HOW'M I DOIN' AND WHAT'S MY NEXT BEST MOVE? - MEASURING RESULTS THAT REALLY MEAN SOMETHING AND TAKING FINANCIAL DECISIONS ON THE CORRECT BASIS

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ABSTRACT: *In Victoria since 1982, major statutory business authorities have been subject to a set of public authority guidelines and policies which require them to be conducted so as to achieve a long term target rate of return on assets employed and to pay a dividend to the Consolidated Fund.*

This paper outlines the policies and describes how they have been applied to the Port of Melbourne Authority and the Grain Elevators Board.

The necessity to measure performance in current cost terms rather than using historical accounting records is stressed and the results obtained using the two accounting systems are compared.

The use of corporate financial models in assessing alternative future policies is examined.

The paper concludes that to answer the question "Transport - Who Pays?" it is necessary to measure costs in a way which reflects the current cost valuation of the assets employed.

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1. INTRODUCTION

In Victoria since 1982 major statutory business undertakings have been subject to a set of public authority guidelines and policies which require them to be conducted so as to achieve a long term target rate of return on assets employed, and, in recognition of the fact that equity has a cost, to pay a dividend to the Consolidated Fund. Sufficient experience has been gained in practice to now report upon the operation of these policies, with particular emphasis in this paper on the two transport portfolio authorities, the Grain Elevators Board (GEB) and the Port of Melbourne Authority (PMA) - the only Victorian transport authorities which pay a return to their owners, the people of Victoria.

There are two distinct but interrelated themes running through our paper. They are briefly that

- the normal information which conventional accounting records provide on the success (or otherwise) of the year just past is inadequate in that the effect of changes in the general level of prices is ignored (or at best partially or unsystematically treated). Current cost measures are a must.

- one needs to look forward (via models and the like) rather than back (at accounts) to plan the course each instrumentality should take, particularly in price setting and investment policies, and to estimate the path along which any particular set of policies may lead. Incidentally, this second activity should also be conducted in current cost terms.

2. RELEVANT MEASURES & GOVERNMENT POLICY

Publicly owned business undertakings should, among other things, make reasonable profits, maintain their capital intact, not prey upon their customers if they have a degree of monopoly power and pursue policies in conformity with the plans of the Government of the day.

One important objective in such a set of aims is that an agency should, in the rates it charges, cover all its costs. But, which costs? And, having decided which costs, how are they best measured? Having settled upon a system of measuring past performance, how are rates to be set in the future, so as, if costs are adequately covered to continue in this happy state, or if they are not, to move towards such a result?

A major obstacle to knowing how well an instrumentality is performing is to persist with historical cost accounts during periods of ongoing change in the level of prices.

In the past there has been within the public sector a tendency to focus on the internal financing ratio (i.e. the proportion of the works program financed other than by borrowing) as an indicator of public authority performance and to assess the payment of dividends in the light of its impact on that ratio. Quite apart from the fact that the ratio obviously depends critically on fluctuations in the level of capital expenditure, this measure ignores the effect of inflation in eroding the real value of the existing stock of debt.

References to debt:equity ratios calculated using the value of assets at historical cost are another example of the disregard which many commentators display for the effects of inflation on the balance sheets of public authorities. In contrast to its historical cost counterpart, the current cost-based debt:equity ratio does provide useful information about the authorities' financial position of an authority.

The development of current cost accounting (CCA) procedures for the major Victorian public authorities was a necessary first step to achieving substantial progress with the implementation of the more prospective Government guidelines relating to pricing and investment decisions.

The pricing policy briefly stated is that authorities are required to set prices so as to generate or move towards achieving a four percent rate of return on the written down current cost of the assets in service, after depreciation (based on the current cost of assets) and other operating expenses. The return on assets so generated is then available to meet real finance charges and to provide a return on equity. In this regard equity may be considered as the value of the undertaking to the people of Victoria, taking each citizen as the owner - a "shareholder" in the public enterprise.

Prior to the production of current cost accounting statements,

during the first two years operation of the rate of return guideline, working parties of representatives of the Department of Management and Budget (DMB) and the authorities and departments concerned estimated the current cost values of public equity, assets and rates of return. During this time we came to realise the necessity of audited or at least auditable figures. Before dealing with how some of the problems were handled, an account of the policy and its purposes is needed. Why 4%, for example?

3. A TARGET RATE OF RETURN ON ASSETS TO COVER THE LONG TERM COST OF CAPITAL

The present four per cent target rate of return is consistent with a real long term interest rate of three per cent, a real return to equity of five per cent and a 50:50 debt: equity ratio. A number of points should however be made here in relation to the choice of a four per cent target. For example,

- Over the very long run, Victoria's public authorities have borrowed at interest rates which are about three per cent above inflation.

- While there is certainty about what the actual cost of debt has been, the cost of equity is of course a notional figure, since there are no market indicators in the public sector. The five per cent level chosen takes account of a margin for risk over the less-risky real cost of debt, although that margin (two percentage points) is low compared with similar risk margins in the private sector, in recognition of the market power of many of the authorities concerned.

