

**FIRST GLOBAL**  
**India Research**



**Valuation Thoughts**

***The Fallacies in Cross-Country comparisons and Other Stories***

- *Does a telephone line in Hong Kong and Delhi have the same earning capacity?*
- *Is the EV/EBIDTA multiple comparable across companies and countries?*
- *The problem with the P/E / Earnings Growth Ratio*
- *What's so great about EVA?*
- *Terminal Value – using the Terminal EBIDTA multiple can be highly misleading*

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## *The amazingly insular Indian market*

There is an inherent beauty about the Indian stockmarket. What is it? It is our market's scant regard for all accepted valuation norms that one is used to. You can say – “*Why pay 10x EBIDTA for Company x when similar companies elsewhere are available for 6x?*” Well, you can crib all you want, but the truth is, you'll have to forget all norms of how much you want to pay for tobacco companies, FMCG companies, telecom companies, auto companies, cosmetic companies, and plunge in, buying companies at Price/BVs ranging from 11x-32x! And then sit back and watch these stocks beat the – out of the market, through multiple expansion alone!

But this seeming irrationality helps a few people – lowly local houses, for one. Because we don't know how stocks are valued elsewhere, we can't publish international comparisons! And that's just as well – if you did that, you'd never buy a single stock in India! No sir, this market won't ever give you HLL for less 20x Book Value, you take that from us.

But let's get to the point. Our competitors still put out international comparisons. But we don't. Apart from ours not knowing the numbers, *the bigger reason is that international, cross-country comparisons, in the way they are done, are completely flawed, conceptually and theoretically.* We wish to discuss in this piece, issues such as these. That apart, there's plenty more meat in this piece.

The objective of all this, of course, is not to contribute to better understanding of how securities are valued differently in different markets – but to neutralise, once and for all, our competition's rather unjust advantage with regard to international comparisons! Truth is, simplistic, surface-scratching, superficial, and outwardly straight-forward cross-company, cross-regional comparisons just don't work. There is a way, but it's far from easy...



# The Enterprise Value per unit theory

- *For instance, \$EV/line - in telecom companies; \$EV/tonne in cement companies*

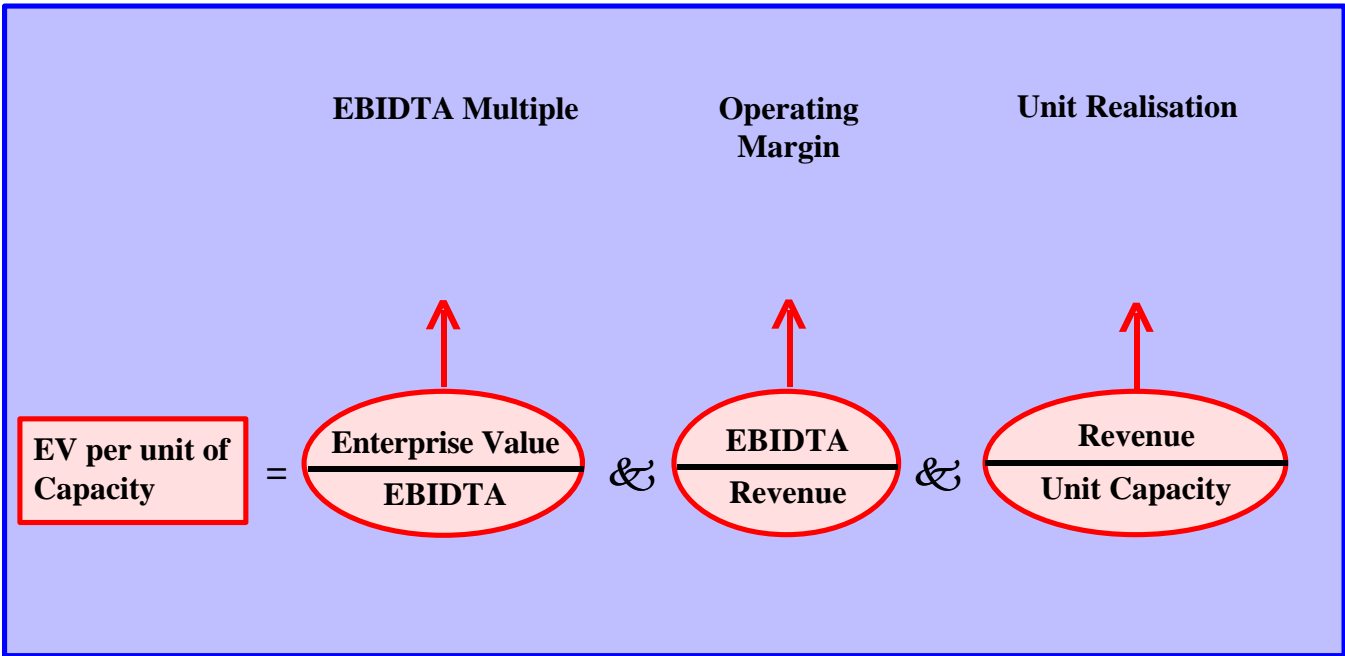
One of the valuation tools that is used by some investors to evaluate/compare companies within an industry, even across countries, is Enterprise Value per unit of capacity. The logic being that if you can get the same capacity at a lower price, you are better off. However, this argument suffers from major fallacies, as the implicit assumptions are -

