INFLATION ACCOUNTING FOR AUSTRALIAN
PUBLIC ENTERPRISES - ECONOMIC RATIONALE
AND FINANCIAL IMPLICATIONS

by

Barry Graham and Patrick Xavier
Department of Accounting Department of Economic

July 1987

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INFLATION ACCOUNTING FOR AUSTRALIAN PUBLIC ENTERPRISES
- ECONOMIC RATIONALE AND FINANCIAL IMPLICATIONS
(With Special Reference To The Melbourne And Metropolitan Board of Works)

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EXECUTIVE SUMMARY

INFLATION ACCOUNTING FOR AUSTRALIAN PUBLIC ENTERPRISES - ECONOMIC RATIONALE AND FINANCIAL IMPLICATIONS (With Reference To The Melbourne And Metropolitan Board of Works)

Since 1982 Victoria’s (Labour) Government has implemented several significant reforms for the state’s major public enterprises. Public enterprises in Victoria are required to aim at a 4 per cent real rate of return on the current value of total assets and pay dividends of up to 5 per cent on the ‘equity’ the community is deemed to have in each public enterprise. These reforms are appraised in Xavier (1986b).

Beginning with their Annual Reports for 1985-86, the state’s major public enterprises are also required to present, in addition to conventional historical cost accounts, supplementary financial statements designed to measure the rate of return on assets and the real return to shareholders i.e. the return on equity. These supplementary financial statements constitute the so-called Rate-of-Return (RRR) Reporting accounts which is a version of inflation or Current Cost Accounting (CCA).

In his foreword to the MMBW’s Annual Report for 1985-86, the Board’s chairman Mr. R.D. Marginson, made a call for wider discussion of the significant changes in accounting policy which were being implemented. This paper is a response to this call.

Section 1 of the paper introduces the topic. Since the genesis of the RRR Reporting version of inflation accounting is the Victorian Government’s policy that major public enterprises target to earn a real (inflation adjusted) rate of return of 4 per cent and pay dividends of up to 5 per cent of equity, sections 2 and 3 discuss these issues. The major conclusions drawn from these sections are presented below.

(i) The Required Rate of Return (RRR)

- In principle the imposition of a RRR for public enterprises is justifiable on economic and financial grounds. In short, in the interests of an efficient allocation of resources, investments by public enterprises should be required to earn at least a return comparable to their opportunity cost (what they would be able to earn in their best alternative use).

- Moreover, a RRR goes some way in providing a surrogate for the discipline of a profit requirement in containing costs. It is true that many public enterprises face price inelastic demand schedules - at least for some services - so that cost increases can be easily passed on in higher prices. Nonetheless, where there are constraints on the ability of public enterprises to increase their prices - such as consumer resistance or a government policy guideline that price increases be less than the rate of inflation, as currently exists in Victoria - pressures to contain costs will exist.

- However, there are several questionable aspects concerning the use of a prescribed RRR. Firstly, the RRR should not be regarded as a ‘principal performance criterion’ since this would be to claim or expect far too much of it. Other potential sources and incentives of improved performance for public enterprises need to be identified, implemented and monitored.
Secondly, economic principles advocate that the RRR on marginal investments reflect opportunity costs. An RRR such as the Victorian Government's prescribed RRR of 4 per cent, is an average or overall RRR on a public enterprises total assets. These assets are a result of historical investment decisions, some of which might be considered to be 'sunk costs' and not included in the estimation of the RRR. (The 'replacement cost' value approach to the estimation of total assets, the Victorian Government has prescribed that the public enterprises use, does try to take sunk costs into account. However, the focus remains on average, overall, returns rather than marginal returns).

Thirdly, it should be recognised that an RRR estimated in accounting terms is unlikely to reflect economic rates of return and hence will not provide a useful indicator of the degree of efficient and effective use of resources by a public enterprise.

Fourthly, a uniform RRR applied to all public enterprises is not prescribed by economic theory nor by the observation that rates of return vary widely among private and public sector enterprises. One must guard against the danger, though, that the prospect of rationalising a lower RRR for a particular public enterprise could provide a cloak behind which inefficiencies of various types, as well as social and political pursuits, might readily proliferate. This concern suggests that where public enterprises are required to undertake social obligations, explicit subsidies should be paid. If the Government is unable to implement direct subsidies (for reasons of overall budgetary demands) then, at a minimum, the implicit subsidy element should be revealed in the annual reports of the public enterprises. This would enhance the ability of Parliament and the public to realistically assess the performance of such enterprises and to identify costs and benefits borne by, or provided to, sections of the community.

Finally, in practice it is difficult to identify the appropriate FiRR for public enterprises. The RRR of 4 per cent prescribed by the Victorian Government, which was determined by the 'weighted average cost of capital approach', cannot be demonstrated to be correct or superior on uncontentious theoretical grounds. A (lower) rate based on the Social Time Preference Rate approach, or a (higher) rate based on the Social Opportunity Cost of Capital approach, seems equally tenable. This recognition identifies the prescribed RRR of 4 per cent to be determined as a matter of government policy which, while perfectly valid on this basis, should not be considered to be prescribed, unambiguously, by economic principles. Nevertheless, it is concluded that when the real rates of return earned by private enterprises are considered, a rate of 4 per cent for public enterprises seems, for the present, more reasonable than the rate of 10 per cent which is sometimes suggested as an appropriate target.

(ii) Dividend Requirements

The legitimacy of requiring dividends from public enterprises is open to some dispute, in particular because the definition of equity seems unclear in the case of public (by comparison with private) enterprises. Nevertheless, the requirement to pay dividends is quite defensible as a matter of government policy judgement pertaining to the distribution of public enterprise earnings.
Since dividend payments required of a public enterprise will affect its borrowing and subsequent debt servicing requirement, they are likely (in the medium term, at least) to affect the level of prices charged by a public enterprise.

Economic theory seems of limited assistance in identifying the correct level of dividend payments for public enterprises. Hence a doctrinaire or simplistic view that the level of dividend payments should be guided primarily by a predetermined rate (e.g., the Victorian Government's "up to 5 per cent would be unwarranted. This seems particularly so since the 5 per cent figure was determined on the basis of an arbitrarily chosen risk premium of 2 per cent added on to a questionable estimate of 3 per cent for the long term cost of debt).

Rather, the extent of PAD payments from individual public enterprises should depend, among other things, on the particular circumstances faced by a public enterprise including the requirement to retain earnings to finance a planned investment program, to improve a cash-flow position, the expected return on equity both in the short and longer term, the level of accumulated profits, the actual and desired debt: equity ratio, the constraints on borrowing and so on.

Section 4 discusses the economic rationale of Inflation Accounting (which RRR Reporting is a version of) and concludes that it is in principle persuasive. Essentially, it has long been recognised that particularly when inflation is significant, assets drawn up on historical cost conventions are misleading. Balance sheet figures of original cost do not represent the value of assets to the business, profit and financial trends are misrepresented. If accounts are to show resource use and economic performance they must allow for general inflation, for fluctuations in specific prices and costs, and for technical progress resulting in changes in the value of capital equipment. Moreover we find the argument that Inflation Accounting is especially important for public enterprises (Byatt, 1986) to be persuasive because of the

- relatively greater capitalization and generally longer asset lives of such enterprises

- absence of a share market assessment of the performance of a public enterprise and market discipline in enforcing efficiency in resource use, inflation adjusted information presented in the accounts of a public enterprise becomes particularly useful for judging efficiency.

But whilst we find the case for inflation accounting, in principle, to be persuasive, we have reservations about the Victorian Government's RRR Reporting approach to such accounting.

Section 5 outlines the characteristics of alternative CCA systems and the factors considered relevant in determining the appropriate approach for public enterprises. It is noted that the stated capital maintenance concept underlying RRR Reporting is inconsistent with the methodology which it employs. This observation is crucial in leading us to consider, and establish that, the use of alternative CCA systems will report a very different Return on Equity profit figure than that arrived at under RRR Reporting. This is important since the Return on Equity is a key measure of performance and provides a measure of the maximum dividend paying capacity of the enterprise.
Section 6 provides a comparative evaluation of the MMBW's profitability in 1985/86 under RRR Reporting and alternative CCA systems. The major differences between these competing systems are with respect to the capital maintenance concept employed and the measurement of the purchasing power holding gains on the "loan capital" used to finance an enterprise's net operating assets. Of particular interest are those CCA systems which, like RRR Reporting, adopt a proprietary approach to the capital maintenance concept. Line 13 of Table IX shows that the key Return on Equity profit results under these systems vary from a maximum $112.7m under RRR Reporting, down to a minimum of $11.7m for the Real CCA system and a middle of the range $55.4m under the CCAI method. The CCAI method adopts an operating capability capital maintenance concept consistent with a proprietary approach to capital maintenance, whereas the Real CCA system adopts a real financial equity approach consistent with the basis and stated intentions of the approach taken by the Victorian Department of Management and Budget. The relative profit performance of these CCA alternatives under different general and specific price level scenarios indicates that when asset specific price levels rise at a slower rate than the general price level (as measured by the Consumer Price Index) the RRR Reporting system results in a higher Return on Equity than the CCAI method which in turn reports a higher result than the Real CCA method. This scenario is consistent with the situation faced by the MMBW during the 1985/86 financial year.

Section 7 reviews the financial impacts of Public Authority Dividend policies based on Rate of Return Reporting in the light of the Victorian Government's criteria for dividend determination (as articulated by the DMB) and the financial circumstances confronting the MMBW. In reviewing the MMBW's financial circumstances, consideration has been given to its external financing constraints, capital structure and debt servicing ability as compared with the private sector, the level of internal funding of capital expenditure, and its prospects for increases in internal funding. Analysis of PAD policy shows a steadily increasing dividend payout for the MMBW which raises the question of whether it is the budgetary pressures faced by the Victorian Government rather than the MMBW's investment and financing needs which dominates the determination of dividend levels. Since RRR Reporting overstates the Return on Equity of the MMBW, thereby overstating its capacity to pay dividends, a continuation of the present reporting and dividend policies will lead to the erosion of the MMBW's public equity base and an increase in its debt to equity ratio. It is further noted that RRR Reporting target rates of return may be incompatible with the pricing and borrowing constraints imposed upon the MMBW.

The major conclusions drawn from sections 5, 6 and 7 are as follows:

- There are competing CCA systems which can be differentiated by their choice of a capital maintenance concept necessary to distinguish profit from capital. Two broad approaches to capital maintenance are the "entity" approach, which reflects the profit available for distribution after maintaining intact the operating capability of the enterprise, and the "proprietary" (equity) approach, which reflects the profits available for distribution after maintaining intact the equity of the proprietors under one of a variety of possible approaches. We conclude that information provided on the basis of both approaches is relevant for the different purposes of the various users of an enterprise's financial accounts.

- We conclude that a "proprietary" approach to capital maintenance is appropriate for the purpose of measuring the Return on Equity. Of the three proprietary approaches reviewed we find the CCAI and Real CCA systems preferable, with the choice between them dependent upon which capital maintenance concept is considered appropriate.
We conclude that the RRR Reporting method of determining the Return on Equity is internally inconsistent. This is because it requires that the current cost restatements of non-monetary assets be taken directly to the Current Cost Reserve account. This treatment is not consistent with its "financial equity" capital maintenance conceptual basis which, as it is expressed in nominal terms only, would require such current cost restatements to be taken directly to the Profit and Loss Account. The RRR Reporting method's prescribed treatment of these current cost adjustments is more consistent with the "operating capability" capital maintenance conceptual basis. However, the RRR Reporting method's computation of purchasing power gains on all monetary liabilities by reference to general price level movements is inconsistent with this capital maintenance concept, which requires the measurement of such purchasing power gains by reference to specific price level movements.

We demonstrate that the Return on Equity profit varies widely among the proprietary approaches reviewed. The choice between the CCAi and Real CCA methods is one of ascertaining whether it is more appropriate to maintain intact the operating capability of that part of the net operating assets of the enterprise provided by its owners (CCAi), or to maintain intact the real financial equity of the enterprise (Real CCA). The latter approach is consistent with the stated intentions of the DMB.

Where all prices are rising but asset specific prices are rising at a slower rate than the general price level the rank order of profit, in terms of magnitude, will usually be:

1. RRR Reporting
2. CCAi
3. Real CCA

Conversely, when asset specific prices are rising faster than the general level of prices the rank order will become:

1. Real CCA
2. CCAi
3. RRR Reporting

The misclassification of the "Contributions to Capital Works Reserve" as a deferred liability and, consequentially, as a monetary liability has led to an overstatement of the Return on Equity under RRR Reporting of $19.4m ($11.9m overstatement under CCAi method).

Notwithstanding the external borrowing constraints faced by the MMBW its dependence on debt, relative to equity, has increased in both conventional historical cost and RRR Reporting terms.

In recent years, the debt servicing ability of the MMBW as measured by nominal finance charges as a proportion of both Operating Revenue and Earnings Before Interest has shown a marked deterioration. Although the situation is not as drastic with respect to real finance charges, it is noted that the holding gains on debt which decrease the real finance charges are not represented by cash flows.

Although the appropriate level of internal funding of capital expenditure for public enterprises is debateable, the MMBW's internal funding ratio has declined sharply and is low by any standards.
The MMBW's level of PAD has been steadily increasing in spite of the deterioration in its debt to equity ratio, debt servicing ability, internal funding ratio and inability to achieve the target return of 4%. This suggests that the growing budgetary stringency faced by the Victorian Government, rather than the MMBW's investment and financing needs, may well be the more dominant factor in the determination of PADs. In the long term this could threaten the financial integrity of the MMBW and the other Victorian public enterprises.
INFLATION ACCOUNTING FOR AUSTRALIAN PUBLIC ENTERPRISES - ECONOMIC RATIONALE

AND FINANCIAL IMPLICATIONS (With Reference To The Melbourne And Metropolitan Board of Works)

INTRODUCTION

Since 1982 Victoria's (Labour) Government has implemented several significant reforms for the state's major public enterprises. Public enterprises in Victoria are required to aim at a 4 per cent real rate of return on the current value of total assets and pay dividends of up to 5 per cent on the 'equity' the community is deemed to have in each public enterprise. These reforms are appraised in Xavier (1986b). Beginning with their Annual Reports for 1985-86, the state's major public enterprises, which include

- The Melbourne Metropolitan Board of Works (MMBW)
- The State Electricity Commission of Victoria (SECV)
- The Port of Melbourne Authority (PMA)
- The Gas and Fuel Corporation of Victoria (GFCV)
- The Grain Elevators Board (GEB),

are also required to present, in addition to conventional historical cost accounts, supplementary financial statements designed to measure the real rate of return on assets and the real return to shareholders i.e. the return on equity. These supplementary financial statements constitute the so-called Rate-of-Return (RRR) Reporting accounts which is a version of Current Cost (CCA), or Inflation, Accounting (CCA).

The requirement that public enterprises use a version CCA has renewed debate in an area which has an extensive history of controversy and indecision. In addition, the Victorian Government's RRR Reporting principles, compiled by the Victorian Department of Management and Budget (DMB), contains major differences from alternative CCA systems including the Australian accounting profession's Statement of Accounting Practice No.1 (SAP 1), particularly with respect to the treatment of "holding gains" on borrowings. The use of RRR Reporting has very significant financial implications for public enterprises, not just in Victoria but elsewhere in Australia as:

"The Government is confident that its lead in this matter will encourage greater use of current cost-based accounting in this State and across Australia" (DMB, 1986b P.25)

This makes it all the more important that the Victorian Government's CCA based accounting reforms be closely examined. Surprisingly, (and, disappointingly,) however, outside official discussions, there has thus far been little independent analysis of the significant changes in accounting policy which are being implemented. Indeed, in his foreword to the MMBW's Annual Report for 1985-86, the Board's chairman Mr. R. D. Marginson, made a call for such wider discussion:
"In my view, there is need for a wider discussion of the accounting principles to be followed in achieving the common objective of full and frank disclosure of the operations of bodies such as the Board, that combine the need to achieve efficiency and effectiveness over a long period and a return on invested funds, with an overriding duty to the health of the community in the provision of water supply, sewerage and drainage services."

Mr. Marginson's view that a wider discussion of RRR Reporting is needed is certainly well founded. Indeed, even DMB which compiled the RRR reporting principles,

"... acknowledged that this is an area of accounting and reporting in which there are no generally accepted standards in Australia. Accordingly it is expected that, after further research and consideration of experience gained, the content and presentation of the statement will be improved. In this regard the views of users of the financial information will be carefully considered." (DMB, 1986b, p.24)

This paper is a response to the call for wider discussion of the RRR Reporting principles and their financial implications. Such a paper is particularly timely since New South Wales and other states and the Commonwealth Government are reportedly considering whether to implement similar reforms and requirements for their public enterprises. A review and assessment of the Victorian policy and its effects will no doubt be a valuable input to this consideration.

In this paper particular reference is made to the financial impacts of RRR Reporting and dividend policies on the MMBW. This is partly because the financial impact on the SECV has been discussed elsewhere (see Xavier [1986b], Skeel [1987]) and partly because there are signs that the impact on the MMBW could be particularly concerning.

It should be noted at the outset that this paper does not dwell on the measurement problems of moving from historical cost accounting to RRR accounting. These measurement problems are discussed extensively in the literature, most recently in DMB (1986a, 1986b) Byatt (1986) and Wright (1986). Instead this paper is concerned more with examining the economic rationale and principles underlying RRR Reporting and the financial effects of dividend payments based on such an accounting method.

The paper has the following plan. Section 1 introduces the topic. Since the genesis of RRR Reporting is the rate of return and public authority dividend requirements, these are the subjects of Sections 2 and 3. Thus Section 2 provides a brief discussion of the Victorian Government's policy that public enterprises target to earn a rate of return of 4 per cent (real). Section 3 discusses the requirement to pay Public Authority Dividends of up to 5 per cent of public equity. Then section 4 examines the economic rationale of Inflation Accounting for public enterprises (since RRR Reporting is a version of Inflation Accounting). Section 5 examines the different approaches to Current Cost (Inflation) Accounting. Section 6 provides a comparative evaluation of the MMBW's profitability in 1985/86 under RRR Reporting and alternative CCA systems. Then section 7 discusses the financial implications of the Victorian Government's Public Authority Dividend policy and practices (based on RRR Reporting principles) with particular reference to the MMBW. Finally, section 8 presents the conclusions of the paper.
2(i) THE REQUIRED REAL RATE OF RETURN OF 4 PER CENT

The Victorian Government announced in the State's 1982/83 Budget that public enterprises would be required to price their goods and services so as to meet a real rate of return requirement (RRR) on total assets employed of 4 per cent. The rationale for this policy was reiterated by the Government's Information Paper on Energy Pricing 1985-86:

"The principal performance criterion established for public authorities such as the SECV (State Electricity Commission of Victoria) and the GCV (Gas and Fuel Corporation of Victoria) is a target rate of return on assets. The authorities are required to manage their internal costs and set prices to achieve a 4 per cent real rate of return on the written down current replacement cost of assets in service. The rate of 4 per cent has been set by the Government to reflect the long run real rate of return attainable elsewhere in the economy and the minimum return required by the suppliers of investment funds. If lower rates of return are achieved in the energy sector, the result would be a misallocation of resources. Public authorities are required to recover all operating costs and capital costs and the real rate of return is a component of the capital costs of the public authority's operations. This means that public authorities performing commercial-type functions should achieve the same level of efficiency expected of private sector organisations.

The rate of return policy ensures that prices and investment will be set according to the overall return generated, thus contributing to long term price stability. It also gives flexibility to the utilities in lowering the cost of finance, consistent with the borrowing limits of State and Commonwealth Governments. Moreover it avoids prices being set to achieve a fixed level of internal funding for capital expenditure, and thus prevents large changes in prices due to changes in investment" (p 11).

How was the rate of 4 per cent arrived at?

