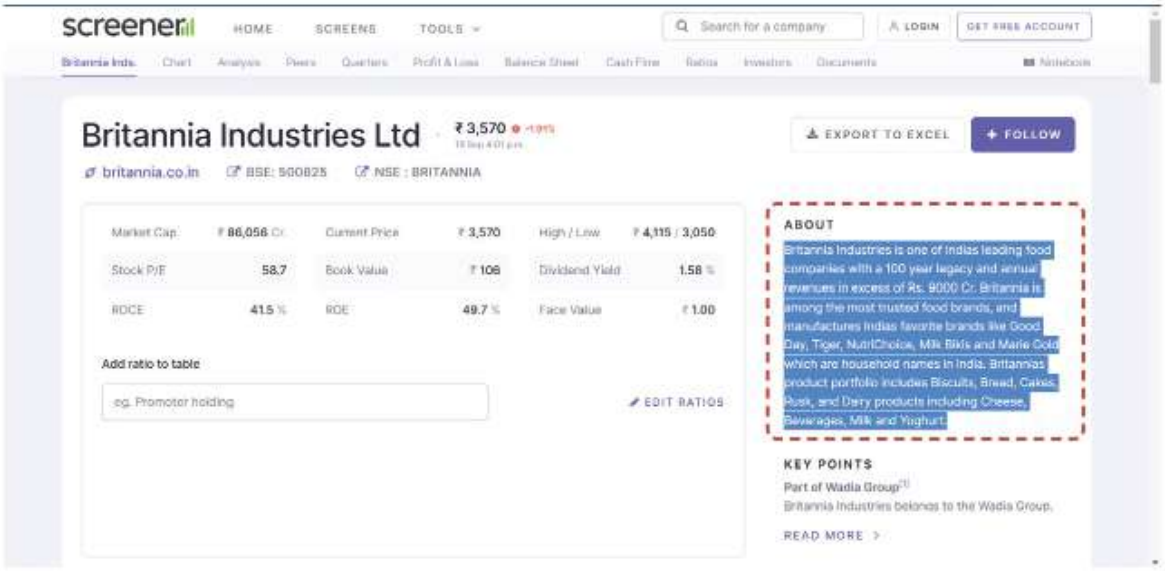
These are different ratios that tell us how the company has performed in the past. We can dig deeper into them too. For this book, we are more concerned with forecasting and valuation purposes. However, similar models are used to evaluate past performance. We will learn more about them in Financial Statement Analysis related books.

Now, let's fill up other important details in the Dashboard tab of the sheet. This dashboard will represent the company to readers of your financial model. It's like a snapshot of the company's important details. Fill up the industry, sector, current market price, and market capitalization.



Don't forget to fill in the 'Year End' tab. Here we enter the month in which the company prepares its annual statements. For most Indian companies, it's March. A few companies prepare their year-end statements as of September or December as well. It's easy to make mistakes here, make sure you don't!.

Also, you can borrow the company description from the page on Screener. in



You'll easily find these details on different financial information sites like

YAHOO! FINANCE moneycontrol Google Finance

With this, we conclude our discussion on entering raw data into our financial model. In the next chapter, we will begin with Forecasting.

Forecasting

7

Introduction

We have completed entering the financial statements of previous years and normalizing them. It's now time to get to the future years. This is where we begin with assumptions and forecasting

In this chapter, we will discuss what exactly forecasting is and how we would be approaching it.

Forecasting the future numbers of a company is not a single-step process. We need to forecast different line items of the financial statements -

- Revenues,
- Cost,
- Liabilities,
- Assets,
- Working capital,
- Capital requirements, and so on.

And we need to begin with the mindset that the idea is not to get numbers exactly right. But, to get a rough estimate based on current facts available. No one can predict the future. Forecasting is an educated guess we make based on different assumptions.

7.1 Assumptions of a Financial Model

Explainer Video

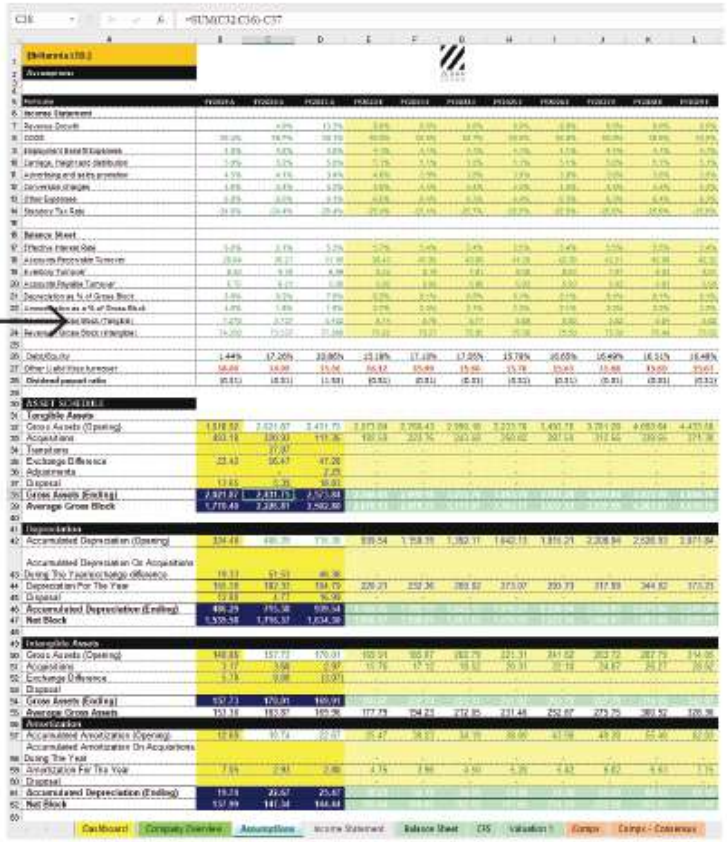
The fist thing to forecast future performance is to kist down different assumptions that we make. These assumptions are on the Assumptions Sheet in the model.

Assumptions Sheet

We have created the assumptions sheet just for this - forecasting different line items. All assumptions would be made here and these numbers would be linked to their specific line items on their respective sheets.

The assumptions sheet is like a dynamic dashboard. Here, we want to see all forecasting assumptions in one place. And more importantly, we do not want to spread our assumptions over different sheets. Having all of them in one place would be most beneficial when we would modify and check different assumptions. The changes would be reflected in whichever sheets that the assumption has been linked to.

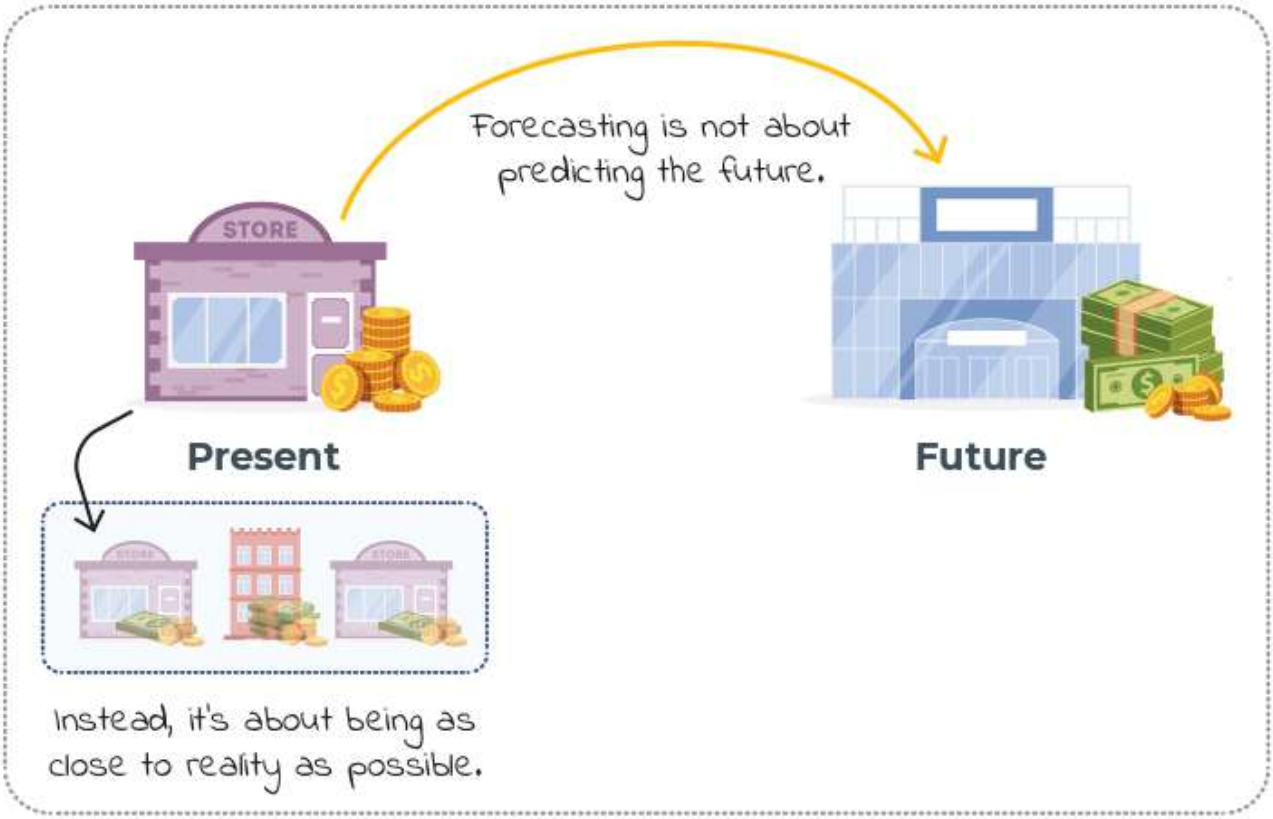
Here's what a standard assumptions sheet looks like:



We will learn to complete filling up the assumptions sheet in this section. We will also be making changes to it, to understand which assumptions are more sensitive than others.

Forecasting

Explainer Video



It's impossible to forecast all line items accurately. Hence, we start forecasting those line items that we are the most confident about. For example, if the management of a company makes a statement about the capital expenditure they will be undertaking, we can start our forecasting exercise with the capex schedule. You can start with the line item you are confident forecasting - it can be revenues, assets, or industry-specific KPIs.

Note

It's better to not start with forecasting costs on the income statement. They are difficult to predict and are better forecasted as a percentage of revenue.

The most popular way to model a financial statement is to start with forecasting revenues.

Revenue Model

(needs volume and value data)

acts as base to forecast

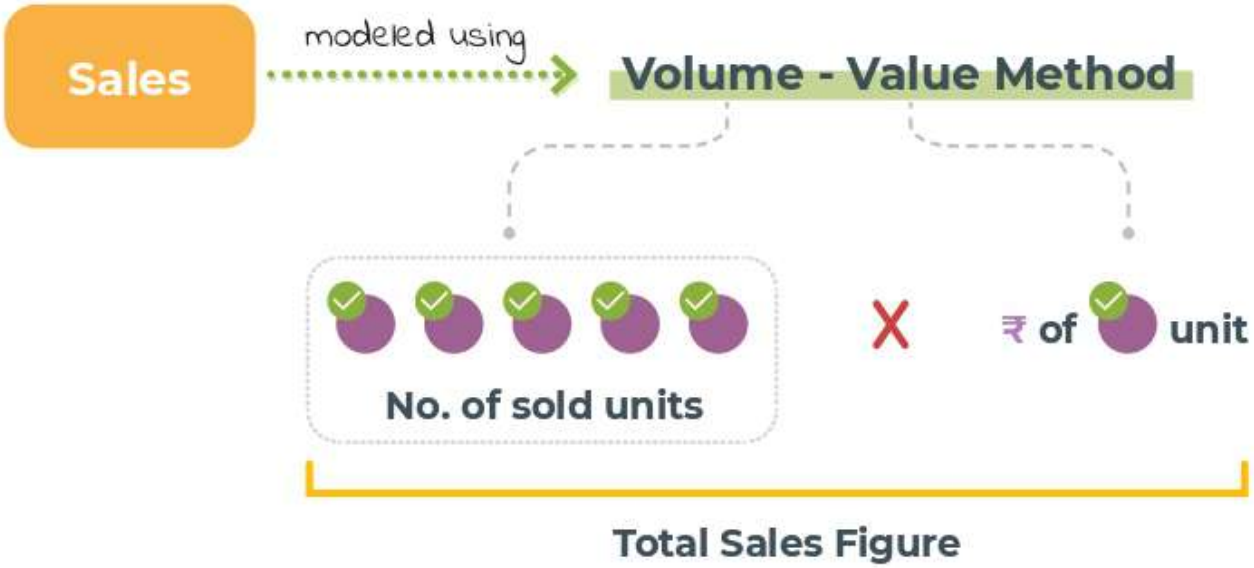
- **Costs**
- **Assets**
- **KPIs**

7.2 Forecasting Revenues

Explainer Video

We discusses about the basics of forecasting. Let's begin with forecasting revenues. Though you may have limited data, you must try to forecast this line item as accurately as possible. Changes here have a high impact on other line items like costs, profits, interest expenses, etc.

That being said, know that there are no rules to forecast any line item. There are practices that we can follow that would help us forecast different items systematically. However, whatever gets us closest to realisty or we are most confident about should be used.



The task is to assume the change in prices in future and forecast volumes sold in future.

Let's create a revenue assumptions sheet and learn the **3 methods of forecasting.**

- Extrapolating the past
- Forecasting using KPIs
- Relying on management guidance.

1 Past Extrapolation Method

This is the simplest and most popular way of forecasting. Here, we simply calculate the past rate of growth and extrapolate the growth rate to the future years.

This method is suitable for stable and mature companies where business is less likely to change a lot in the future. We will use this method to create Britannia's financial model.

2 KPIs Method

Using KPIs for forecasting is another good way to forecast revenue for a company. However, the challenge lies in choosing the right KPIs. **For Britannia, the KPIs that would help us forecast revenues can be the number of distributors, SKUs (stock keeping unit), number of brands, etc.**

Let's forecast revenues for a retail company. We can use 2 data points for this - the number of retail stores and revenue per store.

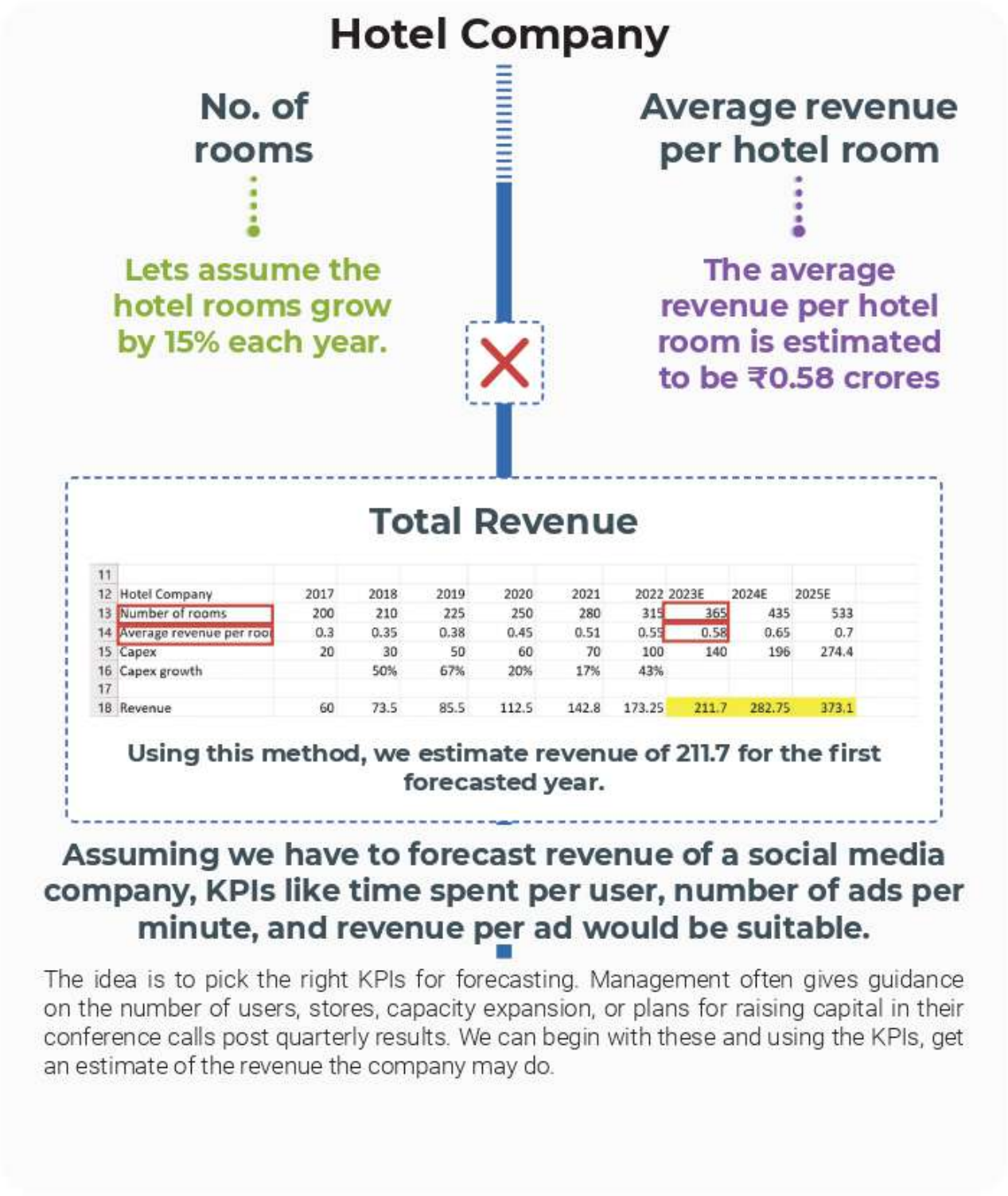
Total Revenue

D4 | 28000

	A	B	C	D	E	F	G	H	I	J	K
1											
2	KPIs										
3		2017	2018	2019	2020	2021	2022	2023E	2024E	2025E	
4	Number of Retail Stores	22,000	25,000	28000	32000	36000	40000	44000	48400	53240	
5	Number of SKUs										
6	Number of Brands										
7	Revenue			11054	11599	13136	14961.91	16153.95	17844.63	19696.56	
8											
9	Revenue per Retail store			0.39	0.36	0.36	0.37	0.37	0.37	0.37	
10											
11											

You can find data related to KPIs in the company's investor presentations, annual reports, and conference calls. You can see how we used KPIs and assumptions to forecast revenue in above example.

Realize that every industry is different. Let's look at a hotel company now. Here, we can use KPIs like the number of rooms, average revenue per customer, or capital expansion.



11										
12	Hotel Company	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E
13	Number of rooms	200	210	225	250	280	315	365	435	533
14	Average revenue per roo	0.3	0.35	0.38	0.45	0.51	0.55	0.58	0.65	0.7
15	Capex	20	30	50	60	70	100	140	196	274.4
16	Capex growth		50%	67%	20%	17%	43%			
17										
18	Revenue	60	73.5	85.5	112.5	142.8	173.25	211.7	282.75	373.1

Assuming we have to forecast revenue of a social media company, KPIs like time spent per user, number of ads per minute, and revenue per ad would be suitable.

The idea is to pick the right KPIs for forecasting. Management often gives guidance on the number of users, stores, capacity expansion, or plans for raising capital in their conference calls post quarterly results. We can begin with these and using the KPIs, get an estimate of the revenue the company may do.

3 Forecasting KPIs

To get forecasted revenues for a company, we need to forecast the KPIs and link it to revenues.
There are 3 ways to do that:

Extrapolating the past

This method tries to derive a growth rate based on historical trends. It's suitable for a stable company with a decent operating history and whose business model has not / is not likely to undergo a major change in the near future. Britannia is one such company.

Assumptions Driven

Sometimes, we can make subjective assumptions for KPIs. We can get explicit growth rates and other such metrics from management commentary, industry experts, or by our understanding of the environment. However, it's important to stay balanced and avoid too much optimism or pessimism when making such assumptions.

Management Guidance

The management of a company often gives guidance on its profit margins, capital investment plans, employees, and new projects. We can directly use this kind of information in our model. However, make sure you check the reliability of and history of the management. This style of forecasting is only suitable if the management has given reliable guidance in their past.

Here too, allowing for scenario and sensitivity analysis while making different assumptions is beneficial.

Tip

we suggest that you pause your reading here and do a simple exercise. Make a list of your top 5 favourite companies, and try to identify 2-3 KPIs for each. These KPIs must be directly linked to revenues.

Next, we will talk about the other 2 methods of forecasting for revenues.

Management Guidance

Explainer Video

The management of a company can often give numbers for future line items.They will often guide things like:

- Capital expenditure they will undertake,
- New stores that they would start,
- Entry into new product lines, etc.

You can find such commentary in:

Annual Report

Investor Presentations

Conference Calls

However, the reliability of a company's management is a matter of judgment.

Have they achieved all that they have said in the past?
Are they focused more on the share price and less on the business?

These are some of the questions you should ask before relying on their commentary.

Business and Geographic Segmentation

Another good way of modelling revenues is by breaking down the total business into meaningful parts. You can segment revenue from different verticals and geographies and forecast each one of them differently.

Reliance Industries Limited

Reliance Petroleum

It is a stable business can be forecasted using the past exploration method.

Reliance Jio Infocomm

Its revenues can be forecasted using number of users and Average Revenue per user.

Reliance Retail

We can use KPIs like revenue per store and number of stores.

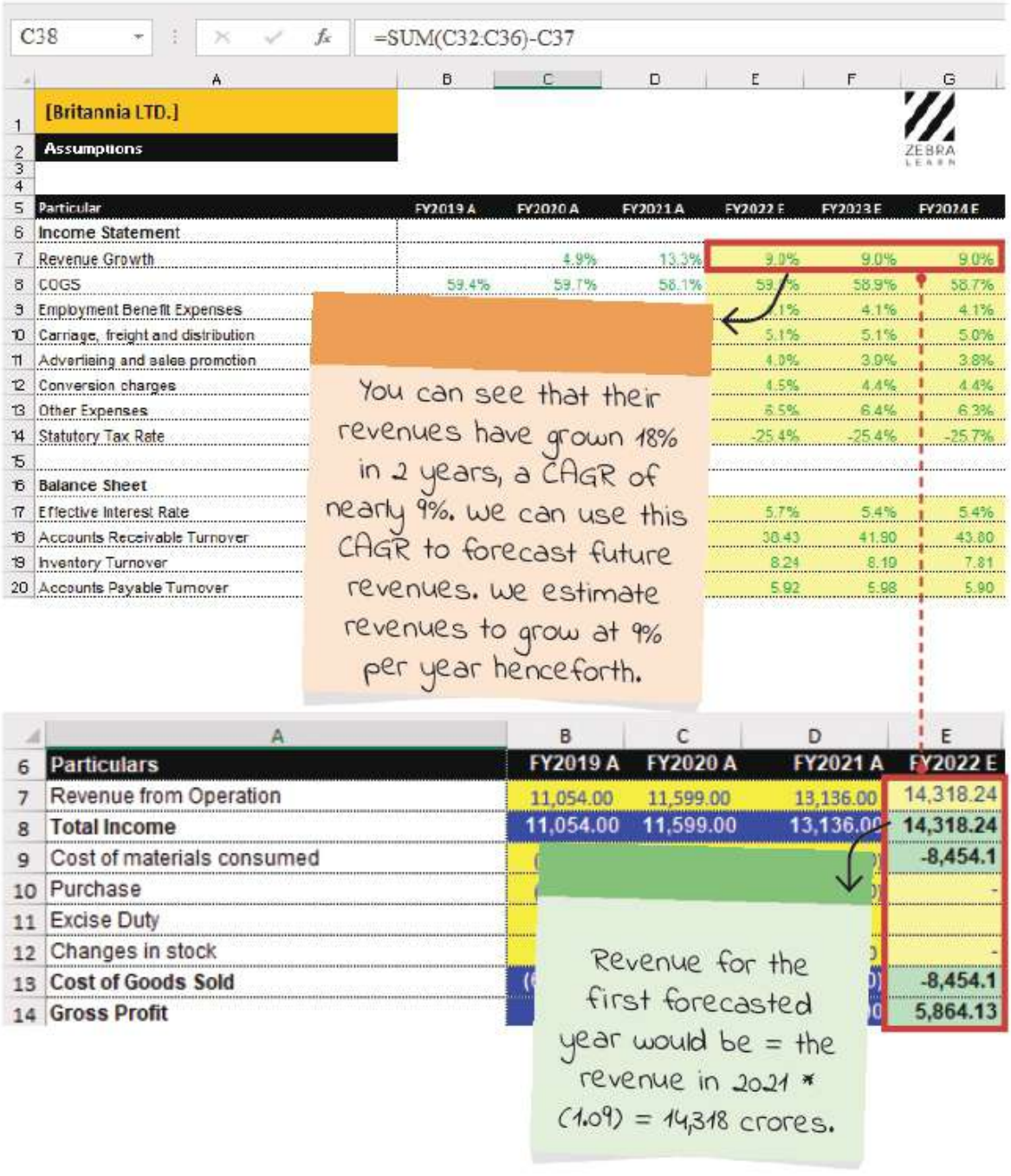
Management guidance would also make sense for these verticals.

Summing segment revenues will give us the total revenue.

UPL OpenAg™

This concept can be used geographically also. UPL Ltd. is a company having operations all over the world. Business in each area is operated differently. Hence, forecasting for each country/state differently would yield results closer to reality rather than forecasting for the buisiness as a whole.

These methods mentioned above are not to be treated as hard and fast rules. You can work with your own method of forecasting. These methods are some tried and tested to reduce your chances of going wildly wrong as they put method to it. With our Britannia model, we can use the past extrapolation method since the company and its business model is unlikely to undergo major change in forseeable future.



Make sure that the excel linkings are correct whenever you are dealing with forecasts in particular. Use the assumption sheet instead of manually entering data or information in income statement.

You could also forecast using all 3 methods to forecast and then compare them to one another. With this we end our discussion about forecasting revenue.

Next, let's talk about forecasting costs.

7.3 Forecasting Costs

Broadly, there are 3 major types of costs:

Costs

Operating costs like the cost of goods sold, power, fuel, advertising etc. that are required to run a business smoothly.

Depreciation and amortization

Financing costs

Explainer Video

Each cost has different determinants and is calculated differently. Each cost behaves in a different manner in different industries. That is where our understanding of business and cost drivers is really important.

