The Financial Performance of Australian Government Trading Enterprises Pre- and Post-Reform*

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Abstract

During the 1990s there were several measures introduced to improve the efficiency and financial performance of government trading enterprises in Australia. The purpose of this paper is to discover whether there has been any change in the financial performance of government trading enterprises operating in electricity, gas, water, railways and ports industries as a result of these changes. There does not appear to have been a noticeable enhancement in the financial performance of most of these businesses, although railways have improved slightly, from a low base.

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1. Introduction

During the 1990s there were several measures introduced to improve the efficiency and financial performance of government trading enterprises in Australia. These included privatisation, corporatisation, mergers or divestures. The purpose of this paper is to discover whether the reforms adopted by Australian governments during the 1990s delivered an improvement in the financial performance of government trading enterprises by comparing different measures of financial performance before and after the reforms took place.

A range of factors, including geography, politics and the nature of the market, has shaped the extent of reform, and no industry in which government trading enterprises operate has remained untouched. The reforms have ranged from division and sale, to corporatisation, to regulatory changes that have allowed other entrants into the market. Any social objectives that the business is expected to fulfil (community service obligations) are priced separately and funded directly from the relevant state government. By removing the requirement to cross-subsidise certain classes of customer and by forcing enterprises to concentrate on commercial interests, it is presumed that these businesses will have a greater incentive to increase efficiency so as to reduce costs and improve profitability. The relationship between the rate of return and efficiency is discussed further below.

The following sections review reforms that have been undertaken by various governments and examine their relative financial performance. Although it would be ideal to look at financial performance, service delivery and environmental impact all at the same time, the data available on service delivery are (at best) fragmented, and those available for environmental impact are practically non-existent. Financial performance measures are chosen because, if reforms have been undertaken to encourage private enterprise behaviour, a useful measure would be rate of return indices that are readily available and widely used to examine private enterprise performance. Two profitability (return on assets and return on equity) and three financial management (total liabilities to equity, current ratio and interest cover) measures are reported.¹ Financial measures provide the most readily comparable performance variables available that allow a comparison of public and private enterprises. The return on assets measures the profit generated by the total assets employed by the business, regardless of how these assets have been financed. In comparison, return on equity

¹ See the Appendix for definitions of the financial performance measures used here.

measures the rate of return that the business is generating from shareholder investment (Feeny and Rogers, 1998). The relationship between efficiency and the rate of return can be thought of in the following way. The first-best social welfare outcome is one in which the market clearing price is equal to marginal cost—in a perfectly competitive product market, this coincides with private interests (Bertram, 1996, p. 89; Tirole, 1988, p. 16). For the most part however, government trading enterprises do not operate in a perfectly competitive environment, and are more likely to adopt pricing strategies that bear some relationship to cost, which may or may not reflect either average costs or marginal costs. One method available to policymakers to assist in more closely aligning private and social interests is to make government trading enterprises more financially accountable, such that they are encouraged to increase profitability by either generating more revenue or reducing costs. Improvements in efficiency can affect the profit-based rate of return measures in two ways. First, if an increase in efficiency results in the firm being able to produce more output for a given level of input then (assuming the firm can sell all the extra output and that prices stay prices constant), total revenue will increase. On the other hand, if the efficiency improvement enables the firm to produce the same amount of output using fewer inputs, then total costs will decline, leading to an increase in the rate of return.²

Financial management is also an important part of the financial performance of a business. Total liabilities to total equity are used here as a proxy for the debt to equity ratio, which indicates the risk associated with the level of borrowing in relation to shareholder equity, be they government or private. The current ratio is measured as the ratio of current assets to current liabilities, and is designed to measure the (theoretical) ability of businesses to meet current debt as it falls due. A ratio greater than or equal to one implies that the business has sufficient current assets to meet current liabilities. Interest cover is designed to measure the ability of business to meet the principal repayments on their debts.