The Weighted Average Cost of Capital Approach. A Government document (Department of Management and Budget, 1984) discloses that the reasoning used was based on the "weighted average cost of capital approach". Evidently the 4 per cent RRR was derived from estimates of the long term costs of debt and equity to the public sector, weighted by the extent to which these forms of finance (i.e. debt and equity) are utilized by public enterprises (the debt:equity ratio). To determine the long term cost of debt to Victoria's public enterprises," ... research was undertaken as part of studies conducted with the SECV and the Melbourne and Metropolitan Board of Works. These studies involved time series analysis spanning more than 100 years to derive data on interest rates and inflation so as to determine the real interest rates on the debt of these authorities. The long term average of these real rates, whilst subject to short term fluctuations, was found to be around 3%. While acknowledging that at any particular point in time it is likely that the real interest rate would differ from this 3 per cent, it was considered that this rate reflects the long term average of the cost of debt which investors in these authorities would impute into their investment decisions as expectations of the long term return." (Department of Management and Budget, [1984] p 42)
Cost of Equity of 5 per cent. The cost of Government equity in public enterprises was determined as follows. Firstly, the equity that the Government holds in a public enterprise was estimated to be that part of the current value of an individual public enterprise's assets which is not financed by its liabilities. It is acknowledged that the determination of the cost of this equity lacks the quantification and clarification of a market rate. Nevertheless, this cost of equity is considered to be derivable "... from the adaption of private sector principles to the public sector." These principles or characteristics of capital funding were deemed to include the following considerations:

(i) that the cost of equity is greater than the cost of debt since equity is legally subordinate to debt;

(ii) that a premium above debt is appropriate to reflect this greater risk; and

(iii) that for public enterprises this risk premium will be at the lower end of the spectrum.

Taking these considerations into account, a risk premium of around 2 per cent was estimated to be appropriate, hence determining the real cost of equity to be 5 per cent. (This estimate of 5 per cent underlies the Public Authority Dividend the Victorian Government requires public enterprises to pay on what it considers to be its equity investment in these enterprises). To recapitulate, the cost of debt was determined to be 3 per cent and the cost of equity 5 per cent. In determining the weighted average cost of capital, a debt:equity ratio of 50:50 or 1:1 was adopted. This ratio implied a real cost of capital of 4 per cent which constitutes the target pricing guideline at which public enterprises are required to aim.

2(ii) Should a RRR be Imposed?  
There now seems broad agreement that in general, public enterprises should be required to recover their costs although the issue of whether, in addition, they should earn profits, or a rate of return on capital employed, is not as clearly resolved. It is certainly possible to put forward some arguments in favour of an RRR for public enterprises. Notably a RRR might be useful:

1. As a basis for helping to ensure (allocative) efficiency in the use of resources within a public enterprise, between one public enterprise and another, and between public and private enterprises.

2. As an aid to achieving "reasonable balance" between commercial objectives ascribed to public enterprise and the wider objectives of government policy for this sector and the economy at large.

3. As a surrogate for profits, thereby providing a 'discipline' or incentives for internal, managerial or X-efficiency, particularly where constraints on public enterprise price increases exist (e.g. 'price increases would be less than the rate of inflation' as in Victoria).

4. As an observable, monitorable, measure useful in the appraisal and control of public enterprises. The argument here is that to the extent that there are difficulties in obtaining the information required for effective monitoring and control of efficient pricing, we will need to depend on observable measures such as an RRR.
For such reasons, there has been considerable emphasis placed, and, indeed, it appears, undue expectations, upon the RRR to encourage efficiency in public enterprises.

2(iii) Doubts about a Dependence on a RRR?
Too much should, however, not be claimed, or expected, of an RRR as a measure of, or as a means of promoting, economic efficiency and improved performance in public enterprises. In view of the current emphasis being given to the RRR, it is worth reiterating its limitations.

1. An RRR for public enterprises has been objected to on theoretical grounds on the basis of the "theorem of second-best." In short the second-best theorem warns that changes in pricing policy for one public enterprise should not be considered in isolation from the pricing policy of other public (and private) enterprises, particularly closely related ones. But since the pricing policy reforms in Victoria, including the RRR, are being applied widely, the constraint of the second-best theorem seems less binding.

2. An RRR by itself need not necessarily serve to stimulate managerial/cost efficiencies in State enterprises. Clearly, to exert any pressure for reductions in X-inefficiency, the RRR prescribed would have to be higher than the rate of return the public enterprise itself would have chosen to achieve and there would have to be sufficient penalties for failure to achieve the prescribed target.

However, to the extent that a public enterprise is a monopoly facing price inelastic demands, at least for some services - as seems the case for many public enterprises - the RRR could be achieved by price rises and/or changes in the level of product quality/service (such as reliability, durability, safety etc). The fact that a specific RRR is compatible with many combinations of pricing and non-price dimensions of a State's enterprise's behaviour was demonstrated in Xavier (1986a).

Nevertheless, the propensity for a RRR to encourage X-efficiency should not be altogether dismissed. Where there are constraints on the ability of public enterprises to increase their prices - such as consumer resistance or a government policy guideline that price increases be less than the rate of inflation, as currently exists in Victoria - pressures to contain costs will probably exist.

3. An RRR in itself provides no guarantee of, and may, in fact, obstruct (allocative) economic efficiency if it requires a departure from efficient pricing structures (Xavier, 1986a). Moreover, by focussing on a revenue requirement, the RRR could give strong reinforcement to traditional pricing policies such as those concerned with recovering historical or accounting costs of past investments embedded in current assets plus a mark-up to cover the RRR, rather than the concern with forward-looking economic costs prescribed by economic theory.

4. Some economists have warned that an RRR for public enterprises could distort efficient investment decisions. Indeed, there is an extensive literature on how a regulated maximum RRR for public utilities in the United States has resulted in over-capitalisation and economic inefficiency. For public enterprises subjected to a minimum RRR as in the United Kingdom, and now in Victoria, the least cost input mix will not be chosen if the target RRR exceeds the rate at which the public enterprise borrows. New investment in
plant which has a long construction period (e.g., power stations) will increase net assets and hence the revenue requirement before the plant is in operation and generating revenue. Moreover, the RRR could encourage both the choice of less capital intensive investments and of accounting practices which write off net assets more quickly. The prospect of such distortions led Webb (1986) and Gravelle (1976) to conclude that for the purpose of raising revenue, the least-cost approach would be to prescribe a simple lump sum target rather than an RRR. (See Officer [1986] for a recent review of these issues).

5. Once prescribed, the calculation of an RRR actually achieved by a public enterprise is again open to interpretation and disagreement. For instance, over short periods the internal rate of return can be subject to considerable variation because of the lumpiness of capital expenditures. In these circumstances an average (geometric) of rates over a number of years might have to be used. Alternatively, the asset may be amortized over its economic life at its appropriate cost of capital, to reduce variation in cash flows and therefore returns.

Fisher and McGowan (1983) warn that this internal rate of return should not be confused with the accounting rate of return which is defined as the accounting profit per book value of assets. The accounting rate of return can vary between enterprises due to different accounting procedures, e.g., through the subjective amortization of capital expenditures or capitalization of expected future cash flows as well as different valuation procedures, which may have no bearing on the performance of a public enterprise. Moreover, as Fisher and McGowan point out,

"... accounting rates of return, even if properly and consistently measured, provide almost no information about economic rates of return. The economic rate of return on an investment is, of course, that discount rate that equals the present value of its expected net revenue stream to its initial outlay. Putting aside the measurement problems referred to above, it is clear that it is the economic rate of return that is equalized within an industry in long-run industry competitive equilibrium and (after adjustment for risk) equalized everywhere in a competitive economy in long-run equilibrium. It is an economic rate of return (after risk adjustment) above the cost of capital that promotes expansion under competition and is produced by output restriction under monopoly. Thus, the economic rate of return is the only correct measure of the profit rate for purposes of economic analysis. Accounting rates of return are useful only insofar as they yield information as to economic rates of return." (p 82)

Fisher's later (1984) explanation of the problem is also useful:

"That problem is as follows. The numerator of the accounting rate of return in question is current profits; those profits are the consequence of investment decisions made in the past. On the other hand, the denominator is total capitalization, but some of the firm's capital will generally have been put in place relatively recently in the expectation of a profit stream much of which is still in the future. While the economic rate of return in the magnitude that properly relates a stream of profits to the investments that produce it, the accounting rate of return does not. By relating current profits to current capitalization, the accounting rate of return fatally scrambles up the timing." (p. 510) (emphasis in original)
Conclusion To conclude this section, we summarize the thrust of its argument. While the arguments in favour of an RRR for public enterprises seem persuasive on economic and financial grounds, too much should not be claimed, or expected, of an RRR. Indeed, in itself an RRR provides no guarantee of, and could in fact result in departures from, efficient pricing, non-pricing and investment policies. For this reason, it is sometimes argued (e.g. Heald [1980] Aitchison [1985]), that an RRR target should reflect sound pricing and investment policy and not vice versa. But such an argument based on a concern for allocative efficiency does not fully recognize the X-efficiency, financial and other benefits (discussed earlier) potentially derivable from an RRR. Nevertheless, this argument warns that one must be wary of claims which regard the RRR as a "principal performance criterion".

This suggests that the use of an RRR as an indicator of economic efficiency and performance should be judicious and qualified. And, moreover, it suggests that we should not depend unduly on an RRR to promote better performance but should be seeking other ways and means of fostering and measuring performance.

2(iv) Is a 4 per cent RRR Appropriate?
A first step in appraising the Victorian Government's use of the weighted average cost of capital approach to determine an RRR of 4 per cent for public enterprises, is to consider arguments favouring the use of other approaches to determining an RRR, namely the Social Opportunity Cost of Capital (SOCC) and the Social Time Preference Rate (STPR) approaches.

The SOCC Approach The arguments in favour of the SOCC approach have been extensively discussed in the literature (e.g. Dasgupta and Pearce, 1972) so that only a brief discussion is necessary here. In essence, the argument is that rather than being reflected in the cost of capital, the real cost involved in the use of resources by public enterprises is the opportunity cost of these resources. That is, the value of those resources when in their best alternative use. This approach is favoured by the Commonwealth Treasury which argued (Commonwealth Treasury, 1982):

"If public business undertakings are to make decisions about the pricing of, and investment in, economic services which are efficient in the sense that maximum value is obtained from the resources used (compared with alternative uses) then the rate of return on capital employed should match that obtainable from alternative uses available to society as a whole." (p 49)

The Treasury considers that the rate of return earned by public enterprises should be comparable to that earned on average by the private sector which it estimated to be 10 per cent in real terms (before tax) on total funds employed.

In putting this argument to the Senate Standing Committee on Statutory Financing (1983), the Treasury backed up its argument by pointing to the widespread use of a 10 per cent rate of return:

"The 10 per cent real return before tax is a rate commonly used in the private sector. Some organisations use a higher rate. The evidence to that is rather anecdotal; given the nature of private enterprises they each have their own practices. Overseas a number of governments and government; departments use a 10 per cent real rate of return. In the United States it is used for most purposes; in New Zealand it is the rate of return required on new public sector investment projects; and in Canada it is the rate
used. We also have some evidence on the rates of return required in the private sector in Australia from stock market and other data. This has confirmed our impression that a rate of return of the order of 10 per cent real return before tax is an appropriate rate of return for investments. (p 95)

However, there are many well known objections, on conceptual and practical grounds, to the use of an achieved average rate of return in the private sector as an indication of the opportunity cost of funds utilized by public enterprise. One objection is that the alternatives to public enterprise investment are not only investment but also consumption now in both the private domestic and non-domestic sectors. This point underlies the rationale of the Social Time Preference Rate (STPR) approach.

The STPR Approach In simple terms the STPR approach is concerned with identifying the appropriate RRR through ascertaining the rate of return which the community requires as a reward for deferring present consumption in favour of future consumption. As with the SOCC approach, the estimation of the STPR faces both theoretical and practical difficulties. It is sometimes suggested that a way around some of the estimation difficulties would be to use the real long term bond rate and the long term growth of real incomes as surrogates for the STPR. Both these rates have been estimated to lie between 2 per cent and 3 per cent in real terms (Department of Management and Budget, 1984). However, due to the difficulties in making such estimates of the STPR (such as that of ensuring that an appropriate historical period is considered and long term forecasts of their future values are incorporated into the analysis). In view of these difficulties the Department of Management and Budget considers that it may be advisable to perceive the 2 per cent to 3 per cent rate derived from this approach as a lower limit for the rate of return expected of public enterprises.

Aitchison (1985), however, argues that the rate determined by the STPR approach should be the one used in practice:

"In an ideal model the social cost of capital should be equal to a concept called the social rate of time preference (STP). The STP rate is a measure of how the community values benefits or costs occurring at two different times. In more realistic models there is still a strong link between the STP rate and the social cost of capital, even though the model specification is complicated by secondary effects. Therefore in practice the appropriate public sector discount rate should be the STP rate. Theoretical discussions of this rate indicate that it should be quite low, in the realm of 0%-3%.

It is therefore disturbing to observe that State and Federal governments are being pressured to use the marginal private rate of over 10% as the correct public discount rate. This high rate discounts events in the future very heavily, and is seemingly at odds with current community concerns regarding the future (in such areas as environmental damage, education, etc). It is also contrary to theoretical discussions of the social rate of time preference which suggest that quite low rates are appropriate." (p. 4 of the non-technical summary)
Conclusion Regarding the Prescribed RRR of 4 per cent. The above discussion has identified advocacy of three different rates of return, 2 per cent to 3 per cent using STPR, 4 per cent using WACC and 10 per cent using SOCC. In a theoretically perfect world the three rates would converge. However, in our imperfect world the differences will persist and the choice is problematical partly because the different approaches address different legitimate concerns. As Feldstein (1973) pointed out, the SOCC approach is concerned with intratemporal efficiency in the allocation of resources between the private and public sectors, while the STPR is concerned with intertemporal efficiency between present and future consumption benefits.

Enough has been said above to underline the fact that the prescribed RRR of 4 per cent is open to challenge even before the formidable practical problems of estimating the weighted average cost of capital are discussed. Indeed, evidently the Government initially adopted the Office of Management and Budget Task Force's recommendation that the RRR be 5 per cent. (A rate of 5 per cent was incidentally the RRR the 1978 British White Paper required public enterprises to aim at on their new investment program as a whole — including the so-called "essential" but non-revenue-earning, investment). However, the Government later reduced it to 4 per cent. What all this suggests is that an RRR of 4 per cent, based on a weighted average cost of capital, cannot be demonstrated to be superior on uncontentious theoretical grounds, no matter how confidently such a claim might be made. Nevertheless, the rationale behind the imposition of an RRR is sound. And even if one considers that a higher rate such as the 10 per cent RRR advocated by the Commonwealth Treasury (on the basis of the SOCC approach) is the appropriate one, the 4 per cent RRR prescribed by the Victorian Government does meet the essential requirement of movement towards a more economically rational system.

Moreover, as Ball and Davis (1984) point out, recent work undertaken by the Australian Graduate School of Management (AGSM) has indicated much lower average real rates of return in the private sector than previously estimated. For instance, in an earlier study the Institute of Applied Economic and Social Research (1982) estimated that over the 9 years to 1977-78, private corporate trading enterprises in Australia achieved a real rate of return on all assets employed, before interest, of about 12 per cent per annum. The AGSM estimates that in the 1970s the average real returns was considerably less than 4 per cent (Ball and Davis, 1984, pp 40-43).

2(v) Should the RRR Vary Among Public Enterprises?
The Victorian Government's policy is that all public enterprises earn — or move towards earning — an RRR of 4 per cent. Is this prescription of a common RRR appropriate? The Senate Select Committee on Statutory Authority Financing (1983) concluded that a common RRR is appropriate, arguing that,

"On resource allocation grounds it is hard to see any compelling reason why in the longer term the rate, however it is determined, should vary among authorities although there are clearly a number of social and equity considerations that must be addressed and there would obviously be some problems in implementing a general rate of return requirement. It could be argued that the degree of competition, financial arrangements, and "social obligations" confronting authorities are so different that a requirement to earn the same rate of return on assets employed would create anomalies even worse than those prevailing under the present system where real rates of return vary significantly and have generally not even been identified."
However, if social obligations or other national interests are deemed sufficiently important for an authority to perform a role other than what it would choose to do on strictly commercial grounds, this requirement should be specified, and funded in an appropriate way, preferably by a direct subsidy. This will almost always produce a more efficient result than funding social obligations indirectly through the pricing system.” (pp 98–99)

If, as concluded above, in an imperfect world, there is no unique theoretically correct RRR, the choice of an RRR figure seems to be a matter of judgement which recognizes the various considerations. For instance, Ball and Davis (1984) argue that the RRR should vary because the level of risk varies among industries. This would support the view that a different RRR might be set for each public enterprise. There seems considerable support for this view (Officer, 1986). A broader view is taken by the U.K. White Paper on Nationalised Industries (1978) which argued that the specification of an RRR for a public enterprise should take many factors into account:

"The level of each financial target will be decided industry by industry. It will take account of a wide range of factors. These will include the expected return from effective, cost-conscious management of existing and new assets; market prospects; the scope for improved productivity and efficiency; the opportunity cost of capital; the implications for the Public Sector Borrowing Requirement; counter inflation policy; and social or sectoral objectives for e.g. the energy and transport industries." (p 26)

In Australia, a paper by Streeton (1984) concerning Commonwealth Government Public Enterprises is emphatic that the RRR should vary among public enterprises. His reasoning is worth quoting at some length:

"Rates of return will vary from industry to industry. The Government should not accept suggestions, for example by the Senate Standing Committee on Statutory Authority Financing, that public enterprises should aim at a common rate of return to assets employed, or at rates comparable with the average rate in the private sector. First, the division of labour between the sectors gives the public sector a disproportionate share of capital-intensive industries whose returns are low everywhere, whether they are publicly owned or (as many are in the U.S.) privately owned. Second, there are wide variations around the average rate of return in each sector. Information as to the variations in the Australian private sector is not available. But the U.S. range is from above 20 per cent (e.g. in pharmaceuticals and many personal services) through some low rates in steel, housing and other manufacturers, to negative rates for railroads and some other franchised private services which enjoy public subsidies. The variations do not generally reflect degrees of monopoly, and cannot be sufficiently explained by factors of risk. They exist for complex historical, institutional and technological reasons. The different returns to assets employed may be masked by share-price adjustments, but the basic differences are wide. The private sector cannot and does not cluster its returns closely around its average rate, and it offers no such example to the public sector. Public sector returns vary as widely around the sector average, for similar reasons. Subject to other considerations and to prevailing price surveillance policies, for example, the Government may look for very high returns from OIC, high returns from Telecom, moderate returns from Australia Post, and none for the time being from ANR." (pp 34–35)
Information collated by the Reserve Bank of Australia (1986) offers some evidence that in the private sector the rate of return does vary between industries. As Table I shows, gross profit as a percentage of total assets varied from 9.6 per cent for the mining industry to 15.1 per cent for non resource-based manufacturing.

### Table I

**Gross Profit as a Percentage of Average* Total Assets**

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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource-based manufacturing</td>
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<td>15.0</td>
<td>11.4</td>
<td>10.2</td>
<td>13.3</td>
</tr>
<tr>
<td>Other manufacturing</td>
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<td>15.7</td>
<td>14.4</td>
<td>13.4</td>
<td>15.1</td>
</tr>
<tr>
<td>Total manufacturing</td>
<td>15.6</td>
<td>15.4</td>
<td>13.2</td>
<td>12.1</td>
<td>14.4</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>13.1</td>
<td>13.9</td>
<td>12.7</td>
<td>12.0</td>
<td>13.9</td>
</tr>
<tr>
<td>Retail trade</td>
<td>14.1</td>
<td>14.6</td>
<td>13.4</td>
<td>12.0</td>
<td>14.5</td>
</tr>
<tr>
<td>Services</td>
<td>15.1</td>
<td>15.0</td>
<td>14.6</td>
<td>13.0</td>
<td>13.5</td>
</tr>
<tr>
<td>All industrials</td>
<td>15.3</td>
<td>15.2</td>
<td>13.4</td>
<td>12.2</td>
<td>14.2</td>
</tr>
<tr>
<td>Mining</td>
<td>19.0</td>
<td>11.8</td>
<td>8.1</td>
<td>9.9</td>
<td>9.6</td>
</tr>
<tr>
<td>Total non-financial</td>
<td>15.8</td>
<td>14.7</td>
<td>12.5</td>
<td>11.8</td>
<td>13.3</td>
</tr>
</tbody>
</table>

"Average of values at beginning and end of each period

The recently released discussion paper on proposed policy guidelines for Commonwealth Statutory Authorities and Government Business Enterprises (Department of Finance, June 1986) also considers that a common RRR would not be appropriate. It proposes that:

"In setting financial targets the Government will have regard for the trading conditions in the industry within which the enterprise operates, for its relative commercial and market strengths and for the extent to which, on the basis of Government policy, it is required to meet any community service obligations and the extent to which government business enterprises are required to pursue non-commercial objectives as determined by Government policy." (p 22)

**Potential Misuse of Non-uniform RRR** There is a danger, however, that when a different RRR is set for each public enterprise in recognition of such conditions, the scope for the government to pursue social and political objectives through the pricing policy of a public enterprise is expanded. In addition, there would be more scope for the (covert or overt) government manipulation of public enterprises which as many studies - both official and academic have concluded, invariably results in a deterioration of economic performance. Moreover, the possibility of rationalising a lower RRR could provide a cloak behind which inefficiencies of various types might readily proliferate. Social benefits are hard to quantify and easy to exaggerate. For such reasons Trengove (1984) has urged that governments do not oblige public enterprises to have 'social objectives.'

