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and communicating value*

Economic Profit as a Performance Measure

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SUMMARY OF THE CONCEPT

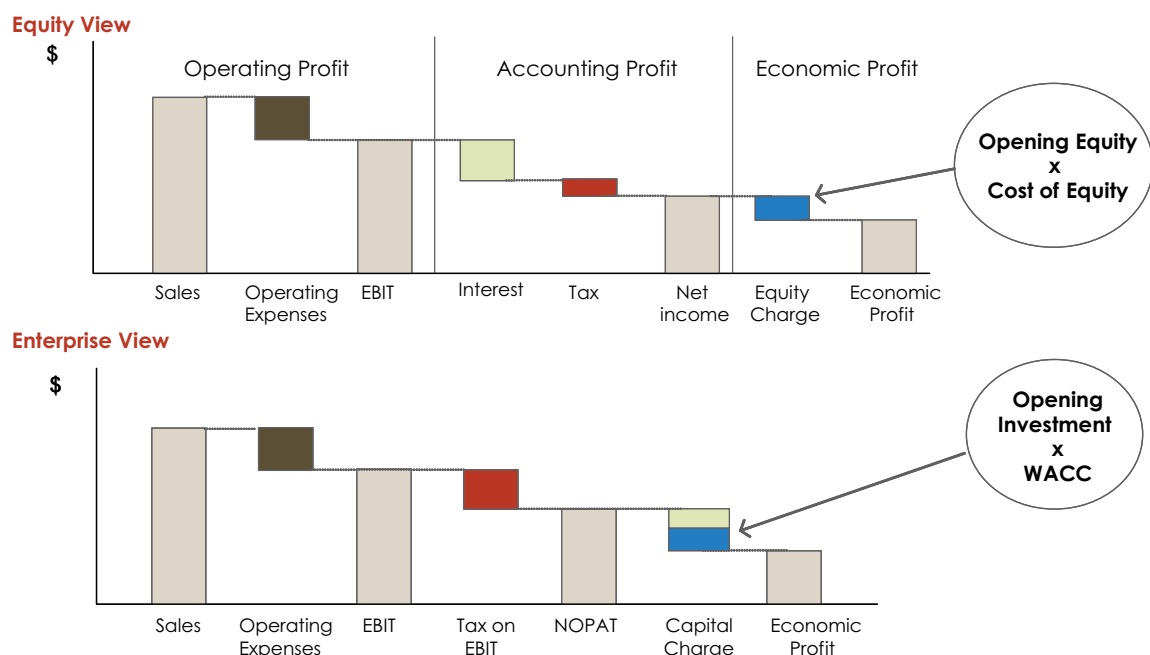
Economic profit is a performance measure that links internal business performance with the return requirement of investors in the capital market. The measure is most useful in the context of management focussing on creating and delivering value for shareholders and for informing Boards on how well the business is meeting the Board's fiduciary obligations to shareholders.

The link to the capital market is achieved by incorporating investor's required rate of return explicitly as an expense of the business. If the business earns a positive economic profit in a year then it has met the required return of all investors for that year.

The measure differs from traditional accounting profit because it includes an expense for the required return of shareholders. While accounting profit does include an expense for the required return of debt investors by way of interest it does not include a similar expense for the required return of shareholders i.e. accounting profit treats equity as 'free', which of course it isn't! In fact shareholders will require a higher 'interest' rate, or required rate of return than debt investors because they bear more risk.

The top half of Figure 1 depicts the essential difference between accounting profit and economic profit.¹ The difference is the inclusion of the 'interest' charge for equity calculated as shareholders funds multiplied by the required rate of return on equity. Here shareholders' funds represent the amount shareholders have 'lent' to the company.

Figure 1: Economic Profit Defined





The more common usage and definition of economic profit is presented in the bottom half of Figure 1. In this case the interest charge on debt and the equity charge are combined into one capital charge. The weighted average cost of capital captures the required return of debt and equity investors in one number. This is multiplied by invested capital to determine the capital charge to cover both debt and equity needs. Here invested capital is the sum of debt and equity capital and represents the capital these investors have directly 'lent' or invested in the company.