There are a number of issues that arise out of using purely financial measures to gauge the success (or otherwise) of businesses involved in supplying 'necessities' to the community.

² Although rates of return are related to the efficient functioning of the firm, it is not necessarily the case that a flat rate of return reflects no efficiency gains. In this instance, it may be that the firm has passed on the majority of the cost savings to consumers in the form of lower prices. In reality this is unlikely to happen unless the government has regulated to ensure that government trading enterprises pass on cost savings to consumers, or there is enough competition in the market to encourage firms to attract consumers with price reductions.

Community service obligations, alternative incentives and objectives, market power, economies of scale and supplementing government revenue's are all issues that suggest a primary reliance on financial performance measures can be misleading (King and Pitchford, 1998; Waters and Street, 1998). Waters and Street (1998) argue that a measure of total factor productivity should be combined with financial performance measures, but also caution the use of total factor productivity on its own since a good productivity performance can mask a deteriorating financial performance (as per Australian National Railways in the 1980s). More importantly, Waters and Street suggest that accounting measures should not be used to gauge the performance of government trading enterprises, as the book value of the capital stock (used in an accounting rate of return) 'are an unreliable guide to the current market valuation of capital assets' (Waters and Street, 1998, p. 365).

Such sentiments remain (at least for the present) an ideal rather than a reality, especially for comparative purposes. According to the Productivity Commission (2000), most monitored government trading enterprises now report asset values and related expenses in current valuation terms. However, there are still differences in the precise methods used to undertake this, which suggests that encouraging them to improve their measurements that are included in a total factor productivity measure could be even more difficult. Other problems associated with the use of total factor productivity are the need for measuring base period performance and the incorporation of quality changes into the productivity measure, although the latter could manifest itself in an improved financial return (Waters and Street, 1998). Caution must be exercised when making financial performance comparisons across business and over time due to the changes that have taken place over the period under review, which include asset revaluations and debt-equity swaps.

Despite these shortcomings, using financial performance measures as a gauge of how successful reforms to government trading enterprises have been. This is because they are more readily available than other measures, they are widely used in the private sector and they represent an important aspect of the operation of the firm. Sections 3 through 6 examine the financial performance of selected government trading enterprises using information from the ABS, the Productivity Commission and IBIS Business Information, representing businesses from Electricity and Gas, Water, Railways and Port industries.³ The selected

³ Telstra, Australia Post and Airservices Australia are not considered in this analysis. Urban transport is also excluded due to a lack of suitable data.

government trading enterprises are chosen on the basis of whether they have undergone a major structural change in the form of a merger, division, corporatisation or privatisation. Where more than one enterprise has undergone these changes, those with the greatest amount of financial information were chosen to allow meaningful comparisons of before and after performance. Where available, businesses that have not undergone these changes are also chosen as a point of comparison. Section 7 concludes.

2. Reforming Government Trading Enterprises

Government trading enterprises are government-owned businesses engaged in the production of goods and services for sale, where sales revenue or price bears some relationship to cost (Aharoni, 1986, p. 6). Historically, these businesses have been established in response to significant transaction costs, such as contracting costs and insecure property rights, which give rise to natural monopolies. A government assumes control if it is concerned about guaranteeing 'an adequate supply of essential goods and services at reasonable prices' (Aharoni, 1986, p. 4). Additionally, governments may establish government trading enterprises in order to subsidise high-risk markets, as well as for political and distributional goals. An example of this might include the delivery of rail services to rural Australia. Where a government trading enterprise receives special privileges such as subsidized resources and legal protection from competition, it must undertake certain duties, which can include resource preservation, maintaining an uneconomic production facility, or cross subsidisation of customers—'responsibilities that the political process has chosen not to entrust to private firms' (Zeckhauser and Horn, 1989, p. 55).

