

**Managerial Accounting**  
**Prof. Dr. Varadraj Bapat**  
**Department of School of Management**  
**Indian Institute of Technology, Bombay**

**Lecture - 40**  
**Financial statement - Forecasting and use of Adjusted data -**  
**Pfizer and Merck Case**

Dear students, we are looking at how to use the ratios for making the projections. Those who are listening it for the first time for their benefit, I am just taking a relook at what we have done. First we have studied the ratios, then we have calculated the ratios for various companies using their real data. In the last session, we were discussing how the ratios can be used for projecting the financial statements, and calculating the future value of the company.

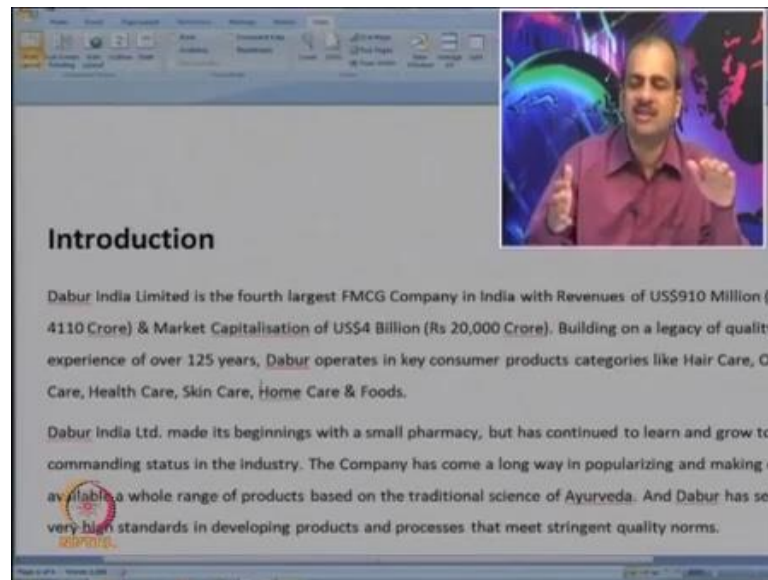
As you all know, the current share holders, prospective share holders, lenders, employees everybody is very keenly interested in projecting the future. It is almost impossible to project the future, only god knows it. But, we will use the tools and the data, which is available with us to get a reasonable estimate. That is what we were learning at. In the last session, we had started the discussion on Dabur India.

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Year	Mar 11(12)	Apr 10	May 07	Jun 07	Jul 07	Aug 07	2012	2013	2014	2015	2016	2017
<b>INCOME :</b>												
Sales Turnover	#####	##	##	##	##	##	3684.21	4118.95	4604.99	5148.37	5755.88	6435.0
Excise Duty	30.99	24	37	##	##	##						
Net Sales	#####	##	##	##	##	##	3649.57	4080.21	4561.88	5099.96	5701.75	5929.8
Other Income	49.46	42	19	##	##	##						
Stock Adjustments	78.31	10	22	##	##	##						
<b>Total Income</b>	#####	##	##	##	##	##	3792.41	4239.92	4740.23	5299.57	5924.92	6161.9
<b>EXPENDITURE :</b>												
Raw Materials	#####	##	##	##	##	##	1373.18	1535.22	1716.38	1918.91	2145.34	2231.1
Power & Fuel Cost	42.39	35	31	##	##	##	47.39	52.98	59.24	66.23	74.04	77.0
Employee Cost	208.92	##	##	##	##	##	233.57	291.13	291.95	326.40	364.91	379.5
Other Manufacturing Expenses	347.23	##	##	##	##	##	611.80	684.00	764.71	854.94	955.83	994.0
Selling and Administration Expenses	601.43	##	##	##	##	##	672.40	751.74	840.45	938.62	1050.50	1092.5
Miscellaneous Expenses	117	##	55	##	##	##	130.81	146.24	163.50	182.79	204.36	212.5
<b>Less: Pre-operative Expenses Capitalised</b>	0	0	0	0	0	0						

As I told you last time also, please take a print out of all this. So that, you can actually see how the calculations are done, the sheets are shared with you. So, you can take it on your own computer and look at the formulas.

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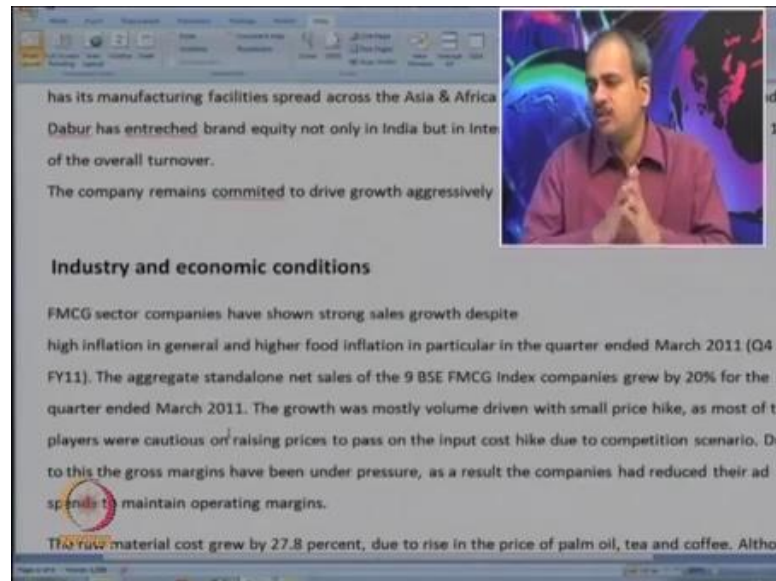
**Introduction**

Dabur India Limited is the fourth largest FMCG Company in India with Revenues of US\$910 Million (Rs 4110 Crore) & Market Capitalisation of US\$4 Billion (Rs 20,000 Crore). Building on a legacy of quality experience of over 125 years, Dabur operates in key consumer products categories like Hair Care, Oral Care, Health Care, Skin Care, Home Care & Foods.

Dabur India Ltd. made its beginnings with a small pharmacy, but has continued to learn and grow to a commanding status in the industry. The Company has come a long way in popularizing and making available a whole range of products based on the traditional science of Ayurveda. And Dabur has set very high standards in developing products and processes that meet stringent quality norms.

First we started with discussion on Dabur India, where in lot of information is available with about the company. From this information, you can see that it is one of the highly successful FMCG companies, quite stable now, it is there for reasonably long time. So, we can take the data for last 10 years. And reasonably assume that, the same trains can continue in next few years.

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has its manufacturing facilities spread across the Asia & Africa  
Dabur has entrenched brand equity not only in India but in inte  
of the overall turnover.  
The company remains committed to drive growth aggressively

**Industry and economic conditions**

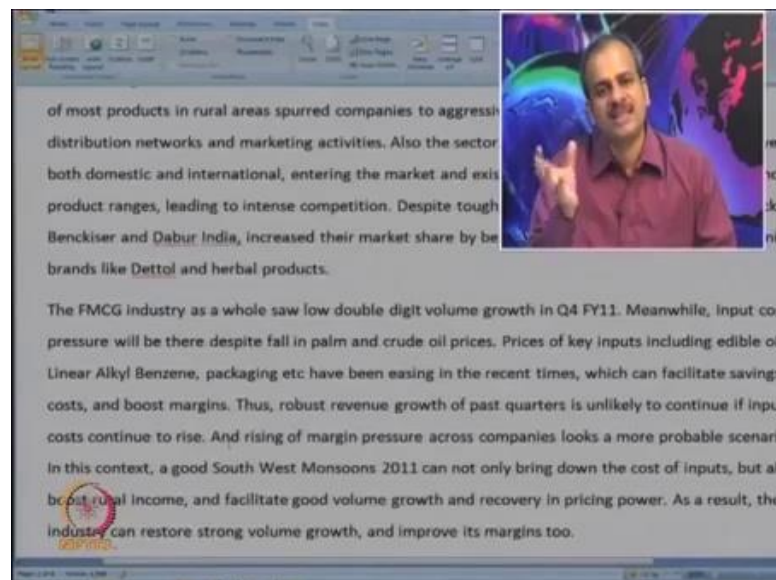
FMCG sector companies have shown strong sales growth despite  
high inflation in general and higher food inflation in particular in the quarter ended March 2011 (Q4  
FY11). The aggregate standalone net sales of the 9 BSE FMCG Index companies grew by 20% for the  
quarter ended March 2011. The growth was mostly volume driven with small price hike, as most of th  
players were cautious on raising prices to pass on the input cost hike due to competition scenario. Du  
to this the gross margins have been under pressure, as a result the companies had reduced their ad  
spends to maintain operating margins.

The rupee material cost grew by 27.8 percent, due to rise in the price of palm oil, tea and coffee. Altho

The slide is part of a presentation with a speaker overlay in the top right corner. The speaker is a man in a maroon shirt, gesturing with his hands. The slide content discusses Dabur's manufacturing and brand equity, and provides an overview of the FMCG industry's performance in Q4 FY11, noting strong sales growth despite inflation and input cost pressures.

So, we also looked at industry and economy data. Usually CMIA or other associations do give projections about the growth rate of the industry. So, such projection was used it was made available and it was used.

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of most products in rural areas spurred companies to aggressi  
distribution networks and marketing activities. Also the sector  
both domestic and international, entering the market and exis  
product ranges, leading to intense competition. Despite tough  
Benckiser and Dabur India, increased their market share by be  
brands like Dettol and herbal products.