This more common usage of EP is calculated as:

Economic Profit = NOPAT less Capital Charge

where:

$$\text{NOPAT} = \text{EBIT} (1 - \text{tax rate})$$

$$\text{EBIT} = \text{Earnings Before Interest and Taxes}$$

$$\text{Capital Charge} = \text{Invested Capital} \times \text{WACC}$$

$$\text{Invested Capital} = \text{Debt} + \text{Equity (also Total Assets less non interest bearing liabilities)}$$

$$\text{WACC} = \text{weighted average cost of debt and equity (after tax).}$$

Equally it can be expressed as:

Economic Profit = Invested Capital x (ROI – WACC)

where:

$$\text{ROI} = \text{Return on Invested Capital} = \text{NOPAT} / \text{Invested Capital}$$

$$\text{NOPAT} = \text{ROI} \times \text{Invested Capital}$$

Economic profit therefore measures, in dollar terms, a business, a business unit or a segment's performance relative to an external capital market's minimum required performance. It answers the question:

“does the investment provide a return greater than that required by investors in the year being measured?”

If the EP number is positive then the business exceeded capital market requirements and value was created in that year. The converse holds for a negative economic profit.

While it can be used as a single year measure of the value created or eroded, the measure can be, and is best, directly linked to a view of long term value. If not so linked then the EP for a single year can send the wrong performance signal.