- The earning capacity of that unit of capacity is the same across companies (countries) or can at least be equated after making some changes

e.g. modernisation, management improvements etc.

- The same level of earnings should command the same valuation (This is a critical and unfortunately, fallacious assumption especially in cross-country comparisons).

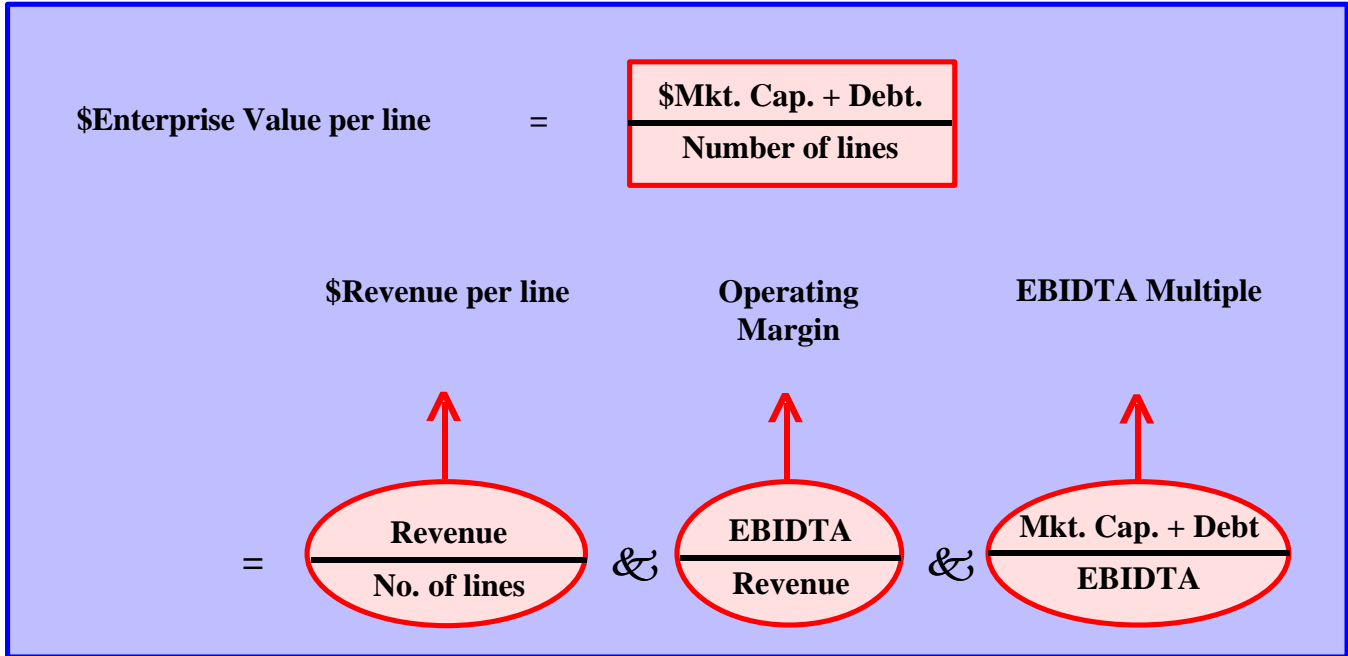
To understand what we are really comparing when we talk of EV per unit capacity, let us break up the ratio :