Over the 1990s there has been a considerable push to review the provision of these types of service.⁴ There are a number of reasons why governments have become more interested in the operation of government trading enterprises. Part of the explanation lies in the changes in technology over the past decade, which has meant that what was once a government-owned monopoly can technically now be operated as a series of separate entities. An example of this is the establishment of the National Electricity Market, which is essentially a power grid covering the Eastern Seaboard of Australia that accepts and transmits power from independently accountable generators all over the east coast.

Another reason is that there has been a change in government philosophy over the past two decades, with governments on both sides of the political fence discussing the benefits of 'small government'. A considerable amount of money can also be made from the sale of various government trading enterprises. In Victoria for example, State government net debt reached a peak of \$31.1 billion in 1993. However, between 1992 and 1999, the sale of the electricity and gas generation, transmission and distribution utilities offset this debt by \$23.5 billion.

There is still the question of how to reconcile the (sometimes) competing aims of providing a subsidised social service with generating a rate of return. Two methods are used to accommodate both goals. The first requires the business to separately price the cost of their community service obligations, for which the government then reimburses them. The second is the introduction of regulations that ensure businesses cannot discriminate between different types of customer.

Several different reform strategies have been chosen; privatisation (for example, the Victorian electricity and gas industry), corporatisation (the most common form of change), mergers (several electricity firms in NSW) and divestures (for example, the split of the State Rail Authority of NSW). The ultimate chosen method has been heavily influenced by the reasons for change, which include reducing the size of government, reducing government debt (usually associated with privatisation) or to make the enterprise more efficient while remaining under government aegis (usually associated with corporatisation).

Although most changes involve breaking up units, there have been several instances where existing government trading enterprises have merged into one operating unit (for example, Illawarra Electricity and Prospect Electricity merged to become Integral Energy Australia). The decision to merge is typically based on organising core competencies into a coherent framework. The standard theory behind mergers is that of economies of scope and/or scale. Economies of scope exist where there are cost-saving externalities between product lines. Economies of scale exist when the cost of producing a single product falls as the number of units produced rises. The idea is that higher levels of production lead to more efficient techniques—and a decline in unit costs—through investment in cost reducing technologies

⁴ During the 1980's there were some reforms that set rate of return targets for government trading enterprises, but it is only in the 1990's that a concerted effort has been made across the Australian States to review the performance of government trading enterprises and to implement complementary reforms.

and worker specialisation (Tirole, 1988). Suppose a firm serves several markets that have imperfectly correlated variable demands. Such a firm would be able to save on peak-load investment, as it faces less uncertainty than several different firms serving these markets independently. It may also save on costs associated with auditing, marketing, personnel service, finance, distribution, materials purchases and R&D (Tirole, 1988, p. 18). More often however, firms have been split up.

The decision to divide a firm into separate entities along core competency lines is based on the principle of shedding those areas of operation that do not fit the overall objective, or at least rearranging so that each unit has a common objective. In a number of cases, this type of separation allows one section of the government trading enterprise to compete in a contestable market, while the other is able to continue operating in a monopoly setting.

Even under changes this extensive, the majority of businesses have remained under government control. More recently, this has typically involved corporatising the government trading enterprise, which in essence is a public sector incentive scheme where the government trading enterprise operates under private enterprise principles (King and Pitchford, 1998). In the belief that government trading enterprises are less accountable to their shareholders than private firms, the current reform agenda has established a national system of performance monitoring to increase accountability for performance. Government trading enterprises have also been exposed to 'yardstick competition' in the belief that providing a basis for comparison would be an 'incentive for managers to improve performance relative to other government trading enterprises and over time' (Productivity Commission, 2000, p. 10). An additional bonus to undertaking such an exercise is that the increase in transparency should improve confidence in the current organizational form and its performance (Zeckhauser and Horn, 1989).

Privatisation is different from mergers, divestures and corporatisation as it involves the entity being removed entirely from the government's books. There are several reasons why this might be an attractive option for government. For those interested in reducing the size of government, it is (arguably) one of the more effective methods in both political and economic terms. If policy-makers believe that private production is inherently more efficient than public production, then privatisation may be expected to increase resource allocational efficiency. The political motivation to privatise is that in giving tangible goods to constituents, it counters any special interest concerns, at the same time as it reduces government spending (Marlow, 1991, p. 273).