Operating Costs

Operating costs are all those costs that come above the EBITDA level. Here is a snapshot:

A43

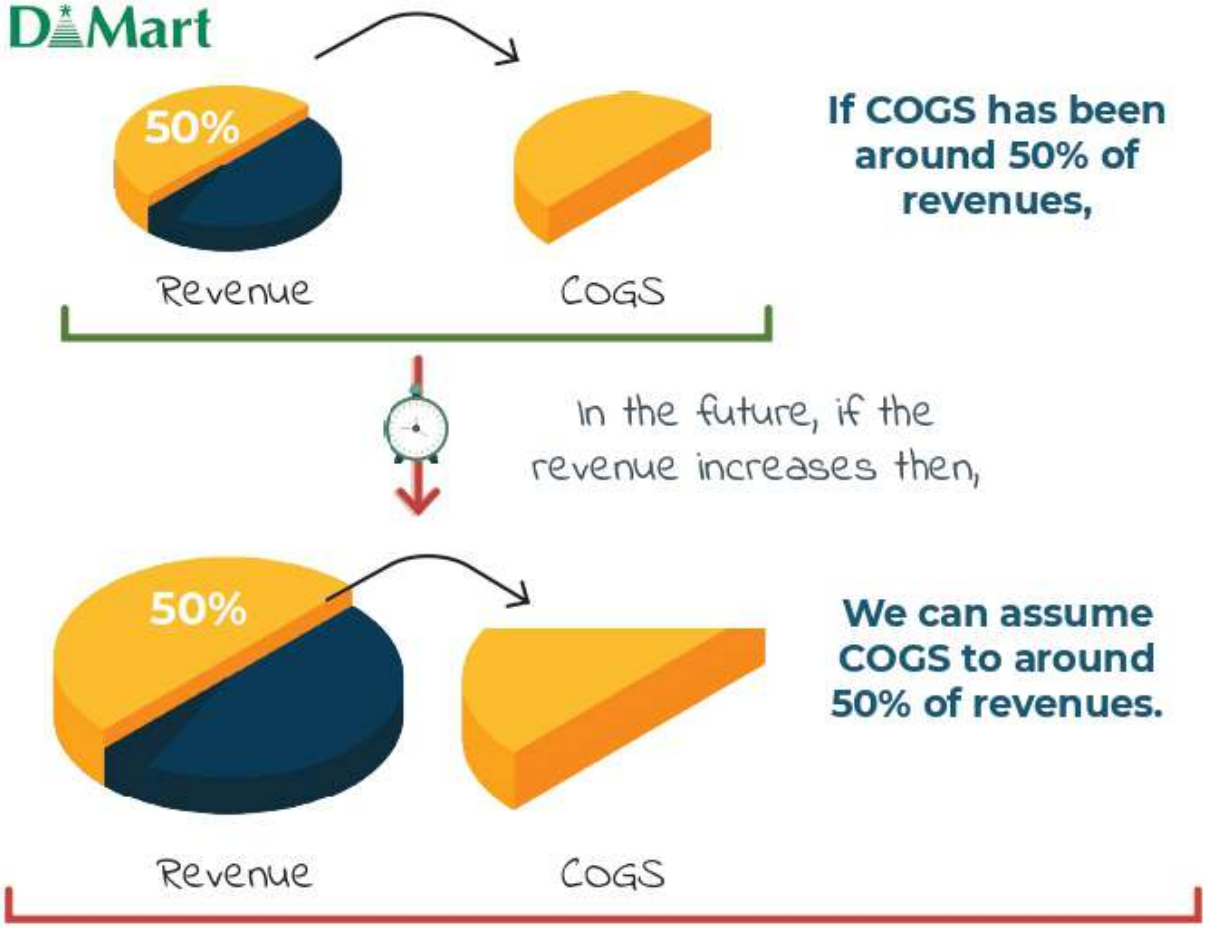
	A	B	C	D	E	F	G	H
6	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY2024 E**	**FY2025 E**
7	Revenue from Operation	11,054.00	11,599.00	13,136.00	14,318.24	########	17,011.50	########
8	**Total Income**	11,054.00	11,599.00	13,136.00	14,318.24	########	17,011.50	########
9	Cost of materials consumed	(5,513.00)	(5,901.16)	(6,502.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4
10	Purchase	(1,103.00)	(973.74)	(1,161.00)	-	-	-	-
11	Excise Duty	-	-	-				
12	Changes in stock	55.00	(52.57)	37.00	-	-	-	-
13	**Cost of Goods Sold**	(6,561.00)	(6,927.47)	(7,626.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4
14	**Gross Profit**	4,493.00	4,671.53	5,510.00	5,864.13	6,408.02	7,029.17	7,623.13
15	Employment Benefit Expenses	441.00	487.00	527.00	582.28	638.70	690.15	755.06
16	Carriage, freight and distribution	553.00	600.00	655.00	723.64	791.43	856.89	937.15
17	Advertising and sales promotion	501.00	475.00	452.00	575.99	601.33	641.71	719.94
18	Conversion charges	513.00	508.00	569.00	637.26	684.73	746.79	817.60
19	Other Expenses	750.00	759.00	797.00	925.71	992.40	1,071.23	1,181.85
20	Other Expense 2	-	-	-	-	-	-	-
21	Other Expense 3	-	-	-	-	-	-	-
22	**Total Expenditure**	2,758.00	2,829.00	3,000.00	3,444.89	3,708.58	4,006.77	4,411.59
23	**EBITDA**	1,735.00	1,842.53	2,510.00	2,419.24	2,699.43	3,022.40	3,211.54
24	Depreciation & Ammortization	(161.88)	(184.81)	(197.85)	-224.97	-236.32	-254.52	-278.35
25	**EBIT**	1,573.12	1,657.72	2,312.15	2,194.27	2,463.12	2,767.88	2,933.19
26	Interest	(9.09)	(76.90)	(110.90)	-118.12	-111.68	-113.57	-114.46
27	Other Income	206.45	279.40	313.00	313.00	313.00	313.00	313.00
28	**Profit before Prior Period Items and Tax**	1,770.48	1,860.22	2,514.25	2,389.15	2,664.44	2,967.31	3,131.73
29	Exceptional Items	-	(17.01)	(0.61)	-	-	-	-
30	Share of loss/profits of associates	(0.97)	0.44	0.81	1.00	1.00	1.00	1.00
31	**Profit/Loss before Taxation**	1,769.51	1,843.65	2,514.45	2,390.15	2,665.44	2,968.31	3,132.73
32	Current Tax	(599.78)	(447.69)	(657.12)	-607.27	-677.21	-763.68	-799.29
33	Provision for Deferred tax	(12.69)	(3.01)	(5.90)	-	-	-	-
34	Other Tax	-	-	-	-	-	-	-
35	**Profit/Loss after Tax**	1,157.04	1,392.95	1,851.43	1,782.88	1,988.23	2,204.64	2,333.44

Dashboard | Company Overview | Assumptions | Income Statement | Balance Sheet | CFS | Valuati

Ready Accessibility: Investigate

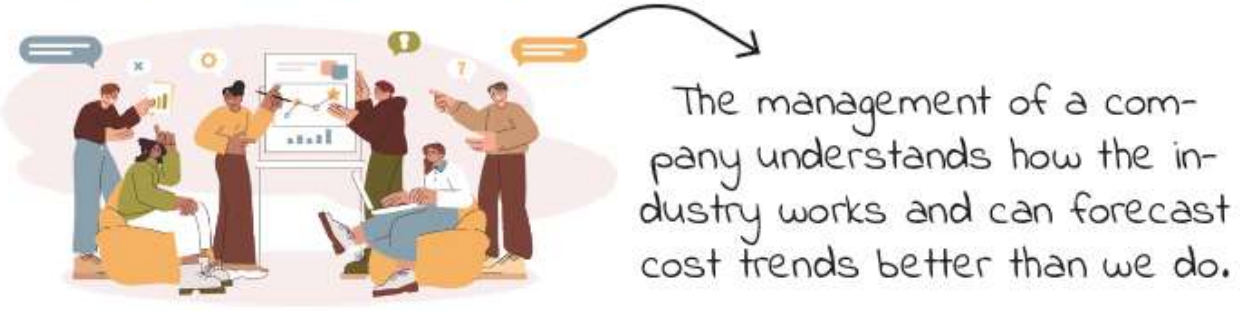
There are 3 ways to forecast such type of costs:

1 Using past common size ratio.



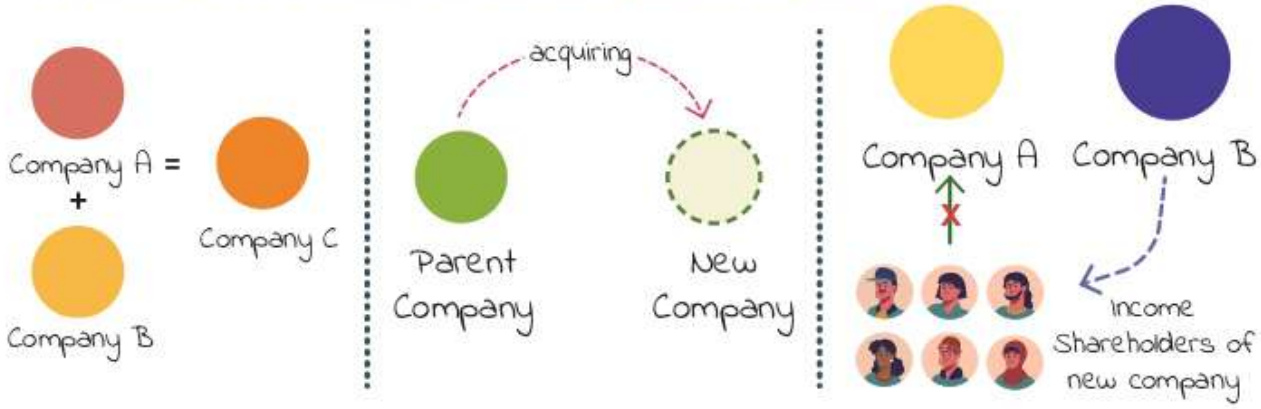
This is suitable when the company's cost of goods sold does not change with revenue.

2 Relying on management guidance for costs and EBITDA.



For startups, this is the only way of estimating costs. There is no operating history or very low history, and management guidance or industry practices are the only 2 ways to estimate costs are.

3 Arriving at a cost after **strategic changes.**



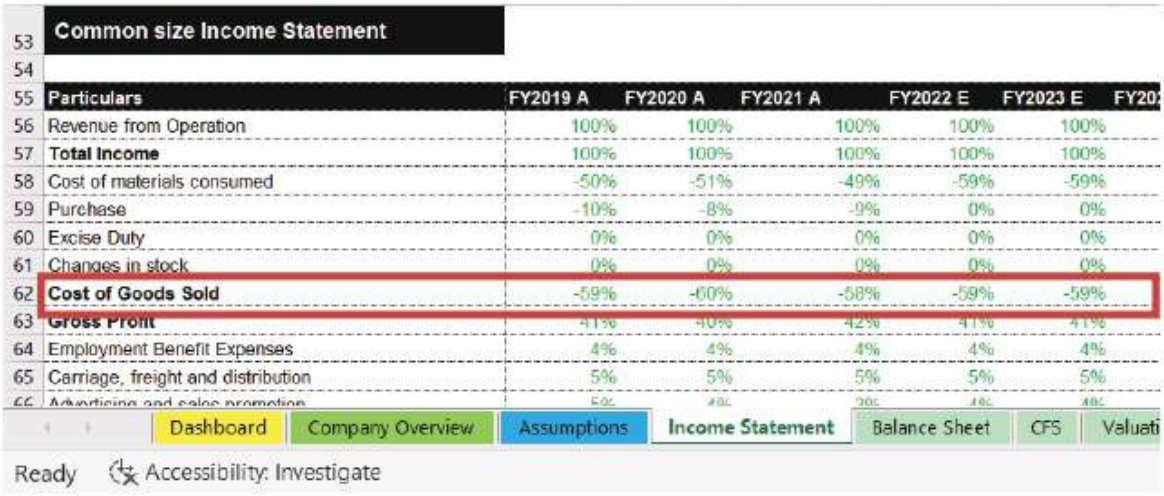
These events can completely change the cost structure of a company and past data cannot be used to forecast.

INOX LIVE THE MOVIE + PVR

For example, PVR and Inox merged into one entity. Now as they enjoy synergies, their fixed costs would reduce. The revenue and profits shall also increase.

All of this should be reflected in a financial model.

For Britannia, let's use an average of the past 3 years of common size statements to forecast COGS. COGS has consistently been 59% of revenues historically. We can enter the 'average assumptions' in the assumptions sheet and link those to our forecasted income statement.



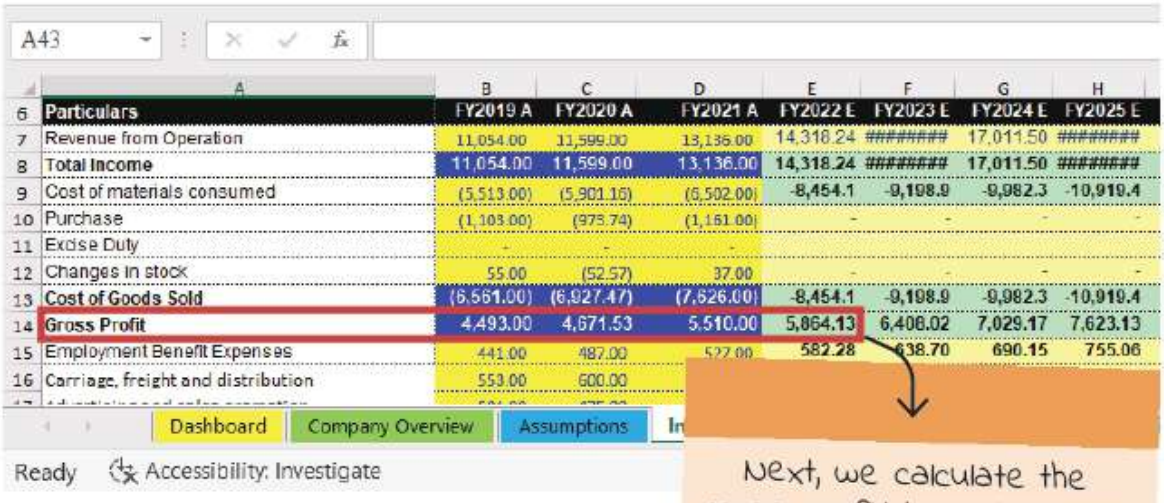
53	Common size Income Statement						
54							
55	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY20**
56	Revenue from Operation	100%	100%	100%	100%	100%	
57	**Total Income**	100%	100%	100%	100%	100%	
58	Cost of materials consumed	-50%	-51%	-49%	-59%	-59%	
59	Purchase	-10%	-8%	-9%	0%	0%	
60	Excise Duty	0%	0%	0%	0%	0%	
61	Changes in stock	0%	0%	0%	0%	0%	
62	**Cost of Goods Sold**	-59%	-60%	-58%	-59%	-59%	
63	**Gross Profit**	41%	40%	42%	41%	41%	
64	Employment Benefit Expenses	4%	4%	4%	4%	4%	
65	Carriage, freight and distribution	5%	5%	5%	5%	5%	
66	Advertising and sales promotion	5%	4%	3%	4%	4%	

Dashboard | Company Overview | Assumptions | Income Statement | Balance Sheet | CFS | Valuati

Ready | Accessibility: Investigate

The formula for the COGS in 2022 would be: COGS in 2022 = (Average of COGS% to revenues in past 3 years) * Forecasted revenue for 2022 = 8,454.10 crores

Using this method, we can get an estimate of cost of goods sold in each year by the company. Such calculation should only be used when the cost of goods sold will not change dramatically in near future.



A43

6	Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E
7	Revenue from Operation	11,054.00	11,599.00	13,136.00	14,318.24	########	17,011.50	########
8	**Total Income**	11,054.00	11,599.00	13,136.00	**14,318.24**	########	**17,011.50**	########
9	Cost of materials consumed	(5,513.00)	(5,901.16)	(6,502.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4
10	Purchase	(1,103.00)	(978.74)	(1,161.00)	-	-	-	-
11	Excise Duty	-	-	-				
12	Changes in stock	55.00	(52.57)	37.00	-	-	-	-
13	**Cost of Goods Sold**	(6,561.00)	(6,927.47)	(7,626.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4
14	**Gross Profit**	4,493.00	4,671.53	5,510.00	5,864.13	6,406.02	7,029.17	7,623.13
15	Employment Benefit Expenses	441.00	487.00	522.00	582.28	638.70	690.15	755.06
16	Carriage, freight and distribution	553.00	600.00					

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Next, we calculate the gross profit by subtracting COGS from revenues to get 5,864.13 cores for 2022. Drag the formula to all of the forecasted years. Don't worry if the numbers look a little off.

We can always tweak the assumptions sheet, when we have more information.

We will use the same forecasting method (common size analysis) for line items - employee benefits expense, carriage, advertising & sales promotion, conversion charges, and other expenses. Deducting these operating expenses from gross profit would give you EBITDA. Here is a picture of the forecasted income statement upto EBITDA:

A43

	A	B	C	D	E	F	G	H
6	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**	**FY2023 E**	**FY2024 E**	**FY2025 E**
7	Revenue from Operation	11,054.00	11,599.00	13,136.00	14,318.24	########	17,011.50	########
8	**Total Income**	11,054.00	11,599.00	13,136.00	14,318.24	########	17,011.50	########
9	Cost of materials consumed	(5,513.00)	(5,901.16)	(6,502.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4
10	Purchase	(1,103.00)	(975.74)	(1,161.00)	-	-	-	-
11	Excise Duty	-	-	-				
12	Changes in stock	55.00	(52.57)	37.00	-	-	-	-
13	**Cost of Goods Sold**	(6,561.00)	(6,927.47)	(7,626.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4
14	**Gross Profit**	4,493.00	4,671.53	5,510.00	5,864.13	6,408.02	7,029.17	7,623.13
15	Employment Benefit Expenses	441.00	487.00	527.00	582.28	638.70	690.15	755.06
16	Carriage, freight and distribution	553.00	600.00	655.00	723.64	791.43	856.89	937.15
17	Advertising and sales promotion	501.00	475.00	452.00	575.99	601.33	641.71	719.94
18	Conversion charges	513.00	508.00	569.00	637.26	684.73	746.79	817.60
19	Other Expenses	750.00	759.00	797.00	925.71	992.40	1,071.23	1,181.85
20	Other Expense 2	-	-	-	-	-	-	-
21	Other Expense 3	-	-	-	-	-	-	-
22	**Total Expenditure**	2,758.00	2,829.00	3,000.00	3,444.89	3,708.58	4,006.77	4,411.59
23	**EBITDA**	1,735.00	1,842.53	2,510.00	2,419.24	2,699.43	3,022.40	3,211.54

Spend time to find out if those numbers are actually making sense. Also, feel free to make changes to the above method, if the cost structure of the company is changing.

Common size forecasting is good for a stable company like Britannia.

It's a different ballgame to forecast a cyclical business. COGS in a cyclical business would look like 60%, 50%, 35%, 50%, 70%, and again 60% throughout one cycle instead of a stable 50%.

Hence, forecasting should be done keeping in mind the type and nature of a company. Also, what changes the company, costs are undergoing.

Tip

Look for data that confirms your assumptions. It would not make sense to forecast a COGS as 40% of revenues for a company when its same-size peers have a COGS of 70%. Such a difference msut be looked into and there must be a fundamental difference between cost structure for these companies.

For depreciation and finance costs, we need to create an asset schedule and liability schedule respectively. Other income too, will come after we have forecasted the balance sheet.

6	Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E
22	Total Expenditure	2,758.00	2,829.00	3,000.00	3,444.89	3,708.58	4,006.77	4,411.59
23	EBITDA	1,735.00	1,842.53	2,510.00	2,419.24	2,699.43	3,022.40	3,211.54
24	Depreciation & Ammortization	(161.88)	(184.81)	(197.85)	-224.97	-236.32	-254.52	-278.35
25	EBIT	1,573.12	1,657.72	2,312.15	2,194.27	2,463.12	2,767.88	2,933.19
26	Interest	(9.09)	(76.90)	(110.90)	-118.12	-111.68	-113.57	-114.46
27	Other Income	206.45	279.40	313.00	313.00	313.00	313.00	313.00
28	Profit before Prior Period Items and Tax	1,770.48	1,860.22	2,514.25	2,389.15	2,664.44	2,967.31	3,131.73
29	Exceptional Items	-	(17.01)	(0.61)	-	-	-	-
30	Share of loss/profits of associates	(0.97)	0.44	0.81	1.00	1.00	1.00	1.00
31	Profit/Loss before Taxation	1,769.51	1,843.65	2,514.45	2,390.15	2,665.44	2,968.31	3,132.73
32	Current Tax	(599.78)	(447.69)					
33	Provision for Deferred tax	(12.69)	(3.01)					
34	Other Tax	-	-					
35	Profit/Loss after Tax	1,157.04	1,392.95					
36	Other Comprehensive Income							
37	Reassesment of defined benefit	(4.09)	(6.50)					
38	Income tax related income	1.43	1.57					
39	Foreign Currency translation reserve	6.50	10.05					
40	Item #4	-	-					
41	Total Comprehensive Income to common share	1,160.88	1,398.07					
42	Minority Interests	3.66	9.03					
43								

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Ready Access

Line items like exceptional items and the share of associates will be nil. Such items cannot be forecasted. Investments income from associates would be average of last 3 years.

As the amount involved here is small, we do not need to go into as much detail. If this was a large amount, we may have created a new schedule for this.

If there is a new investment a company is making in associates, we can expect that income to rise. Forecasting taxes is pretty easy. We need to get an effective tax rate calculated as:

Effective tax rate = (Current tax + Deferred Tax) / Profit before Tax

Explainer Video

For Britannia, this has been the tax rate trend:

C38 =SUM(C32:C36)-C37

	A	B	C	D	E	F	G	H
1	[Britannia LTD.]							
2	Assumptions							
3								
4								
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E
6	Income Statement							
7	Revenue Growth		4.9%	13.3%	9.0%	9.0%	9.0%	9.0%
8	COGS	59.4%	59.7%	58.1%	59.0%	58.9%	58.7%	58.9%
9	Employment Benefit Expenses	4.0%	4.2%	4.0%	4.1%	4.1%	4.1%	4.1%
10	Carriage, freight and distribution	5.0%	5.2%	5.0%	5.1%	5.1%	5.0%	5.1%
11	Advertising and sales promotion	4.5%	4.1%	3.4%	4.0%	3.9%	3.8%	3.9%
12	Conversion charges	4.6%	4.4%	4.3%	4.5%	4.4%	4.4%	4.4%
13	Other Expenses	6.8%	6.5%	6.1%	6.5%	6.4%	6.3%	6.4%
14	Statutory Tax Rate	-34.8%	-24.4%	-26.4%	-25.4%	-25.4%	-25.7%	-25.5%
15								
16	Balance Sheet							
17	Effective Interest Rate					5.4%	5.4%	5.5%
18	Accounts Receivable Turnover					41.90	43.60	41.38
19	Inventory Turnover					8.19	7.81	8.06
20	Accounts Payable Turnover					5.98	5.90	5.93
21	Depreciation as % of Gross Block					8.1%	8.0%	8.1%
22	Ammortisation as a % of Gross Block					2.0%	2.1%	2.3%

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we will make assumptions using an average of the last 2 yrs as we know corporate tax rate in India changed in FY20

Tax Expense = Profit before tax x (Tax Rate Assumption)

Profit after Tax = Profit before tax - Tax Expense

32	Current Tax	(599.78)	(447.69)	(657.12)	-607.27	-677.21	-763.68	-709.29
33	Provision for Deferred tax	(12.69)	(3.01)	(5.90)	-	-	-	-
34	Other Tax	-	-	-	-	-	-	-
35	**Profit/Loss after Tax**	1,157.04	1,392.95	1,8		1,088.23	2,204.64	2,333.44
36	**Other Comprehensive Income**							
37	Reassesment of defined benefit	(4.09)	(6.50)					-
38	Income tax related income	1.43	1.57					-
39	Foreign Currency translation reserve	6.50	10.05					-
40	Item #4	-	-					-
41	**Total Comprehensive Income to common share**	1,160.88	1,398.07	1,3				14
42	Minority Interests	3.66	9.03					31
43								
44	**Number of Shares Issued:**							
45	Basic	24.02	24.03					07

Dashboard | Company Overview | Assumptions | Inco | ... | aluati

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You may notice that the tax expense row shows irrelevant numbers currently. This is because we have not yet calculated depreciated interest etc. Once we forecast those, the numbers will fit in.

Other Costs

Other comprehensive income will be nil since management discretion and decisions on these line items cannot be forecasted. We will assume all line items here to be nil.

23	**EBITDA**	1,735.00	1,842.53	2,510.00	2,419.24	2,699.43	3,022.40	3,211.54
24	Depreciation & Ammortization	(161.88)	(184.81)	(197.85)	-224.97	-236.32	-254.52	-278.35
25	**EBIT**	1,573.12	1,657.72	2,312.15	2,194.27	2,463.12	2,767.88	2,933.19
26	Interest	(9.09)	(76.90)	(110.90)	-118.12	-111.68	-113.57	-114.46
27	Other Income	206.45	279.40	313.00	313.00	313.00	313.00	313.00
28	**Profit before Prior Period Items and Tax**	1,770.48	1,860.22	2,514.25	2,389.15	2,664.44	2,967.31	3,131.73
29	Exceptional Items	-	(17.01)	(0.61)	-	-	-	-
30	Share of loss/profits of associates	(0.97)	0.44	0.81	1.00	1.00	1.00	1.00
31	**Profit/Loss before Taxation**	1,769.51	1,843.65	2,514.45	2,390.15	2,665.44	2,968.31	3,132.73
32	Current Tax	(599.78)	(447.69)	(657.12)	-607.27	-677.21	-763.68	-799.29
33	Provision for Deferred tax	(12.69)	(3.01)	(5.90)	-	-	-	-
34	Other Tax	-	-	-	-	-	-	-
35	**Profit/Loss after Tax**	1,157.04	1,392.95	1,851.43	1,782.88	1,988.23	2,204.64	2,333.44
36	**Other Comprehensive Income**							
37	Reassesment of defined benefit	(4.09)	(6.50)	3.50	-	-	-	-
38	Income tax related income	1.43	1.57	(0.92)	-	-	-	-
39	Foreign Currency translation reserve	6.50	10.05	(4.08)	-	-	-	-
40	Item #4	-	-	-	-	-	-	-
41	**Total Comprehensive Income to common shar**	1,160.88	1,398.07	1,849.93	1,782.88	1,988.23	2,204.64	2,333.44
42	Minority Interests	3.86	9.03	13.31	13.31	13.31	13.31	13.31
43								

Dashboard | Company Overview | Assumptions | Income St...