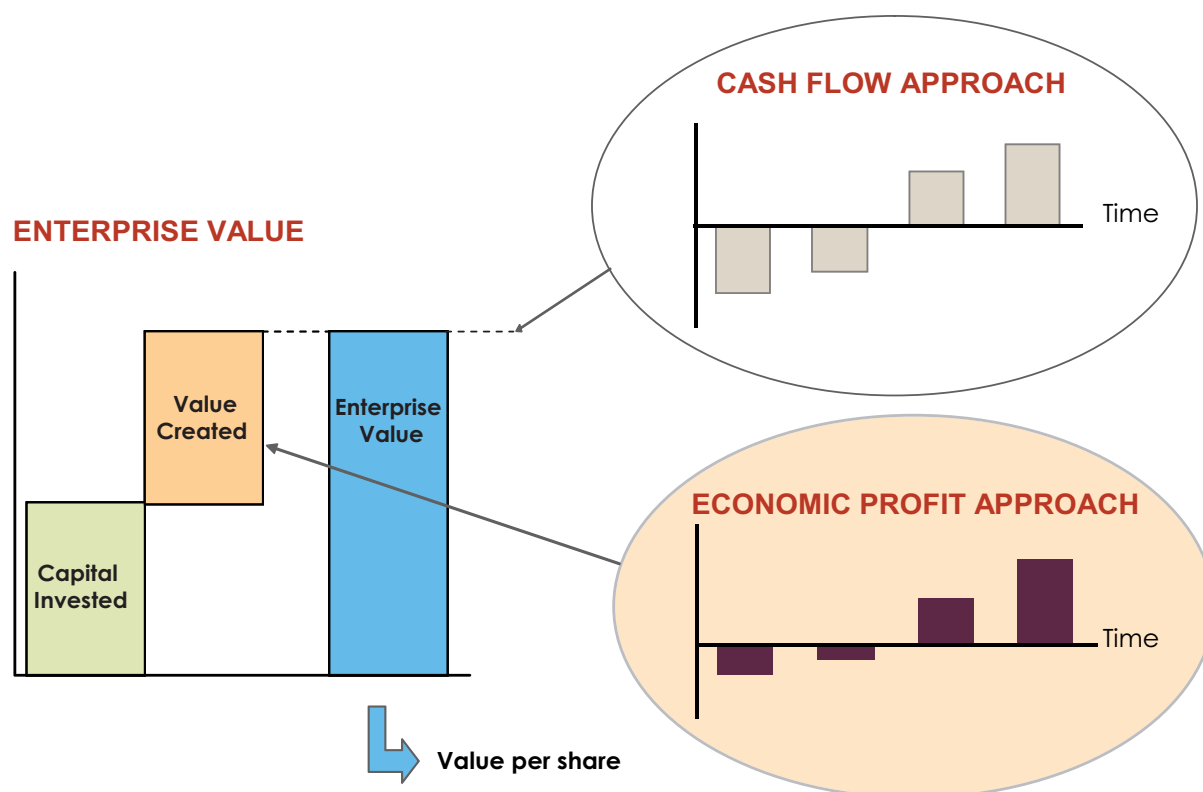
Link to Business Value

Long term **value** is defined in terms of discounted cash flows ['DCF']. Typically business value is the present value of a profile of expected operating free cash flow over time. Enterprise value² is depicted as the height of the so-named bar in Figure 2.

Also shown in Figure 2 is **value created**. Value created here is the difference between **enterprise value** and the **capital invested** to generate the **cash flow stream** over time. This captures, at a point of time, the amount of value the business expects to generate over and above the cost of capital given the cash invested to generate the cash flow stream.

1. Note the use of the term economic profit is slightly different from the measure as defined by economists. The essential difference is that economists will include capital gains or losses in the measure.

Figure 2: Using EP to derive Enterprise Value



Value created can also be estimated as the present value of the projected **economic profit stream** over time. Thus enterprise value is simply the sum of capital invested and value created.

Value created as used here is the same concept as the Net Present Value ['NPV'] concept used in evaluating investment opportunities, i.e. the present value of expected cash flows less the initial investment. Initial investment is the cash required to get the project off the ground!

Attractive Features

The essential attractive features of integrating EP into decision making and performance management processes discussed below are:

- Its use in project or strategy evaluation will give the same answer as DCF analysis, therefore it **bridges the gap** between how decisions are made and how subsequent performance is measured, i.e. it enables the same measure to be used - unlike most systems that use a cash flow measure for investment decisions and accounting profit for performance management;
- It is a **better performance measure** than most other single year measures;
- It can easily be **calculated from accounting systems** when a P&L and Balance Sheet exists.

Bridges the Gap

Estimating business value by the economic profit approach provides an effective bridge between techniques used for decision making and techniques used for performance management – a bridge that is missing in most organisations that use 'traditional' cash flow based approaches. These businesses usually use a notion of 'operating free cash flow' in investment decisions and accounting measures in performance management processes thereby creating a mismatch.

EP can be used for investment decision analysis as well as performance management purposes. This effective bridge is summarised in Figure 3.

2. Enterprise value is the sum of the debt and equity (shareholder) value. In most circumstance a focus on creating and delivering either Enterprise Value or Shareholder Value will result in the same outcome.



Figure 3: Overcoming the 'Great Mismatch' by providing an effective bridge

- **Creating shareholder value** is usually the primary objective for decision processes
 - Shareholder or enterprise value is forward looking and is based on expected operating free cash flow (FCF)
 - some **decision management** processes (not all) look at DCF and FCF (e.g. capital budgeting)
- However few **decision control** processes (performance management systems) are based around free cash flow – they tend to be based around accounting systems (e.g. EBIT, NPAT)
 - thus there is often misalignment between decision management processes and decision control processes - "**the great mismatch**" arising from using different measures
 - thus the mismatch can create decision making that is not consistent with increasing shareholder value
- There are ways of drawing these two strands together and these are receiving closer attention e.g. **economic profit** type measures
 - These provide a consistent framework to align decision management and decision control throughout an organisation with creating and delivering value
- Economic profit type measures provide an **effective bridge** between accounting and cash flow approaches:
 - they are consistent with the finance cash flow based decision focus
 - they are relatively easy to "adapt" from accounting numbers
 - they can be used as both a forward looking (decision making) tool and a backward looking (performance measurement) tool thereby providing a consistent framework to align decision making and motivation throughout an organisation focused on improving the company's value.