Zeckhauser and Horn (1989, p. 55) suggest a number of scenarios where privatisation is potentially the best method of reforming government trading enterprises. A firm is more likely to be 'encouraged' to adopt more efficient work practices if the newly privatised firm is owned by a small number of shareholders because voting rights will not be thinly distributed across a broad spectrum of individuals. On a related point, if there is some perception amongst shareholders that there is a substantial profit to be divided between interested parties, they are likely to work harder to ensure that the business maximises this profit. They consider it unlikely that privatisation will be a useful strategy at the extreme ends of the regulatory and competitive spectrum. Therefore, they suggest that privatisation should only be contemplated in situations 'where a privatised firm would operate relatively freely but enjoy some market power'. Even when it is impossible to sell the entire business (due perhaps to political opposition) efficiency gains may still be made by selling part of the business and allowing shares to be traded (as with Telstra).

However, there are several reasons why privatised firms may not necessarily perform better than government ones. Although government trading enterprises may appear to be underperforming in financial terms relative to private company returns, the fact that such public enterprises have different objectives to private ones does not necessarily make this a useful comparison. It is not necessarily the case that government interference will be reduced either, as regulations may be put in place that limit the operations of private firms, regulations that could generate greater inefficiencies than having the same business run by a government bureaucracy (King and Pitchford, 1998). Nevertheless, several governments have decided on privatisation as the appropriate course of action, and it is the purpose of this paper to see if such changes have delivered.

Regardless of what reforms have taken place, they should lead to measurable effects that can be analysed. For instance, if a merger leads to economies of scale or scope, then the associated cost savings should be reflected in an improvement in the rate of return on either assets or equity. Similarly, if privatisation leads to cost savings (because for example, of a reduction in government bureaucracy) or an ability to easily raise equity finance, then this should manifest itself through an increase in the rate of return combined with a fall in the liabilities to equity ratio. The following sections look at different enterprises in more detail to determine whether the reforms have resulted in changes in financial performance.

3. Electricity and Gas

The electricity and gas industry was established as a series of State owned monopolies (usually including gas and electricity in the one business), able to take advantage of economies of scale and scope. However, as a result of ongoing reform that began in earnest in the early 1990's, the electricity industry—in most States—has been split into generation, transmission, distribution and retail. The general the view is that the generation and retail sectors will operate in a competitive environment, while transmission and distribution will maintain their monopoly status. Gas operations have also been established as separate operations. Restructuring of the electricity industry has been proceeding since 1991, driven by a series of inter-governmental agreements aimed at establishing a competitive national electricity market (Productivity Commission, 2000).

As of May 2001, the National Electricity Market incorporated entities in NSW, Victoria, South Australia, Queensland and the ACT, and provides for a range of activities.⁵ These include a common wholesale market serving interconnected jurisdictions, a single controller despatching generators in the interconnected jurisdictions, customer entitlements to purchase electricity either from the spot market or under contract with a supplier of their choice, and a market settlement function handling spot and forward trading in the market and the contractual requirements of wholesale customers and generators (ABS, 1999, p. 29).

Different State-based tactics have been adopted to implement this reform, and the following offer a selection of what has occurred across the country. In Victoria, the industry has been dominated by the sale of the State Electricity Commission of Victoria to five separate distribution and retail companies—CitiPower, Powercor Australia, United Energy, Eastern Energy and Solaris Power—in 1995. In NSW, Pacific Power had its transmission network transferred to Transgrid in 1994/95, and six power stations transferred to Delta Electricity and Macquarie Generation in 1995/96. In contrast, Prospect Electricity and a major part of Illawarra Electricity merged in October 1996 to form Integral Energy. In Western Australia, Alinta Gas and Western Power were born as corporatised entities in January 1995 from the split of the State Energy Commission of Western Australia into separate gas and electricity

⁵ Tasmania is expected to participate when the grid connections are complete.

businesses. Each of these businesses is compared to each other and the industry average over time to determine how financial outcomes have been affected.