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Minority interest can be kept constant, same as last year (13.31 crores). No. of outstanding shares that the company has is also to be left constant.

We are now left with depreciation, interest, and other income. We will forecast there once we know to forecast balance sheet items better.

7.4 Forecasting Balance Sheet

Explainer Video

Next, we move on to forecasting the balance sheet-related items.

Forecasting Fixed Assets

There is no fixed rule to forecast fixed assets for a company. But we can use the following steps to put the method to the same.

01 Calculate the company's gross block turnover historically.

02 Calculate the average historical asset turnover.

03 Based on forecasted revenue and asset turnover, calculate the assets required to achieve the revenue.

04 Calculate the closing gross block for each year.

We can even do the above math with an average gross block instead of closing the gross block. Look at the asset schedule for Britannia in 2021.

Description	Gross carrying amount					
	As at 1 April 2020	Exchange difference	Additions	Disposals	Adjustment	As at 31 March 2021
Own assets						
Freehold land	121.45	0.06	-	-	-	121.51
Buildings (a)	732.02	10.84	16.29	1.29	-	757.86
Plant and equipment	1,304.97	34.90	78.31	13.42	2.29	1,407.05
Furniture and fixtures	31.40	1.64	0.97	2.33	-	31.68
Motor vehicles	2.98	0.23	-	-	-	3.21
Office equipment	39.81	0.16	6.16	0.16	-	45.97
Right of use assets						
Leasehold land	197.31	(0.55)	9.23	1.48	-	204.51
Motor vehicles	1.81	-	0.39	0.15	-	2.05
Total	2,431.75	47.28	111.35	18.83	2.29	2,573.84

	ASSET SCHEDULE			
31	Tangible Assets			
32	Gross Assets (Opening)	1,518.92	2,021.87	2,431.75
33	Acquisitions	493.18	320.93	111.35
34	Transitions		37.87	
35	Exchange Difference	23.42	56.47	47.28
36	Adjustments		-	2.29
37	Disposal	13.65	5.39	18.83
38	**Gross Assets (Ending)**	2,021.87	2,431.75	2,573.84
39	**Average Gross Block**	1,770.40	2,226.81	2,502.80

Fixed Asset Turnover = Revenue / Gross Block

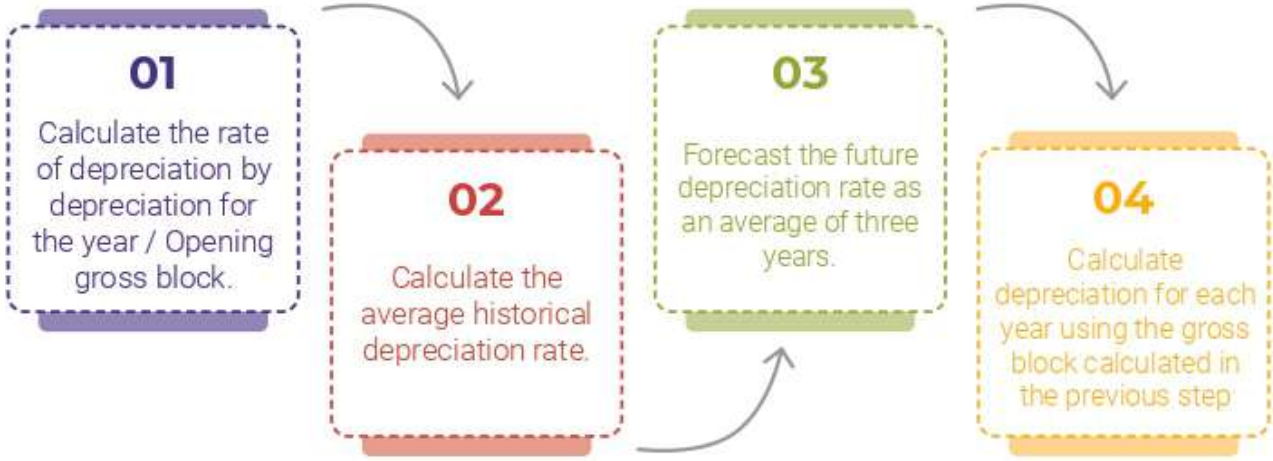
Gross Block = Revenue / Fixed Asset Turnover

For a forecasted period, we have a forecasted revenue as well as a fixed asset turnover. We can use them to calculate the gross block required each year.

The increase in Gross Block each year can indicate the total capital expenditure required by the company each year.

Forecasting Depreciation

A similar process is applicable for depreciation.



Description	Gross carrying amount						Accumulated depreciation						Carrying amounts (net)
	As at 1 April 2020	Exchange difference	Additions	Disposals	Adjustment	As at 31 March 2021	As at 1 April 2020	Exchange difference	Depreciation for the year	Disposals	Adjustment	As at 31 March 2021	As at 31 March 2021
Own assets													
Freehold land	121.45	0.06	-	-	-	121.51	-	-	-	-	-	-	121.51
Buildings (a)	732.02	10.84	16.29	1.29	-	757.86	105.56	11.71	26.34	1.20	-	142.40	615.46
Plant and equipment	1,304.97	34.90	78.31	13.42	2.29	1,407.05	561.57	32.73	153.30	13.22	-	734.38	672.67
Furniture and fixtures	31.40	1.64	0.97	2.33	-	31.68	15.27	1.56	3.06	2.24	-	17.65	14.03
Motor vehicles	2.98	0.23	-	-	-	3.21	1.88	0.20	0.38	-	-	2.46	0.75
Office equipment	39.81	0.16	6.16	0.16	-	45.97	24.15	0.12	6.54	0.13	-	30.68	15.29
Right of use assets													
Leasehold land	197.31	(0.55)	9.23	1.48	-	204.51	6.40	0.05	4.39	0.05	-	10.79	193.72
Motor vehicles	1.81	-	0.39	0.15	-	2.05	0.55	-	0.78	0.15	-	1.18	0.87
Total	2,431.75	47.28	111.35	18.83	2.29	2,573.84	715.38	46.37	194.79 (b)	16.99	-	939.54	1,634.30

30	**ASSET SCHEDULE**					
31	**Tangible Assets**					
32	Gross Assets (Opening)	1,518.92	2,021.87	2,431.75	2,573.84	2,766.43
33	Acquisitions	493.18	320.93	111.35	192.59	223.76
34	Transitions		37.87		-	-
35	Exchange Difference	23.42	56.47	47.28	-	-
36	Adjustments		-	2.29	-	-
37	Disposal	13.65	5.39	18.83	-	-
38	**Gross Assets (Ending)**	**2,021.87**	**2,431.75**	**2,573.84**	2,766.43	2,990.18
39	**Average Gross Block**	**1,770.40**	**2,226.81**	**2,502.80**	2,670.13	2,878.31
40						
41	**Depreciation**					
42	Accumulated Depreciation (Opening)	324.48	486.29	715.38	939.54	1,159.75
43	Accumulated Depreciation On Acquisitions During The Year/exchange difference	19.33	51.53	46.36	-	-
44	Depreciation For The Year	155.28	182.33	194.79	220.21	232.36
45	Disposal	12.80	4.77	16.99	-	-
46	**Accumulated Depreciation (Ending)**	**486.29**	**715.38**	**939.54**	1,159.75	1,392.11
47	**Net Block**	**1,535.58**	**1,716.37**	**1,634.30**	1,606.67	1,598.07

Explainer Video

We have entered numbers for the asset schedule. We also found past numbers about intangible assets in note number 6 of the statements and have created a similar schedule following the same process. Here is a snapshot:

49	**Intangible Assets**			
50	Gross Assets (Opening)	148.86	157.73	170.01
51	Acquisitions	3.17	3.68	2.97
52	Exchange Difference	5.70	8.60	(3.07)
53	Disposal			
54	**Gross Assets (Ending)**	157.73	170.01	169.91
55	**Average Gross Assets**	153.30	163.87	169.96

Forecasting Asset Schedules

We will analyze the following ratios going ahead:

16	**Balance Sheet**					
17	Effective Interest Rate	6.6%	5.1%	5.3%	5.7%	5.4%
18	Accounts Receivable Turnover	28.04	36.21	51.06	38.43	41.90
19	Inventory Turnover	8.40	9.35	6.99	8.24	8.19
20	Accounts Payable Turnover	5.75	6.21	5.80	5.92	5.98
21	Depreciation as % of Gross Block	8.8%	8.2%	7.8%	8.2%	8.1%
22	Ammortisation as a % of Gross Block	4.6%	1.8%	1.6%	2.7%	2.0%
23	Revenue / Gross Block (Tangible)	7.278	5.737	5.402	6.14	5.76
24	Revenue / Gross Block (Intangible)	74.258	73.537	77.266	75.02	75.27

For all these ratios, we can take an average of 3 years to forecast the next few coming years.

Let's now forecast the asset schedule.

30	**ASSET SCHEDULE**			
31	**Tangible Assets**			
32	Gross Assets (Opening)	1,518.92	2,021.87	2,431.75
33	Acquisitions	493.18	320.93	111.35
34	Transitions		37.87	
35	Exchange Difference	23.42	56.47	47.28
36	Adjustments		-	2.26
37	Disposal	13.65	5.39	18.83
38	**Gross Assets (Ending)**	2,021.87	2,431.75	2,573.84
39	**Average Gross Block**	1,770.40	2,226.81	2,502.80

Opening gross block will be the closing gross block of the previous year. Hence, the opening gross block for 2022 is 2573.84, obtained from 2021. Drag the formula for the forecasted years.

New additions would be the revenue increase in the year divided by the asset turnover ratio we calculated in the assumptions sheet. For 2022,

$$\text{New Addition} = \frac{\text{(Forecasted revenue for 2022 - revenue for 2021)}}{\text{Asset Turnover Ratio}}$$

	A	B	C	D	E
1	**Britannia Limited**				
2	**INCOME STATEMENTS**				
3					
4					
5					
6	**Particulars**	**FY2019 A**	**FY2020 A**	**FY2021 A**	**FY2022 E**
7	Revenue from Operation	11,054.00	11,599.00	13,136.00	14,318.24
8	**Total Income**	**11,054.00**	**11,599.00**	**13,136.00**	**14,318.24**

= (14318.24 - 13316.00) / 6.14

= 192.59 crores.

30	**ASSET SCHEDULE**				
31	**Tangible Assets**				
32	Gross Assets (Opening)	1,518.92	2,021.87	2,431.75	2,573.84
33	Acquisitions	493.18	320.93	111.35	192.59
34	Transitions		37.87		-
35	Exchange Difference	23.42	56.47	47.28	-
36	Adjustments		-	2.29	-
37	Disposal	13.65	5.39	18.83	-
38	**Gross Assets (Ending)**	**2,021.87**	**2,431.75**	**2,573.84**	2,766.43
39	**Average Gross Block**	**1,770.40**	**2,226.81**	**2,502.80**	2,670.13

5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E
34	Transitions		37.87		-	-	-	-	-
35	Exchange Difference	23.42	56.47	47.28	-	-	-	-	-
36	Adjustments		-	2.29	-	-	-	-	-
37	Disposal	13.65	5.39	18.83	-	-	-	-	-

Transitions, exchange differences, adjustments, and disposal will remain nil; since we do not have detailed information on how management is going to deal with that. Most changes will be reflected in new additions of assets. Also we can treat these as nil because long term, they are zero-sum figures by nature.

Let's understand depreciation now.

Depreciation for 2022 = **(Forecasted depreciation as a percentage of the average gross block)** X **Average Gross Block**

41	**Depreciation**				
42	Accumulated Depreciation (Opening)	324.48	486.29	715.38	939.54
43	Accumulated Depreciation On Acquisitions During The Year/exchange difference	19.33	51.53	46.36	-
44	Depreciation For The Year	155.28	182.33	194.79	220.21
45	Disposal	12.80	4.77	16.99	-
46	**Accumulated Depreciation (Ending)**	486.29	715.38	939.54	1,159.75
47	**Net Block**	1,535.58	1,716.37	1,634.30	1,606.67

we saw in the previous pager in Assumption sheet - how depreciation as a % of gross block = 8.2%

We will calculate depreciation as a percentage of the average gross block:

Depreciation for 2022 = 8.2% x 2670.13

= 220.21 crores.

Simply do this for all the forecasted years

- Exchange differences and disposals will be nil since those line items cannot be forecasted.
- Accumulated depreciation will be the sum of all the above numbers minus disposals. It's 1159.75 crores for 2022.
- Net block is closing gross block minus accumulated depreciation. It is 1606.67 crores for 2022.
- You can calculate the gross block, additions, depreciation and net block for the entire forecasted period.

Let's forecast intangible assets now.

Intangible asset schedule also works exactly same as tangible assets. Lets see how that works.

Note 6 - Intangible assets

Reconciliation of carrying amount

Description	Gross carrying amount				Accumulated amortisation				Carrying amounts (net)
	As at 1 April 2021	Additions	Disposals	As at 31 March 2022	As at 1 April 2021	Amortisation for the year	Disposals	As at 31 March 2022	As at 31 March 2022
Own assets									
Trademarks	0.03	-	-	0.03	-	-	-	-	0.03
Designs	0.01	-	-	0.01	-	-	-	-	0.01
Computer software	30.40	11.24	-	41.64	21.90	4.18	-	26.08	13.56
Total	30.44	11.24	-	41.68	21.90	4.18	-	26.08	13.60

Description	Gross carrying amount				Accumulated amortisation				Carrying amounts (net)
	As at 1 April 2020	Additions	Disposals	As at 31 March 2021	As at 1 April 2020	Amortisation for the year	Disposals	As at 31 March 2021	As at 31 March 2021
Own assets									
Trademarks	0.03	-	-	0.03	-	-	-	-	0.03
Designs	0.01	-	-	0.01	-	-	-	-	0.01
Computer software	27.43	2.97	-	30.40	19.10	2.80	-	21.90	8.50
Total	27.47	2.97	-	30.44	19.10	2.80	-	21.90	8.54

$$\text{New Addition for 2022} = \frac{\text{(Forecasted revenue for 2022 - revenue for 2021)}}{\text{Asset Turnover Ratio}}$$

49	Intangible Assets				
50	Gross Assets (Opening)	148.86	157.73	170.01	169.91
51	Acquisitions	3.17	3.68	2.97	15.76
52	Exchange Difference	5.70	8.60	(3.07)	-
53	Disposal				-
54	**Gross Assets (Ending)**	157.73	170.01	169.91	185.67
55	**Average Gross Assets**				.79
56	**Amortization**				

Opening gross block will be the closing gross block of the previous year. Hence for 2022, it is 169.91, which was the closing gross block for 2021. You can calculate the opening gross blocks and average assets for the forecast years.

New additions would be the revenue increase in the year divided by the asset turnover ratio we calculated in the assumptions sheet. For 2022,

New Additions for 2022 = (14318.24 - 13316.00) / 75.02

= 15.76 crores.

5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E
34	Transitions		37.87		-	-	-	-	-
35	Exchange Difference	23.42	56.47	47.28	-	-	-	-	-
36	Adjustments		-	2.29	-	-	-	-	-
37	Disposal	13.65	5.39	18.83	-	-	-	-	-

Transitions, exchange differences, adjustments, and disposal will remain nil; since we do not have detailed information on how management is going to deal with that.

Let's forecast amortization now.

Note 6 - Intangible assets

Reconciliation of carrying amount

Description	Gross carrying amount				Accumulated amortisation				Carrying amounts (net)
	As at 1 April 2021	Additions	Disposals	As at 31 March 2022	As at 1 April 2021	Amortisation for the year	Disposals	As at 31 March 2022	As at 31 March 2022
Own assets									
Trademarks	0.03	-	-	0.03	-	-	-	-	0.03
Designs	0.01	-	-	0.01	-	-	-	-	0.01
Computer software	30.40	11.24	-	41.64	21.90	4.18	-	26.08	15.56
Total	30.44	11.24	-	41.68	21.90	4.18	-	26.08	15.60

Description	Gross carrying amount				Accumulated amortisation				Carrying amounts (net)
	As at 1 April 2020	Additions	Disposals	As at 31 March 2021	As at 1 April 2020	Amortisation for the year	Disposals	As at 31 March 2021	As at 31 March 2021
Own assets									
Trademarks	0.03	-	-	0.03	-	-	-	-	0.03
Designs	0.01	-	-	0.01	-	-	-	-	0.01
Computer software	27.43	2.97	-	30.40	19.10	2.80	-	21.90	8.50
Total	27.47	2.97	-	30.44	19.10	2.80	-	21.90	8.54

We will calculate amortization as a percentage of average gross intangibles:

Amortization for 2022 = (Forecasted amortization as a percentage of average gross intangibles) X Average Gross Block for Intangible Assets

55	Average Gross Assets	153.30	163.67	169.96	177.79
56	**Amortization**				
57	Accumulated Amortization (Opening)	12.69	19.74	22.67	25.47
58	Accumulated Amortization On Acquisitions During The Year				-
59	Amortization For The Year	7.05	2.93	2.80	4.76
60	Disposal				-
61	**Accumulated Depreciation (Ending)**	19.74	22.67	25.47	30.23
62	**Net Block**	137.99	147.34	144.44	155.44

we saw in the assumptions sheet earlier. Ammortisation as percentage of gross block was 2.7%

Amortization for 2022

= **2.7% x 177.80**

= **4.76 crores.**

Forecast in some manner for entire forecast period.

- **Acquisitions and disposals** will be nil since those line items cannot be forecasted.
- **Accumulated amortization** will be the sum of all the above numbers minus disposals. It's 30.23 crores for 2022.
- **Net block** is closing gross block minus accumulated amortization. It is 155.44 crores for 2022. Calculate this for all the forecast years.

We will now link that depreciation and amortization figures to the income statement.

23	**EBITDA**	1,735.00	1,842.53	2,510.00	2,419.24
24	Depreciation & Ammortization	(161.88)	(184.81)	(197.85)	-224.97
25	**EBIT**	1,573.12	1,657.72	2,312.15	2,194.27
26	Interest	(9.09)	(76.90)	(110.90)	-118.12
27	Other Income				13.00

Remember that it is represented as one line item (sum of depreciation and amortization). Also, it is a negative figure since it is reduced from income. The figure is 224.97 crores for 2022.

We will also link the net block of property, plant, equipment, and intangibles to the respective line items on the balance sheet. Here are the forecasted values:

Explainer Video

Capital Work-In-Progress	39.55	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52
Investment Property	14.47	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21
Goodwill on Consolidation	138.97	135.80	-	-	-	-	-	-	-	-	-
Long-Term Investments	1,862.98	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15
Def			81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50
Lo			74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58
Inv			2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29
Ot			30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13
Ot			105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98
Ot											
To			572.47	3,577.03	3,584.81	3,586.59	3,597.04	3,609.66	3,624.03	3,643.56	
Ts			379.02	10,931.58	12,649.45	14,463.65	16,456.23	18,623.17	20,965.62	23,517.84	

while forecasting for intangible assets, we already included the line item of goodwill on consolidation as part of intangible assets. Hence, we would not be forecasting that figure in the balance sheet and it would remain nil.

Let's forecast capital work in progress.

Capital work in progress represents costs incurred to date on fixed asset, which is still under construction. Since we do not know much about where and how management is undertaking investments unless they explicitly mention it. We will assume the capital work in progress to be constant as what it is. We assume that company will always have as much work in progress. We have reflected the additions directly in net block.

Let's forecast investment property.

CWIP will be taken as a constant, same as last year.

we will assume Investment Property to be consistent too. This is because all changes in investments will reflect as cash balance with the company at the end.

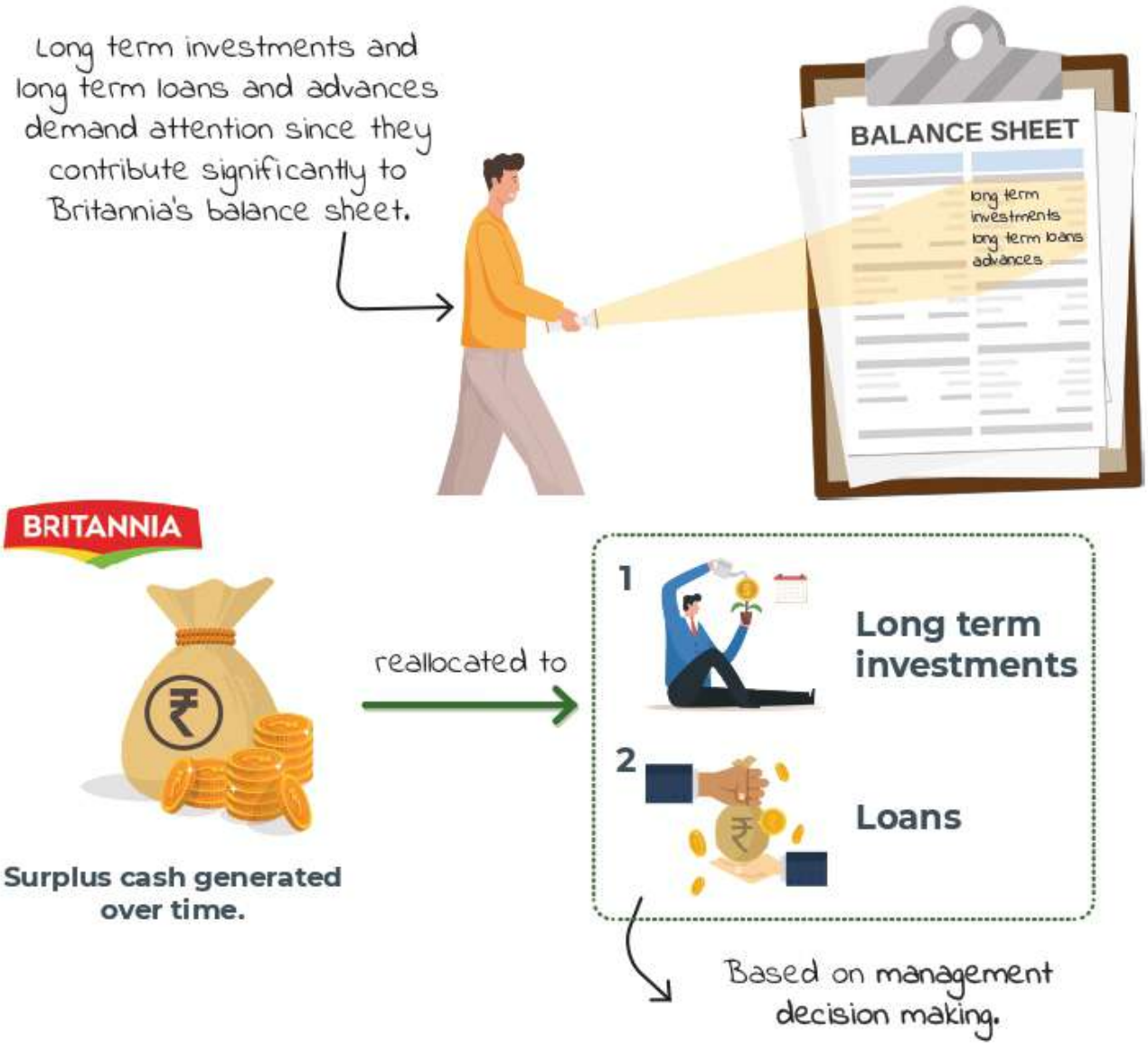
PPE, Net	1,716.37	1,634.30	1,606.67	1,598.07	1,591.63	1,578.58	1,572.34	1,566.91	1,561.65	1,559.71
Other Intangible Assets	9.27	9.54	155.44	169.60	182.62	197.65	214.23	232.39	252.02	273.49
Capital Work-In-Progress	39.55	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52
Investment Property	14.47	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21
Goodwill on Consolidation	138.97	135.80	-	-	-	-	-	-	-	-
Long-Term Investments	1,862.98	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15
Deferred Tax Assets (Net)	19.56	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50
Long-Term Loans And Advances	202.95	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58
Investment In Associates	1.48	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29
Other Financial Assets	31.33	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13
Other Non Current Assets	111.23	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98
Other items 3	-	-								
Total Non-Current Assets	4,167.26	3,589.10	3,572.47	3,577						43.56
Total Assets	7,842.23	8,008.78	9,379.02	10,931						17.84

You can create asset schedules similar to the ones we created for the long term assets you wish to break down and forecast individually.

**We will see with time cash and cash equivalents swelling up in model. This is because we do not know in real, how the company will make its investment decisions. As a result, we let cash increase and investments constant. In reality, investments will also increase as company grows and cash will be maintained.*

Deferred tax assets, investment in associates, and other financial and non current assets will be constant; since they cannot be explicitly forecasted. More so, the effect of these items will be reflected in cash and cash equivalents.*

Explainer Video



We would assume long term investments, and long term loans & advances as constant over the entire forecast period. You can see this on the next page.

Note

In case we have management commentary available on how they intend to use surplus cash, we can use it to create explicit forecasts. Otherwise, we will assume them to be constant over time.

