

Drs. J. de Jong

Profit attributable to lenders and shareholders in Current Cost Accounting

1. Introduction

At the initiative of the MAB Editorial Board a workshop on 'Current Cost Accounting' was held in Amsterdam during August 1982. Participants came from the academic world and from industry. (see Appendix I)

This meeting was felt to be very valuable to all people present, as it represented a unique opportunity to exchange views on the theoretical necessity and practical applicability of CCA concepts.

During the debate the physical maintenance concept (sometimes referred to as the concept of maintaining operational capability) was generally accepted as the basic assumption underlying current cost accounting.

However, starting from this basic concept there did not appear to be a common view as to how the current cost operating profit should be allocated between the various parties that have a stake in the net profit of the enterprise. In particular the gearing concept embedded in SSAP 16¹ was the subject of a vigorous debate.

This article attempts to clarify the issues under discussion and offers a method to analyse profit in a way that gives a proper insight into the sources of profit and to whom it is allocated.

2. Profit of the Firm

The profit (or more correctly the results) remaining after full provision for costs connected with the maintenance of physical capital or operational capability is referred to in SSAP 16 as 'Current Cost Operating Profit'; during the workshop discussions the term 'Profit of the firm' was introduced as another name for current cost operating profit and this will also be used in this article.

In general terms, and ignoring taxation, one can say that:

Profit of the firm = return to lenders + profit to shareholders.

Under conditions of changing prices, the left-hand side of the equation is best measured by means of a physical capital maintenance approach, i.e. current cost operating profit. From the point of view of the physical entity, this is the amount that can be distributed to the proprietors (i.e. shareholders and lenders) without dissipating assets that are needed to maintain physical capacity. The question to be answered is: how should this distributable surplus be split between the various proprietors forming the other side of the equation?

At first sight the answer seems obvious: the lenders have supplied capital on the basis of a fixed contractual return, and this fixed amount - the interest - must be paid out to the lenders, leaving the shareholders with the remainder of the current cost operating profit. This amount (after provision for taxes) is what the FASB² call current cost income from continuing operations (CCICO). But what would be the consequences if dividends were to be restricted to the level of the CCICO?

Let us consider the following example:

- a firm owns one asset, which it consumes and replaces annually (purchase date: 31 Dec);
- the firm is financed initially by 50 % equity and 50 % debt;
- interest payable on debt is 25 % (5 % real, plus 20 % in compensation for anticipated inflation).

Balance Sheet at 31 Dec

Asset	HC	CC	Shareholders' equity Debt	HC	CC
	1000	1000		500	500
	1000	1000		500	500
				1000	1000

HC = historic cost. CC = current cost.
 Prices rise by 20 % on 1 Jan and do not change during the rest of the year.

Income Statement (Profit and Loss Account)

	HC	CC
Profit before depreciation	1400	1400
Depreciation	(1000)	(1200)
Operating profit	400	200
Interest @25 % on \$ 500	(125)	(125)
*Income from continuing operations	275	75

* Tax has been ignored

Assuming that a dividend of \$75 is paid (equal to the CCICO) and the asset is replaced on 31 Dec at its new price of \$1200, then the balance sheet would look as follows:

Balance Sheet at 31 Dec

Asset	HC	CC	Shareholders' equity Debt	HC	CC
	1200	1200		700	700
				500	500
	1200	1200		1200	1200

It can be seen from the above that, under conditions of inflation and zero real growth, this approach to income measurement results in the level of debt remaining static in nominal terms (at \$500), thereby reducing gearing from 50 % to 42 % ($\$500 : 1200 \times 100\%$). It is also apparent that, if inflation continues unabated, restriction of dividends to the amount measured by the CCICO will result, ultimately, in the firm being financed - for all practical purposes - entirely by shareholders.

Put simply, the obvious solution does not maintain economic equilibrium. Shareholders will be forced to increase their real investment in the enterprise, at the expense of their disposable income, whilst on the other hand, lenders will see their investment being reduced in real terms and will not be able to re-invest the inflation compensation element of their interest receipts in the firm, because they are being crowded out by the shareholders.

