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DEBATING THE IMPACT OF ACCRUAL ACCOUNTING AND REPORTING IN THE PUBLIC SECTOR

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INTRODUCTION

Debates about the adoption of accrual accounting and financial reporting techniques by the public sector have been so widespread over the last decade that they may be labelled, without risk of inaccuracy, peripatetic. Questions as to whether accrual based techniques should be adopted by public sector entities are largely passé in the antipodes where they have penetrated every layer of the public sector over the past decade, making the question moot (Pallot, 1994; Shand, 1995; and English et al., 2000). However, these same issues are still being pondered by interested parties in jurisdictions which have only recently adopted comprehensive sector wide accrual based financial management and reporting frameworks, for example the UK (Likierman, 2000), or which are at the stage of announcing future moves to accrual based reporting and management frameworks, for example Hong Kong (Awty, 2002).

Given the breadth and depth of extant literature on the subject, scepticism on the part of the reader as to the capacity of yet another paper on the subject to make a meaningful contribution to the literature would be entirely natural. However, gaps do exist in our understanding of the implications of the decision, on the part of many jurisdictions, to transform accounting, reporting and financial management processes from cash to an accrual footing. In particular, little attention has been paid to the impact wrought by the implementation within the public sector of accrual accounting and financial reporting in the context of other related public financial management reforms, for example capital charging, the adoption of a purchaser – provider model of government and the implementation of accrual output based budgeting (Carlin and Guthrie 2001a; Carlin 2003a; Heald and Dowdall 1999; and Robinson 1998b).

The remainder of the paper proceeds as follows. The next section reviews international patterns of adoption of accrual accounting and reporting in the public sector. This part of the paper provides broad background context to the subject matter of the paper. The third section demonstrates the motivation for the paper by critically analysing the existing literature on accrual accounting and financial

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reporting in the public sector and demonstrating that, as asserted above, despite the significant bulk of the literature on this subject, material knowledge gaps do exist.

Following on from this, the fourth section of the paper describes an alternative theoretical lens through which public sector accrual accounting and financial reporting may be viewed, with particular emphasis placed on the need to contemplate the impact of public sector applications of accrual accounting and reporting in the context of other related public financial management reforms. This discussion gives rise to propositions capable of being tested against empirical data, and in consequence the fifth section contains a case study focusing on the impact of accrual accounting and reporting as implemented in the public sector of the Australian state of Victoria. The paper's conclusions are set out in the final section.

INTERNATIONAL ADOPTION OF ACCRUAL ACCOUNTING IN THE PUBLIC SECTOR

Accrual based accounting and financial reporting in the public sector is not, despite appearances to the contrary, an entirely new phenomenon. By way of example, it has been noted that in Australia, the Postmaster-General's department commenced preparing commercial accounts (including a full profit and loss statement and balance sheet) in 1913, and continued to use this form of reporting through time (Standish, 1968). Generally however, cash rather than accrual accounting[1] has been the mainstay of accounting and financial reporting in the public sector throughout the world (OECD, 2002).

The shift towards a comprehensive accrual oriented public sector accounting and financial reporting structure began to take place in the late 1980s, most notably in Australia and New Zealand. The latter jurisdiction became the first sovereign nation to fully implement accrual accounting at both a national and agency level. By the early 1980s, many New Zealand GTEs had adopted accrual accounting and financial reporting (IFAC, 1996). However, the most significant impetus for wholesale adoption of accrual accounting in the New Zealand public sector[2] can be attributed to two pieces of legislation, the *State Sector Act 1988* (NZ) and the *Public Finance Act 1989* (NZ). The first of these milestone pieces of legislation created a new legal framework for the relationship between departmental heads and their Ministers. The fundamental goal of redesigning these relationships was to increase the accountability to Ministers of departmental heads for their performance and that of their departments.

Reconstituting the accountability framework in this manner entailed modifications to the broader accountability infrastructure. These were embodied in the *Public Finance Act 1989* (NZ) which included requirements that audited accrual financial reports be produced at both a whole of government and an agency level. The act came into effect on 1 July, 1989. By December 1990, all 49 New Zealand government departments in existence at the time had migrated to an accrual accounting environment, leading to the production of the first accrual based whole of government reports a year later (Ball et al., 1999).

Australia has also been noted as an early adopter of accrual accounting techniques within its public sector (Funnel and Cooper, 1998). However, since Australia is a federal state, an analysis of the infusion of accrual accounting into the public sector is better conducted by taking account of the progress of the technique through the various jurisdictions which make up the federation. Taking this approach, the early adopter jurisdictions were the Commonwealth and the state of New South Wales, both of which commenced using accrual techniques for their government trading enterprises from the early 1980s onwards (JCPA, 1982). Starting from this point, these two jurisdictions completed the roll out of accrual accounting systems throughout their entire public sectors (including the non-commercial budget funded sector) by the early 1990s (Christensen, 2002). The state of Victoria completed its sector wide implementation by 1996, and by the completion of the decade all Australian jurisdictions had adopted accrual based accounting and financial reporting systems[3] across the breadth of their public sectors. Thus, as had been the case in New Zealand, upon the formation of a policy consensus, accrual accounting rapidly colonised the public sectors of all Australian jurisdictions.

In the United Kingdom, matters also moved quickly. In 1992, the first widespread application of accrual accounting methodologies in the UK public sector[4] came with the creation of NHS Trusts (Broadbent, 1992). However, the application of accrual practices within the UK national health system may be viewed as a pilot application, the model adopted within one sector providing the basis for a later public sector wide roll out.

Thus in 1993, the Chancellor of the Exchequer announced, as part of that year's budget proposals, that 'resource accounting'[5] would be implemented throughout the UK public sector over the successive 3–5 years (H M Treasury, 1993). Further details were released and a period of public consultation period (of eighteen months) was announced in 1994 (H M Government, 1994), at the conclusion of which, a timetable requiring the adoption of accrual accounting by 1998 was set in place (H M Government, 1995). The actual implementation of public sector wide accrual accounting and reporting took longer than envisaged, the original timetable being amended to require dry run accounts for the 1998/99 year, and full audited and published accrual accounts for the financial year ending March 31, 2000 (IFAC, 2002).

In contrast to these three nations, the response to accrual accounting and reporting in the public sectors of Canada and the United States was far more subdued. Though the issue had been contemplated in Canada since the 1960s (Glassco, 1962), it was not until the late 1980s that a concerted push to develop and implement a government wide accrual based system of financial management emerged, but a succession of delays pushed the phase in date backwards to 2001[6] (CGAAC, 1999). A similar rate of progression was evident in the United States, where after decades of contemplation, the final implementation of accrual accounting and reporting was to be completed for all financial years from 2001 onwards (Ball et al., 1999).

