Decoding the ROE

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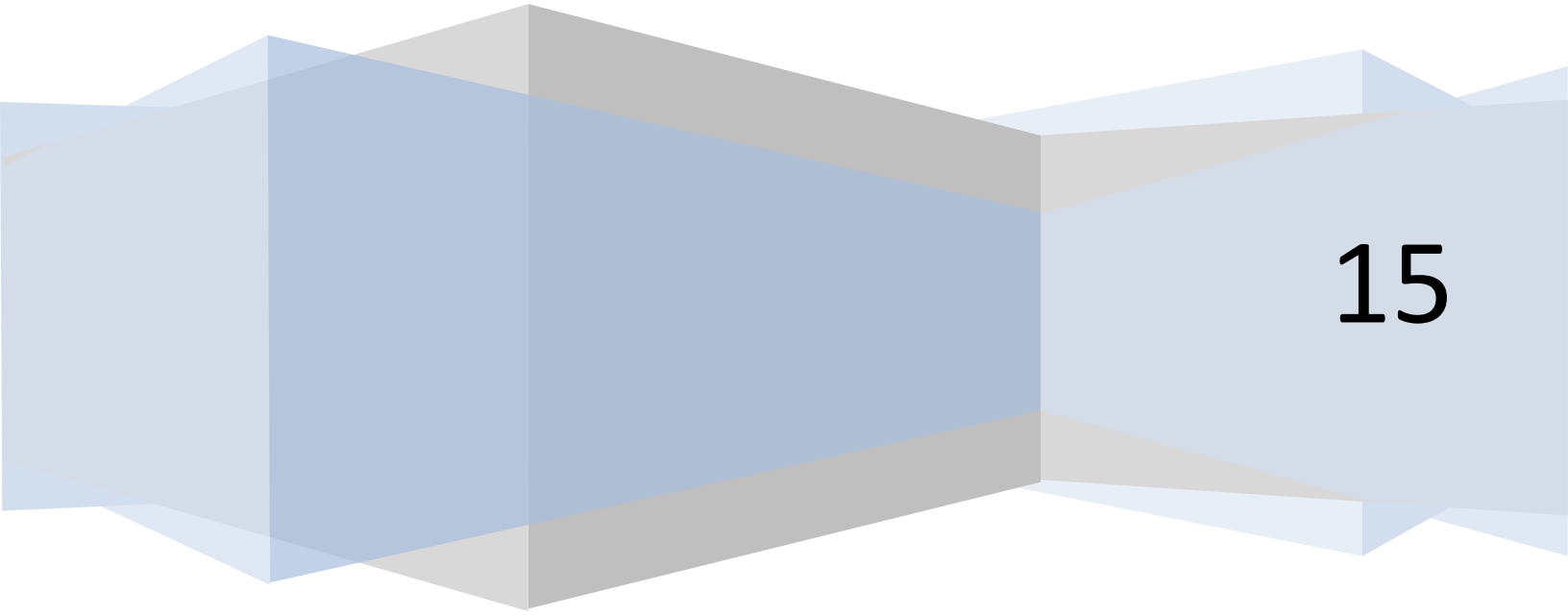

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Decoding the ROE

Below is the definition of ROE taken from investopedia

“The amount of net income returned as a percentage of shareholders equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.

ROE is expressed as a percentage and calculated as:

Return on Equity = Net Income/Shareholder's Equity

Net income is for the full fiscal year (before dividends paid to common stock holders but after dividends to preferred stock.) Shareholder's equity does not include preferred shares.

Also known as "return on net worth" (RONW).”

It is very important to go beyond this formula and understand what really drives the ROE. Investors following the above formula to compute ROE blindly are doing so at their own peril. I was recently going through the book financial statement analysis and security valuation 4E by Stephen Penman and went through the chapter that decodes the ROE. I strongly recommend people wanting to learn financial analysis to buy this book and read it, however if people do not have time to go through nearly 700 pages of text, I would request them to atleast go through the chapter that explains the drivers of ROE. It is by far the best explanations on ROE that I have come across. In this article I am going to summarize my learning and also apply my learning to an Indian company.