The FMCG industry as a whole saw low double digit volume growth in Q4 FY11. Meanwhile, input co  
pressure will be there despite fall in palm and crude oil prices. Prices of key inputs including edible oi  
Linear Alkyl Benzene, packaging etc have been easing in the recent times, which can facilitate savings  
costs, and boost margins. Thus, robust revenue growth of past quarters is unlikely to continue if inpu  
costs continue to rise. And rising of margin pressure across companies looks a more probable scenari  
In this context, a good South West Monsoons 2011 can not only bring down the cost of inputs, but al  
boost rural income, and facilitate good volume growth and recovery in pricing power. As a result, the  
industry can restore strong volume growth, and improve its margins too.

The slide is part of a presentation with a speaker overlay in the top right corner. The speaker is the same man in a maroon shirt, gesturing with his hands. The slide content discusses the impact of rural areas on FMCG distribution and marketing, and provides a detailed outlook for the FMCG industry in Q4 FY11, mentioning factors like input costs, monsoon, and pricing power.

We also collected the data about stock market. So, we have looked at the prices of the company for last 4 years. We also looked at the movement of sensx for last 4 years. This is some information about FMCG industry, then about the performance of Dabur.

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Year	Mar 11	M	N	A	A	N	N	N	N	N	2012
<b>SOURCES OF FUNDS :</b>											
Share Capital	174.07	#									
Reserves Total	927.09	#									
Equity Share Warrants	0	0									
Equity Application Money	0	0									
<b>Total Shareholders Funds</b>	<b>1,101.16</b>	<b>#</b>									
Secured Loans	17.57	#									
Unsecured Loans	239.87	#									
<b>Total Debt</b>	<b>257.44</b>	<b>#</b>									
<b>Total Liabilities</b>	<b>1,358.60</b>	<b>#</b>									
<b>APPLICATION OF FUNDS :</b>											
Gross Block	766.88	#									
Less : Accumulated Depreciation	269.32	#									
Less: Impairment of Assets	0	0									
<b>Net Block</b>	<b>497.56</b>	<b>#</b>									
Lease Adjustment	0	0									
Capital Work in Progress	11.92	#									
Investments	519.23	#									
<b>Current Assets, Loans &amp; Advances</b>											
Investments	460.58	#									
Sundry Debtors	202.46	#									
Cash and Bank	192.41	#									

Now, let us go at the projections, which we have done in the last session. We were given P and L account for last 10 years.

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27 Appropriations	284.1	#								
28 P & L Balance carried down	714.22	#								
29 Dividend	200.19	#								
40 Preference Dividend	0	0								
41 Equity Dividend %	115	#								
42 Earnings Per Share-Unit Curr	2.52	5								
43 Earnings Per Share(Adj)-Unit Curr										
44 Book Value-Unit Curr	6.33	9								
45 <a href="http://www.capitaline.com">http://www.capitaline.com</a>										
46										
47 <b>Tax Rate</b>	<b>20.02%</b>									
48										
49 <b>Expected Growth</b>	<b>11.8%</b>									
50 Post 2016	4%									
51 Adjustment for 12% growth in expenditure vs 11.8% growth in sales	1,001,799									
52 Depreciation (Assumed)	5.87%									
53										
54										
55										
56 Source: Capitaline Database										
57										
58										
59										
60										

First, we have used these data to look at the expected growth. Since, CMIE predicted industry growth of 11.8, we have taken the same growth rate. Because, the company is stable highly successful. So, we know that the growth rate would not be less, it might be even more. But on a conservative bases we have taken it at 11.8 percent.

A long term growth rate, post 2016 is usually taken more on a conservative bases. So, it is taken at 4 percent, the rate of depreciation as been assumed at 5.8 percent based on the passed data. Now, with this we have projected the figures. So, we have sales turn over with us for March 11. Same turn over will be used and we go for the projected growth rate of 11.8 percent. So, we get projected turn over for 12, 13, 14, 15, 16 and so on.

So, we have estimated turn over, net sales, total income. The expenditure like raw material, power and fuel, etcetera are closely related to sales. So, they also have been estimated to grow at the same rate, so we come up to profit. So, we have assumed that gross profit will also grow at the same rate. Then, the depreciation, for calculating of depreciation, we have to use a special mechanism, because depreciation depends on the gross block of the company.

So, we will go to balanced sheet. But, whatever is projected gross block, we have charged the depreciation at the given rate. That is 5.87 estimated rate and the depreciation has been calculated, these gives us PBT. Then, we have also estimated the tax rate. So, we have looked at tax rate for March 11 and same tax rate is assumed to continue. So, with this data we come to estimated profit after tax.

Now, let us go to balance sheet, again in the last session we have done it. But, I am taking a brief recap, in balance sheet we only need some data, because, we are going to use this data, for projecting the value of the company, using DCF method, the Discounted Cash Flow method. So, we have not projected all the items, we have only projected a few items.

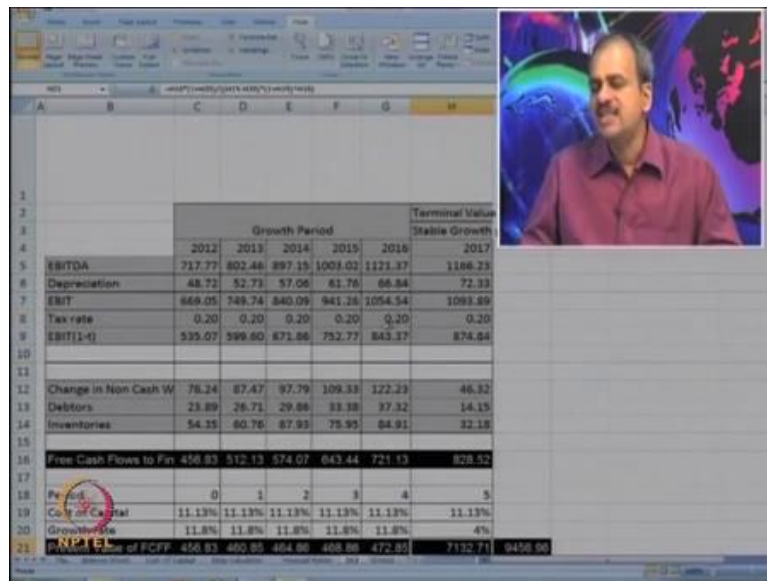
So, we basically need gross block, we have looked at the gross block growth for the last 10 years ((Refer Time: 06:25)), these gives us CAGR of 8.23. So, this is cumulative annualized growth rate, same growth rate is assumed to continue, because it is a stable company. So, we expect reasonably consistent growth of 8.23. So, gross block is taken at that rate. Accumulated depreciation, we know the depreciation of 11, we have estimated the depreciation of 12. So, that has been added.

So, we get the accumulated depreciation for all these years. This can help us to estimate the net block. We also need to estimate inventory and debtors, these two assets are closely link to level of sales. So, whatever is a sale growth, same growth rate has been

applied for inventories and debtors. So, we can estimate the inventories and debtors for all these years.

So, we do not look at loans, etcetera or other current assets. Basically, these three are the important figures, we must know gross block, we must know inventory and debtors. And this information, now we will use for making a DCF calculation.

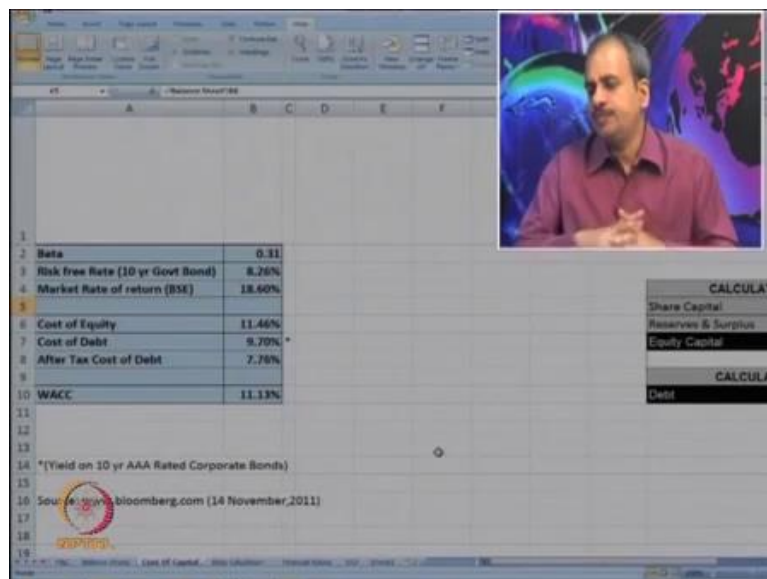
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	Growth Period					Terminal Value
	2012	2013	2014	2015	2016	Stable Growth
EBITDA	717.77	802.48	897.15	1003.02	1121.37	1188.23
Depreciation	48.72	52.73	57.06	61.76	66.84	72.33
EBIT	669.05	749.74	840.09	941.26	1054.54	1098.89
Tax rate	0.20	0.20	0.20	0.20	0.20	0.20
EBIT(1-t)	535.07	599.80	671.88	752.77	843.17	874.84
Change in Non Cash W	78.24	87.47	97.79	109.33	122.23	46.32
Debtors	23.89	26.71	29.88	33.38	37.32	14.15
Inventories	54.35	60.76	67.93	75.95	84.91	32.18
Free Cash Flows to Fin	456.83	512.13	574.67	643.44	721.13	828.52
FCFF	0	2	2	3	4	5
Cost of Capital	11.13%	11.13%	11.13%	11.13%	11.13%	11.13%
Growth rate	11.8%	11.8%	11.8%	11.8%	11.8%	4%
NPV of FCFF	456.83	460.85	464.88	468.88	472.85	7132.71
						9458.66

Before going for DCF calculation, which also we will discuss.