In addition to the jurisdictions discussed above, full accrual reporting for budget funded agencies has been adopted in the Netherlands (OECD, 1997), Finland, Japan, Portugal, Sweden and Switzerland (OECD, 2002). Iceland uses a modified accruals system, differing from the 'full' accrual model only in that as a matter of policy, all long lived assets are expensed at the point of acquisition. In other jurisdictions, a primarily cash based reporting framework is maintained, supplemented by additional accrual disclosures.

Table 1 provides an overview of the international adoption of accrual based accounting and financial reporting for budget funded agencies. A three way classification system is adopted, jurisdictions being categorised as using 'full accrual' (largely indistinguishable from typical commercial practice), 'modified accrual' (essentially reflecting commercial practice but with less emphasis on comprehensive statements of financial position) or 'cash with accrual disclosure' models of reporting.

The necessarily brief review of international adoption of accrual accounting and reporting by budget funded agencies set out above suggests that although the implementation experience has differed significantly between jurisdictions, particularly on dimensions such as degree of public consultation and gestation period, the trend towards the adoption of accrual accounting is a global, rather than an English speaking 'club' phenomenon.

Table 1

Accrual Financial Reporting by Budget Funded Agencies

	Full Accrual Basis	*Modified Accrual Basis*	*Cash Basis with Supplementary Accrual Data*
Australia	X		
Belgium			X
Canada		X	
Finland	X		
Germany			X
Hungary			X
Iceland		X	
Ireland			X
Japan	X		
Netherlands	X		
New Zealand	X		
Portugal	X		
Sweden	X		
Switzerland	X		
United Kingdom	X		
United States	X		

Source, OECD (2002).

Indeed, the repetitious reference in technical and academic literature to the experience of Australia and New Zealand in particular, as early adopters of comprehensive accrual frameworks, may have resulted in insufficient recognition of the breadth and depth of the impetus towards the adoption of accrual accounting and financial reporting techniques within the public sectors of a growing number of jurisdictions throughout the world. For example, in Sweden, accrual accounting was introduced into the local government sector in 1986, and by the central government in 1993 (Mattisson et al., 2003), a very early and comprehensive adoption, but one which has attracted far less attention than the examples of Anglophone jurisdictions such as New Zealand and Australia. Further, even in those jurisdictions where the least reforming fervour has been demonstrated, for example parts of continental Europe and South America, it is difficult to find remaining examples of pure cash based accounting and reporting frameworks (Morphett, 1998).

It does not follow however, that because the adoption of accrual accounting and financial reporting has become so widespread within a relatively constrained time period, the transition has taken place without debate or controversy. On the contrary, the decision to adopt accrual accounting within the public sector has been the subject of considerable debate, a review of which is set out in the next section.

DEBATES ABOUT ACCRUALS IN THE PUBLIC SECTOR

The introduction of accrual based accounting and financial reporting to the public sectors of many jurisdictions throughout the world was not the result of a silent revolution. The weight and volume of material produced both in support of and against the whole project, either wholly or in part, has been both considerable and sustained. For a small sample of papers in support see (AARF, 1991, 1993 and 1998; Barrett, 1993 and 1994; Evans, 1997; Gillibrand and Hilton, 1998; Heald and Georgiou, 1995; IFAC, 1994, 1996 and 2002; JCPA, 1995; NSWPAC, 1988, 1994 and 1996; Pendlebury and Karbhari, 1998; Rowles, 1992, 1993 and 2002; and Talbot, 1998). For a small sample of papers expressing critical views see (Guthrie, 1993 and 1998; Jones and Puglisi, 1997; Ma and Matthews, 1993; McCrae and Aiken, 1994; Mellett, 1997; and Walker, 1988).

That body of literature which expresses support for the widespread adoption of accrual accounting and financial reporting throughout the public sector is generally characterised by the evangelism of its tone and the lack of empirical evidence put forward to support its claims (Potter, 1999). Several recognisable themes run through this corpus of work. At the most simplistic level, some literature justifies the adoption of accrual accounting on grounds of inevitability (Carter, 1994; McPhee, 1994; and OECD, 1993). Other authors have justified their assertion that public sector organisations ought to adopt accrual accounting and reporting by reference to another bald assertion, that is, that accrual based reporting systems are 'superior'[7] to alternative systems (MacIntosh, 1992; McPhee, 1993; DOF 1994a; and Mellor, 1996).

These works are more akin to sermonising than serious explications of principle. They constitute accrual accounting as a 'good thing' in public management but do so on essentially emotive grounds. As such they represent, at best, a call to action, a statement of 'why' organisations within the public sector ought to adopt a new reporting structure, but not an explanation of 'how' this ought to be carried into practice, nor 'what' the effects will be once the task of implementation is complete.

At a greater level of sophistication, three related themes appear and reappear in appeals for the adoption of accrual accounting and reporting. These do address the 'what' as a key element of their rhetorical structure. First, it is often argued that the adoption of accrual reporting will enhance transparency, both internally and externally (Boxall, 1998; Denis, 1993; Micallef, 1994; and Wong, 1998). Second, whilst on occasions increased transparency in and of itself is suggested to represent a sufficient basis for recommending the adoption of accrual accounting over alternative systems, more frequently, asserted increases in transparency, particularly internal transparency, are said to in turn drive greater organisational performance, primarily through improved resource allocation (Ball, 1992; Churchill, 1992; Kelly, 1998; Likierman, 2000; and Slamet, 1998). A third and closely allied argument is that accrual accounting allows organisations to identify the full cost of their various activities, again leading to greater efficiency, better resource allocation and improved performance (DOF, 1994b; Evans, 1995; and Webster, 1998).

Each of these lines of argument is ripe for criticism. Claims that a particular model of accounting offers greater transparency are implicitly claims as to the believability and objectivity of the numbers produced therein. In the context of the private sector there exists a burgeoning literature on the susceptibility of accrual accounting and financial reporting to obfuscation and diminished transparency (Clarke et al., 1997; Griffiths, 1995; Jensen, 2001; Mulford and Cominskey, 2002; Naser, 1993; Rezaee, 2002; Schilit, 2002; and Smith, 1996). Yet in almost none of the literature[8] on public sector applications of accrual accounting is a meaningful, direct challenge issued on this most fundamental point.

Some authors (Broadbent and Guthrie, 1992; Guthrie, 1994; and Hines, 1988) dance around the issue when they conceptualise accounting technologies, whether cash or accrual based, as other than neutral and disinterested. Such a characterisation suggests that a range of agendas may lie behind the apparently objective veneer of accounting, in turn suggesting that transparency may have been diminished in a manner not immediately or readily noticeable to the world at large. However, this does not provide a direct answer to the matter at hand, namely, whether the introduction of accrual accounting to the public sector will have the effect of increasing transparency.