"As a small step towards reform we could recommend that state enterprises not be given, in the relevant statutes, "general purpose" social objectives. Instead we suggest that parliaments and governments take direct responsibility for the social policies for which they believe
they have a mandate. We note the possibility that current arrangements do provide some sort of indirect check on the distillation and implementation of social policies by state enterprise managers. That is, managers are allowed some discretion but subject to an evaluation of their performance in the exercise of that discretion. We have also noted that this type of arrangement tends to be reflected in the qualities required of managers. Successful state enterprise managers, as things presently stand, are those able to distil the essence of the political balance from the ether and pursue a mix of commercial and social policies to reflect that balance and so safeguard and further enhance their futures.

We regard this practice as detrimental to both forms of accountability - of state enterprise to the parliament and of parliament to the people. In effect, nobody knows who to blame or praise for the pursuit of both the social and commercial objectives. We feel it is preferable if enterprise managers are not judged, even if only partially, on their ability to anticipate political fortunes, as against their success in running their enterprises efficiently. By the same token, we feel that it is inappropriate for politicians to escape the monitoring of the electorate in respect of the public policies they pursue, or condone, by allowing the implementation of those policies to be confused with the efficient running of state enterprises." (p.44)(emphasis in original)

It is not difficult to understand why the use of public enterprise pricing policies to achieve political objectives would be attractive. It is a convenient method and avoids the need for explicit government subsidies and therefore the need for explicit Parliamentary and bureaucratic processes which can be time-consuming, expensive and uncertain in outcome. Redistribution through public enterprise policies can take place with far less fuss because the nature and extent of the redistribution are typically obscure. So, too, are the extent and location of costs which, even if sizeable, are usually spread around a large number of payers and thus insufficiently burdensome on the individual to motivate him to bring pressure to bear through the political process (Stigler, 1971).

This convenience of using public enterprises to pursue social/political objectives, while a major advantage from the point of view of the beneficiaries, is precisely the major disadvantage from the point of view of society as a whole. In many cases those who ultimately pay are only dimly aware of this, and certainly have not volunteered to do so. Nor has the pattern of redistribution usually been sanctioned by society as a whole via parliamentary debate or explicit government budgetary decision. It may well be that such redistribution reflects the political power of pressure groups rather than a considered community decision. The major argument against the use of public enterprises to serve "non-economic" purposes is thus not that the resulting redistribution of income is excessive or in the "wrong" direction - though both of these may be true. (In this context it is worth recalling that there are extensive subsidies channelled to and through the private sector such as housing interest subsidies, payments to primary producers, investment allowances, etc., which may be comparable in magnitude and direction). The point is that such redistribution is not the result of informed public debate, and is "unauthorised"; in that respect it is inferior to more explicit methods. (This discussion is particularly pertinent to the practice of cross-subsidization by public enterprises)

A Suggested Approach The arguments in the above discussion suggest that explicit reasons be given where an RRR which diverges from the standard (4 per cent) is considered appropriate. Moreover, they would suggest that where public enterprises are required to undertake social or national interest obligations, explicit subsidies should be paid.
If the Government is unable to implement direct subsidies (for reasons of overall budgetary demands) then, at a minimum, the implicit subsidy element should be revealed in the annual reports of the public enterprises. If, after including such real or implicit subsidies, it is not possible for a public enterprise to earn a specified minimum RRR, there should be specific inquiries into the reasons for this failure. When a public enterprise consistently falls short of the required RRR, it should indicate this clearly in its annual reports and present calculations of the extent to which its prices, and/or its costs, would have to be varied to meet the target RRR (Senate Select Committee, 1983). These measures would help guard against the interference with, and excessive use of, public enterprises to serve political and/or non-commercial objectives. Moreover they would enhance the ability of Parliament and the public to realistically assess the performance of such enterprises and to identify costs and benefits borne by, or provided to, sections of the community.

The above approach would be consistent with the guidelines recently proposed by the Department of Finance (1986) which suggests that,

"Where the costs of meeting such community obligations are substantial it will be necessary to make due allowance for this. It may prove difficult in some instances to quantify the costs attributable to the servicing of such community obligations. However, the assessment of such costs — although necessarily qualified in some cases — will be possible in most instances. The Government will expect enterprises to make such assessments and to include them in their annual reports. This information will strengthen the capacity of Ministers and Parliament to weigh such costs in setting and monitoring financial performance." (p. 23)
3(i) THE PUBLIC AUTHORITY DIVIDEND (PAD)

The most controversial aspect of the recent reforms to public enterprise policies by the Victorian Government is probably the Public Authority Dividend (PAD). The Victorian Public Authorities (Dividends) Act 1983, requires that 'commercial statutory authorities' (public enterprises) pay to the State's Consolidated Fund each year a return on equity, in the form of a Public Authority Dividend (PAD) of up to 5 per cent of the value of the public equity held in that authority. We saw above how this rate of 5 per cent was determined.

In the Government's view, the basis of the PAD is that the people of Victoria, represented by the Government, are the ultimate owners of public enterprises. Accordingly, they have an equity holding in the assets of these enterprises and therefore can expect a return on that equity. This return, in the Government's view, should be paid to the Consolidated Fund and thereby made available to the Government for use in pursuit of its overall programs and objectives, or to reduce State charges elsewhere, thus distributing the benefits according to the priorities of the community as a whole.

A Government document (Energy Pricing Information Paper, 1985-86) explained that in any particular year the level of the PAD payable by individual public enterprises would depend on a number of factors, including:

- the overall RRR on assets which has been achieved by the public enterprise (those which are moving towards the target rate of return on assets are not required to pay a dividend at the maximum rate of 5 per cent)
- the cost of debt and the proportion of debt and equity capital in the business
- the level of accumulated reserves reflecting past returns on equity which have been retained for use by the public enterprise.

The Government has emphasised that the PAD requirement and the RRR guideline are separate and distinct aspects of public authority policy. It has claimed repeatedly that the level of prices are affected by the target RRR but not the PAD. This is because it is the RRR which determines the enterprise's surplus out of which the return to equity remains after the cost of debt is met. The return to equity is then available to meet PAD payments. The Government claims (Energy Pricing, 1985-86) that,

"Whether the return to equity is kept by the public authority as retained earnings, or a part is paid to the Consolidated Fund as a dividend, there will be no direct effect on actual tariff levels. The retention of the return to equity by public authorities will not directly lower tariffs although it will reduce the proportion of debt finance for future capital works." (p 12) (Emphasis added)

The Government statement is curious and seems self-contradictory. In view of the strong demand for investment capital faced by many (capital intensive) public enterprises, surely PAD payments which deplete internal funding capacity and result in increased dependence on borrowing will result in increased debt repayments and servicing charges and consequently price increases? Hence, at least in the medium or longer term, PAD payments will affect the level of public enterprise prices.
This conclusion received support recently from Mr. J.R. Smith, Chief General Manager of the SECV, in a letter to the editor of 'The Age' newspaper (13 September 1986),

"In the past eight years the SEC has paid $458 million in dividends to governments. It has had to borrow that much more because of those dividends. Obviously electricity customers have to pay the interest bill on that extra debt.

It is surely evident ... that whatever government goods and services have been provided by the use of such dividend payments, they have been paid for by the SEC borrowing more money.

This is not to say dividends are inappropriate, but [one should] reveal the implications."

3(ii) Is the PAD Requirement Justifiable? Trengove (1984) suggests that the PAD requirement is open to dispute because, where public enterprises are concerned, the concept of equity capital is unclear,

"In the context of the private sector, there is a concrete distinction between equity and debt. Equity capital consists of those monies advanced to the firm by shareholders who have no guarantee of them ever being repaid, but who in exchange can expect to receive residual payments from the firm's cash flows after all fixed charges have been paid. Accordingly, the rate of return is just equal to those residual payments (the numerator) divided by the monies originally advanced to the firm (the denominator).

In the case of the public enterprise we face a lack of a similarly clear cut notion of equity. To be sure, advances are often made by the taxpayer, and without any guarantee of repayment. But this is distinct from private sector equity finance, since there is generally no requirement to generate a (variable) residual profit to be paid in return for this initial advance. On the other hand, much of the debt financing - direct from the taxpayer or via governmental guarantee - is subject to a variable return, variable due to a frequent tendency towards underpayment of the debt incurred." (p.41)

Streeton (1984) agrees that for public enterprises the identification of equity capital is unclear. He suggests that public enterprise equity capital may be treated in at least three ways: (i) as owned by the enterprise for purposes prescribed by Act of Parliament; (ii) as equity, on which government as owner may expect dividends; or (iii) as lent by government, which may expect loan interest or repayment. Streeton argues that the choice is a matter of policy and concludes in favour of the Victorian Government's approach. However, he makes some interesting comments which in view of the contentious nature of the PAD are worth repeating:

"To treat public enterprise capital as equity, share-owned by the Australian people through an appropriate branch of their government, as it already is in Qantas and other publicly owned companies, seems the most promising arrangement. As noted, it may help to facilitate useful comparisons of performance and movements of people and expertise between the public and private sectors. It allows what are in reality profits and dividends to be honestly described. It allows them to vary as they should with the nature and earning capacity of each corporation's business, and grow or decline as the business grows or declines.
As the basic financial relation between government and its business enterprises, an investor's or equity-owner's relation, rather than a lender's relation, allows every desirable flexibility. It is only necessary to ensure that it does not also allow undesirable flexibility. It is appropriate that a Government paper should identify that danger in the bluntest terms as the danger of political misuse. As governments face the regular agonies of annual budgets and periodical election campaigns they must not be tempted - which means they must not be able - to plunder their business enterprises for revenue or starve them of necessary capital for short-term or partisan political purposes. The Government should acknowledge that when politicians come under the pressures characteristic of their profession, the corporate resources need to be protected by some equivalent of the time locks which prevent unscheduled access to bank safes.” (pp 32-33)

What level of dividends or PAD payments is it appropriate to expect from public enterprises?

Economic theory seems of limited assistance in the case of public enterprises. It is arguable that the PAD payments to Consolidated Revenue could be viewed as a form of taxation (indirect taxation if they are passed on to consumers). In this view, to appraise their appropriateness and efficiency, one must compare the PAD method of taxation against other alternatives for raising Consolidated Revenue - a complex task clearly beyond the scope of this paper.

It might be suggested that a more pragmatic method of assessing whether the level of dividend payments in public enterprise is appropriate might be to compare it with those prevailing in private enterprise. However, Ergas (1986) who considered this issue in the context of the Australian Telecommunications Industry observed:

"It is nonetheless difficult, even in theoretical terms, to define the 'correct' level of dividend payments for a public enterprise. This is because some of the factors underlying dividend policy in a private company do not apply in the context of the relations between government and its commercial undertakings; these include the differential tax treatment of interest payments, retained earnings and dividends, and the disclosure element of company dividend announcements." (p 61)

Ergas continues by suggesting some factors which might be considered in setting PAD payments required of public enterprises:

"It is reasonable, however, to suggest that the dividend policy of a public enterprise should perform two functions:

* reflect a capital structure, in terms of debt-equity ratios, which does not impose an excessive burden of fixed interest obligations on the enterprise, since (particularly in capital intensive industries) this will lead to unjustifiable price rises during cyclical downturns;

* take account of the growth prospects of the industry, of the need to provide for growth through adequate injections of equity, and of the fact that commercial equity capital would generally be available on favourable terms to rapidly growing private companies."
The Department of Finance (1986) paper proposes similar considerations:

"Where a government business enterprise, consistent with its statutory obligations, is able to generate a financial surplus after meeting all costs (including interest charges) then dividends should be paid to the Commonwealth. The extent of such payments from individual enterprises will depend, among other things, on the requirement of those enterprises to retain earnings to finance capital expansion, reduce borrowings or improve their cash-flow position. In most cases it will be appropriate to provide for an enterprise to recommend a dividend payment to the Commonwealth and for the responsible Minister to accept or vary that recommendation. Some enterprises have no Commonwealth equity but instead make a return to the Commonwealth through fixed interest payments. This would need to be taken into account." (p.22)

The following discussion proceeds on the basis of the considerations for dividend policy suggested by Ergas (1986) and the Department of Finance (1986) to examine the available information to see what comment can be made on the Victorian Government's PAD requirement of 5 per cent.

Is a 5% PAD requirement appropriate? As Table IV indicates, in the private sector, dividends paid as a percentage of average shareholder's funds has varied from year to year and for 1984 ranged from 3 per cent for resource-based manufacturing, to 8.3 per cent for the services industry, averaging 4.8 per cent for all non-financial industries. Depending on which sector a public enterprise is considered comparable to, a PAD requirement of 5 per cent may be argued to be either excessive, appropriate or too low.

TABLE IV
DIDIVENDS AS A PERCENTAGE OF AVERAGE* SHAREHOLDERS' FUNDS

<table>
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<td>Resource based manufacturing</td>
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<td>Other manufacturing</td>
<td>5.6</td>
<td>5.9</td>
<td>5.9</td>
<td>5.5</td>
<td>5.8</td>
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<tr>
<td>Total manufacturing</td>
<td>5.1</td>
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<tr>
<td>Wholesale trade</td>
<td>5.1</td>
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<td>5.2</td>
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<td>4.5</td>
</tr>
<tr>
<td>Retail trade</td>
<td>5.2</td>
<td>5.4</td>
<td>5.8</td>
<td>4.8</td>
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</tr>
<tr>
<td>Services</td>
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<td>5.9</td>
<td>5.4</td>
<td>5.5</td>
<td>8.3</td>
</tr>
<tr>
<td>All industrials</td>
<td>5.2</td>
<td>5.1</td>
<td>4.8</td>
<td>4.5</td>
<td>5.2</td>
</tr>
<tr>
<td>Mining</td>
<td>7.3</td>
<td>4.0</td>
<td>2.1</td>
<td>2.5</td>
<td>3.0</td>
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<tr>
<td>Total non-financial</td>
<td>5.6</td>
<td>4.9</td>
<td>4.3</td>
<td>4.1</td>
<td>4.8</td>
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</table>

*Average of values at beginning and end of each period

Source: Reserve Bank of Australia (1986), Bulletin Supplement: Company Finance (August) p.6
Dividends as a Percentage of Net Profits

Table V provides information on dividends paid on average for the years 1979-80 to 1983-84 as a percentage of net profit.

### Table V

**Payout Ratio (Dividends as a Percentage of Net Profits), Average 1979-80 to 1983-84**

<table>
<thead>
<tr>
<th></th>
<th>All Sydney Stock Exchange Companies</th>
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<tr>
<td>OIC (%)</td>
<td>75.9</td>
<td>39.2</td>
<td>12.5</td>
<td>11.6</td>
</tr>
<tr>
<td>Telcom (%)</td>
<td>50.5</td>
<td>32.8</td>
<td></td>
<td></td>
</tr>
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</table>

Note: In the case of Telecom, interest on Commonwealth advances is treated as a percentage of operating profit plus that interest.


Table VI provides an annual breakdown of dividends paid by industrial companies as a percentage of net profit from 1979 to 1984. Dividends rose from 46 per cent in 1981 to 60 per cent in 1982 and 67 per cent in 1983 as companies maintained dividend payments despite falling profits. In 1984, dividend payments declined sharply to 51 per cent. This ratio had been around 48 per cent in most years after 1976. Note that these are much higher dividend payouts than the average of 39.2 per cent for all Sydney Stock Exchange companies during 1979/80 to 1983/84 indicated in Table V. Section 7 of this paper discusses specific dividend payments by public enterprises and the financial impact of these payments.

### Table VI

**Dividends as a Percentage of Net Profit**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource-based manufacturing</td>
<td>42.0</td>
<td>46.8</td>
<td>71.6</td>
<td>71.1</td>
<td>37.2</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>51.4</td>
<td>49.6</td>
<td>62.2</td>
<td>67.2</td>
<td>50.5</td>
</tr>
<tr>
<td>Total manufacturing</td>
<td>48.0</td>
<td>48.8</td>
<td>64.2</td>
<td>68.2</td>
<td>46.0</td>
</tr>
<tr>
<td>Wholesale trading</td>
<td>39.6</td>
<td>35.4</td>
<td>53.5</td>
<td>63.8</td>
<td>40.6</td>
</tr>
<tr>
<td>Retail trade</td>
<td>51.7</td>
<td>48.8</td>
<td>63.0</td>
<td>60.0</td>
<td>62.1</td>
</tr>
<tr>
<td>Services</td>
<td>48.8</td>
<td>44.4</td>
<td>44.4</td>
<td>63.2</td>
<td>84.4</td>
</tr>
<tr>
<td>All industrials</td>
<td>47.8</td>
<td>47.4</td>
<td>60.4</td>
<td>66.5</td>
<td>51.1</td>
</tr>
<tr>
<td>Mining</td>
<td>47.9</td>
<td>59.7</td>
<td>82.4</td>
<td>58.7</td>
<td>68.9</td>
</tr>
<tr>
<td>Total non-financial</td>
<td>47.8</td>
<td>48.9</td>
<td>62.0</td>
<td>67.1</td>
<td>52.7</td>
</tr>
</tbody>
</table>


We proceed now to examine the rationale of RRR Reporting.
4. **The Economic Rationale of Current Cost (or Inflation) Accounting for Public Enterprises**

A primary purpose of RRR Reporting is to facilitate the measurement of the return on assets and the return on equity of a public enterprise. As we saw earlier, the return on assets is regarded as a fundamental performance indicator and the return on equity provides the basic input to decisions about the appropriate level of the public enterprise dividend. Thus the Victorian Government considers RRR Reporting to be an important element in its public enterprise policy framework and reforms.

Essentially RRR Reporting is a version of Inflation (or Current Cost) Accounting and shares the well-known rationale of the latter. In brief, it has long been recognised that, particularly where inflation is significant, accounts drawn up on historical cost conventions are misleading especially where assets are long lived. Balance sheet figures of original cost do not represent the value of assets to the business, profit and financial trends are misrepresented. If accounts are to show resource use and economic performance they must allow for general inflation, far fluctuations in specific prices and costs, and for technical progress resulting in changes in the value of capital equipment.

The economic rationale for inflation accounting is, in principle, very persuasive and we discuss below some of the arguments in regard to its potential advantages (drawing heavily on Barton [1975]).

4(i) The Microeconomic Advantages of Inflation Accounting

Given the nature of modern business operations and the extent of inflation in the Australian economy, a system of inflation accounting has many important advantages for the management, long-term creditors, and owners or shareholders of business enterprises. The system provides necessary financial information for maintenance of a firm’s production capacity; the efficient management of the going concern; optimum pricing and output policies; forecasting and budgeting; financial planning and dividend decisions; and a whole range of asset investment decisions. As well, inflation accounting provides reliable measures of income, financial position and rates of return on investment which is of use to management, owners and creditors.

(a) Maintenance of Productive Capacity

A capital maintenance concept underlying inflation accounting is that of maintaining intact the productive capacity of the business. By ensuring that sufficient funds are recovered from revenue to enable replacement of the inventories and plant services consumed in generating the revenue, the net stock of productive assets can be maintained and the business can maintain its volume of future operations. Funds sufficient to replace inventories and plant used up in operations are recovered in the profitable business by basing the depreciation and cost of goods sold charges on the current replacement costs of the same or equivalent assets. Maintenance of production capacity is a necessary pursuit of the ongoing concern.
(b) Efficient Management in the Going Concern

Inflation accounting provides management with information necessary for efficient operations. An aspect of economic efficiency is as the production of a given output at the least possible cost. For this purpose, costs must be measured in terms of the current market costs (rather than historical costs) of the resources used in production. The current buying prices of physical assets represent their current supply prices in resource markets. As relative resource prices change, businesses must adapt their operating techniques such that a smaller quantity of the now dearer resource is used in producing a given output.