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Beta	0.31
Risk free Rate (10 yr Govt Bond)	8.26%
Market Rate of return (BSE)	18.60%
Cost of Equity	11.46%
Cost of Debt	9.70%
After Tax Cost of Debt	7.78%
WACC	11.13%

\* (Yield on 10 yr AAA Rated Corporate Bonds)

Source: bloomberg.com (14 November, 2011)



We also need to estimate the cost of capital of the company. Now, what is meant by cost of capital. Now, the company is using the finances, either by way of equity or by way of debt. So, it will have to pay it is cost and will incorporate this cost to estimate the value of the company. Now, the cost of capital estimation, depends on the risk associated with the company to estimate the risk we need to calculate beta factor.

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Date	Dabur Adj Close	BSE Adj Close	Return on Dabur	Return on BSE	BETA
18-Jul-11	111.5	18502.38	-0.002237136	-0.003207642	0.31
11-Jul-11	111.75	18561.92	0	-0.015702586	
4-Jul-11	111.75	18858.04	-0.04036067	0.005076001	
27-Jun-11	116.45	18762.8	0.023286487	0.028623933	
20-Jun-11	113.8	18240.68	-0.022786548	0.020712872	
13-Jun-11	116.45	17870.53	0.021491228	-0.021786634	
6-Jun-11	114	18268.54	-0.007832898	-0.005873813	
30-May-11	114.9	18376.48	0.062413315	0.006042828	
23-May-11	108.15	18266.1	0.05	-0.003273475	
16-May-11	103	18326.09	0.034136546	-0.01107263	
9-May-11	99.6	18531.28	-0.024485798	0.000673369	
2-May-11	102.1	18518.81	0.008893281	0.032250799	
25-Apr-11	101.2	19135.96	-0.026455026	-0.023786579	
18-Apr-11	103.95	19602.23	0.010204082	0.011111157	
11-Apr-11	102.9	19388.82	0.015283537	-0.003322631	
4-Apr-11	101.35	19451.45	0.04376931	0.00159935	
28-Mar-11	97.1	19420.39	0.013569937	0.032140815	

So, first let us look at beta calculation. Now, what is meant by beta factor. Some of you many of you will know, but I will just repeat for. So, by beta we are looking at the relative movement of the company's stock, we service the movement of the market. So, we want know how much risky the company is whether the returns of the Daburs, shares are in tune with the returns on BSE.

If the returns follow exactly the same path, the beta will be 1. Now, here we look at the beta of Dabur. So, we have taken the prices of Dabur for last 4 years, you can see here from 30th June to July 11. The price data for Dabur as well as BSE sense sex is estimated is taken, it is already available. Then, the return is calculated on both Dabur and BSE, based on this the beta is calculated.

Beta is nothing but, the slope. So, we have used the slope function, please have a look at the function, formula which is used. So, we get a data beta of 0.31, what does it convey to you? Beta of one, means the company is as risky as the market. Beta of 0.31 means

relatively the company is less risky. So, the returns on the Dabur stock are more stable, then the returns on BSE.

We will not go much into depth of concepts of beta, etcetera. Please a look at portfolio management books or corporate finance books for the same. But, here you can look at how the beta as been estimated or it has come to 0.31 ((Refer Time: 10:44)). Now, let us go to calculation of cost of capital, many of you will be aware of CAP a model, which is known as Capital Asset Pricing module.

Now, here for CAP a module we need risk free rate of return. So, we have got 10 year government bond written this you can get from RBI site or some other sites. So, it is 8.26 market rate of return. So, we have considered BSE sense sex as a proxy for the market. So, which is 18.60 percent, now once you know these two, we can estimate the cost of equity. So, you can look at the formula it is  $B_3 + \beta(B_4 - B_3)$ .  $B_3$  is the risk free rate of return, which any way any investment has to earn plus. So, it is  $B_3$  plus the risk premium.

Now, to calculate the risk premium, you can look at the formula it is  $B_4 - B_3$ . So,  $B_4$  is a market return,  $B_3$  is a risk pre rate of return. So, usually this is the premium required for any stock market investment 18 minus 8. So, around 10 percent and we multiply this by beta, beta is a riskiness of this particular company. Now, this particular company the beta is less than 1.

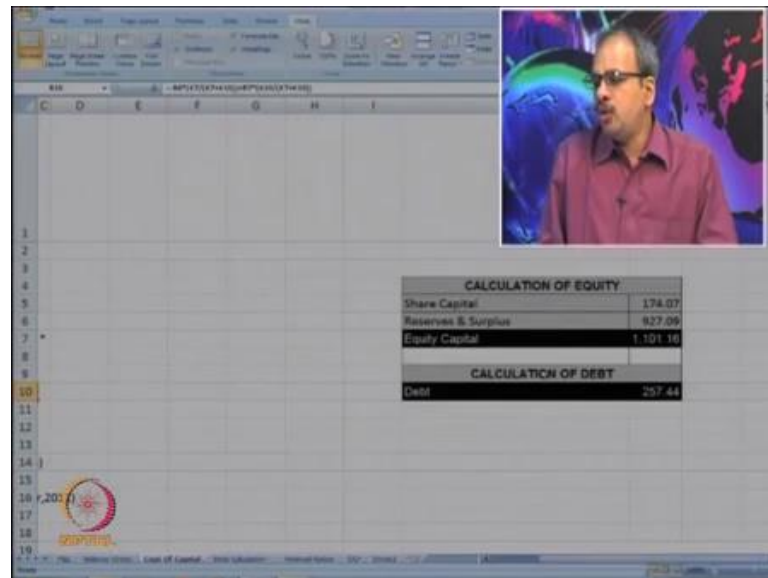
So, it is preserved as less risky than the market. So, the cost of equity comes to 11.46. You can look, it is less than the market rate. If the beta would be one, the cost of expected cost of equity will be same as market 18.6. If the beta is more than one, it will be more than the market. So, in this case it is 11.46 the cost of debt is taken as 9.7. Now, here we have not gone by the actual cost of debt by the company, because we are looking at future projection.

So, we have taken yield on 10 year triple a rated corporate bonds. We know that, Dabur is well established company it has triple a that is it has highest rating. So, the yield for triple a rated corporate bond. This again you can get it from Bloomberg or RBI or various sites. So, it is 9.70, so that has been taken as a proper estimate for Dabur. Then, we have to take a post tax cost of debit. Because, you know that interest is a deductible expenditure for tax calculation.



So, we save on tax when we calculated interest. So, we have calculated post cost of debt, which comes to 7.76 we have use it use the tax rate of 20 percent, which is there in which was estimated from that P and L sheet. So, now we know both, we know cost of equity and we also know cost of debt, with this we can calculate weighted average cost of capital.

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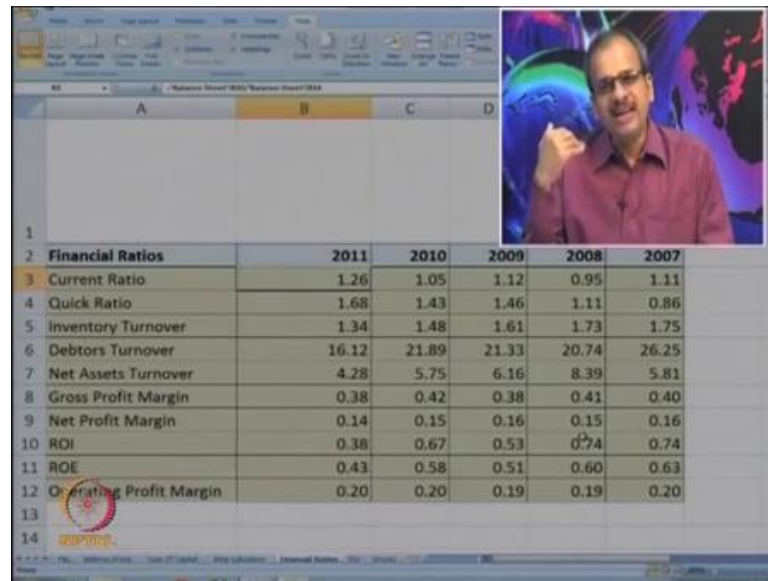
CALCULATION OF EQUITY	
Share Capital	174.07
Reserves & Surplus	927.09
Equity Capital	1,101.16

CALCULATION OF DEBT	
Debt	257.44

You can look at the equity and debt calculation, these are the actuals for March 12. So, the same mix is assume to continue. Now, it may also happen that company repays the date in future, then that will affect the cost of debt. But, for the sake of simplicity we have assume that company will continue with the same wait ages. So, now the waiter average cost of capital is calculated. So, equity and debt is assumed to have remain in the same proportion. We know that the cost of equity is 11.46, the cost of debt is 9.7. So, we get 11.13 as the weighted average cost of capital up to this is it clear.

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The image shows a screenshot of a presentation slide. On the right side, there is a video inset of a man in a purple shirt speaking. The main part of the slide is a table with the following data:

	2011	2010	2009	2008	2007
Financial Ratios					
Current Ratio	1.26	1.05	1.12	0.95	1.11
Quick Ratio	1.68	1.43	1.46	1.11	0.86
Inventory Turnover	1.34	1.48	1.61	1.73	1.75
Debtors Turnover	16.12	21.89	21.33	20.74	26.25
Net Assets Turnover	4.28	5.75	6.16	8.39	5.81
Gross Profit Margin	0.38	0.42	0.38	0.41	0.40
Net Profit Margin	0.14	0.15	0.16	0.15	0.16
ROI	0.38	0.67	0.53	0.74	0.74
ROE	0.43	0.58	0.51	0.60	0.63
Operating Profit Margin	0.20	0.20	0.19	0.19	0.20

Now, before going for DSF calculations, let us also look at the financial ratios. Since, we have already estimated the figures for all these years, we can calculate the estimated ratios. You can look at the ratios, which are calculated for the company, we have current ratio of 1.26, 1.05, 1.12 and so on. I hope you know the formulas now I do not have to repeat.