According to the author

ROCE = RNOA + FLEV (RNOA- NBC)

Where

ROCE = return on common equity

RNOA= Return on net operating assets

FLEV = Financial leverage

NBC = Net borrowing cost

RNOA-NBC = Operating spread

What the above formula says is that the ROCE is driven by return on net operating assets (RNOA), financial leverage (FLEV) and the spread between RNOA and Net borrowing cost. I am going to further breakdown the RNOA (operating profitability) and leverage.

RNOA and its drivers

RNOA as the name suggests is the return on net operating assets and is calculated as below.

RNOA = NOPAT/net operating assets

Where NOPAT = net operating profit after tax, calculated as EBIT*(1-T).

Drivers of RNOA

There are two drivers of RNOA which are as below.

1. Operating profit margin
2. Asset turnover

Operating profit margin is the profitability measure and is calculated as below

OPM = EBIT/Sales

Indicates what is the operating profit for every 1$ of sales.

Asset turnover also known as capital turnover is the efficiency measure and is calculated as below

Asset turnover = Sales/ NOA

Indicates how much sales does every 1$ of NOA produce. It measures the ability of the NOA to generate sales.

Multiplying OPM with asset turnover results in the RNOA. Firms can have a higher OPM and a lower asset turnover or a lower OPM and higher asset turnover. It is very rare that firms produce higher RNOA'S through higher margins and higher turnovers. As to which of these drivers is high depends in the industry in which the firm operates in. For example retailers have lower margins but higher asset turnovers, likewise manufacturing/capital intensive businesses have higher margins but low turnover. While analyzing a company one needs to check how other firms in the same industry stack up on these two measures and see where the company that they are analyzing stand against the competition in the industry.

Financial Leverage

Financial leverage is the degree to which net operating assets are financed by borrowing with net financial obligations (NFO) or by common equity. Net financial obligation is the difference between financial assets and financial liabilities. The below measure captures financial leverage.

FLEV = NFO/CSE

A closer look at the ROCE formula reveals that there are two things which go into the leverage part

1. Amount of leverage
2. Difference between RNOA and NBC known as the operating spread

If the firm has no leverage then the ROCE is equal to the RNOA. If the firm has leverage then the difference between the ROCE and RNOA is determined by the amount of leverage and the operating spread. If the firm's RNOA is greater than the after tax NBC then the company enjoys a positive spread and is said to have favorable financial leverage. If the spread is negative then leverage will not work for the firm. Financial leverage only works and adds to the ROCE when the firm earns more on its operating assets than it's after tax borrowing costs.

There may be a situation where a company does not have net financial obligations (NFO) but has net financial assets (NFA). In that case the below must be used

ROCE = RNOA – (NFA/CSE*(RNOA-RNFA))

Where

NFA = net financial assets

RNFA = return on net financial assets and is calculated as net financial income/ NFA

In this case if there is positive spread between RNOA and RNFA, it reduces the ROCE. The reason being that shareholder's funds are invested in financial assets and if the financial assets earn less than the operating assets, ROCE is less than the RNOA.

Operating liability leverage

Operating liabilities can lever up the RNOA, just as financial liabilities lever up the ROCE.

OLLEV = OL/NOA

This indicates the amount of operating liabilities for 1$ of NOA

Operating liabilities reduce the investments required in operating assets. Firms have to invest that much less in the business to the extent to which they have operating liabilities. Operating liabilities is like credit extended by counterparties for which the firm do not have to pay any interest. However counterparties may charge extra while selling their goods. Hence one needs to calculate the implied interest on operating liabilities. Below is how operating liability leverage works.

RNOA = ROOA + (OLLEV*OLSPREAD)

ROOA is the return on operating assets, assuming that the firm has no operating liabilities and is calculated as shown below

ROOA = OI+ Implied interest/ operating assets

Implied interest = operating liabilities*short term interest rate after tax

Operating leverage spread = ROOA- short term interest rate after tax

The formula works the same way as it was for ROCE which was discussed in the earlier section. ROOA is the unlevered return and return generated from operating liability leverage is added to this.

Understanding ROE drivers of Balkrishna Industries

I have analyzed the ROCE drivers of Balkrishna Industries from FY09 and below are my findings.