With rapid inflation, relative resource prices can change quite rapidly and markedly, and businesses must keep on adapting their methods of operation in accord with the changing conditions in the factor markets. Inefficiency means that cost are higher than they need to be, and hence profits are reduced. Given vigorous competition and/or a depressed product market, inefficiency is a feature which the going concern must avoid. Inflation accounting provides management with more relevant and timely information on the current market cost of physical assets owned by the business, and together with rate of return on investment data, this puts pressure on management to revise their operating methods in line with current supply prices of resources. Use of out-dated historic cost data removes the pressure on management for improved efficiency and deprives it of relevant cost information. In addition, maintenance of operating capacity enables the business to avoid inefficiency resulting from unplanned reductions in the scale of its operations.

(c) Pricing and Output Policies

A business which has some market power can fix either the selling prices of its products (and then sell as much as possible at these prices); or it can predetermine its sales volume (and then sell this volume at the highest price possible). However, it cannot do both. Whether it adopts either option, information on the current supply prices of its products is required. The current supply price of a product is that price which is necessary to induce and maintain the supply of a product to the market. It covers the current buying prices of all resource inputs in production plus a normal profit margin. Inflation accounting provides this information to management. A going concern will sell products so long as their selling prices exceed or equal the products' supply prices; and it will expand sales up to the point at which the two are equated in order to maximize profits. Any rise in the current buying prices of resources used by the firm raises the supply price of its product, and management must adjust either the selling price or sales volume accordingly.

(d) Forecasting and Budgeting

As the result of recording changes in the market prices of assets as they occur, management can analyse the extent and frequency of such price changes, and identify those assets for which the greatest changes occur. This information is of great assistance in all long-range forecasting required for the formulation of business strategies and investment projects. It enables more accurate forecasts of future capital requirements and cash budgeting. Historic cost accounting provides only intermittent and spasmodic information about asset prices for budgeting purposes.
(e) Financial Planning and Dividend Decisions
Because inflation accounting should improve the accuracy of long-range forecasting, more accurate estimates of additional financial requirements may be made. This in turn will lead to improved financial planning and financial structure decisions. Likewise it provides a better basis for dividend decisions as the dividends can be paid from profits without impairing the financial viability or productive capacity of the company. Any profits to be retained in the business can be used to finance growth in the scale of operations rather than merely to replace assets used up in operations because the measure of profit automatically provides the financial capacity to replace assets. Historic cost accounting on the other hand can lead to dividend decisions which erode the physical capital of the business.

(f) Asset Investment Decisions
Current market price data for assets must be used in making all decisions about fixed asset purchase, retention and disposal, along with present value (or discounted cash flow) data. In principle assets should be purchased or replaced so long as the present values of expected cash surpluses from their future use in the operations of the business exceed or equal their current buying prices. They should be retained in use so long as their present values exceed their current selling prices; and they should be disposed of when their current selling prices exceed their present values. This last rule indicates when an asset becomes unproductive or obsolete. The same principle applies to analysing the business as a whole - it is merely a collective asset. The business should continue as a going concern in the long-run and replace assets as required so long as the present value of the business (which summarizes its profit prospects) exceeds or equals the current value of its net assets; it should continue operations in the short-run if its present value is less than the current market value of its net assets but exceeds their current realizable prices; while it should cease operations if its present value falls below the current realizable value of its net assets. Current value information is always part of the data required for rational investment and operating decisions; historic cost information is never relevant.

(g) Improved Measures of Income, Financial Position and Rate of Return on Investment
Inflation accounting uses a more reliable set of income and financial position concepts than does historic cost accounting. The cornerstone of any income measurement system is the capital maintenance concept as it determines the basis of asset valuation, the measurement property of the dollar used, and the split-up of end-of-period wealth between the capital maintenance component and the income component. Current income may be defined as the gain in the net assets of the business over the period after maintaining intact the stock of net assets. This gain can be determined by valuing all beginning-of-period assets and liabilities at their end-of-period market prices, and again all end-of-year assets and liabilities at these same prices. This removes any price change effect from the comparison of opening and closing net assets so that the gain in the stock of net assets can be determined. The extent of the revaluation of opening net assets (the holding gains) should be credited to a capital maintenance adjustment account which forms part of owners' equity. The whole of current income so determined can be distributed, if so desired, without impairing the stock of net assets (and hence the productive capacity) of the business.
As the assets and liabilities in the end-of-year balance sheet are all stated in current value terms, a more meaningful measure of the financial position of the business is given. The total asset figure shows what it would cost to acquire the set of assets at balance date; and the liabilities show the current market value of the obligations. The balance sheet provides a meaningful statement of the gross investment in the firm's assets and the owners' investment in its net assets because all the items are valued at contemporary market prices. Likewise it provides a meaningful statement of the firm's current financial position, or the value of its assets judged in relation to its liabilities.

Finally, inflation accounting provides a reliable measure of the rate of return on investment. The measures of income and investment are both in current value terms and hence the rate of return formula is soundly applied. All extra-periodic effects are removed from the data.

 Reliable and contemporary measures of income, financial position, investment and rate of return on investment are required by investors as well as management. Investors can make valid comparison of the incomes, financial positions, investment and rates of return on investment between companies as they are all in current value terms and based on the same capital maintenance concept. Companies with the better profit performances and financial positions can be readily seen. This information is critical for the decisions of share investors and long-term creditors. They can evaluate the performance of each company by comparing the rates of return earned by each and by comparing these rates of return with yields required by investors to induce them to invest. They are provided with a better basis to predict future rates of return on investment likely to be earned by each company and its potential dividend stream, and these in turn mainly determine the value of their shares in the capital market. They can better predict the need for new share issues by companies to finance expansion. They can more readily ascertain if the company is an economic going concern or whether it is a sick company which either requires some good medicine or winding up.

Accounting reports based on historic cost on the other hand provide investors with inadequate information on which to assess the profit performance, financial position and rate of return on investment in a period of strong inflation. The measure of income includes an unspecified component of realized asset holding gains which are partly fortuitous, and it is not based on maintaining intact the productive capability of the business. The balance sheet comprises assets valued at the purchase prices paid over an unspecified period in the past and whose aggregate value means little in relation to current values. They can be substantially undervalued with the result that the balance sheet does not portray a meaningful statement of financial position. The rate of return on investment is exaggerated because income is overstated and investment is understated in relation to current values. Investors cannot make valid intercompany comparisons because the values included in the measures of income and investment are not comparable. Forecasts of future earning capacity are made hazardous by the undisclosed exaggeration of the historic rate of return on investment and the need to retain profits or raise additional investment funds to maintain the operating capacity of the company. It is difficult for investors to determine whether the company is really a going concern until it is too late, by which time the share market value of their investment can be affected.
The Macroeconomic Advantages of Inflation Accounting

In addition to having substantial advantages for the individual business and investor, inflation accounting could convey significant advantages to the whole economy if the system were generally adopted in business. First, industry would operate more efficiently and there would be a more efficient allocation of scarce capital resources and physical resources between firms. The declining efficiency of some firms could not be hidden by the asset holding gains component of historic cost income. The level of tariff protection required by domestic industry could be reduced. Secondly, the amplitude of the trade cycle could be reduced. Empirical studies of company profits in the United Kingdom and the United States have shown that a high proportion of the losses incurred by companies during the 1930 depression were in fact holding losses on assets rather than operating losses; whereas a large proportion of profits earned in boom periods comprise holding gains on productive assets. The statistics on Australian company income show the extent of the holding gain component (i.e., the additional charges for inventory and fixed asset usage) included in accounting income during a period of strong inflation. Elimination of these holding gains and losses from the measure of income should reduce the rate of business expansion during inflationary boom periods and curtail the extent of business gloom and cutbacks during a recession. As a consequence, the price level would become more stable, and there could be less unemployment or overfull employment over the trade cycle and less disruption of the industry. This factor again would improve the efficiency of the economy. Thirdly, the problem of serious financial malnutrition in industry would be substantially mitigated during a period of cost inflation in a depressed economy, particularly if current income were adopted as the tax base. This financial malnutrition could be in itself a major cause of unemployment. Hence for these reasons it is arguable that inflation accounting should enable industry and the economy to function more efficiently. A more stable economy with less unemployment, a lower general level of prices, and higher standards of living should result.

Inflation Accounting and Public Enterprises

It has been argued (Byatt, 1986) that Inflation Accounting is especially important for public enterprises because of the

- relatively greater capitalization and generally longer asset lives of such enterprises
- absence of a market assessment and discipline; and
- need to monitor and regulate monopoly public enterprises.

(a) Longer Asset Lives. Public enterprises tend to be both capital intensive and to have much longer asset lives than those in the private sector. Clearly, accumulated inflation makes nonsense of historic costs over the 30 years of a power station's life or the 100 years or more of many underground pipes. Moreover, even modest technical progress can transform real costs over such periods.

(b) Absence of a Market Assessment. For public enterprises there is no share price to reflect a market assessment of performance of the company in managing resources employed and there is no market discipline, through takeovers etc, in enforcing efficiency in resource use. The information presented in the accounts of a public enterprise accordingly becomes an essential tool for judging efficiency.
(c) Monitoring Public Enterprise Monopolies. As we saw earlier, in Victoria public enterprises are required to aim at achieving a RRR target of 4 percent and pay a PAD set in real terms. Inflation accounting would certainly facilitate the monitoring of performance in relation to these targets.

To conclude this section, there seems strong support, in principle, for inflation accounting. Indeed there seems considerable support for its implementation at least in the public sector. For instance Ball and Davis (1984) conclude:

"The use of conventional 'historical cost' methods of accounting allows inflation to obscure evaluations of overall financial performance. The principal problems are created by the failure of conventional accounting systems to record the effect of inflation upon the prices of assets and thus upon costs that are charged against income for the use of assets such as depreciation and use of stores. We endorse the Rae Committee's strong support for inflation adjustment of public authorities accounts." (p. 32)

The Commonwealth Auditor-General apparently agrees, pointing out (Monaghan, 1987) that,

"... financial statements prepared under the historical cost convention do not necessarily disclose the current value of the total resources being used by the enterprise. This can make it difficult for users to interpret the financial statements of enterprises which have long-lived assets. And the statements may not provide a sufficient basis for considering the return the Commonwealth might expect.

The issue has been the subject of considerable discussion between the AAO and the Department of Finance. This may prove to be an areas where public sector accounting will have to develop with some divergence from private sector practice." (p. 16)

The Victorian Government claims that its decision to implement the RRR Reporting system (of inflation accounting) for its public enterprises will assist the following categories of user groups to make informed judgements about the financial status, performance and compliance of a public enterprise:

- Providers of resources
- Recipients of goods and services; and
- Parties performing a review service of relevance to all, or particular, sections of the community.

We agree. But while the case for inflation accounting, in principle, is persuasive there has been considerable controversy, overseas and in Australia, over the appropriate application of inflation accounting. Even in the those countries where inflation accounting standards, requiring supplementary inflation adjusted data, have been implemented in the private sector (e.g. New Zealand, U.S.A., United Kingdom) the level of non-compliance has, in some cases, led to the abandonment of the standard. But all this has been extensively reviewed elsewhere (e.g. Tweedie and Whittington [1984]) and need not be repeated here. For public enterprises the compliance problem does not exist. Since Inflation Accounting for public enterprises is now established in Victoria, our focus in the following sections will be on appraising the specific approach to inflation accounting taken by RRR Reporting.
5. **DIFFERENT APPROACHES TO CURRENT COST (INFLATION) ACCOUNTING**

Whilst we find the case for inflation accounting in principle to be persuasive, we need to recognize that the Victorian Government's RRR Reporting approach is only one of a number of CCA approaches to accounting for price changes. The aim of this section is to outline the characteristics of alternative CCA systems and the factors which are relevant in determining the appropriate CCA approach for public enterprises. The particular CCA accounting system adopted is of critical importance because the reported profit it identifies, which may vary widely, is used in evaluating performance against predetermined goals and as the basis for determining the maximum amount of dividend distributions to owners.

5(i) **Components of an Accounting System**

Any system of accounting which purports to measure performance and portray financial position requires the specification of three factors, namely:

(a) the asset valuation basis (for example, historical cost or current cost);

(b) the capital maintenance concept that is to be used (for example, the maintenance of operating capability or the maintenance of financial capital); and

(c) the unit of measurement that is to be used - nominal dollars or units of constant purchasing power.

The objectives underlying the preparation of the financial statements and the nature of the business operations provide guidance in determining which combination of these factors should be employed in determining profit and the basis for balance sheet preparation. The possible combinations relevant to our analysis are those which employ the Current Cost Valuation basis. The major issue of contention concerns whether the appropriate capital maintenance concept to employ is operating capability or financial equity, expressed in real or nominal terms.

5(ii) **Maintenance of Operating Capability - An Entity Viewpoint**

The maintenance of operating capability can be described in terms of inputs (maintain the same quantity of input factors of production usually measured at current replacement cost) or outputs (maintain the output capacity of the existing assets). Maintenance of output is the generally preferred interpretation with capacity usually measured by reference to physical units (volume) thereby allowing technological advances to be reflected in the current cost of the assets required to maintain output.

Profit determination in this system involves charging against revenue the current cost of maintaining the net operating assets required to generate the revenue. It is universally agreed that Fixed Assets and Stock are a part of net operating assets but the treatment of monetary assets and liabilities remains contentious.
One school of thought holds that net monetary working capital (e.g., trade debtors and creditors, which do not alter in amount as a consequence of a change in prices), also provides operating capability and that the impact of changing prices on the level of monetary working capital necessary to sustain operations should be allowed for by applying the change in the price level relevant to the holding of the monetary item (for example, a relevant index for the holding of trade debtors is movements in the price of inventories).

A variation of this concept of maintaining operating capability intact is adopted in the Australian accounting profession's Statement of Accounting Practice "Current Cost Accounting" (SAP1) which adjusts for the specific purchasing power gains and losses from holding all monetary assets and monetary liabilities, excluding loan capital, during periods of changing prices. (Loan Capital is defined as current and long term borrowings used in financing the operating capability of the entity). Under the SAP1 approach, adjustments for depreciation, cost of sales and monetary items (excluding loan capital) are made to historical cost profit with corresponding entries to a Current Cost Reserve which forms part of owners' equity. This "current operating profit", from which is deducted income tax and interest, results in the surplus which could be distributed by way of dividends at the end of the period, whilst still maintaining intact operating capability as it existed at the beginning of the period. An implication of the operating capability maintenance concept is that changes in the price of net operating assets (holding gains and losses) are treated as adjustments of capital and, as such, are taken directly to the Current Cost Reserve account.

The above capital maintenance concept is consistent with the acceptance of an entity viewpoint and measures the amount which can be distributed to all contributors of capital (interest and dividends) without impairing the operating capability of the enterprise.

5(iii) The Maintenance of Operating Capital - A Proprietary (Equity) Viewpoint

An alternative viewpoint to that outlined above holds that the measure of profit should take into account the manner in which the company is financed. An enterprise's net operating assets may be financed substantially by debt, which is fixed in money terms, such that its real value is eroded in times of rising prices. Therefore, it is argued, the burden of maintaining an enterprise's operating capability is not borne by equityholders alone and allowance for this improvement in the proprietors' welfare should be incorporated in the measure of profit. The resulting profit, attributable to the owners, is the amount that could be distributed without impairing that proportion of the enterprise's operating capability financed by the owners.

There is considerable disagreement, however, as to how these debt related benefits to shareholders should be computed and reported (for example, compare the approaches recommended in the CA Standards of the United Kingdom's SSAP16 [now withdrawn] and New Zealand's CCA1). This is a significant issue for the Australian government sector at present and shall be elaborated on in section 6 of this paper.

5(iv) The Maintenance of Financial Capital - Another Proprietary Viewpoint

The capital maintenance concept may be measured entirely in financial terms rather than in terms of operating capability. Under this approach profit is defined as the change in shareholder's funds over the period, after allowing for transactions of a capital nature. For example, the historical cost accounting system maintains the financial capital of shareholders in money terms.
When applied to a CCA system the concept of financial capital maintenance is usually accompanied by the restatement of the opening equity for the change in the general price level. As a result financial equity is maintained in real terms and the real holding gains (losses) are incorporated into the measure of income. This version of Real CCA is one of two Real CCA systems supported by Barton (1985) and Byatt (1986).

The RRR Reporting system of the Victorian Government also adopts a maintenance of financial equity capital maintenance concept but expressed in nominal rather than real terms. This system involves the restatement of assets to a current cost basis and the inclusion of purchasing power gains on all monetary assets and liabilities in the measure of profit, including purchasing power gains on loan capital measured by reference to changes in the general level of prices. This method of determining Return on Equity is internally inconsistent as it requires the current cost restatements of the non-monetary assets be taken directly to the Current Cost Reserve account. This treatment is not consistent with the RRR Reporting method's "financial equity" capital maintenance concept which, as it is expressed in nominal terms only, would require such current cost restatements to be taken directly to the Profit and Loss account. In fact, the RRR Reporting system has more in common with CCA systems which employ an operating capability capital maintenance concept, except that it diverges from this approach in measuring the purchasing power gains on loan capital by reference to general price level change rather than specific price level changes. Perhaps the reason for this inconsistency lies in the DMB's comment (DMB, 1986b, p. 18) that the present RRR Reporting guidelines may prove to be an interim step on the way to the implementation of a Real CCA system (described above).

5(vi) Factors Determining the Selection of a Capital Maintenance Concept for Public Enterprises

In general, information about both profit after operating capability maintenance and profit after (real) financial capital maintenance is relevant for the different purposes of the various users of accounts. Whether it is appropriate to select one basis or the other as dominant in presenting accounts depends on a range of factors determining the applicability of the concepts, the availability of alternative sources of information, the quantitative difference between the two concepts and the specific role envisaged for the accounts. Comparability between businesses in a similar position will also be a consideration. Several factors are discussed in the following paragraphs.

Objectives for public enterprises formulated recently by the Public Sector Accounting Standards Board (Sutcliffe, 1985). These objectives were identified as,

"the disclosure of financial information:
(i) useful in making economic decisions .. about such matters as resources to be allocated to particular entities, the nature and cost of services to be provided by those entities and the future consumption of those services; and
(ii) for accountability purposes; that is information to assist users in assessing the extent to which managers have discharged their responsibilities with respect to the use of public monies, the delivery of particular services and the achievement of specified objectives." (p. 17)

The study goes on to state that, to achieve these objectives, financial reports should disclose information relevant to an assessment of financial status, performance and compliance. These terms are defined in the following way:
"Financial status refers to the economic condition of the entity. Performance refers to the proficiency with which the entity has managed public monies, whether it has acquired and used resources economically, efficiently and as prescribed, and has been effective in achieving specified objectives.

Compliance refers to the extent to which the entity has adhered to the requirements of the rules and regulations of a financial nature intended to govern its operations and which are relevant to the objectives of financial reporting." (p. 19-20)

The first factor to be considered in selecting the appropriate capital maintenance concept is whether the nature of the business is a continuing one or whether its assets form part of a series of one-off investments designated to be sold later. Public enterprises are inherently continuing businesses. (Indeed in many cases they have the objective of increasing operating capacity). This suggests a measure of profit which could be distributed without damaging the operating capability of the business.

Secondly, consideration should be given to whether or not there is an adequate capital market in shares in the business which would provide investors with continuous information about the return on their investment apart from the accounts. If there is an adequate capital market, accounts which identify the distributable profit after maintaining operating capability can usually provide the accounting information relevant to determining the real return on investors' capital stake. However, there is no capital market providing a measure of economic performance of public enterprises. It is therefore desirable that the real rate of return being earned on the capital employed from the point of view of the public as investors should be visible in the accounts, although managers and employees will still need to know what could be taken out of the business without impairing its operating capability.

The third factor determining the relevance of the choice of capital maintenance concept is the role of the accounts in relation to pricing policy. For many public enterprises the price of output is not determined in a competitive market. Information about the continuing cost of supply is relevant to determining pricing policy and cost reduction objectives. The continuing cost of supply includes a normal profit on investment after financial capital maintenance. Thus where monitoring of such public enterprises is involved, it is particularly relevant for accounts to be available clearly showing performance on the basis of financial capital maintenance.

Finally, rapid reductions in capital costs due to technical progress will tend, in highly competitive markets, to make profits after operating capability maintenance a significant overstatement of real returns to the investor. Where technical progress - or more generally relative price changes - substantially affects costs over the lifetime of the principal assets of a business, this will be a factor determining the prominence given to financial capital maintenance in the accounts.