So, what is a formula of current ratio, do you remember, I think all of you know it, it is  $\frac{\text{Current Assets}}{\text{Current Liabilities}}$ . So, current assets figures are estimated. So, the same figures are used for this thing, right now in this sheet we are not giving estimates, we are taking the past that is from 2007 to 2011. These are exactly not all the ratios are useful for estimating. But, it gives you some idea about the company is it stable, how are the trends.

So, you can see that current ratio is reasonably good, it is more than one, it is remain reasonably constant in a range in 2008 it has go down to 0.98. Now, it is quite healthy, it is 1.26 same way quick ratios is also quite good, inventory turnover, data turnover various ratios have been calculated including ROI, ROE. In our earlier session, we have done number of cases. So, I am not repeating the same, I hope you can calculate the figures. But, please calculate and check with whether they are matching with this figures.

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	2012	2013	2014	2015	2016	2017	
EBITDA	717.77	802.46	897.15	1003.02	1121.37	1196.23	
Depreciation	48.72	52.73	57.06	61.76	66.84	72.83	
EBIT	669.05	749.74	840.09	941.26	1054.54	1093.89	
Tax rate	0.20	0.20	0.20	0.20	0.20	0.20	
EBIT(1-t)	535.07	599.60	671.88	752.77	843.87	874.84	
Change in Non Cash W	78.24	87.47	97.79	109.33	122.23	48.32	
Debtors	23.89	26.71	29.86	33.38	37.32	14.15	
Inventories	54.35	60.76	67.93	75.95	84.91	32.18	
Free Cash Flows to Firm	456.83	512.13	574.07	643.44	721.13	828.52	
Period	0	1	2	3	4	5	
Cost of Capital	11.13%	11.13%	11.13%	11.13%	11.13%	11.13%	
Growth rate	11.8%	11.8%	11.8%	11.8%	11.8%	4%	
Present Value of FCFF	456.83	460.85	464.86	468.88	472.89	7132.71	9456.98
Outstanding Debt							257.44
Equity Value							9,199.52
No. of Shares (in crores)							174.17
							Rs. 52.82

Now, let us go to calculation of DCF the Discounted Cash Flow method as it is called. So, the idea of DCF is we will look at the free cash flows with the company. Now, what is free cash flow? So, we know that EBDITA, Earning Before Interest Depreciation and tax is taken at as cash flow, from that we will reduce the taxes etcetera. We will also look at how much money gets blocked in non cash working capital items. Particularly debtors and inventory, because they are business related.

Here we are not looking at current liabilities, because anywhere they need to be paid. So, what is actually getting blocked in debtors and inventories is calculated. And that is reduced. So, because we want look at the free cash flow, then that available amount will be we will use the growth rate to calculate the present value of the cash flow. We also calculate the terminal value at the end of 5 years, we can estimate for 5 years, future projections will be too much of an estimates.

So, we stop at 5 years and calculate the terminal value. So, based on the value for this 5 years plus the terminal value, you can get the DCF value. This is a very simplified model, we can even have more sophisticated models. But, I have tried to make it a very simple. And I request you to tick real data and do it. So, since this sheet is also shared with you, please put in your data and try to do it for your own company.

Now, we start with EBITA, this EBITA as you know was calculated from P and L, just will go back this is 1 23 from the P and L sheet. So, P and L sheet we had this operating

profit, for calculating the operating profit we had taken total income minus the expenditures, like raw material, power that is without considering interest and depreciation.

So, we had this EBITA figures of 717, 802 etcetera they will be now useful. So, for DCF calculation we start with EBITA, we have also estimated the depreciation. So, EBITA minus depreciation gives me EBITA. Now, this is estimated EBITA and depreciation also has been taken from the estimated figures. We have assumed a tax rate of 20 percent about it is some 20.2. So, whatever is the tax rate of March 11 has been continued.

If you have some information about changes in tax rate, you can incorporate. But, right now we do not have any information. So, will assume that the rate will continue to be about 20 percent, so will get EBIT the estimated profit, before interest and tax which comes to 5.35. So, this is not before tax this is after tax, but this is before interest. So, we get EBIT in to  $1 - t$ , that is after tax EBIT.

Of course, it is hypothetical, actually tax is to be paid only after payment of interest. But, for calculating the DCF value, we take EBIT and deduce the tax. So, we get EBIT in to  $1 - t$ , then we have taken the debtors figures. So, you can see how it is calculated, it is  $1 - 27$  minus  $b - 27$ . So, let us go to balance sheet ((Refer Time: 21:17)). So, this  $1 - 27$  is nothing but, the projected figure of debtors for March 12 minus the projected figure of debtors for March 11.

So, we essentially look at increase in debtors. Because, when there is increase in debtors to that tune, the money gates blocked. So, we are looking at how much is incremental cash, which is blocked in debtors. Same thing is repeated in all these years. So, increase in debtors is taken for every year. So, for DCF we have taken this 23.89, 26.71 and so on for inventory also same method.

So, we look at non cash current assets, mainly data's and inventory, which are required for business. And how much more cash is getting blocked up in these assets. Now, we calculate the free cash flow to the forum FCF as it is popularly known as. So, free cash flow to the forum is  $c_9$  minus  $c_{12}$ . So,  $c_9$  was our EBIT in to  $1 - t$  minus  $3$  minus the total change in non cash working capital items. So, we get to have this 456.83.

Now, what does the this FCFF convey to you? What do you get from this? So, we have started with EBITA, this 7.17. This is our estimated profit before depreciation. We have reduced depreciation to get profit before interest and tax, we have deducted tax at given rate. So, it is estimated that forum will have 535 of EBIT available, we also deduct debtors and inventories.

So, we get three cash flow from the forum, which is 456. As reduce depreciation it is assumed that much amount of cash is to be set aside to replenish it fixed asset. So, that has been taken aside. So, 456 becomes March 12 FCFF same way a calculation is done for future years. For terminal value the calculation is slightly different. So, let bus look at that.

Now, once the growth of 5 years is taken, we go for the stable growth rate. So, we can see that for 2017, we look at EBITA, the calculation up to EBIT change of debtors and all is seen. So, we also get free cash flow for 2017 on words, it is assume that 2017 and all the years coming, it is going to remain constant. So, only difference here is when this 1166. That is sales was estimated will go to P and L figures for more clarity ((Refer Time: 24:37)).

So, this particular sale was estimated and up to 2017, only difference is we are going to apply a different growth rate for 2017 figures. So, up to FCFF it is same. So, the calculation is done for 1 to 5 years and for the 6th year, assuming that it is going to continue. Now, the cost of capital we had worked it out in the WSSC calculation. So, 11.13 is weighted average cost of capital. Keep in mind, this is not just for equity or debt, this is the rated average cost for the company.

Growth rate, you know that we estimated CMI growth rate of 11.8 for first 5 years. And perpetual growth rate is taken as 4 percent, why only 4 percent? We cannot take a very high rate at that time, we go by little modest calculation. So, normally a perpetual growth rate is taken as only a 4 to 5 percent, which is much less than the current growth rate of 11.8 percent.

Now, we have calculated the present value of FCFF. So, you can look at the formula, it is  $c_{16}$ , this  $c_{16}$  nothing but, free cash flow to the forum, which we had calculated divided by  $1 + c_{19}$ . So, we have discounted it at the cost of capital. I hope you know the

concept of present value. Here in, again if you do not it please look at the financial management text books.

So, the idea is to know the current value of the cash flow. So, the cash flow at the end of year 1 is going to be 456 with discounted. So, in the first year we are getting a same figure. In the second year you can see we will get lesser figure. So, we have got 416 in the next year, it is 464 and so why it is deduced?

Because, we are going to receive money after 1 year, the cost of capital for us is 11.13. So, we discount the cash flow at our cost of capital. That is why it is divided by 1 plus 11.13. That is cost of capital and then raise to the power of 1. So, it is for 0, 1, 2, 3 and 4. So, no discounting applies to period 0, period 0 is a first year of estimate. And in the respect coming years, the discounting has been done up to 472.

Now, look at the value current value calculation, which is slightly different in the last year 7.7132 is calculated. So, this is not for 2017, it is for all the remaining years. So, look at the formula it is  $\frac{FCFF}{1 + h}$ , that is FCFF is the base multiplied by 1 plus h. Now, what is h? That is a perpetual growth rate, which is assumed at 4 percent. So, we assume that, this cash flow of 828 is going to now perpetual grow at 4 percent.

So,  $\frac{FCFF}{1 + h}$  in to  $\frac{FCFF}{1 + h}$  this is divided by in to bracket  $1 + h$  minus  $h$ . So, what is  $1 + h$  minus  $h$ ? So, cost of capital is 11.13 and perpetual growth rate is assume to be 4 percent, so  $1 + h$  minus  $h$  in to  $1 + h$ . So, it is and raise to the power of 5. So, since this is in period 5, whatever the value is will be discounted. As if it is received at the end of 5th year have look at that how perpetual growth value is calculated it is  $\frac{FCFF}{1 + h}$  in to  $1 + h$  divided by  $1 + h$  minus  $h$ . So, 11.13 is the cost of capital minus 4 percent.

