

PERFORMANCE MEASUREMENT

by Steve Jay

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Decentralisation and the need for performance measurement

Decentralisation is the delegation of decision-making responsibility. All organisations decentralise to some degree, some do it more than others. Decentralisation is a necessary response to the increasing complexity of the environment that organisations face and the increasing size of most organisations. Nowadays it would be impossible for one person to make all the decisions involved in the operation of even a small company, hence senior managers delegate decision-making responsibility to subordinates.

One danger of decentralisation is that managers may use their decision-making freedom to make decisions that are not in the best interests of the overall company (so called dysfunctional decisions). To redress this problem, senior managers generally introduce systems of performance measurement to ensure - among other things - that decisions made by junior managers are in the best interests of the company as a whole. Example 1 details different degrees of decentralisation and typical financial performance measures employed.

EXAMPLE 1

Responsibility structure	Manager's area of responsibility	
Cost centre	Decisions over costs	Standard costing variances
Profit centre*	Decisions over costs and revenues	Controllable profit
Investment centre*	Decisions over costs, revenues, and assets	Return on investment and residual income

* These two structures are often referred to as divisions - divisionalisation refers to the delegation of profit-making responsibility.

What makes a good performance measure?

A good performance measure should:

- provide incentive to the divisional manager to make decisions which are in the best interests of the overall company (goal congruence)
- only include factors for which the manager (division) can be held accountable
- recognise the long-term objectives as well as short-term objectives of the organisation.

Traditional performance indicators

Cost centres

Standard costing variance analysis is commonly used in the measurement of cost centre performance. It gives a detailed explanation of why costs may have departed from standard. Although commonly used, it is not without its problems. It focuses almost entirely on short-term cost minimisation which may be at odds with other objectives, for example, quality or delivery time. Also, it is important to be clear about who is responsible for which variance - is the production manager or the purchasing manager (or both) responsible for raw material price variances? There is also the problem with setting standards in the first place - variances can only be as good as the standards on which they are based.

Profit centres

Controllable profit statements are commonly used in profit centres. A proforma statement is given in Example 2.

EXAMPLE 2: CONTROLLABLE PROFIT STATEMENT

	\$	\$
Sales	(external)	<u>XXX</u> -
	(internal)	<u>XXX</u>
		XXX
Controllable divisional variable costs		(XXX)
Controllable divisional fixed costs		(<u>XXX</u>)
Controllable divisional profit		XXX
Other traceable divisional variable costs		(X)
Other traceable divisional fixed costs		(<u>XXX</u>)
Traceable divisional profit		XXX
Apportioned head office cost		(<u>XXX</u>)
Net profit		<u>XXX</u>

The major issue with such statements is the difficulty in deciding what is controllable or traceable. When assessing the performance of a manager we should only consider costs and revenues under the control of that manager, and hence judge the manager on controllable profit. In assessing the success of the division, our focus should be on costs and revenues that are traceable to the division and hence judge the division on

traceable profit. For example, depreciation on divisional machinery would not be included as a controllable cost in a profit centre. This is because the manager has no control over investment in fixed assets. It would, however, be included as a traceable fixed cost in assessing the performance of the division.

Investment centres

In an investment centre, managers have the responsibilities of a profit centre plus responsibility for capital investment. Two measures of divisional performance are commonly used:

1 Return on investment (ROI) =
controllable (traceable) profit %
controllable (traceable) investment

2 Residual income = controllable (traceable) profit - an imputed interest charge on controllable (traceable) investment.

Example 3 demonstrates their calculation and some of the drawbacks of return on investment.

Example 3

Division X is a division of XYZ plc. Its net assets are currently \$10m and it earns a profit of \$2.2m per annum. Division X's cost of capital is 10% per annum. The division is considering two proposals.

Proposal 1 involves investing a further \$1m in fixed assets to earn an annual profit of \$0.15m.

Proposal 2 involves the disposal of assets at their net book value of \$2.3m. This would lead to a reduction in profits of \$0.3m.

Proceeds from the disposal of assets would be credited to head office not Division X.

Required: calculate the current ROI and residual income for Division X and show how they would change under each of the two proposals.