- The overall weighted average cost of capital is fairly insensitive to moderate variations in the gearing ratio around 50:50. Based on a real cost of debt and equity of three per cent and five per cent respectively, the weighted average cost of capital will fall to 3.8 per cent for a debt: equity ratio of 60:40 and rise to 4.2 per cent in the 40:60 case.

- Different target rates of return for each authority could be considered at some time in the future in recognition of particular characteristics - average interest rates, risk margins and debt: equity ratios etc.

Above all, it should be appreciated that the policy of setting prices with reference to a desired rate of return on assets is

long term in nature. It is not anticipated that prices should be varied in a way which would ensure that the target rate of return will be met each year. Periodic reviews of the target rate of return will be necessary to ensure that the target remains both realistic and appropriate.

4. HOW DID WE START?

The first step in implementing the new policies and procedures was to set up a joint interdepartmental working party for each authority as outlined earlier. Conventional accounts were taken as the starting point and these were adjusted in a careful but piecemeal fashion to obtain the relevant CCA estimates. Simultaneously guidelines for the introduction of auditable CCA reporting were being developed.

To a considerable degree the work in Victoria of the last few years has been path breaking. Very few private sector firms have proceeded as we have, although the essential theoretical framework was developed over the past decades by others. Those firms which did experiment with current cost accounting found a public generally unprepared for the situation such accounts portrayed.

Technically, the starting point was the Australian Society of Accountants' statement of accounting practice on current cost accounting issued as Statement of Accounting Practice No 1 (SAP 1) in November 1983. That statement indicates the accounting profession's preferred approach to current cost accounting and reporting.

It should be remarked that in deciding its rate of return reporting policy, the Government had to consider two important matters relating to SAP1, viz.,

- SAP 1 has been adopted by very few private commercial and industrial organisations in Australia and very few annual reports provide information to the public on a current cost accounting basis, and

- the need to consider the extent to which SAP 1 provided an adequate reporting system to use as a basis for economic decision making and for achieving accountability in terms of the Government's rate of return policies.

To assist in the implementation of current cost accounting, the Annual Reporting Act 1983 and in particular the Annual Reporting (Business Undertakings) Regulations 1984, which

apply to the State's five major commercial public authorities, set out the minimum information to be provided in both the Report of Operations and the Financial Statements. These have been supplemented by a set of guidelines to provide consistent treatments between agencies in the production of supplementary current cost statements.

Where the accounting policies of the Government in respect of rate of return reporting depart from SAP1 the practice adopted has as far as possible been consistent with the general body of accounting theory, particularly where there are applications of that theory in overseas countries.

A fairly well documented system is now available. What sort of figures are thereby produced?

5. CURRENT COST ESTIMATES OF ASSETS, RETURNS AND PUBLIC EQUITY

Table 1, below, shows that together, the PMA and the GEB have command of assets valued at about $1 billion. In 1985/6 these assets earned $14 million before finance charges. About half the assets were financed by debt and after real finance charges of $14.9 million, an amount of $9.5 million was paid to the equity holders.

TABLE 1 VALUES OF ASSETS EQUITY & RETURNS OF THE PORT OF MELBOURNE AUTHORITY AND THE GRAIN ELEVATORS BOARD ($m) 1985/6

	PMA	GEB	
RETURN ON ASSETS			
Return on Assets	17.7	-3.7	(1)
Average Assets in Service (a)	682.2	388.9	(2)
Rate of Return on Assets (%)	2.6%	-1.0%	(1)/(2)
Ratio of Liabilities to Equity	47:53	27:73	
RETURN ON EQUITY			
Return on Equity	5.0	-5.9	(3)
Opening Public Equity (b)	278.7	279.6	(4)
Return on Equity/Public Equity (%)	1.8%	-2.1%	(3)/(4)
Public Authority Dividend	5.0	4.5	(5)
PAD/ Public Equity (%)	1.8%	1.6%	(5)/(4)

(a) Written down current cost of assets in service, average for the year.

(b) Public equity at 1 July 1985.

Source: Annual Reports, PMA and GEB

Estimates of the rates of return on assets calculated for earlier years, albeit on a slightly different basis, indicate rates of return for PMA of a similar level to the 1986/6 result and the GEB returns vary significantly depending on harvest size.

An indication of the difference between current cost and historical cost accounts can be seen in the following table.

TABLE 2 CURRENT COST AND HISTORICAL COST ACCOUNTS COMPARED - 1985/6 ($m)

	PMA		GEB	
	CCA	HISTORIC	CCA	HISTORIC
Assets	827.6	508.8	408.0	170.8 (1)
Equity	398.3	143.3	299.5	62.3 (2)
Return on Assets/Profit Before Finance Charges	17.7	32.5	- 3.7	11.9 (3)
Finance Charges	12.8(a)	30.8	2.1(a)	10.9 (4)
Return on Equity/Profit After Finance Charges (b)	5.0	1.7	- 5.9	0.9 (3-4)

(a) Real Finance Charges (ie nominal finance charges incurred less holding gains on monetary liabilities).
(b) Totals may not add up due to rounding.

Source: Annual Reports of the PMA and GEB.