● *Dissecting the concept of \$Enterprise Value/Line*

Adapting the \$EV/unit capacity ratio for telecom companies



● *Does a telephone line in Hong Kong and Delhi have the same earning capacity?*

In telecom services, a study of service providers across the region sometime back, showed that MTNL was ‘cheaper’ on a EV per line basis. However, interpreting this result becomes a problem unless we understand the underlying causes for this difference. In this particular industry, revenue per line can differ widely across countries. *For example, the revenue per line for Hong Kong Telecom is US \$1208 and for MTNL it is Rs.14501 (US\$ 397). Unlike petrochemicals or steel where realisations (adjusted for tariffs and freight) can be expected*

*In this particular industry, revenue per line can differ widely across countries*

*to converge, local telecom services are non-traded and non-tradable services (at least for the present) and differences in realisations per line might continue indefinitely into the future. Similarly, OPM differences could well be maintained.* As is clear, to really compare similar companies across countries (or even within the same country), one has to strip away layers and then analyse the value drivers, rather than do things superficially.



● ***Will you pay the same for a McDonald's outlet in Mumbai and in Manhattan?***

Let us say, you have a choice of buying a McDonald's outlet in India and in the US. In good old Mumbai, the real estate are a fair bit higher than those in Manhattan (even unadjusted for quality). The other costs are also likely to be higher, especially if one has to import stuff. Coming to the running costs, the staff salaries may be lower but raw material costs are not likely to be that different. On the realisations end, the per burger price and therefore the per square foot earning capacity of

the Mumbai outlet will be significantly lower than the dollar-earning one – as would doubtlessly show up on The Economist's Big Mac Index. The reason – the low purchasing power in our economy. In a nutshell, your revenue per square foot and your OPM in the two outlets are likely to be very different (not to mention your cost of capital). Financially speaking, the Manhattan outlet will probably be much more valuable and should be priced accordingly.

● ***The fallacy in ONGC's "cheap" valuation***

Another very common example given is that ONGC's Enterprise value per unit of oil in the ground is the lowest in the region/world. ***But the real issue is: is the earning capacity of ONGC the same as that of any oil producer in the world? Not if ONGC continues to get about \$7.5 per barrel against an international price of \$20 or so.*** In this case, why should ONGC's valuation converge to that of global oil companies? (unless you take the bet that ONGC will start to get market price for its oil - a move that'll virtually bankrupt either the government or the Indian consumer!)

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***the real issue is: is the earning capacity of ONGC the same as that of any oil producer in the world? Not if ONGC continues to get about \$7.5 per barrel against an international price of \$20 or so***

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***The less intuitive part, of course, is that even if the earning capacity of the lines and the oil reserves were exactly the same ie the unit realisation and OPM did converge, you still would not pay the same multiple for those earnings in different countries with different costs of capital. This matter of the EV/EBIDTA multiple is dealt with separately a little later.***

This was in the context of cross-country comparisons. Comparisons within the same country seem less fraught with danger, don't they? However, appearances can be deceptive.



*EV per tonne comparisons within the same sector  
in the same country –  
they don't make much sense either*

The big question here is :

*Are unit realisations and OPM within an industry  
likely to converge?*

For instance, if we look at the Cement sector we find that Madras Cement and Gujarat Ambuja Cement have an EV per tonne ratio which is

much higher than that of players like ACC and India Cements.

	ACC	Gujarat Ambuja Cements	India Cements	Madras Cements
EV per tonne (Rs.)	3093	7418	4475	7150
EV/EBIDTA (x)	12.1	10.6	7.2	9.7
OPM (%)	11.3	35.9	21.0	33.6
Realisation (Rs./tonne) (From sale of Cement)	1885	1941	2449	2143

● *Realisation differences may persist....*

The first reaction, therefore, can be that the former are frightfully expensive. However, this is probably not the case at all, as the higher ratio is because of higher unit realisations and/or and OPM for these companies. In fact EV/EBIDTA for Gujarat Ambuja and Madras Cements is actually lower than that for ACC. The second question to be answered in this context is whether these differences are

sustainable. In a regional business like Cement, differences in unit realisation can persist over the years as hefty freight costs (relative to realisations) and infrastructure constraints make haulage over long distances uneconomical. To give an example of adjoining states, the realisations in A.P. were Rs.120/bag on the average against Rs. 156/bag in Tamil Nadu, in FY97.