Figures 3.1 to 3.4 illustrate movements in financial performance measures for the group of electricity and gas providers mentioned previously, as well as the industry averages between 1991 and 1999. For ease of exposition, the figures below represent merged and split firms as a single entity, that is, financial performance measures are averaged across the enterprises involved.⁶ The point in time at which the change took place is represented by a dot on the line.

NSW electricity (selected enterprises)

Prior to divesting several of its operations, Pacific Power reported a steady improvement in most financial performance measures, with some variability over the 80s and 90s. Since the transfer of the six power stations in 1995/96 however, there has been a steady decline in financial performance. The reason appears to be the increased competitive nature of the national electricity market, including the generation of excess capacity in NSW and cheaper electricity from Victorian generators (Productivity Commission, 2000, p. 40).

⁶ Appropriate weights were not available, and therefore a simple average was used.



Figure 3.1: Annual rate of return on assets (per cent)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

Prior to the merger into Integral Energy Australia, Illawarra and Prospect Electricity had similar returns on their asset and equity base (with the exception of 1990/91), and a similar liability to equity ratio. Prospect had slightly higher liquidity, but for the most part, these two business had similar financial performances, suggesting that there should not be a deterioration in the financial performance of one from amalgamation with the other. For the most part, the merger appears to have delivered some financial rewards, as the returns on assets and equity and liquidity improved on the 1993-1995 performances. Liabilities to equity also rose, although this was primarily due to incurring abnormal expenses of \$37.2 million associated with the amalgamation process (Productivity Commission, 2000, p. 52). Integral also receives community service obligation payments for pensioner rebates. However, it is still too early to determine whether this improvement will be sustained, as there are already signs that increased competition is affecting profits. According to the Productivity Commission (2000, p. 52), higher wholesale prices, increasing competition at the retail level and abnormal expenses of \$36.5 million contributed to lower profit in 1998/99.





Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

WA electricity and gas

Apart from returns to assets, the other financial performance measures for the State Energy Commission of WA were quite variable prior to the creation of Western Power and the Gas Corporation (trading as Alinta Gas). One of the most apparent benefits of the corporatisation of these two businesses is that financial performance has stablised (although Alinta Gas has been somewhat more variable than Western Power), while remaining above the industry average. Western Power also receives community service obligation funding from the State government for customer rebates, but the expense of providing a uniform tariff across rural and metropolitan areas are met internally (Productivity Commission, 2000). There is a chance that Western Power will probably do better financially than other utilities around the country while offering (possibly) a better standard of service. The reasoning behind the first claim is that Western Power management has been set the task of making 'a profit consistent with maximising its long-term value' (Productivity Commission, 1996, p. 83). This avoids one of the issues that King and Pitchford (1998, p. 323) discuss, that is managers of a corporatised public business will be rewarded for reported values of increases in asset value and decreases in costs, rather than actual changes in these variables. By focussing on a long-term outlook, the managers of Western Power are less likely to cut current costs simply to attain short-term gains. The reasoning behind the second claim is that Western Power has been retained as a vertically integrated utility undertaking generation, transmission and distribution. Using the example of Victorian gas reform, King and Pitchford (1998, p. 321) point out that it makes less sense to break up a power utility if it is believed that there are substitutes for that power that act as a competitive incentive.

Alinta Gas has gone down a different path to that of Western Power. In 1998 the Dampier to Bunbury Natural Gas Pipeline (the transmission business of Alinta Gas) was sold to Epic Energy. However, because the proceeds were listed as extraordinary revenue, this sale is not reflected in the financial performance measures for Alinta Gas. In 2000 the WA State government privatised Alinta Gas, selling 45 per cent to WA Gas Holdings (which is jointly owned by Utilicorp United and United Energy) and 55 per cent to the public as a public float.