Other authors have labelled the product of public sector accrual reporting systems as observed in practice as 'misleading' (Barton, 1999a, p. 10). This would seem to fly in the face of claims made by those partial to a sanguine view of the enhanced transparency of accrual based financial reporting. Yet when examined closely, Barton's arguments have little force in relation to the system, as opposed to the particular application of the system about which he complained so forcefully and eloquently. Barton's *bette noire* was the requirement, in *AAS 27 Financial Reporting by Local Governments*, that local government organisations ascertain the value of land underneath the roads under their purview, undertake a valuation and recognise the asset in each period's statement of financial position. Barton's argument is with this requirement, not with the adoption of accrual based accounting systems in the public sector, and certainly not with their potential degree of transparency, leaving aside specific technical anomalies such as that about which he complained.

Similar observations may be made in respect of recent contributions by Walker et al. (1999, 2000a and 2000b), which focused on critiquing the use of current cost accounting by GTEs, suggesting that this lowered the serviceability of the resulting data for decision making purposes[9]. Again, the core critique here is not of accrual accounting and reporting in the hands of general government sector agencies, but rather, about a particular technical aspect of a particular observed implementation. So, a central rhetorical weapon of the pro public sector accrual camp has been left almost entirely intact for the period of greater than a decade.

The record is equally poor in relation to the sequitur to the 'transparency' argument, namely that this leads to improved organisational performance. While significant quantities of literature have been devoted to the issue of performance measurement systems and techniques within the context of the public sector (Bowerman and Humphrey, 2001; Neale and Pallot, 2001; and Walker, 2001), literature which critically and empirically addresses the alleged linkage between the adoption of accrual accounting and reporting within the public sector and improved overall performance is essentially non existent. A limited amount of work touches on this question tangentially (Carlin and Guthrie, 2001b). There is a small quantity of published evidence which suggests that the costs of implementing accrual based accounting and reporting may have outweighed the benefits (Jones and Puglisi, 1997), while Mellet (2002) provides a satirical insight into some of the absurdities which have resulted from the adoption of new techniques such as accrual accounting. Overall however, the critical response has been a muted one.

Part of this may be attributed to the sheer difficulty of gathering 'hard' evidence on the linkages between a particular reform and related changes in performance within a complex environment, a task rendered even more recondite by the crowding of the reform space (as a result of the simultaneous or near simultaneous implementation of a group of new public management techniques) (Carlin, 2002). The position is worsened when, as is often the case, the adoption of new financial management and reporting structures is accompanied by recombinations of physical administrative structures, rendering the task of developing meaningful benchmarks, generating trend data or making valid cross sectional comparisons almost impossible (Pallot, 2001).

Nonetheless, given that the bulk of the 'evidence' called upon by those disposed towards public sector accrual accounting to lend support to their claims of improved performance has been 'soft', that is, based essentially on impressions and opinions rather than data (e.g., Richardson, 1994), a greater weight of effective critical counter argument on this point might reasonably have been expected to emerge over time. Largely, as noted previously, that expectation has not been met.

The critical response has been measurably more effective in relation to the third key claim set out above, namely that the adoption of accrual accounting results in improved capacity to measure cost, leading to better resource allocation decisions and overall performance. Robinson argues that the suggestion that accrual systems improve conceptualisation of cost only makes sense when the measure of cost being considered is 'full accrual cost'. This includes all recurring and capital costs, including depreciation and some measure of the cost of capital employed to produce a particular good or service (Robinson, 1998a, p. 22). That this is so means that full accrual costs captured by an accounting and reporting system are contingent on a range of factors, including the valuation of assets (which feeds into depreciation and capital charges) as well as the assumed cost of capital.

This line of argument has been taken up by other authors who demonstrate, both empirically and analytically, that these choices, far from improving the accuracy and usefulness of cost estimates as asserted, may have the opposite effect, in the process generating poor quality investment and resource allocation decisions (Carlin, 2000; and Johnstone, 1999). Even some of the most entrenched supporters of the public sector accruals ideal have acknowledged these arguments as 'very powerful' (Rowles, 2002, p. 358).

If the critical rejoinder to normative claims made by proponents of public sector accrual accounting has been relatively weak, what has been the nature of the large quantity of literature, much of it 'critical', devoted to the subject of public sector accrual accounting? Examination of three distinct streams of papers will suffice to provide an answer to the question.

The first focal point for examination rests on the apparently interminable argument fought out in the journals over the past decade in relation to the problems of accounting for heritage and similar assets. Writing in 1981, Robert Mautz pondered whether or not monuments, reserves, parks, roads and other physical and social infrastructure of the same ilk ought best be thought of as liabilities, rather than assets, because of the stream of cash outflows required to maintain and service them across time (Mautz, 1981). Almost a decade later, the same author lamented that his earlier contribution had not generated any significant comment or debate (Mautz, 1988). By the early 1990s, a small group of authors had begun to take serious interest in the difficult questions posed by heritage, cultural and scientific 'assets' within the public sector context (e.g. Pallot, 1990). These early contributions stressed the need to carefully consider evaluating heritage, cultural and scientific 'assets' according to different criteria than those used to measure and recognise conventional financial and physical assets.

A diametrically opposed response was not long in the making. This view asserted that private sector organisations had long controlled substantial collections of cultural, scientific and heritage assets, and had accounted for those assets in a manner consistent with accounting treatments adopted in relation to more conventional asset classes. That being so, there could be no reason, especially given the beginnings of moves towards accrual accounting (already in place by that time in New Zealand and in the process of implementation in New South Wales), why accounting for public sector assets of that ilk could not proceed commensurately with the private sector experience (Rowles, 1991). This approach informed the essence of a discussion paper on the subject published by the Australian Accounting Research Foundation the following year (Rowles, 1992).

Sceptical voices soon emerged, a comprehensive critique of the official position being published by Carnegie and Wolnizer in 1995 (Carnegie and Wolnizer, 1995). These authors argued that to require comprehensive recognition of heritage, scientific and cultural collections as assets was flawed, because these items did not meet the definition or recognition criteria for assets set out in the (Australian) conceptual framework. Further, recognition and valuation of these items would offend the cost benefit trade-off for financial information made explicit in *SAC 3*, there being no identifiable users for the information. Finally, the authors argued, since the mission of government agencies with respect to cultural, heritage and scientific assets is 'to be' and 'to hold' rather than 'to do business', to engage in commercial style recognition and valuation would result in an information set fundamentally at odds with the core purpose of the agency to which the (offending) financial report related.

