

## Economic value added versus profit-based measures of performance: part 2

In the [first part](#) of this article, we considered the rise in popularity of Economic Value Added – or EVA<sup>TM</sup> – as an alternative to traditional performance measurement systems. This second part focuses on interpreting the calculated EVA<sup>TM</sup>, and its use as both an organisational and divisional performance measure.

### Interpreting the calculated EVA<sup>TM</sup>

When using EVA<sup>TM</sup> to assess the performance of an organisation or a division, the following should be considered:

1. Is it positive? If so, that is favourable, as it means that the organisation is providing a return that is greater than that required by providers of finance. It is creating wealth.
2. What is the trend over time? Is the calculated EVA<sup>TM</sup> increasing or not? Even if the trend is down, the organisation has still performed favourably if the calculated EVA is positive.
3. Reasons for changes in EVA<sup>TM</sup> also need to be investigated. For individual projects, EVA<sup>TM</sup> is only really meaningful when looking at the whole lifespan of a project. In the early years of a project's life, when the net book value of the assets is higher, the finance charge may also be higher, leading to a lower value of EVA<sup>TM</sup>, whereas in later years the reverse is true.

### Use of EVA<sup>TM</sup> as an organisational performance measure

EVA<sup>TM</sup> is a performance measure that can be used to assess the performance of the directors of a company. The idea is that directors will be motivated to improve EVA<sup>TM</sup> in one of four ways:

1. Invest in divisions where the returns on those divisions exceed the costs of capital.
2. Increase the operating performance of its existing divisions – thus increasing the net operating profits after tax (NOPAT) without increasing the finance charge.
3. The firm can 'harvest assets' by closing down divisions where the return is less than the costs of capital, and either re-invest the proceeds in other divisions, or return the cash to shareholders as a dividend.
4. The firm can increase its debt to equity ratio, and thus reduce the weighted average cost of capital (as the cost of debt is less than the cost of equity). Clearly this must be done within the bounds of prudence, and the company should not become over-gear.

As such, EVA<sup>TM</sup> is a useful tool for assessing the performance of the directors of a company and should motivate them to maximise the wealth of the shareholders.

### Use of EVA<sup>TM</sup> as a divisional performance measure

EVA<sup>TM</sup> can also be used as a performance evaluation tool for divisional managers. In decentralised organisations, divisions are effectively companies in their own right, with the head office acting as a holding company. As such, using EVA<sup>TM</sup> encourages

## ECONOMIC VALUE ADDED VERSUS PROFIT-BASED MEASURES OF PERFORMANCE

JULY 2011

divisional managers to maximise the wealth of the division. Divisional managers may not have sufficient autonomy to make decisions about financing or gearing, so will not be able to change the weighted average cost of capital (WACC). However, using EVA<sup>TM</sup> should ensure that divisional managers only invest in projects where the return on the projects exceed the costs of the company's capital.

### Consistency with net present value

The ultimate measure of how much value an organisation creates is the net present value of the projects it invests in. Net present value shows the return on projects in excess of the cost of financing them. If the financial markets are functioning efficiently, it should be the case that the market value of an organisation is the same as the book value of the net assets of the organisation, plus the present value of future cash flows. Maximising shareholders' wealth therefore means maximising the net present value of future cash flows.

It can be shown that residual income – and therefore EVA<sup>TM</sup> – is consistent with net present value. Consider the following example:

#### Example 1

A company will invest \$10,000 in a new project. The \$10,000 represents investments in non-current assets. The project will last for three years, and will generate cash inflows of \$5,000 in year one, and \$7,000 in years 2 and 3. The assets will have no residual value at the end of the life of the project. The relevant discount rate is 10%.