● ***... and OPM variations may be derived out of differing asset intensities***

Even without such problems of market access, assuming convergence of operating margins can be misleading. *For example, in the 2-wheeler industry, OPM for Bajaj Auto at 23-24% is roughly thrice that of Hero Honda but margin convergence is not likely as a 100,000 vehicle capacity in both the companies does not mean the same thing. While for Hero Honda manufacturing means, by and large, assembly of components produced by its team of ancillaries, Bajaj Auto will probably be manufacturing many of those components in-house. Similarly, part of the reason for Gujarat Ambuja Cement's high OPM is the fact that it has made higher investments in captive power plants, ships etc than some of its competitors.*

The other argument often bandied about is that if, say, Gujarat Ambuja has an OPM of 36% there is greater likelihood of it going down rather than up whereas say, ACC with an OPM of 12% can bump it up by a

couple of percentage points relatively easily. However, this is misleading. The key to look at what ACC will need to spend in order to get the OPM up – and after this, even if OPM does go up, Capital Employed will stand increased, diluting the beneficial effect of an

OPM increase on the EV/tonne ratio. There is no free lunch, as they say.

Margin improvements that depend on better management are even dicier to bet on, if one is waiting for a takeover of inefficient corporates. Regardless of the change in laws, quick, and easy takeovers are still some way off simply

because of the problems involved in actually accessing funds for takeovers and the fairly wide ranging powers with company boards for blocking transfer of shares.

Other than the earning capacity difference encapsulated in the unit realisation and OPM, the other differentiator of EV/tonne is the EBIDTA multiple.

***OPM for Bajaj Auto at 23-24% is roughly thrice that of Hero Honda but margin convergence is not likely as a 100,000 vehicle capacity in both the companies does not mean the same thing***





## *Is the P/E or EV/EBIDTA multiple comparable across companies or countries?*

The EV/EBIDTA multiple is supposed to be a tool superior to the P/E as it eliminates difference in capital structure as well as distortions due to difference in depreciation and tax laws. While this argument has its merits it does not really eliminate the inherent problems of using an earnings multiple.

An earnings multiple (P/E or EV/EBIDTA) is comparable across companies only after adjusting for the Cost of Capital, the earnings growth and the return on capital. Without these adjustments, to classify companies as cheap or expensive can lead to totally erroneous conclusions.

### **● *Interest rate differentials make a big difference in cross-country valuation***

One still reads financial analysts' arguments which go something like this – ‘*Singapore Telecom appears expensive on a P/E or EBIDTA multiple basis compared to other regional telecom plays and therefore a correction is anticipated.*’

Of course, if one goes to the financial indicators page of the same journal, one may find interest rates listed something like this – ‘Singapore 3.4%, Thailand 11.5% Indonesia 14%, Malaysia 7.3%, Philippines 11.8%....’ (we are talking a few months back) which should indicate why earnings multiples are likely to be higher in Singapore. Just recently, a report from one of the foreign houses esteemed for its international research was quoted as saying – “*The EV per EBIDTA and P/E ratios for Latin American telecom companies are substantially lower than those for Asian telecom companies. Hence the Latin American companies appear cheaper and better investment bets.*” Of course, there is no mention of interest rates in the

different economies, no adjustment for the fact that P/E ratios are only inverses of earning yields and therefore the same P/E ratio can have different meanings in various contexts. ***For instance, a P/E of 20x (ie an earnings yield of 5%) which looks***

***perfectly reasonable in the context of a prime rate of 6% may look excessive against a 15% prime in another country. This is the cost of capital part.***

Then adjustments have to be made for the anticipated earnings growth as well as

the investments required to generate this growth – that is, the amount and growth of free cash flow in a company.