3. Is there a conceptual justification for a gearing adjustment?

Under non-inflationary conditions, the HC convention assumes that the replacement of assets can be financed in the same way as the original purchase, i.e. it does not require debt to be amortised against shareholders income in order to ensure that the replacement of assets can be financed entirely from shareholders funds. It should be noted that this assumption is always applied to the measurement of income attributable to shareholders, even in cases where the maintenance of the gearing of the company (i.e. the proportion of the assets financed by the lender) is *not* seen as desirable or prudent, since changing the gearing ratio is a matter for financial decision-taking, not for income measurement.

Since it is perfectly acceptable for a firm to assume that its gearing ratio can be maintained under the HC convention in non-inflationary conditions, it would seem reasonable to apply the same assumption to CC accounts under conditions of inflation; this is best achieved by the introduction of a gearing adjustment.

Furthermore, it should be noted that, under the entity theory, the firm is considered to be distinct from its proprietors, and both lenders and shareholders are regarded as *essentially similar providers of capital*, albeit with different rights in the results of the firm.

It therefore seems consistent with the entity theory to assume that both lenders and shareholders should share the burden of financing the replacement of assets in proportion to their stake in the business.

To illustrate the practical and conceptual merits of the gearing adjustment, it is necessary to analyse the proprietary side of our equation in greater depth with the help of the numerical example shown in Appendix II.

4. The proprietors' stake in the firm

One could readily visualise a loan agreement, prepared under inflationary conditions, that stipulated that lenders would be entitled to:

- real interest of say 5%
- plus capital appreciation equal to the lenders' share of the revaluation of assets.

This would place the lenders in the same position as the shareholders in so far as the maintenance of their invested capital was concerned.

In the situation illustrated by our example, this would result in the following:

	<i>Fixed Assets</i>	<i>Capital Maintenance Reserve Movement</i>	<i>Applicable to Equity 70% Lenders 30%</i>	
Year 1 – opening	1500		1050	450
Revaluation 1	—	—	—	—
Year 1 – closing	1500			
Revaluation 2	<u>150</u>	150	105	45
Year 2 – closing	1650			
Revaluation 3	<u>330</u>	330	231	99
Year 3 – closing	1980			
Revaluation 4	<u>396</u>	396	277	119
Year 4 – closing	2376			
Revaluation 5	—	—	—	—
Year 5 – closing	2376		1663	713

Consequently the shareholders equity at the end of year 5 would be: $\$1050 + \$613 = \$1663$ which is 70% of the net asset value of $\$2376$.

The lenders would start with loans to the firm of $\$450$ and finish with $\$713$, the increase of $\$263$ being the lenders' share of the revaluation of fixed assets.

5. Analysis of result from the lenders point of view

However, to date lenders have been basically nominalists, i.e. they wish to fix their remuneration in nominal terms. This means that when the rate for the loan is fixed, the lenders make certain assumptions on:

- the real interest rate they would be satisfied with
- the anticipated inflation they want to be compensated for.

For our example the figures can be summarised as follows:

	<i>Total interest</i>	<i>Real interest target at 5% pa</i>	<i>Anticipated inflation compensation</i>
Year 1	23	23	–
Year 2	68	23	45
Year 3	72	24	48
Year 4	84	28	56
Year 5	<u>67</u>	<u>34</u>	<u>33</u>
	314	132	182

However, forecasting is seldom accurate and general inflation often bears little relationship to the specific price changes that affect a firm's assets, as is shown below.

	<i>Anticipated inflation compensation paid to lenders</i>	<i>Lenders' share of revaluation</i>	<i>Difference</i>
Year 1	–	–	–
Year 2	45	45	–
Year 3	48	99	51
Year 4	56	119	63
Year 5	<u>33</u>	<u>–</u>	<u>(33)</u>
	182	263	81

As the lenders' remuneration has been fixed in nominal terms, the difference of $\$81$ automatically accrues to the shareholders; so, on the face of it, the lenders have not done too well in our example.

To summarise:

- the lenders, as a class of proprietor, receive nominal interest which includes an element for inflation compensation;
- however, their stake in the firm is not automatically maintained under conditions of inflation, so to achieve this they will need to increase the nominal value of their lending by injecting fresh capital, the amount of which may differ from the inflation compensation element of their interest receipts;
- this capital injection relieves the shareholders from part of the burden of financing inflation and therefore an equivalent amount can be released to shareholders' income via the gearing adjustment.