This does not mean that technical progress necessarily makes investors worse off. The reverse will normally be true: as costs and prices fall, sales will expand and the value of the business, as opposed to the value of the tangible assets to the business, will tend to increase. Technical progress in capital goods is a welcome event: it is a benefit not a loss to the nation and a share of this benefit will normally go to investors, although competitive pressures will usually work to pass most of the benefit on to consumers through falling prices. Public enterprises are expected to emulate this process, while taking account of practical limitations on the rate at which new technology can be introduced.
The continuing nature of public enterprises argues for prominence to accounts based on operating capability maintenance in these industries. However, the absence of a share market for public enterprises and, for the price makers among them, the absence of competitive product markets, argue for accounts which show clearly the real return being made on investors' funds as a basis for monitoring economic performance. If public enterprises were regulated on the basis of earning normal profits on capital employed after operating capability maintenance, consumers would benefit from technical progress through lower prices at the expense of the investors' capital base. This would clearly be unsustainable in the private sector. For public enterprises it would be equally likely to involve inappropriate transfers between the public as taxpayers and the public as consumers.

For reasons such as those discussed above the Byatt Report (1986) concluded that, as a general principle, the accounts of public enterprise should include profits estimated on the basis of real financial capital maintenance. However, as we have stressed, information about profits based on operating capability maintenance is also important as a guide to management decisions in these enterprises and should continue to be given. A constructive view of this conclusion would be to suggest that information based on both concepts should be presented in the accounts. To do this would not be difficult. Of course which basis of capital maintenance should be dominant in the presentation of the accounts should reflect an assessment of the considerations discussed above to an individual public enterprise.
6. A COMPARATIVE EVALUATION OF THE IMPACT OF RRR REPORTING AND ALTERNATIVE CCA METHODS UPON REPORTED RESULTS

6(i) Introduction

The previous section pointed out that there are several versions of inflation accounting. This is not just of academic interest but can have important practical implications, particularly in the assessment of financial performance and dividend paying capacity.

These implications may be drawn from Table IX which compares the MMBW's profitability in 1985/86 under conventional historical cost accounting, Rate of Return Reporting, and three alternative Current Cost Accounting systems which were described earlier. The adjustments made in deriving the various CCA results have been based upon the current cost information contained in the Rate of Return Reporting supplement to the MMBW's 1985-86 results.

Where the objective is the determination of the real rate of return on assets, all four CCA systems reviewed produce relevant results. The rate of return on assets is computed by dividing the profit before finance charges by the average assets employed in earning that profit. In CCA systems, this is achieved by adjusting the historic cost measure of expenses to their current cost at the time the resource is consumed in generating revenue, and by restating the assets in the balance sheet to their current cost at balance date. Although the figures derived from such adjustments should be treated as indicative only, they are nonetheless useful for the present purpose of drawing attention to the differences in the magnitude of profit and in measures of performance, under the various CCA systems examined.

The current cost estimates of the MMBW's average assets in service and depreciation expense were $2,995m (92%) and $74.9m (135%) more than their respective historical cost counterparts. These adjustments, common to all four CCA methods considered, decrease reported profit and increase the asset base, causing the real return on assets to be significantly less than that achieved under historical cost accounting, as indicated at Line 18 of Table IX.

However, the focal point of our immediate attention is (i) whether the capital maintenance concept employed in determining the return to equityholders should reflect an entity or proprietary perspective and, (ii) if the latter, which is the appropriate way to measure and account for the holding gains (losses) on monetary liabilities? The issues are important because the profit so determined (which may vary widely) is used in evaluating the adequacy of returns to equityholders, and as a basis for determining the maximum amount which may be distributed by way of a dividend whilst maintaining capital intact.
<table>
<thead>
<tr>
<th>Historical Cost Accounting</th>
<th>Operating Capability Maintenance (SAP1)</th>
<th>Proprietary Approaches to Capital Maintenance (RRR)</th>
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<th>Real CCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M</td>
<td>$M</td>
<td>$M</td>
<td>$M</td>
<td>$M</td>
</tr>
<tr>
<td>1. Revenue (excl. finance revenue)</td>
<td>567.3</td>
<td>567.3</td>
<td>567.3</td>
<td>567.3</td>
</tr>
<tr>
<td>2. Finance Revenue</td>
<td>45.8</td>
<td>45.8</td>
<td>2.7(a)</td>
<td>45.8</td>
</tr>
<tr>
<td>3. Loss on Monetary Items (exc. Loan Capital)</td>
<td>-</td>
<td>34.4</td>
<td>-</td>
<td>34.4</td>
</tr>
<tr>
<td>4. Operating Revenue</td>
<td>613.1</td>
<td>578.7</td>
<td>570.0</td>
<td>578.7</td>
</tr>
<tr>
<td>5. Depreciation</td>
<td>55.5</td>
<td>130.4(c)</td>
<td>130.4</td>
<td>130.4</td>
</tr>
<tr>
<td>6. Other</td>
<td>239.6</td>
<td>235.5</td>
<td>235.5</td>
<td>235.5</td>
</tr>
<tr>
<td>7. Income Before Finance Charges</td>
<td>318.0</td>
<td>212.8</td>
<td>204.1</td>
<td>212.8</td>
</tr>
<tr>
<td>8. Less Income relating to Drainage Works and M.I.F.</td>
<td>22.7</td>
<td>13.6</td>
<td>13.6</td>
<td>13.6</td>
</tr>
<tr>
<td>9. Return on Assets</td>
<td>295.3</td>
<td>199.2</td>
<td>190.5</td>
<td>199.2</td>
</tr>
<tr>
<td>10. Less Finance Charges Relating to Water Supply &amp; Sewerage</td>
<td>285.0</td>
<td>285.0</td>
<td>77.8(d)</td>
<td>285.0</td>
</tr>
<tr>
<td>11. Add Gearing Adjustment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>141.2(e)</td>
</tr>
<tr>
<td>12. Add Real Holding Gains</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13. Return (Loss) on Equity</td>
<td>10.3</td>
<td>(85.8)</td>
<td>112.7</td>
<td>55.4</td>
</tr>
<tr>
<td>14. Profit (Loss) attributable to Drainage Works, MIF and Extraordinary Items</td>
<td>4.1</td>
<td>(5.0)</td>
<td>6.9</td>
<td>(5.0)</td>
</tr>
<tr>
<td>15. Total Return on Equity and Extraordinary Items</td>
<td>14.4</td>
<td>(90.8)</td>
<td>119.6</td>
<td>50.4</td>
</tr>
<tr>
<td>16. Public Authority Dividend</td>
<td>60.0</td>
<td>60.0</td>
<td>60.0</td>
<td>60.0</td>
</tr>
<tr>
<td>17. Net Surplus (Deficit)</td>
<td>(45.6)</td>
<td>(150.8)</td>
<td>59.6</td>
<td>(9.6)</td>
</tr>
<tr>
<td>18. Average Written-Down Cost of Assets in Service</td>
<td>3253.2</td>
<td>6248.3</td>
<td>6248.3</td>
<td>6248.3</td>
</tr>
<tr>
<td>19. Rate of Return on Assets (9 ÷ 18)</td>
<td>9.08%</td>
<td>3.19%</td>
<td>3.05%</td>
<td>3.19%</td>
</tr>
<tr>
<td>20. Public Equity at Beginning of Year</td>
<td>806.3</td>
<td>3222.5</td>
<td>3222.5</td>
<td>3222.5</td>
</tr>
<tr>
<td>21. Rate of Return on Equity (13 ÷ 20)</td>
<td>1.28%</td>
<td>LOSS</td>
<td>3.50%</td>
<td>1.72%</td>
</tr>
</tbody>
</table>

Source: Compiled from information presented in the MMBW Annual Report 1985/86
Notes:

(a) Finance Revenue less the holding loss on monetary assets of $43.1m deducted as per RRR Reporting guidelines.

(b) Holding Loss on Monetary Items was calculated as the sum of the holding loss on monetary assets of $43.1m less holding gains on the average level of monetary liabilities, excluding loan capital, of $8.7m. This loss has been deducted in determining operating revenue in order to enhance the comparability of RRR Reporting with other CCA methods.

(c) Current Cost Depreciation from MMBW’s RRR Reporting results in Annual Report, 1985/86.

(d) Finance charges less the holding gain on all monetary liabilities of $207.2m deducted as per RRR Reporting guidelines.

(e) Gearing Adjustment for CCA1 method calculated as:

\[
\frac{\text{Average Net Borrowings}}{\text{Average Written Down Current Cost of Net Operating Assets}} \times \frac{\text{Increase in Current Cost Reserve over the Year per CCA}^3}{\text{CCA}^3} = 41.2
\]

\[
\frac{\$754.5m}{\$7117.7m} \times \frac{\$365.0m}{\$141.2} = 34.4
\]

1. Net Borrowings: the aggregate of all liabilities and provisions fixed in monetary terms other than those included in monetary liabilities in note (b) above.

2. Net Operating Assets: the aggregate of fixed assets, inventory and net monetary items per note (b) above.

3. The increase in the Current Cost Reserve for 1985-86, for the purpose of this calculation is the sum of:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss on Monetary Items</td>
<td>$34.4m</td>
</tr>
<tr>
<td>Restatement of Non-Monetary Assets</td>
<td>$330.6m</td>
</tr>
<tr>
<td></td>
<td>$365.0m</td>
</tr>
</tbody>
</table>

(f) Real holding gains for the Real CCA method were calculated as:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holding Gains on Non-Monetary Assets</td>
<td>$330.6m</td>
</tr>
<tr>
<td>Less: Inflation Adjustment to opening Equity based on Melbourne CPI increase of 8.3% for the year ending 30 June 1986</td>
<td>$267.5m</td>
</tr>
<tr>
<td></td>
<td>$63.1m</td>
</tr>
</tbody>
</table>
6(ii) RRR Reporting Contrasted with SAP1

Although RRR Reporting is a version of CCA, it differs in important aspects from the Australian accounting profession's SAP1. The Victorian Government's/DNB's reasons for rejecting the SAP1 approach are worth reiterating:

"In deciding its rate of return reporting policy, the Government has had to consider two important matters related to the accounting profession's Statement of Accounting Practice, viz:
(a) SAP1 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
(b) the need to consider the extent to which SAP1 provides an adequate reporting system for demonstrating the basis for economic decision making and for achieving accountability in terms of the Government's rate of return policies.

The supplementary financial statements will be based on SAP1 to the extent that it is possible and relevant to apply that statement in the rate of return context. Where the accounting policies of the Government in respect of Rate of Return Reporting depart from the SAP1 the practice adopted has as far as possible been consistent with the general body of accounting theory on this matter particularly where there are applications of that theory in overseas countries. However the overriding consideration remains the adoption of accounting policies which will ensure that the general purpose supplementary financial statements demonstrate the impact and performance of the rate of return policies." (DNB, 1986b p.17)

In view of the importance of DNB's decision in favour of RRR Reporting, its reasoning is inadequate (particularly in the light of the protracted controversy over the choice of an appropriate CCA system discussed earlier).

In accordance with SAP1 guidelines an adjustment to reflect a purchasing power loss on the holding of monetary assets and liabilities (other than loan capital) has been reported at Line 3 of Table IX. This loss of $34.4m is also included in the RRR Reporting system but is reported as two separate components:
(a) a loss on monetary assets of $43.1m used to determine real finance revenue at Line 2, and
(b) a gain on monetary liabilities (other than loan capital) of $8.7m which is included in the computation of real finance charges at Line 10.

This different format under RRR Reporting generates some differences in the measure of return on assets although these are easily reconcilable. However, a significant difference between SAP1 and RRR Reporting is that SAP1, in adopting an entity approach to the maintenance of operating capability, excludes holding gains on "loan capital" from the measure of profit. Although SAP1 acknowledges the alternative financial equity approach to maintaining operating capability, it prescribes that such gains on loan capital be transferred to a reserve account before determining CCA entity profit.

In the light of the (previously explained) derivation of the targeted 4 per cent real return on assets, it is understandable that RRR Reporting guidelines also focus on the return on equity as this "provides the primary input to decisions about the appropriate level of the public authority dividend" (DNB, 1986b, p. 17). The
financial equity approach espoused in RRR Reporting 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" (DMB, 1986b, p. 18). In implementing this approach, holding gains on loan capital, measured by reference to changes in the general level of prices, are included in determining the return to equityholders.

As Line 13 of Table IX indicates, the MMBW had a return to equityholders under RRR Reporting of $112.7m. This profit is $198.5m greater than the loss of $85.5m reported under the SAP1 approach, the difference being solely attributable to the inclusion of the holding gains on loan capital. The RRR Reporting result exceeds the historic cost profit of $10.3m by a margin of $102.4m. After payment of the required Public Authority Dividend of $60m for 1985/86, the resulting net deficit/surplus outcome is equally dramatic as Line 17 of Table IX shows. On a historical cost basis the net deficit for the MMBW was $45.6m, on a SAP1 basis the net deficit was $150.8m, whilst on an RRR Reporting basis there was an estimated net surplus of $59.6m.

The significant difference in returns to equity, depending on whether holding gains on loan capital are included, would probably occur in the case of the other Victorian public enterprises as well, because of the typically very high gearing ratios for such enterprises. In most private enterprises, the additional depreciation and other such charges arising from the replacement cost method of calculation would be in excess of any notional gains attributed to long term monetary liabilities. This factor would usually result in a deterioration in the business result, compared with one calculated on a historical cost basis. However, long term liabilities which are refinanced by loans comprise such a major component of the debt structure of a public enterprise, that notional gains calculated on these liabilities and taken through the Profit and Loss Account could far exceed the additional depreciation calculated under the replacement cost method. Consequently, the public enterprise could show a vastly improved business result without an accompanying increase in its cash resources and in its capability to finance part of the inflated cost of financing new and replacement fixed assets from internal sources. The impact on the reported profitability results of public enterprises due to holding gains on monetary liabilities warrants that we examine further the principles underlying their inclusion and the way in which they are measured.

6(iii) Profit Attributable to Owners: The Proprietary Approach of RRR Reporting

The owners of the enterprise are concerned to secure a reasonable return on their investment. The problem presented in securing the continuity of the level of business operations does not have, for some of them, the pressing importance that it has to the business enterprise itself. Therefore a distinction is to be drawn between the owners on the one hand and the enterprise on the other. Accordingly, the current cost operating profit of the enterprise cannot be the same amount as the profit attributable to the owners, except where there are no outside liabilities. Whereas the current cost operating profit of the enterprise measures the amount which can be distributed to all contributors of capital (that is, interest and dividends or other distributions to owners) without impairing the operating capacity of the enterprise, the profit attributable to the owners is the amount that can be distributed without impairing the owners' investment in the enterprise.
To arrive at the profit attributable to the owners, two adjustments need to be made to the current cost operating profit of the enterprise. The first is to deduct interest, and the second is to add (or deduct) an amount which represents the benefit (cost) to proprietors from having a part of the firm's assets financed by borrowings during a period when prices are changing. That proprietors may gain under such circumstances is not generally disputed but the methods of computing the gains to proprietors from debt financing vary considerably. If these gains are distributed to proprietors in the form of cash dividends the operating capability of the enterprise will be reduced unless an equivalent amount is borrowed contemporaneously (or new equity is raised).

The following simplified example illustrates the different approaches to profit determination under SAP1 and RRR Reporting.

EXAMPLE 1 PROFIT DETERMINATION UNDER SAP 1 AND RRR REPORTING

Data
1. Authority formed in 19X0 and acquires non-depreciable assets at a cost of $100 financed in the proportions of 50% debt @ 13% and 50% equity.
2. Inflation, as measured by the Consumer Price Index increases at 10% per year.
3. The authority is not subject to taxation.
4. The replacement cost of the asset increases at 10% per year.
5. Dividends of an amount equal to reported profits are declared and paid.
6. Cash requirements in excess of the cash flow from operations are financed by borrowings.
**Profit and Loss Statements**  
for period ended 19X1

<table>
<thead>
<tr>
<th></th>
<th>SAP1 (Entity Approach)</th>
<th>RRR/Reporting (Proprietary Approach)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Operating Profit</td>
<td>$4.00</td>
<td>$4.00</td>
</tr>
<tr>
<td>Before Interest</td>
<td>$6.50</td>
<td>$6.50</td>
</tr>
<tr>
<td>Nominal Interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain on Loan Capital (10% of $50)</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>Real Finance Charges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entity Profit (Loss)</td>
<td>$2.50</td>
<td>$1.50</td>
</tr>
<tr>
<td>Return on Equity</td>
<td></td>
<td>$2.50</td>
</tr>
</tbody>
</table>

**Balance Sheets**  
as at 19X1

<table>
<thead>
<tr>
<th></th>
<th>SAP1</th>
<th>RRR/Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset</td>
<td>110.00</td>
<td>110.00</td>
</tr>
<tr>
<td>Debt</td>
<td>52.50</td>
<td>55.00</td>
</tr>
<tr>
<td>Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>50.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Current Cost Reserve</td>
<td>10.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>(2.50)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>57.50</td>
<td>55.00</td>
</tr>
<tr>
<td></td>
<td>110.00</td>
<td>110.00</td>
</tr>
<tr>
<td>Dividends</td>
<td>-</td>
<td>$2.50</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>0.91</td>
<td>1.0</td>
</tr>
</tbody>
</table>
The authority has earned a 4% real return on operating assets, before financing charges, in both cases. Under SAP1 the operating capability of all of the firm's assets is maintained before the profit (loss) is determined. All of the holding gains on assets are transferred to the current cost reserve account and in keeping with the entity approach to profit, the debt related gains to proprietors are not recognised. In this example, the authority requires to borrow $2.50 in order to pay the excess of interest payments over operating surplus.

This illustrates the important point that, if the distribution to the owners and lenders by way of interest are limited to the current cost operating profit of the enterprise and the operating capacity is simply maintained, the debt/equity ratio will be progressively reduced, in this case to 91%, if there is continued inflation. As the Richardson Committee (1976) pointed out, such a policy pursued over a long period of time could be considered to be very conservative.

The RRR Reporting method includes in the profit to proprietors a holding gain on borrowings measured by applying the CPI increase to the level of borrowings (10% of $50 = $5) and offsetting this figure against the nominal interest charges to get a real finance charge. The debit entry for this holding gain is to the Current Cost Reserve account. Therefore, the RRR Reporting approach indicates that the authority could declare a cash dividend of up to $2.50, the amount by which the proprietors are better off, by allowing for the holding gain on the monetary liabilities. To do so would require the authority to borrow a further $5 which will maintain the debt to equity ratio of 1.0.

Therefore, given the asset valuation basis (CCA), it is the adoption of a particular capital maintenance concept that determines the profit outcome. For relatively highly geared companies, adoption of a proprietary approach will typically result in a significant component of income consisting of holding gains on monetary liabilities. This may be important for two reasons:

(a) there is a variety of ways of measuring these holding gains and of bringing them to account, which can result in vastly different profit figures being reported as shall be discussed shortly, and

(b) such holding gains are not immediately represented by matching cash flows and may create a misleading impression of an organisation's liquidity situation and dividend paying capacity as shall be discussed in section 7.
Measurement of Holding Gains on Loan Capital

RRR Reporting measures the holding gains on loan capital by reference to movements in a general price level index. Although this approach concurs with that adopted in SAP1 (except that SAP1 transfers the gain to a reserve account), an alternative view held by Richardson (1976) and others is that measurement of the holding gain attributable to borrowings should be based on the specific price movements of the assets being financed.

This distinction, between measuring holding gains by reference to specific rather than general price level movements is of particular significance for enterprises, such as the MBW, with a relatively high level of loan capital and a significant component of its fixed assets whose real replacement cost is decreasing over time due to technological advances. Clearly, the owners of an enterprise cannot be better off as a result of borrowing unless the enterprise's resources are invested in assets which appreciate in value. Where this appreciation in value is less than the rate of increase in the general level of prices then the RRR Reporting method may significantly overstate the return to equityholders and the dividend paying capacity of the enterprise. This is particularly the case for Victorian public authorities which are subject to pricing policies set to achieve a target rate of return on assets.

The Richardson Report (1976), Sandilands Report (1975) and the United Kingdom accounting standard SSAP16 were the antecedents of the New Zealand accounting standard, CCA1. The most significant aspect of this standard for present purposes is that it prescribes that the holding gains on monetary liabilities are to be computed by reference to the specific price movements of the assets being financed. Due to variations in the rate of change in the specific prices of different non-monetary assets, the calculation of this holding gain is best accomplished by way of a "gearing adjustment." The procedure involves applying the gearing ratio (net borrowings to operating assets) to the total holding gains on assets brought to account over the year in the Current Cost Reserve account. In essence, the gearing adjustment represents a weighted average approach to calculating the holding gains attributable to the owners on the debt financed portion of the enterprise's assets. This approach has the benefit of reducing the number of calculations that would otherwise be involved in computing the debt financed holding gain of each non-monetary asset. This process and the differential impact on profit compared to RRR Reporting is demonstrated in Example 2.

