

FIRST GLOBAL FINANCE
India Research



Valuation Thoughts

“...HLL should get 50x”

“...ICICI should get 3x” “...Telco should get...”

The much abused P/E Multiple

Trying to make sense out of

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Understanding determinants of the P/E multiple is really crucial now, since most investors and analysts have not been very wrong on earnings forecasts, but have often been completely off on the P/E multiple forecast.

Why exert yourself with esoteric techniques when P/Es are easily available and accessible?

This is a question, articulated or not, that is often on the mind when we talk of valuing companies on the basis of discounted cash flows. The logic is that P/E ratios are easy to understand & deal with.

However, if we stop and think, we are really evaluating companies in terms of : 15x prospective looks ok for , say, MTNL or Telco but looks too high for Reliance. By analysing companies in this way, we are still making a whole lot of assumptions except that we are not explicitly articulating them.

Growth is only a partial determinant of the P/E Multiple

Often growth in earnings is cited as an important determinant of the P/E. But this also gives only part of the picture because it leaves out ***an important factor, which is – the investment required to achieve this growth.*** To give an example, if two companies in the same industry have similar earnings and growth prospects but one has an annual capex requirement that is significantly higher than that of the other company, the two would, and should, be valued differently.

To give a simple example of two companies in the same industry,

Rs. mn	Year	1	2	3	4	5
<i>Company 1</i>						
Net Income		100	110	121	133	146
Less : Net Investment		30	33	36	40	44
Cash to/(from) shareholders		77	77	85	93	102
<i>Company 2</i>						
Net Income		100	110	121	133	146
Less : Net Investment		50	55	60.5	66.5	73.2
Cash to/(from) shareholders		50	55	60.5	66.5	73.2

It is intuitively obvious that Company 1 should be valued higher than Company 2 even though both have exactly the same income stream.

In fact, higher growth may result in depletion of investor/shareholder wealth if the earnings from the incremental investment do not cover the marginal cost of capital.

A prime case in point is HDFC, which earns only 16% on equity while having a cost of equity of around 20-22%. Faster growth at the same ROE will only serve to destroy Economic Value faster!



Cost of equity is an important driver of the P/E Multiple

The other factor which would influence valuation is the cost of equity capital for a particular company implicit in which is a return expectation. This, in turn, is influenced by a perception of the riskiness of the company's earnings (this takes into account a whole gamut of factors from industry cyclicality to management quality to leverage).

The way to factor in all these variables into your valuation model is to actually project cash flows for the company & discount them to the present. But for those looking for short-cuts, there is a quick (though simplified) back-of-the-envelope calculation:

$$P/E = \frac{1 - g/r}{k - g}$$

Where g = the long term growth rate in earnings and cash flow

r = the rate of return earned on new investment (incremental network)

k = discount rate (cost of equity capital)

The simplifying assumption here, of course, is that the g and r are known and remain constant, for the rest of the life of the company. The mathematically inclined can derive this formula from the Terminal Value calculation in Discounted Cash Flow (DCF) analysis.

Going back to our earlier example, if we assume that our discount rate is 20%.

For Company 1

$$g = 10\%$$

$$r = 33.3\%$$

$$\text{Hence, } P/E = \frac{(1 - 10\%/33.3\%)}{(20\% - 10\%)} = 7x$$

Value of the company = 7 x Earnings = Rs. 700 mn

For Company 2

$$g = 10\%$$

$$r = 20\%$$

$$\text{Hence, } P/E = \frac{(1 - 10\%/20\%)}{(20\% - 10\%)} = 5x$$

Value of the company = 5 x Earnings = Rs. 500 mn



Let us say, Company 1 can increase its earnings growth rate from 10% to 14% but with a decline in r to 22%. From the conventional view-point the extra growth would be very welcome but let us see what happens to the P/E,

$$P/E = \frac{(1-14\%/22\%)}{(20\% - 14\%)} = 6x$$

With additional growth, the value of the company actually declines by Rs.100 mn to Rs. 600 mn!

To think of a real-life example, TISCO earns a return on incremental equity of at most 12-13% while its cost of equity would be estimated at a minimum of 19-20%. If this ratio were to remain unchanged indefinitely, the stock would have a negative value as incremental growth would deplete shareholder value. In fact, you would not want to buy the stock at any price unless you could foresee an improvement in returns!

If you earn only your cost of capital, growth is irrelevant

In the trivial case when the return on equity capital equals its cost, the growth rate becomes irrelevant for valuation as the P/E reduces to $1/r$. This is because, the company is not adding any economic value by the additional growth. The net effect will be the same as in the case when earnings remain flat.