The most obvious difference between the two sets of results for each authority is the difference in returns to assets and equity. The main contributing factor in the variation in results before finance charges is the difference in the level of depreciation charges between the Historical and the CCA systems as shown in Table 3.

TABLE 3 COMPARISON OF DEPRECIATION EXPENSE 1985/6 ($m)

PMA		GEB	
CCA	HISTORIC	CCA	HISTORIC
31.4	14.9	18.7	7.2

Because CCA asset valuations are so much greater than historical valuations, depreciation charges are, for the same assumed asset lives and depreciation patterns, also correspondingly greater. By consistently undervaluing assets the depreciation charge is understated, and without noticing,

equity may be eroded, and the authority will seem to be doing better than it really is.

6. TWO MAJOR ISSUES - ASSET VALUATION & DEPRECIATION

Whilst there were many issues which required resolution, two were outstanding. The first is essentially how to revalue assets which are still in service but, if constructed today, would be built to a different design or of different material. The second, not unrelated, was how to spread out the life of the revalued assets.

The details of our preferred treatment appear in the Appendix however there are some tough questions here. In addition to the matters dealt with there, the PMA has considerable land holdings not required for port purposes which cost money to beautify and maintain. In the calculation of Public Equity and Rate of Return an adjustment to the value of the written down value of assets is made to include only port assets and not recreational lands.

By contrast, the value of the land holdings of the GEB is a much smaller proportion of its total assets than PMA. Many of its assets stand on leased sites, frequently railway land. However, in valuing the extensive stock of older concrete silos it was decided to value them as if they were modern steel bins - a considerable feat of the imagination.

A similar feat of imagination is needed when one is first confronted with a deferred foreign exchange loss and the necessity to record it as an asset.

Depreciation is difficult whether in historic or CCA terms. The lives of assets are almost always underestimated. However when assets are valued in current cost terms, at sometimes twice the historical book value, depreciation charges are correspondingly greater. An organisation with a lot of old capital has quite some scope for estimation error in the calculation of its profits if the lives of its assets are wrongly estimated. For even a small enterprise like the GEB the difference between a 4% depreciation rate and a 3% rate could be as much as $5m annually.

7. LOOKING FORWARD

Accounts tell only so much. They are retrospective rather than prospective and represent a datum, a position from which

one may make estimates about the future. Efforts to achieve the public authority targets, and the implication of such efforts, can best be understood through the conduct of long term planning analyses of the authorities involved.

Public authority policy must address a variety of issues and analysts are required to provide advice to Government to enable decisions to be made about

- The desirable mix of debt/equity funding.
- Balancing various Government objectives for example,
  - to provide a given level of service at the least cost to users;
  - to use the public's investment efficiently;
  - to indirectly assist policies such as regional economic development.
- The effect of public bodies providing services that are not economically viable - but are for the "public good", or provide a suitable "image" to the public for the authorities. If so, should the assets used in providing these services be included/excluded from earning a rate of return, or should explicit subsidies be identified.
- The equitable distribution of returns to investments between complementary agencies where the costs of the investment are borne by one authority (and recorded in its accounts) and the benefits are enjoyed by another. For example the GEB Central Receival Point program involves GEB investments which mainly have the effect of lowering railway costs.

One of the tools of the financial planner is the corporate financial model. Through the use of financial models the long term implications as well as the short term operational effects of a variety of pricing, investment, funding and staffing decisions can be more thoroughly understood and appreciated.

The models presently available to us are very rudimentary although given the quality of data currently available to calibrate models of this sort, the models as they presently stand provide an adequate likeness to the actual corporation under consideration. An appreciation of when one is considering a model and when a real corporation, is a fine point, and one which many miss.

One basic model has been produced which has been calibrated for each of the two transport agencies presently subject to the public authority guidelines. These agencies, although structurally similar, face very different environments. Although the accounting basis of each is alike, the circumstance differ.

Grain Elevators Board:- Returns to the GEB are very strongly dependent on crop conditions and the level of grain receivals. The existence of significant fluctuations in the level of receivals and hence the financial outcome from year to year causes some difficulty in estimating the appropriate values of some parameters. Large profits and losses can occur and against an adverse eventuality quite large reserves are held, much in quite liquid investments.

Port of Melbourne Authority:- The financial performance of the PMA has been adversely affected in recent years by the downturn in world trade. It certainly does not face the same level of output fluctuations as the GEB and its reserves are proportionally less.

The models are designed to manipulate base variables to calculate present and estimated future levels of Assets, Liabilities, Equity, Revenues and Costs. The future levels are estimated according to a series of simple algebraic relations and are generally expressed in nominal terms through the application of escalators, with the outcome of one period usually being the input for the next.

A separate part of the model deflates the nominal value results into real terms by dividing by an estimated implicit gross domestic product deflator, in those cases where real value estimates are needed.

8. CORPORATE MODELS

Figure 1 shows a diagram of the overall structure of the main elements of the models. The models operate in a system known as IFPS, one of a number of computer packages available to do this sort of work. The development of a modelling style is quite an individual capability acquired through experience over a period of time and naturally the skill of the modeller influences the results obtained.