Pacific Power, Integral Energy, Western Power and Alinta Gas (before it was privatised) are required to make tax-equivalent and dividend payments, regardless of performance. This is an example of a publicly owned utility expecting to behave like a privately run company, yet having a different set of criteria to work by. According to King and Pitchford (1998), this can introduce some serious incentive problems that can affect the long-term financial viability of a business.



Figure 3.3: Liabilities to equity (ratio)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

Victorian electricity (selected enterprises)⁷

Following the privatisation of the State Electricity Commission of Victoria, financial outcomes have been mixed. Returns on assets have fallen slightly for United Energy and Powercor Australia, but remain above the industry average. Returns on equity have fared less well, and in 1998 were well below the industry average. Liabilities to equity have shrunk considerably for Powercor, and appear to be declining for United Energy. Liquidity—as measured by the current ratio—has improved for both firms, and is currently around the industry average.



Figure 3.4: Current ratio (current assets to current liabilities, ratio)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

A discussion of electricity privatisation would not be complete without some comment on the recent experiences in California (USA). The ongoing problems in California following deregulation of their electricity industry is potentially of interest to governments in Australia, as it provides a useful example of some of the issues that could be encountered when

⁷ Citipower, Eastern Energy and Solaris Energy were not examined due to a lack of data.

considering similar changes in Australia. Although deregulation of the Californian electricity market began in 1996, it was only in March 1998 that the electricity deregulation plan took effect. The three Californian investor-owned utilities were required to sell off their generating arms to private companies. However, consumer rates were fixed until 2002 at a level that was supposed to allow the utilities to recoup some of their sunk costs in generation that was superfluous under the new deregulated system. However, by 1999 electricity consumption in California had outstripped generating capacity. Usually, any shortfall is imported into the State. However, an increase in demand from neighbouring States and a diversion of supply to States without a price cap has limited the ability of the Californian utilities to source power from other generators across the country. Wholesale prices charged to the State utilities have surpassed the consumer price cap, which has put the utilities in severe financial strife. For the most part, the Californian State Government has been held responsible for not properly managing the move to privately generated electricity, although the generators and utilities have also been apportioned some blame. Adding to the problems is that the current regulations have allowed generators to enjoy substantial market power with little regulation. Although accusations of 'price gouging' have been made against several generators, such accusations are often difficult to substantiate. The problems have become so severe that several aluminium producers have found it more profitable to close—with their staff on full pay—and sell the electricity they would have used, back to the State.

Can privately owned generators be relied upon to increase supply when demand increases, or will there be a restriction in supply in order to raise prices to 'unacceptable' levels? If the answer is no to the first part of the question, there is a strong argument for a government agency to take care of electricity generation, especially when in effect the generators operate in a monopoly market. The current plan by the Californian government is to establish a State public power authority that would build or acquire its own power plants as well as buy power directly from generators under long-term contracts, which seems to defeat the purpose of privatising. The next question is whether Australian consumers and electricity retailers will suffer the same fate as those in California.

On the positive side, Australian electricity retailers are not restricted by the hedging contracts they can have to offset the risks of the wholesale market. However, there are other aspects to the Australian electricity market that have some commentators concerned. First is the ability of generators to 'rebid' in the market—which can drive prices higher than expected—in order

