

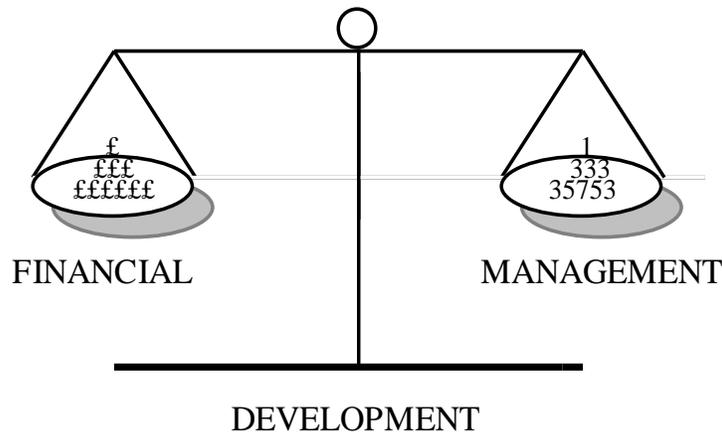
# FINANCIAL MANAGEMENT DEVELOPMENT

## Financial Accounting

### Common Problem Areas

NO 146

## REPLACEMENT COST ACCOUNTING



ONE OF A SERIES OF GUIDES FOR  
FINANCIAL MANAGEMENT DEVELOPMENT

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This is one of a series of documents produced by David A Palmer as a guide for managers on specific financial topics to assist informed discussion. Readers should take appropriate advice before acting upon any of the issues raised.

# REPLACEMENT COST ACCOUNTING

## FIXED ASSETS AND DEPRECIATION COSTS

Replacement Cost accounting is part of the theoretical background to Current Cost Accounting. It identifies Profit as the difference in the worth of an enterprise at the end of an accounting period when compared to the beginning. Many companies have adopted the approach of current cost accounting when incorporating the revaluation of property assets in their Balance Sheets. In most companies this is the only change and even this is only adopted by about half of the companies quoted on the UK Stock Exchange. The use of full current cost accounting techniques for financial reporting is now confined to oil companies, mainly because of the volatility of the oil price and its effect on reported earnings. However the underlying concepts still have relevance for the operational manager faced with decisions on production and pricing.

Although inflation is now sufficiently low to be ignored in most calculations of profit relating to the buying and selling of stock, it can still have an impact on the costs of manufactured products where Depreciation forms a significant part of the production cost. A simple example can illustrate the problem:

A company bought a machine in early 1988 for £100,000. At the date of the purchase the machine was expected to last 10 years and thus the depreciation charge was fixed at £10,000 per year. Under Historic Cost Accounting the Balance Sheet at the end of 1993 would show cost of £100,000 less 6 years depreciation of £10,000 i.e. £40,000. The company buys a new machine in early 1994. The machine is essentially the same as the existing machine but it now costs £150,000. This machine also has an expected life of 10 years and it is used in addition to the older machine rather than instead of it.

The company uses an accounting system that allocates its costs to products on the basis of a monthly charge. Is it right that products made on the new machine should be charged for depreciation of £15,000 per year while those made on the old machine are only charged £10,000 per year? If you were allocating products to be made on each machine you would probably want them all to be made on the old machine because it is "cheaper"!

When faced with this problem a number of major companies charge the higher depreciation figure for both machines. They effectively treat the Replacement Cost as the "true" cost and charge against their products the cost of using the newer machine, i.e. the depreciation charged is £15,000 for both machines. This may cause some products to show a loss where formerly they showed a profit. This does not mean that they should not be produced. Depreciation represents the writing off of a sunk cost, it should therefore be ignored when making short term tactical decisions. However, the company is now seeing the impact of using up the value of the older machine and may also avoid problems of resource misallocation which could have occurred if it had based its decisions on the historic cost data alone.

Some companies take this concept one stage further by setting internal targets based on Return on Capital employed which includes not only the higher replacement cost depreciation as a deduction from profit, but also includes the depreciated replacement cost in the total of capital employed. Assume that the two machines above were being used by different factories, both of which made a profit before depreciation of £30,000.

#### HISTORIC COST BASIS

	Old Machine	New Machine
Profit before depreciation	30,000	30,000
Depreciation	10,000	15,000
Net Profit	20,000	15,000
Capital employed	40,000	85,000
ROCE	50%	18%

This analysis could lead to misallocation of resources and might also discourage investment in new machinery. Management data is best designed to assist specific decisions rather than slavishly following the rules designed for financial reporting purposes. A better representation of results is shown by:

#### REPLACEMENT COST BASIS

	Old Machine	New Machine
Profit before depreciation	30,000	30,000
Replacement Cost Depreciation	15,000	15,000
Net Profit	15,000	15,000
Capital employed (on RC basis)	60,000*	85,000
ROCE	25%	18%

\* Based on cost of £150,000 less six tenths of its life expired.

This assists valid performance comparisons and allows for more informed management decision making on pricing and resource allocation. It also prevents the organisation from over-estimating operating profit because of inflation and may thus prevent too high a level of dividend being paid which would reduce the funds necessary for reinvestment in the business.

This approach should be used as an enhancement to the existing Historic Cost Accounting information, rather than instead of it. It is designed to assist certain decisions and performance comparisons, not to replace the normal control mechanisms. If implementation is deemed too complex, don't do it. Like any other activity the production of accounting information has to be justified on a cost/benefit analysis basis. Information has a cost, only the implementation of improved decisions can produce the benefit. As an example take the case of a volatile (sorry for the pun) industry like petrol retailing.

## IMPACT OF PRICE CHANGES ON PETROL RETAIL SITES

The profit figures reported by a petrol retail site will be affected by any movement in the price of fuel during any given reporting period.