The way to go to incorporate all of this in the valuation is the Discounted Cash Flow (DCF) approach which side-steps vexations of varying accounting approaches (for inventory valuation, depreciation etc.) and incorporates all the factors mentioned above. If you want a short-hand method, with some simplifying assumptions, the multiple would look something like this.

***P/E ratios are only inverses of earning yields and therefore the same P/E ratio can have different meanings in various contexts***



$$\frac{EV}{(EBIT - \text{Adjusted Taxes})} = \frac{1 - g/r}{k - g}$$

**g = growth in (EBIT - Adj. Taxes)**  
**r = Return on Incremental Capital**  
**k = Weighted Average Cost of Capital (post-tax)**

This ratio can also be split into a two-stage formula assuming different growth rates and return ratios for an interim period and then for the terminal period.

● ***Is EV/EBIDTA superior to P/E?***

Of course, even the merits of considering EV/EBIDTA as a superior ratio to P/E ratio are dubious. For companies in different industries, looking at pre-depreciation earnings may distort the picture. For example, a bearings company trading at a higher P/E to a FMCG company may appear ‘cheaper’ on a EBIDTA multiple basis. The

difference however may be illusory – the bearings company has higher depreciation because high capital intensity is a fact of life in its business which is not the case in consumer non-durables. Typically, depreciation is a reasonable proxy for normal capex in the business and does not represent cash accrual for a going concern.



## *Why the Lynch ratio (P/E / CAGR in EPS) does not make much sense*

This ratio seeks to capture the relationship between the P/E and the growth in EPS over the next few years. It is calculated as the P/E ratio (prospective) divided by the EPS growth. The interpretation of ratio is : the lower the ratio, the cheaper is the stock (obviously). But, this ratio can fail under two circumstances. *First, a company can have a healthy EPS growth if it funds its expansion from debt. This would increase the company's risk profile which does not get captured in the ratio. And secondly, equity capital can be raised at a high premium, as has been done by a number of companies in our country - this usually results in a strong EPS growth despite a falling trend in RoE, which would again not get captured in the ratio. Hence, one should look at this ratio in the light of the above two drawbacks.*

Another way of looking at this ratio is: It attempts to identify stocks that have a low P/E relative to

their growth rate. Let's think about this – what kind of company would exhibit this characteristic? The logical answer is – a company that increases earnings growth through increases in capital employed – and unless it is intelligent enough to keep OPM, leverage and asset turnover up (when

Capital Employed increases sharply, there is every chance that at the very least, asset turnover will decline) – Return on capital employed also declines in tandem. History is replete with examples of companies of this kind – HDFC, Reliance, Ranbaxy, L&T. All these and lots of others have seen earnings growth

come at shrinking multiples, because the market penalises them for dilution of return ratios. *And the Lynch ratio leads you precisely to such companies - companies that grow earnings at the cost of returns, and therefore (deserve to) trade at lower multiples.*

*These are the very companies that you want to avoid!*

*HDFC, Reliance, Ranbaxy, L&T. All these and lots of others have seen earnings growth come at shrinking multiples, because the market penalises them for dilution of return ratios*



## What's new about EVA?

Among the enduring mysteries of business is the oft-noticed phenomenon of seemingly commonsensical practices becoming elevated to sublime levels. “BPR” is one, about which we’ll talk some other time. “EVA” is another one, about which we’ll talk about today. EVA has become to investment analysis what reverse swing became to fast bowling. Put it on your annual report – and your stock takes off! Put it on your research – “EVA analysis included” (much like a tube of toothpaste) – and your research takes off! But why are we enthralled by the concept, and that too, in the nifty nineties?

*First of all, the concept is a 101 years old. Marshall defined the concept of “Economic Profit” in 1896. And adding the discounted cash flow approach to Economic Profit was John Burr Williams in 1934, in his book “The Theory of Investment Value”. Guess in 2070, you’ll see research carrying P&L accounts, cash-flow statements, with a sticker on the cover saying “New, improved. P&L included”. (This isn’t probably, a way out thought, judging from the way “Aura Investing” is taking off, wherein a stock is bought on everything but fundamentals, simply because the CEO is presentable. More on this later).*

The strange thing is – EVA is something all of us know, if we have run any kind of business enterprise – be it a students’ store on campus, or a hot-dog stand. If the returns from the business don’t beat

your cost of capital, you’re headed down the tubes, in real terms.