A business with an explicit focus on creating and delivering value for investors will value its strategic or business plans. This requires forecast financial statements which, in turn, provide the EP profile for valuation purposes and therefore the output captured in Figure 2. Note that for listed companies, the output can include a value per share which can be contrasted with the markets view to identify and inform any value gap.

This profile provides a number of benefits. Two are:

- There will now be a set of target annual EPs that if delivered will deliver the plan. This can feed the budget, reporting and remuneration processes;
- There is a basis to assist in testing the logic of the strategy underlying the plan. A positive EP profile implies some combination of an attractive market and sustainable competitive advantage. Is it reasonable? The strategic assessment of market economics and relative competitive position of the business should link to this outcome. Note that a zero EP profile would be expected in a competitive market so a competitive advantage is required to do better than this.

Better Performance Measure

Figure 4 summarises a set of criteria for evaluating performance measures as well as an assessment of economic profit against a number of alternatives or supplements. Using this set of criteria it is clear the economic profit jumps the most hurdles.

One criterion may require explanation, particularly with reference to the contrast of return measures (e.g. ROI, ROE) with economic profit. The fourth in Figure 4 asks whether the measure induces behaviour conducive to creating and delivering value.

Consider a business that is currently earning an ROI of 15% and its cost of capital is 8%. It is clearly doing well. Suppose there is large investment opportunity costing \$100m that has an ROI of 11% pa (for simplicity assume this is a perpetuity). Undertaking the project will therefore dilute the overall business ROI (11% being lower than 15%). If the business is rewarded by ROI performance then it will reject the investment opportunity.

However, the opportunity has a positive economic profit profile and a positive NPV:

$$EP = \$100m \times (0.11 - 0.08) = \$3m$$

$$\text{Value created} = \$3M / 0.08 = \$37.5m$$

i.e. it creates value and should be accepted.

A performance focus on increasing the EP profile will encourage acceptance of the project in contrast to a focus on a return measure like ROI or ROE which will encourage rejection.

p4



Figure 4: Single period performance measure assessment

Summary of Assessment

Criteria	Explanation	Performance Measures				
		Profit	Free Cash Flow	ROI, ROE	Economic Profit	EVA type
Linked upstream	Decisions are taken in the context of their impact on Group value	x	✓	✓	✓	✓
Linkable downstream	Overall value targets and performance can be disaggregated into operational measures linked to value	x	✓	✓	✓	✓
Linked to required rate of return	Cost of capital is factored into all key decisions	x	x	x	✓	✓
Induces behaviour conducive to maximising value	People are motivated to maximise value (as opposed to maximising revenue, profit etc)	x	x	x	✓	✓
Considers both P&L & Balance Sheet	Ensures that no key decision is made without understanding both P&L and Balance sheet implications	x	✓	✓	✓	✓
Easy to understand and communicate	Ensures widespread take up and acceptance	✓	x	✓	✓	✓
Low cost in preparation	Minimises work and adjustments that do not have a material impact on decisions and performance	✓	✓	✓	✓	x

It is important to remember that all single year measures will have deficiencies from a value perspective because value is long term. In this context it is the overall profile of performance that becomes important to examine, not any year on a stand-alone basis.

By way of example, an expansion or start-up activity may produce a negative EP in the early years however as customer awareness, behaviour and usage rises, the early stage negative profile will change to positive. It is whether the overall present value of the EP profile is positive is the important question, not that the EP may be negative or positive in a particular year.

Calculated from Accounting Systems

Economic profit, at its simplest, can be easily calculated from existing accounting systems that have both a P&L and a balance sheet i.e. the only additional input over an ROI or ROE calculation is the cost of capital. Thus no expensive alternative system needs to be developed in these circumstances.