**Example 2: Alternative Approaches to Measuring Holding Gains on Borrowings**

**Data:** As for Example 1 except that the replacement cost of the asset is assumed to increase at only 5% per year

<table>
<thead>
<tr>
<th></th>
<th>RRR Reporting (CPI Adjustment)</th>
<th>Gearing Adjustment Specific Price Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Operating Profit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Interest</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Nominal Interest</td>
<td>6.50</td>
<td>6.50</td>
</tr>
<tr>
<td>Gain on Loan Capital</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>Real Finance Charges</td>
<td>1.50</td>
<td>(2.50)</td>
</tr>
<tr>
<td>Gearing Adjustment*</td>
<td></td>
<td>2.50</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>2.50</td>
<td>----</td>
</tr>
</tbody>
</table>

Profit and Loss Statements for period ended 19X1
Balance Sheets
as at 19X1

<table>
<thead>
<tr>
<th>Asset</th>
<th>105.00</th>
<th>105.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt</td>
<td>55.00</td>
<td>52.50</td>
</tr>
<tr>
<td>Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>50.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Current Cost Reserve</td>
<td>-50.00</td>
<td>2.50</td>
</tr>
<tr>
<td>Dividends</td>
<td>$2.50</td>
<td>Nil</td>
</tr>
<tr>
<td>Debt to Equity Ratio</td>
<td>1.10</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Gearing Adjustment calculated here for purpose of simplicity as

\[
\text{Borrowings at Beginning} \times \text{Increase in C.C.Reserve} = \frac{50 \times 5}{100} = \$2.50
\]

RRR Reporting takes the viewpoint that the main purpose of calculating gains (losses) on borrowings is to assess the extent to which proprietors are better off in inflationary periods by having used loan capital whose repayment is fixed in money terms. Therefore, the RRR Reporting guidelines suggest that the most suitable price index to employ is one that best represents changes in the average purchasing power of money, namely the Consumer Price Index (CPI).

However, the RRR Reporting profit outcome for 19X1 of $2.50 would clearly appear to overstate the increase in the well-offness of the proprietors. Although it is true that debtholders are repaid in dollars of decreased purchasing power this can be of no benefit to proprietors unless the value of the assets so financed has increased by at least the same rate.

In the above case, the replacement cost of the assets has increased by only 5% over a period when the general level of inflation was 10%. That is, the replacement cost of the asset has declined in real terms. Such an outcome demonstrates that the computation of holding gains on borrowings by reference to movements in the CPI is inconsistent with the objective of measuring the increase in the well-offness of shareholders. While the rate of increase in most prices may exhibit a high degree of correlation over extended periods of time, there is strong support for the view that technological advances will enable the current replacement cost of equivalent asset services to decline, in real terms, over time (e.g. Byatt Report, 1986). That the proprietors' wealth is overstated in such an instance is reinforced by the fact that if the profit was paid as a cash dividend the resultant borrowings necessary to fund the dividend would result in the debt to equity ratio increasing from 1.0 to 1.1.
The use of a specific price level change in our example leads to a debt related gain of only $2.50 being attributable to proprietors. The excess of interest payments over operating surplus of $2.50 still requires some borrowings to be made but the level required leaves the gearing ratio steady at 1:0. It is not to be inferred from this that the gearing ratio itself has any impact on the determination of profit. Rather, the use of the gearing ratio enables a simpler computation of the impact of specific price changes of assets on the well offness of the proprietors. Nonetheless, as part of dividends need to be financed by borrowings, the gearing ratio becomes a residual element and movements in it are indicative of whether or not proprietors can be considered to be any better or worse off.

The CCAl return to equityholders of $55.4m shown at Line 13 of Table IX indicates the maximum dividend that could be distributed to the MMBW's owners while still maintaining intact the level of operating capability provided by them. During 1985/86 the rate of increase in the replacement cost of the MMBW's fixed assets has been slower than the rate of increase in the Consumer Price index, thereby causing the CCAl gearing adjustment, and return to equityholders, to be $57.3m less than the RRR Reporting system's holding gain on loan capital.

6(v) A Real Financial Equity Capital Maintenance Approach

Methods which combine the effects of both general and specific price level changes have long been favoured by those seeking the ultimate inflation accounting system. One variation of such a system, which we refer to here as Real CCA, applies a real financial equity capacity maintenance concept and requires the following adjustments to be made:

(a) non-monetary assets are restated to reflect their current cost at balance date,

(b) the holding gains (losses) arising on the restatement of the non-monetary assets are credited (debited) direct to the Profit and Loss account (i.e. they are included in the measure of profit to equityholders), and

(c) the opening equity is restated to reflect the change in the general level of prices over the period and this adjustment is charged to the Profit and Loss account.

The DMB has stated that the present RRR Reporting guidelines may prove to be an interim step on the way to the implementation of such a Real CCA system (DMB, 1986b, p. 18).

The MMBW's return to equityholders in 1985/86 under a Real CCA system was $11.7m as shown at Line 13 of Table IX. This profit represents the increase over the year of the MMBW's net assets measured on a current cost basis after allowing for the purchasing power of the initial equity to be maintained. The contribution of the real holding gains to this profit figure was $63.1m as shown at Line 12 of Table IX.

The gains to equityholders resulting from the use of debt financing are not calculated directly in the Real CCA method. However, the real holding gains on assets, which are included in the return to equityholders, incorporate two components:

(a) the holding gains (losses) from the debt financed portion of assets measured by reference to specific price level changes of assets, and

(b) the holding gains (losses) from the equity financed portion of the assets measured by reference to specific price level changes of assets less the general price level change.
The following simplified example illustrates the derivation of the holding gains in a Real CCA system.

**EXAMPLE: REAL CCA**

No transactions for the period; asset non-depreciable.

<table>
<thead>
<tr>
<th>Balance Sheet</th>
<th>Year Start</th>
<th>Year End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Asset</td>
<td>1000</td>
<td>1100</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>1100</td>
</tr>
<tr>
<td>Loan Capital</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Equity</td>
<td>600</td>
<td>672</td>
</tr>
<tr>
<td>Profit (Loss)**</td>
<td>-</td>
<td>28</td>
</tr>
<tr>
<td><strong>Reconciliation of Profit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>1100</td>
</tr>
</tbody>
</table>

*Reconciliation of Profit*

(a) Holding Gain on Debt Financed Portion of Assets

\[ \frac{4}{1000}(1100-1000) = 40 \]

(b) Real Holding Loss on Equity Financed Portion of Assets

\[ \frac{5}{1000}(1100-1000) - (672-600) = 12 \]

Real Holding Gain:

\[ \frac{5}{1000}(880-800) - (672-600) = 28 \]

Comparison With CCA1 Method

\[ \text{Gearing Adjustment} = \frac{400}{1000}(1100-1000) = 40 \]

It may be seen from the example that the holding gain on the debt financed portion of the assets of $40 is the same under both the Real CCA and CCA1 methods. Whether or not the total holding gains of the Real CCA method will be greater, or less, than those under the CCA1 method depends upon two factors:

(a) the relationship between movements in the Consumer Price Index and the weighted average of specific prices of the firm's assets: where the CPI change is greater (as in the example) the Real CCA holding gains will be smaller than the CCA1 gearing adjustment and vice-versa; and

(b) the extent to which the enterprise is financed by non-monetary liabilities excluded from the measure of net borrowings in calculating the gearing adjustment in the CCA1 method; the greater the relative importance of these items the lower the holding gains under the CCA1 method compared with Real CCA.

It is the first factor which explains most of the difference between the CCA1 gearing adjustment of **$141.2m** and the Real CCA holding gains of **$63.1m**.
The Relative Profit Performance of Alternative CCA Systems Under Different General and Specific Price Level Conditions

The different CCA systems will all have the same asset base and equity base, although the component parts of the latter will differ among the systems due to the different measurement of profit.

There are some differences among the methods presented in computing Profit Before Finance Charges (Line 9, Table IX) which is used in deriving the Real Rate of Return on Assets:

(a) The RRR method deducts the holding gains on all monetary liabilities from finance charges at Line 10 in determining real finance charges. Consequently we would normally expect this method to report a lower Profit Before Finance Charges than either SAP1 or CCAl which both include in this measure the holding gains on monetary liabilities other than loan capital.

(b) The Real CCA system as applied here does not separately compute a holding loss (gain) on monetary items other than loan capital in determining Profit Before Finance Charges. This system can be amended to accommodate such an adjustment so as to give us the same result as for the SAP1 and CCAl systems. As our present concern is the rate of return to equity, which would be the same regardless of such an adjustment, we have decided not to further complicate the computations.

The Rate of Return on Equity is always impacted by the level of gearing employed by an enterprise. This also applies to our four CCA systems but with differential results due to the different underlying capital maintenance concepts.

In periods when all prices are rising the following usually applies regarding the Return on Equity (Line 13, Table IX):

(a) SAP1, which adopts the entity version of the operating capital maintenance concept, excludes holding gains on loan capital and, therefore, reports the lowest profit.

(b) RRR Reporting and CCAl both include gains on loan capital in the measure of profit. The RRR Reporting system measures these gains by reference to general price levels whereas the CCAl system measure them by reference to changes in specific price levels. It follows that when the movement in the general price levels exceeds that of the specific prices relevant to the firm then the RRR Reporting system will report the higher level of holding gains on loan capital and vice-versa.

(c) The relationship between the Real CCA and CCAl systems was explained earlier as being dependent upon the relationship in movements between specific and general price level movements and the extent of non-monetary debt in the financial structure.
To summarize, in periods when the specific prices of assets held by the enterprise are rising faster than the general level of prices the rank order of methods in terms of Profit to Equityholders would normally be:

1. Real CCA
2. CCAI
3. RRR Reporting
4. SAP1

In periods when the specific prices of assets held rise at a slower rate than the general price level, the ranking becomes:

1. RRR Reporting
2. CCAI
3. Real CCA
4. SAP1

In periods during which the specific prices of assets held approximate the increase in the general level of prices, RRR Reporting, CCAI and Real CCA will give similar results except for the previously mentioned influence of non-monetary liabilities which tends to boost the Real CCA results.

On a more technical note, it is worth noting that the MMBW receives some non-refundable contributions from developers towards the cost of acquisition or construction of capital assets. The Victorian Government/DMB in a departure from previous regulations, requires that the credit balance arising from these transactions be shown as a deferred liability (Contributions to Capital Works Reserve) in the balance sheet and credited to revenue over the remaining useful life of the asset (see DMB, Accounting Policy Statement, [APS] No. 1). As the MMBW incurs no obligation from such transactions, the use of the term deferred liability, rather than deferred credit (which is commonly used to denote credit balances other than liabilities) is inappropriate. As this misclassified "liability" is fixed in amount, it falls within DMB’s (APS No. 1) definition of monetary liabilities. Clearly, as there is no obligation arising from the transaction, there can be no holding gain on this deferred revenue item.

The MMBW’s treatment of this deferred item as a monetary liability in its Rate of Return Reporting supplementary statements has, therefore, resulted in an overstatement of its RRR Reporting profit by $19.4m. The CCAI profit is also overstated, for similar reasons, but by the smaller amount of $11.9m. There is no effect on the SAP1 or Real CCA profit results. Therefore, although the reclassification of this item as a monetary liability has a significant effect on the absolute profit reported under the RRR Reporting and CCAI systems, there is no change in the ranking of the profit results of the four CCA methods.
Profit is the amount which can be distributed to owners after maintaining capital intact. If holding gains on monetary liabilities, however calculated, are included in the measure of profit, it needs to be borne in mind that such gains will only be realised in the form of cash flows over the life of the assets as they generate enterprise revenues. For public enterprises, such as the MMBW, which typically have long lived assets, this will mean that reported profit may bear little relationship to cash flows from operations. Of course, this comment could apply to any accrual system of accounting because the intention is to measure the profitability of operations, not their liquidity.

The question of how much of the profit attributable to the owners should be distributed to them depends upon the overall financing requirements of the enterprise as shall be discussed in section 7. Nonetheless, the measure of profit is seen as an indicator of the enterprise's maximum dividend paying capability even if the funds to make such a payment have to be financed by additional borrowings.

This serves to highlight the importance of implementing a CCA system which is capable of meeting the proposed objectives of measuring the Real Rates of Return on Assets and Equity. We have argued that the appropriate procedure for measuring the holding gains on loan capital in a CCA system is by reference to the changes in the specific prices of assets held by the enterprise, and not by reference to changes in the general level of prices. On this basis, the methodology underlying Real RRR Reporting results in a measure of profit to equityholders which is inconsistent with the objective measuring the Real Return on Equity and which, at least in 1985/86, significantly overstated the dividend paying capacity of the MMBW.
7. FINANCIAL IMPACTS OF DIVIDEND POLICIES BASED ON RATE OF RETURN REPORTING (WITH REFERENCE TO THE MMBW)

As we saw earlier, the debate over the appropriate approach to current cost accounting has been inconclusive. Whether one adopts the maintenance of operating capability approach or the financial equity approach or some variation of these depends importantly on how capital is defined. If a proprietary (equity) approach is adopted, in principle the reported profit (including holding gains on long-term debt) is legitimately distributable to shareholders as dividends — if further loans to finance the dividend payments can be raised and, presumably, if it is prudent to raise such loans.

DMB(1986b) evidently recognises the importance of such considerations in the determination of the specific level of the dividend payment:

"When a return on equity is generated the shareholders have the option of taking part or all of that return as a dividend stream or allowing it to be held as retained earnings and hence used to finance future additions to the equity base. At any point in time the extent to which it is appropriate to take the return on equity as a dividend, rather than using it to generate future equity, will depend upon a wide range of factors. These will include the nature and flexibility of the authority's capital program, trends in the debt-equity ratio, the ability of the authorities to borrow within the state's global limit borrowing allocation approved by the Loan Council and other Government priorities. The important thing is that existing guidelines require an explicit decision to be made about the extent to which the return on equity ought to be reinvested." (p.15)

We agree with these criteria for dividend determination specified by DMB and base the following discussion on them. Thus before we proceed to appraise the Victorian Government's Dividend Policy in respect to the MMBW, we discuss the financial circumstances confronting the MMBW which are pertinent to the determination of dividend payouts. We begin with an examination of external sources of funds for the MMBW and then proceed to explore the circumstances and prospects for internal funds.

7 (i) External Finance

We commence with a brief look at the MMBW's debt profile and prospects. The MMBW borrowed a total of $514M during 1985-86, taking its total debt to $2671M, of which $2150M was subject to a debt limit imposed by Parliament. New borrowings accounted for $185M and $329M was borrowed to re-finance existing and maturing debt. The borrowings were needed to finance capital expenditure since as we shall see later, the MMBW funds its capital works largely by borrowing.

At 30 June 1986, of the $2671M owed by the MMBW, $2286M was in loans raised in the market by the Board, $277M was owed to the Victorian Government, $62M to the Commonwealth Government, $25M in promisory notes and $21M in bank overdraft and other advances.

As at 30 June 1986, debt maturing in the next five years will be:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986-87</td>
<td>239</td>
</tr>
<tr>
<td>1987-88</td>
<td>258</td>
</tr>
<tr>
<td>1988-89</td>
<td>309</td>
</tr>
<tr>
<td>1989-90</td>
<td>188</td>
</tr>
<tr>
<td>1990-91</td>
<td>295</td>
</tr>
</tbody>
</table>
The average interest rate on loans raised during 1985/86 was 14.2 per cent, much higher than the average interest rate on loans outstanding at 30 June 1986 of 12.4 per cent.

There are limits to the new borrowings that are available to the MMBW and other public enterprises due to the constraints placed on a state's borrowing program, for example, those imposed by the Australian Loan Council. Under new arrangements introduced in 1984-85, the Loan Council sets a limit on how much the MMBW can borrow, but allows it the freedom to decide how to raise funds.

The constraints on borrowing are based on several reasons including the concern that:

- public enterprise debt may have adverse macroeconomic effects on the availability of funds for private sector investment;
- between the different levels of government, competition for savings may dissipate whatever advantages government debt has in financial markets; and
- government must exercise prudential supervision of debt to which it provides an explicit or implicit guarantee.

### TABLE X

GLOBAL LIMIT BORROWING ALLOCATIONS FOR MAJOR VICTORIAN PUBLIC ENTERPRISES

($ million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>State Electricity Commission</td>
<td>706.3</td>
<td>727.5</td>
<td>662.5</td>
<td>525.0</td>
</tr>
<tr>
<td>MMBW</td>
<td>215.1</td>
<td>167.3</td>
<td>185.0</td>
<td>215.0</td>
</tr>
<tr>
<td>Gas and Fuel Corporation</td>
<td>41.2</td>
<td>33.0</td>
<td>33.0</td>
<td>43.0</td>
</tr>
<tr>
<td>Grain Elevators Board</td>
<td>6.0</td>
<td>10.0</td>
<td>5.0</td>
<td>.</td>
</tr>
<tr>
<td>Port of Melbourne Authority</td>
<td>26.0</td>
<td>8.0</td>
<td></td>
<td>.</td>
</tr>
<tr>
<td><strong>Total Major Enterprises</strong></td>
<td>994.6</td>
<td>945.8</td>
<td>885.5</td>
<td>783.0</td>
</tr>
<tr>
<td><strong>MMBW as % of Total Major Enterprises</strong></td>
<td>21.6</td>
<td>17.6</td>
<td>20.9</td>
<td>27.5</td>
</tr>
<tr>
<td><strong>Total Global Borrowings</strong></td>
<td>1580.3</td>
<td>1985.3</td>
<td>2006.6</td>
<td>1859.0</td>
</tr>
<tr>
<td><strong>MMBW as % of Total Global Borrowings</strong></td>
<td>13.6</td>
<td>8.4</td>
<td>9.2</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Source: Estimated from Victoria 1986/87 Budget Strategy Paper No.2 Table 4.2, p.66

As may be seen from Table X, the total borrowing allocation available to Victoria's major public enterprises has declined, even in nominal terms, from $994.6M in 1983-84, $945.8M in 1984-85, to $885.5M in 1985-86 and to an estimated $783.0M for 1986-87. The MMBW's share of this allocation has increased sharply in recent years from $167.3M in 1984-85, $185.0M in 1985-86, and an estimated $215.0M in 1986-87. In percentage terms, the MMBW's share increased from 17.6 percent in 1984-85 to 20.9 percent in 1985-86, with a further estimated sharp increase to 27.5 percent in 1986-87. With Federal Government...
pressure on the states to cut spending and borrowing likely to continue (whichever party is in power), any increase in the MMBW's borrowing allocation over the next few years will occur largely at the expense of other authorities. And considering the MMBW's recent increases in borrowing, further increases will not be easy to achieve. Indeed the Victorian Government has already foreshadowed this:

"The GL [Global Limit] borrowing allocation is shared between the budget sector, public trading authorities, local government authorities and other small public sector authorities. The Government has assigned the GL borrowing allocation among borrowing authorities bearing in mind the need to share the burden of the real cutback in availability of funding across the whole public sector, and with due regard for the need to constrain forward commitments, especially given the $210 million reduction for 1987-88 foreshadowed by the Loan Council" (1986/87 Budget Paper No. 2, p. 65)

7 (ii) Capital Structure of MMBW: Debt to Equity Ratios
The recent history of MMBW's capital structure is shown in Table XI. The principal inferences of this Table are:

(a) An increasing reliance upon debt as reflected in both the historic cost and Rate of Return Reporting figures.

(b) The deterioration on an historic cost basis is very significant and indicates that debt is far outstripping equity as a source of new funding. This is confirmed by a perusal of the MMBW's self financing ratio for capital expenditure (Table XIV) which has decreased from 50% in 1981/82 to 13% in 1985/86.

(c) The debt to equity ratio on a RRR basis is increasing from a lower base and at a lower rate than the historical cost figures due to the substantial increase in public equity resulting from the revaluation of assets to a replacement cost basis.

(d) The MMBW's historic cost based debt to equity ratio in all years is significantly higher than that for companies in the private sector. Such a comparison is interesting but must be made cautiously since there are differences in mode of operations, MMBW's tax-free status, and explicit or implied guarantees on government debt which make default extremely unlikely.

