

MANAGEMENT AND COST ACCOUNTING
7TH EDITION

Part Four:
Information for planning, control and performance

Chapter Nineteen:
Divisional financial performance measures

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19.1

Functional and divisionalized organization structures

- In a functional structure only the organization as a whole is an investment centre (IC) and below this level a functional structure applies throughout.
- A functional structure is where all activities of a similar type are placed under the control of a departmental head.
- In a divisionalized structure the organization is divided into separate investment or profit centres (PC 's) and a functional structure applies below this level.
- Diagram on sheet 19.2 indicates that:
 1. In a functional structure all centres below the chief executive or corporate level are cost centres (CC 's) or revenue centres.
 2. In a divisionalized structure divisions tend to be either IC 's or PC 's but within each division there are multiple cost and revenue centres.
- Divisionalized structures generally lead to a decentralization of the decision-making process whereas managers in a functional structure will tend to have less independence.

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19.2a

(a) Functional organizational structure

FIGURE 19.1
A functional and divisionalized organizational structure

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19.2b

(b) Divisionalized organizational structure

FIGURE 19.1
A functional and divisionalized organizational structure

IC = Investment centres, CC = Cost centres, RC = Revenue centres

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Advantages of divisionalization

- Improved quality of decisions
- Speedier decisions
- Increases managerial motivation
- Enables top management to devote more time to strategic issues

Disadvantages of divisionalization

- Suboptimization and may promote a lack of goal congruence.
- More costly to operate a divisionalized structure.
- Loss of control by top management.

Prerequisites for successful divisionalization

- More appropriate for companies with diversified activities.
- Relations between divisions regulated so that no division, by seeking to increase its own profit, can reduce the profitability of the company as a whole.

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Measuring divisional profits

- There are strong arguments for producing two measures of divisional profitability—one to evaluate managerial performance and the other to evaluate the economic performance of the division.

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• Alternative divisional profit measures

Sales to outside customers	xxx
Transfers to other divisions	xxx
Total sales revenue	xxx
Less variable costs	xxx
1. Variable short-run contribution margin	xxx
Less controllable fixed costs	xxx
2. Controllable contribution	xxx
Less non-controllable avoidable costs	xxx
3. Divisional contribution	xxx
Less allocated corporate expenses	xxx
4. Divisional net profit before taxes	xxx

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• Controllable contribution is the most appropriate measure of a divisional manager's performance (should be measured relative to budget performance).

• Divisional contribution and divisional net profits before tax are appropriate measures of economic performance:

1. Divisional contribution = Incremental short-term contribution
2. Net profit before taxes = Estimate of longer-term contribution

• Empirical evidence indicates that divisional net profit is widely used to evaluate both divisional and managerial performance.

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Measuring divisional profitability

• Ideally focus should be on relative measures (profitability) rather than absolute measures of profit.

• Relative profitability measures:

1. Return on investment (ROI)
2. Residual income (RI)
3. Economic value added (EVA™)

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Return on investment

	Division A	Division B
Profit	£1m	£2m
Investment	£4m	£20m
ROI	25%	10%

• Division B earns higher profits but A is more profitable

• ROI is a relative measure of performance that can be compared with other investments. It also provides a useful summary measure of the *ex post* return on capital employed.

• A major disadvantage of ROI is that managers may be motivated to make decisions that make the company worse off.

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	Division X	Division Y
Investment project available	£10 million	£10 million
Controllable contribution	£2 million	£1.3 million
Return on the proposed project	20%	13%
ROI of divisions at present	25%	9%

The overall cost of capital for the company is 15%

The manager of X would be motivated not to invest and the manager of Y would be motivated to invest.

• ROI may also motivate managers to make incorrect asset disposal decisions.

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Residual income

• Controllable residual income = Controllable profit less a cost of capital charge on the investment controllable by the manager.

• It is claimed that RI is more likely to encourage goal congruence

	Division X (£m)	Division Y (£m)
Proposed investment	10	10
Controllable profit	2	1.3
Cost of capital charge (15%)	1.5	1.5
Residual income	+0.5	-0.2

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19.7b

- The manager of division X is motivated to invest and the manager of division Y is motivated not to invest.
- RI also enables different cost of capital percentages to be applied to different investments that have different levels of risk.
- If RI is used it should be compared with budgeted/target levels which reflect the size of the divisional investment.
- Empirical evidence indicates that RI is not widely used.