ASSET SCHEDULE						
Tangible Assets						
Gross Assets (Opening)	1,518.92	2,021.87	2,431.75	2,573.84	2,766.43	2,990.18
Acquisitions	493.18	320.93	111.35	192.59	223.76	243.58
Transitions		37.87		-	-	-
Exchange Difference	23.42	56.47	47.28	-	-	-
Adjustments		-	2.29	-	-	-
Disposal	13.65	5.39	18.83	-	-	-
Gross Assets (Ending)	2,021.87	2,431.75	2,573.84	2,766.43	2,990.18	3,233.76
Average Gross Block	1,770.40	2,226.81	2,502.80	2,670.13	2,878.31	3,111.97
Intangible Assets						
Gross Assets (Opening)	148.86	157.73	170.01	169.91	185.67	202.79
Acquisitions	3.17	3.68	2.97	15.76	17.12	18.52
Exchange Difference	5.70	8.60	(3.07)	-	-	-
Disposal				-	-	-
Gross Assets (Ending)	157.73	170.01	169.91	185.67	202.79	221.31
Average Gross Assets	153.30	163.87	169.96	177.79	194.23	212.05
Amortization						
Accumulated Amortization (Opening)	12.69	19.74	22.67	25.47	30.23	34.19

Look at the forecasted non current assets below:

PPE, Net	1,716.37	1,634.30	1,606.67	1,598.07	1,591.63	1,578.58	1,572.34	1,566.91	1,561.65	1,559.71
Other Intangible Assets	8.37	8.54	155.44	168.60	182.62	197.65	214.33	232.38	252.02	273.49
Capital Work-In-Progress	39.55	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52
Investment Property	14.47	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21
Goodwill on Consolidation	138.97	136.80	-	-	-	-	-	-	-	-
Long-Term Investments	1,882.98	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15
Deferred Tax Assets (Net)	19.56	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50
Long-Term Loans And Advances	202.95	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58
Other Financial Assets	31.33	30.13	**30.13**	**30.13**	**30.13**	**30.13**	**30.13**	**30.13**	**30.13**	**30.13**
Other Non Current Assets	111.23	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98
Other items 3	-	-								
Total Non-Current Assets	4,167.26	3,689.10	3,572.47	3,577.03	3,584.61	3,586.59	3,597.04	3,609.66	3,624.03	3,643.56
Total Assets	7,842.23	8,008.78	9,379.02	10,931.58	12,649.45	14,463.65	16,456.23	18,623.17	20,965.62	23,517.84

All other items other than those we forecasted together would remain constant, i.e. the same as last year, for the entire forecast period.

We learned how to forecast assets, depreciation, and other items on the balance sheet. We have truly come far. In the next chapter, we will learn to forecast working capital items, and return to the balance sheet to see if the Equity + Liabilities and Assets side match or have we made an error.

Forecasting
Working Capital
&
Cash Flow Statement

8

Introduction

Now that we have learnt to forecast line items of the profit and loss statement and long term assets in the balance sheet, let's get on to working capital line items and cash flow statements.

8.1 Forecast Working Capital Assets

Explainer Video

In this module, we will learn how to forecast account receivables, inventory and cash.

Account Receivables

We can calculate the account receivables turnover for past 3 years using the Accounts Receivables reported by the company and the revenue reported using the formula:

$$\text{Accounts Receivable Turnover} = \frac{\text{Sales or Revenue}}{\text{Closing accounts receivables}}$$

In our model template, we already have this ratio pre-calculated for Britannia:

16	**Balance Sheet**				
17	Effective Interest Rate	6.6%	5.1%	5.3%	5.7%
18	Accounts Receivable Turnover	28.04	36.21	51.06	38.43
19	Inventory Turnover	8.40	9.35	6.99	8.24
20	Accounts Payable Turnover	5.75	6.21		
21	Depreciation as % of Gross Block				
22	Ammortisation as a % of Gross Block				
23	Revenue / Gross Block (Tangible)				
24	Revenue / Gross Block (Intangible)				

For FY '19, this figure is 28.04 times. Simply drag formula for FY '20 and FY '21. For forecasting, we will use the average of the past 3 years. we obtain 38.43 times as accounts receivables turnover ratio for FY '22.

We calculate the average Accounts Receivables Turnover of past to forecast what the turnover will be going ahead.

$$\text{Accounts Receivable for FY'22} = \frac{\text{Revenue}}{\text{Accounts Receivable Turnover Forecasted}}$$

$$= \frac{14318.24}{38.43}$$

$$= 372.53 \text{ crores}$$

Similarly, we can calculate the account receivable for remaining forecast period.

Inventory

Calculating inventory follows a similar approach. However, this ratio is calculated as a percentage of cost of goods sold.

$$\text{Inventory Turnover Ratio} = \frac{\text{COGS}}{\text{Closing inventory}}$$

16	Balance Sheet				
17	Effective Interest Rate	6.6%	5.1%	5.3%	5.7%
18	Accounts Receivable Turnover	28.04	36.21	51.06	38.43
19	Inventory Turnover	8.40	9.35	6.99	8.24
20	Accounts Payable Turnover	5.75	6.21	5.80	5.92
21	Depreciation as % of Gross Block	8			
22	Ammortisation as a % of Gross Block	4			
23	Revenue / Gross Block (Tangible)	7.2			
24	Revenue / Gross Block (Intangible)	74.1			

We calculate the average inventory turnover of past to forecast what the turnover will be going ahead.

For FY '19, this figure is 8.40 times. For forecasting, we will use the average of the past 3 years. we obtained 8.24 as forecasted inventory turnover ratio for FY '22.

$$\text{Inventory Forecasted for FY'22} = \frac{8454.10 \text{ (Forecasted COGS for FY'22)}}{8.24 \text{ (Forecasted Inventory turnover)}} = 1025.45 \text{ crores}$$

Calculate in same manner for the other years too.

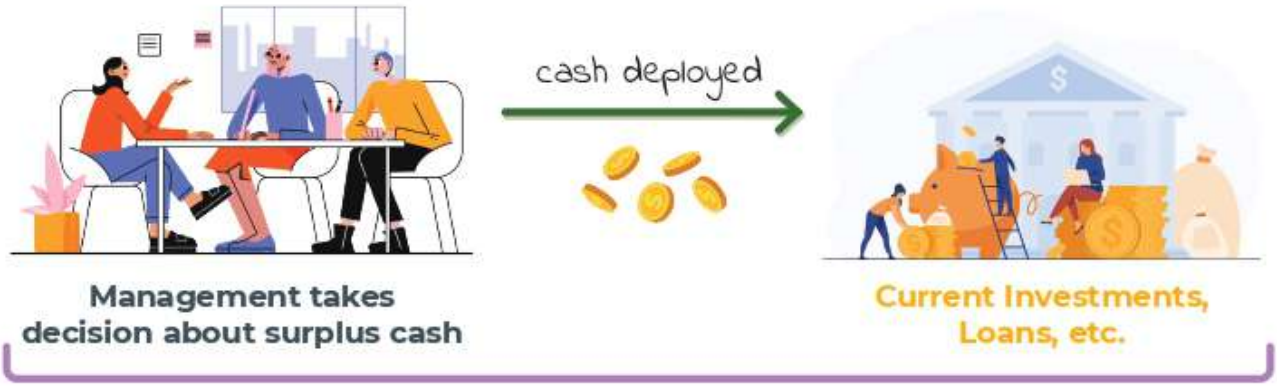
Before we move on, we can link the cash and cash equivalents tab in the balance sheet in our model to the ending cash and cash equivalents of the year in the cash flow statement. Though the cash flow statement is incomplete yet, we have done the linking part; and whenever we fill in the rest of the components, the balancing cash figure will appear on the balance sheet.

Tip

Remember to link your formula to the correct cells and drag it for all the forecasted years.

Explainer Video

We can now explore the rest of the current assets on the balance sheet.



The amount of cash deployed in current investments, loans, etc depends on management's decision making and investment philosophy.

P47

	A	C	D	E	F	G
1	[Britannia LTD.]					
2	Balance Sheet					
3	(in INR Crores)					
4						
5	Particular	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
6	Assets					
7						
8	Cash And Cash Equivalents	81.23	142.74	1,480.38	2,931.18	4,469.80
9	Bank Balance	41.62	68.60	68.60	68.60	68.60
10	Current Investment	1,008.77	1,393.25	1,393.25	1,393.25	1,393.25
11	Accounts Receivables	320.36	257.27	372.53	372.48	388.41
12	Inventories	740.96	1,091.49	1,025.45	1,122.71	1,278.45
13	Short-Term Loans And Advances	1,110.11	946.56	946.56	946.56	946.56
14	Other Current Assets	142.17	397.76	397.76	397.76	397.76
15	Other Financial Assets	229.75	122.01	122.01	122.01	122.01
16	Other Items 2	-	-	-	-	-
17	Other Current Assets 3	-	-	-	-	-
18	Total Current Assets	3,674.97	4,419.68	5,806.55	7,354.55	9,064.84
19						
20	PPE, Net	1,716.37	1,634.30	1,606.67		
21	Other Intangible Assets	8.37	8.54	155.44		
22	Capital Work-In-Progress	39.55	116.52	116.52		
23	Investment Property	14.47	14.21	14.21		
24	Goodwill on Consolidation	138.97	135.90	-		
25	Long-Term Investments	1,882.98	1,385.15	1,385.15		
26	Deferred Tax Assets (Net)	19.56	81.50	81.50		
27	Long-Term Loans And Advances	202.95	74.58	74.58		
28	Investment In Associates	1.48	2.29	2.29		
29	Other Financial Assets	31.33	30.13	30.13		
30	Other Non Current Assets	111.23	105.98	105.98		
31	Other Items 3	-	-			
32	Total Non-Current Assets	4,167.26	3,589.10	3,572.47		
33	Total Assets	7,842.23	8,008.78	9,379.02		
34						

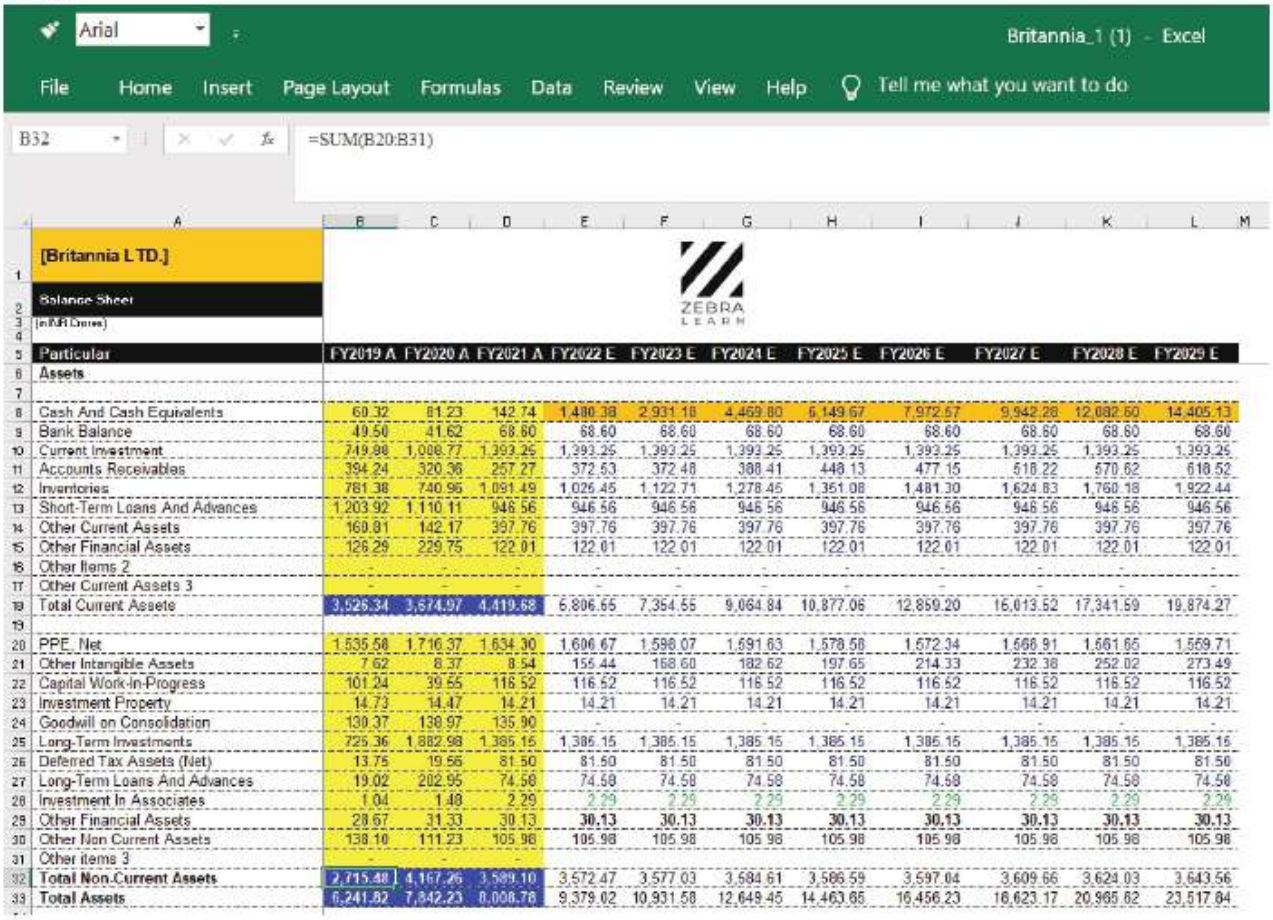
Dashboard | Company Overview | Assumptions | Income Statement | Balar

Ready Accessibility: Investigate

Hence bank balance, current investments, short term loans & advances, other current assets, and other financial assets will be modeled as constant, assuming they will maintain their size.

We already saw this while forecasting long term investments. The above-mentioned line items are investments made by surplus cash itself. The cash figure we arrive at includes the investment assets as well. We allow the cash to increase. In reality, most of this cash will be moved to one or the another investment option. But due to management discretion involved, we let the investments be flat and let cash increase.

Here is a picture of the asset side of the balance sheet created by us as per the financial model so far:



Britannia_1 (1) - Excel

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B32 =SUM(B20:B31)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	[Britannia LTD.]												
2	Balance Sheet												
3	(in Rs Crore)												
4													
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E	
6	Assets												
7													
8	Cash And Cash Equivalents	60.32	81.23	142.74	1,480.38	2,931.18	4,469.80	6,149.67	7,972.57	9,942.28	12,062.60	14,405.13	
9	Bank Balance	49.50	41.62	68.60	68.60	68.60	68.60	68.60	68.60	68.60	68.60	68.60	
10	Current Investment	749.98	1,008.77	1,393.25	1,393.25	1,393.25	1,393.25	1,393.25	1,393.25	1,393.25	1,393.25	1,393.25	
11	Accounts Receivables	394.24	320.36	257.27	372.53	372.48	388.41	448.13	477.15	518.22	570.62	618.52	
12	Inventories	781.38	740.95	1,091.49	1,026.45	1,122.71	1,278.45	1,361.08	1,481.30	1,624.83	1,760.18	1,922.44	
13	Short-Term Loans And Advances	1,203.92	1,110.11	946.56	946.56	946.56	946.56	946.56	946.56	946.56	946.56	946.56	
14	Other Current Assets	160.81	142.17	397.76	397.76	397.76	397.76	397.76	397.76	397.76	397.76	397.76	
15	Other Financial Assets	126.29	229.75	122.01	122.01	122.01	122.01	122.01	122.01	122.01	122.01	122.01	
16	Other Items 2	-	-	-	-	-	-	-	-	-	-	-	
17	Other Current Assets 3	-	-	-	-	-	-	-	-	-	-	-	
18	Total Current Assets	3,526.34	3,674.97	4,419.68	6,806.55	7,364.55	9,064.84	10,877.06	12,859.20	15,013.52	17,341.59	19,874.27	
19													
20	PPE_Net	1,535.58	1,716.37	1,634.30	1,606.67	1,598.07	1,691.63	1,578.58	1,572.34	1,566.91	1,561.65	1,559.71	
21	Other Intangible Assets	7.62	8.37	8.54	155.44	168.60	182.62	197.65	214.33	232.38	252.02	273.49	
22	Capital Work-In-Progress	101.24	39.65	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52	116.52	
23	Investment Property	14.73	14.47	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21	14.21	
24	Goodwill on Consolidation	139.37	139.97	135.90	-	-	-	-	-	-	-	-	
25	Long-Term Investments	725.36	1,882.98	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	1,385.15	
26	Deferred Tax Assets (Net)	13.75	19.56	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50	81.50	
27	Long-Term Loans And Advances	19.02	202.95	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58	74.58	
28	Investment In Associates	1.04	1.48	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	
29	Other Financial Assets	28.67	31.33	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	30.13	
30	Other Non Current Assets	138.10	111.23	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98	105.98	
31	Other items 3	-	-	-	-	-	-	-	-	-	-	-	
32	Total Non-Current Assets	2,715.48	4,167.26	3,589.10	3,572.47	3,577.03	3,684.61	3,586.59	3,597.04	3,609.66	3,624.03	3,643.56	
33	Total Assets	6,241.82	7,842.23	8,008.78	9,379.02	10,931.58	12,649.45	14,463.65	16,456.23	18,623.17	20,965.62	23,517.84	

Now that we have understood how to forecast each component of asset side of the balance sheet, let us move on the liabilities and equity side. Also, on the asset-side, we will come back to cash at the end.

8.2 Forecasting Long-Term Liabilities

Explainer Video

We have completed the asset side of the balance sheet except for cash. Now let's look at the liabilities side. Most of the line items here are financial in nature and difficult to model, as high management direction is involved. Lets understand this is depth.

In long term liabilities, we will assume all items other than debt at their last year levels i.e. we will assume them to be constant. For debt we can create a debt schedule.

There are two methods when it comes to forecasting debt.

Debt Schedule and Management Guidance method

In this method,

1. We begin with opening long-term liabilities.
2. Calculate average long-term liabilities as an average of opening liabilities of the current year and closing liabilities of the previous year.
3. You can then calculate forecasted debt using debt turnover debt-equity or debt-assets methods. Each has their problems but they can be used.
4. Then forecast that ratio to estimate total debt that the company may have in forecasted years.

This method is suitable for companies are not changing their debt-equity structure.

Management

You can also rely on management commentary for guidance on capital expansion plans and the way they intend to fund it.

If the management says that it is incurring 1,247 crores in capital expansion projects, and would be raising debt for the same, your forecasts can reflect the same. We can use management commentary to forecast debt.

It is a good practice to model debt based on a constant debt to equity ratio. New borrowings would then be forecasted at the same ratio.

Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E
Income Statement											
Revenue Growth		4.9%	13.3%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
COGS	58.4%	58.7%	58.1%	58.0%	58.0%	58.7%	58.9%	58.8%	58.8%	58.8%	58.8%
Employment Benefit Expenses	4.0%	4.2%	4.0%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%
Carriage, freight and distribution	5.0%	5.2%	5.0%	5.1%	5.1%	5.0%	5.1%	5.1%	5.0%	5.1%	5.1%
Advertising and sales promotion	4.5%	4.1%	3.4%	4.0%	3.8%	3.8%	3.9%	3.9%	3.8%	3.8%	3.8%
Conversion charges	4.6%	4.4%	4.3%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%
Other Expenses	6.8%	6.5%	6.1%	6.5%	6.4%	6.3%	6.4%	6.3%	6.3%	6.4%	6.3%
Statutory Tax Rate	-34.6%	-24.4%	-20.4%	-25.4%	-25.4%	-25.7%	-25.5%	-25.5%	-25.6%	-25.6%	-25.6%
Balance Sheet											
Effective Interest Rate	6.6%	5.1%	5.3%	5.7%	5.4%	5.4%	5.5%	5.4%	5.5%	5.5%	5.4%
Accounts Receivable Turnover	28.04	36.21	51.06	39.43	41.90	43.00	41.39	42.36	42.51	42.08	42.32
Inventory Turnover	9.40	9.35	8.99	8.28	8.19	7.81	8.09	8.03	7.97	8.03	8.01
Accounts Payable Turnover	5.75	6.21	5.80	5.92	5.98	5.90	5.93	5.93	5.92	5.93	5.93
Depreciation as % of Gross Block	8.8%	8.2%	7.6%	8.2%	8.1%	8.0%	8.1%	8.1%	8.1%	8.1%	8.1%
Ammortisation as a % of Gross Block	4.6%	1.8%	1.6%	2.7%	2.0%	2.1%	2.3%	2.1%	2.2%	2.2%	2.2%
Revenue / Gross Block (Tangible)	7.278	5.737	5.402	6.14	5.76	5.77	5.89	5.80	5.82	5.84	5.82
Revenue / Gross Block (Intangible)	74.258	75.537	77.208	76.03	76.27	75.85	76.08	76.00	75.58	75.49	76.08
Debt/Equity	1.44%	17.26%	20.86%	13.19%	17.10%	17.05%	15.78%	16.65%	16.49%	16.31%	16.48%
Other Liabilities turnover	18.00	14.99	15.36	16.12	15.49	15.66	15.76	15.63	15.68	15.69	15.67
Dividend payout ratio	(0.31)	(0.31)	(1.53)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)
ASSET SCHEDULE											
Tangible Assets											
Gross Assets (Opening)	1,518.92	2,021.87	2,431.75	2,573.8							3.50
Acquisitions	493.18	320.93	111.35	192.5							1.30
Transitions		37.87		-							-
Exchange Difference	23.42	56.47	47.28	-							-
Adjustments			2.29	-							-
Disposal	13.65	5.39	18.83	-	-	-					-
Gross Assets (Ending)	2,021.87	2,431.75	2,573.84								
Average Gross Block	1,770.40	2,226.81	2,502.80								

If we had done this for Britannia, the debt/equity ratio and other liabilities ratio would have looked like this.

Dashboard | Company Overview | Assumptions | Income Statement | Balance Sheet | CFS | Valuation 1 | Comps | Comps - Consensus

Keeping it Constant

35	LIABILITIES & EQUITY											
36												
37	Accounts Payable	1,140.51	1,116.28	1,314.75	1,428.15	1,539.49	1,692.37	1,841.04	2,003.67	2,187.66	2,383.10	2,597.18
38	Short-Term Borrowings	76.10	747.99	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42
39	Other Current Liabilities	364.42	461.99	496.55	524.48	593.84	637.61	693.07	760.64	826.08	900.56	982.70
40	Short-Term Provisions	196.51	191.26	387.47	387.47	387.47	387.47	387.47	387.47	387.47	387.47	387.47
41	Current tax Liabilities	73.16	47.78	76.08	76.08	76.08	76.08	76.08	76.08	76.08	76.08	76.08
42	Govemmnet Grant	0.71	-	-	-	-	-	-	-	-	-	-
43	**Total Current Liabilities**	1,851.41	2,565.30	3,614.27	3,755.60	3,936.29	4,132.96	4,337.08	4,567.28	4,816.71	5,086.63	5,382.86
44												
45	Long-Term Debt	61.92	766.06	747.75	747.75	747.75	747.75	747.75	747.75	747.75	747.75	747.75
46	Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69
47	Other Long-Term Liabilities	27.24	46.54	54.07	54.07						07	54.07
48	Long-Term Provisions	11.45	13.16	-	-						-	-
49	Other items	-	-	-	-						-	-
50	Other Items	-	-	-	-						-	-
51	**Total Non-Current Liabilities**	104.48	838.45	810.51	810.51	8					51	810.51
52	**Total Liabilities**	1,955.89	3,403.75	4,424.78	4,566.11	4,7					14	6,193.37
53												

In the case of Britannia, since no major business change is expected, we would model long-term debt as constant, simply extrapolating the past. Our liabilities side would look like this.

We can assume the debt side to be constant because debt is a financial item rather than operating one. This means a lot of it depends on management discretion too. If we increase debt, as the business grows, with it the cash and cash equivalents on the asset side will increase.

So, even if we increase debt - Net Debt (Debt Cash and cash equivalents) will remain as it is. As a result increasing debt or not is a zero impact item from a financial modelling point of view. For simplicity, we can leave all financial items as it is and reflect the net of all changes in cash and cash equivalents.

8.3 Forecasting Current Liabilities

Explainer Video

Now that we have forecasted long term liabilities, lets more to cureent liabilities. In the current liabilities section,

They would be kept constant since they are also financial in nature. The net impact of all this will be reflected in cash and cash equivalents.

Accounts Payables

We need to forecast this item since it is operating in nature. First, we calculate the accounts payable turnover ratio for the past 3 years.

$$\text{Accounts Payable Turnover} = \frac{\text{COGS}}{\text{Average accounts payable}}$$

16	Balance Sheet				
17	Effective Interest Rate	6.6%	5.1%	5.3%	5.7%
18	Accounts Receivable Turnover	28.04	36.21	51.06	38.43
19	Inventory Turnover	8.40	9.35	6.99	8.24
20	Accounts Payable Turnover	5.75	6.21	5.80	5.92
21	Depreciation as % of Gross Block				2%
22	Ammortisation as a % of Gross Block				7%
23	Revenue / Gross Block (Tangible)				14
24	Revenue / Gross Block (Intangible)				02

For FY '19, it would be 5.75. Calculate for FY '20 and FY '21. For forecasting this ratio, we will use an average of the past 3 years. For the first forecasted year, i.e. 2022, the payable turnover is 5.92 times.

For FY '22, forecasted accounts payable is:

$$\text{Accounts Payable for FY'22} = \frac{8454.1 \text{ (Forecasted COGS for FY'22)}}{5.92 \text{ (Forecasted Payables turnover)}}$$

$$= 1428.15 \text{ crores}$$

You can calculate the same for the rest of the forecasted years.

If you find any current liability item that has an operating nature, we will forecast it in a similar fashion. Take other liabilities for example. To estimate its forecasted values, the method is similar to finding accounts payable:

1 Calculate other liabilities turnover ratio as COGS / Other liabilities.

2 Forecast the ratio for future years by taking a 3-year (or 5-year) average.

3 You can then forecast other liabilities as COGS / Other liabilities turnover for each year in forecast period.

The following table shows the current liabilities section:

35	LIABILITIES & EQUITY										
36											
37	Accounts Payable	1,140.51	1,116.28	1,314.75	1,428.15	1,539.49	1,692.37	1,841.04	2,003.67	2,187.66	2,383.10	2,597.18
38	Short-Term Borrowings	76.10	747.99	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42	1,339.42
39	Other Current Liabilities	364.42	461.99	496.55	524.48	593.84	637.61	693.07	760.64	826.08	900.56	982.70
40	Short-Term Provisions	196.51	191.26	387.47	387.47	387.47	387.47	387.47	387.47	387.47	387.47	387.47
41	Current tax Liabilities	73.16	47.78	76.08	76.08	76.08	76.08	76.08	76.08	76.08	76.08	76.08
42	Government Grant	0.71	-	-	-	-	-	-	-	-	-	-
43	**Total Current Liabilities**	1,851.41	2,565.30	3,614.27	3,755.60	3,936.29	4,132.96	4,337.08	4,567.28	4,816.71	5,086.63	5,382.86
44												
45	Long-Term Debt	61.92	766.06	747.75	747.75	747.75	747.75	747.75	747.75	747.75	747.75	747.75
46	Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69
47	Other Long-Term Liabilities	27.24	46.54	54.07	54.07	54.07	54.07	54.07	54.07	54.07	54.07	54.07
48	Long-Term Provisions	11.46	13.16	-	-	-	-	-	-	-	-	-
49	Other items	-	-	-	-	-	-	-	-	-	-	-
50	Other Items	-	-	-	-	-	-	-	-	-	-	-
51	**Total Non-Current Liabilities**	104.48	838.45	810.51	810.51	810.51	810.51	810.51	810.51	810.51	810.51	810.51
52	**Total Liabilities**	1,955.89	3,403.75	4,424.78	4,566.11	4,746.80	4,943.47	5,147.59	5,377.79	5,627.22	5,897.14	6,193.37
53												

Note

You may see an item called 'Advance from customers' in the annual reports for some companies. Such an item is also operating in nature and can be forecasted following a similar process.