Ideally, capital should be attributed to business units and segments to enable an assessment of its economic contribution. This may require additional work if reports are not prepared at this level.

Many implementations of an EP based system will involve some adjustments to reported profit and invested capital to minimise accounting based distortions e.g. asymmetric treatment of write-offs and write-ups. These are discussed in the next section.

Challenges

In summary, the essential challenges in using EP in decision making and performance management processes discussed below are:

- It is a **single year number in a multi-period world** – be wary of an over-emphasis on whether an individual EP is black or red;
- **Getting invested capital as 'right' as possible** is important - some adjustments the accounting P&L and Balance Sheet are usually necessary.

Single year number in a multi-period

Many proponents of EP or EVA type measures have fallen into the trap of overselling it as the 'ultimate' or 'best' performance measure³. This runs into the trap of focussing too heavily on a single year measure of performance and whether the number is black or red.

3. For example, Biddle et al, Journal of Accounting and Finance, December 1997, attribute the following phrases to Stern Stewart: "The best practical periodic performance measure is EVA", "Forget EPS, ROE and ROI. EVA is what drives stock prices".



Ultimately it is the profile of EP over time and the present value of it that is important. This profile also provides the basis for an Enterprise Value over time which can also be used to relate to changes arising from actual outcomes and to compute the economist's view of profit if required⁴. As noted earlier, a common occurrence is a negative (red) EP in early stages followed by a positive (black) EP but there still being an underlying value creating project or strategy. Equally it is possible to have a number of positive EPs but value destruction when the full profile is considered. Clearing improving EP is desirable but comparison to the EP in a value creating plan is the best test – not whether an individual EP is black or red.

Getting invested capital as 'right' as possible

One question that often arises when estimating EP is around the appropriate definition or source of 'Invested Capital' – a key driver of the capital charge. In the outline so far it has been discussed in terms of capital provided to the company by debt and equity investors. Since the Board and Management have a responsibility to preserve capital invested and earn an appropriate rate of return on it then the best starting point is a measure that fits with this concept. With no marking to market of asset values or write-offs, this will usually be equal to the sum of book value of debt and equity.

However there can be other bases, e.g.

1. **adjusted book value** (adjusted by capitalising leases, adding back write-offs, adjusting items which may have been fully expensed in a particular year when they may be more of an investment nature e.g. R&D, corporate advertising);
2. **replacement cost** of assets;
3. **market value of the business** (if listed).

1. Adjusted Book Value: Some argue⁵ that it is appropriate to adjusted book values to obtain a 'better' measure of capital invested – essentially because accounting treatments can introduce biases and otherwise not fit for EP purpose outcomes.

Certainly this true – there are adjustments that make sense. Usually there is only a handful for each business and they will vary across businesses depending upon the nature of the business. Only a few are commented on below to provide a flavour of adjustments. What is appropriate is circumstantial.

- i) Add back write-down: write-down of asset values is an inappropriate forgiveness of capital in the care of management and leads to inappropriate performance targets. Adding them back provides the more appropriate measure of capital that has been provided by investors and is in the care of the business;
- ii) Undo asset revaluations: the logic is the reverse of the write down discussed above;
- iii) Use cash tax rather than accounting taxes: an adjustment to best recognise the timing of tax payments;
- iv) Capitalise leases: generally capitalising leases makes little difference to the EP outcome however it does better represent the assets that are funded by the business. When leases are capitalised it is also necessary to extract the financing component for the annual lease charge to avoid double counting;
- v) Use annuity based depreciation: straight line depreciation creates a distortion in measures of EP (and ROI) because a simple 'average' amount is not appropriate in a world where return measures a 'compound' average based. Adjusting depreciation to be similar to the principal component of a loan removes the distortion and the accelerating nature of the outcome probably better represents economic depreciation. It is not appropriate, however, to adjust the tax shield. Note that the value of the business is insensitive to the method of depreciation used (assuming tax is not affected) however the profile of EPs is sensitive to it.