Upper limit of P/E

Interestingly, this P/E formula also gives an upper limit of possible values, given a growth rate. Theoretically, r can at most be infinity; which implies that the growth in earnings is possible without any incremental investments. Even with this assumption, the P/E estimate is $1/(k - g)$. This, then, is the theoretical maximum for the P/E.

Is it only a theoretical exercise?

You may think that what we've discussed is a purely theoretical formula - after all who can estimate what the return on net worth or growth in earnings would be 10 years hence. The point is that, like it or not, you are, in any case, implicitly making all these assumptions every time you put a multiple on current earnings, because you are valuing it as a going concern. ***For instance, let us take the case of Hindustan Lever. Being a well-managed company with a stable business, let us say, return expectations from the company are around 18% which is used as a discount rate.. Now suppose you think that the long-term growth in earnings for HLL will be 14%. In this case the maximum possible P/E multiple will be $1/(18\% - 14\%) = 25x$ which is far lower than the current P/E. Mind you, this calculation assumes that the earnings can grow indefinitely with no incremental investment which is clearly impossible, so the P/E should be even lower.***

Do cross-country P/E comparisons make sense?

We often see P/E comparisons across markets where stocks are classified as 'expensive or cheap' on a straight P/E basis. The usual logic goes something like this- this particular steel or telecom stock is available at a P/E of 10x historical earnings compared to a P/E of 16x for similar companies in the region, and therefore looks attractive. This logic is fundamentally flawed even if the companies have similar growth rates and return ratios. The reason is that the cost of equity capital will vary from one economy to the other.



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For instance, let us look at Cadbury India and Cadbury Schweppes, both of which have had similar RONW for the last couple of years. Cost of equity for Cadbury Schweppes is estimated at around 12% (5.5 percent points above the risk-free rate in Britain). Its sustainable growth rate in earnings is assumed to be 7% (consensus estimates are 10% earnings growth for the next 2 years).

Hence,

$$\begin{aligned}g &= 7\% \\r &= 24\% \\k &= 12\% \\P/E &= \frac{(1-7\%/24\%)}{(12\%-7\%)} = 14.2x\end{aligned}$$

Cadbury Schweppes

Current P/E for the company is in the same range

Now, for Cadbury India, let us assume a growth rate of 14%. The equity discount rate will be around 19% in India (assuming the same differential from the risk-free rate). Therefore,

$$\begin{aligned}g &= 14\% \\r &= 24\% \\k &= 19\% \\P/E &= \frac{(1-14\%/24\%)}{(19\%-7\%)} = 8.3x\end{aligned}$$

Cadbury India

This, incidentally, is about a third of the current P/E on the stock

Thus, comparing P/E multiples across markets, even on a growth-adjusted basis, can be quite misleading. And no, we are not saying this because we are a local house with no world-wide, cross-country research! Truth is, there is no financial basis for comparing valuations across markets, unless one adjusts all these drivers of the P/E ratio, ie in effect does a DCF analysis.

Keynes said, 'I would rather be vaguely right than precisely wrong'

Basically, the beauty of this formula is that it forces you to explicitly think about & question your assumptions. It is not magic, it is not even exact but it does give you a range of possible multiples given various scenarios. It is, therefore, infinitely better than theorising about what P/E multiple a stock should get, without really knowing why...



Post Script

Further refinements of this formula are possible. A variation is a 2- stage formula which allows you to break up the future in to two periods with varying growth and return assumptions. In this case,

$$P/E = \left(\frac{1 - gA/rA}{k - gA} \right) \times \left[1 - \left(\frac{1+gA}{1+k} \right)^{N-1} \right] + \left(\frac{1+gA}{1+k} \right)^{N-1} \times \left(\frac{1 - gB/rB}{k - gB} \right)$$

Where	k	=	Discount rate = Cost of equity
	N	=	Number of years in the first period
	gA	=	Expected earnings growth in the first period
	gB	=	Expected earnings growth in the second period
	rA	=	Return on incremental networth in first period
	rB	=	Return on incremental networth in second period

Wartsila is a good illustration

For example, let us look at a company like Wartsila Diesel which provides back-up power generators to industry. This is an industry which is currently doing well due to power scarcity in the economy. Let us assume that the scarcity lasts long enough for Wartsila to compound earnings at 18% pa for the next 10 years. Thereafter, the growth slows to 10% pa which lasts to infinity. As this is not a very capital intensive business and as part of the growth will come through imports from the parent, we have assumed a very high return on incremental Net Worth - 60% of the first 10 years and 40% thereafter. Using an equity discount rate of 19%, we have,

k	=	19.00%
N	=	10
gA	=	18.00%
gB	=	10.00%
rA	=	60.00%
rB	=	40.00%
P/E	=	12.84x

Therefore, it is our view that a ratio somewhere around this would be the most equitable multiple for the stock. The present multiple is more than twice this figure!