8.4 Forecasting

Shareholders Equity

Explainer Video

The only balance sheet section left to be forecasted is shareholders equity.

They will be kept constant since those items are discretionary by the management. We assume that company will not raise equity capital unless they have explicitly mentioned.

Completing Income Statement

To calculate reserves and surplus, an important component of the balance sheet, we need to complete modelling the income statement (specifically other income and interest), and determine profits and dividends paid and therefore calculate retained earnings.

Interest expense

derived from → Forecasted short-term and long-term debt

1 **Interest paid on debt**

Here is how we go about it:

We will calculate an effective interest rate by dividing the interest expense of past years by the total debt taken by the company. For Britannia in FY '19,

$$\text{Effective Interest Rate} = \frac{\text{Interest Expense}}{\text{(Short term debt + long term debt)}}$$

$$= \frac{9.09}{(76.10 + 61.92)}$$

$$= 6.6\%$$

2 **After getting the effective interest rate for FY '19, FY '20, and FY '21, we can estimate the effective interest rate for FY '22 as an average of the past 3 years' rates.**

16	Balance Sheet				
17	Effective Interest Rate	6.6%	5.1%	5.3%	5.7%
18	Accounts Receivable Turnover	28.04	36.21	51.06	38.43
19	Inventory Turnover				8.24
20	Accounts Payable Turnover				5.92
21	Depreciation as % of Gross B				8.2%
22	Ammortisation as a % of Gros				2.7%
23	Revenue / Gross Block (Tangi				6.14
24	Revenue / Gross Block (Intang				75.02

It turns out to be 5.7% for FY22. we can calculate interest for further years too.

3 **In the income statement, interest expense is calculated as:**

Interest Expense for FY'22 = Effective Interest Rate x (Short term debt + long term debt)

= 5.7% x (1339.42 + 747.75)

= **118.2 crores**

Remember to have this line item negative (since it's an expense) and calculate it for all the forecasted years.

Other income

The next line item is other income. This line item reflects income from financial assets. We can keep the other income constant over time as we have kept the financial assets constant too which earn interest income. We know that in reality the cash balance we are accumulating will also earn interest. However, there us no reliable way to calculate that and rough estimations is our best shot. For simplicity, we will have the other income statement.

Effective Interest Rate = Other Income / Other Financial Assets

If you have more information on such a line item, you can calculate an effective interest rate by dividing other income by other financial assets, and model the same/average rate of interest for forecasted years.

For Britannia however, we will keep it constant. Here's a snapshot of Britannia's forecasted income statement:

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Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E
Revenue from Operation	11,054.00	11,599.00	13,136.00	14,318.24	########	17,011.50	########	20,211.36	22,030.39	24,013.12	26,174.30
Total Income	**11,054.00**	**11,599.00**	**13,136.00**	**14,318.24**	**########**	**17,011.50**	**########**	**20,211.36**	**22,030.39**	**24,013.12**	**26,174.30**
Cost of materials consumed	(5,313.00)	(5,901.16)	(6,502.00)	-8,454.1	-9,198.9	-9,982.3	-10,919.4	-11,891.7	-12,954.2	-14,129.8	-15,397.5
Purchase	(1,108.00)	(973.34)	(1,161.00)	-	-	-	-	-	-	-	-
Excise Duty	-	-	-								
Changes in stock	55.00	(52.57)	87.00	-	-	-	-	-	-	-	-
Cost of Goods Sold	**(6,561.00)**	**(6,927.47)**	**(7,626.00)**	**-8,454.1**	**-9,198.9**	**-9,982.3**	**-10,919.4**	**-11,891.7**	**-12,954.2**	**-14,129.8**	**-15,397.5**
Gross Profit	**4,493.00**	**4,671.53**	**5,510.00**	**5,864.13**	**6,408.02**	**7,029.17**	**7,623.13**	**8,319.71**	**9,076.17**	**9,883.28**	**10,776.81**
Employment Benefit Expenses	441.00	487.00	527.00	582.28	638.70	690.15	755.06	823.37	898.11	977.61	1,065.52
Carriage, freight and distribution	553.00	600.00	655.00	723.64	791.43	856.80	937.15	1,021.40	1,112.18	1,211.18	1,322.20
Advertising and sales promotion	501.00	475.00	452.00	575.99	601.33	641.71	719.94	775.30	843.83	924.42	1,004.73
Conversion charges	313.00	306.00	369.00	637.26	684.73	746.70	817.60	888.39	968.95	1,056.82	1,151.21
Other Expenses	750.00	759.00	787.00	925.71	992.40	1,071.23	1,181.05	1,282.05	1,396.29	1,525.23	1,660.57
Other Expense 2	-	-	-	-	-	-	-	-	-	-	-
Other Expense 3	-	-	-	-	-	-	-	-	-	-	-
Total Expenditure	**2,758.00**	**2,829.00**	**3,000.00**	**3,444.89**	**3,708.58**	**4,006.77**	**4,411.59**	**4,790.60**	**5,217.35**	**5,697.25**	**6,204.24**
EBITDA	**1,735.00**	**1,842.53**	**2,510.00**	**2,419.24**	**2,699.43**	**3,022.40**	**3,211.54**	**3,529.11**	**3,858.82**	**4,186.03**	**4,572.58**
Depreciation & Ammortization	(161.88)	(184.81)	(197.85)	-224.97	-236.32	-254.52	-278.35	-299.15	-324.01	-351.54	-380.38
EBIT	**1,573.12**	**1,657.72**	**2,312.15**	**2,194.27**	**2,463.12**	**2,767.88**	**2,933.19**	**3,229.96**	**3,534.81**	**3,834.48**	**4,192.20**
Interest	(9.09)	(76.90)	(210.90)	-118.12	-111.68	-113.57	-114.46	-113.23	-113.75	-113.81	-113.60
Other Income	206.45	279.40	313.00	313.00	313.00	313.00	313.00	313.00	313.00	313.00	313.00
Profit before Prior Period Items and Tax	**1,770.48**	**1,860.22**	**2,514.25**	**2,389.15**	**2,664.44**	**2,967.31**	**3,131.73**	**3,429.72**	**3,734.06**	**4,033.67**	**4,391.60**
Exceptional Items	-	(17.03)	(0.61)	-	-	-	-	-	-	-	-
Share of loss/profits of associates	(0.97)	0.44	0.81	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Profit/Loss before Taxation	**1,769.51**	**1,843.65**	**2,514.45**	**2,390.15**	**2,665.44**	**2,968.31**	**3,132.73**	**3,430.72**	**3,735.06**	**4,034.67**	**4,392.60**
Current Tax	(599.78)	(447.69)	(657.12)	-607.27	-677.21	-763.68	-799.29	-876.54	-956.07	-1,031.00	-1,123.04
Provision for Deferred tax	(12.69)	(3.03)	(2.90)	-	-	-	-	-	-	-	-
Other Tax				-	-	-	-	-	-	-	-
Profit/Loss after Tax	**1,157.04**	**1,392.95**	**1,851.43**	**1,782.88**	**1,988.23**	**2,204.64**	**2,333.44**	**2,554.19**	**2,778.99**	**3,003.67**	**3,269.55**
Other Comprehensive Income											
Reassessment of defined benefit	(4.09)	(6.50)	3.50	-	-	-	-	-	-	-	-
Income tax related income	1.43	1.52	(0.92)	-	-	-	-	-	-	-	-
Foreign Currency translation reserve	6.50	10.05	(4.08)	-	-	-	-	-	-	-	-
Item #4				-	-	-	-	-	-	-	-
Total Comprehensive Income to common shar	**1,160.88**	**1,398.07**	**1,849.93**	**1,782.88**	**1,988.23**	**2,204.64**	**2,333.44**	**2,554.19**	**2,778.99**	**3,003.67**	**3,269.55**
Minority Interests	3.86	9.03	13.31	13.31	13.31	13.31	13.31	13.31	13.31	13.31	13.31
Number of Shares issued:											
Basic	24.02	24.03	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07	24.07
Diluted	24.04	24.04	24.08	24.08	24.08	24.08	24.08	24.08	24.08	24.08	24.08
Earnings per share :											
Basic	48.33	58.18	76.86	74.07	82.60	91.59	96.94	106.11	115.45	124.79	135.84
Diluted	48.29	58.16	76.82	74.04	82.57	91.55	96.90	106.07	115.41	124.74	135.78
Dividends	(354.36)	(432.53)	(2,023.75)	(552.69)	(616.35)	(683.44)	(723.37)	(791.80)	(861.49)	(931.14)	(1,013.56)

Dashboard | Company Overview | Assumptions | Income Statement | Balance Sheet | CFS | Valuation 1 | Comps | Comps - Consensus

Ready Accessibility: Investigate

Note

Recall that the formula for calculating profit after tax is profit before tax minus tax expense. More so, most of the formulas are already entered into our template. So, we just need to make sure that our inputs are good.

Reserves and Surplus

We can now finally come to reserves and surplus.

Funds
(Revenue and Surplus)

This is the surplus profits after dividends, that the company retains to re-invest in its growth.

	Previous Year's Reserves & Surplus	XXXX
+	Profits retained by the Business	XXXX
-	Dividends paid during the year	(XXXX)
	Current year's Revenue & Surplus	**XXXX**

To calculate dividends,

$$\text{Divident Payout Ratio} = \frac{\text{Dividends Paid}}{\text{Profit for the Year}}$$

25											
26	Debt/Equity	1.44%	17.26%	20.86%	13.19%	17.10%	17.05%	15.78%	16.65%	16.49%	16.31%	16.48%
27	Other Liabilities turnover	18.00	14.99	15.36	16.12	15.49	15.66	15.76	15.63	15.68	15.69	15.67
28	Dividend payout ratio	(0.31)	(0.31)	(1.53)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)
29												
30	ASSET SCHEDULE											
31	Tangible Assets											
32	Gross Assets (Opening)	1,518.92	2,021.87	2,431.75	2,573.84	2,766						60
33	Acquisitions	493.18	320.93	111.35	192.59	223.7						30
34	Transitions		37.87									
35	Exchange Difference	23.42	56.47	47.28								
36	Adjustments			9.29								

For Britannia, the dividend payout ratio for FY '19, FY '20, and FY '21 is 0.31, 0.31 and 1.53. Knowing that FY '21 is an outlier, we would forecast the dividend payout ratio as 0.31 explicitly for all the forecasted years.

$$\text{Dividends for FY'22} = \text{Forecasted Profit} \times \text{Estimated Dividend Payout Ratio}$$

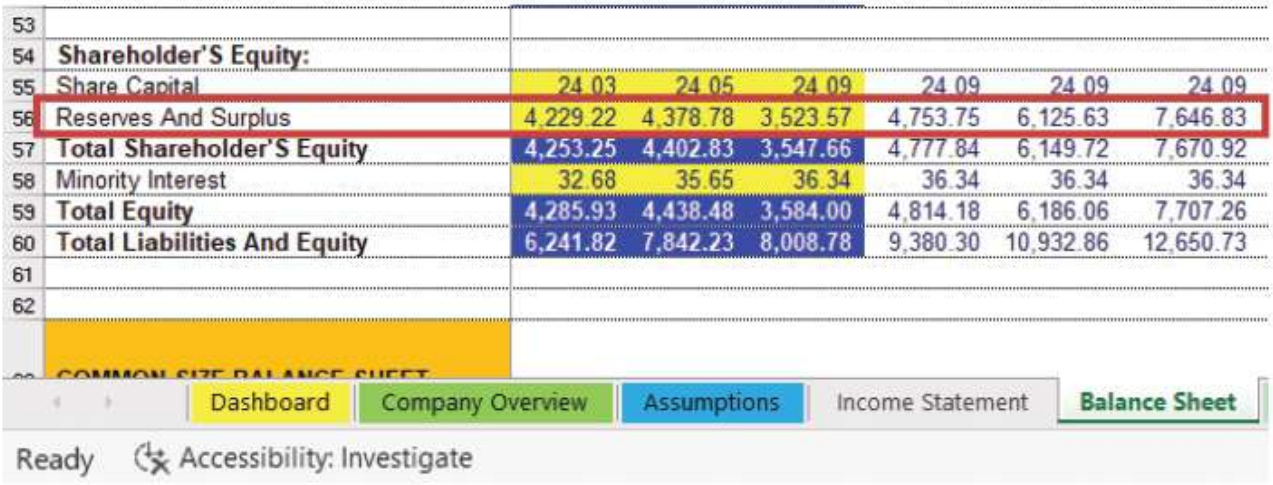
$$= 552.69 \text{ crores}$$

$$\text{Revenue \& Surplus for FY'22} = \text{R\&S for FY '21} + \text{Profits of FY '22} - \text{Dividends for FY '22}$$

$$= 3523.57 + 1782.88 - 552.69$$

$$= \mathbf{4753.76 \text{ crores}}$$

Here's a snapshot of the shareholder's equity section:



53							
54	**Shareholder'S Equity:**						
55	Share Capital	24.03	24.05	24.09	24.09	24.09	24.09
56	Reserves And Surplus	4,229.22	4,378.78	3,523.57	4,753.75	6,125.63	7,646.83
57	**Total Shareholder'S Equity**	4,253.25	4,402.83	3,547.66	4,777.84	6,149.72	7,670.92
58	Minority Interest	32.68	35.65	36.34	36.34	36.34	36.34
59	**Total Equity**	4,285.93	4,438.48	3,584.00	4,814.18	6,186.06	7,707.26
60	**Total Liabilities And Equity**	6,241.82	7,842.23	8,008.78	9,380.30	10,932.86	12,650.73
61							
62							

Dashboard | Company Overview | Assumptions | Income Statement | **Balance Sheet**

Ready Accessibility: Investigate

We are now completely done with forecasting line items for the income statement and balance sheet. In upcoming modules, we'll learn how to derive cash from the cash flow statements. Before we move ahead, it is suggested that you re-visit your assumptions sheet and check if everything is making logical sense to you. Also, you can play around with assumptions now to see what impact it has on the overall balance sheet and profit-loss statements.

8.5 Forecasting Cash Flow from Operating Activities

We'll now move to the cash flow statements. We know from our previous knowledge that cashflow statements can be derived from income statement and balance sheet. That is what we will do here - creat a forecasted cash flow structure using forecasted income statements and balance sheet.

Explainer Video

Cash Flow from Operating Activities

Cash Flow from Investing Activities

Cash Flow from Financing Activities

Here, we will talk about the first one.

Cash Flow from Operating Activities

Starting with profit before tax, which we get from the income statement. We have to adjust for non cash items from profit, so that we arrive at a figure that reflects the true cash profit from operating activities.

N27

	A	B	C	D	E	F	G
1	[Britannia LTD.]						
2	Cash Flow Statement						
3	(In INR Crores, unless otherwise stated)						
4							
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
6	Cash Flows From Operating Activities:						
7	Profit For The Year	1,768.90	1,843.86	2,512.80	2,390.15	2,685.44	2,988.31
8	Adjustments To Reconcile Net Income To Cash Provided By Operating Activities						
9	Depreciation & Amortization	161.88	184.81	197.65	224.97	236.32	254.52
10	Profit On Sale Of Assets (Including Assets Scrapped / Written Off)	(0.87)	(0.11)	(0.33)	-	-	-
11	Profit On Sale Of Investments (Net)	-	-	-	-	-	-
12	Provision For Doubtful Trade Receivables And Advances	-	-	-	-	-	-
13	Share Of (Profit) / Loss Of Associate Companies (Net)	-	-	-	-	-	-
14	Share Of Minority Interest	-	-	-	-	-	-
15	Interest / Dividend (Net)	(136.77)	(176.77)	(234.66)	(313.00)	(313.00)	(313.00)
16	Esop expense	-	-	-	-	-	-
17	Net gain on financial asset measured	(63.85)	(89.88)	(65.47)	-	-	-
18	Interest income	-	-	-	-	-	-
19	Finance cost	9.09	76.90	110.90	118.12	111.68	113.57
20	Share Based Payment	16.12	21.58	18.94	-	-	-
21	Other Adjustments &	-	-	-			
22	Adjustment for working capital						

First, add back **depreciation and amortization**, linked from the income statement.

Profit on sale of assets is 0 since they are not operational in nature and cannot be forecasted.

Other financial items like profit on sale of investments, provision for doubtful debts, share of associates, share of minority interest, ESOP expenses, and net gain on financial assets will be forecasted as nil as we cannot forecast them.

Interest paid (financing costs) will be linked from the income statement. Remember to enter it with a negative sign. Also, we need to enter interest and dividende earned into the cashflow from operations.

Share based payments and other adjustments are not forecastable. Hence, they would be Nil.

Difference between Income Statement and Cash Flow Statement

Income and expenses are recorded when earned.

The income statement and balance sheet are recorded on an accrual basis. i.e. irrespective if cash is received or not.

It records items only when cash for them is paid or earned.

The cash flow statement gives a true picture of the business's cash. The cash flow statement is recorded on a cash basis.

We will now adjust for changes in working capital.

1 Change in Inventory

Change in Inventory = Previous year inventory - Current year Inventory

For FY '22, we conclude that 66 crores have been freed up from inventory a cash inflow.

2 Change in Accounts Receivables

Change in Accounts Receivables	=	Previous year Account Receivables	-	Current year Account Receivables

we find that cash worth 115.26 crores has been used up, hence a negative number on the cash flow statement, since it's a cash outflow.

3 **Change in Finance Receivables** will be 0, since we have forecasted it as constant.

4 **Change in Other Current and Non-Current Assets** will be also be 0, since we have assumed them to be constant.

5 Change in Trade Payables

Change in Trade Payables	=	Current year Trade Payables	-	Previous year Trade Payables

For FY '22, we find this to be a cash inflow of 113.49 chores and trade payables increased.

6 Since we have forecasted **provisions** to be constant, their change figure here would be 0.

4 Change in Other Current Liabilities

Change in Other Current Liabilities	=	Current year Other Current Liabilites	-	Previous year Other Current Liabilities

The figure is a cash inflow of 27.93 crores.

Remember to calculate the for change in inventory, change in accounts receivables, finance receivables, other current and non-current assets, trade payables, provisions and current liabilities for other periods of forecasting too.

	A	B	C	D	E	F	G
1	[Britannia LTD.]						
2	Cash Flow Statement						
3	(in INR Crores, unless otherwise stated)						
4							
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
6	Cash Flows From Operating Activities:						
7	Profit For The Year	1,768.90	1,843.86	2,512.80	2,390.15	2,665.44	2,968.31
8	Adjustments To Reconcile Net Income To Cash Provided By Operating Activities						
9	Depreciation & Amortization	161.88	184.81	197.85	224.97	236.32	254.52
10	Profit On Sale Of Assets (including Assets Scrapped / Written Off)	(0.97)	(0.11)	(0.33)	-	-	-
11	Profit On Sale Of Investments (Net)	-	-	-	-	-	-
12	Provision For Doubtful Trade Receivables And Advances	-	-	-	-	-	-
13	Share Of (Profit) / Loss Of Associate Companies (Net)	-	-	-	-	-	-
14	Share Of Minority Interest	-	-	-	-	-	-
15	Interest / Dividend (Net)	(136.77)	(176.77)	(234.66)	(313.00)	(313.00)	(313.00)
16	Esop expense	-	-	-	-	-	-
17	Net gain on financial asset measured	(63.85)	(89.88)	(65.47)	-	-	-
18	Interest Income	-	-	-	-	-	-
19	Finance cost	9.09	76.90	110.90	116.12	111.68	113.57
20	Share Based Payment	16.12	21.58	18.94	-	-	-
21	Other Adjustments 6	-	-	-	-	-	-
22	Adjustment for working capital						
23	Increase In Inventories	(127.21)	42.99	(351.44)	66.04	(97.26)	(155.74)
24	(Increase) Decrease In Accounts Receivable	(66.67)	78.65	61.40	(115.26)	0.06	(15.93)
25	(Increase) Decrease In Finance Receivable	-	-	-	-	-	-
26	Other Current And Non-Current Assets	10.90	(23.66)	(170.62)	-	-	-
27	Trade Payables	-	-	-	113.40	111.24	152.89
28	Other Current And Non-Current Liabilities	260.49	29.21	404.71	27.93	69.35	43.78
29	Provisions	-	-	-	-	-	-
30	Cash Provided By Operating Activities	1,754.01	1,987.78	2,483.88	2,513.35	2,783.92	3,048.40
31	Income Taxes Paid (Net)	(598.13)	(503.25)	(632.81)	(607.27)	(677.21)	(763.68)
32	Net Cash Flow From Operating Activities	1,155.78	1,484.53	1,851.07	1,905.08	2,106.71	2,284.72

At the end, we need to deduct the income taxes paid. This we can get from the tax expense calculated in the income statement.

Cash generated by operations is obtained through summing all the above items and reducing cash. The formula is already in place in the template. For FY '22, this figure is 1905.08 crores. Calculate in exact same manner for other years too.

8.6 Forecasting Cash Flow from Investing Activities

Explainer Video

The cash flow from investing activities records transactions around Investments and investment income of a company.

18	Interest Income	-	-	-	-	-	-
19	Finance cost	9.09	76.90	110.90	118.12	111.68	113.57
20	Share Based Payment	16.12	21.58	18.94	-	-	-
21	Other Adjustments 6	-	-	-	-	-	-
22	**Adjustment for working capital**						
23	Increase in Inventories	(127.21)	42.99	(351.44)	66.04	(97.26)	(155.74)
24	(Increase) Decrease in Accounts Receivable	(66.67)	78.85	61.40	(115.26)	0.06	(15.93)
25	(Increase) Decrease in Finance Receivable	-	-	-	-	-	-
26	Other Current And Non-Current Assets	10.90	(23.66)	(170.82)	-	-	-
27	Trade Payables	-	-	-	113.40	111.34	152.89
28	Other Current And Non-Current Liabilities	200.49	29.21	404.71	27.93	69.35	43.78
29	Provisions	-	-	-	-	-	-
30	**Cash Provided By Operating Activities**	1,751.91	1,987.78	2,483.88	2,612.36	2,783.92	3,048.40
31	Income Taxes Paid (Net)	(596.13)	(503.25)	(632.81)	(607.27)	(677.21)	(763.68)
32	**Net Cash Flow From Operating Activities**	1,155.78	1,484.53	1,851.07	1,906.08	2,106.71	2,284.72
33							
34	**Cash Flows From Investing Activities:**						
35	Payments For Fixed Assets	(401.21)	(244.17)	(242.07)	(208.35)	(240.88)	(252.10)
36	Proceeds From Sale Of Fixed Assets	1.82	0.73	2.17	-	-	-
37	Purchase/sale of investment	(334.12)	(1,326.63)	179.82	-	-	-
38	Inter corporate deposit	(874.30)	(1,293.41)	(1,202.50)	-	-	-
39	Redeem of inter corporate deposit	635.40	1,264.24	1,491.41	-	-	-
40	Interest received	178.68	121.68	250.34	313.00	313.00	313.00
41	Other Investing Activity 5	-	-	-	-	-	-
42	Other Investing Activity 6	-	-	-	-	-	-
43	Other Investing Activity 7	-	-	-	-	-	-
44	Other Investing Activity 8	-	-	-	-	-	-
45	Other Investing Activity 9	-	-	-	-	-	-
46	Other Investing Activity 10	-	-	-	-	-	-
47	**Net Cash Flow From Investing Activities**	(865.53)	(1,531.62)	481.26	104.65	72.12	60.90
48							

- For FY '22, the figure is 208.35 crores, for net payments for fixed assets. This we can calculate from the Asset Schedule
- Proceeds from the sale of assets will be 0 since only net additions have been subtracted above
- Since we have taken investments and inter corporate deposits as 0 or constant in the balance sheet, its change will be 0 in this statement.
- Interest received will be linked from the income statement, other income line items.
- All other line items than these would be 0 since they are financial and we have assumed no change in them.

Net cash flow from investing activities would be calculated as the sum of the above mentioned items. **For FY '22, it is 104.65 crores.**

All cash items relating to long-term assets must be reflected in cash flow from investing activities. Calculate in the same manner for the entire forecast period.

8.7 Forecasting Cash Flow from Financing Activities

Cash flow from financing activities is a statement that records financing transactions of a company i.e. activities relating to debt and equity.

Explainer Video

	[Britannia LTD.]						
2	Cash Flow Statement						
3	(in INR Crores, unless otherwise stated)						
4							
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 F	FY2023 E	FY2024 E
43	Cash Flows From Financing Activities:						
50	Proceeds From Share Allotment	29.79	23.97	103.15	-	-	-
51	Repayment Of Long Term Borrowings	(41.91)	840.72	587.80	-	-	-
52	Proceeds From Short Term Borrowings	-	-	-	-	-	-
53	Repayment Of Short Term Borrowings	-	-	-			
54	Interest Paid	(9.38)	(35.54)	(101.30)	(118.12)	(111.68)	(113.57)
55	Dividend Paid (Including Dividend Distribution Tax)	(354.38)	(432.53)	(2,823.75)	(552.69)	(618.35)	(683.44)
56	Dividend Paid To Minority Shareholders	23.20	12.00	14.00	-	-	-
57	Payment of bonus debenture	-	-	-	-	-	-

- Proceeds from share allotment will be 0 since we have assumed no new capital is being raised by Britannia. If the company is issuing capital, we must reflect it here.
- Proceeds from long term borrowing and short term borrowings will be 0 since we have taken it to be constant. If we had management guidance or any other source that indicated Britannia raising or repaying debt, this line item would have been different.
- Interest paid can be linked to the income statement. It is (118) for FY'22. Similarly, we will also calculate the dividend payout from the income statement.

