Module 4

Introduction

This module is designed to enhance your knowledge of management accounting techniques. In particular you will be introduced to two aspects of reporting, first how organisations deal with segmental or divisional reporting and secondly the module concludes with a discussion on the balanced scorecard. The module also discusses one particular aspect of segmental or divisional trading and that is the setting of transfer prices.

Upon completion of this module students will be able to:

Outcomes

- *Demonstrate* knowledge and understanding of the issues surrounding segmental or divisional reporting.
- *Demonstrate* knowledge and understanding of the need for transfer pricing; the various methodologies; and the additional complication of multi-national divisions.
- *Demonstrate* knowledge and understanding of the philosophy of the Balanced Scorecard; its contents; how to design one, and the associated implementation issues.

Unit 8

Segment reporting and decentralisation

Learning outcomes

Outcomes

Upon completion of this unit students will be able to:

- *Explain* the difference between a centralised and decentralised organisation.
- *Describe* the advantages of both a centralised and decentralised organisation.
- *Understand* the differences between the categories of responsibility centre.
- *Explain* segment margin.
- *Calculate* return on investment and residual income.

Activity 4.1

Activity

1. For the organisation that you are involved with, obtain or prepare an organisation chart that highlights the key areas of responsibility.
2. In your opinion would you describe your organisation as centralised or decentralised? Explain your answer.

Activity 4.2

Activity

1. Forsyth Limited has two business segments – retail and wholesale.

   In March, the retail business segment had sales revenues of $500,000, variable expenses of $245,000, and traceable fixed expenses of $90,000. During the same month, the wholesale business segment had sales revenues of $240,000, variable expenses of $101,000, and traceable fixed expenses of $38,000. Common fixed expenses totalled $152,000 and were allocated as follows: $79,000 to the retail business segment and $73,000 to the wholesale business segment.

   a. Prepare a segmented income statement in the contribution format for the company.

2. Watford Limited had net operating income of $150,000 and average operating assets of $500,000. The company requires a return on investment of 19 per cent.

   a. Calculate the company's current return on investment and residual income.

   b. The company is investigating an investment of $400,000 in project that will generate annual net operating income of $78,000. What is the return on investment and residual income of the project? Should the company invest in this project?

3. Old Limited uses residual income to evaluate the performance of its divisions. The minimum required rate of return for performance evaluation purposes is 16 per cent. The Games Division had average operating assets of $470,000 and net operating income of $72,900 in September.

   a. What was the Games Division's residual income in September?

4. The Consumer Products Division of Geraldo Limited had average operating assets of $300,000 and net operating income of $46,900 in March. The minimum required rate of return for performance evaluation purposes is 16 per cent.

   a. What was the Consumer Products Division's minimum required return in March?

b. What was the Consumer Products Division's residual income in March?

Activity 4.1 Feedback

Your responses will depend on the organisation you choose.

Activity 4.2 Feedback

1. Forsyth Limited

	Total	Retail	Wholesale
Sales	$740,000	$500,000	$240,000
Variable expenses	346,000	245,000	101,000
Contribution margin	394,000	255,000	139,000
Traceable fixed expenses	128,000	90,000	38,000
Segment margin	266,000	$165,000	$101,000
Common fixed expenses	152,000		
Net operating income	$114,000		

2. Watford Limited

   a. Return on investment = Net operating income ÷ Average operating assets = $150,000 ÷ $500,000 = 30%

   Residual income = Net operating income - (Average operating assets x Minimum required rate of return) = $150,000 - ($500,000 x 0.19) = $55,000

   b. Return on investment = Net operating income ÷ Average operating assets = $78,000 ÷ $400,000 = 19.5%

   Residual income = Net operating income - (Average operating assets x Minimum required rate of return) = $78,000 - ($400,000 x 0.19) = $2,000

   The company should invest in this project since its rate of return exceeds the minimum required rate of return. In other words, its residual income is positive.