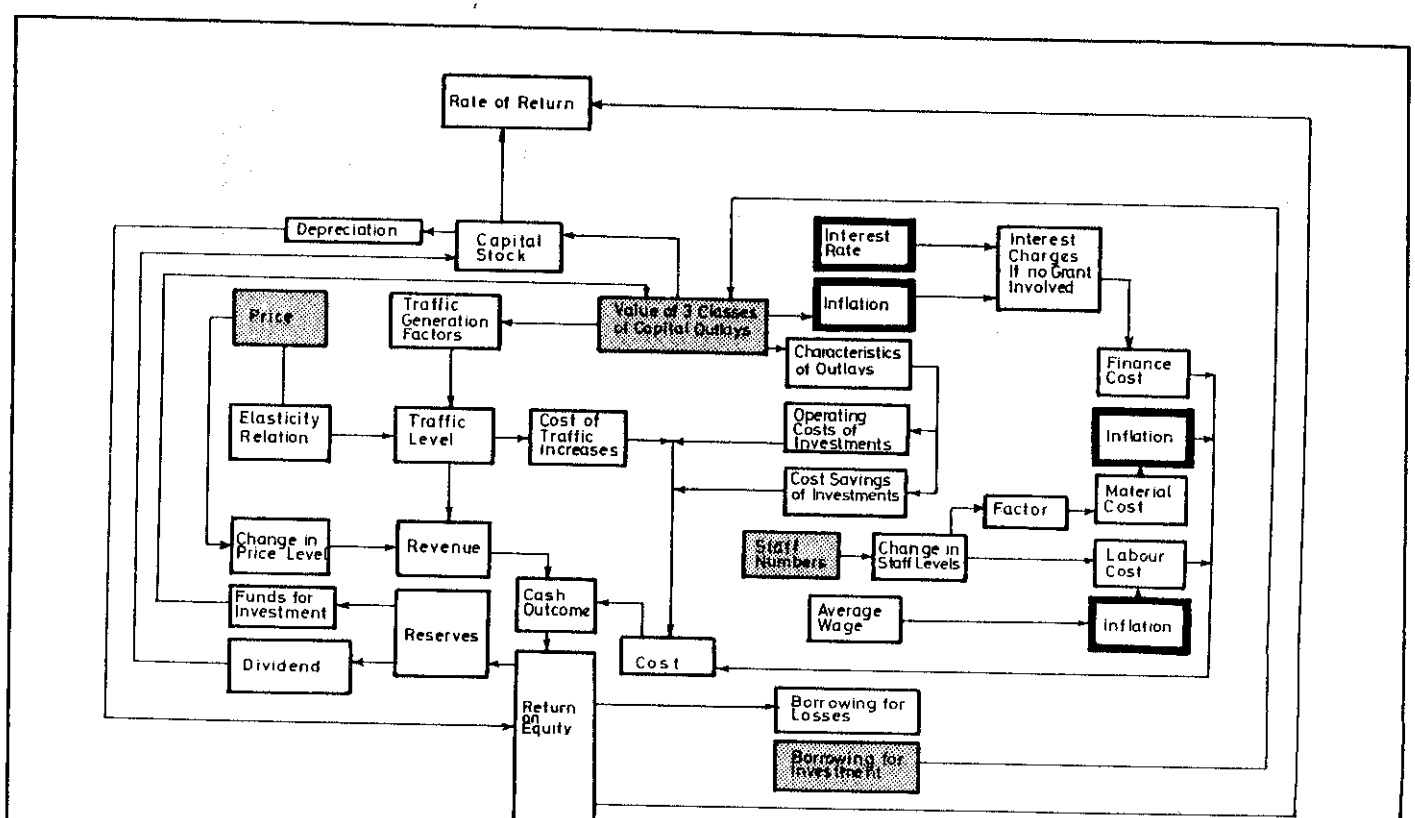


Figure 1: OVERALL STRUCTURE OF THE MODELS

The role of RESERVES in Figure 1 in the modelled corporation is very important. It is used as a final "bucket" for all transactions (not accounting reserves, but "reserves" one might fall back on), and in the current version an important rule relates performance to residual proprietorship. **Reserves equal opening balance plus operating revenue and interest on investments less operating expenses, internally funded capital expenditure, repayment of capital debt and dividend. If this fund is not sufficient for these purposes then the organisation is assumed to borrow for such, and indebtedness correspondingly rises or falls.**

The process of the models assumes the output for one period is the input for the next and generally allows no managerial interference between periods. The policies, once selected, are set for the ten periods for which the model currently runs.

Over 50 items of data need to be estimated to represent on the one hand, the structure of the corporation and its environment and on the other, the policy variables (shown stipled in Figure 1) over which the management has some control.

Before the model is ready for use each of these must be estimated to roughly the same order of accuracy for an initial starting year value, and in the case of the environmental and policy variables, an estimate is also required of the trend of values expected for future years. In many cases only fairly senior officers of the GEB and PMA are in a position to reliably estimate these values and trends. Analysis of accounting data often yields ambiguous relationships and the refinement of cost relations is a continuing activity.