Otherwise, in all earlier years we only divided it by  $1 + h$ , c 19 whatever. That is we divided it by 11.13. Here, it is difference between cost of capital minus growth rate. So, our cost of capital is 11.3 minus 4. So, this 8.28 divided by 11 minus 4, that is divided by 7 above that will be the present the terminal value. Then of course, it is discounted, because it is at the end of 5 years. So, it is present value is calculated.

So, it is come to 7137 please look at the download the sheet and try to study it more carefully. So, we get the total noun which is 9456 from this, this is the value for the whole forum, this is not the value of equity. We are basically interested in knowing the

value of equity. So, we have calculated the value for the hole form, which is 4596 minus the outstanding date, if you look to at the balance sheet you will realize that the total outstanding date as on to date is 257.

So, now from 9456, 257 is deducted. So, we get 9199 which is the equity value. So, this is the value to the owners of the forum. So, 9199 almost 9200 is the in cores of course, is the value of the forum, the total of all cash flow discounted. So, this is the future value, we have divided it by the number of shares. So, if you look at the balance sheet, you will get the outstanding number of shares it is 178.

So, 9199 up on 174 we get 52.82 which is the future value of this share. So, this is the DCF value as it is popularly known as discounted cash flow value of share comes to 52 rupees. This can be compared with the market value. So, let us look at the market values, we had done the beta calculations ((Refer Time: 31:39)). So, we know that estimated market the market value at that time was around 111.

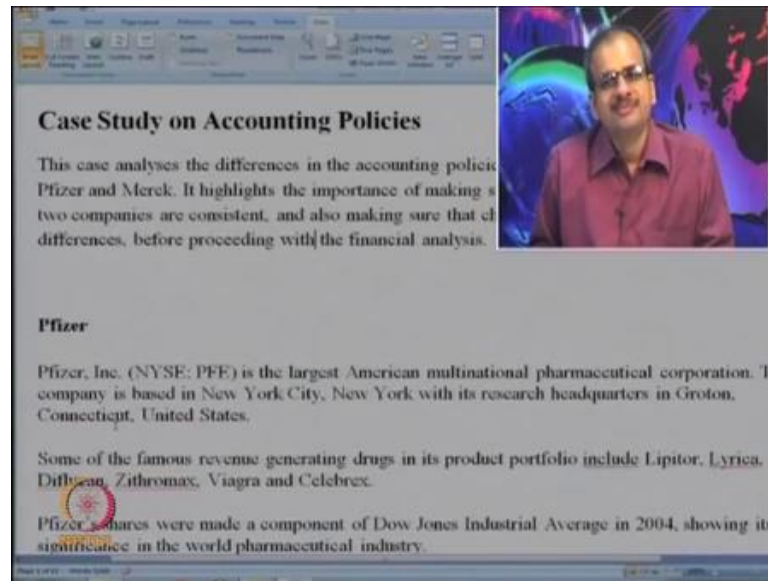
So, now, we look at our DCF values and decide, whether the company is overvalued or undervalued and based on that take our investment decision. So, now the value is to 52.82 I hope it is clear to you, how DCF is calculated. So, will stop here and go to next sum. Now, let us discuss our last case, it is a very interesting case, where in we are going to compare to big multinationals Pfizer and Merck. You must have heard that both this companies are very big forum companies both are US based.

We have studied various ratios, for what the ratios are used? I hope you know that one of the very important advantage of ratios is they can be used for comparison. So, if you are given the data of two companies, you can calculate the ratios and compare the performance of the two companies. Now, here one thing you should keep in mind, that there could be differences in the accounting policies of the company.

So, before we compare we need to look at the accounting policies. If there are any differences, we need to adjust for the differences and then do the comparison. In this case study, we have tried to look at the differences, adjusted the figures and then done the comparison. It is very difficult to explain everything in the form of lecture. But, I will again request you to download the necessary sheets. So, they have been provided in the web course. So, you can download and actually look at what were the differences and how they have been adjusted.



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**Case Study on Accounting Policies**

This case analyses the differences in the accounting policies of Pfizer and Merck. It highlights the importance of making sure that the accounting policies of two companies are consistent, and also making sure that the differences are identified, before proceeding with the financial analysis.

**Pfizer**

Pfizer, Inc. (NYSE: PFE) is the largest American multinational pharmaceutical corporation. The company is based in New York City, New York with its research headquarters in Groton, Connecticut, United States.

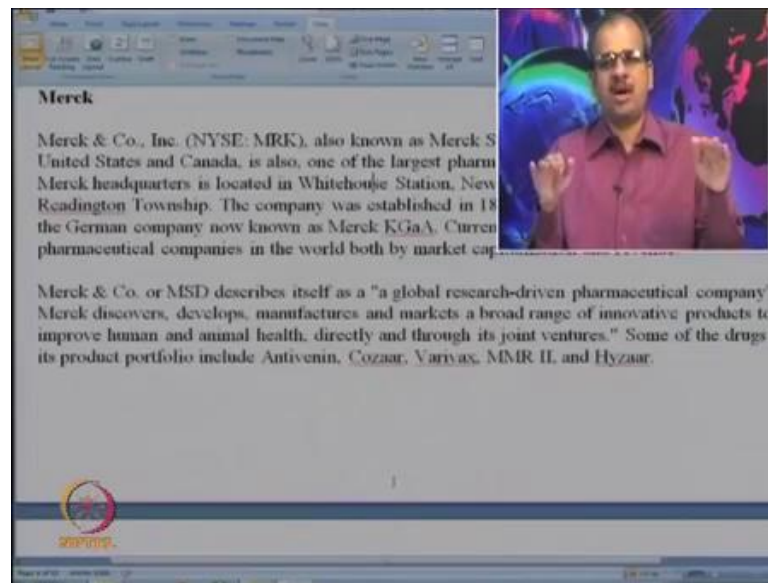
Some of the famous revenue generating drugs in its product portfolio include Lipitor, Lyrica, Diltiazem, Zithromax, Viagra and Celebrex.

Pfizer's shares were made a component of Dow Jones Industrial Average in 2004, showing its significance in the world pharmaceutical industry.

Let us try to discuss it now. So, this is the case study on comparison, but where in accounting policies are also considered. So, if you do not consider this, then it becomes not very meaningful comparison. Because, they might have used different assumptions, they might have used different ratio methods of depreciation, they might have used different methods of inventory valuation.

So, we need to equate the methods, make the necessary adjustments in one of the companies. So, that same policies are there for both the companies, and then the data becomes comparable. So, this is some basic information about Pfizer. So, you might be knowing that Pfizer inc is a largest American multinational pharma company based in New York. Some information about their data bases, manufacturing bases, research and so on.

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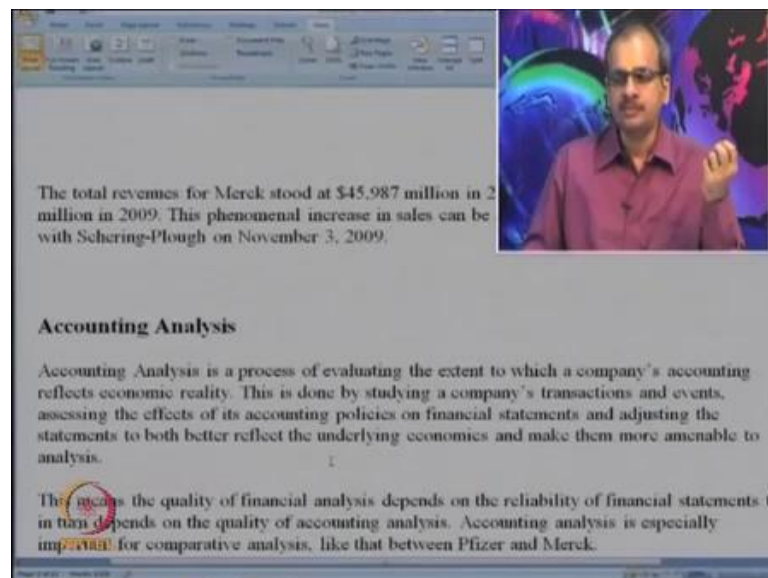
**Merck**

Merck & Co., Inc. (NYSE: MRK), also known as Merck in the United States and Canada, is also, one of the largest pharmaceutical companies in the world both by market capitalization and sales. Merck headquarters is located in Whitehouse Station, New Jersey. The company was established in 1891 as the German company now known as Merck KGaA. Current products include Antivenin, Cozaar, Varivax, MMR II, and Hyzaar.

Merck & Co. or MSD describes itself as a "a global research-driven pharmaceutical company". Merck discovers, develops, manufactures and markets a broad range of innovative products to improve human and animal health, directly and through its joint ventures." Some of the drugs in its product portfolio include Antivenin, Cozaar, Varivax, MMR II, and Hyzaar.

Then Merck; Merck is also an American company, one of the largest pharma companies in the world. Their headquarters are in white house station in New Jersey it is established in 1991. So, one thing you should look at is we should look at compare the peers, which are of reasonable the same size. You cannot compare take a very big company and compare very small company. Then, that comparison of ratios would not be that much useful. So, we have taken companies of reasonable sizes.

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The total revenues for Merck stood at \$45,987 million in 2009. This phenomenal increase in sales can be attributed to the acquisition of Schering-Plough on November 3, 2009.