'Official' voices were quick to respond, suggesting that recognition and valuation of cultural, heritage and scientific assets, far from offending the core values of public sector organisations, was central to maintaining and furthering those values (Hone, 1997), that there were indeed demands for valuation data pertaining to these assets (Vic PAEC, 1995), and that neither the definitional or recognition requirements for assets according to the conceptual framework were offended as a result of the valuation and incorporation of cultural, heritage and scientific collections into the statements of financial position of public sector entities (Micallef and Peirson, 1997).

Delving into the issue at successively deeper levels of intricacy, the main protagonists have continued, since the mid 1990s, to stand firm to their originally stated positions, hurling literary missiles, and missiles against one another's missiles (Carnegie and Wolnizer, 1996; 1997, 1999 and 2002; Micallef and Peirson, 1997; and Stanton, 1997 and 1998), in a debate which does not appear to be any closer to a satisfactory resolution now than at the time it commenced.

A second example stems from an examination of the stream of literature concerning the question of whether it is appropriate that the conceptual framework for accounting which governs financial reporting in private sector contexts be imported without modification into public sector settings. While the origins of this debate may be traced back to at least the late 1970s (Anthony, 1978), a significant quantity of literature devoted to the question was published from the mid 1990s onwards. Two fundamentally opposed schools of thought have emerged. The first leans towards what might be described as 'sector neutrality', the idea that one conceptual framework, and thus one essential body of accounting and reporting rules ought to function equally well for both private and public sector applications (MacIntosh, 1999; McGreggor, 1999; and Micallef and Peirson, 1997).

The alternative view is that the nature of the public sector is so fundamentally different (because of the different markets within which governments operate, the different objectives of public sector organisations and the differing nature of many of the assets and liabilities of governments and public sector agencies when compared against the private sector), that a different set of rules ought to be implemented to govern accounting and financial reporting in the public sector (Barton, 1999a, 1999b, 2002a and 2002b; and Carnegie and Wolnizer, 1999). As with the debate on heritage, cultural and scientific assets reviewed above, the public sector conceptual framework debate shows signs of heightening rhetoric (recent contributions speaking of the outrage, vehemence, and demonisation of others' positions displayed by authors of opposed views (Barton, 2002b)), but little sign of resolution.

The 'accruals as a rhetorical device' literature forms the basis for a third example. This collection of papers argues against the wholesale introduction of commercial style accrual accounting into the public sector largely on the grounds that the *raison d'etre* of accounting in private sector settings is fundamentally and irreconcilably different than in public sector settings. Authors who have adopted this line of argument suggest, for example, that the key focal objects of private sector accounting, namely profitability, solvency and capital structure wither into irrelevance in public sector settings (Aiken and Capitano, 1995; McCrae and Aiken, 1994; and Ma and Matthews, 1992 and 1993). This fundamental mismatch between the core objects of accounting technologies appropriate to private sector applications and techniques pertinent to public sector settings suggests firstly that the widespread decision to adopt accrual accounting within the public sector has been grounded in rhetoric rather than reality and secondly, following on from this, that it may have been adopted as part of a broader agenda (Guthrie, 1998).

At first glance these three streams of literature may seem irreconcilable, save for the trivial observation that they all touch on, in one form or other, debates which concern public sector accounting and financial reporting. However, a common element of each is the degree of introspection which they exhibit, and the lack of a framework they offer for understanding accrual accounting in the public sector in its new internal context. Thus debates about accounting for cultural, heritage and scientific assets, appropriate conceptual frameworks and implementation rhetoric versus reality, whilst executed with eloquence and stamina, have not resulted in a materially improved capacity to comprehend the impact of accrual accounting systems in place in public sector settings.

That this has been so may be attributed to several factors, including the highly technical and semantic focus of many of the (reviewed) contributions to the public sector accounting literature, but also the comparative recency of some novel additions to the public financial management constellation, in particular the construction of credible markets and quasi markets for goods and services traditionally produced monopolistically by public sector agencies, the implementation of accrual output based budgeting and the introduction, in some jurisdictions, of capital charging. These represent fundamental contextual transformations, and suggest the need for a broadened analytical perspective.

This is not to derogate from the contribution made by the pre-existing literature. Debates about conceptual frameworks, the nature of public sector assets and liabilities, the match or mismatch between the goals and objectives of public sector organisations and their adopted modes of representing and managing their financial positions have been and remain important. However, there is a growing recognition that a vital, though to this point under-researched question has been as to the impact of the public sector pulling on new financial management clothing, such that there is a strong outward resemblance to commercial enterprise management and reporting systems, when inwardly, fundamental differences remain (Newberry, 2001 and 2002). It is to concerns such as these that the paper turns in the fourth section, by setting out an alternative theoretical lens through which to view the nature and impact of public sector applications of accrual accounting and financial reporting.

AN ALTERNATIVE THEORETICAL LENS

The broad sweep of public sector accrual accounting literature surveyed in this paper has largely displayed most concern for the detailed, technical dimensions of reforms, rather than how the impact of these reforms interacts with simultaneous and subsequent changes to public management regimes which have been implemented over the past decade. Thus authors agonise about whether a museum collection constitutes an asset in any meaningful sense, or whether a particular set of conceptual guidance principles apply equally well in one sector of the economy as in another, but pay scant attention to the position of accrual accounting within an overall composite reform architecture.

Ultimately, whether accrual accounting is the 'appropriate' technology for the public sector or not is hardly a question likely to yield useful research results as time goes forward. Governments throughout the world have expended considerable sums in studying, implementing and expanding the ambit of accrual accounting and reporting throughout the public sector (Jones and Puglisi, 1999). They are unlikely to dismantle this infrastructure in the short to medium term. However, changes to the assumptions made within the existing infrastructure may be made at a far lower cost. Therefore, a study of actual implementations of accrual systems already in place is not a pyrrhic activity, since though public sector accrual accounting and reporting systems appear likely to be a persistent rather than transient phenomena, the internal assumptions required to drive these systems need not be.

It has been observed that far more fiction has been created in the realm of financial reporting as a result of zealous adherence to prevailing accounting standards, than by blatant rejection of generally accepted accounting principles (Clarke et al., 1997, p. 18). In a similar vein it seems plausible to observe that far more confusion as to identity and purpose has been created as a result of the cloaking of the public sector in the same financial reporting fabric, that of accruals, as worn in the commercial realm.

Earlier literature has insisted that the application of accruals technology to the public sector is inappropriate because of the fundamentally differing objective sets of the public versus the private sector (e.g Guthrie, 1998). That may be so, but a more important consideration, at a pragmatic level, is that once similar technologies are adopted by one sector of the economy as another, a significant barrier to surface level analytical comparability has been demolished. The 'sameness' which has been achieved between accounting and reporting standards in the public and private sectors is itself a powerful rhetorical tool, but one which may lead to confused and suboptimal outcomes.