While many adjustments are conceptually sound (given cash invested by shareholders is viewed as the appropriate base) there is a trade off between complexity and benefit. An important question to ask is whether the adjustments give directionally different signals. This is a matter for assessment in the particular circumstances. As noted, it is appropriate to make a small number of adjustments but these will, most likely, vary by industry.

2. Replacement cost of assets: This may be useful for evaluating whether the investment would warrant 'refreshing' given forecast performance. This was the original based used in some regulatory hearings that set prices for monopoly assets e.g. utility distribution and transmission assets, airport landing charges. With the benchmark EP arising from a value creating plan, using replacement cost is not quite so important as the strategic decision about replacement (and pricing) would be part of the strategic planning process.

4. Economic profit as viewed by economists captures the cash flow generated in a period plus the change in value over the period.

5. Stern Stewart is alleged to have identified 150 such adjustments – see for example, S. David Young & Stephen F O'Byrne, "EVA and Value-Based Management" McGraw-Hill 2001, p111



3. Market Value of a business or asset: This is not particularly meaningful for evaluating investment opportunities. The present value of the EP stream would be zero in this case if the market value reflects the present value of an expected cash flow stream.

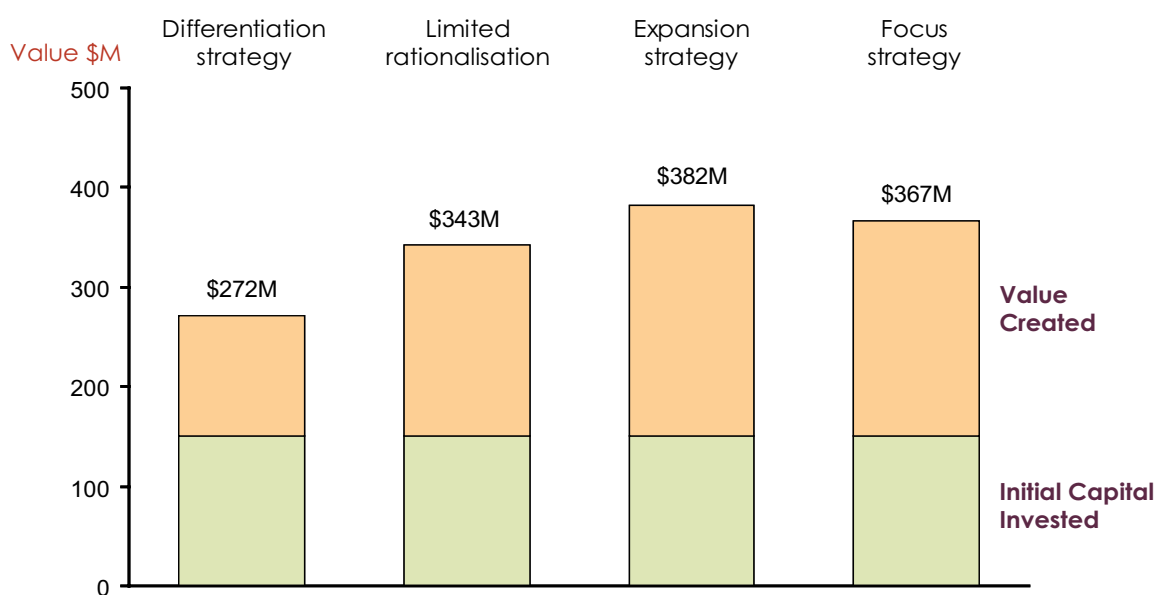
Changing the definition and therefore the size of the investment base will change the size of the EP stream but not the value of the stream. In Figure 2 for example, changing the definition of capital invested will change the sizes of the value created 'bar' and the size of the invested capital 'bar' in Figure 2 but not the height of the Enterprise Value 'bar'.

It is the height of the relative Enterprise Value bar under different strategies that is important for strategic decision making. The 'best' strategy for choosing from alternative is the one that gives the highest value. The height of the 'Invested Capital' bar, however measured, will be the same for each alternative. So, from this perspective the definition of 'capital invested' is not critical provided it is used consistently across the alternatives.