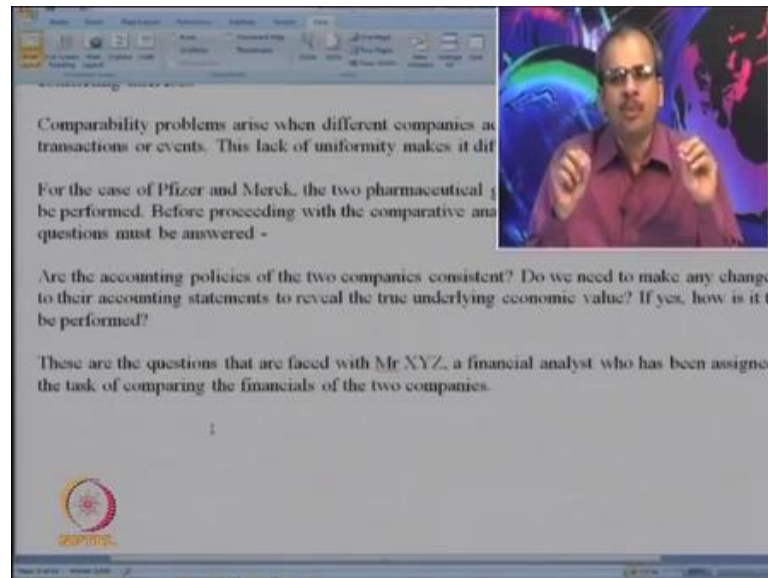
**Accounting Analysis**

Accounting Analysis is a process of evaluating the extent to which a company's accounting reflects economic reality. This is done by studying a company's transactions and events, assessing the effects of its accounting policies on financial statements and adjusting the statements to both better reflect the underlying economics and make them more amenable to analysis.

This means the quality of financial analysis depends on the reliability of financial statements and not on the quality of accounting analysis. Accounting analysis is especially important for comparative analysis, like that between Pfizer and Merck.

So, if you want to analyze a particular company, please look at its peer in the same industry and of reasonable same size. Then, calculate the ratios, then we will know that our target company. How it has pared with its peers? Now, let us look at the accounting analysis. This is process of evaluating to what extent company's accounting reflects the economic reality. So, you can read this I would not go in to it in detail right now.

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Comparability problems arise when different companies use different accounting policies for similar transactions or events. This lack of uniformity makes it difficult to compare financial statements across companies.

For the case of Pfizer and Merck, the two pharmaceutical companies, a comparative analysis can be performed. Before proceeding with the comparative analysis, the following questions must be answered -

Are the accounting policies of the two companies consistent? Do we need to make any changes to their accounting statements to reveal the true underlying economic value? If yes, how is it to be performed?

These are the questions that are faced with Mr. XYZ, a financial analyst who has been assigned the task of comparing the financials of the two companies.

So, what was done was, if there are any differences in the accounting policy, they were identified. I hope you know that, if you look at the annual report of the company, they give a detailed list of accounting policies. So, we need to read both the accounting policies carefully and find out what are the differences.

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**Solution**

For making sure that the accounting policies of the two companies are consistent, we first analyze each company's financial statement and study the key accounting policies. This information is given in the footnotes of the respective financial statements of the two companies.

The comparison of the key accounting policies of Pfizer and Merck, are presented in the following table. (The differences if any, are highlighted)

Pfizer	Merck
<p>1) <b>Expensing Vs Capitalizing –</b> IPR&amp;D acquired after December 31, 2008, as part of a business combination, is capitalized as identifiable intangible Assets. IPR&amp;D acquired as part of an asset acquisition is expensed as incurred.</p> <p>Research and development (R&amp;D) costs are expensed as incurred. These expenses include the costs of the non-research R&amp;D.</p>	<p>For transactions that closed prior to 2009, the fair value of such projects was expensed upon acquisition. For transactions that closed during 2009 and thereafter, the fair value of the research projects were recorded as intangible assets on the Consolidated Balance Sheet rather than expensed.</p> <p>Research and development is expensed as</p>

So, here these differences were found. So, you can look Pfizer the first item is given as expensing verses capitalizing. So, by expensing what we name is, if certain expenditure particularly RND expenditure is incurred is it return of P and L account or it is capitalized and so on. So, you can list first IPR and D, because RND is very big expenditure in pharma sector. So, we need to look at it very carefully. So, the differences are given as to what policies are followed by Pfizer and by Merck.

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connection with certain licensing arrangements.

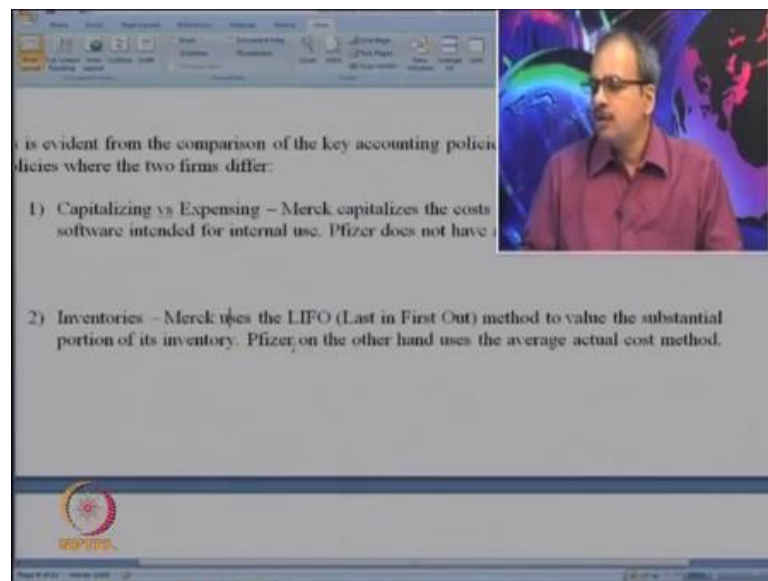
The Company connects use software material employee development included amortized beginning when the software project substantially complete and the asset is ready for its intended use.

The acquisition method of accounting is used.

2) **Acquisition related –**  
As of January 1, 2009, it adopted a new accounting standard that retains the purchase method of accounting for acquisitions but requires a number of changes to that method, including changes in the way assets and liabilities are recognized in purchase accounting. Specifically, they require the capitalization of in-process research and development assets at fair value and require the expensing of transaction costs as incurred.

So, first was expenditure verses capitalizing. Next was acquisition related, because during the last few years, they have acquired new companies. Next is foreign currency translation, revenue recognition, depreciation and amortization, inventories investments, pension and postretirement benefits. So, this is not an exhaustive list and attempt has been made to look at the important items. So, as I said capitalizing of or expensing of R and D becomes a very important item, revenue recognition, investments. So, important items have been identified. So, that the policies those items can be compared.

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So, certain differences were noted which you can read carefully. So, capitalizing verses expensing, you can say Merck capitalizes. The cost related to development of software, intended for internal use, whereas Pfizer does not capitalized. So, they write off to P and L. So, you can visualize that what will happen is Pfizer's profit will get reduced, Merck's profits will be higher, in the first year is this the expenditure incurred.

Suppose both the companies incur the same amount on development of some internal software. That particular year Pfizer's profit will go down, Merck profit will be higher. In the subsequent year, when it is written off the Merck's profit will be lower, the Pfizer's profit will be higher. So, like this you can identify the differences and try to make the adjustments.

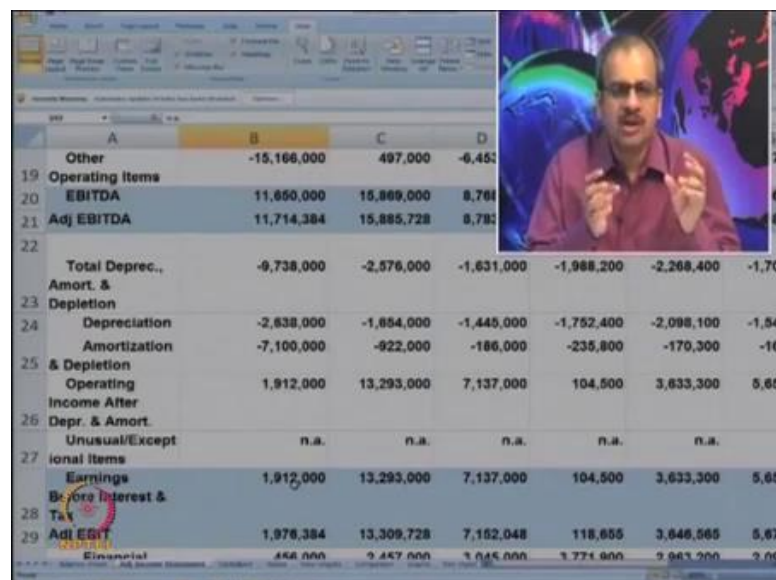
Next is our inventory, you can say Merck uses LIFO that is Last In First Out method. Pfizer on the other hand uses average cost method. So, there is difference in inventory

calculation, like that various differences can be identified. If you know in India LIFO is not allowed, company can either use FIFO or weighted average as per the Indian gap in US they can use LIFO. So, Merck is using LIFO where as Pfizer is using average cost. So, we have to identify the difference, because of this and adjust for it.

So, like this the adjustments have been noted. And based on this now let us go to in to calculation of ratios. Currently the intention is not to teach you the ratios. So, I will not teach you exactly how the ratios are calculated, I hope you know it now. But, more particularly you look at how the adjustments are made, and then the ratios are calculated.

So, now what we have done is we have both Merck data and Pfizer data, we have decided to adjust the Merck data. So, you can take any one company's data and adjust it. So, that both the company's policies are on park. So, this is the balance sheet of Merck. So, it is taken for last 10 years, then balance sheet for Pfizer, income statement for Merck look at it carefully, because adjustments have been made there. So, this is the gross sales and so on.