25											
26	Debt/Equity	1.44%	17.26%	20.86%	13.19%	17.10%	17.05%	15.78%	16.65%	16.49%	16.31%	16.48%
27	Other Liabilities turnover	18.00	14.99	15.36	16.12	15.49	15.66	15.76	15.63	15.68	15.69	15.67
28	Dividend payout ratio	(0.31)	(0.31)	(1.53)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)	(0.31)
29												
30	ASSET SCHEDULE											
31	Tangible Assets											
32	Gross Assets (Opening)	1,518.92	2,021.87	2,431.75	2,573.84	2,766						50
33	Acquisitions	493.18	320.93	111.35	192.59	223.7						30
34	Transitions		37.87		-	-						-
35	Exchange Difference	23.42	56.47	47.28	-	-						-
36	Adjustments			2.29	-	-						-

For Britannia, the dividend payout ratio for FY '19, FY '20, and FY '21 is 0.31, 0.31 and 1.53. Knowing FY '21 to be an outlier, we would forecast the dividend payout ratio as 0.31 explicitly for all the forecasted years.

Dividends for FY'22 = **Forecasted Profit** X **Estimated Dividend Payout Ratio**

= **552.69 crores**

Reserves & Surplus for FY'22 = R&S for FY '21 + Profits of FY '22 - Dividends for FY '22

= 3523.57 + 1782.88 - 552.69

= **4753.76 crores**

This can also be linked from the income statement since we have already calculated it earlier.

B94

	A	B	C	D	E	F	G
1	[Britannia LTD.]						
2	Cash Flow Statement						
3	(In INR Crores, unless otherwise stated)						
4							
5	Particular	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E
49	Cash Flows From Financing Activities:						
50	Proceeds From Share Allotment	29.79	23.97	103.15	-	-	-
51	Repayment Of Long Term Borrowings	(41.91)	640.72	567.80	-	-	-
52	Proceeds From Short Term Borrowings	-	-	-	-	-	-
53	Repayment Of Short Term Borrowings	-	-	-			
54	Interest Paid	(9.38)	(35.54)	(101.30)	(118.12)	(111.68)	(113.57)
55	Dividend Paid (Including Dividend Distribution Tax)	(354.38)	(432.53)	(2,823.75)	(552.69)	(616.35)	(683.44)
56	Dividend Paid To Minority Shareholders	23.20	12.00	14.00	-	-	-
57	Payment of bonus debenture	-	-	-	-	-	-
58	payment of debenture and interest	-	(869.15)	-	-	-	-
59	Principle payment of lease liabilities	-	(2.03)	(2.55)	-	-	-
60	Interest Paid on lease liabilties	-	(0.45)	(1.04)	-	-	-
61	Issue Of bonus debenture	-	720.95	-	-	-	-
62	Other Financing Activity 6	-	-	-	-	-	-
63	Other Financing Activity 7	-	-	-	-	-	-
64	Other Financing Activity 8	-	-	-	-	-	-
65	Net Cash Used In Financing Activities	(352.68)	57.94	(2,243.69)	(670.82)	(728.03)	(797.00)

- Dividend to minority holders would be nil.
- Payment of bonus debentures, payments of debenture and interest, principal and interest on lease liabilities, and issue of bonus debenture will be nil.

Summing up all of the above items would give us the net cash flow from financing activities.
For FY '22, it is 670.82 crores.

Cash and Cash Equivalents

59	Principle payment of lease liabilities	-	(2.03)	(2.55)	-	-	-
60	Interest Paid on lease liabilities		(0.45)	(1.04)	-	-	-
61	Issue Of bonus debenture	-	720.95	-	-	-	-
62	Other Financing Activity 6	-	-	-	-	-	-
63	Other Financing Activity 7	-	-	-	-	-	-
64	Other Financing Activity 8	-	-	-	-	-	-
65	**Net Cash Used In Financing Activities**	(352.68)	57.94	(2,243.69)	(670.82)	(728.03)	(797.00)
66							
67	**Increase (Decrease) In Cash And Cash Equivalents**				1,338.92	1,450.81	1,538.62
68	Cash And Cash Equivalents At Beginning Of Period	(52.43)	10.85	60.64	141.46	1,480.38	2,931.18
69	Cash And Cash Equivalent On Acquisition Of Subsidiary	107.84	56.72	75.26	-	-	-
70	Effect Of Exchange Rate Change On Cash	3.31	5.09	(2.44)	-		
71	**Cash And Cash Equivalent At The end of period**	58.72	75.26	141.46	1,480.38	2,931.18	4,469.80

- The increase or decrease in cash and cash equivalents is a sum of net cash flow from operating activities, investing activities, and financing activities. For FY '22, the increase in cash is 1338.92 crores.
- Cash and cash equivalents at the beginning of the period is the ending cash from the previous year. Hence, it is 141.46 crores for FY '22.
- We cannot forecast acquisitions of subsidiaries or effects of exchange rates, hence it would be left as nil.
- Cash and cash equivalents for the end of the period is the sum of the above 2 forecasted items

Ending Cash for FY'22 = Beginning Cash + Increase in Cash

= 141.46 + 1338.92

= 1480.38 crores

We can clearly see how the cashflow is increasing at a very rapid pace. This won't be the case in real. We will have outgo for investment assets and as a result, only adequate amount of cash will be maintained.

We would now link this ending cash to the cash and cash equivalents line item on the balance sheet, which should automatically tally the balance sheet.

Now, lets see if the balance sheet matches or not.

8.8 Analyzing and Matching the Balance Sheet

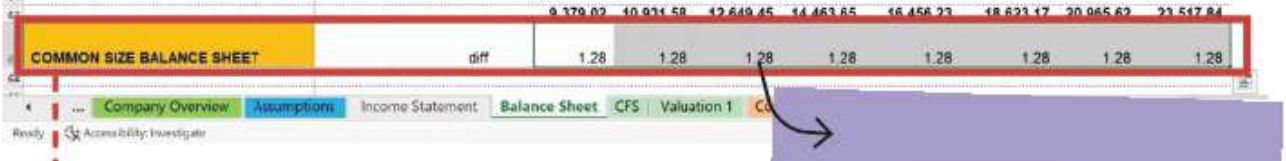
Explainer Video

We finally reach the part where we will conclude the forecasting phase of financial modelling. We have learnt to enter past data, analyse it and forecast using the same for:

- **Income Statement**
- **Balance Sheet**
- **Cash Flow Statements**

Before we move on to valuations, we need to make sure that both sides of the balance sheet are matching i.e. equity + liabilities is equal to all assets owned by the comapny.

Long-Term Debt	61.92	766.06	747.75	747.75	747.75	747.75	747.75	747.75	747.75	747.75	747.75
Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69	8.69
Other Long-Term Liabilities	27.24	46.54	54.07	54.07	54.07	54.07	54.07	54.07	54.07	54.07	54.07
Long-Term Provisions	11.45	13.16	-	-	-	-	-	-	-	-	-
Other Items	-	-	-	-	-	-	-	-	-	-	-
Other Items	-	-	-	-	-	-	-	-	-	-	-
Total Non-Current Liabilities	104.48	838.45	810.51	810.51	810.51	810.51	810.51	810.51	810.51	810.51	810.51
Total Liabilities	1,955.89	3,403.75	4,424.78	4,566.11	4,746.80	4,943.47	5,147.59	5,377.79	5,627.22	5,897.14	6,193.37
Shareholder'S Equity:											
Share Capital	24.03	24.05	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09
Reserves And Surplus	4,229.22	4,378.78	3,523.57	4,753.75	6,125.63	7,646.83	9,256.91	11,019.30	12,936.80	15,009.33	17,265.32
Total Shareholder'S Equity	4,253.25	4,402.83	3,547.66	4,777.84	6,149.72	7,670.92	9,281.00	11,043.39	12,960.89	15,033.42	17,289.41
Minority Interest	32.68	35.65	36.34	36.34	36.34	36.34	36.34	36.34	36.34	36.34	36.34
Total Equity	4,285.93	4,438.48	3,584.00	4,814.18	6,186.06	7,707.26	9,317.34	11,079.73	12,997.23	15,069.76	17,325.75
Total Liabilities And Equity	6,241.82	7,842.23	8,008.78	9,380.30	10,932.86	12,650.73	14,464.93	16,457.51	18,624.45	20,966.90	23,519.12
				9,379.02	10,931.58	12,649.45	14,463.65	16,456.23	18,623.17	20,965.62	23,517.84
COMMON SIZE BALANCE SHEET		diff		1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28



Just below the total liabilities row, we will create a new row and calculate the different between total assets and total liabilities easily. We can see that there is an equal difference of 1.28 crores for all the forecasted years.

This figure is insignificant given the size of the entire balance sheet, and can be attributable to rounding error. **Hence, we can consider our balance sheet as matched! If we find significant difference here, we need to look into our model and see where we have made an error. These two must match.**

This confirms that we have not made any error in linking the Excel sheet or skipped any line item. Forecasts may be right or wrong, but matching of the balance sheet confirms that we have got the technical part right.

Note

If you do find a stark difference between the balance sheet totals, then you should investigate the error. It can be due to a wrong entry while filling past numbers, sign reversal, or you might have simply forgotten to add / subtract an item. It can be frustrating trying to correct an error, but investigating and overcoming it would make you a good analyst and is an important part of analysis.

You may notice that cash and equivalents represent a big part of the balance sheet. We need to understand that we have not allocated cash into different items like short term advances, investments, etc. Since we do not want to predict management's decision making on these items, our cash figure is a 'total' figure, one that includes investments in other line items. Regardless of the allocation of cash, the effect on the balance sheet would remain the same.

With this, we conclude our forecasting phase.
In the upcoming lessons, we will talk about,

The Concept of Valuation

Techniques of Valuation

Methods of Arriving at a buy or sell decision on a company's stock

We would continue with our example on Britannia.

Notes

Valuation
of a company

9

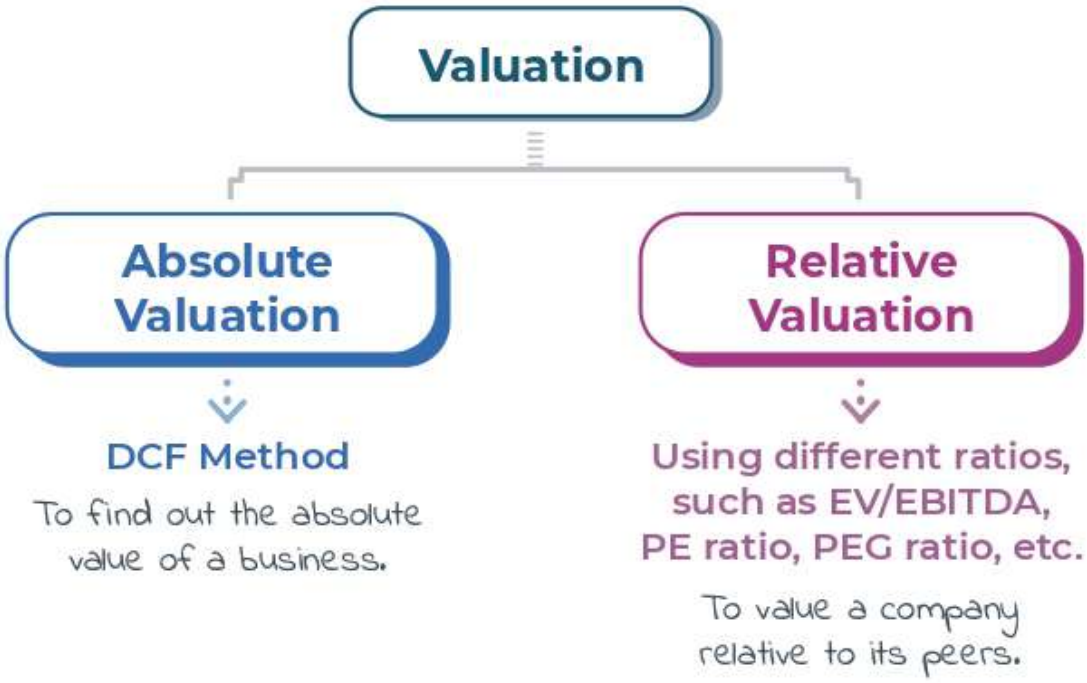
Introduction

Now that we are thorough with forecasting financials for companies, let's get started with the process of valuing the company based on the forecasts.

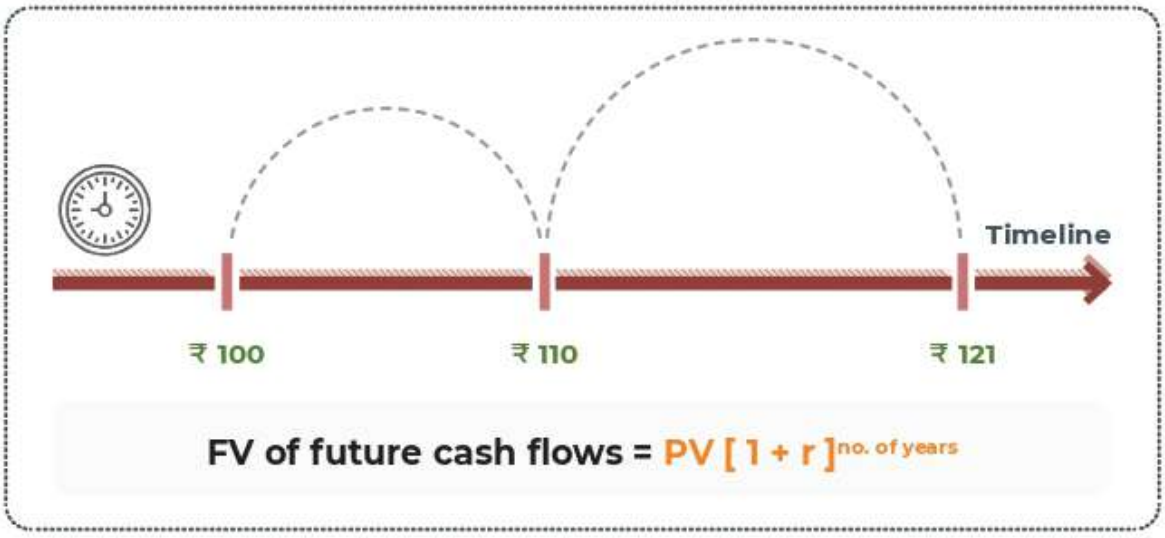
9.1 How to discount Cash Flows?

Explainer Video

We now know how to forecast profit and loss items, cash flow statements, and balance sheet items. We also learned how to match the balance sheet. We'll now talk about the process of valuing a company. We had even discussed these earlier in Chapter 3.



We have also in the past chapters explored the concept of compounding and discounting. Recall that the time value of money states that the value of money changes over time. Here's a timeline graphic to helps you recall the same:



We saw how ₹100 is more valuable than the same ₹100, one year from today.

After forecasting cash flows for future years in the previous lesson, we would calculate the values of those cash flows as of today. Recall the discounting formula:

$$\text{Value of the company} = \frac{CF_1}{[1+r]^1} + \frac{CF_2}{[1+r]^2} + \cdots + \frac{CF_n}{[1+r]^n}$$

Cash Flow

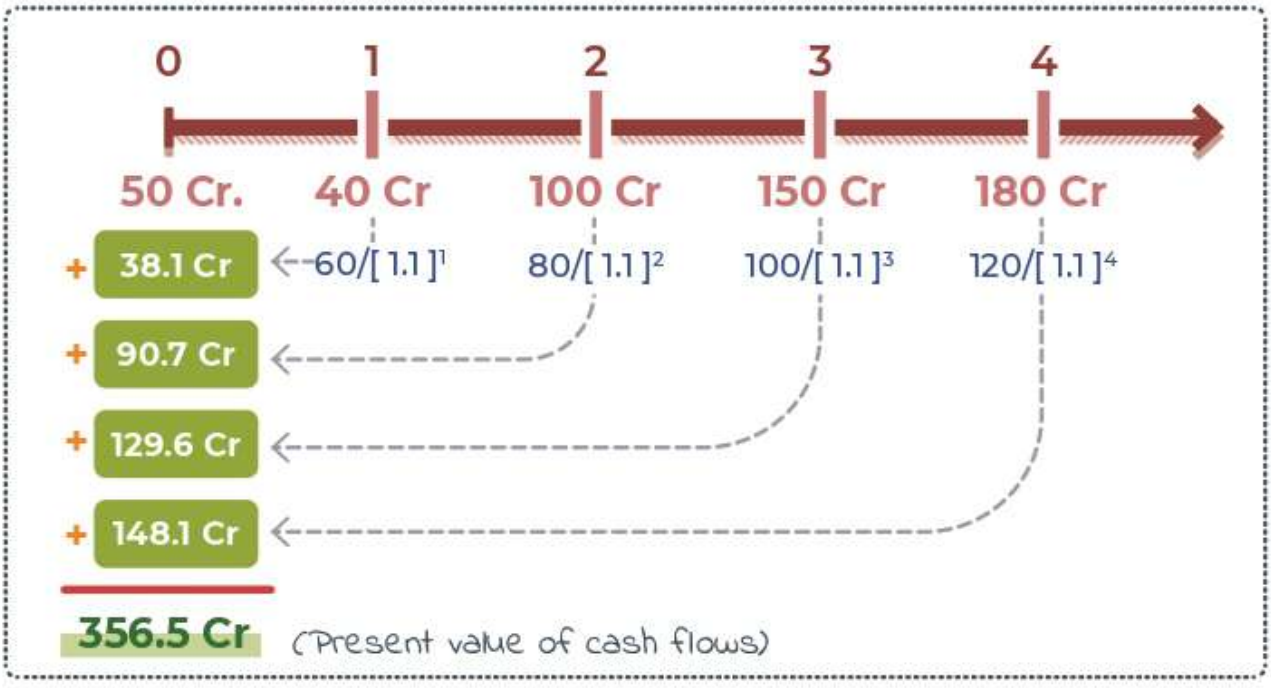
Terminal Value = $\frac{CFO}{[r-g]}$

Discounted Rate [WACC]

PV of Future Cashflow = Future Value /[1 + Rate of return]^No. of periods

For example, suppose the rate of retun is 10% and the cashflows for the 5 year are as follows:

Present - 50 Cr; Year 1 - 40 Cr; Year 2 - 100 Cr; Year 3 - 150 Cr; Year 4 - 180 Cr



You will notice a term called 'Terminal Value'. The terminal value of a firm is nothing but the value of its perpetual cash flows, after the last year of forecasting, assuming the company will operate forever. Its formula is:

$$\text{Terminal Value} = \frac{\text{Last forecasted cash flow (1 + Growth Rate)}}{\text{WACC - Growth Rate}}$$

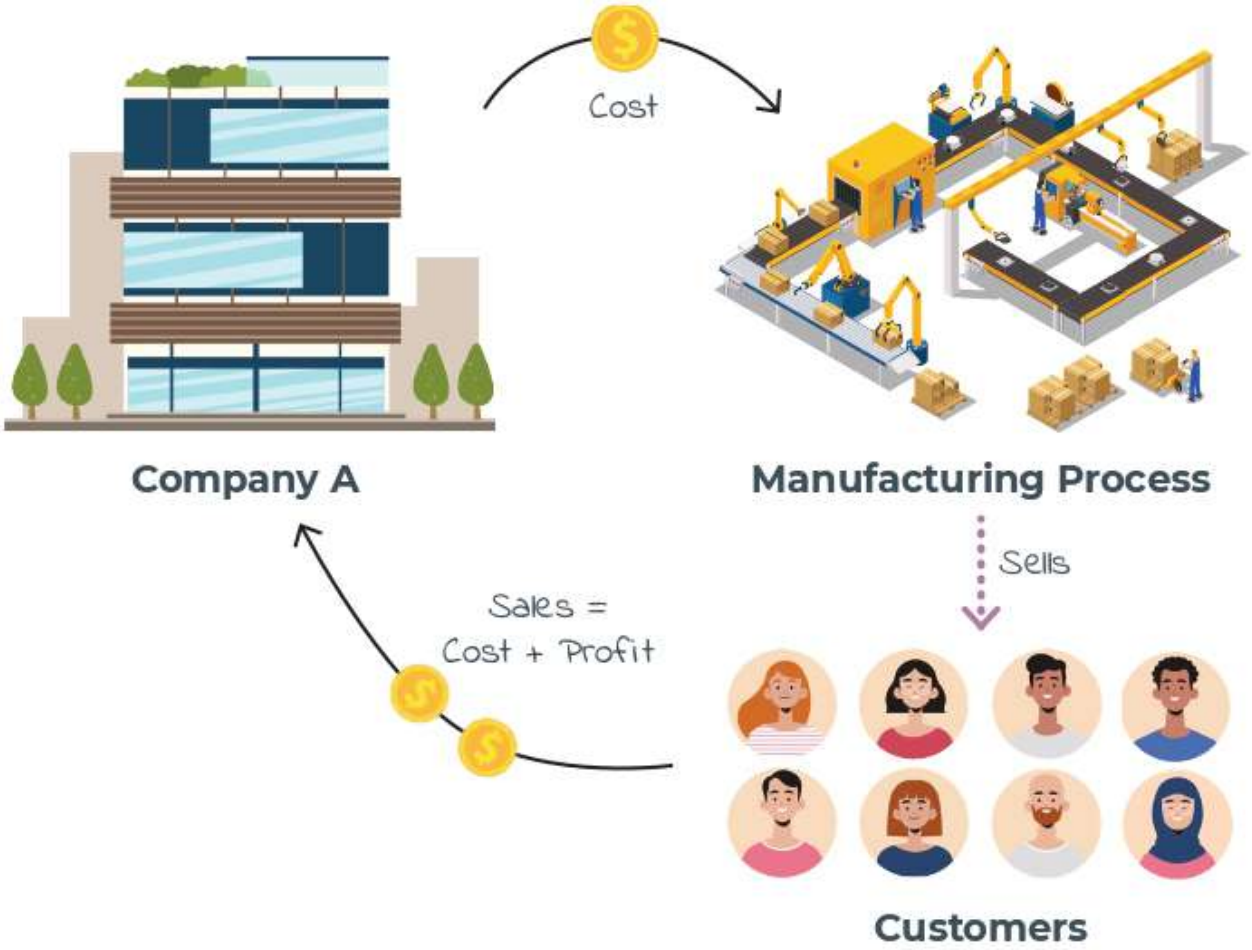
Once we obtain the terminal value, we will discount it to the present. Adding the present value of all cash flows plus the present value of the terminal value will give us the value of the company.

$$\text{Value of a company} = \text{PV of expected cash flows} + \text{PV of Terminal Value}$$

Next, we will see how to put this method into action calculating the different inputs required for the same and the forecasts that we have, as per the model.

9.2 Valuing a company using WACC

Explainer Video



Large companies not only use their promoters' money, but also those of lenders and different shareholders. However, using others' capital comes at a cost. Since different types of capital have different costs, the total average cost of the entire capital used by a company is known as its weighted average cost of capital (WACC). Recall its formula:

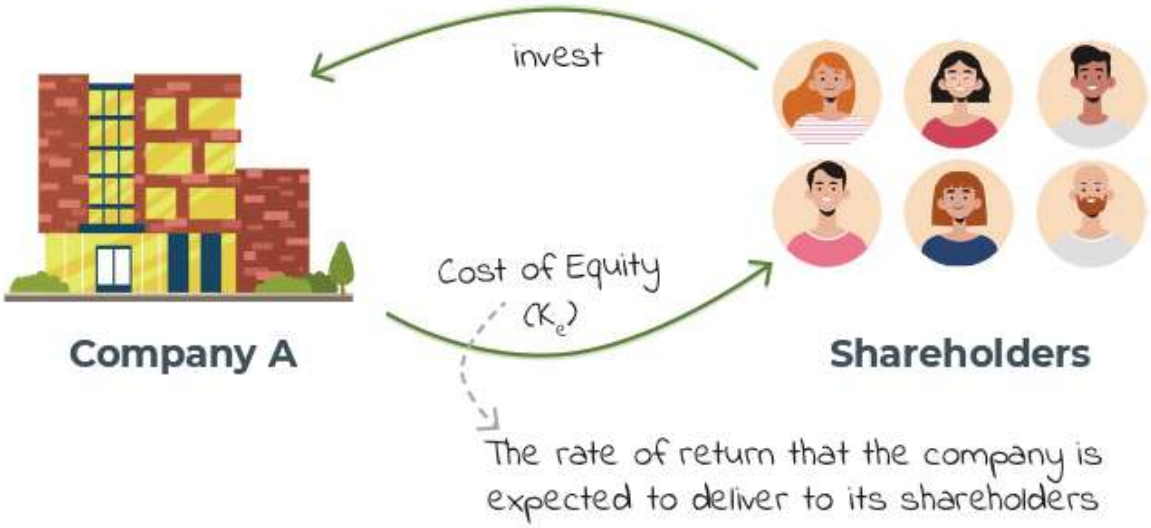
$$WACC = [K_e \times \%\text{ of Equity}] + [K_D \times \%\text{ of Debt} \times (1-T)] + [K_p \times \%\text{ of Preferred Stock}]$$

Cost of Equity; Cost of Debt; Tax Rate; Cost of Preferred Stock

Weighted cost of Equity; Weighted cost of Debt; Weighted cost of Preferred Stock

Let's use this formula to calculate Britannia's WACC. The 2 main components of WACC are - the cost of equity and cost of debt.

Cost of Equity



Recall the CAPM formula:

$$\text{Cost Equity} = \text{Risk-free rate} + \beta_i (\text{Market return} - \text{Risk-free rate})$$

Market Premium

$$\beta_i = \frac{\text{Cov}(r_i, r_m)}{\text{Var}(r_m)}$$

β_i	=	Market beta of asset i
Cov	=	Covariance
Var	=	Variance
r_i	=	Average expected rate of return on the market
r_m	=	Expected return on an asset i

'Beta' of a stock, is simply the volatility of a stock's price in relation to the general market index. **The higher the beta, the riskier a stock is considered.** Usually, the beta of a company reduces as it grows. Do not get intimidated by the formula here. You can directly look up for the β of any company on different platforms.

There are 2 ways to calculate it:

Calculate β

- **Obtain it from various financial information websites like ET, Bloomberg, and Moneycontrol to name a few.**
- **Calculate it using the formula. You can use excel which comes with these functions pre-built in it.**

Sensitivity Ananlysis

DCF — highly sensitive → **Expected CFs, Growth Rates and Cost of Capital**

DCF is an absolute valuation technique. Even a little variation in these assumptions can change the final company value drastically.

It's very likely that our assumptions would not be accurate.

A solution to this problem is sensitivity analysis.