(e) In RRR Reporting terms, the debt to equity ratio of 0.77 in 1985/86 is less than the ratio of approximately 1.0 implied by RRR Reporting guidelines. This ratio may compare more favourably with private sector figures prepared on the same basis than do the historic cost figures, but this comparison would be subject to the same qualifications as those specified in (d) above.

It is evident that the MMBW's level of debt relative to equity is increasing whichever way it is measured. Since the MMBW is currently constrained to reducing its charges in real terms, the increasing use of debt financing, up to the MMBW's global limit, may have important cash flow consequences for its capital expenditure programme and future dividend paying ability.
### TABLE XI

**DEBT TO EQUITY RATIOS FOR MMBW**

(a) **HISTORICAL COST. 1983/84 to 1985/86(a)**

<table>
<thead>
<tr>
<th>Financial Debt (Hist.Cost)</th>
<th>Equity</th>
<th>Financial Debt to Equity (times)</th>
<th>Financial Debt to Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>$m</td>
<td>$m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983/84</td>
<td>2183</td>
<td>976</td>
<td>2.24</td>
</tr>
<tr>
<td>1984/85</td>
<td>2357</td>
<td>806</td>
<td>2.92</td>
</tr>
<tr>
<td>1985/86</td>
<td>2680</td>
<td>791</td>
<td>3.39</td>
</tr>
</tbody>
</table>

(b) **RATE OF RETURN REPORTING. 1983/48 to 1985/86(a)**

<table>
<thead>
<tr>
<th>Debt Financing Assets In Service(b)</th>
<th>Public Equity Financing Assets In Service</th>
<th>Debt to Public Equity (times)</th>
<th>Debt to Public Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>$m</td>
<td>$m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983/84</td>
<td>1976(c)</td>
<td>3018</td>
<td>.65</td>
</tr>
<tr>
<td>1984/85</td>
<td>2233</td>
<td>3222</td>
<td>.69</td>
</tr>
<tr>
<td>1985/86</td>
<td>2882</td>
<td>3738</td>
<td>.77</td>
</tr>
</tbody>
</table>

**Sources:** Estimates of DMB(1986b) and MMBW Annual Report, 1985-6.

**Notes**

(a) All figures are at end of respective financial years.

(b) This measure of debt financing includes Contributions for Capital Works Reserve (1985/86, $253m) which is treated as Equity in the historical cost accounts.

(c) Estimated by deducting public equity from the estimate of end of year assets in service.
7(iii) Debt Servicing Ability of MMBW

Table XII indicates that (nominal) finance charges have increased steadily over the past three years and now represent 49 per cent of operating revenue and a striking 94 per cent of Earnings Before Interest and Extraordinaries. These figures, based upon historical cost accounts, are excessive by private sector standards (even after allowing for the taxation factor) but in line with other public enterprises such as the SECV (Table XIII). In view of the increasing trend in the debt to equity ratio, it seems likely that the ability of the MMBW to service nominal finance charges from operating revenue or surplus will deteriorate even further.

The picture painted by RRR Reporting is not as bleak because the holding gains on borrowings, which are in excess of $200m, reduce the real finance charges to less than a third of their nominal level, resulting in an apparently far greater ability to service debt. However, as noted earlier, these holding gains do not result in an increase in actual cash flow and hence do not in fact provide liquidity for the payment of actual nominal interest commitments. In addition, as was also noted earlier, the measure of these holding gains may be significantly overstated because of the (inappropriate) use of the CPI rather than asset specific price indices.

TABLE XII

THE SIGNIFICANCE OF FINANCE CHARGES FOR THE MMBW

<table>
<thead>
<tr>
<th></th>
<th>(1) Operating Revenue</th>
<th>(2) Earnings Before Finance Charges and Extraordinaries</th>
<th>(3) Finance Charges</th>
<th>(4) (3)/(1)</th>
<th>(5) (3)/(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983/84</td>
<td>531.6</td>
<td>273.9</td>
<td>217.0</td>
<td>40.1</td>
<td>79.2</td>
</tr>
<tr>
<td>1984/85</td>
<td>567.6</td>
<td>289.7</td>
<td>239.0</td>
<td>42.1</td>
<td>82.5</td>
</tr>
<tr>
<td>1985/86</td>
<td>613.1</td>
<td>318.0</td>
<td>299.4</td>
<td>48.8</td>
<td>94.2</td>
</tr>
</tbody>
</table>

Source: MMBW Annual Report 1985/86

TABLE XIII

INTEREST COVER
(EARNINGS BEFORE INTEREST AND TAX DIVIDEND BY INTEREST)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All Company Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Average</td>
<td>2.79</td>
<td>3.38</td>
<td>3.14</td>
<td>n.a.</td>
</tr>
<tr>
<td>- Median</td>
<td>3.00</td>
<td>3.33</td>
<td>3.57</td>
<td>n.a.</td>
</tr>
<tr>
<td>Top 25 Companies</td>
<td>2.90</td>
<td>3.31</td>
<td>2.82</td>
<td>n.a.</td>
</tr>
<tr>
<td>Misc. and Diverse Industrials</td>
<td>2.24</td>
<td>3.34</td>
<td>4.05</td>
<td>n.a.</td>
</tr>
<tr>
<td>MMBW</td>
<td>1.09</td>
<td>1.26</td>
<td>1.21</td>
<td>1.06</td>
</tr>
<tr>
<td>SECV</td>
<td>1.32</td>
<td>1.31</td>
<td>1.16</td>
<td>1.07</td>
</tr>
</tbody>
</table>

The end result is that the MMBW will have to borrow just to be able to pay the excess of nominal interest charges over its operating surplus, in addition to any other funding requirements for increases in capital expenditure, working capital and the Public Authority Dividend.

The following data extracted from Table IX should clarify this point.

<table>
<thead>
<tr>
<th><strong>RRR REPORTING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets in service (Written Down Current Cost)</td>
</tr>
<tr>
<td>Return on Assets (3.05%)</td>
</tr>
<tr>
<td>Nominal Interest</td>
</tr>
<tr>
<td>Holding Gain on Debt</td>
</tr>
<tr>
<td>Real Finance Charges</td>
</tr>
<tr>
<td>Return on Equity (3.50%)</td>
</tr>
</tbody>
</table>

The operating surplus after maintaining enterprise operating capability intact is $190.5m. However, this amount falls short of the nominal interest expense of $285.0m, paid or accruing to debtholders by the amount of $94.5m. Additionally, if all of the Return on Equity of $112.7m was distributed as dividends this would have necessitated total borrowings of $207.2m ($94.5m plus $112.7m). These borrowings would equal the reported holding gain on monetary debt for the period and thereby maintain the level of indebtedness in real, general price level adjusted, terms.

Since the PAD for 1985/86 was $60m, the borrowing requirement to meet the interest shortfall ($94.5m) and the PAD ($60.0m) was $147.2m. Of course, further borrowings were required to meet capital expenditure and other requirements.

Applying the above analysis to the proprietary CCA methods in Table IX, we see that the PAD of $60m is in excess of both the CCA1 Return on Equity of $55.4m and the Real CCA figure of $11.7m. Presumably, if either of these systems had been used as an indicator of the amount available for dividend distribution, the PAD would have been significantly lower (and the necessary level of borrowings by the MMBW lower).

The level of borrowings required to fund the excess of nominal interest payments over the operating surplus as well as the PAD requirements will, in part, depend upon the following factors.

(a) The absolute level of interest rates.
The higher the level of nominal interest rates the greater the level of interest payments and the greater will be the borrowing requirement. Of course, higher nominal rates may reflect higher inflation rates and greater holding gains on debt, but we repeat that such holding gains (however measured) do not generate equivalent cash flows.
(b) The Level of the Public Authority Dividend

The MMBW's PAD requirement has increased steadily in recent years. Although this might be justified on a RRR Reporting profit basis (refer Table XIX for details) as we have pointed out, this method of profit determination is based upon a questionable methodology which appears to have significantly overstated the MMBW's debt related holding gains.

The extent to which the MMBW has to borrow will depend upon its unavoidable cash flow commitments such as interest payments, the level of its discretionary commitments, dividend payouts, and the ability to defer or reduce capital expenditure programmes. The extent to which the MMBW can borrow will depend, inter alia, upon its debt servicing capacity and its ability to borrow within the state's global limit borrowing allocation approved by the Loan Council.

7(iv) Internal Funding as a Ratio of Capital Expenditure

While the appropriate level of internal funding of capital expenditure for public enterprises remains debatable (see Brain [1986] for a recent paper on this issue) most commentators would recommend a substantial contribution. For instance, the New South Wales Auditor-General's Report for 1981, argued:

"Considering the ever mounting public debt, there is much to commend the financially prudent policy of setting the prices charged for public sector services at levels which, in addition to recovering full operating costs (which includes depreciation calculated on commercial bases), would provide a margin which can be applied to repay earlier capital borrowings or to provide funds for current and future capital works" (Appendix E, p. 335).

The Institute of Applied Economic and Social Research (1981) suggests a broad guideline for the level of internal funding:

"The government should in general require authorities to support new investment projects from internally generated funds to the extent necessary to maintain the share of equity funds in total wealth. But this requirement may be temporarily eased in the case of authorities with particularly large capital investment programmes, while more stringent self-financing demands may be made of authorities in which the equity component is low" (p. 134)

The Victorian Budget Paper No.2 provides figures which allow internal funding ratios for the MMBW, SECV and GFCV to be estimated and compared for 1985/86 and 1986/87 as shown in Table XIV.

According to the figures in Table XIV, in 1985/86 the level of internal funding for the SECV was 27.5 per cent. Evidently it is estimated that in 1986/87 the internal funding figure will increase substantially to 41.2 per cent (partly as a result of an estimated decrease in capital expenditure in real terms of about 8 per cent). For the GFCV, internal funding was 58.4 per cent in 1985/86 and estimated at 54.4 per cent for 1986/87. By contrast, the MMBW's internal funding figure was 11.2 per cent in 1985/86 and estimated to rise to 14.5 per cent in 1986/87.
TABLE XIV

SOURCES OF FUNDS FOR PUBLIC ENTERPRISE WORKS PROGRAMS 1985-86 AND 1986-87
(S 000)

<table>
<thead>
<tr>
<th>Sources of Funds</th>
<th>SECV</th>
<th>GCV</th>
<th>MMBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrowings</td>
<td>662500</td>
<td>525000</td>
<td>33000</td>
</tr>
<tr>
<td>Internal Funds</td>
<td>251700</td>
<td>381900</td>
<td>46393</td>
</tr>
<tr>
<td>Financed by Private Developers and other</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Total</td>
<td>914200</td>
<td>906900</td>
<td>79393</td>
</tr>
<tr>
<td>Internal Funds as % of Total</td>
<td>27.5</td>
<td>42.1</td>
<td>58.4</td>
</tr>
</tbody>
</table>

(e) Estimate

Source: Compiled from figures provided in the 1986-87 Victorian Government Budget Paper No. 2.

Table XV is also of interest since it shows that the MMBW's internal funding ratio has declined dramatically from being 50 per cent in 1981/82, only five years ago, to 35 per cent in 1982/83, 18 per cent in 1983/84, 20 per cent in 1984/85, and down to a very low 13 per cent in 1985/86. The sharp decline in the ability of the MMBW to fund its capital expenditure from internally generated funds was influenced significantly by the PAD payouts required by the Victorian Government. This can be seen by adding back the PAD payouts to the internally generated funds and deducting the same amount from the Loan Borrowings and Grants. Recalculating the self-financing ratio on this basis shows it would not have fallen below 41% over this period.
TABLE XV

INTERNAL FUNDING OF MMBW CAPITAL EXPENDITURE

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<tbody>
<tr>
<td>Total Value of Fixed Assets*</td>
<td>274024</td>
<td>290999</td>
<td>270604</td>
<td>260208</td>
<td>247374</td>
</tr>
<tr>
<td>Less: Financed by External Sources</td>
<td>50028</td>
<td>37728</td>
<td>22594</td>
<td>15482</td>
<td>18871</td>
</tr>
<tr>
<td>Assets Acquired from Other Authorities</td>
<td>10853</td>
<td>466</td>
<td>14118</td>
<td>5917</td>
<td>1308</td>
</tr>
<tr>
<td>Board Capital Expenditure</td>
<td>213143</td>
<td>252805</td>
<td>233892</td>
<td>227195</td>
<td></td>
</tr>
</tbody>
</table>

*Includes Reserved Land Acquisitions and Survey Base Mapping

Financed by:

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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Borrowings and Grants</td>
<td>213143</td>
<td>252805</td>
<td>233892</td>
<td>227195</td>
<td></td>
</tr>
<tr>
<td>Internally Generated Funds</td>
<td>213143</td>
<td>252805</td>
<td>233892</td>
<td>227195</td>
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<tr>
<td>Total Value of Fixed Assets</td>
<td>274024</td>
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<td>270604</td>
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<td>37728</td>
<td>22594</td>
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<td>18871</td>
</tr>
<tr>
<td>Assets Acquired from Other Authorities</td>
<td>10853</td>
<td>466</td>
<td>14118</td>
<td>5917</td>
<td>1308</td>
</tr>
<tr>
<td>Board Capital Expenditure</td>
<td>213143</td>
<td>252805</td>
<td>233892</td>
<td>227195</td>
<td></td>
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</tbody>
</table>

Self Financing Ratio

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>13%</td>
<td>20%</td>
<td>18%</td>
<td>35%</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

Source: MMBW Annual Report 1985-86

Table XVI shows the Long Term Debt ratio of a range of public utilities measured by long term debt as a ratio of long term capital (long term debt plus capital and reserves). The figures (in historical cost terms) indicate that the MMBW's dependence on long term debt has increased from 66.3 per cent in 1981 to 72.0 per cent in 1985. (As Table XI shows, this dependence increased further to an estimated 75 per cent in 1986). A comparison with the MMBW's counterparts in Perth and Sydney indicates the Board's higher dependence on debt. Indeed, except for the state electricity utilities, the MMBW appears to have the highest level of dependence on debt.

The comparisons with United States public utilities and with private enterprises in Australia suggest that the MMBW and other Australian public enterprises are unduly heavily dependent on debt financing. As Block (1986) points out, the low level of "stockholders' equity" in capital and reserves is a major factor in preventing many public enterprises from developing an adequate profit base, as a result of being too heavily reliant on borrowed funds. For these public enterprises this situation appears unlikely to change unless a different policy towards the determination of Public Authority Dividends is implemented, one which treats dividends rather than borrowings, or investments, as the residual item in the financing equation.
<table>
<thead>
<tr>
<th>TABLE XVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONG TERM DEBT AS A RATIO OF LONG TERM DEBT PLUS CAPITAL AND RESERVES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY</strong></td>
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<tr>
<td>ELCOM</td>
<td>94.2</td>
<td>93.2</td>
<td>78.7</td>
<td>74.7</td>
<td>70.9</td>
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<td>ETSA</td>
<td>80.4</td>
<td>86.7</td>
<td>50.9</td>
<td>44.5</td>
<td>45.7</td>
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<tr>
<td>GCV</td>
<td>80.9</td>
<td>79.8</td>
<td>78.4</td>
<td>77.8</td>
<td>77.8</td>
</tr>
<tr>
<td>QGB</td>
<td>78.3</td>
<td>80.2</td>
<td>82.7</td>
<td>84.4</td>
<td>85.7</td>
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<tr>
<td>HYDRO</td>
<td>94.2</td>
<td>93.9</td>
<td>94.8</td>
<td>95.0</td>
<td>92.2</td>
</tr>
<tr>
<td>SECV</td>
<td>93.9</td>
<td>93.4</td>
<td>94.9</td>
<td>95.0</td>
<td>95.2</td>
</tr>
<tr>
<td>SECWA</td>
<td>92.5</td>
<td>93.7</td>
<td>97.0</td>
<td>97.1</td>
<td>97.3</td>
</tr>
</tbody>
</table>

| **WATER** | | | | | |
| MMBW (Melbourne) | 66.3 | 63.8 | 64.5 | 65.3 | 72.0 |
| MWA (Perth) | 70.0 | 68.9 | 66.7 | 63.4 | 59.6 |
| MWSB (Sydney) | 58.0 | 57.1 | 55.6 | 55.2 | 60.5 |

| **PORTS** | | | | | |
| HBA (Brisbane) | 58.1 | 56.0 | 58.5 | 55.8 | 54.3 |
| PMA (Melbourne) | 41.3 | 42.5 | 82.1 | 59.2 | 63.2 |
| MB (Sydney) | 62.0 | 61.1 | 61.3 | 60.6 | 60.9 |

| **OTHER STATE UTILITIES** | | | | | |
| MWDA (NSW) | 45.5 | 46.5 | 41.7 | 35.1 | 28.6 |

| **FEDERAL UTILITIES** | | | | | |
| ANL | 88.9 | 86.7 | 55.3 | 109.3 | 8.4 |
| OIC | 2.1 | 4.0 | 33.6 | 44.8 | 45.8 |
| QANTAS | 79.3 | 62.0 | 65.0 | 45.7 | 28.7 |
| TAA | 84.1 | 87.9 | 61.3 | 68.4 | 61.7 |
| TEHCM | 71.2 | 68.8 | 67.9 | 75.8 | 73.9 |

Comparison with Salomon Brothers 100 US Electricity Utility Study - Median

| | n.a. | n.a. | 49.0 | 48.7 | 48.4 |

Comparison with Statex Australian Company Sample - Median

| | 15.5 | 23.0 | 26.3 | 19.0 | 13.0 |

7(v) Prospects for Increases in Internal Funding

(a) Prospects for Increased Revenue

Actual income received by the MMBW in 1985/86 was 8 per cent higher than the previous year. However actual expenditure was 10.6 per cent higher in 1985/86 than the previous year. According to Grieg (1986) it has been the usual pattern for the MMBW's costs to rise faster than the CPI. Under current Victorian Government policy imposed on Victorian public enterprises, the average increase in MMBW rates/charges have to be less than increases in the C.P.I. for Melbourne. Table XVII shows that over the last several years this guideline has been adhered to by the MMBW. Clearly, this means that unless costs can be sufficiently reduced through productivity improvements and/or capacity and quality deterioration to make up the difference, there will result a further reduction in the ability of the MMBW (and other public enterprises) to increase the level of internal funding.

### TABLE XVII

**VICTORIAN PUBLIC AUTHORITY UNIT CHARGES**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Nominal</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>SECV</td>
<td>11.8</td>
<td>16.9</td>
<td>17.7</td>
<td>7.9</td>
<td>6.1</td>
<td>4.4</td>
</tr>
<tr>
<td>GFCV</td>
<td>10.0</td>
<td>18.9</td>
<td>22.1</td>
<td>17.8</td>
<td>5.5</td>
<td>5.3</td>
</tr>
<tr>
<td>MMBW</td>
<td>8.7</td>
<td>6.7</td>
<td>11.7</td>
<td>8.7</td>
<td>4.8</td>
<td>6.0</td>
</tr>
<tr>
<td>PMA</td>
<td>5.0</td>
<td>19.9</td>
<td>16.7</td>
<td>7.1</td>
<td>8.0</td>
<td>n.a.</td>
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<tr>
<td>GEB</td>
<td>14.3</td>
<td>29.4</td>
<td>15.9</td>
<td>7.9</td>
<td>6.2</td>
<td>n.a.</td>
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<tr>
<td><strong>Consumption Deflator</strong></td>
<td>9.5</td>
<td>9.5</td>
<td>11.3</td>
<td>8.0</td>
<td>6.5</td>
<td>8.0</td>
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<tr>
<td><strong>Real</strong></td>
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<td></td>
</tr>
<tr>
<td>SECV</td>
<td>2.1</td>
<td>6.0</td>
<td>5.8</td>
<td>0.0</td>
<td>-0.4</td>
<td>-3.5</td>
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<tr>
<td>GFCV</td>
<td>0.4</td>
<td>8.6</td>
<td>9.7</td>
<td>9.1</td>
<td>-0.9</td>
<td>-2.5</td>
</tr>
<tr>
<td>MMBW</td>
<td>-0.8</td>
<td>2.7</td>
<td>0.4</td>
<td>0.7</td>
<td>-1.6</td>
<td>-1.3</td>
</tr>
<tr>
<td>PMA</td>
<td>-4.1</td>
<td>9.5</td>
<td>4.9</td>
<td>-0.8</td>
<td>1.4</td>
<td>n.a.</td>
</tr>
<tr>
<td>GEB</td>
<td>4.4</td>
<td>18.2</td>
<td>4.2</td>
<td>-0.1</td>
<td>-0.2</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


Notes to Table XVII

(a) Unit Charges for the SECV and GFCV are calculated as revenue per unit of output (GFCV charges exclude Energy Consumption Levy). This takes account of compositional changes, which themselves may result from changes in the level and structure of charges.