9. MODEL RESULTS

An obvious application of the models is to forecast alternative futures for the PMA and the GEB for a range of different sets of circumstances and policies. The next two sections discuss two aspects of many which may be investigated. The general method of proceeding is to estimate a Base Case as an average sort of future with policies and environment much as they are today, and then to progressively vary different variables of interest.

Forecasting Operating Surpluses and Rates of Return

A number of sample cases are presented in Figure 2.

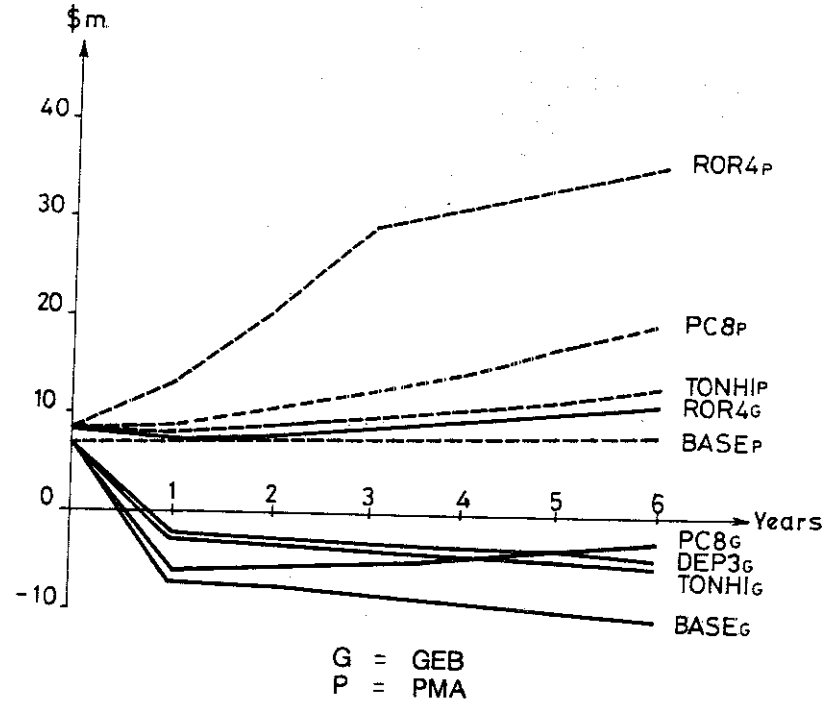


Figure 2 : OPERATING SURPLUS OF GEB &PMA VARIOUS CASES

(SEE TABLE 4 FOR ASSUMPTIONS UNDERLYING THE FORECASTS)

They should not be considered as forecasts of the future, but as projections of what could happen under certain circumstances. The results were obtained on a version of the model less refined that the latest but they clearly show the range of different outcomes possible if different policies are pursued. The shape of the pathways is more significant than the absolute level in any given year.

Table 4 summarises the assumptions behind the results depicted in Figure 2. In the Base Case, fairly typical or average values are assumed, although for the GEB no bad years are allowed for. The assumptions for the other cases shown are:-

ROR4: a level of rate increase which would consistently guarantee a 4% rate of return

PC8: an annual rate increase approximately 2% higher than the current level

TONHI: a volume of activity near the best recorded recent levels

INV4: a 4% return on the forward works program. (Not easily represented in Figure 2 - roughly co-incident with the Base Case line)

DEP3: for the GEB only, a depreciation rate of 3% p.a. (rather than 4% as in the Base Case).

From Figure 2 it is fairly clear which factors exert the most influence on operating surplus. One item which deserves special mention is the importance of the correct estimation of depreciation and the effect on "book profits" that assumptions concerning asset lives (and hence the rate of depreciation) can have. This is apparent from the comparison of the GEB results for the BASE and the DEP3 cases in Figure 2.

The effect on operating surplus of depreciating assets at 3% straight line as compared with 4%, in an otherwise Base Case situation was quite dramatic; in fact the effect is greater than assuming that tonnage was constantly high (as in the TONHI case). The calculation of asset lives is very important. It affects each of asset values, depreciation (and hence) equity and rate of return.

TABLE 4 ASSUMPTIONS FOR A SERIES OF MODELLED FUTURES (SEE FIG. 2)

CASE NAME	BASE	PC8	TONHI	DEP3	ROR4	INV4
GEB						
1. Tonnage ('000)	3400	3400	4000	3400	3400	3400
2. Price Change	6%	8%	6%	6%	not set	not set
3. Depreciation	4%	4%	4%	3%	4%	4%
4. Rate of Return	not set	not set	not set	not set	4%	4%
5. Fraction Borrowed for Capital	3/4	3/4	3/4	3/4	3/4	3/4
6. Productivity of Investment (average % return/$)	0%	0%	0%	0%	0%	4%
PMA						
1. Tonnage ('000)	18500	18500	+1%pa		18500	18500
2. Price Change	6%	8%	6%		not set	not set
3. Depreciation	3%	3%	3%		3%	3%
4. Rate of Return	not set	not set	not set		4%	4%
5. Fraction Borrowed for Capital	3/4	3/4	3/4		3/4	3/4
6. Productivity of Investment (average % return/$)	0%	0%	0%		0%	4%