Sensitivity Ananlysis → Helps us obtain different values for the company given different assumptions for the long term-growth rate and cost of capital.

It's always better to allow for different scenarios and work with a range rather than an absolute number. Below, **you can find a sensitivity analysis table for the intrinsic value of a company given different assumptions for WACC and long-term growth rate:**

Intrinsic Value	LTGR					*Hypothetical numbers*
WACC	**359**	0.50%	1%	1.5%	2%	2.5%
	8%	521.7	556	595.7	641.9	696.6
	9%	434.7	459.6	487.7	520	557.1
	10%	367.1	385.6	406.4	429.7	456.1
	11%	313.2	327.4	343.1	360.5	379.9
	12%	269.5	280.4	292.6	305.9	320.7

Different values of company under different scenarios. We will see how sensitivity and scenario analysis can be used to find alternate values for the company. This will be used once we calculate an enterprise value of the company.

9.3 Calculating WACC for companies

Explainer Video

The following is a screenshot of our Valuation sheet in the model. This is where we make assumptions and keep an account of all calculations.

	A	B
1	Britannia Ltd.	
2	Assumptions	
5	Long Term Growth Rate	0.038
7	Cost of Equity (Ke)	11.76700%
8	Stock Beta	0.69
9	Long Term Cost of Debt	5.31%
10	Tax Rate (@)	33.90%
11	WACC	9.39%
13	Number of Shares Outstanding	24.07
14	Current market Price	3815
15	Market Capitalisation	91827.05
16	Debt	2087.17
17	Cash	1604.59
18	Minority Interest	36.34
19	Enterprise Value	92,346

Risk Free rate	7.42%
market Return	13.72%
Market Premiur	6.30%
Weight of Equity	63.20%
Weight of Debt	36.80%
Equity	3584
Total Debt	2087.17

24 CALCULATION OF FREE CASH FLOW

Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E	Terminal Value
Revenues	11,054	11,599	13,136	14,318	15,607	17,012	18,543	20,211	22,030	24,013	26,174	
% Growth Revenue		4.93%	13.25%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	
EBITDA	1,735	1,840	2,510	2,419	2,639	3,022	3,212	3,529	3,855	4,186	4,573	
EBIT	1,573	1,658	2,312	2,184	2,463	2,708	2,933	3,230	3,535	3,804	4,102	
Tax Rate	24.61%	24.45%	26.37%	25.41%	25.41%	25.73%	25.51%	25.55%	25.60%	25.55%	25.57%	
Net Operating Profit After Taxes	1,191	1,398	1,858	1,703	1,988	2,208	2,333	2,584	2,779	3,008	3,279	
Operating Cash Flow	1,156	1,485	1,851	1,905	2,107	2,286	2,485	2,726	2,968	3,238	3,537	
Capex	(856)	(1,532)	461	(208)	(241)	(262)	(280)	(310)	(337)	(366)	(400)	
FCF	300	(47)	2,312	1,697	1,866	2,023	2,205	2,416	2,632	2,872	3,137	58,225
Years to Discount				1	2	3	4	5	6	7	8	8
Discount Factor				1.09391876	1.19665626	1.30504633	1.431951	1.5566402	1.713604	1.874543	2.0505362	
PV				1,551.06	1,559.20	1,545.11	1,539.60	1,541.63	1,535.92	1,532.25	1,529.64	

Sum of PV	12,334.41
Terminal Value	FCF8 (1+long term growth rate)/(WACC - long term rate)
	58,225
Present Value of Terminal Value	28394.24013
Company's EV	40,728.65

Cost of Debt

Lets begin with calculating the WACC. The first important component of WACC is the cost of debt. The formula:

$$\text{Cost of Debt} = \frac{\text{Interest Expense}}{(\text{Short term debt} + \text{long term debt})}$$

Interest Expense: obtained from income statement

(Short term debt + long term debt): obtained from Balance Sheet of that year

	A	B
1	Britannia Ltd.	
2	Assumptions	
5	Long Term Growth Rate	0.038
7	Cost of Equity (Ke)	11.76700%
8	Stock Beta	0.69
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17	Cash	1604.59
18	Minority Interest	36.34
19	Enterprise Value	92,346

Make sure to make this number a positive one and convert it to percentage terms. You can find the interest rates for different kinds of debts in the notes section of the annual report. The effective cost of debt for Britannia turns out to be 5.31%.

Tax Rate

The next component in WACC is the tax rate. It is calculated as:

$$\text{Effective Tax Rate} = \frac{\text{Current Tax}}{\text{Profit before Tax}}$$

You will find both line items in the income statement.

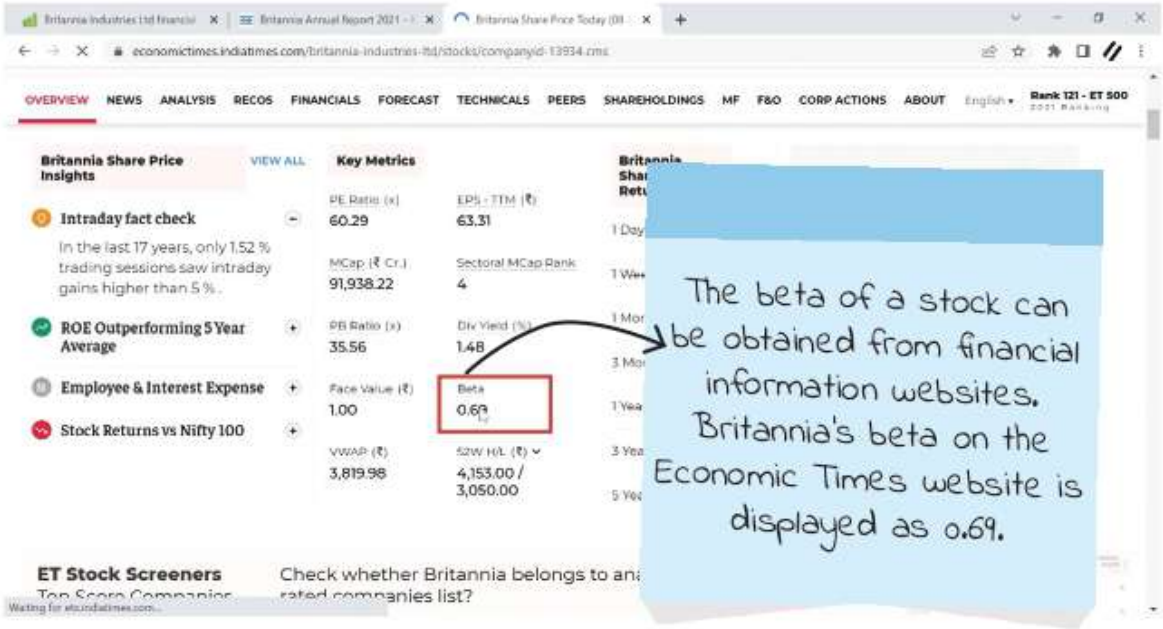
1	Britannia Ltd.	
2	Assumptions	
3		
4		
5	Long Term Growth Rate	0.038
6		
7	Cost of Equity (Ke)	11.76700%
8	Stock Beta	0.69
9	Long Term Cost of Debt	5.31%
10	Tax Rate (%)	33.90%
11	WACC	9.39%
12		
13	Number of Shares Outstanding	24.07
14	Current market Price	3815
15	Market Capitalisation	91827.05
16	Debt	2087.17
17	Cash	1804.59
18	Minority Interest	36.34
19	Enterprise Value	92,346
20		

Risk Free rate
market Return
Market Premi
Weight of Equity
Weight of Debt
Equity
Total Debt

Since tax is an outflow, remember to represent it as a negative number and convert it to percentage terms in your sheet. Here, Britannia's effective tax rate is 33.9%.

Beta

Let's now find the beta of Britannia, an input for finding its cost of equity, which in turn, is a component of WACC.

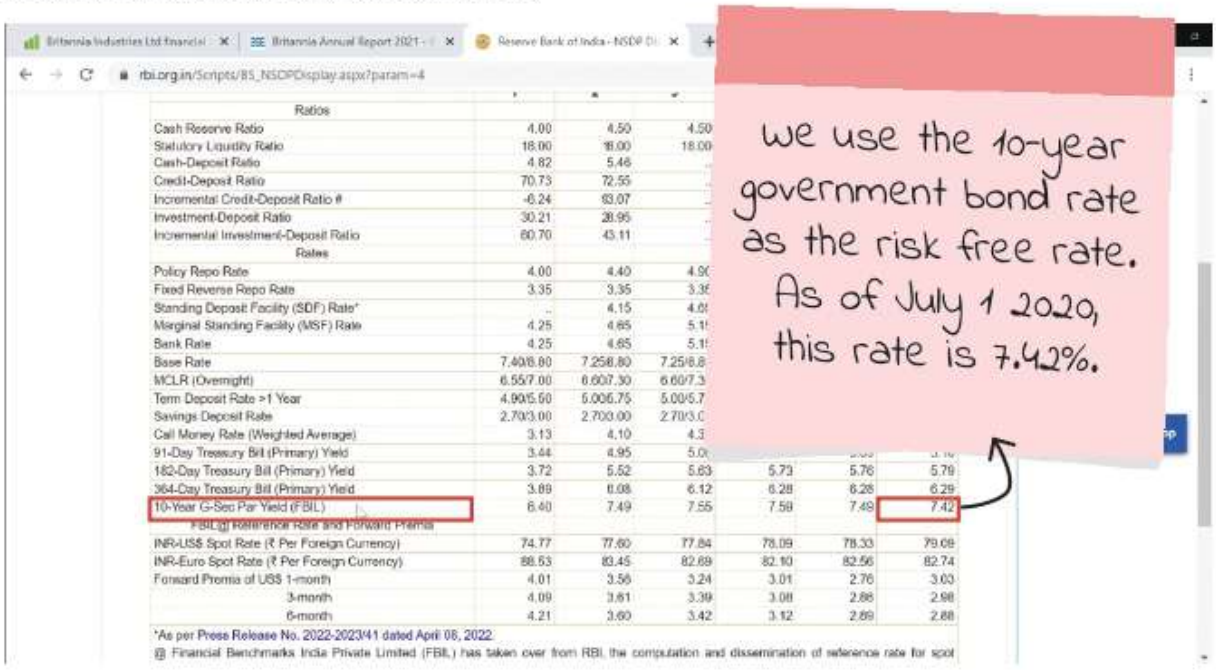


We now need the rest of the inputs like the risk free rate and market premium to calculate at the cost of equity.

Explainer Video

Risk Free Rate

In calculating the cost of equity, we need the risk free rate. The risk free rate is the rate at which one can grow their capital without any risk.



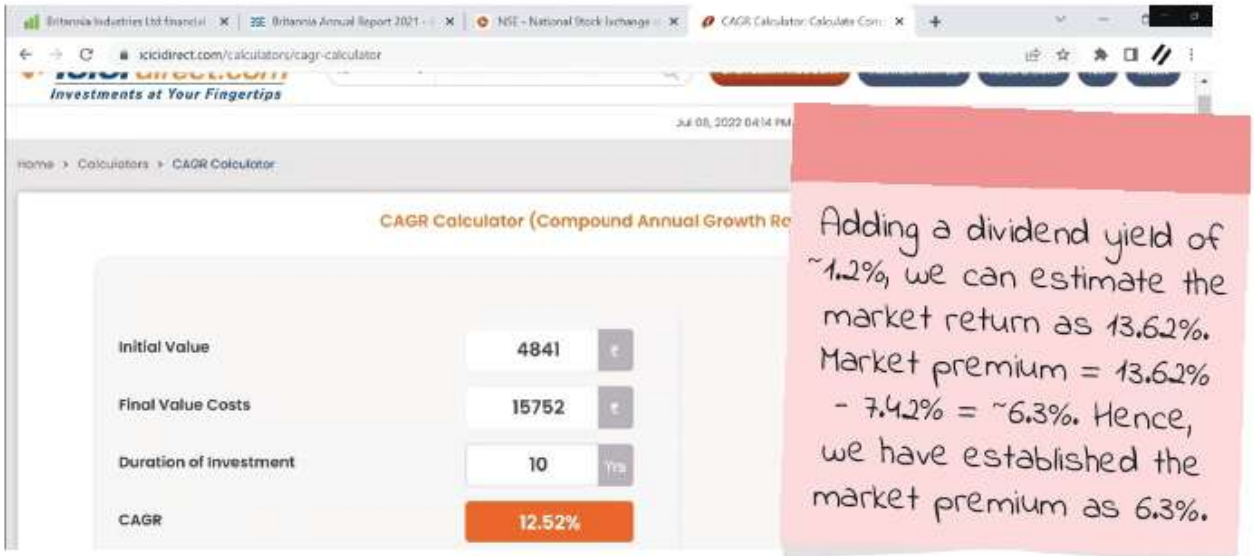
Ratios						
Cash Reserve Ratio	4.00	4.50	4.50			
Statutory Liquidity Ratio	18.00	18.00	18.00			
Cash-Deposit Ratio	4.82	5.46	..			
Credit-Deposit Ratio	70.73	72.55	..			
Incremental Credit-Deposit Ratio #	-6.24	63.07	..			
Investment-Deposit Ratio	30.21	28.95	..			
Incremental Investment-Deposit Ratio	60.70	43.11	..			
Rates						
Policy Repo Rate	4.00	4.40	4.90			
Fixed Reverse Repo Rate	3.35	3.35	3.35			
Standing Deposit Facility (SDF) Rate*	..	4.15	4.65			
Marginal Standing Facility (MSF) Rate	4.25	4.65	5.15			
Bank Rate	4.25	4.65	5.15			
Base Rate	7.40/8.80	7.25/8.80	7.25/8.8			
MCLR (Overnight)	6.55/7.00	6.60/7.30	6.60/7.3			
Term Deposit Rate >1 Year	4.90/5.50	5.00/6.75	5.00/5.7			
Savings Deposit Rate	2.70/3.00	2.70/3.00	2.70/3.0			
Call Money Rate (Weighted Average)	3.13	4.10	4.3			
91-Day Treasury Bill (Primary) Yield	3.44	4.95	5.0			
182-Day Treasury Bill (Primary) Yield	3.72	5.52	5.63	5.73	5.76	5.79
364-Day Treasury Bill (Primary) Yield	3.89	6.08	6.12	6.28	6.28	6.29
10-Year G-Sec Par Yield (FBIL)	6.40	7.49	7.55	7.59	7.49	7.42
FBIL@ Reference Rate and Forward Premia						
INR-US$ Spot Rate (₹ Per Foreign Currency)	74.77	77.60	77.84	78.09	78.33	79.08
INR-Euro Spot Rate (₹ Per Foreign Currency)	88.53	83.45	82.69	82.10	82.56	82.74
Forward Premia of US$ 1-month	4.01	3.56	3.24	3.01	2.76	3.03
3-month	4.09	3.81	3.39	3.08	2.88	2.98
6-month	4.21	3.60	3.42	3.12	2.89	2.88

*As per Press Release No. 2022-2023/41 dated April 08, 2022.
@ Financial Benchmarks India Private Limited (FBIL) has taken over from RBI the computation and dissemination of reference rate for spot

Market Premium

The market premium is the addition return generated from the general market index, above the risk free rate.

Market Premium = Market Return - Risk Free Rate



The average return by SENSEX or NIFTY over the past 10 years would be an ideal measure for general market returns. Nifty was at 4,841 10 years ago and is now at 15,752. A CAGR calculator would help us obtain Nifty's 10-year CAGR as 12.52%.

Explainer Video

We'll finally be estimating Britannia's final WACC in this module.

Cost of Equity

Recall the CAPM formula:

Cost Equity = Risk-free rate + β (Market return - Risk-free rate)

For Britannia, this is:

Weights of Equity and Debt

35	**LIABILITIES & EQUITY**						
36							
37	Accounts Payable	1,140.51	1,116.28	1,314.75	1,428.15	1,539.49	1,692.37
38	Short-Term Borrowings	76.10	747.99	1,339.42	1,339.4		
39	Other Current Liabilities	364.42	461.99	496.55	524.4		
40	Short-Term Provisions	196.51	191.26	387.47	387.4		
41	Current tax Liabilities	73.16	47.78	76.08	76.0		
42	Govemmnet Grant	0.71	-	-	-		
43	**Total Current Liabilities**	1,851.41	2,565.30	3,614.27	3,755.6		
44							
45	Long-Term Debt	61.92	766.06	747.75	747.7		
46	Deferred Tax Liabilities (Net)	3.87	12.69	8.69	8.6		
47	Other Long-Term Liabilities	27.24	46.54	54.07	54.0		
48	Long-Term Provisions	11.45	13.16	-	-		
49	Other items	-	-	-	-		
50	Other Items	-	-	-	-		
51	**Total Non-Current Liabilities**	104.48	838.45	810.51	810.51	810.51	810.51
52	**Total Liabilities**	1,955.89	3,403.75	4,424.78	4,566.		
53							
54	**Shareholder'S Equity:**						
55	Share Capital	24.03	24.05	24.09	24.		
56	Reserves And Surplus	4,229.22	4,378.78	3,523.57	4,753		
57	**Total Shareholder'S Equity**	4,253.25	4,402.83	3,547.66	4,777		
58	Minority Interest	32.68	35.65	36.34	36		
59	**Total Equity**	4,285.93	4,438.48	3,584.00	4,814		
60	**Total Liabilities And Equity**	6,241.82	7,842.23	8,008.78	9,380		
61							
62							

Dashboard | Company Overview | Assumptions | Income St

Ready | Accessibility: Investigate

Total debt is found to be the sum of short-term and long-term debt, 2087.17 crores.

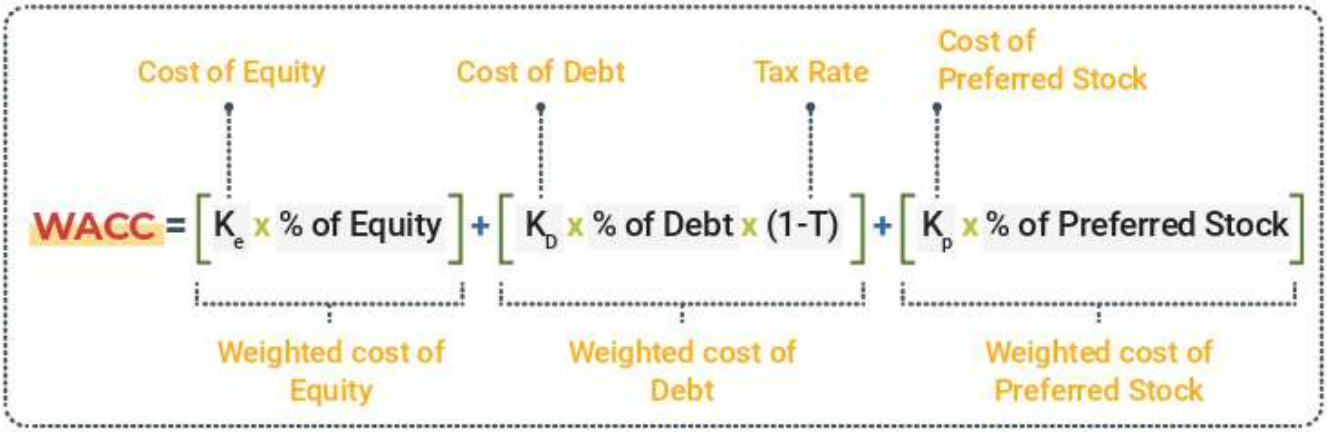
Total equity in Britannia's capital mix is 3584 crores, obtained from shareholders' equity line item in the balance sheet.

By this, we can conclude **the weight of equity to be 63.2% and debt to be 36.8% of the total capital.** We now have all components required to calculate the WACC for Britannia.

Weight of Debt = 2087.17 / (2087+3584)

Weight of Equity = 3584 / (2087+3584)

Recall its formula:



By this formula, the WACC for Britannia is 9.39%. Hence, we would be using this as our input. Here is the completed table for WACC and its components:

	A	B	C	D	E
1	**Britannia Ltd.**				
2	**Assumptions**				
3					
4					
5	**Long Term Growth Rate**	0.038			
6					
7	Cost of Equity (Ke)	11.76700%		**Risk Free rate**	**7.42%**
8	Stock Beta	0.69		**market Return**	**13.72%**
9	Long Term Cost of Debt	5.31%		**Market Premiur**	6.30%
10	Tax Rate (@)	33.90%		Weight of Equity	63.20%
11	**WACC**	9.39%		Weight of Debt	36.80%
12				Equity	3584
13	Number of Shares Outstanding	24.07		**Total Debt**	2087.17
14	Current market Price	3815			
15	Market Capitalisation	91827.05			
16	Debt	2087.17			
17	Cash	1604.59			
18	Minority Interest	36.34			
19	**Enterprise Value**	92,346			

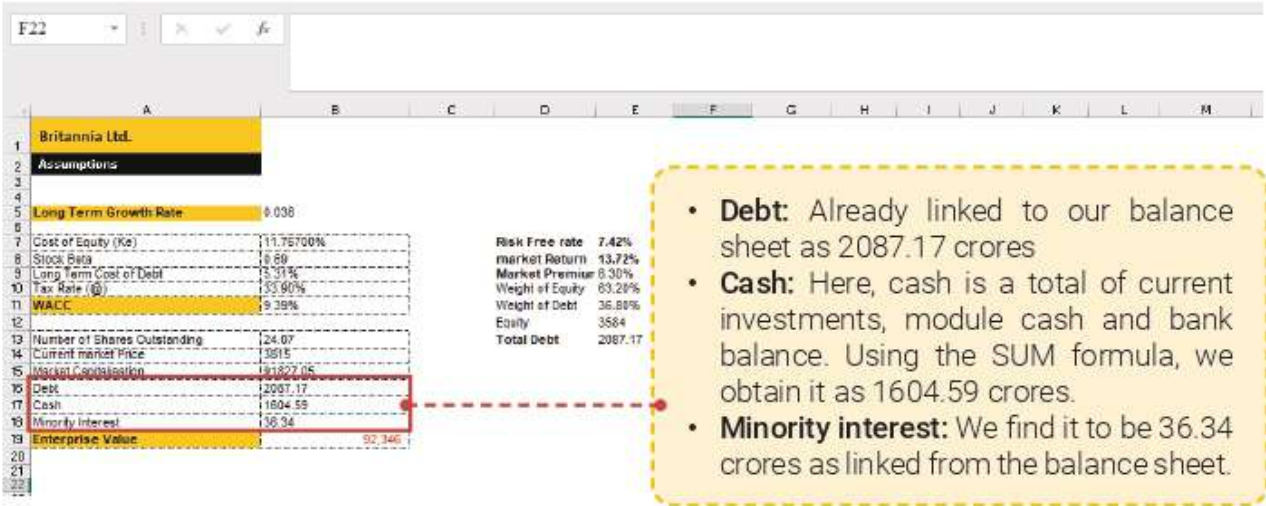
Let's also fill in the rest of the cells, i.e. number of shares outstanding, current market price, and market capitalization. Remember that the market capitalization of a company is the current market price multiplied by the number of shares outstanding.

In the next section, we will calculate an estimated enterprise value for the company.

9.4 Calculating Enterprise Value

Explainer Video

We are now set to calculate the enterprise value. Here's a quick summary of the inputs:



	A	B	C	D	E
1	Britannia Ltd.				
2	Assumptions				
3					
4					
5	Long Term Growth Rate	0.038			
6					
7	Cost of Equity (Ke)	11.76700%		Risk Free rate	7.42%
8	Stock Beta	0.69		market Return	13.72%
9	Long Term Cost of Debt	5.31%		Market Premiur	6.30%
10	Tax Rate (@)	33.90%		Weight of Equity	63.28%
11	WACC	9.39%		Weight of Debt	36.88%
12				Equity	3584
13	Number of Shares Outstanding	24.07		Total Debt	2087.17
14	Current market Price	3815			
15	Market Capitalisation	91827.05			
16	Debt	2087.17			
17	Cash	1604.59			
18	Minority Interest	36.34			
19	Enterprise Value	92,346			

- **Debt:** Already linked to our balance sheet as 2087.17 crores
- **Cash:** Here, cash is a total of current investments, module cash and bank balance. Using the SUM formula, we obtain it as 1604.59 crores.
- **Minority interest:** We find it to be 36.34 crores as linked from the balance sheet.

Britannia's enterprise value will be calculated as per the current market prices:

Market capitalization
+ Total Debt
+ Minority Interest
- Cash

Enterprise Value

Enterprise Value = 91827.05 + 2087.17 + 36.34 - 1604.59

= 92,346 crores

12			
13	Number of Shares Outstanding	24.07	
14	Current market Price	3815	
15	Market Capitalisation	91827.05	
16	Debt	2087.17	
17	Cash	1604.59	
18	Minority Interest	36.34	
19	Enterprise Value		92,346

You can refer to the sheet above where we have filled out these details.

In the next section, we will calculate Britannia's enterprise value using the discounted cash flows method.

DCF EV < Current EV, The company is **overvalued.**

DCF EV < Current EV, The company is **undervalued.**

9.5 Calculating company's value using DCF

Explainer Video

We will now calculate the company's value using the DCF method and compare the 2 values.

FCF

Look at the formula below.

FCF = Operating Cash Flows - Capital Expenditures

FCF = CFO - CFI

Discounting FCF

Future free cash flows need to be discounted to the present.

