



Economic Value Added (EVA)™ as a Performance Measure

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Value-based management and EVA™

The principle of value-based management (VBM) asserts that the fundamental objective for a publicly-quoted company should be the creation of shareholder value. Consequently, in the design of performance management systems, it is important to incentivise managers to pursue courses of action which will maximise shareholder value.

In principle, a course of action (such as a proposed capital investment) will create shareholder value if it has a positive NPV. Therefore, in measuring divisional performance, organisations typically use divisional performance measures which they believe are likely to respond positively when an action with the division manager decides on a course of action with a positive NPV. It is in this way (imperfectly though it works in practice) that division managers are incentivised to create shareholder value.

However, a major problem is that there is only a highly imperfect correlation between (on the one hand) shareholder value and (on the other hand) traditional measures of divisional performance such as Return on Investment and Residual Income (ROI / RI). It is not difficult to think of counter-examples of courses of action which would destroy shareholder value while simultaneously increasing ROI / RI (see, for example, Drury [2015] pp. 497 – 516). Solutions such as changing the fine detail of how ROI / RI are measured are of only limited benefit in practice.

In response to this problem, the consulting organisation Stern Stewart developed Economic Value Added (EVA™) as an alternative measure of divisional performance. Drury (2015, p. 505) describes EVA™ in the following way:

“The EVA™ concept extends the traditional Residual Income measure by incorporating adjustments to the traditional profit performance measure for distortions that can arise in measuring economic value added arising from measuring profit using generally accepted accounting principles (GAAP)”.

In other words, the intention is that EVA™ should provide a direct measure of the amount of the amount of shareholder value created by a division. If this intention is fully achieved, and if EVA™ is used (instead of ROI / RI) to evaluate divisional performance, then the division manager is directly incentivised to pursue the objective of shareholder value creation and the principle of value-based management.

EVA™ is calculated in accordance with the following formula:

$$\begin{aligned} \text{EVA}^{\text{TM}} = & \quad \text{"Conventionally-measured" division profit} \\ & \quad \textbf{Plus / Minus} \text{ Accounting adjustments} \\ & \quad \textbf{Minus} \text{ Cost of capital charge on divisional net assets.} \end{aligned}$$

Although we have rules for how to measure profits and assets in EVA™ (see the example below), a more basic question is which items should be included as elements of division profit and division net assets. In principle, since the purpose of the exercise is to motivate managerial performance, the controllability principle should apply and only "controllable items" should be included. However, many firms include all items (both controllable and uncontrollable) and this the approach taken in the example below. Such an approach, where adopted, indicates a preference for performing a comprehensive calculation in the first instance and then dealing with uncontrollables through careful interpretation of the numbers afterwards, rather than by attempting to separately remove uncontrollable items at the calculation stage.

An example of Economic Value Added™: "Trio PLC": SCENARIO
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Trio PLC consists of several autonomous divisions. At present the performance of each division is evaluated on the basis of its Residual Income. In the Residual Income calculation a cost of capital of 10% is assumed in each division.

The following are summarised Income Statements for two of Trio's divisions for the financial year ended 31st December 2014:

	Division X	Division Y
Sales	€1,000,000	€670,000
Divisional variable costs	€580,000	€254,000
Divisional fixed costs	€160,000	€270,000
Divisional contribution to corporate profits	€260,000	€146,000
Allocation of costs incurred at corporate headquarters	€74,000	€52,000
Division profit	€186,000	€94,000

In accordance with the company's performance measurement rules, net assets are measured at their net book value for purposes of the Residual Income calculation. Summary balance sheets for the two divisions at 31st December 2014 are as follows:

	Division X	Division Y
Fixed assets (net book value)	€890,000	€480,000
Current assets	€575,000	€290,000
Current liabilities	€235,000	€180,000
Net assets	€1,230,000	€590,000

The fixed assets were revalued in the accounts at their market values one year ago (i.e., at 31st December 2013). In the Income Statements provided above, divisional fixed costs for 2014 include depreciation of €100,000 in Division X and €60,000 in Division Y. These charges were calculated on a straight-line basis in accordance with the company's normal accounting rules. However, it is estimated that the market values of the fixed assets diminished by €80,000 (Division X) and €40,000 (Division Y) during 2014. Neither division purchased or sold any fixed assets during 2014.

Both divisions launched major new products early in 2014 and spent significant amounts on advertising so as to quickly build up market share for new products. These expenditures were €18,000 by Division X and €24,000 by Division Y. These 2014 advertising expenditures are expected to benefit the products concerned throughout their product lifecycles, which management of each division estimate will be of 3 years duration.