Current situation

Return on investment

ROI = $\frac{\$2.2\text{m}}{\$10.0\text{m}} = 22\%$

\$10.0m

Residual income

Profit \$2.2m

Imputed interest charge

$\$10.0\text{m} \times 10\% = \1.0m

Residual income \$1.2m

Comment: ROI exceeds the cost of capital and residual income is positive. The division is performing well.

Proposal 1

Return on investment

$$\text{ROI} = \$2.35\text{m} = 21.4\% \text{ } \$11.0\text{m}$$

Residual income

Profit \$2.35m

Imputed interest charge

$$\$11.0\text{m} \times 10\% \text{ } \$1.1\text{m}$$

Residual income \$1.25m

Comment: In simple terms the project is acceptable to the company. It offers a rate of return of 15% (\$0.15m/\$1m) which is greater than the cost of capital. However, divisional ROI falls and this could lead to the divisional manager rejecting proposal 1. This would be a dysfunctional decision. Residual income increases if proposal 1 is adopted and this performance measure should lead to goal congruent decisions.

Proposal 2

Return on investment

$$\text{ROI} = \$1.9\text{m} = 24.7\% \text{ } \$7.7\text{m}$$

Residual income

Profit \$1.90m

Imputed interest charge

$$\$7.7\text{m} \times 10\% \text{ } \$0.77\text{m}$$

Residual income \$1.13m

Comment: In simple terms the disposal is not acceptable to the company. The existing assets have a rate of return of 13.0% (\$0.3m/\$2.3m) which is greater than the cost of capital and hence should not be disposed of. However, divisional ROI rises and this could lead to the divisional manager accepting proposal 2. This would be a dysfunctional decision. Residual income decreases if proposal 2 is adopted and once again this performance measure should lead to goal congruent decisions.

Relative merits of ROI and residual income

Return on investment is a relative measure and hence suffers accordingly. For example, assume you could borrow unlimited amounts of money from the bank at a cost of 10% per annum. Would you rather borrow £100 and invest it at a 25% rate of return or borrow \$1m and invest it at a rate of return of 15%?

Although the smaller investment has the higher percentage rate of return, it would only give you an absolute net return (residual income) of \$15 per annum after borrowing costs. The bigger investment would give a net return of \$50,000. Residual income, being an absolute measure, would lead you to select the project that maximises your wealth.

Residual income also ties in with net present value, theoretically the best way to make investment decisions. The present value of a project's residual income equals the

project's net present value. In the long run, companies that maximise residual income will also maximise net present value and in turn shareholder wealth. Residual income does, however, experience problems in comparing managerial performance in divisions of different sizes. The manager of the larger division will generally show a higher residual income because of the size of the division rather than superior managerial performance.

Problems common to both ROI and residual income

The following problems are common to both measures:

- Identifying controllable (traceable) profits and investment can be difficult.
- If used in a short-term way they can both overemphasise short-term performance at the expense of long-term performance. Investment projects with positive net present value can show poor ROI and residual income figures in early years leading to rejection of projects by managers (see Example 4).
- If assets are valued at net book value, ROI and residual income figures generally improve as assets get older. This can encourage managers to retain outdated plant and machinery (see Example 4).
- Both techniques attempt to measure divisional performance in a single figure. Given the complex nature of modern businesses, multi-faceted measures of performance are necessary.
- Both measures require an estimate of the cost of capital, a figure which can be difficult to calculate.

EXAMPLE 4

PQR plc is considering opening a new division to manage a new investment project. Forecast cashflows of the new project are as follows:

Year	0	1	2	3	4	
Forecast net cash flow \$m	(5.0)	1.4	1.4	1.4	1.4	1.4

PQR's cost of capital is 10% pa. Straight line depreciation is used.

Required: Calculate the project's net present value and its projected ROI and residual income over its five-year life.