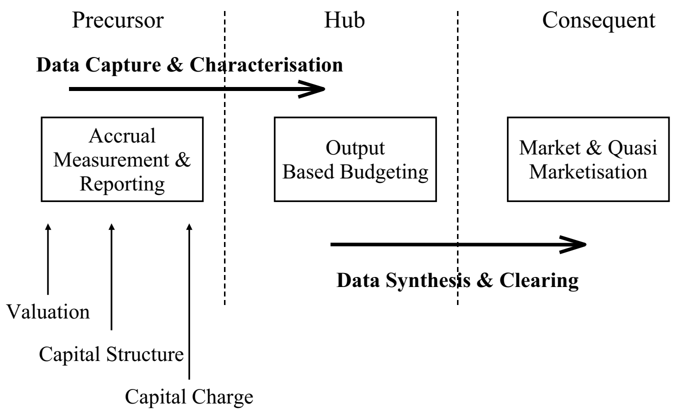
As discussed above, the adoption of accrual based accounting and reporting has not been an end in itself (Mellor, 1996). Rather, the role and impact of accrual accounting is better understood as forming one part of an interconnected chain of reforms to public financial management techniques. A depiction of these interconnections is set out in Figure 1.

Viewed in this way, the changes to public sector financial management which have occurred over the past decade may be classified as falling into one of three categories. The first category consists of 'precursor' reforms, so called because the adoption of such techniques is a necessary precondition to the subsequent implementation of a range of other techniques. Accrual measurement and reporting fits into this category. The recording and reporting apparatus acts as a feeder mechanism for the second category of reforms, here labelled 'hub' reforms. The 'hub' technique of accrual output based budgeting (AOBB) lies at the centre of the new public financial management environment. It characterises all activities carried out by public sector agencies as the production of outputs measurable both in terms of their physical and financial dimensions (Carlin, 2003b).

The implications of this new financial calculus are profound. Since public management now revolves around choices as to which mix of outputs to purchase in the pursuit of a range of policy defined outcomes, the locus of production becomes an object of indifference. Thus the hub reforms, having reconceptualized the product of public sector agencies in terms of definable

Figure 1

The Public Financial Management Reform Environment



outputs with known cost functions, transmit these data into the third (consequent) layer of the public financial management reforms, the markets and quasi markets within which outputs are traded. This architecture fits well with the vision of competitive neutrality between the public and private sector mapped out, for example, in the national competition policy adopted by Australian governments during the 1990s (Hilmer, 1993; and Industry Commission, 1996).

Recall that neither the 'hub' nor the consequent markets and quasi markets for outputs can function without a precursor data feeder system, in this case accrual financial accounting and reporting. It therefore follows that the output costs calculated within the AOBB and transmitted into output markets will be sensitive to assumptions made within the accrual accounting reporting system, for example in relation to asset value and depreciation schedules.

A naïve analysis of public sector financial management arrangements prevailing in jurisdictions in which accrual based accounting and reporting has been adopted may lead to the conclusion that one result is directly comparable with the financial dimensions of private sector organisations. The inherent logic of this train of thought is that if the underlying financial data system is the same in both segments of the economy, then the product of the system, for example output cost data must also be directly comparable.

However, this argument is rendered absurd when it can be demonstrated that there are fundamental differences in the assumptions inherent in accrual accounting and reporting as practiced in the private versus the public sector, and that these differences in accounting policy choice have, or have the potential to have, a material impact on the measurement of the financial position and performance and efficiency of public versus private sector entities. This possibility is tested by reference to a case study on financial reporting by Victorian public sector agencies compared against a sample of Australian listed corporations, reported below.

AN EMPIRICAL EXAMINATION OF THE VICTORIAN POSITION

Though flirted with briefly but quickly discarded by the private sector (Clarke, 1982 and 1998; Tweedie and Whittington, 1984 and 1987; and Whittington and Pong, 1996), asset valuation based on current replacement cost has flourished in Australian public sector settings. This single factor represents a significant barrier to comparability between the financial statements and apparent efficiency of public and private sector organisations, even though they are using ostensibly the same accounting and reporting methodologies and structures.

The State of Victoria is used[10] as a case study to illustrate the impact that this differential approach to asset valuation can have on comparative financial analysis. Table 2 sets out data on the proportion of non-current physical assets controlled by Victorian government departments[11] between 1998[12] and 2001[13] which were measured and reported in departmental statements of financial position at written down historical cost. The data clearly reveal a bias away from the use of historical cost as the prime asset valuation methodology employed across Victorian government departments.

On average, across the eight departments for the four years studied, approximately 70% of assets were valued at other than historical cost. The predominant alternative measure used was replacement cost. The extent to which this practice

Table 2

Per Cent of Physical Non-current Assets at Historical Cost – Victorian Government Departments

	1998 %	*1999* %	*2000* %	*2001* %	*Period Av.* %
Education	16.50	18.48	19.95	20.70	**18.91**
Human Services	9.50	11.60	9.60	8.50	**9.80**
Natural Resources & Env.	25.08	20.14	7.80	8.60	**15.41**
Justice	19.14	31.69	16.91	17.03	**21.19**
Infrastructure	51.73	22.18	54.65	38.10	**41.67**
State & Regional Development	52.51	71.60	44.89	57.24	**56.56**
Premier & Cabinet	11.93	25.18	26.49	11.49	**18.77**
Treasury	69.67	66.21	75.52	59.42	**67.71**
Period Average	**32.01**	**33.39**	**31.98**	**27.64**	**31.25**

differs from that adopted by private sector organisations may be gauged by even a brief examination of the data reported in Table 3.

The data set out in Table 3 provides evidence of a systematic and persistent preference for the use of historical cost measures by private sector entities. This may be explained in part by the likelihood that the adoption of historical cost accounting is likely to result in higher apparent rates of return on assets and earnings per share[15] than would be achieved were asset valuation techniques which tended to inflate asset values[16] adopted. In addition, prevailing applicable accounting standards which touch on the question of the valuation of non-current physical assets take a relatively permissive stance, allowing extensive use of historical cost accounting by private sector reporting entities.[17]

That the adoption of replacement cost valuation methodologies by public sector entities has had the effect of inflating the size of the balance sheets of public sector balance sheets when compared against their private sector peers is able to be demonstrated by comparing the proportion of total assets made up of asset revaluation increments in both sectors. Data for Victorian government departments is set out in Table 4.