NB Under the UK's SSAP 16, the gearing adjustment is the lenders' proportion of the amount of revaluation surpluses *realised* through the income statement, rather than the lenders' share of the full revaluation surpluses credited to reserves.

6. Analysis of profit by source

Initially, the profit of the firm can be allocated between the proprietors as follows:

Year	Profit to the firm/CC operating profit	Allocated to	
		Lenders: real interest target	Shareholders: balance of CC operating profit
1	150	23	127
2	150	23	127
3	180	24	156
4	216	28	188
5	<u>216</u>	<u>34</u>	<u>182</u>
	912	132	780

The relative shares of the proprietors can then be adjusted to reflect their contractual rights, namely that the lenders are entitled to the agreed compensation for anticipated inflation, and the shareholders are entitled to the lenders' share of the increase in the nominal value of assets arising from inflation (which for reasons of prudence are spread over the lives of the assets via the gearing adjustment):

Adjusted Income Statement/Profit & Loss Account

Year	1	2	3	4	5	Total
Net proceeds of sales	x	x	x	x	x	x
Cost of sales	(x)	(x)	(x)	(x)	(x)	(x)
CC operating profit/profit to the firm	150	150	180	216	216	912
Real interest to lenders	(23)	(23)	(24)	(28)	(34)	(132)
Shareholders' portion of profit to firm	127	127	156	188	182	780
Inflation compensation (to) lenders	–	(45)	(48)	(56)	(33)	(182)
Gearing adjustment from lenders	–	30	81	112	40	263
Gain/(loss) for s/holders on debt	–	(15)	33	56	7	81
Total profit attributable to s/holders	127	112	189	244	189	861

In our example we were able to make a split between 'real interest' and 'anticipated inflation' paid to the lenders. In real life this split is not readily available and may well be the reason for the fact that SSAP 16 does not require the total interest payment to be split into these two elements.

7. Conclusions

- (i) Under the historical cost convention the Balance Sheet and Profit and Loss Account are drawn up in order to establish the profit attributable to shareholders: this profit is struck after enough has been set aside to maintain the (nominal) capital attributed to shareholders and lenders.

The same concept should be applied to annual accounts drawn up in accordance with the current cost convention.

Maintenance of the 'real' capital of the shareholders and lenders can only be achieved by applying the gearing adjustment as set out above.

- (ii) The difference between the inflation compensation paid to lenders and the lenders' share of the actual increase in the nominal value of assets arising from inflation can be material in relation to the profit attributable to shareholders and should ideally be separately identified.

To achieve this it would be necessary to split total interest between real interest and inflation compensation. However, this may be difficult to establish.

- (iii) Moreover, part of the gearing adjustment will be generated by financial liabilities that do not bear interest (e.g. tax provisions) and, as indicated earlier, the gearing adjustment does not depend on the specific price changes that occur during the accounting period, but on

the price changes arising over the lives of the assets that have been consumed during the period. Consequently, the precise meaning of the difference referred to in (ii) above (i.e. the gain or loss for shareholders arising on debt) will not be easy to interpret, and therefore may not provide sufficient benefit to justify the effort required to identify it separately. However, this does not affect the need for a gearing adjustment, merely the style of presentation.

Footnotes

1 *Statement of Standard Accounting Practice 16 (SSAP 16) on Current Cost Accounting* was issued by the UK Accounting Standards Committee in March 1980. It requires most listed companies and other large entities to publish current cost information in the form of a balance sheet and profit and loss account; the latter includes adjustments for the maintenance of monetary working capital and gearing, as well as adjustments to cost of sales and depreciation.

2 *Financial Accounting Standard 33 (FAS 33) on Financial Reporting and Changing Prices* was issued by the US Financial Accounting Standards Board in September 1979. It requires large public enterprises to publish certain current cost and constant purchasing power information, including current cost income from continuing operations (CCICO), which is net income (before extraordinary items) after adjusting cost of sales and depreciation into a current cost basis.