Forecasting Public Equity

The level of equity from year to year is not only dependent on consistently earning the target rate of return. If an authority has a high level of reserves which it might fall back on and it is not earning the target rate of return, then these funds can be used in that year to cover:

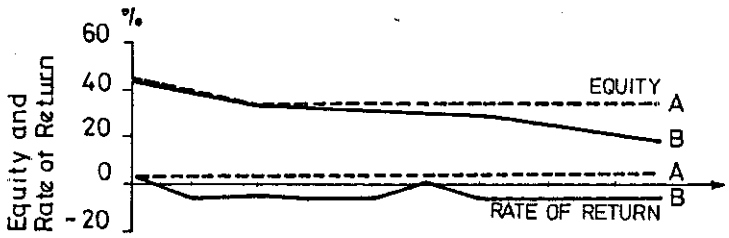
(a) operating losses
(b) dividends
(c) internally funded capital works

Once these reserves have been fully used, and if the target rate of return were still not being consistently achieved, then the equity level would diminish rapidly as the authority would have to borrow to pay any or all of (a), (b) and (c) above.

The situation of not consistently meeting the target rate of return but having high reserves, differs from that of not meeting the target rate and having few or no reserves only in time. The possession of high reserves only forestalls the ultimate necessity to borrow.

This process may be distinguished however from one where the application of a dividend policy shifts an authority towards a stable long term ratio of debt to equity with the organisation consistently capable of earning the target rate of return.

The corporate model was used to forecast trends in debt/equity ratios and the following diagram shows the level of equity over time of an organisation moving towards a more appropriate blend of debt and equity (Authority A) and one going out of business (Authority B).



10. ADVICE TO OTHERS

To those planning to introduce the sorts of changes we have described, what sort of helpful hints can we offer? The following are the most obvious.

(1) Allow plenty of time and devote plenty of effort to the task at all levels. The most senior people must be convinced of the correctness of the policy from the outset.

(2) It may be some time (maybe 4 years) before audited current cost accounts can be produced. A joint working party can go a long way in resolving disputes over particular treatments and valuations in the meantime and its activities serve as valuable training ground for all.

(3) Interagency diplomacy, if its failure does not bring the whole process to a complete stop, can be expected to lengthen the time taken over what it would be if only the managing "board" were involved. Choose your team for more than its outright technical skill. It is only natural that initially any organisation (and its accountants in particular) will view any major changes as criticism of their stewardship.

(4) It has been our experience that economists are more inclined to embrace the concepts of current cost accounting and forecasting than accountants. Perhaps the training of each is responsible.

(5) Luck also has its place - luck in the sense of appropriate timing, at least. In Victoria, quite an amount of valuable "spadework" by a joint Parliamentary Committee - the Public Bodies Review Committee, preceded the introduction of the new policies. In addition, the PMA had just introduced a type of CCA system which needed only minor amendment conform with the subsequently adopted system.

Of course we still have a number of unresolved matters being pursued. The chief items are:

- Adequately handling a degree of monopoly power. In Victoria presently state instrumentalities have a "cap" placed on rate increases restraining them to no greater increase than the Consumer Price Index. This, coupled with a procedure for authorising major capital works only after providing a Cabinet subcommittee with an evaluation conducted in accordance with investment evaluation

guidelines seems to provide an adequate degree of protection in the short run.

- Estimating the appropriate debt/equity ratio. Naturally it will vary from time to time.

- Achieving agreement between the managers of the authorities and DMB (who represent the equity holders) on the values of the real long term cost of debt and equity.

- Further development and refinement of the strategic level corporate models. Sadly, this important activity is always the thing postponed when time or resources are short.

11. CONCLUSIONS

Are there applications elsewhere? In Victoria, probably not except possibly for the smaller port authorities. Railways and tramways are certainly so far from profitability that the application of this approach would produce silly results and the day of the private route bus company as a true business also seems over. Perhaps had the railways and tramways organised their economic data in current cost terms at the time of their really big expansion earlier this century, their problems might have been apparent sooner.

For those undertakings still operating in a commercial manner the message should be clear enough by now.

(1) In an environment with persistent inflation historical cost accounting can mislead managers of transport undertakings into thinking that they are doing better than they really are.

(2) Looking backward is not enough if one does not want organisations like the GEB and the PMA to go the way of the railways. A rapid technological change and an inadequate forecast of the future is all it takes.

The theme of the conference is "Transport - Who Pays?". The thesis of this paper is that before such a question can be properly answered it is necessary to measure costs in a way which reflects the current cost valuation of the resources employed. Traditional accounting methods generally will not do this.

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APPENDIX - EXTRACTS FROM "PUBLIC AUTHORITY POLICY AND RATE OF RETURN REPORTING" DMB 1986

MEASUREMENT OF FINANCIAL PERFORMANCE

It will be apparent from the previous discussion that the major focus of the new accounting and reporting system will be on measuring the return on assets and the return on equity. The former is one of the fundamental performance indicators and the latter provides the primary input to decisions about the appropriate level of the public authority dividend.