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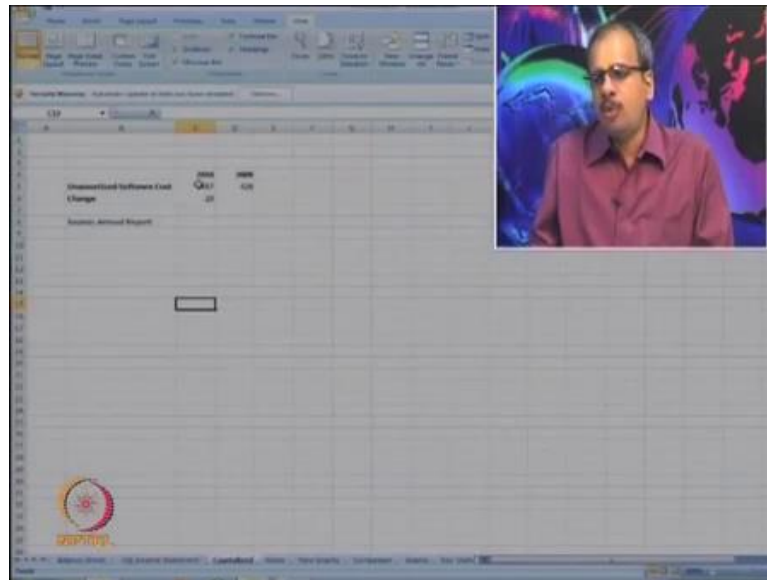
	A	B	C	D	E	F
Other		-15,166,000	497,000	-6,450,000		
19 Operating Items						
20 EBITDA		11,650,000	15,889,000	8,761,000		
21 Adj EBITDA		11,714,384	15,885,728	8,780,000		
22 Total Deprec., Amort. & Depletion		-9,738,000	-2,576,000	-1,631,000	-1,988,200	-2,268,400
23 Depreciation						
24 Depreciation		-2,638,000	-1,854,000	-1,445,000	-1,752,400	-2,098,100
25 Amortization & Depletion						
25 Amortization		-7,100,000	-922,000	-186,000	-235,800	-170,300
26 Operating Income After Depr. & Amort.		1,912,000	13,293,000	7,137,000	104,500	3,633,300
27 Unusual/Exceptional Items		n.a.	n.a.	n.a.	n.a.	n.a.
28 Earnings Before Interest & Tax		1,912,000	13,293,000	7,137,000	104,500	3,633,300
29 Adj EBIT		1,976,384	13,309,728	7,152,048	118,655	3,646,565
Financial		446,000	2,447,000	1,045,000	1,771,800	2,063,200

Now, what has been done is because the R and D expenditure is adjusted, there is some difference in the calculations. We have done EBIT EBITA as per Merck was 11650. It has been adjusted to account for those differences. So, similarly adjustments were made and here we have got the adjusted income statement for Merck. So, please have a look at it carefully. You will have to go in to each individual item to know exactly how the



adjustments are made, but I think it will be self-evident. So, the philosophy is whatever are the Merck policies which are not in tune with Pfizer, then the Merck's in the financial statements are adjusted. So, that they are comparable with Pfizer.

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Here you can see, there is some difference in unamortized software cost, which has been adjusted.

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The image shows a video lecture interface. On the left, a spreadsheet is open to a slide titled 'Before Adjustment for Inventory Valuation Method'. The spreadsheet shows a table with columns for '2010' and '2009'. The presenter, a man in a purple shirt, is visible in a small window on the right side of the screen.

Financial Ratios	2010	2009
Current Ratio	1.85819321	1.81778659
Quick Ratio	1.48302538	1.30324148
Inventory Turnover	7.83691207	3.40805169
Debtors Turnover	6.17440924	4.08397856
Total Assets Turnover	0.43473781	0.24420820
Gross Profit Margin	0.75954074	0.76509406
Net Profit Margin	0.01867919	0.46860872
ROA	0.00812055	0.11443809
ROE	0.01579741	0.21763351
Operating Profit Margin	0.04157697	0.48465072

Now, here are the important ratios for the Merck. So, ratios has been calculated for all these years, we will just look at 2010, the latest year for which it is done. Now, I hope all



of you know that current ratio is current assets on up on current liabilities. So, that calculation is simple. But, look at how the calculation is done before adjustments and after adjustment.

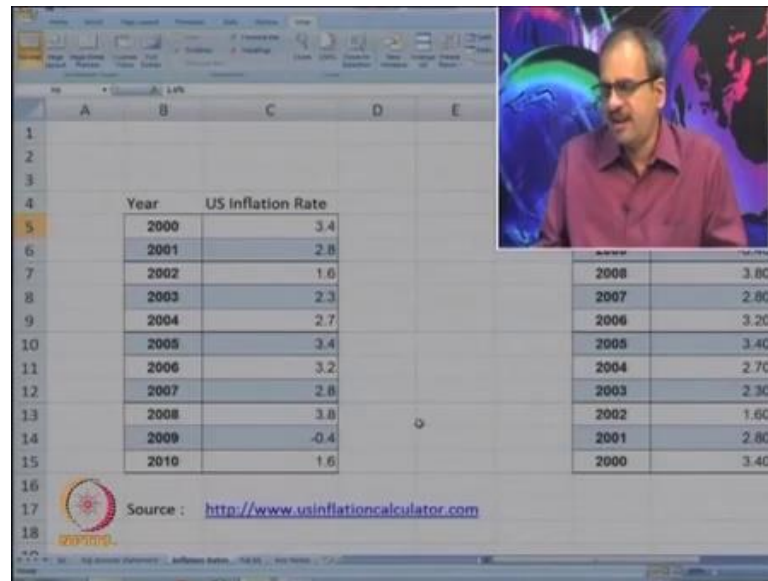
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10	Gross Profit Margin	0.75954074	0.76509406	0.8	
11	Net Profit Margin	0.01867919	0.46860872	0.3	
12	ROA	0.00812055	0.11443809	0.1	
13	ROE	0.01579741	0.21763351	0.4	
14	Operating Profit Margin	0.04157697	0.48465072	0.2	
15					
16					
17	<b>After Adjustment</b>				
18	<b>Financial Ratios</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>	<b>2007</b>
19	Current Ratio	1.86230957	1.81885608	1.33585088	1.22852908
20	Quick Ratio	1.48302538	1.30324148	1.18876714	1.07392603
21	Inventory Turnover	7.75185827	3.40098265	11.32452822	12.76818912
22	Debtors Turnover	6.17440924	4.08397856	8.04059065	na
23	Tota Assets Turnover	0.43447524	0.24417184	0.50518157	0.50031577
24	Gross Profit Margin	0.76094079	0.76570395	0.83492864	0.82897776
25	Net Profit Margin	0.01951080	0.46912814	0.32704482	0.13557358
26		0.00847696	0.11454788	0.16521702	0.06782960

So, what is done in the table below is the adjusted ratios. So, there were some changes in their current assets, after incorporating the changes. The balance sheet figures have changed. So, you can say it is B 14 upon B 77. So, if you go to balance sheet. So, if you are trying to look at current ratio, it is B 14 upon B 77. So, B 14 was the adjusted current assets. So, old current assets was 29064 before adjustment. Adjusted one becomes 29128 divided by B 74, which is the adjusted liabilities?

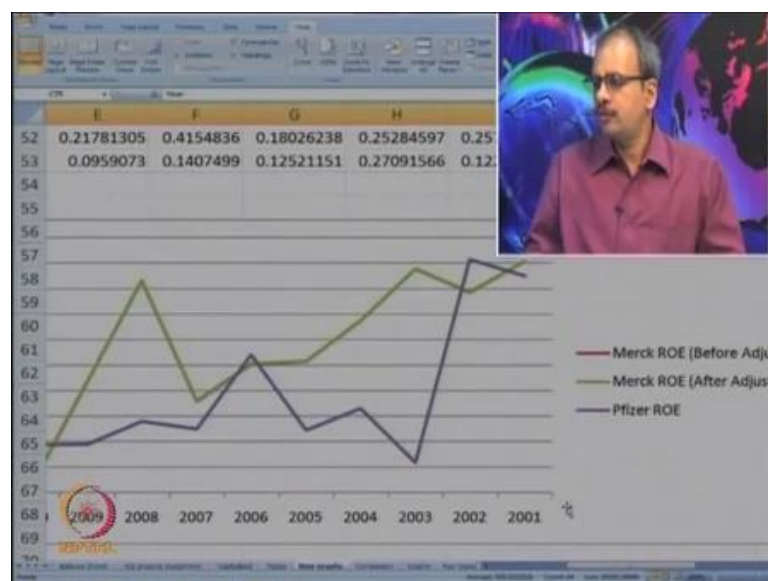
So, B 77 current liabilities, current liabilities there were no adjustments. So, same figure can be taken. So, here are the ratios, now I am not looking at the Pfizer data, though we can look at it. So, we have not done any adjustment to Pfizer. You can do adjustment to any one of them. A few items in Pfizer have also been adjusted like, inventory, you can see is 8.07 here the inventory, turnover after adjustment is 8.16 and so on. So, this is the data for Pfizer, this is the original balance sheet, this is the adjusted balance sheet, this is the adjusted income statement.