Year	0	1	2	3	4	5
Forecast net cash flow \$m	(5.0)	1.4	1.4	1.4	1.4	1.4
Present value factors at 10%	1.00	0.91	0.83	0.75	0.68	0.62

NPV

Present value	(5.0)	1.27	1.16	1.05	0.95	0.87
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NPV = \$0.30m

ROI

Year	1	2	3	4	5
1 Opening investment at net book value	5.0	4.0	3.0	2.0	1.0
2 Forecast net cash flow \$m	1.4	1.4	1.4	1.4	1.4
3 Straight line depreciation	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)
4 Profit	0.4	0.4	0.4	0.4	0.4

ROI (4 ÷ 1 x 100)	8%	10%	13%	20%	40%
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Residual income

Year	1	2	3	4	5
Profit (as above)	0.4	0.4	0.4	0.4	0.4
Imputed capital charge (opening investment x 10%)	0.5	0.4	0.3	0.2	0.1
Residual income	(0.1)	0.0	0.1	0.2	0.3

Comment: this example demonstrates two points. Firstly, it illustrates the potential conflict between NPV and the two divisional performance measures. This project has a positive NPV and should increase shareholder wealth. However, the poor ROI and residual income figures in the first year could lead managers to reject the project. Secondly, it shows the tendency for both ROI and residual income to improve over time. Despite constant annual cashflows, both measures improve over time as the net book value of assets falls. This could encourage managers to retain outdated assets.

Non-Financial Performance indicators

In recent years, the trend in performance measurement has been towards a broader view of performance, covering both financial and non-financial indicators. The most well-known of these approaches is the balanced scorecard proposed by Kaplan and

Norton. This approach attempts to overcome the following weaknesses of traditional performance measures:

Single factor measures such as ROI and residual income are unlikely to give a full picture of divisional performance.

- Single factor measures are capable of distortion by unscrupulous managers (eg by undertaking proposal 2 in Example 3).
- They can often lead to confusion between measures and objectives. If ROI is used as a performance measure to promote the maximisation of shareholder wealth some managers will see ROI (not shareholder wealth) as the objective and dysfunctional consequences may follow.
- They are of little use as a guide to action. If ROI or residual income fall they simply tell you that performance has worsened, they do not indicate why.

The balanced scorecard approach involves measuring performance under four different perspectives, as follows:

Perspective	Question
Financial success	How do we look to shareholders?
Customer satisfaction	How do customers see us?
Process efficiency	What must we excel at?
Growth	Can we continue to improve and create value?

The term 'balanced' is used because managerial performance is assessed under all four headings. Each organisation has to decide which performance measures to use under each heading. Areas to measure should relate to an organisation's critical success factors. Critical success factors (CSFs) are performance requirements which are fundamental to an organisation's success (for example innovation in a consumer electronics company) and can usually be identified from an organisation's mission statement, objectives and strategy. Key performance indicators (KPIs) are measurements of achievement of the chosen critical success factors. Key performance indicators should be:

- specific (ie measure profitability rather than 'financial performance', a term which could mean different things to different people)
- measurable (ie be capable of having a measure placed upon it, for example, number of customer complaints rather than the 'level of customer satisfaction')
- relevant, in that they measure achievement of a critical success factor.

Example 5 demonstrates a balanced scorecard approach to performance measurement in a fictitious private sector college training ACCA students.

EXAMPLE 5

Perspective	Critical Success Factor	
Financial success	Shareholder wealth	Dividend yield % increase in share price
	Cashflow	Actual v budget Debtor days
Customer satisfaction	Exam success	College pass rate v national average Premier college status Tutor grading by students
	Flexibility	Average number of course variants per subject (eg full-time, day release, evening)
Process efficiency	Resource utilisation	% room occupancy Average class size Average tutor teaching load (days)
	Innovation products	
Growth	Information technology	% of sales from < 1 year old Number of online enrolments

The balanced scorecard approach to performance measurement offers several advantages:

- it measures performance in a variety of ways, rather than relying on one figure
- managers are unlikely to be able to distort the performance measure - bad performance is difficult to hide if multiple performance measures are used
- it takes a long-term perspective of business performance
- success in the four key areas should lead to the long-term success of the organisation
- it is flexible - what is measured can be changed over time to reflect changing priorities
- 'what gets measured gets done' - if managers know they are being appraised on various aspects of performance they will pay attention to these areas, rather than simply paying 'lip service' to them.

The main difficulty with the balanced scorecard approach is setting standards for each of the KPIs. This can prove difficult where the organisation has no previous experience of performance measurement. Benchmarking with other organisations is a possible solution to this problem.

Allowing for tradeoffs between KPIs can also be problematic. How should the organisation judge the manager who has improved in every area apart from, say, financial performance? One solution to this problem is to require managers to improve in all areas, and not allow tradeoffs between the different measures.

Steve Jay is examiner for CAT Paper 7