Every Marwari in India knows it, every grocer in India knows, every Guju knows it – so how come the world got to know of it only in 1992 when Stern Stewart put their patent on it? The Old Man from Omaha has known it for 30 years now – and look at him!

And if you looked at EVA financially or mathematically, it is the exact equivalent of the DCF/FCF approach – there’s absolutely no difference. And this approach’s been around for 60-70 years at least!

*In fact, to define EVA in absolute amounts (EVA added = \$ 1.2 mn) and ranking companies on EVA added is nonsense. You have to standardise it – otherwise a large company will always add more EVA than a small company, even if the margin by which the small company beats its cost of capital is substantially higher. This is simply because of the Invested Capital base for the larger company being larger. Ditto with MVA – you have to normalise it, otherwise the results are pure garbage.*

*The other thing, of course, is that just because a company has negative EVA, it doesn’t mean that it’s not a buy. Simplistically speaking, provided you get it at a big enough discount to book value, so that there effectively exists EVA for you, you’re OK.*

*Extracted from our Weekly Round-up  
(June 16 - June 22, '97)*



## *The supposed problem with DCF analysis...*

... is that it involves a number of assumptions – on the earnings forecast, on the discount rate, on the terminal growth rate etc. However, what we need to understand is that these assumptions are being made in any case whichever valuation approach you choose to take.

Even with a P/E or EV/EBIDTA multiple, it only appears that you are looking at earnings only a couple of years out and not trying to anticipate what happens 10 years hence but this is only an illusion. As soon as you talk of what multiple earnings in FY98 or FY99 will command, you are really imputing a value on all future cashflows. If that was not the case, then the earnings multiples for all companies in an industry would converge. To give an extreme example, if the company was to go out of business at the end of FY99, the multiple you would be willing to pay for it will be very different from how you'd value it as a going concern.

*what we need to understand is that these assumptions are being made in any case whichever valuation approach you choose to take. Even with a P/E or EV/EBIDTA multiple, it only appears that you are looking at earnings only a couple of years out*

Of course, the earnings forecast itself involves a whole series of assumptions but this would be the case even with a P/E or EV/EBIDTA approach. The additional assumptions in a DCF analysis relate to the terminal value calculation and the discount rate. The discount

rate can be estimated within a reasonable range given the market return expectations and the stock specific beta combined with the cost of debt for the company. However, there may not be complete agreement on the value used, which is why it is useful to have to give a range of values according to the assumptions used.

The 'right' way to calculate the Terminal Value is also a hotly contested issue especially as 50 -80% of the company's value is accounted for by the Terminal Value. In the next chapter, we critically examine a few approaches to calculation of the Terminal Value.



## *Terminal Value Calculations Non Cash – Flow Approaches & Fallacies Therein*

### ● *Terminal EV/EBIDTA multiple*

#### *Can be even more misleading than using a current EV/EBIDTA Multiple*

This approach assumes that at the end of the explicit forecast period, the company will be worth some multiple of its then earnings. This approach is as bad, and in fact worse than using a P/E or EV/EBIDTA multiple approach today. It suffers from all the limitations of estimation of an EBIDTA multiple, discussed earlier in this report. In addition, the problems are compounded as you are trying to estimate the probable multiple 10-15 years out into the future.

Suppose, today's current industry average EBIDTA multiple or even the company's own historical multiple is used as a benchmark – saying for instance, the stock has traded in the multiple range of 8-9x for the last 5 years and that is therefore, a reasonable multiple to assume for the terminal value calculation. The problem is that today's multiple takes into account earnings/cashflow growth rates and economic prospects for the explicit forecast period as well the terminal period. However, prospects at the end of the explicit forecast period are likely to be very different from

today's. Let us say, the stock under consideration is expected to compound earnings and cashflows at 20% pa for the next 15 years and will then settle at about a 12-13% pa growth rate thereafter.

To assume that today's EBIDTA multiple would remain unchanged in 2011 will lead to a significant overstatement of the terminal value as the growth prospects will look very different in 2011.