This concept is captured in Figure 5. Figure 5 shows the value of the current strategy as \$272m. This was derived from a DCF model reflecting the expected financial outcomes of the strategy. It also shows the value of 3 alternative strategies. The 'best' from a financial perspective is the expansion strategy.

The opening capital base is represented as the dark area in each 'value bar'. Note that it is the same for each alternative. A different definition of the capital base will not affect the choice of the best strategy, just the division of the value between value and value creation.

Figure 5: Capital Base and Strategy Selection



There will be an EP profile derived from the definition of the capital base and this will be used for subsequent performance assessment i.e. how are we progressing relative the plan? The important consideration here is consistency in the way the performance measure is used for planning and subsequently used for performance assessment rather than what definition of the base is used.

Establishing Performance Targets

One use of the EP concept is to inform target setting – i.e. given the invested capital base, what EBIT targets have to be met to, at a minimum, earn the required return of investors (WACC)?

The minimum target will be an EBIT that provides a zero economic profit. This is a break even target. Creating value means doing better than this minimum.

The definition of invested capital does become important in this use:

1. If cash invested (book value) is used as invested capital then the EBIT target derived from assuming zero EP will only return the cost of capital. Here 'market value' will equal book value i.e. zero value created;
2. If market value of a listed business (or current strategic plan value) is used in the invested capital base (e.g. the equity component is share price times number of shares) then the derived EBIT stream that sets EP to zero each year (or in overall profile) will be sufficient to support the current market value. An increase in share price will require a performance profile above this derived EP = 0 profile.



Naturally the relative size of the EBIT targets in the two cases above will depend upon market value versus book value.

If market value is below book value then the target is 'softer' than a book value based target. Just meeting the market value based target will 'lock in' the value erosion that has led to market value being less than book. This sends a poor message to the capital market in the sense that the business has not been an effective 'guardian' of investment capital.

If market value is above book value then use of an EBIT target that provide a zero EP profile based on book value will be too 'soft'. In this case subsequent achievement of the target EBIT profile will lead to a fall in market price.

Our preferred approach is to use invested capital as the capital base but to derive any target EBIT stream in two ways, based on:

1. outperforming the EBIT steam that supports the current share price or last strategic plan value – a minimum;
2. a stretch target, for example doubling the share price every four years – a target set by Lloyds TSB and regularly beaten.

The former requires starting with a financial model that captures the expected outcomes of the current business strategy, most likely calibrated to the strategic environment and current valuation. The EP profile assists in calibrating the valuation model and the strategic position as stated earlier e.g. a positive EP profile is consistent with a competitive advantage or an attractive market. The EBIT stream in this financial model becomes the minimal target to outperform.

SUMMARY AND RECOMMENDATION

Economic Profit is a useful performance measure that provides many benefits:

- » it captures an explicit linkage between the Profit & Loss and the Balance Sheet – it not only considers profit but also explicitly considers the capital invested to generate the profit;
- » it recognises that equity capital is not 'free' but is a business cost;
- » it promotes a value language and focus in businesses and a basis of a value discussion
- » it is relatively easy to measure from accounting systems with BU P&Ls and Balance sheets;
- » it provides a bridge between the traditional free cash flow approach to strategic and investment decision making on the one hand and accounting based performance measurement on the other;
- » a focus on EP as a performance measure, relative to long term targets, will engender value maximising behaviour in management;
- » it can serve as a basis for performance based remuneration at corporate and business unit level.

We encourage its use for both investment analysis and performance assessment. However we encourage use of a benchmark EP number derived from a financial model that reflects an agreed strategic plan. This enables tracking of how well businesses are performing against that plan which may well have negative or positive numbers in a particular year.

Application should also involve agreeing to the most appropriate adjustments to raw accounting numbers to best reflect a more economic outcome.



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