3. Old Limited

Net operating income	$72,900
Minimum required return (16% × $470,000)	75,200
Residual income	($2,300)

4. Geraldo Limited

   a. Minimum required return = $300,000 x 16% = $48,000

   b. Residual income = Net operating income - Minimum required rate of return x Average operating assets = $46,900 - (16% x $300,000) = -$1,100

Unit 9

Transfer pricing

Learning outcomes

Outcomes

Upon completion of this unit students will be able to:

- *Explain* the need for transfer pricing.
- *Describe* situations that arise that lead to less profits overall for an organisation.
- *Describe* the different methods of arriving at a transfer price.
- *Explain* the objectives of transfer pricing.
- *Determine* the range, if any, within which a negotiated transfer price should fall.
- *Explain* the effects of different country tax rates on transfer pricing decisions.

Activity 4.3

Activity

1. For the organisation that you are involved with, find out if products or services are transferred internally between segments or divisions.
2. If your organisation does transfer products or services internally, find out how the transfer price is established. Does this price enable a reasonable performance evaluation of both the transferring and receiving segments or divisions?

Activity 4.4

Activity

1. Division A of Chopper Limited makes and sells a single product which is used by manufacturers of fork lift trucks. Presently it sells 12,000 units per year to outside customers at $24 per unit. The annual capacity is 20,000 units and the variable cost to make each unit is $16.

   Division B of Chopper Limited would like to buy 10,000 units a year from Division A to use in its products. There would be no cost savings from transferring the units within the company rather than selling them on the outside market.

   a. What should be the lowest acceptable transfer price from the perspective of Division A?

2. Part W4 costs the East Division of Tyrone Limited $26 to make-direct materials are $10, direct labour is $4, variable manufacturing overhead is $9, and fixed manufacturing overhead is $3. The East Division can sell all of Part W4 they can make to other companies for $30. The West Division of Tyrone Limited can use part W4 in one of its products.

   a. What is the lowest transfer price at which the East Division would be willing to sell part W4 to the West Division?

3. The Pump Division of Thorn Limited produces pumps which it sells for $20 each to outside customers. The Pump Division's cost per pump, based on normal volume of 500,000 units per period, is shown below:

   - Variable costs $12.00
   - Fixed costs $3.00
   - Total cost $15.00

   Thorn has recently purchased a small company which makes automatic dishwashers. This new company is presently purchasing 100,000 pumps each year from another manufacturer. Since the Pump Division has a capacity of 600,000 pumps per year and is now selling only 500,000 pumps to outside customers, management would like the new Dishwasher Division to begin purchasing its pumps internally. The Dishwasher Division is now paying $20 per pump, less a 10 per cent quantity discount. The Pump Division could avoid $1 per unit in variable costs on any sales to the Dishwasher Division.

a. Treating each division as an independent profit centre, within what price range should the internal sales price fall?

b. Now assume that the Pump Division is selling 600,000 pumps per year to outside customers. Determine the appropriate transfer price.

4. Eastman Limited has a Parts Division that does work for other divisions in the company as well as for outside customers. The company's Machine Products Division has asked the Parts Division to provide it with 10,000 special parts each year. The special parts would require $15.00 per unit in variable production costs.

   The Machine Products Division has a bid from an outside supplier for the special parts at $29.00 per unit. In order to have time and space to produce the special part, the Parts Division would have to cut back production of another part-the H5 that it presently is producing.

   The H5 sells for $32.00 per unit, and requires $19.00 per unit in variable production costs. Packaging and shipping costs of the H5 are $3.00 per unit. Packaging and shipping costs for the new special part would be only $1.00 per unit. The Parts Division is now producing and selling 40,000 units of the H5 each year. Production and sales of the H5 would drop by 20 per cent if the new special part is produced for the Machine Products Division.

   a. What is the range of transfer prices within which both the divisions' profits would increase as a result of agreeing to the transfer of 10,000 special parts per year from the Parts Division to the Machine Products Division?

   b. Is it in the best interests of Eastman Limited for this transfer to take place? Explain.