Looking at it another way – say, a company is willing to acquire another at a high EBIDTA multiple of, let us say, 15x because it can improve earnings through management changes. The higher than normal multiple is being paid because a higher than normal growth rate is being

anticipated. Now, it would be erroneous on the acquirer's part to use the same 15x multiple for the Terminal calculation. Once the management/earnings improvements are in, the growth rate at the higher base will taper off and therefore any rational investor would not be willing to pay the 15x multiple on the higher level of earnings.

*The problem is that today's multiple takes into account earnings/cashflow growth rates and economic prospects for the explicit forecast period as well the terminal period*

*To assume that today's EBIDTA multiple would remain unchanged in 2011 will lead to a significant overstatement of the terminal value as the growth prospects will look very different in 2011*





## Asset Value Approaches

- ***Does looking at break-up value or replacement value make sense?***

*Looking at the break-up value of assets or the replacement cost of assets for a terminal value calculation would not make sense unless the assets were actually likely to be sold at the end of the explicit period. The value of the company as a going concern is usually very different from either the liquidation value or the replacement value of assets. To give a couple of examples - the liquidation value of assets for a company in a declining business may often be higher than its value as a going concern ie the present value of its future cash flows. The value of the land, buildings, equipment and financial assets of Bombay Dyeing, for instance, may well be higher than the PV of the cashflows that can be derived therefrom simply because at least some of these assets can be put to other uses which generate higher cashflows.*

*The value of the land, buildings, equipment and financial assets of Bombay Dyeing, for instance, may well be higher than the PV of the cashflows that can be derived therefrom*

*Even a replacement value analysis may be less than useful due to inherent limitations. For one, the replacement value analysis only takes into account the tangible assets of the company which may understate the company's value. The company's 'organisational capital' can be valued only on the basis of the cash flow the company generates - very relevant for software and branded goods companies, for instance. Also, there are cases where replacing an asset at today's costs may not make economic sense ie the company would not make economic returns on the replaced assets whereas it does earn more than the Cost of Capital on the written-down assets. The replacement value analysis will overstate the value of the business as an ongoing entity. This is likely to be the case for commodity producers in stable technology industries like ACC and Hindalco.*



## *Cash Flow Approaches*

Let us assume that the cash flow technique being used is with the objective of estimating the value of the company for debt and equity holders. In

such a case the annual Free Cash Flow (FCF) will be defined as :

**Earnings Before Interest and Tax (EBIT)**

**Less : Adjusted Taxes**

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**Net Operating Profit Less Adj. Taxes (NOPLAT)**

**Where Adjusted Taxes = Actual taxes paid + Tax benefit on interest**

**Less : Net Investment**

**Where Net Investment is defined as Capex and Working Capital Changes less Depreciation**

**Therefore, FCF = NOPLAT - Net Investment**

Here, once the FCF has been estimated upto year 't', Terminal or continuing Value can be calculated (assuming that the company's Free Cash Flow will

grow at a constant rate during the terminal period) using this formula :

$$\text{Terminal Value} = \frac{\text{FCF}_{t+1}}{\text{WACC} - g}$$

**FCF<sub>t+1</sub> = The normalised level of free cash flow in the first year after the explicit forecast period.**

**WACC = The Weighted Average Cost of Capital (post tax)**

**g = The expected growth rate in free cash flow in perpetuity**





● *It is useful to split Free Cash Flow into its drivers*

The caveat in using this formula is to correctly estimate the normalised FCF that is consistent with the forecast growth rate. For example, if growth in the continuing value period is forecast to be less than the growth in the explicit forecast period (as is normally the case) then the proportion of Operating Profits (NOPLAT) that would be need

to be invested to achieve that growth is likely to be less as well. Therefore, for the same level of Operating Profits, the available Free Cash Flow would be higher. The way to get round this difficulty is to split the FCF into its components or the value-drivers. The Terminal Value then reduces to

$$\frac{\text{NOPLAT}_{t+1} (1 - g/\text{ROIC})}{\text{WACC} - g}$$

Where,

$\text{NOPLAT}_{t+1} = (\text{EBIT} - \text{Adj. Taxes})$   
 = the normalised level of NOPLAT in the first year after the explicit forecast period.