RNOA analysis

Operating profits of the company currently stand at 19%.Operating profitability is on the rise since FY09, when it was 11%. The major driver for operating profitability to increase is due to decrease in raw material costs. The major raw material for the company is rubber and prices of rubber have been falling since a few years. RM costs as % of sales have fallen from 68% in FY09 to 49% in FY14, resulting in higher gross margins for the company. Gross margins stood at 52% in FY14.

Asset turnover stands at 0.93 in FY14, it is down from 1.20 in FY09. This ratio indicates that for 1 RE of net operating assets the company has generated 0.93 of sales. The reason for the decline is that the company has finished capacity expansion at Bhuj Gujarat. The assets have been brought to the balance sheet, however sales need to kick in. I believe this ratio should move up in the coming years, as sales will also happen from the bhuj plant.

Tax rate of the company varies from 33-36%. I have calculated the tax rate by dividing the tax expenses by earnings before tax to get the tax rate. Below is RNOA computed for Balkrishna Industries from FY09.

Balkrishna Industries						
ROE Break up						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
	FY09	FY10	FY11	FY12	FY13	FY14
Operating profit margins	11%	22%	14%	14%	17%	19%
Asset turnover	1.20	1.11	1.18	1.15	1.00	0.93
Tax	36%	34%	32%	33%	34%	33%
RNOA	8.37%	16.28%	11.30%	11.03%	10.86%	12.21%

Leverage analysis

Financial leverage as explained in the earlier section indicates the extent to which net operating assets are financed by borrowing. The financial leverage of the company stood at 1.13 in FY14, meaning that for every 1 RE of net operating assets there is 1.13 of net financial obligations. In this case debt is playing a major role in financing the assets as compared to equity. This is also evident in the common size balance sheet that I have prepared where liabilities constitute 62% of the total equity and liabilities. There is fluctuation in the FLEV ratio since FY09, it has not been consistent. The management in their concalls has indicated that they will retire all debt in the next 2-3 years and the company will be debt free. Investors need to closely watch if the management walks the talk.

For calculating the net borrowing cost I have used the below formula

NBC = Net financial expenses (after tax)/ net financial obligations

On close observation one can see that the interest expense reported by the company in the income statement is minuscule when compared to the debt that they have on the balance sheet. The company has reported a pretax interest expense of 27 Cr on a debt of 2400 Cr. This works out to only 1% on total debt. On checking under the cash flow from financing activities, the company has reported 28 Cr of finance cost. I believe the company is capitalizing the interest cost and adding it to the cost of PP&E. The management has clarified in their concalls that interest on their debt is 3% as it has not been borrowed in India. However interest even at 3% comes up to 72 Cr. While this needs further investigation, I have assumed a NBC of 3% while calculating the operating spread.

Balkrishna Industries						
ROE Break up						
	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
	FY09	FY10	FY11	FY12	FY13	FY14
Net financial obligations	690.73	729.36	994.77	1508.68	1944.8	2140.92
CSE	478.81	681.26	861.34	1110.03	1442.69	1894.98
FLEV	1.44	1.07	1.15	1.36	1.35	1.13
Interest expenses	38.35	19.32	22.33	29.19	27.36	27.27
Tax	36%	34%	32%	33%	34%	33%
Net financial expenses	24.60	12.83	15.08	19.63	17.94	18.33
Net financial obligations	690.73	729.36	994.77	1508.68	1944.8	2140.92
Net borrowing cost	4%	2%	2%	1%	1%	1%
Borrowing cost assumed	3%	3%	3%	3%	3%	3%
ROCE	16%	31%	21%	22%	21%	23%

In case of the company financial leverage is working for the company as operating spread is positive. The difference between ROCE and RNOA shows how much leverage is contributing to the ROCE. In FY14 the ROCE as calculated above is 23%, the RNOA for the same period is 12.21%. Leverage in this contributes 10.79% to the ROCE.

It is very important for an investor to carry on this exercise while analyzing the ROE, it may be a lengthy process but carrying out this extensive exercise will give a very good idea to the investor as to what is driving the ROE of a firm.