Activity 4.3 Feedback

Your responses will depend on the organisation you choose.

Activity 4.4 Feedback

1. Chopper Limited

   From the perspective of division A, profits would increase as a result of the transfer if, and only if:

   Transfer price > Variable cost + Opportunity cost.

The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:

Opportunity cost = [($24 - $16) x 2,000*] ÷ 10,000 = $1.60

*10,000 - (20,000 - 12,000) = 2,000

Therefore, Transfer price > $16 + $1.60 = $17.60.

2. Tyrone Limited

   From the perspective of the East division, profits would increase as a result of the transfer if and only if:

   Transfer price > Variable cost + Opportunity cost

   The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:

   Opportunity cost = $30 - $10 - $4 - $9 = $7 each

   Therefore, Transfer price > $23 + $7 = $30.

3. Thorn Limited

   a. Current price being paid by the Dishwasher Division:

      $20 - (10% x $20) = $18

      Using the transfer pricing formula, the minimum transfer price is:

      Transfer Price > Variable Costs + Lost Contribution Margin > $11 + $0 = $11

      Therefore, the transfer price would be between $11 and $18 per unit.

   b. In this case there is no idle capacity. Therefore, the appropriate transfer price would be:

      Transfer Price > Variable Costs + Lost Contribution Margin> $11 + ($20 - $12) = $11 + $8 = $19

4. Eastman Limited

   a. From the perspective of the Parts Division, profits would increase as a result of the transfer if, and only if:

      Transfer price > Variable cost + Opportunity cost.

      The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:

      Opportunity cost = [($32.00-$19.00-$3.00) x8,000*]/10,000 = $8.00

      * 20%x40,000 = 8,000

      Therefore, Transfer price > ($15.00+$1.00)+$8.00 = $24.00.

      From the viewpoint of the Machine Products Division, the transfer price must be less than the cost of buying the units from the outside supplier. Therefore, Transfer price < $29.00.

Combining the two requirements, we get the following range of transfer prices: $24.00 < Transfer price < $29.00.

b. Yes, the transfer should take place. From the viewpoint of the entire company, the cost of transferring the units within the company is $24.00, but the cost of purchasing the special parts from the outside supplier is $29.00. Therefore, the company's profits increase on average by $5.00 for each of the special parts that is transferred within the company, even though this would cut into production and sales of another product.

Unit 10

Balanced scorecard

Learning outcomes

Outcomes

Upon completion of this unit students will be able to:

- *Describe* the purpose of a Balanced Scorecard.
- *Understand* how to use and construct a balanced scorecard.
- *Identify* and describe the four perspectives of the balanced scorecard.
- *Explain* the process for designing a balanced scorecard.
- *Describe* situations that lead to poor implementation of a balanced scorecard.

Activity 4.5

Activity

1. For the organisation you are involved with, find out if management use a scorecard to monitor progress towards achieving the organisation's strategic goals.
   a. If a scorecard is used find out what measures are used and how often they are updated.
   b. If a scorecard is not used, develop a scorecard that you believe is appropriate for the organisation.

Activity 4.6

Activity

1. With a balanced scorecard approach to business performance measurement, what difficulties could occur when trying to balance the four perspectives?
2. Why has the balanced scorecard become such an essential part of so many business management toolkits in recent years?
3. How can the balanced scorecard be used to achieve improved business performance?
4. The balanced scorecard appears to be the grouping together of a number of well-established principles and techniques. In what way does it represent a new technique?
5. Dynamic Systems Limited (DSL) is a small information systems consulting company which specialises in helping companies to implement production control software. The information systems consulting business is highly competitive and DSL must deliver quality service at a competitive cost. The company bills its clients in terms of units of work performed, which depends on the size and complexity of the client's production control system. The following data are provided:

	2009	2010
Units of work performed and sold	60	70
Selling price	$100,000	$96,000
Software implementation labour costs	$3,600,000	$4,032,000
Software implementation support costs	$720,000	$738,000
Selling and customer service costs	$2,000,000	$1,881,000
Software development staff	3	3
Software development costs	$750,000	$780,000
Software development costs per employee	$250,000	$260,000

At the beginning of each year management determines the number of software development staff for the year, but is aware that software development is an important factor in the company's strategy.

a. Outline the four major sections of a 2010 balanced scorecard for DSL, and indicate at least two measures for each section.
b. Outline why each measure is likely to lead to improvements in performance.