Apart from providing an annual performance measure, in conjunction with pricing decisions, the return on assets conveys important information about changes in the operating capability of the organisation. A negative return on assets implies that the revenue generated is insufficient to cover the current cost of resources utilised in providing the goods and services. This concept is at the heart of the pricing policy designed to ensure that prices are set to cover the current costs of resources consumed including the cost of capital, both debt and equity.

Thus both Rate of Return Reporting and SAP 1 lay stress on one assessment of operating capability. But whereas SAP 1 strongly recommends the adoption of operating capability as the primary concept of capital maintenance for profit-determination purposes, Rate of Return Reporting places greatest emphasis on the financial equity concept of capital. As a result, the financial statements which comprise Rate of Return Reporting are designed to contain information on both operating capacity (the return on assets) and financial equity (the return on equity).

The return on assets (measured after current cost depreciation, but before finance charges) is available to meet obligations to debt holders and, if appropriate, to pay a return on equity. As debt holders have legal priority, the return on equity is determined as a residual.

The financial equity approach adopted in calculating the return on equity in Rate of Return Reporting is generally consistent with calculation of the "proprietary results" outlined in SAP 1. This involves recognition of the fact that in times of inflation there is a gain from having incurred monetary liabilities because the amount repayable is fixed in money terms. The higher the level of inflation the lower the real level of the liability. Experience to date, and that from overseas, reinforces the view that, as in many accounting

issues, a degree of judgment is required. Similarly, the conceptual approach to current cost asset valuation is continually developing - the relatively recent appearance of the "functional pricing" approach is testimony to that view. In those circumstances changes in the real current value of assets might arise from a combination of more precise asset valuation techniques and underlying changes in the relative price of assets. Consequently, the indication from the balance sheet that holding gains and/or losses on non-monetary assets have occurred might be more apparent than real. Accordingly it has been decided not to immediately reflect such "gains" on non-monetary assets and liabilities in the Statement of Revenue and Expenses, although the implications will be fully disclosed in the Balance Sheet.

Apart from the measurement problems involved, moving to a real financial equity concept of capital maintenance requires careful consideration of the appropriate treatment of "unrealised" gains and losses in the Statement of Revenue and Expenses. This is a complex and contentious area and the move to full inclusion needs to be considered with due caution.

In the meantime, it has been decided to fully reflect holding gains and losses on monetary assets and liabilities in determining the return on equity. In contrast to the situation for physical assets and liabilities, the conceptual and measurement issues involved in determining holding gains and losses for monetary assets and liabilities are quite straightforward.

The requirements for Rate of Return Reporting are contained in APS 1. This section provides a brief overview of the concepts and methodology adopted in Rate of Return Reporting.

ASSET VALUATION

The current cost of an asset is measured by the lowest cost at which the gross productive capacity (economic utility) of that asset could currently be obtained in the normal course of business.

Ideally current cost would be determined by reference to the market price. In many cases, especially for public authorities, this will not be possible because of the absence of a realistic market for the capital assets involved (e.g. buildings or plant of special design). An alternative method is thus required. In devising an alternative, it is critical to focus on the productive capacity of the asset as a measure of its value.

Three broad approaches can be distinguished, although they are by no means mutually exclusive:

(a) Current Market Selling Price of an asset: this approach utilises the current cost determined by reference to an accessible net market value of the asset. It applies where there is an active market for the product.

(b) Current Reproduction Cost: this approach estimates the current cost by reference to the cost per unit of productive capacity of reproducing or replicating the asset. It applies where the asset being valued would be replaced at balance date by a similar asset.

(c) Current Replacement Cost: this approach estimates the current cost by reference to the cost per unit of productive capacity of the most appropriate modern replacement facility. It applies where the asset being valued would be replaced at balance date by a different asset (in terms of scale and/or technology) having a similar productive capacity.

Functional pricing is a variant of the current replacement cost approach which recognises that changes in technology are reflected not only different capital costs but also in changed operating costs. Functional pricing is appropriate in cases where, like replacement cost, the asset being valued would be replaced by a different asset and where that different asset results in changed operating costs per unit of productive capacity.

Consider for example the following case

	Capital Cost	Operating Cost
Existing Asset	150	15
Alternative Asset	140	12

To simply use 140 as the replacement cost would be misleading in the sense that it would overstate the true worth of the existing asset relative to the alternative. Functional pricing is designed to overcome that problem by taking explicit account of the present value of the differences between the future operating cost profiles as well as capital costs, in determining the current cost of the existing asset.

The most appropriate method of valuation will vary from case to case, but will be influenced by the following considerations:

(a) Where assets similar to existing fixed assets are available in the market and still represent best-practice technology, the current cost of the existing assets will be determined by the current market buying price of similar assets.

(b) Where similar assets are not available in the market and the existing assets still represent best-practice technology, the current cost of the existing assets will be the lower of the cost of reproducing them or replacing them with alternative assets.