Note that on average, across all Victorian government departments for the four year period studied, asset revaluation increments represented 12.27% of

Table 3

Per Cent of Physical Non-current Assets at Historical Cost – ASX Listed Companies Sample[14]

	1998 %	*1999* %	*2000* %	*2001* %	*Period Av.* %
Aristocrat	83.51	88.72	89.96	82.06	**86.06**
Amcor	81.80	83.60	82.70	100.00	**87.03**
Coca Cola Amatil	94.10	94.48	71.40	75.60	**83.90**
Coles Myer	93.62	92.10	92.30	92.80	**92.71**
CSR	76.10	75.70	76.98	80.10	**77.22**
Fosters	33.90	42.02	100.00	100.00	**68.98**
Fairfax	92.67	94.52	80.53	100.00	**91.93**
James Hardy	81.45	73.35	76.83	84.10	**78.93**
Mayne	70.50	47.61	53.74	30.10	**50.49**
News Corporation	99.70	99.70	99.80	100.00	**99.8**
Publishing & Broadcasting	83.70	96.98	97.16	97.30	**93.79**
Qantas	81.62	87.40	100.00	100.00	**92.26**
Southcorp	73.40	76.20	78.10	100.00	**81.93**
Tabcorp	100.00	100.00	100.00	100.00	**100.00**
Wesfarmers	81.56	80.67	100.00	100.00	**90.56**
Woolworths	82.40	86.60	100.00	100.00	**92.75**
Period Average	**81.88**	**82.48**	**87.47**	**90.13**	**85.52**

Table 4

Asset Revaluation Reserve Percentage of Total Assets – Victorian Government Departments

	1998 %	*1999* %	*2000* %	*2001* %	*Period Av.* %
Education	3.00	5.88	10.03	13.79	**8.18**
Human Services	28.05	29.04	59.66	55.08	**42.96**
Natural Resources & Env.	11.78	28.43	31.34	31.16	**25.68**
Justice	1.15	1.03	7.12	5.66	**3.74**
Infrastructure	2.56	4.66	1.96	7.03	**4.05**
State & Regional Development	0.00	0.00	12.76	6.96	**4.93**
Premier & Cabinet	3.18	2.78	2.99	5.22	**3.54**
Treasury	3.47	3.18	3.66	9.84	**5.04**
Period Average	**6.65**	**9.38**	**16.19**	**16.84**	**12.27**

total reported assets,[18] as opposed to the whole of period average of 2.58%[19] for the sample of comparator listed companies, as set out in Table 5.

A combination of the comparisons between the Victorian government departments and the sample of private sector entities on the dimensions of asset

Table 5

Per Cent Asset Revaluation Reserve Per Cent Total Assets – ASX Listed Companies Sample

	1998 %	*1999* %	*2000* %	*2001* %	*Period Av.* %
Aristocrat	0.20	0.16	0.13	0.08	**0.14**
Amcor	6.69	6.31	5.14	2.05	**5.05**
Coca Cola Amatil	0.00	4.86	5.26	0.37	**2.62**
Coles Myer	6.30	5.16	4.98	4.91	**5.34**
CSR	0.00	0.00	0.00	0.00	**0.00**
Fosters	6.05	6.50	4.28	2.36	**4.80**
Fairfax	0.09	0.30	0.23	0.22	**0.21**
James Hardy	0.00	0.41	0.25	0.22	**0.22**
Mayne	0.00	0.20	0.00	0.00	**0.05**
News Corporation	6.08	5.83	4.79	3.70	**5.10**
Publishing & Broadcasting	11.48	7.00	6.58	6.82	**7.97**
Qantas	5.10	4.70	4.40	4.20	**4.60**
Southcorp	2.91	2.38	4.51	2.25	**3.01**
Tabcorp	0.00	0.00	0.00	0.00	**0.00**
Wesfarmers	0.63	0.58	0.45	0.00	**0.55**
Woolworths	2.07	1.80	1.54	1.46	**1.72**
Period Average	**2.98**	**2.89**	**2.66**	**1.79**	**2.58**

valuation choice and relative balance sheet inflation leads to the expectation that among public sector entities, depreciation charges as a proportion of total expense would also be higher than that observed for the private sector sample. This stems from the expectation that higher overall asset values will generally lead to higher period depreciation expenses. This expectation is borne out in the data, as demonstrated by Tables 6 and 7.

The data in these tables should be interpreted carefully. First, note that on average, across the four year period under study, depreciation expense represented 4.38% of the total expenses of the Victorian government departments, as opposed to 3.48% of the total expenses of the selected sample of private sector entities. This difference is in the direction expected. However, there are reasons to believe that the magnitude of the observed difference may, for a variety of reasons, fail to capture the full extent of relative distortions to measures of financial performance brought about by differing depreciation charges in public versus private sector entities.

One source of difficulty arises from the nature of the sample of private sector entities used. These were not chosen because of their inherent balance sheet or asset valuation choice characteristics, but rather, on the basis of their large market capitalisation. As a result, most of the private sector entities included in the research sample are capital intensive businesses, whereas certain of the Victorian government departments (e.g Treasury, Premier & Cabinet) are almost purely administrative in their activities and would therefore be better compared against private sector entities drawn from the 'services' sector.[21]

Despite this, the observed differences are instructive. The private sector businesses which form the comparator sample are, as noted, capital intensive businesses. On the other hand, if a two point categorisation model, characterised by 'capital intensive' organisations on the one hand and 'non-capital intensive'

Table 6

Depreciation Expense as Per Cent of Total Expense[20] – Victorian Government Departments

	1998 %	*1999* %	*2000* %	*2001* %	*Period Av.* %
Education	6.57	6.15	4.73	4.46	**5.48**
Human Services	12.41	9.05	8.55	9.06	**9.77**
Natural Resources & Env.	3.56	4.38	3.77	3.64	**3.84**
Justice	4.27	3.49	2.84	2.96	**3.39**
Infrastructure	0.55	0.22	0.17	0.18	**0.28**
State & Regional Development	2.42	3.42	3.56	3.01	**3.10**
Premier & Cabinet	4.89	4.84	6.82	5.54	**5.52**
Treasury	2.55	8.46	1.76	1.96	**3.68**
Period Average	**4.65**	**5.00**	**4.03**	**3.85**	**4.38**