Activity 4.5 Feedback

Your responses will depend on the organisation you choose.

Activity 4.6 Feedback

1. With a balanced scorecard approach to business performance measurement, what difficulties could occur when trying to balance the four perspectives?

   Answers could include:

   - The four perspectives are quite different, and may well be strongly put by experts in one of the areas.
   - Ensuring that the debate is actually balanced will likely prove very difficult.
   - Determining appropriate measures of performance for the four areas will also be difficult, given that some are more easily measurable than others. Measurement scales will be a particular problem.
   - Getting all participants to think strategically.
   - Developing links with all stakeholders, especially avoiding cynicism.

2. Why has the balanced scorecard become such an essential part of so many business management toolkits in recent years?

   The balanced scorecard has become an essential part of the management process because it gives top managers a quick but comprehensive view of the business. The balanced scorecard not only includes financial measures, but also includes non-financial (operational) measures on customer satisfaction, internal processes, and the organisation's innovation and improvement activities – operational measures that are the drivers of future financial performance.

   The balanced scorecard provides a framework for translating management strategy into operational terms. It is a performance measurement system that identifies and reports on performance measures for each key strategic area of the business. Performance measures are developed for each level of the organisation that reflect the four perspectives inherent in the scorecard, namely financial, customer, internal business processes, and learning and growth.

The measures in the scorecard provide balance between:

- short-term and long-term objectives,
- the four perspectives,
- outcome measures and the measures of the drivers of those outcomes, and
- measures that are objective and easily quantified versus subjective performance measures.

3. How can the balanced scorecard be used to achieve improved business performance?

   The balanced scorecard can be used to improve business performance because the system identifies:

   - key performance indicators
   - key performance drivers; and
   - critical success factors.

   Performance measurement systems should focus on these factors.

4. The balanced scorecard appears to be the grouping together of a number of well-established principles and techniques. In what way does it represent a new technique?

   The balanced scorecard is a tool that incorporates the various types of key performance indicators (KPIs) and key performance drivers (KPDs) into a type of map that demonstrates how an entity can improve the outcome measures, such as return on assets, by making improvements in the aspects of the business that drive the improvements.

   It integrates a wide range of non-financial performance measures with financial performance measures.

   The balanced scorecard is structured to reflect 'cause and effect' relationships between the objectives and measuring these objectives.

5. DSL balanced scorecard

   - Balanced scorecard measures for 2010 follow:

     a. **Financial perspective**

        - operating income
        - revenues per employee
        - cost reductions in key areas, for example, software implementation and overhead costs.

These measures indicate whether DSL has been able to reduce costs and achieve operating income increases through cost leadership.

b. **Customer perspective**

- market share
- new customers
- speed of responding to customers
- customer satisfaction.

DSL's strategy should result in improvements in these customer measures that help evaluate whether DSL's cost leadership strategy is succeeding with its customers. These measures are leading indicators of superior financial performance.

c. **Internal business process perspective**

- time to complete customer jobs
- time lost due to errors
- quality of job (e.g. Is system running smoothly after the job is completed? What is the number of reported breakdowns?)
- Time required to analyse and design implementation steps
- time taken to perform key steps implementing the software.

Improvements in these measures are key drivers of achieving cost leadership and are expected to lead to more satisfied customers, lower costs, and superior financial performance.

d. **Learning and growth perspective**

- skill levels of employees
- hours of employee training
- employee satisfaction and motivation.

Improvements in these measures are likely to improve DSL's ability to achieve cost leadership and have a cause-and-effect relationship with improvements in internal business processes, customer satisfaction, and financial performance.