Appendix I

List of Participants

drs. G. G. M. Bak, Catholic University, Tilburg, Netherlands
 E. Beekman, K.L.M., Amsterdam, Netherlands
 drs. J. B. H. M. Beks, Heineken N.V., Amsterdam, Netherlands
 drs. J. A. P. Bosman, Estel N.V., Nijmegen, Netherlands
 dr. J. L. Bouma, University Groningen, Netherlands
 dr. M. Bromwich, University of Reading, U.K.
 drs. A. Dek, P.T.T., The Hague, Netherlands
 dr. Y. Goldschmidt, Tel Aviv University, Israel
 drs. J. de Jong, Unilever N.V., Rotterdam, Netherlands
 dr. S. E. de Jong, Catholic University, Tilburg, Netherlands
 dr. J. Klaassen, Free University, Amsterdam, Netherlands
 dr. J. Kloock, University of Cologne, Fed. Rep. Germany
 drs. F. Krens, Erasmus University, Rotterdam, Netherlands
 drs. J. D. Lock, Central Bureau of Statistics, Voorburg, Netherlands
 dr. K. V. Peasnell, University of Lancaster, U.K.
 dr. L. Revsine, North Western University, Evanston, U.S.A.
 R. C. Spinosa Cattela, N.V. Philips, Eindhoven, Netherlands
 dr. L. Traas, Free University, Amsterdam, Netherlands
 dr. P. Verburg, University of Amsterdam, Netherlands
 dr. F. K. Wright, University of Melbourne, Australia
 drs. I. van der Zijpp, University of Amsterdam, Netherlands

Appendix II

The Gearing Adjustment: a Worked Example

Basic assumptions

- i) The firm has no working capital;
- ii) it owns two identical fixed assets - one new and the other one year old;
- iii) each asset is purchased new on 31 December, has a two-year life and a straight-line decline in service potential;
- iv) each asset is financed 30% by loan and 70% by equity, the loan being repayable in two equal annual instalments;
- v) interest payable on the firm's debt at a rate of 5% plus anticipated inflation;
- vi) all price changes take place on 1st January;
- vii) profit attributable to shareholders on a current cost basis is distributed 100%, by way of cash dividend.

Assumptions

Actual specific inflation	–	10%	20%	20%	–
Anticipated inflation	–	10%	10%	10%	5%
Interest rate	5%	15%	15%	15%	10%
	Year 1	Year 2	Year 3	Year 4	Year 5

HC	CC	HC	CC	HC	CC	HC	CC	HC	CC
----	----	----	----	----	----	----	----	----	----

BALANCE SHEET
AT 1 JANUARY

Fixed Assets	500	500	500	550	500	660	550	792	660	792
	1000	1000	1000	1100	1100	1320	1320	1584	1584	1584
	1500	1500	1500	1650	1600	1980	1870	2376	2244	2376
Financed by Loans	150	150	150	150	150	150	165	165	198	198
	300	300	300	300	330	330	396	396	475	475
Total debt Equity	450	450	450	450	480	480	561	561	673	673
	1050	1050	1050	1200	1120	1500	1309	1815	1571	1703
	1500	1500	1500	1650	1600	1980	1870	2376	2244	2376

INCOME STATEMENT
FOR YEAR

Profit before depreciation	1150	1150	1250	1250	1500	1500	1800	1800	1800	1800
Depreciation	(1000)	(1000)	(1000)	(1100)	(1050)	(1320)	(1210)	(1584)	(1452)	(1584)
Operating Profit	150	150	250	150	450	180	590	216	348	216
Interest	(23)	(23)	(68)	(68)	(72)	(72)	(84)	(84)	(67)	(67)
Gearing adjustment	–	–	–	30	–	81	–	112	–	40
Profit to shareholders	127	127	182	112	378	189	506	244	281	189

BALANCE SHEET
AT 31 DECEMBER

Fixed Assets	500	500	500	550	550	660	660	792	792	792
	1000	1000	1100	1100	1320	1320	1584	1584	1584	1584
	1500	1500	1600	1650	1870	1980	2244	2376	2376	2376
Financed by Loans	150	150	150	150	165	165	198	198	238	238
	300	300	330	330	396	396	475	475	475	475
Total debt Equity	450	450	480	480	561	561	673	673	713	713
	1050	1050	1120	1170	1309	1419	1571	1703	1663	1663
	1500	1500	1600	1650	1870	1980	2244	2376	2376	2376