to improve profitability. As an example, on January 10th 2001, the four-hour forecast predicted prices of \$81 per megawatt hour, but ended up being considerably higher at \$1571 to \$1723 per megawatt hour. Markets such as this have been abandoned in California and the UK because of problems like these, and many are calling for a similar scrapping in Australia (Myer, 2001). Although prices are the best way to allocate scarce resources, the point is that there is no need for energy to be scarce. What causes a scarcity of energy is a lack of suitable incentives to ensure that investment is made in energy production, preferably of a renewable nature to ensure that there is no capacity constraint in the future. Second is the observation that generators in NSW and Victoria appear to have withdrawn capacity from the market when demand is reaching a peak, presumably to increase prices, suggesting that the market is not as competitive as it should be (Myer, 2001). Third, despite the set up of a national electricity market, there remain considerable constraints on interconnections between States. Fourth, current pricing regimes (arising from government regulation) do not recognise the proximity of users to generators, which lead to inappropriate investment decisions, that is, small generators which can be close to the end user have no greater incentive to establish operations than more distant generators (ABS, 1999, p. 29). Additionally, electricity providers in Victoria and South Australia are now asking commercial clients to voluntarily cut usage during peak times (Mitchell, 2001, p. 31). These are just some of a number of issues that have arisen. They highlight the many difficulties associated with reforming public utilities, and the dangers of not adequately investigating what effect such changes will have.

4. Water

Inadequate property rights, poor pricing policies and a lack of proper investment has resulted in considerable misuse of the scarce water resources across the country (ABS Cat. No. 8208.0, 1997-98, p. 57). A key issue in the water industry concerns the substantial environmental consequences from inappropriate policies. Past decisions have resulted in a number of problems in both rural and metropolitan areas, including blue-green algae outbreaks, excessive diversions of natural flows, increasing pollution and rising instream salinity, including problems with water quality and reliability in several catchments (ABS Cat. No. 8208.0, 1997-98, p. 57).⁸ As such, reforms to the water industry have taken into consideration both economic viability and ecological sustainability of Australian water supplies.

⁸ Unfortunately a lack of information does not enable environmental outcomes to be examined.

The Council of Australian Governments agreed to develop a strategic framework for water reform in February 1994. The reforms, which are now a requirement under the National Competition Policy, are to be implemented progressively through to 2001 and include: consumption-based two-part tariffs, full cost recovery and the removal (or transparency) of subsidies and cross-subsidies; ecologically sustainable investment in water supply schemes; explicit identification and funding of Community Service Obligations; structural separation of water resource management, standard setting and regulatory enforcement from water provision; trading in rural water entitlements; and the allocation of water for the environment (Productivity Commission, 2000, p. 83, ABS Cat. No. 8208.0, 1997-98, p. 58). Although the changes in ownership structure in the water industry are not quite as dramatic as that in the electricity and gas industry, they are nevertheless extensive. In most jurisdictions, urban water authorities have been corporatised and in some, the commercial functions have been

separated from policy and regulatory functions. In other jurisdictions, regulatory functions are provided for in legislation (ABS Cat. No. 8208.0, 1997-98, p. 59).

Victorian water (selected enterprises)

Melbourne Water Corporation was established in 1991 from the merger of the Melbourne and Metropolitan Board of Works with six other water authorities.⁹ Melbourne Water was then separated into Melbourne Water Corporation (the wholesaler for Melbourne) Citywest Water, Southeast Water and Yarra Valley Water (corporatised entities retailing to customers) in 1995. According to the Productivity Commission, "the trading activities of the Melbourne Water Corporation are dependent to a significant extent on the sale of bulk water and sewerage services to the three retail water companies" (Productivity Commission, 2000, p. 98). This linkage is clear from Figure 4.1, which shows that returns on assets to the Melbourne Water Corporation followed a similar pattern to Yarra Valley Water and South East Water between 1996 and 1999. In contrast, Figure 4.2 shows that return on equity has been volatile for the Melbourne Water Corporation reaching a peak a year after the divestment of the retailing arms. Since this time however, Melbourne Water Corporation, Southeast Water and Yarra Valley Water have converged on a rate between 11 and 13 per cent, in part due to a reduction in bulk water charges that arose from the introduction of the Victorian government's pricing reform package in January 1998. The Victorian water companies listed here have experienced consistently higher liabilities to equity than the

⁹ Figures prior to 1991 represent the Board of Works operations only.