The net present value of the project can be calculated as follows:

			<b>Factor</b>	<b>Value</b>
T <sub>0</sub>	Investment	(10,000)	1	(10,000)
T <sub>1</sub>	Cash inflow	5,000	0.909	4,545
T <sub>2</sub>	Cash inflow	7,000	0.826	5,782
T <sub>3</sub>	Cash inflow	7,000	0.751	<u>5,257</u>
	Net present value			5,584

It can also be shown that if the residual income of the project is calculated and discounted, this will also give the net present value of the project, as follows:

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Cash inflows	5,000	7,000	7,000
Less depreciation (note 1)	<u>(3,333)</u>	<u>(3,333)</u>	<u>(3,334)</u>
Profit	1,667	3,667	3,666
Finance charge (note 2)	<u>(1,000)</u>	<u>(667)</u>	<u>(334)</u>
Residual income	667	3,000	3,332
Discount factor at 10%	0.909	0.826	0.751
Discounted residual income	606	2,478	2,502

Sum of discounted residual income (606 + 2,478 + 2,502) = \$5,586. This is the same as the net present value calculated using the cash flow method above. The small difference of \$2 is due to rounding.

## ECONOMIC VALUE ADDED VERSUS PROFIT-BASED MEASURES OF PERFORMANCE

JULY 2011

Note 1:

Straight-line depreciation has been used, so annual depreciation is \$10,000/3.

Note 2:

The finance charge is 10% of the net book value of the assets of the project at the start of each year:

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Opening net book value	10,000	6,667	3,334
Less depreciation (note 1)	<u>(3,333)</u>	<u>(3,333)</u>	<u>(3,334)</u>
Closing net book value	6,667	3,334	0
Finance charge	1,000	667	334

This relationship between residual income – and therefore EVA<sup>TM</sup> – and net present value is important.

### Return on capital employed and return on investment

So what of those well-known, traditional profit-based measures, return on capital employed and return on investment? We normally use the former description when discussing organisations, and the latter when describing divisions of organisations. A commonly used version of these calculations is as follows:

Return on capital employed (ROCE) =  $\frac{\text{profit BEFORE interest and tax}}{\text{shares} + \text{reserves} + \text{long-term liabilities}} \times 100$

Return on investment (ROI) =  $\frac{\text{controllable profit}}{\text{capital employed}} \times 100$

In principle, using these measures to assess the performance of the managers of an organisation should not conflict with the goal of maximising shareholder value.

However, the following problems may exist:

1. Profit can be manipulated – for example, by changing accounting policies or using different judgments. As one commentator noted: ‘Profit is a matter of opinion, cash flow is a matter of fact.’
2. Managers may take decisions that improve profits in the short term, but may harm the business in the long term – such as cutting back on staff training or research expenditure.
3. Using ROI as a performance measure for a divisional manager may lead to ‘goal incongruence’, where a manager rejects a potential project that may generate a positive net present value, if the project would reduce the manager’s measured return on investment.

## ECONOMIC VALUE ADDED VERSUS PROFIT-BASED MEASURES OF PERFORMANCE

JULY 2011

These three potential problems should not exist when using EVA<sup>TM</sup> because:

- the adjustments made to profits in calculating NOPAT are designed to remove such accounting manipulations
- the fact that long-term value-adding expenditure can be capitalised when calculating EVA<sup>TM</sup> should remove any incentive that managers may have to take such short-term views
- any project that will generate a positive net present value will also increase EVA<sup>TM</sup>.

### Disadvantages of EVA<sup>TM</sup>

EVA<sup>TM</sup> suffers from several disadvantages, such as:

- the adjustments to profits and capital can become cumbersome, especially if performed every year
- estimating the WACC can be difficult. While many organisations use models such as the CAPM, this is not a universally accepted method of determining the cost of equity
- the calculation of WACC is based on market values of equity and debt, while the finance charge applies this WACC to adjusted book values of equity and debt – so there is some inconsistency
- EVA<sup>TM</sup> is an absolute measure, so it cannot be used to compare companies of different sizes, unlike return on investment.

In spite of these disadvantages, EVA<sup>TM</sup> as a performance measure does assess the value created by managers, so is a more appropriate tool for measuring the performance of commercial organisations than profit-based ones.

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#### References

- John D Martin and J William Petty, *Value Based Management*, Harvard Business School Press 2000.
- Shane Johnson and Matt Bamber, '[Economic Value Added](#)', *Student Accountant* (2007), ACCA
- Erik Stern, *EVA Has Potential to Boost Employees' Motivation*, [www.SternStewart.com/2011/04/erik-stern-eva/](http://www.SternStewart.com/2011/04/erik-stern-eva/)