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Economic value added (EVA™)

- During the 1990 's RI was refined and renamed EVA™
- EVA™ = Conventional divisional profit based on GAAP
± Accounting adjustments
– Cost of capital charge on divisional assets
- Conventional divisional profit based on principles outlined for measuring divisional managerial and/or economic profits.
- Adjustments intended to convert historic accounting profit to an approximation of economic profit.
- Adjustments typically include capitalization of discretionary expenses.

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19.8b

Assets to be included in the investment base

- Assets to be included must be specified for ROI, RI and EVA™
- To measure the managerial performance only controllable assets should be included in the investment base.
- To measure economic performance all assets, and possibly an allocation of some corporate assets, should be included.

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The impact of depreciation

1. Assume investment cost =£1m, Cost of capital =10%, NPV=£326 850

	1 £	2 £	3 £	4 £	5 £
Net cash flow	350 000	350 000	350 000	350 000	350 000
Depreciation	200 000	200 000	200 000	200 000	200 000
Profit	150 000	150 000	150 000	150 000	150 000
Cost of capital (10% of WDV)	100 000	80 000	60 000	40 000	20 000
RI/EVA	50 000	70 000	90 000	110 000	130 000
Opening WDV of the asset	1 000 000	800 000	600 000	400 000	200 000
ROI	15%	18.75%	25%	37.5%	75%

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The impact of depreciation (contd.)

- If original cost is used to compute ROI and RI
 - ROI = 15% p.a. for years 1 – 5
 - RI/EVA = £50 000 p.a. for years 1 – 5
 - May motivate managers to replace existing assets with new assets that have negative NPVs.
- If WDV is used to compute ROI and RI/EVA
 - Both RI/EVA and ROI increase steadily over five years.
 - Managers can attain higher performance measures by retaining old assets (i.e. not motivated to replace).
- To overcome the above problems assets should be valued at their economic cost (or replacement cost as an approximation).

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The effect of performance measurement on capital investment decisions

1. NPV calculations for three mutually exclusive projects:

	X £000	Y £000	Z £000
Machine cost initial outlay (time zero)	861	861	861
Estimated net cash flow (year 1)	250	390	50
Estimated net cash flow (year 2)	370	250	50
Estimated net cash flow (year 3)	540	330	1100
Estimated net present value at 10% cost of capital	77	(52)	52
Ranking on the basis of NPV	1	3	2

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19.10b

2. Estimated ROI and RI/EVA

Profits	X £000	Y £000	Z £000
Year 1	(37)	103	(237)
Year 2	83	(37)	(237)
Year 3	253	43	813
Total profits	299	109	339
PV of future profits	225	96	199

ROI	X %	Y %	Z %
Year 1	(4.3)	11.9	(27.5)
Year 2	14.5	(6.4)	(41.3)
Year 3	88.1	15.0	283.2
Average	32.8	6.8	71.5

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The effect of performance measurement on capital investment decisions (cont.)

3. RI/EVA for project X

	Year 1 £000	Year 2 £000	Year 3 £000	Total £000
Profit before interest	(37)	83	253	
10% interest on opening written down value	86	57	29	
RI/EVA	(123)	26	224	
PV of RI/EVA	(112)	21	168	77

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The effect of performance measurement on capital investment decisions (cont.)

4. There is no guarantee that the short-run RI/EVA measure will be consistent with the long-term measure.

	X	Y	Z
RI/EVA (year 1)	– £123	17	– £323

5. To ensure that the short-term performance measure is consistent with NPV decision model the literature suggests that alternative depreciation models should be used based on accrual accounting or actual cash flows should be compared with the budgeted cash flows (see Learning Note 19.1).

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Addressing the dysfunctional consequences of short-term financial performance measures

- Financial performance measures can encourage managers to become short-term oriented and seek to boost short-term profits at the expense of long-term profits.
- Approaches for reducing the short-term orientation:
 - Divisional performance evaluated on the basis of economic income (PV of future cash flows).
 - Adopt EVA™ incorporating many accounting adjustments.
 - Lengthen the measurement period.
 - Do not rely excessively on financial measures and incorporate non-financial measures that measure those factors that are critical to the long-term success of the organization.

(i.e. adopt a Balanced Scorecard Approach)

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