This note sets out the reason that profit is affected and shows a way of estimating, and therefore adjusting for, the impact on reported profit. This assists the reviewer to identify the underlying profit trend when considering performance against plan.

### The Problem

Accounting for profit is basically simple. Take costs away from sales income and what is left is profit. For most industries this is fine, but in the Oil industry there is a problem. The price of the raw material keeps changing.

Consider a simple trader. He owns a tin of beans which he bought for 50p and sells it for £1. Profit is 50p. In the accounting records the books would show:

Sales	1.00
Cost of goods sold	<u>0.50</u>
Profit	<u>0.50</u>
	===

His Net Worth which was 50p, represented by stock, has gone up to £1.00, represented by cash.

However, imagine that same trader decides to buy another tin of beans and finds that a replacement tin now costs 60p. His Net Worth remains at £1.00 but is now represented by 40p cash and a tin of beans valued at 60p.

How can you say he has made a profit of 50p when he started with a tin of beans and finished with a tin of beans and 40p in cash?

The answer to this question continues to cause problems for accountants in oil companies who need to show two profit figures. Historic Cost profit and Replacement Cost profit. In essence the results are best shown like this:

Sales	1.00
Replacement Cost of goods sold	<u>0.60</u>
Replacement Cost Profit	0.40
Stock Holding Gain (or loss)	<u>0.10</u>
Historic Cost Profit	<u>0.50</u>
	===

The Stock Holding Gain (or Loss) arises from the fact that a tin of beans has effectively been in stock during a price increase and the gain is the amount of the increase.

Retail sites

A typical site will have 70,000 litres of fuel in stock. If there is a price increase of 1p, the site will show a bonus profit of 1p x 70,000, equivalent to £700, because when the fuel is sold the Retailer will get 1p more than the normal margin. Assume he puts the price up at the pump when the increase is notified to him. The normal accounting rules mean that this gain, which is not "real" profit if he needs to refill his tanks at the new price, will be lost in the reported profit and can be misleading.

Imagine three consecutive months. The first has a price rise of 1p from cost price of 44p per litre to 45p, the second has a price decrease of 1p back to 44p. Sales and purchases are 700,000 litres in each month at a constant margin of 2p per litre. There is no price change in the third month. Assume that the price notification comes through on the last day of the month and that the Retailer immediately changes the pump prices even though the tanks are full of fuel purchased at the old price.

<u>Profits as reported</u>	Month 1	Month 2	Month 3
	£	£	£
Sales at 46p/47p/46p	322,000	329,000	322,000
 <u>Cost of fuel sold</u>			
Opening stock 70,000 at 44p/44p/45p	30,800	30,800	31,500
Purchases 700,000 at 44p/45p/44p	308,000	315,000	308,000
Closing stock 70,000 at 44p/45p/44p	(30,800)	(31,500)	(30,800)
	<u>308,000</u>	<u>314,300</u>	<u>308,700</u>
 Profit (Income in the Monthly Report)	 14,000	 14,700	 13,300
	=====	=====	=====

The real track record is flat but the price changes distort the trend.

What to do

The reported figure is not wrong but to help interpretation the approach to use is:

	e.g. Month 2
	£
Profit as Reported	14,700
 Less impact of Price change + or - since start of period multiplied by the likely level of fuel in stock :	
Remove +1p x 70,000	<u>(700)</u>
 Profit for Month for true comparison purposes	 14,000
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David is an experienced financial professional who has devoted his skills to management training in practical understanding and utilisation of financial information. A Graduate, Chartered Accountant, and Associate of the Institute of Taxation, he is also a Member of the Chartered Institute of Personnel and Development and has been an Ordained as a Deacon in the Catholic Church.

He has worked as a Financial Controller and Company Secretary in the Finance industry and as a Director of Finance and Administration in the Computer Services industry. Since 1990 he has conducted management development programmes for over forty major organisations including Arla Foods, Blue Circle, BP, CSC Computer Sciences, Conoco, Ernst & Young, Lloyds Bowmaker, Royal Mail, Unilever and Zeneca. He also runs programmes for the Leadership Foundation and the management teams at a number of Universities. International training experience includes work in Belgium and Holland for CSC, in Denmark, Kenya and the Czech Republic for Unilever, in Holland and the US for Zeneca, in Dubai for Al Atheer, in Bahrain and Saudi Arabia for Cable & Wireless.

He specialises in programmes in financial management for both tactical and strategic decision making. In addition he has run courses in acquisition evaluation (The Economist, Eversheds, Blue Circle and Hays Chemicals) and in post-acquisition management (Unilever). All training is specifically tailored to the needs of the organisation with the emphasis on practical applications to enhance profitability and cashflow. He has developed material for delivery by in-house personnel (Royal Mail, Lloyds Bowmaker and Conoco), computer based training packages (The Post Office, Unilever and BP), and post course reinforcement self-study workbooks (CSC and Zeneca). He has also produced a training video on Cashflow Management.

He is a prolific writer of case studies, role plays and course material. He has also published articles on the financial justification of training, financial evaluation of IT investment proposals, the use of Activity Based Costing and Customer Profitability statements, commercial considerations for consultants, the need for taxation awareness training for general managers, evangelisation and Christian business ethics.

Many of his generic documents are freely available on his website:

**FinancialManagementDevelopment.com** including papers on Charity Management.

In addition to his Diaconal work in the Church, he has held a number of voluntary positions including University, College and School Governor, Hospice Treasurer and Trustee of various charitable institutions. He continues to provide ad hoc commercial advice to several other charitable organisations. He has been married for over 35 years and has one daughter and three granddaughters.

This series of papers is designed to help managers by providing a basic understanding of key financial concepts to assist them in their work. It is provided at no cost since this knowledge is a Gift from God and thus to be shared (Matthew 10:8).