Let's add a row where we would add the number of years to be discounted. Below that, we'll add a row to calculate the discount factor. You can see this in the next page. It is calculated as:

$$\text{Discounting Factor} = (1 + \text{WACC})^{\text{years to discount}}$$

1 **We will not enter the years to discount in each formula manually. Instead, we will link it to a row above, which already has the number of years, each cashflow has to be discounted for.**

2 **Next, we would add a 'present value' row.**

$$\text{Present Value} = \frac{\text{FCF (Free Cash Flow)}}{\text{Discounting Factor}}$$

$$\text{PV for Free Cash Flow FY'22} = \frac{1697}{1.093919} = 1551.06$$

	A	B	C	D	E	F	G	H	I	J	K	L
23												
24	**CALCULATION OF FREE CASH FLOW**											
25												
26	Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E
27	Revenues	11,054	11,599	13,136	14,318	15,607	17,012	18,543	20,211	22,030	24,013	26,174
28	% Growth Revenue		4.93%	13.25%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
29	EBITDA	1,735	1,843	2,510	2,419	2,699	3,022	3,212	3,529	3,859	4,186	4,573
30	EBIT	1,573	1,658	2,312	2,194	2,463	2,768	2,933	3,230	3,535	3,834	4,192
31	Tax Rate	34.61%	24.45%	26.37%	25.41%	25.41%	25.73%	25.51%	25.55%	25.60%	25.55%	25.57%
32	**Net Operating Profit After Taxes**	1,161	1,398	1,850	1,783	1,988	2,205	2,333	2,554	2,779	3,004	3,270
33	**Operating Cash Flow**	1,156	1,485	1,851	1,905	2,107	2,285	2,485	2,725	2,969	3,238	3,537
34	Capex	(856)	(1,532)	461	(208)	(241)	(262)	(280)	(310)	(337)	(366)	(400)
35	**FCF**	300	(47)	2,312	1,697	1,866	2,023	2,205	2,415	2,632	2,872	3,137
36	Years to Discount				1	2	3	4	5	6	7	8
37	Discount Factor				1.093918765	1.196658263	1.309046929	1.431900999	1.566481825	1.713603863	1.87454342	2.050598223
38	PV				1,551.06	1,559.20	1,545.11	1,539.60	1,541.63	1,535.92	1,532.25	1,529.64
39												
40	Sum of PV	12,334.41										
41	Terminal Value	FCF8 (1 + long term growth rate) / (WACC - long term rate)										

3

Finally, we would sum up the present values of future years. We find Britannia's forecasted cash flows to be 12334.41 crores. We now need to calculate and add the present value of the terminal value to arrive at the valuation for the company.

Terminal Value

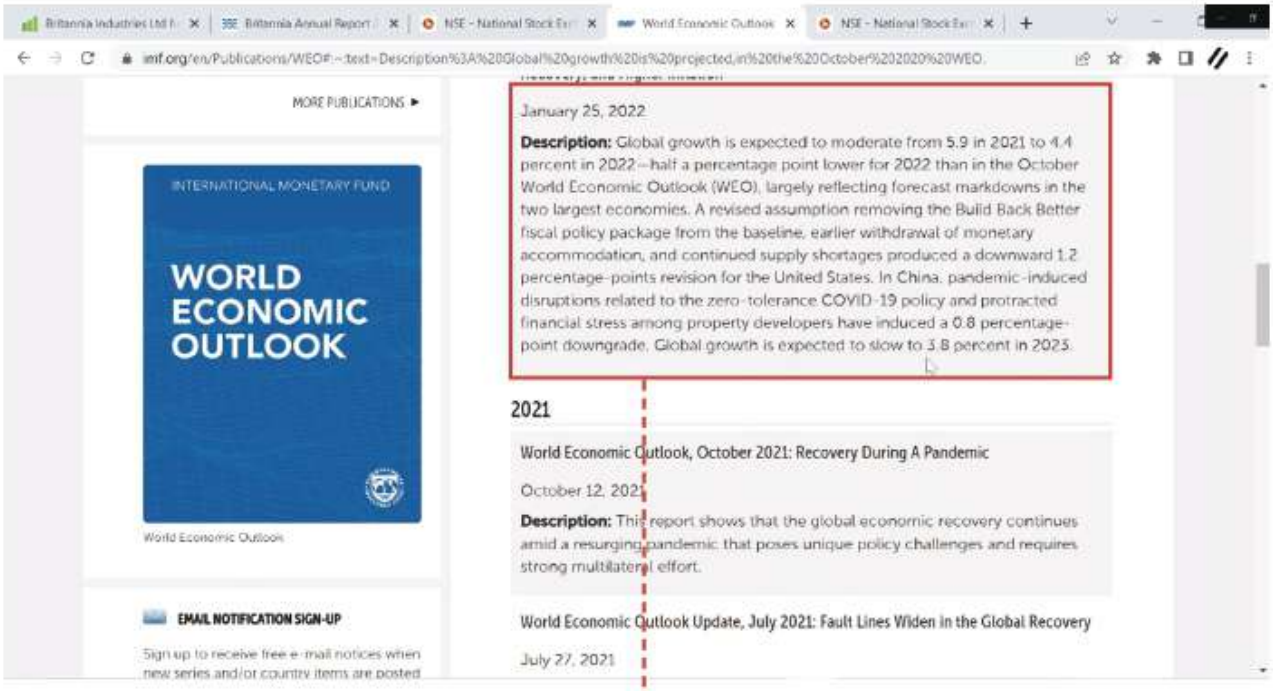
You might have noticed that we have projected free cash flows for just 8 years. But what about the company's cash flows after that? Assuming that a company wouldn't wind up after 8 years, we would also have to project a value, something that reflects its free cash flows indefinitely in the future. The value that we saw is the terminal value. Terminal value is calculated as:

$$\frac{CF_8}{[r-g]} = \frac{CF_7 \times [1+g]}{[r-g]}$$

Note

The long-term growth rate reflects the rate at which the company is expected to grow indefinitely, assuming it never shuts down.

Usually, the global economy growth rate or country's GDP growth rate can be used as the long-term growth rate.



January 25, 2022

Description: Global growth is expected to moderate from 5.9 in 2021 to 4.4 percent in 2022—half a percentage point lower for 2022 than in the October World Economic Outlook (WEO), largely reflecting forecast markdowns in the two largest economies. A revised assumption removing the Build Back Better fiscal policy package from the baseline, earlier withdrawal of monetary accommodation, and continued supply shortages produced a downward 1.2 percentage-points revision for the United States. In China, pandemic-induced disruptions related to the zero-tolerance COVID-19 policy and protracted financial stress among property developers have induced a 0.8 percentage-point downgrade. Global growth is expected to slow to 3.8 percent in 2023.

Since Britannia is a global company, we would use the IMF's global GDP growth rate. We'll use a conservative 3.8% in this case.

CALCULATION OF FREE CASH FLOW

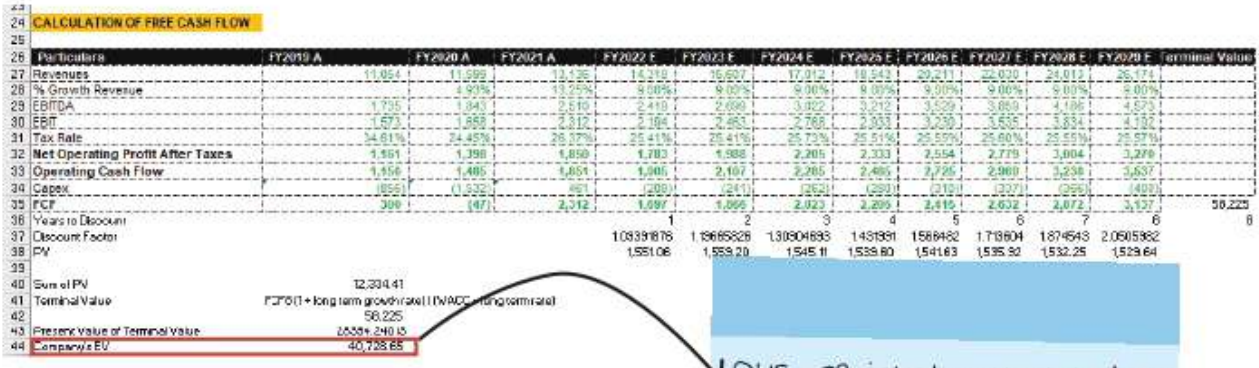
Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY	FY2029 E	Terminal Value
Revenues	11,054	11,999	13,136	14,318		25,174	
% Growth Revenue		8.53%	9.48%	9.00%		9.00%	
EBITDA	1,735	1,843	2,510	2,410		4,575	
EBIT	1,573	1,668	2,312	2,194		4,192	
Tax Rate	34.61%	24.45%	28.27%	25.41%		25.57%	
Net Operating Profit After Taxes	1,161	1,398	1,850	1,783		3,279	
Operating Cash Flow	1,156	1,465	1,851	1,906		3,637	
Capex	(856)	(1,332)	461	(209)		(458)	
FCF	300	(47)	2,312	1,697		3,137	58,225
Years to Discount				1		8	8
Discount Factor				1.03391876		2.0505982	
PV				1,551.06		1,529.64	
Sum of PV	12,334.41						
Terminal Value	FCF8(1+long term growth rate)/(WACC-long term rate)						
	58,225						
Present Value of Terminal Value	28394.24015						
Company's EV	40,728.65						

Our calculation has yielded a terminal value of 58,225 crores. After discounting for 8 years, its present value is 28,394.15 crores.

Enterprise Value of Britannia = **Terminal Value + Present values of FCFs of 8 forecasted years**

= 28,395.15 + 12,335.41

≈ 40,728.57 crores



CALCULATION OF FREE CASH FLOW

Particulars	FY2019 A	FY2020 A	FY2021 A	FY2022 E	FY2023 E	FY2024 E	FY2025 E	FY2026 E	FY2027 E	FY2028 E	FY2029 E	Terminal Value
Revenues	11,054	11,999	13,136	14,318	15,607	17,012	18,543	20,211	22,030	24,013	25,174	
% Growth Revenue		8.53%	9.48%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	
EBITDA	1,735	1,843	2,510	2,410	2,699	3,022	3,212	3,529	3,859	4,196	4,575	
EBIT	1,573	1,668	2,312	2,194	2,463	2,766	3,033	3,330	3,635	3,934	4,192	
Tax Rate	34.61%	24.45%	28.27%	25.41%	25.41%	25.73%	25.51%	25.55%	25.60%	25.55%	25.57%	
Net Operating Profit After Taxes	1,161	1,398	1,850	1,783	1,988	2,205	2,333	2,554	2,779	3,004	3,279	
Operating Cash Flow	1,156	1,465	1,851	1,906	2,107	2,285	2,465	2,795	2,960	3,236	3,637	
Capex	(856)	(1,332)	461	(209)	(241)	(263)	(289)	(319)	(327)	(299)	(458)	
FCF	300	(47)	2,312	1,697	1,866	2,023	2,209	2,415	2,632	2,872	3,137	58,225
Years to Discount				1	2	3	4	5	6	7	8	8
Discount Factor				1.03391876	1.13665828	1.30804833	1.431381	1.568482	1.719604	1.874543	2.0505982	
PV				1,551.06	1,559.29	1,545.11	1,539.80	1,541.63	1,535.92	1,532.25	1,529.64	
Sum of PV	12,334.41											
Terminal Value	FCF8(1+long term growth rate)/(WACC-long term rate)											
	58,225											
Present Value of Terminal Value	28394.24015											
Company's EV	40,728.65											

Our previously calculated Ev is 9,2,346 crores, while the Ev using the DCF approach is 40,728 crores. Hence, we can conclude that Britannia is extremely overvalued as of the day we prepared this model.

In our example above, we have used a conservative growth rate of 3.8%. The enterprise value is very sensitive to WACC and growth rate assumptions. If we would have used a growth rate of 8%, our enterprise value would have been 131,024 crores; drastically different from our previous answer. Our view would have changed from overvalued to undervalued. The same concept applies to the WACC rate and Britannia's CMP.

We can sensitivity analysis and scenario analysis to allow for different outcomes.

Disclaimer: Our analysis has been very primary and for educational purposes. We still do not understand the company. Do not act on this. Also, to keep it for educational purposes, our annual inputs are as of March 2021, but market cap is as of June 2022. In reality, we will use same timeline for both.

Remember this!

Here are a few things to keep in mind while using the DCF approach:

- Do not fuss too much about the exact enterprise value. The idea is to be as close to reality as possible.
- A sensitivity analysis with different WACC and growth rate assumptions would be useful.
- Practice is the key to understanding valuations and building good financial models. The more you practice, the better you get.
- You can also check out Ashwath Damodaran's YouTube channel for more insights on valuing a company. You should also consider his books to understand valuation better.

With this, we wrap up our discussion on the discounting cash flows method. Feel free to reach out to Zebra's community for any help or advice on valuations!

Relative Valuation

10

Introduction

Now that you are well versed with the discounting cash flow method of valuing companies, let's learn another useful method- relative valuation. We have already understood earlier what relative valuation is and how it is different from absolute valuation.

10.1 Concepts of Relative Valuation

Explainer Video

Relative valuation is the process of valuing a company based on the values of other comparable or peer companies.

Relative Valuation

Trading Comparables

Trading comparables are those sets of peer companies which are listed and we can get the current value at which they trade currently.

ITC Limited

compared to

Dabur

P&G

This method is **most useful for finding the fair value of a listed company**, compared to companies within the same sector.

Transaction Comparables

Transaction comparables is a method used to compare the share prices/assets of a company to valuations at which recent deals have taken place in the same sector.

SWIGGY

compare value

zomato

Uber Eats

blinkit

Valuation seen in recent M&As or other transactions.

They **measure the valuation at which recent transactions of similar companies** have taken place in the industry.

It's a popular method for valuing unlisted companies, mergers and acquisitions, startups, IPOs, etc.

Practicing Relative Valuation

The key to a good relative valuation analysis is identifying the right set of comparables.

Company A — Company B (Peer Company)

Needless to say, it's very rare to find a peer company that's an exact match.

Company A — Company B (Peer Company)

But the point here is, that the more similar the peers, the more sense a comparison will make.

Try finding peer companies that are as close to the company we are evaluating as possible.

Since finding an exact peer company is a subjective exercise, making comparisons with a set of peers would yield better results. We use the mean or median values of multiple companies to determine an 'average' multiple, which can then be used for relative comparison.

Hypothetically,

Price/Earnings = 20 — **Average Price/Earnings = 16**

Parag is doing relatively expensive than its peers

We can even find reasons why Parag Milk maybe more expensive than others or may simply be over-valued.

Look below for a relative comparison of different dairy companies. Such a comparison in our model helps us understand how the company we analysing, doing against its peers.

You may notice terms like 'LTM revenue', 'LTM profits', or LTM P/E ratio in the model above. LTM simply stands for 'last twelve months'. 'LTM revenues' stands for revenues made in the last 12 months. Analysts often use such the latest available information in their model.

	A	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Company	Revenue (mlln)			EBITDA (mlln)			PAT (mlln)			Price / Revenue			Price/Earnings		
2		LTM Dec 21	FY 2022	FY 2023	LTM Dec21	FY 2022	FY2023	LTM Dec21	FY 2022	FY 2023	LTM Dec21	FY 2022	FY2023	LTM Dec 21	FY 2022	FY2023
3	Parag Milk Foods Ltd	1,942.65	2,265	2,704	153.99	208	233	39.94	93	127	0.5x	0.4x	0.4x	23.9x	10.2x	7.5x
4	Dodla Dairy Limited	2,184.20	2,241	2,535	200.80	228	262	102.00	139	174	1.4x	1.3x	1.2x	29.6x	21.7x	17.3x
5	Heritage Foods LTD	2,604.75	NA	NA	213.47	NA	NA	108.11	NA	NA	0.7x	-	-	15.9x	-	-
6	MilkFood LTD	547.00	NA	NA	17.38	NA	NA	1.95	NA	NA	0.4x	-	-	75.5x	-	-
7	Umang Dairies LTD	221.47	NA	NA	-1.05	NA	NA	-7.75	NA	NA	0.8x	-	-	(21.5x)	-	-
8	Hatsun Agro Products LTD	6,334.00	6,705	7,778	745.84	811	944	245.40	275	355	3.6x	3.4x	2.9x	92.8x	82.8x	63.9x
9	Britannia Industries Ltd.	12,987.81	13,975	15,405	2,567.85	2,505	2,757	1,543.22	1,649	1,975	6.5x	6.1x	5.5x	55.1x	51.6x	45.0x
10	DFM Foods	525.43	698	773	32.24	92	90	55.20	55	58	2.7x	2.0x	1.8x	25.8x	25.6x	24.3x
11	Company 9	-	NA	NA	-	NA	NA		NA	NA	-	-	-	-	-	-
12	Company 10	-	NA	NA	-	NA	NA		NA	NA	-	-	-	-	-	-
13	Mean										2.1x	2.7x	2.4x	37.1x	38.4x	31.2x
14	Median										1.1x	2.0x	1.8x	27.7x	25.6x	24.3x

You can calculate the LTM data for any company by adding the performance in last four quarters. Such analysis helps us understand where the company is placed in its peer group.

Note

LTM is also called TTM, i.e., trailing twelve months.

Looking at the column with Price/Earnings and Price/Sales, we get a sense of the company's valuation. We can see why a company is expensive and why one is not.

This is how we use trading comparables to arrive at a relative valuation for a company. You should give it a try with a company of your choice.

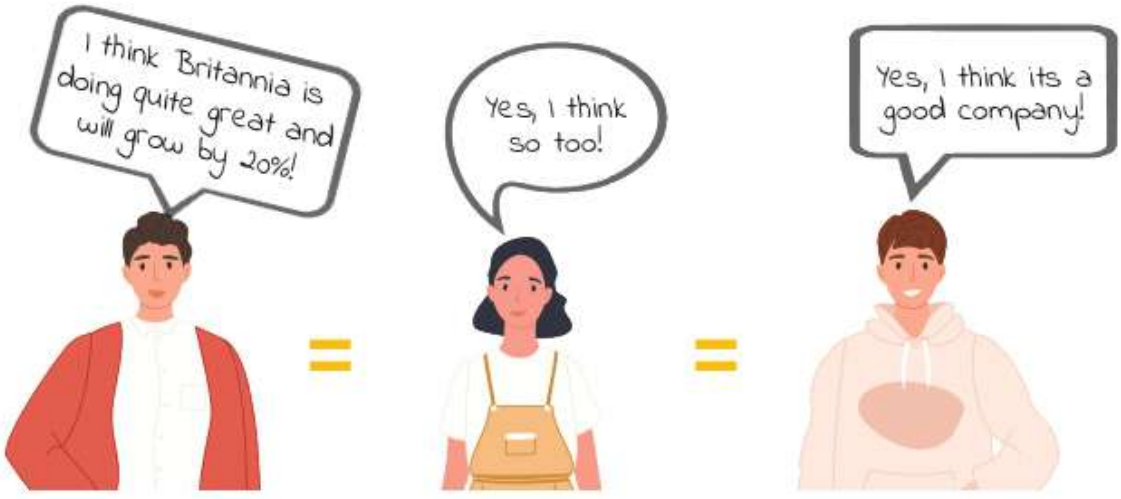
Remember that this kind of valuation is based on the principle of comparison, and not on estimating the exact value of a company or its assets. We are just using its peers to conclude whether our company is valued relatively higher or lower.

Next, we will talk about understanding market consensus.

10.2 Consensus

Explainer Video

A consensus occurs when there is a general agreement between people about a particular topic.



Opinion about a company's operations and future

In the context of financial modelling or equity research, consensus means different analysts or market participants agreeing on an opinion about a company's operations and future.

In the following image from the financial model, you can notice that we have plotted the different financial line item estimates from different Indian brokers/research analysts for 2 companies. Looking at it, one can realize that the sales, EBITDA, and PAT estimates of different brokers are quite close to each other, representing the market consensus.

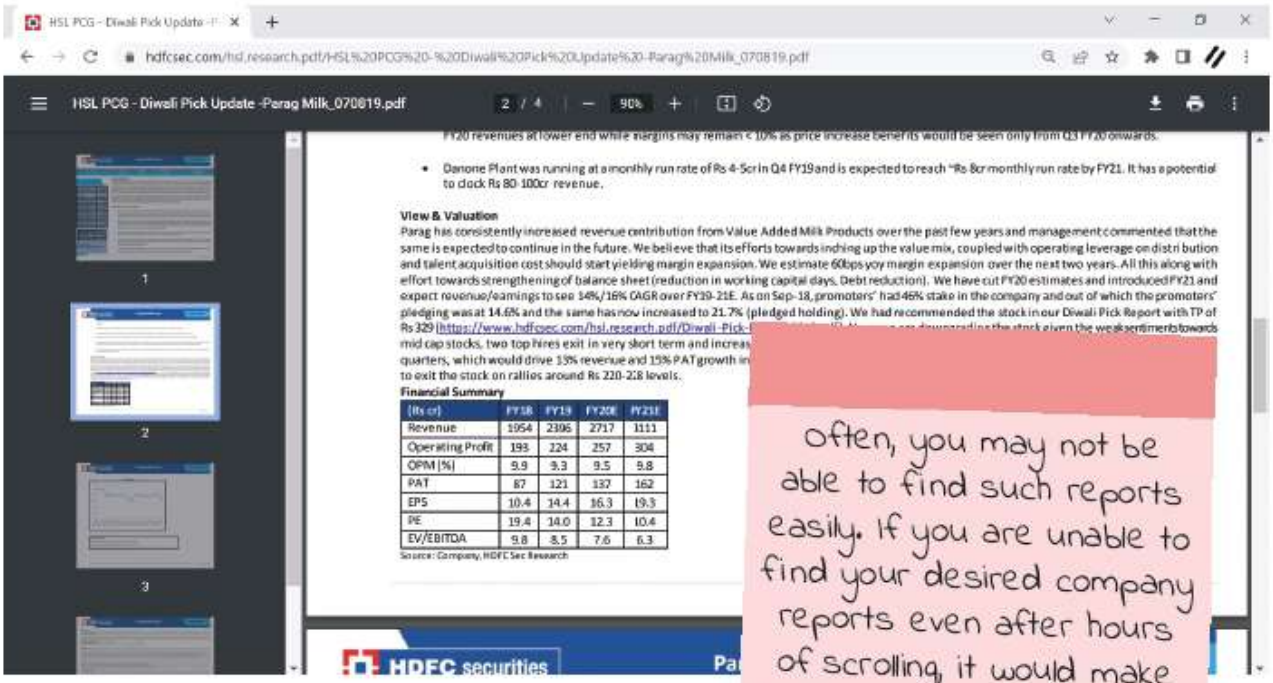
	Britannia Industries Ltd.			DFM Foods		
	Sales	FY 2022	FY 2023	Sales	FY 2022	FY 2023
	hdfc securities	14,245	15,563	Rudra Share	723.18	
	Motilal Oswal	13,970	15,900	Hdfc Securities	672.8	772.9
	Idbi Capital	13,848	15,249			
	Axis Securities	13,981	15,249			
	Median	13,976	15,406	Median	698	773
	EBITDA	FY 2022	FY 2023	EBITDA	FY 2022	FY 2023
	hdfc securities	2,608	2,847	Rudra Share	100.74	
	Motilal Oswal	2,270	2,760	Hdfc Securities	82.7	90
	Idbi Capital	2,317	2,753			
	Axis Securities	2,293	2,577			
	Median	2,305	2,757	Median	92	90
	PAT	FY 2022	FY 2023	PAT	FY 2022	FY 2023
	hdfc securities	1,974	2,161	Rudra Share	60.5	
	Motilal Oswal	1,600	2,000	Hdfc Securities	50.4	58.4
	Idbi Capital	1,615	1,957			
	Axis Securities	1,682	1,913			
	Median	1,649	1,978	Median	55	58

The idea here is to identify the forecasts different analysts and brokers have shared (including sales, PAT, target prices, multiples, etc.) and try to understand the rationale behind those numbers. We can then check how far or close are we to such consensus and do we have reasons for our differences. We don't need to be near the consensus but we shall have reason for our differences.

An obvious question that would come to your mind is -

You can just Google this - 'company name' broker reports pdf.

Here is what an HDFC Securities report on Parag Milk looks like:



Often, you may not be able to find such reports easily. If you are unable to find your desired company reports even after hours of scrolling, it would make sense to Google other peer companies.

Tip

I often find broker reports on Trendlyne (https://trendlyne.com/research-reports/all/)

Experienced Research Analyst

Detailed Report ≈ **Spent time analysing**

Hence, referring to their reports to get estimates and forecasts often yields good results. It explains us where the market is at and do we agree with them or we have different expectations.

	Y	Z	AA	AB
1				
2		Britannia Industries Ltd.		
3				
4		Sales	FY 2022	FY 2023
5		hdfc securities	14,245	15,563
6		Motilal Oswal	13,970	15,900
7		Idbi Capital	13,848	15,249
8		Axis Securities	13,981	15,249
9				
10		Median	13,976	15,406
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12		EBITDA	FY 2022	FY 2023
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20		PAT	FY 2022	FY 2023
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22		Motilal Oswal	1,600	2,000
23		Idbi Capital	1,615	1,957
24		Axis Securities	1,682	1,913
25				
26		Median	1,649	1,978

Here is the comparison of sales, EBITDA and, PAT forecasts from different analysts for Britannia Industries. Look how they together form a market consensus.

That being said, it is important to realize that other analysts also have as much information as you. You have to just use their estimates as a reference and try to understand their rationale. You don't need to change your assumptions to match their numbers. This is how you should use consensus- just as a reference.

This brings us close to the end of our financial modelling book. So far, we have covered,

- company analysis,
- learned how to hardcode raw data,
- normalize it,
- how to forecast,
- and how to value businesses using different methods like DCF and relative valuation.

From knowing nothing about financial modelling to now being equipped with what it needs to build one yourself, you have come a long way. Remember, the crux of financial modelling is to try and reflect reality as much as possible.

Conclusion

Scan here!

We have reached the end of our financial modelling book.

From knowing nothing about financial modelling to having all the skills to build full-fledged models, we have come a long way.

Before we let you go, we would like to leave you with a set of actionable tips, that will help you hone your financial modelling skills:

Get started and Practice!

The key to getting ahead is getting started. We suggest you aim to build at least 5 models in the coming 3 months, starting from scratch, all by yourself. It would be even better if you build models on companies belonging to different industries - retail, FMCG, technology, metals, etc. The more you practice, the better you will get. It may be a little challenging at first, but your confidence will improve with each new model you prepare. Without practice, all the reading so far will be of no value.

Remember to be realistic

The most critical part of your model are the assumptions you make. We insist - keep your assumptions as realistic as possible.

Focus on the underlying business

The crux of financial modelling is to be able to estimate the future of a business. Developing an understanding of the business and its industry dynamics is crucial. These are not numbers in thin air but have a business behind it.

Create your portfolio, start working

The best way to learn is by doing. Create your portfolio of financial models. You can use the portfolio feature of Zebra Learn to post and discuss your projects with peers. Once you are confident of your skills, you can start applying to internships and jobs requiring financial modelling. This portfolio of models will act as a work sample if you are looking to apply.

Be resilient

Trying to perfect a skill like financial modelling is not a smooth ride. But what good has come from being in your comfort zone? There will be challenges. Maybe you would not know how to forecast particular line item, or you may find it difficult to understand a business. But if you try hard enough to find the solution, you will find it. Consistency and hard work will be required but at the end you will learn this core finance skill.

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