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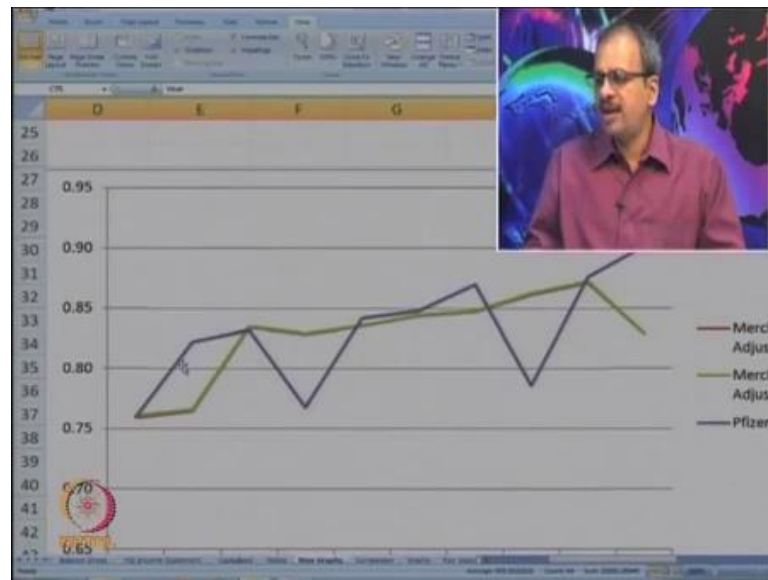
Inflation rates were considered US inflation rates, this you can download from the website. And look at them for making the stock related adjustments. So, we got the adjusted balance sheet and the ratios ((Refer Time: 44:48)). Here in again I am not explaining you the calculation of ratio, they have been dealt with in the earlier sessions. We are just looking at ratios before adjustment and after adjustment is it fine. Now, the purpose of this particular case study is to acquaint you with the fact that accounting policies are different, it is necessary to adjust the financial statements for such policies. And then the comparison is possible. Now, let us look at how does the charge look like.

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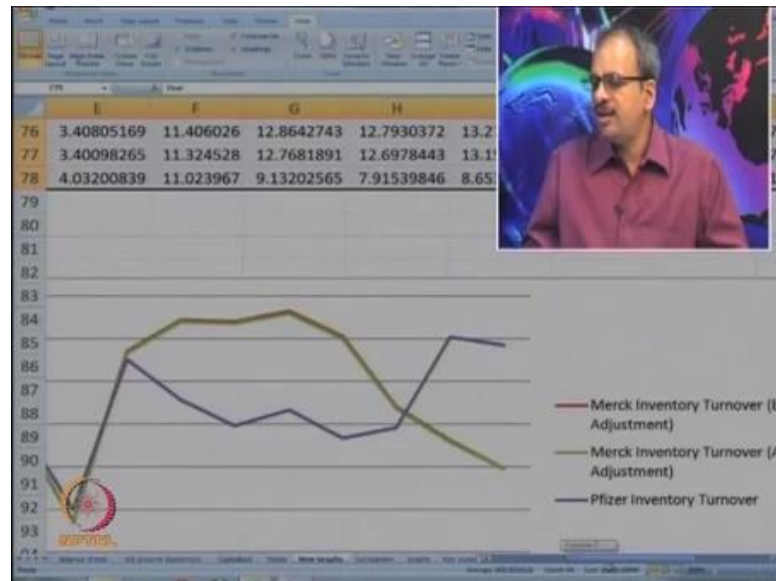
So, here are the few charges. So, you can look at gross profit margin, before adjustments, after adjustments for Merck. We have done adjustments in Merck to match it is policies with Pfizer. So, Pfizer has not been changed. So, here is how the graph will look like for Merck before adjustment is nullified.

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Now, we are only looking at this before adjustment you can see in red. But, we need to compare the one which is in green. So, we are comparing with the blue and green, which is the after adjusted figures, it is not a significant very big difference. But, there are some differences in the ratios, same way here ((Refer Time: 46:30)) ROE has been calculated and compared for Merck before and after adjustments.

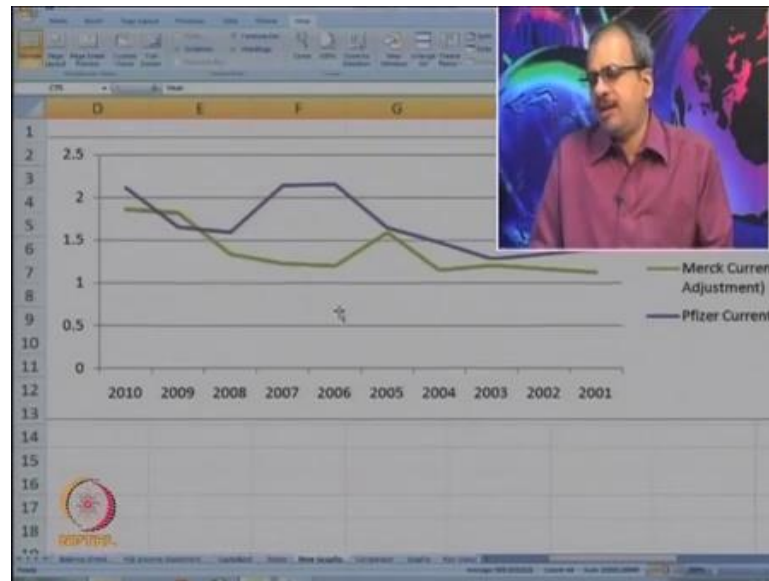
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Inventory turnover ratio has been calculated, where you can see there is some difference. What is a formula for inventory turnover ratio? I think you are right it is a ratio of a turnover to inventory. So, sales upon inventory is tries to measure, how effectively inventory is managed. So, here you can see, the ratio was similar in 2010, but there were differences in 2001.

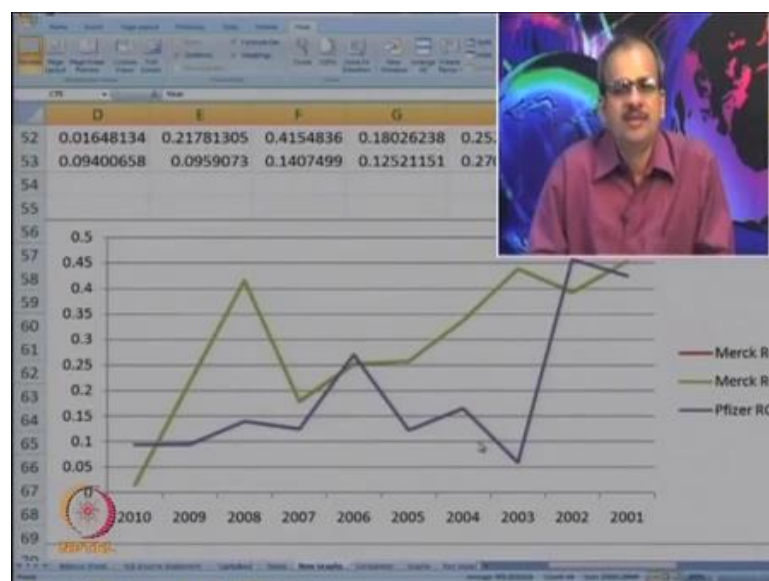
Actually the Pfizer is turnover ratios was much better earlier, where has in Merck it was very low. Then, the Merck improved it went above Pfizer, it went almost to 12 in 2005. But, post 2008 that is after recitation, the ratio has fallen for both the companies. You can see the fall is severe. And now the ratio for both the companies is almost the same. So, Pfizer has actually improved from 6 to 8, both have fallen and after 2009 there is some recovery, they are almost having the similar ratio. So, fairly similar type of ratio, now for ROI you can have some this is about the gross margin before tax. I think will start with current ratio.

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So, these are the current ratios, you can see it was always higher for Pfizer and it has remain pretty similar it came down in 2008. Now, it has again increased, it has usually remain lower for Merck it is slightly increase in 2009. Now, it is more or less stable, this is about there GP margin, you can look at the GP margins there were pretty high margins, in 2001 about 0.9 percent was the margin at that time. And the margin was Pfizer was higher initially, the margin of Merck increased Pfizer went down. Then, they were almost similar, than again Pfizer went down post 2008 both have gone down. So, it is about 0.718. So, almost similar now in 2010 for both the companies.

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Next is return on equity, this is where very interesting. It was almost same about 2001, when it was about 0.4. So, 40 percent very healthy return, than it went down for Pfizer again improved it also went down for Merck. It nearly matched in 2006. Post 2007 it improved significantly for Merck, but after 2008 recitation it has gone down, Pfizer has remained almost same.

So, now it is actually slight much lesser for Merck in 2010. We also looked at inventory turnover ratio, which we have already discussed. We can look at the comparative figures, if you want to look at the numbers. Here are the graphs before adjustment, we already looked at graphs after adjustments, which are more important. And this is some key statics for the company.

So, we stop here about this case. So, the point which you should take home is look at the accounting policies, if there are any major differences. Now, in this case both the companies were operating in the same gap regime. So, both are American companies. So, there were not too big differences. But, I have taken it has case study, because you can understand how the differences need to be analyzed adjusted and then comparison be made.

If you take one Indian company and one American company, there will be fast differences. Those differences will have to be adjusted, and then ratios calculated and compared. So, any whenever you compare the two companies, keep in mind about accounting adjustment, keep in mind there sizes. And they should be also form the almost similar type of industry.

So, with this we will stop our discussion on ratios. We have seen that ratio is relationship between the two figures, one from P and L, one from income statement or from the same figures and so on. And calculation of ratio really gives us much better incite in to the financial statement. The data from the financial statement can be far better understood, if you calculate the relevant ratios.

And today we have seen that, we also need to make adjustments, before the ratio calculation. These ratios are also useful for calculating the value of the company. We have not gone too much detail in to the value. That is a area of corporate finance, but we have seen one case, where in we can we have calculated DCF. That is Discounted Cash Flow valuation of the company.

Thank you so much. So, will stop here.