(c) Where similar assets are not available in the market or are available but are technologically outdated, and there are more technologically advanced assets available, the current cost of the existing assets will be the lower of

(i) the replacement cost per unit of productive capacity of the most appropriate modern asset available, and

(ii) the reproduction cost per unit of productive capacity involved in either constructing a replica of the existing asset or purchasing a similar asset.

It will be appropriate to make such valuations periodically, say every 3 to 5 years, and to index these valuations in the intervening years, ideally with a rolling program of valuation reviews for categories of assets. In many case, depending upon the expense involved and the availability of an appropriate price index, it will be appropriate to use the replacement/reproduction approach less frequently than at 5-yearly intervals.

VALUATION OF LAND

In valuing land the aim is to measure its opportunity cost, that is its value in the best reasonable alternative use. The best measure of this current cost is its current market buying price. This price will take into account any constraints that might exist relating to that land (for example as to type, shape and/or size of building which could be built on that land) and any special attributes that the land may possess. It will also take into account the possibility that the land may be rezoned.

Instances where the current market buying prices will be rare. In general it will be necessary to obtain an expert estimation

of this price determined using Site Value, as defined in the Local Government Act 1958. This basis of valuation in general requires

(a) all improvements on the land to be completely ignored, these should be valued separately at replacement or reproduction cost;

(b) the estimated values to be assessed having regard to the prospect that a prudent purchaser as at the relevant date would entertain using the land for some purpose other than that for which it is currently being used, by obtaining a Town Planning Permit for a desired use or achieving a rezoning of the land into its likely alternative permitted use;

(c) all land vested in, owned or controlled by the authority, except easements and land leased by the authority, to be valued as if it was freehold land.

Expert valuations will be obtained at least every fifth year. In the intervening years the latest valuation will be updated using an index of specific prices of land in the vicinity, bearing in mind its purpose, characteristics and service potential.

In valuing improved land, the current cost of land should be determined separately from the current cost of improvements. This approach accords with Clause 35 of the Annual Reporting (Large Trading/Rating Public Bodies) Regulations and is necessary to facilitate estimation of depreciation charges for the building component of the property in current cost terms. Many of the improvements owned by authorities are special-purpose constructions which require individual assessment by engineers in conjunction with the valuer in order to determine the service potential of those improvements. It is the service potential that the improvements provide which is to be measured in terms of current cost, and not the improvements themselves.

For improved land not in use it is possible that the market value of the land and improvements as a package may be lower than the sum of the current cost of the land and the written-down cost of the improvements. Thus for improved land not in use valuations will be provided for

(a) land, separately, at market value;
(b) improvements, separately,
(c) land and improvements together, at market value.

Any write-down necessary to reduce the value of the land and improvements to the lower value will be made against the value of the improvements, the land as such remaining at market value.

VALUATION OF INVENTORIES AND COST OF SERVICES RENDERED UNDER RATE OF RETURN REPORTING

Inventories - a non-monetary asset - are valued at the current cost of the service potential they provide. The service potential, or economic utility, of inventories is the production capability which they represent.

Inventories can be differentiated from other non-monetary assets such as fixed assets by the fact that their service potential is given up as they are consumed or sold, whereas the latter's productive capacity generally is used to produce goods and services and is consumed over an extended period - the operating life of the asset.

Under Rate of Return Reporting inventories will be stated in the balance sheet at the lower of current cost and net realisable value at balance date.

For the purposes of assessing the return on assets under Rate of Return Reporting, the cost of services rendered will be stated in the Statement of Income and Expenses as closely as practicable to the current cost at the date of sale. In many cases, the most practical measure of current cost will be average-for-the-year prices. Where the goods have previously been written down, the net realisable value will be stated.

In general, the historical cost accounts will express the cost of services rendered in average prices for the year, so no adjustment is necessary. However, it will be necessary to make an adjustment where the pattern of expenditure is particularly uneven throughout the year, for seasonal or other reasons.

The assessment of whether a write-down to net realisable value is necessary should be carried out on an item-by-item basis, having regard to the likely future usage of the item and the market for it.

VALUING MONETARY ASSETS AND LIABILITIES

For the purpose of valuing monetary assets and liabilities under Rate of Return Reporting the historical cost accounting basis of measurement is appropriate for balance sheet purposes

because monetary items by definition are automatically expressed in current cost terms, ie. their amount is fixed in currency units. The liability incurred as a result of an undertaking to repay $1 million at some specified future date is unaffected by the rate of inflation.

The corollary of this is that the real level of indebtedness will be eroded by inflation. These "gains" on holding monetary liabilities or losses on holding monetary assets will under Rate of Return Reporting be recognised in the Statement of Income and Expenses. Holding gains on debt have the effect of reducing nominal finance charges to their "real" level. Losses arising from the effect of inflation on monetary assets are offset against financial revenue to determine real revenue.

Conceptually financial gains and losses on holding monetary assets and liabilities are calculated with reference to their actual levels at the times when the relevant price level changes take place. In practice holding gains and losses are calculated by applying the percentage increase in prices over the year to the average level of liabilities or assets held during the year, calculated on a monthly basis. In most cases it is appropriate to use a general price level indicator (eg the CPI), although more specific indices may be used in the case of inventories, for instance.