$g = \text{Expected growth rate in NOPLAT in perpetuity}$

This formula produces exactly the same result as the growing cash flow perpetuity formula because the denominators are identical and the numerator is a way of expressing free cash flow in terms of key value drivers. The expression  $g/\text{ROIC}$  represents the proportion of NOPLAT invested in additional capital ie the investment rate. So the

overall expression represents NOPLAT times one minus the investment rate ie the free cash flow.

Breaking up the FCF formula in this fashion forces you to explicitly think about the value drivers. This value driver and formula can be split up into a 2-stage formula.

Terminal Value = 
$$\left[ \frac{\text{NOPLAT}_{t+1} (1 - g_A / \text{ROIC}_A)}{\text{WACC} - g_A} \right] \left[ 1 - \left( \frac{1 + g_A}{1 + \text{WACC}} \right)^{N-1} \right]$$

$$\left[ \frac{\text{NOPLAT}_{t+1} (1 + g_A)^{N-1} (1 - g_B / \text{ROIC}_B)}{(\text{WACC} - g_B) (1 + \text{WACC})^{N-1}} \right]$$

Where

- $g_A = \text{Expected growth rate in NOPLAT during the first period ie from year (t+1) till year (t+N)}$
- $g_B = \text{Expected growth rate in NOPLAT after the first period ie after year (t+N)}$
- $\text{ROIC}_A = \text{The expected ROIC during the first period}$
- $\text{ROIC}_B = \text{the expected ROIC after the first period}$
- $N = \text{Number of years in the first period}$



## *Variations on the theme and possible pitfalls*

### ● *The Convergence Formula*

**The company does not add economic value in the terminal period.**

For many companies especially those in competitive industries, the return on new investment can be expected to converge to the Cost of Capital. In

such cases, it may make sense to assume that the company does not make economic returns in the terminal period. In this case,

$$\begin{aligned}
 \text{Terminal Value} &= \frac{\text{ROIC} = \text{WACC} \\ \text{NOPLAT} (1 - g/\text{ROIC})}{\text{WACC} - g} \\
 &= \frac{\text{NOPLAT}}{\text{ROIC}} = \frac{\text{NOPLAT}}{\text{WACC}}
 \end{aligned}$$

*Though the growth term has disappeared from the equation, it does not mean that the nominal growth in NOPLAT is expected to be zero. It just*

*means, that the growth does not add anything to the value of the company as there is no economic value - added.*

### ● *The Aggressive Formula*

*Being ‘conservative’ by assuming that the company grows only at the inflation rate inflates its value.*

This is really a misinterpretation of the ‘convergence’ formula where is assumed that in the terminal period, earnings will compound at a

low rate - probably the inflation rate. The conclusion is that this would mean that earnings should be discounted at the real WACC.

**The resulting formula is**

$$\text{Terminal Value} = \frac{\text{NOPLAT}}{\text{WACC} - g}$$

**Where g is the inflation rate.**



*The users of this formula often think they are being very conservative as the earnings are supposed to compound at just the inflation rate. Unfortunately, the formula as stated actually overstates the Terminal Value substantially! The Terminal Value numerator  $NOPLAT \cdot (1-g/ROIC)$  reduces to  $NOPLAT$  if and only if, the Return on Incremental Capital ie the ROIC approaches infinity. What is being assumed is not only that,  $NOPLAT$  continues to compound forever at the inflation rate but also that no extra investment required to generate the growth in  $NOPLAT$ .*

*To give an example, suppose at the end of the explicit period, the company is projected to have*

*an asset base of Rs. 100 mn which is generating a  $NOPLAT$  of say, Rs. 20 mn. Now using the logic given above, this  $NOPLAT$  is assumed to compound at the inflation rate of 7% thereafter. In addition, it is assumed that there is no further investment required on either capex or working capital to fund this growth ie on an ongoing basis the annual capex and increase in working capital will equal depreciation. What this assumption means is that 15 years, hence the company will be earnings Rs. 58 mn on that same asset base of Rs. 100 mn and 25 years hence Rs. 108 mn on the Rs. 100 mn. No wonder the Terminal Value balloons!*

*The users of this formula often think they are being very conservative as the earnings are supposed to compound at just the inflation rate. Unfortunately, the formula as stated actually overstates the Terminal Value substantially!*



*NOTES*

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