Table 7

Depreciation Expense as Per Cent of Total Expense – ASX Listed Companies Sample

	1998 %	*1999* %	*2000* %	*2001* %	*Period Av.* %
Aristocrat	2.09	2.33	2.35	2.28	**2.26**
Amcor	3.31	3.21	2.84	3.42	**3.20**
Coca Cola Amatil	5.33	5.07	5.59	3.33	**4.83**
Coles Myer	1.76	1.78	1.79	1.90	**1.81**
CSR	4.51	4.68	4.43	5.15	**4.69**
Fosters	2.02	3.78	3.30	3.71	**3.20**
Fairfax	6.60	7.04	5.37	5.25	**6.07**
James Hardy	3.90	4.97	5.14	4.77	**4.70**
Mayne	3.28	2.65	3.24	3.05	**3.06**
News Corporation	2.21	2.52	2.30	2.75	**2.45**
Publishing & Broadcasting	1.40	1.35	3.98	3.29	**2.51**
Qantas	4.03	3.67	3.56	4.38	**3.91**
Southcorp	3.97	3.77	4.29	2.90	**3.73**
Tabcorp	3.91	3.67	4.97	4.88	**4.36**
Wesfarmers	3.75	3.75	3.46	3.47	**3.61**
Woolworths	1.19	1.30	1.28	1.31	**1.27**
Period Average	**3.33**	**3.47**	**3.62**	**3.49**	**3.48**

organisations on the other were to be adopted, then given the service orientation of the public sector entities as opposed to the product orientation of the private sector entities, the former would most likely be classified as 'non capital intensive'. It is therefore surprising that despite the capital intensity of the private sector organisations, the depreciation charges of the less capital intensive public sector organisations are observed to be larger in magnitude. This strengthens rather than diminishes the credibility of the direction of the observed differential in relative depreciation expense.

A second difficulty in interpreting relative depreciation expense data is that depreciation expense, quite apart from being a product of choices made with respect to asset valuation, is also a product of choices made with respect to other variables, most significantly the period of time over which the depreciation is to proceed. Material differences in adopted timing regimes might also confound the results. In order to test for this, the implicit aggregate depreciation periods of the public sector and private sector entities were also calculated.[22] These are set out in Tables 8 and 9.

Again, the results of this analysis are instructive. Note that the observed implicit total depreciation period for the Victorian government departments was, on average over the period of the sample, approximately twice the rate observed for the sample of private sector entities. This means that the private

Table 8

Implicit Total Depreciation Period (Years) – Victorian Government Departments

	1998	*1999*	*2000*	*2001*	*Period Av.*
Education	24.27	23.36	30.86	32.15	**27.66**
Human Services	66.67	72.46	76.34	76.92	**73.10**
Natural Resources & Env.	50.25	97.09	117.65	112.36	**94.34**
Justice	17.42	20.37	27.03	24.27	**22.27**
Infrastructure	10.83	15.34	25.71	30.49	**20.59**
State & Regional Development	6.85	5.06	5.91	8.87	**6.67**
Premier & Cabinet	13.09	21.28	40.32	40.49	**28.79**
Treasury	22.42	18.80	16.21	17.45	**18.72**
Period Average	**26.48**	**34.22**	**42.50**	**42.88**	**36.52**

sector entities are, on average, depreciating their assets at close to twice the rate at which the Victorian government departments are engaging in the process. Despite this, as set out in Tables 6 and 7 above, the level of depreciation expense relative to total expense in the Victorian government departments was higher than that observed for the private sector entity comparator sample.

This suggests that if the public sector implicit total depreciation period were reduced to a level comparable with that observed for the sample of private sector

Table 9

Implicit Total Depreciation Period (Years) – ASX Listed Companies Sample

	1998	*1999*	*2000*	*2001*	*Period Av.*
Aristocrat	5.09	5.41	5.63	6.76	**5.72**
Amcor	18.25	16.98	12.17	17.42	**16.20**
Coca Cola Amatil	10.40	12.12	10.43	8.48	**10.36**
Coles Myer	8.44	8.50	8.31	7.70	**8.24**
CSR	14.08	14.18	12.25	12.94	**13.37**
Fosters	18.90	21.14	20.58	21.69	**20.58**
Fairfax	8.40	7.02	8.33	10.42	**8.54**
James Hardy	13.04	12.48	11.11	16.03	**13.16**
Mayne	11.38	11.67	9.85	10.75	**10.91**
News Corporation	15.17	10.50	12.63	10.89	**12.30**
Publishing & Broadcasting	140.85	142.86	16.39	16.37	**79.12**
Qantas	18.42	20.83	20.88	16.72	**19.21**
Southcorp	12.52	12.45	13.76	8.44	**11.79**
Tabcorp	3.78	4.97	12.41	10.56	**7.93**
Wesfarmers	12.55	11.60	13.44	10.54	**12.03**
Woolworths	8.68	8.76	8.17	7.75	**8.34**
Period Average	**20.00**	**20.09**	**12.27**	**12.09**	**16.11**

entities, the gap between relative depreciation in both sectors would widen further. As it stands, even with a retarded depreciation function, the effect of heightened asset valuation in the public sector dominates to produce higher depreciation expense functions, and therefore a higher period by period total entity cost function. This suggests a flow through impact to the estimation of output costs, and therefore, a direct impact on a variety of resource allocation decisions, including those relating to outsourcing.

CONCLUSION

A central tenet of the arguments contained within this paper is that the adoption of accrual accounting and reporting by public sector entities must be analysed at more than an introspective, techno-centric level. This is because the implications of the adoption of such a technology into the inventory of public sector financial management techniques range far beyond the fact of consequential changes in reporting format and content.

By conceptualising public sector accrual accounting as part of a chain of linked reforms, it is possible to extend debates about public sector accrual accounting such that they yield insights not just into the nature of accounting, but also into the consequences for subsequent decision making and resource allocation of the employment of accounting tools in particular ways. While the conceptual analytical framework suggested in this paper demonstrates the linkages between accrual accounting and other reforms which have been a feature of the changing public financial management landscape over the past two decades, the empirical data analysed in the paper clearly suggests that the introduction of accrual accounting to the public sector may not be neutral in its impact.

This is in direct contrast to the common contention on the part of public sector accruals protagonists that a chief rationale for the adoption of accrual techniques within the public sector is the promotion of a more seamless capacity to compare the financial dimensions of public sector organisations with those of private sector enterprises (MacIntosh, 1999; McGreggor, 1999; and Micallef and Peirson 1997). As the data reviewed in the previous section demonstrates, one impact of the introduction of accrual accounting in the Australian state of Victoria has been to introduce an upwards bias to the assessed total cost function of government departments operating in that jurisdiction, relative to the apparent total cost functions of potential competing providers of goods and services from the private sector. Of course, it is not possible to conclude on the basis of this one case study that each implementation of accrual accounting and reporting techniques within the public sector will share similar characteristics, though at least in an Australian setting there is some evidence to suggest that the use of inflationary asset valuation techniques is endemic across the variety of jurisdictions which go to make up that nation state (Carlin, 2000).

The point is not so much that the data from the Victorian case study suggest that inflationary asset valuation techniques may have led to increased accrual charges against the operating statements of Victorian public sector agencies and thus potentially higher assessed cost of output production than would have been the case had underlying accounting conventions more akin to those implemented by potential private sector output providers been used. Rather, it is that what counts is not so much the fact of the existence of an accrual accounting and reporting system, but its content – in particular the norms and assumptions without which no such system can exist.