Division Y spent €32,000 on research and development (R & D) in 2013 and a further €68,000 on R & D in 2014. In accordance with the company's normal accounting rules, these expenditures were written off in full as divisional fixed costs in the year of expenditure. The manager of Division Y believes that each of these expenditures is likely to benefit the division commercially over a 4-year period beginning in the year of expenditure. There were no R & D expenditures by Division X in 2013 or 2014 because the manager of that division was concerned about the negative effect on reported profits of R & D expenditures

Residual Income is the divisional performance measure used in Trio PLC at present. However, the company's senior management team is considering the use of EVATM, in the belief that EVATM would more strongly motivate division managers to pursue shareholder value creation.

An example of Economic Value Added TM: "Trio PLC": EVALUATION

Performance evaluation based on Residual Income

	Division X	Division Y
Net assets	€1,230,000	€590,000

	Division X	Division Y
Divisional profit	€186,000	€94,000
Capital charge	10% * €1.23M = €123,000	10% * €590K = €59,000
Residual income	€63,000	€35,000

This is a very straightforward calculation, since it takes all of the company's accounting figures "at face value". However, it is evident that the Residual Income numbers do not tell the full story. For example, the failure of the Division X manager to invest in any R & D in 2014 must be detrimental to the long-term financial success of the business, but it pushes up the Residual Income figure for the division in that year.

Performance evaluation based on EVATM

Stern Stewart estimates that between 10 and 160 adjustments are needed for purposes of the EVATM calculation. In this simplified example, just three are needed:

- Fixed assets must be consistently measured at their current market values, and depreciation charges should reflect changes in these values. In this way, irrelevant conventions such as straight-line depreciation are factored out.
- Advertising expenditure is treated as an intangible asset, to be amortised over the 3-year period expected to benefit from its use, instead of 100% of the expense being treated as a period cost in the year of expenditure.
- Similarly, R & D expenditure (by Division Y only) is treated as an intangible asset, to be amortised over the 4 years expected to benefit from its use, instead of 100% of the expense being treated as a period cost in the year of expenditure. One implication of this is that part of the 2013 R & D expenditure will turn up as an amortisation expense in the 2014 EVATM calculation.

The detailed calculation is as follows:

- **Adjusted profit:**

	Division X	Division Y
Divisional profit	€186,000	€94,000
Add back: straight line depreciation	€100,000	€60,000
Less: economic depreciation	(€80,000)	(€40,000)
Add back: Capitalised 2014 advertising expenditure	$(2/3) * €18K = €12,000$	$(2/3) * €24K = €16,000$
Add back: Capitalised 2014 R & D expenditure		$(3 / 4) * €68K = €51,000$
Less: Amortisation of 2013 R & D expenditure		$-(1/4) * €32K = (€8,000)$
Adjusted profit	€218,000	€173,000

- **Adjusted net assets:**

	Division X	Division Y
Net assets per Balance Sheet	€1,230,000	€590,000
Adjustment to restate fixed assets at market value (difference between economic and straight-line depreciation)	$+100 - 80$ $= €20,000$	$+60 - 40$ $= €20,000$
Unamortised 2014 advertising expenditure	€12,000	€16,000
Unamortised R & D expenditure		$€51,000 + [(2 / 4) * €32K] = €67,000$
Adjusted net assets	€1,262,000	€693,000

- **Economic Value Added (EVA™):**

	Division X	Division Y
Adjusted profit	€218,000	€173,000

Capital charge	10% * €1,262,000 = €126,200	10% * €693,000 = €69,300
EVA™	€91,800	€103,700

Conclusion: Advantages and limitations of Economic Value Added™

- Maximisation of EVA™ is (in principle) consistent with maximisation of shareholder wealth. Therefore, by implementing EVA™ as the measure of divisional performance, organisations are (in principle) incentivising division managers to pursue creation of shareholder value.
- Implementation of EVA™ substantially eliminates the temptation for division managers to under-invest in intangible assets such as R & D and advertising, since (unlike traditional divisional performance measures such as ROI / RI) EVA™ explicitly recognises the economic value of such investments.
- It must be acknowledged that EVA™ (like any performance measure) is not completely objective and does not guarantee perfect goal congruence. For example, by overestimating the future period of benefits from the advertising expenditure a division manager could reduce the impact on profits of current period advertising expenditures. In practice, division managers will learn to "game" any division performance measure with experience to a greater or lesser degree.
- The burden of calculation can be significant. As previously indicated, Stern Stewart states that up to 160 adjustments may be required in complex organisations in order to calculate EVA™ but they state that a figure of 10 adjustments is more typical.

Reference

Drury, C. (2015). *Management and cost accounting* (9th ed.). Andover, Hampshire: Cengage Learning.