Increases for the MMBW (Melbourne Metropolitan Board of Works) are based on average rates paid. Increases for the PMA (Port of Melbourne Authority) and GEB (Grain Elevators Board) are based on movements in wharfage and wheat handling rates respectively.

(b) DMB estimates based on announced average increases in charges, allowing for timing effects.

(c) Increase in the implicit price deflator for private final consumption expenditure as published in ABS *Catalogue No. 5206.0 Quarterly Estimates of National Income and Expenditure*. DMB estimate for 1985-86.
More specifically, "rate of return pricing is based on the concept that prices should be set to cover operating expenses, excluding historical cost depreciation and nominal finance charges, depreciation based on the current cost of assets, and the real cost of capital (debt and equity)" (DMB, 1986b, p. 13).

As outlined earlier, the real cost of capital was estimated at 4% based on an assumed long term real cost of debt of 3% and, allowing for a 2% risk premium, a real return to equity of 5%. These assumptions about the real cost of capital (based upon historical relationships) are inconsistent with recent real rates of interest which have been about 6-7% and, by corollary, with the expected real returns on equity. In addition, the manner in which the holding gains on debt are computed under RRR Reporting aggravates the problem. That is, Table IX indicates a Return on Equity of 3.05% under RRR Reporting whereas it is only 1.72% and 0.36% under CCA1 and Real CCA respectively.

(b) MMBW's Capital and Reserves
In 1985/86, $65m was transferred from the General Reserve to Retained Earnings largely to cover the $45.6m excess of the Public Authority Dividend of $60m over the historical cost net income of $14.4m. This transfer represents a "book-entry" between General Reserve and Retained Earnings, not a cash flow transaction.

There is a widespread misconception among those unfamiliar with accounting practice that these, inappropriately named, "Reserves" represent an untapped source of funds that may be drawn upon to fund capital expansion, pay dividends or for whatever other purpose funds may be required. In reality they merely represent the owners' equity interest in the assets of the enterprise. Exactly what form the enterprise assets may take will reflect the past investment and operating decisions of management.

### TABLE XVIII

<table>
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<tr>
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<tr>
<td>$000</td>
<td>$000</td>
<td>$000</td>
<td>$000</td>
<td>$000</td>
<td>$000</td>
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</table>

**Capital and Reserves**

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<th></th>
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</thead>
<tbody>
<tr>
<td>Contributed Capital</td>
<td>54800</td>
<td>39700</td>
<td>38700</td>
<td>36800</td>
<td>35300</td>
</tr>
<tr>
<td>Contributions for Capital</td>
<td>253000</td>
<td>214600</td>
<td>185400</td>
<td>178600</td>
<td>224800</td>
</tr>
<tr>
<td>Works Reserve</td>
<td>250800</td>
<td>312100</td>
<td>521100</td>
<td>513300</td>
<td>443000</td>
</tr>
<tr>
<td>General Reserve</td>
<td>202100</td>
<td>201900</td>
<td>195000</td>
<td>182600</td>
<td>147700</td>
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<tr>
<td>Thomson/Cardinia Water Supply Scheme Reserve</td>
<td>700</td>
<td>4300</td>
<td>8800</td>
<td>9500</td>
<td>18900</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>29300</td>
<td>33800</td>
<td>26700</td>
<td>22300</td>
<td>32200</td>
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<tr>
<td>Insurance Reserve</td>
<td>790700</td>
<td>806400</td>
<td>975700</td>
<td>943100</td>
<td>901900</td>
</tr>
</tbody>
</table>

**Total Equity**

---

Source: **MMBW Annual Report 1985/86**
Table XVIII provides a summary of Capital and Reserves for the last five financial years. There have been no specific investments or cash balances set aside in respect of these reserves. More specifically, as at 30 June 1986, the total for Capital and Reserves was $790.7m. However, the balance sheet reveals that on 30 June 1986, the MMBW had liquid assets of only $214.1m consisting of Current Assets ($136.9m) and Investments ($77.2m) and, offsetting this, were Current Liabilities of $379.8m.

Any funds that may have been received by the Board at the time of the creation of these reserves would have been included in the total pool of funds available to carry out its day to day operating activities (i.e. working capital) or to be used for its capital works programme.

The term reserves refers to accretions to the owners' equity, other than from capital contributions, by way of ploughed-back earnings from other sources. Quite clearly, the existence of reserves does not indicate the ready availability of liquid assets of a similar amount that may be drawn upon as required.

7(vi) Dividend Policy

In an efficient capital market free of taxes and transaction costs, shareholders are held to be indifferent as between dividends and capital gains. This is so because a shareholder’s cash flow requirement can be met either by the receipt of dividends or by the sale of sufficient shares to provide the same cash flow result without any effect on total wealth.

Although the Victorian Government is not subject to income tax, it is entirely dependent upon dividends if it wishes to receive a cash flow from its investment as it does not have the option to dispose of a part of its holding.

As shown in Table XIX, dividend payouts for the three years ending 1985/86 have been slowly increasing in absolute dollars and as a proportion of the Return on Equity profit measure but declining as a proportion of Opening Public Equity. The projected figures for 1986-87 continue these trends but in a much more pronounced fashion.

More specifically, the 1985/86 Public Authority Dividend of $60.0m represented a payout ratio of 53% of the Return on Equity of $112.7m. Although this appears to be in line with private sector payout ratios, it must be remembered that the private sector payout ratio is based on historical cost earnings. Comparisons made with the private sector on an historical cost basis are not nearly as favourable, as shown in Table XX. For the MMBW, its PAD of $60m exceeds its historical cost earnings of $14.4m by $45.6m. It is unusual for private sector companies to pay annual dividends in excess of profits and even more unusual that they maintain such a policy over a number of years. The 1986-87 projections offer no reversal of this trend. Indeed, as Table XIX shows the PAD for 1986/87 of $65m. will absorb 95.3 per cent of the projected Return on Equity.
### TABLE XIX

**MELBOURNE AND METROPOLITAN BOARD OF WORKS**

**RATE-OF-RETURN REPORTING FIGURES**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Return on Assets</strong> ($m)</td>
<td>170.9</td>
<td>183.5</td>
<td>190.5</td>
<td>206.3</td>
</tr>
<tr>
<td><strong>Average Assets in Service ($m)</strong>(a)</td>
<td>4,729</td>
<td>5,260</td>
<td>6,248</td>
<td>6,646</td>
</tr>
<tr>
<td><strong>Rate of Return on Assets (%)</strong></td>
<td>3.6</td>
<td>3.5</td>
<td>3.0</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Return on Equity</strong> ($m)</td>
<td>118.9</td>
<td>106.4</td>
<td>112.7</td>
<td>68.2</td>
</tr>
<tr>
<td><strong>Opening Public Equity ($m)</strong>(b)</td>
<td>2,469</td>
<td>3,018</td>
<td>3,222</td>
<td>3,738</td>
</tr>
<tr>
<td><strong>Return on Equity:Public Equity (%)</strong></td>
<td>4.8</td>
<td>3.5</td>
<td>3.5</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Public Authority Dividend ($m)</strong></td>
<td>55.0</td>
<td>56.8</td>
<td>60.0</td>
<td>65.0</td>
</tr>
<tr>
<td><strong>PAD:Public Equity (%)</strong></td>
<td>2.3</td>
<td>1.9</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>PAD:Return on Equity (%)</strong></td>
<td>46.2</td>
<td>53.4</td>
<td>53.3</td>
<td>95.3</td>
</tr>
<tr>
<td><strong>PAD ($m)</strong> Gas and Fuel Corp of Vic.</td>
<td>25.0</td>
<td>27.6</td>
<td>31.1</td>
<td>32.7</td>
</tr>
<tr>
<td><strong>PAD ($m)</strong> State Electricity Comm of Vic.</td>
<td>103.9</td>
<td>70.0</td>
<td>80.0</td>
<td>70.0</td>
</tr>
</tbody>
</table>

**Notes**

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

(b) Public equity at the beginning of the financial year.

(c) Estimates differ from those contained in the MMBW Annual Report. Refer MMBW Rate of Return Reporting Financial Statements - Footnote 2 to Statement 1 in Annual Report, 1985/86.

Sources: Estimates of DMB(1986b) and the relevant authority.

### TABLE XX

**DIVIDEND PAYOUT RATIOS (%)**

(ORDINARY DIVIDEND DIVIDED BY ORDINARY PROFIT)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>All Company Sample</td>
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<td></td>
</tr>
<tr>
<td>- Average</td>
<td>57.4</td>
<td>45.3</td>
<td>46.1</td>
<td>n.a.</td>
</tr>
<tr>
<td>- Median</td>
<td>51.3</td>
<td>47.5</td>
<td>45.7</td>
<td>n.a.</td>
</tr>
<tr>
<td>Top 25 Companies</td>
<td>57.0</td>
<td>41.2</td>
<td>44.5</td>
<td>n.a.</td>
</tr>
<tr>
<td>Misc. and Diverse Industrials</td>
<td>79.9</td>
<td>61.7</td>
<td>53.6</td>
<td>n.a.</td>
</tr>
<tr>
<td><strong>MMBW (RRR)</strong></td>
<td>n.a.</td>
<td>46.2</td>
<td>53.4</td>
<td>53.3</td>
</tr>
<tr>
<td><strong>MMBW (Historic Cost)</strong></td>
<td>153.9</td>
<td>96.7</td>
<td>121.1</td>
<td>322.6</td>
</tr>
</tbody>
</table>

The Victorian Government’s dividend policy, with respect to its major public enterprises, has been articulated by DMB (1986b) as follows:

“The return on equity indicates the amount available for distribution while maintaining the real value of public equity. That is, the return on equity indicates the level of the dividend which can be distributed without diminishing the shareholders’ stake in the authority, after adjustment for inflation. In practice, a number of other factors—the desired capital program, the ability to borrow to finance that program, the implied gearing ratio, conditions in money markets and perceptions of the authority influenced by historical cost results—may all affect the ultimate size of the dividend.” (DMB, 1986b, pp 14–15)

These DMB guidelines imply the use of a "simultaneous " dividend policy wherein, in the presence of external financing constraints, dividends and investment policies are resolved simultaneously. Such a policy is also common in the private sector when external financing constraints prevail (see, for example, Partington, 1985).

However, the gradually increasing level of PAD payments required of Victoria’s major public enterprises in recent years do not indicate conformance to such a simultaneous dividend policy. Table XIX shows a steadily increasing PAD payout by both the MMBW and GFCV, although there is some suggestion of a simultaneous policy from the fluctuating pattern of the SECV’s dividend payments. Despite the borrowing constraints imposed on public enterprises, the evidence, thus far, suggests that the growing budgetary stringency faced by the Victorian Government may well dispose its dividend policy towards a concern more for general state budgetary pressures, rather than those confronting a public enterprise.

The MMBW reported a Rate of Return on Assets of 3% for 1985.86, which was 1% less than the RRR Reporting long term target rate of 4%. This result, and the fact that real interest rates have been well in excess of the long term forecast rate of 3%, resulted in a Return on Equity as a percentage of Opening Public Equity of 3.5% for 1985/86 (significantly below the 'target rate' of 5%).

If we recognize the overstatement of Return on Equity resulting from the use of general price level movements to calculate the gain on debt under RRR Reporting, the percentage Return on Equity was considerably less. For the CCAI system this return was 1.7%, and for Real CCA it was only 0.4%. Allowance should also be made for the contentious inclusion of holding gains on the "Contributions to Capital Works Reserve” which would further reduce the reported results under both RRR Reporting and CCAI systems.

As the MMBW’s 1985/86 PAD of $60m represented 1.9% of Public Equity, it was in excess of what would have been appropriate under either the CCAI or Real CCA methods of computing the Return on Equity. A continuation of this policy will lead to the erosion of the public equity base (in real terms) and an increasing debt to equity ratio. This suggests that Rate of Return Reporting objectives may be incompatible with the pricing and borrowing constraints imposed upon the MMBW and other enterprises. The implementation of RRR Reporting (or any other CCA system) does not alter an enterprise’s cash flow. Cash flows from operations can only be improved by increasing operating cash inflows (from rates) relative to operating cash outflows. The use of an accounting system which overstates the Return on Equity, thereby sanctioning excessive dividend payments, does not resolve these problems and, indeed, in the long term may threaten the financial integrity of the MMBW.
8. **CONCLUSIONS**

(i) The Required Rate of Return (RRR)

(a) In principle the imposition of a RRR for public enterprises is justifiable on economic and financial grounds. In short, in the interests of an efficient allocation of resources, investments by public enterprises should be required to earn at least a return comparable to their opportunity cost (what they would be able to earn in their best alternative use).

(b) Moreover, a RRR goes some way in providing a surrogate for the discipline of a profit requirement in containing costs. It is true that many public enterprises face price inelastic demand schedules - at least for some services - so that cost increases can be easily passed on in higher prices. Nonetheless, where there are constraints on the ability of public enterprises to increase their prices - such as consumer resistance or a government policy guideline that price increases be less than the rate of inflation, as currently exists in Victoria - pressures to contain costs will exist.

(c) However, there are several questionable aspects concerning the use of a prescribed RRR. Firstly, the RRR should not be regarded as a 'principal performance criterion' since this would be to claim or expect far too much of it. Other potential sources and incentives of improved performance for public enterprises need to be identified, implemented and monitored.

(d) Secondly, economic principles advocate that the RRR on marginal investments reflect opportunity costs. An RRR such as the Victorian Government's prescribed RRR of 4 per cent, is an average or overall RRR on a public enterprises total assets. These assets are a result of historical investment decisions, some of which might be considered to be 'sunk costs' and not included in the estimation of the RRR. (The 'replacement cost' value approach to the estimation of total assets, the Victorian Government has prescribed that the public enterprises use, does try to take sunk costs into account. However, the focus remains on average, overall, returns rather than marginal returns).

(e) Thirdly, it should be recognised that an RRR estimated in accounting terms is unlikely to reflect economic rates of return and hence will not provide a useful indicator of the degree of efficient and effective use of resources by a public enterprise.

(f) Fourthly, a uniform RRR applied to all public enterprises is not prescribed by economic theory nor by the observation that rates of return vary widely among private and public sector enterprises. One must guard against the danger, though, that the prospect of rationalising a lower RRR for a particular public enterprise could provide a cloak behind which inefficiencies of various types, as well as social and political pursuits, might readily proliferate. This concern suggests that where public enterprises are required to undertake social obligations, explicit subsidies should be paid. If the Government is unable to implement direct subsidies (for reasons of overall budgetary demands) then, at a minimum, the implicit subsidy element should be revealed in the annual reports of the public enterprises. This would enhance the ability of Parliament and the public to realistically assess the performance of such enterprises and to identify costs and benefits borne by, or provided to, sections of the community.
Finally, in practice it is difficult to identify the appropriate RRR for public enterprises. The RRR of 4 per cent prescribed by the Victorian Government, which was determined by the 'weighted average cost of capital approach', cannot be demonstrated to be correct or superior on uncontroversial theoretical grounds. A (lower) rate based on the Social Time Preference Rate approach, or a (higher) rate based on the Social Opportunity Cost of Capital approach, seems equally tenable. This recognition identifies the prescribed RRR of 4 per cent to be determined as a matter of government policy which, while perfectly valid on this basis, should not be considered to be prescribed, unambiguously, by economic principles. Nevertheless, it is concluded that when the real rates of return earned by private enterprises are considered, a rate of 4 per cent for public enterprises seems, for the present, more reasonable than the rate of 10 per cent which is sometimes suggested as an appropriate target.

Dividend Requirements

The legitimacy of requiring dividends from public enterprises is open to some dispute, in particular because the definition of equity seems unclear in the case of public (by comparison with private) enterprises. Nevertheless, the requirement to pay dividends is quite defensible as a matter of government policy judgement pertaining to the distribution of public enterprise earnings.

Since dividend payments required of a public enterprise will affect its borrowing and subsequent debt servicing requirement, they are likely (in the medium term, at least) to affect the level of prices charged by a public enterprise.

Economic theory seems of limited assistance in identifying the correct level of dividend payments for public enterprises. Hence a doctrinaire or simplistic view that the level of dividend payments should be guided primarily by a predetermined rate (e.g. the Victorian Government's "up to 5 per cent" would be unwarranted) seems particularly so since the 5 per cent figure was determined on the basis of an arbitrarily chosen risk premium of 2 per cent added on to a questionable estimate of 3 per cent for the long term cost of debt).

Rather, the extent of PAD payments from individual public enterprises should depend, among other things, on the particular circumstances faced by a public enterprise including the requirement to retain earnings to finance a planned investment program, to improve a cash-flow position, the expected return on equity both in the short and longer term, the level of accumulated profits, the actual and desired debt: equity ratio, the constraints on borrowing and so on.

The Accounting System used for Profit Measurement

The conventional historical cost accounting system is not suitable for measuring a public enterprise's RRR. A Current Cost Accounting system, which takes into account the effects of inflation is more appropriate, particularly when the concern is to estimate real RRR.
There are competing CCA systems which can be differentiated by their choice of a capital maintenance concept necessary to distinguish profit from capital. Two broad approaches to capital maintenance are the "entity" approach, which reflects the profit available for distribution after maintaining intact the operating capability of the enterprise, and the "proprietary" (equity) approach, which reflects the profits available for distribution after maintaining intact the equity of the proprietors under one of a variety of possible approaches. We conclude that information provided on the basis of both approaches is relevant for the different purposes of the various users of an enterprise's financial accounts.

We conclude that a "proprietary" approach to capital maintenance is appropriate for the purpose of measuring the Return on Equity. Of the three proprietary approaches reviewed we find the CCAI and Real CCA systems preferable, with the choice between them dependent upon which capital maintenance concept is considered appropriate.

We conclude that the RRR Reporting method of determining the Return on Equity is internally inconsistent. This is because it requires that the current cost restatements of non-monetary assets be taken directly to the Current Cost Reserve account. This treatment is not consistent with its "financial equity" capital maintenance conceptual basis which, as it is expressed in nominal terms only, would require such current cost restatements to be taken directly to the Profit and Loss Account. The RRR Reporting method's prescribed treatment of these current cost adjustments is more consistent with the "operating capability" capital maintenance conceptual basis. However, the RRR Reporting method's computation of purchasing power gains on all monetary liabilities by reference to general price level movements is inconsistent with this capital maintenance concept, which requires the measurement of such purchasing power gains by reference to specific price level movements.

We demonstrate that the Return on Equity profit varies widely among the proprietary approaches reviewed. The choice between the CCAI and Real CCA methods is one of ascertaining whether it is more appropriate to maintain intact the operating capability of that part of the net operating assets of the enterprise provided by its owners (CCAI), or to maintain intact the real financial equity of the enterprise (Real CCA). The latter approach is consistent with the stated intentions of the DMB.

Where all prices are rising but asset specific prices are rising at a slower rate than the general price level the rank order of profit, in terms of magnitude, will usually be:

1. RRR Reporting
2. CCAI
3. Real CCA

Conversely, when asset specific prices are rising faster than the general level of prices the rank order will become:

1. Real CCA
2. CCAI
3. RRR Reporting
The misclassification of the "Contributions to Capital Works Reserves" as a deferred liability and, consequentially, as a monetary liability has led to an overstatement of the Return on Equity under RRR Reporting of $19.4m ($11.9m overstatement under CCA1 method).

(iv) Financial Implications

(t) Notwithstanding the external borrowing constraints faced by the MMBW, its dependence on debt, relative to equity, has increased in both conventional historical cost and RRR Reporting terms.

(u) In recent years, the debt servicing ability of the MMBW as measured by nominal finance charges as a proportion of both Operating Revenue and Earnings Before Interest has shown a marked deterioration. Although the situation is not as drastic with respect to real finance charges, it is noted that the holding gains on debt which decrease the real finance charges are not represented by cash flows.

(v) Although the appropriate level of internal funding of capital expenditure for public enterprises is debateable, the MMBW's internal funding ratio has declined sharply and is low by any standards.

(w) The MMBW's level of PAD has been steadily increasing in spite of the deterioration in its debt to equity ratio, debt servicing ability, internal funding ratio and inability to achieve the target return of 4%. This suggests that the growing budgetary stringency faced by the Victorian Government, rather than the MMBW's investment and financing needs, may well be the more dominant factor in the determination of PADs. In the long term this could threaten the financial integrity of the MMB and the other Victorian public enterprises.
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