While at a headline level one accrual system looks much like another, and while systems of regulating the content of financial reports may cross boundaries between the public and private sectors, it does not follow from this that systematic differences will not arise between the assumptions and conventions used to actually drive the machinery of the accounting system in public and private sector settings. Indeed, the data set out in the previous section provides evidence of such systematic differences and the nature of their impact.

This inevitably gives rise to questions as to the root cause of these differences, if and where they do in fact exist. A sanguine view of affairs is that the types of differences noted and discussed in the previous section arise either serendipitously, or alternatively, through the naivety of the actors involved in the implementation of public sector accrual accounting and financial reporting systems. Given the systematic nature of the data set out in the previous section of this paper, at least in relation to the question of asset valuation choices, serendipity hardly seems a satisfying explanation. Likewise, given the enormous resources which have been devoted by governments around the world towards the task of designing and implementing accrual reporting systems, suggestions of naïve system architecture also seem an unappealing explanation of affairs.

An alternative explanation is that differences such as those observed in the case of the data examined in the previous section exist because the architects of public sector applications of accrual accounting systems intend them to be in existence and that they serve a premeditated purpose. In the case of the data set out in the previous section of this paper, one conclusion might be that the agenda served is a form of privatisation by stealth, because the accrual accounting assumptions systematically bias public sector output costs upwards when compared against private sector alternatives. At this stage, the logic of the accrual output based budgeting system takes over to purposely shift economic activity from one sector to another. In the context of studying public financial management reforms in other settings, similar conclusions have been reached by other authors (e.g Newberry, 2002).

No doubt this question of difference causation will echo through the literature for some time to come, and it is not possible to resolve the question one way or another here. In any event, the better view is that a spectrum of different reasonable explanations for the types of implementation differences discussed in the previous section exists, bounded at one end by happenstance and at the other by calculation. The issue of central importance is that the purposive design of public sector accrual accounting systems as tools for the hollowing out of the public sector and as agents of ideologies which laud smaller government is a reality which researchers must take account of with far greater intensity than the pre-existing literature on public sector accrual accounting suggests has been the case in past.

In particular, analysis of public sector applications of accrual accounting and financial reporting through the alternative theoretical lens discussed in the fourth section of this paper should assist researchers in taking a more directed and systematic view of the potential decision consequences of actual public sector accrual implementations in a wider variety of different institutional settings than has appeared to be possible given the narrower and more technocentric tradition into which much of the extant literature on the subject falls.

NOTES

1 There are other examples of this. For example, commercial style accounting was used in nationalised industries in the United Kingdom from the 1950s onwards.

2 There had of course been a more wide ranging contemplation of the issue than is necessary to catalogue here. For example, in 1978, the New Zealand Comptroller and Auditor General had advocated accrual accounting as a means of improving cost and asset management (NZ Audit Office, 1978).

3 Though not necessarily accrual budgeting systems.

4 Holding aside the case of nationalised industries which had used commercial accounting techniques over an extended period.

5 A term of the art used in the United Kingdom which encompasses, amongst other things, the adoption of an accruals framework.

6 Even at that stage, the OECD did not regard Canada as having a full accrual system. The OECD regards Canada's system as partial accrual because of the tendency to expense rather than capitalise long lived assets in that jurisdiction (OECD, 2002).

7 Generally there is little specification as to the cause of the asserted superiority. It is almost as if, for certain authors, the proposition is so obvious that it speaks for itself (a case of *res ipsa loquitur*).

8 Walker (1988) represents a clear exception.

9 The analysis provided by Walker et al. is not directly on point for the purposes of this paper, because it concentrates on Government Trading Enterprises (GTEs). There has been little controversy about the applicability of accrual models of accounting by GTEs.

10 Victoria is chosen as the object of study for several reasons. First, it was an early adopter of a range of public financial management reforms, meaning that at the time of writing, adequate quantities of historical, post implementation data is available for scrutiny and analysis. Second, the structure of Victoria's public sector has remained relatively static over an extended period. This means that analysis can proceed without the obfuscating effect of departmental amalgamations, integrations, reorganisations and so on. The overarching departmental structure has remained essentially unchanged over the period studied.

11 There are 8 main departments, data for all of which is reported and analysed in this paper.

12 By 1998 all Victorian Government departments had adopted full accrual accounting and reporting.

13 The most recent period for which data is available as at the time of writing.

14 As at 30 June, 2001, the aggregate market capitalisation of the Australian Stock Exchange (ASX) was AUD $730 billion. Of this, mining and resources stocks were capitalised at $104.8 billion, and Financial Services and Insurance stocks were capitalised at AUD$267.8 billion, leaving $357.4 billion in manufacturing and other services. The market capitalisation of the selected

sample of stocks (drawn from the Standard & Poors ASX 50 index was $110.7 billion, representing 31% of the non-mining and financial services market capitalisation of the ASX. The financial characteristics of mining and resource stocks (by reason of high infrastructure investment) and financial institutions (leverage) differ significantly from other businesses and from public sector agencies. These were therefore excluded from the selected sample, which includes only stocks drawn from the manufacturing and services sector. Though small in absolute numbers (there were 1,382 stocks listed on the ASX as at 30 June, 2001) the large share of relevant aggregate market capitalisation embodied by the sample provides comfort as to the generality of conclusions reached on the basis of observations drawn from the sample.

15 Via lower depreciation charges.

16 And thus diminish return on assets, as well as EPS by way of heightened depreciation charges.

17 See *Australian Accounting Standard AASB 1041*, *Revaluation of Non Current Assets* (Australian Accounting Standards Board). Furthermore, Australian Stock Exchange listing rules do not contain prescriptions in relation to the question of asset valuation.

18 With a minimum of 3.54% and a maximum of 42.96% across the 4 year study period.

19 Minimum value 0.00%, maximum value 7.97% across the 4 year study period.

20 Total expenses reported by Victorian government departments were modified for the purposes of this calculation. In most years under study, most Victorian government departments made grants, often material in size, to other entities, which then used those grants to deliver goods and services. There are no analogous expenses in the statements of financial performance of private sector entities. Therefore, on the basis that these were 'administered' rather than 'entity' expenses, these were excluded from the total quantum of expenses used for making the calculations set out in Table 6.

21 Unfortunately there are relatively few pure services businesses which maintain direct listings on the ASX, and those whose shares are listed for quotation tend to be small in terms of market capitalisation.

22 The reciprocal of depreciation divided by total expense is a raw measure of the total period of time which it would take to write down the entire asset base of the entity to zero, assuming no replacement and a constant period depreciation function.

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