industry average. The Melbourne Water Corporation has had particularly variable results. The first fall in 1987/88 was a combination of the fact that the State government raised \$500 million in equity for Melbourne Water, and forgave debts totaling \$161 million over a period of three years (Steering Committee, 1993). The increase in 1994/95 was associated with the break-up of Melbourne Water. Since 1994/95 liabilities to equity have fallen primarily due to a debt-equity swap with the Victorian State government, which was designed to make Melbourne Water's debt ratios commercially acceptable, although an ongoing debt repayment program has served to maintain this improvement (Productivity Commission, 2000). Current ratio estimates are provided in Figure 4.4, and indicate that Melbourne water businesses do not have sufficient current assets to meet current liabilities. As a result of retiring debt, all Melbourne water businesses have reported sufficient funds to cover interest repayments, which have begun to increase following the break-up of Melbourne Water (Figure 4.5).





Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

WA water

The Water Corporation (WA) was created on January 1st 1996 out of the disaggregation of the Water Authority of Western Australia. Between 1986 and 1992, the Water Authority maintained returns on assets between 6 and 9 per cent. Returns fell to just less than 2 per cent in 1993, but have recovered to over 4 per cent since the creation of the Water Corporation because of an increase in prices, an increase in water sales, a higher level of property development and increased developer contributions (Productivity Commission, 2000). Similarly, returns on equity fell away in 1993, but have since recovered to over 2 per cent (Figure 4.2). Liabilities to equity have remained flat and predominantly below the industry average for the period between 1986 and 1999 (Figure 4.3). Prior to 1995, the Water Authority of Western Australia had more than adequate (albeit variable) current assets to cover current liabilities (Figure 4.4). Since the introduction of the Water Corporation however, the current ratio has fallen 4.3 percentage points, such that current assets are no longer sufficient to cover current liabilities. There is better news regarding interest cover (Figure 4.5), which has improved more than six-fold since the authority became a corporation, primarily because of a \$125 million debt reduction and an increase in operating profit (Productivity Commission, 2000).





Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

NSW water (selected enterprises)

Sydney Water and Hunter Water were made statutory corporations in January 1999, leaving very little time for their change in status to have an impact. Since 1992, returns on assets and equity and liabilities to equity for both corporations have moved very closely together. The main differences between the two (at least on these measures) are in their liquidity and interest cover positions. The difference is mainly due to Hunter Water converting \$20 million of variable rate debt into long-term fixed rate debt and consolidating 13 loans into 7 loans (Productivity Commission, 2000).



Figure 4.3: Liabilities to equity (ratio)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

SA water

South Australia has taken a slightly different approach, contracting out the management and operation of the water supply to United Water in December 1995, while leaving South Australian Water Corporation in control of the provision of water and wastewater services to metropolitan and country areas in South Australia (Productivity Commission, 2000). It is difficult to tell how useful this disaggregation has been, although there is evidence that after a

weak start, United Water have succeeded in improving returns on assets, and South Australian Water Corporation has maintained steady returns.

ACT water

ACTEW (Australian Capital Territory Electricity and Water) was born from the amalgamation of the ACT Electricity Authority and ACT water in 1988, and became a corporation in 1995.¹⁰ Prior to 1990, returns to ACTEW can only be described as variable. Between 1990 and 1994 there was a steady downward trend, but corporatisation appears to have been associated with continued growth in the return on assets. The main point of interest is the spike in interest cover in 1997/98, which arose from a combination of an increase in profit and a fall in interest payments.

Figure 4.4: Current ratio (ratio)



Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

Although different businesses have experienced different performance outcomes, corporatising water boards (the most common ownership reform) seem to have assisted in improving the financial performance of the water industry in general. Returns on assets and

¹⁰ In October 2000 a joint venture arrangement was entered into between ACTEW and AGL.

equity, the current ratio and interest cover have all increased, and liabilities to equity have fallen (albeit marginally) over the period for which data is available. This suggests that in the case of a localised 'monopoly', government owned businesses operating under private enterprise principles might be the best option. The only counterfactual (that is, a different ownership structure) has been that of the South Australian Water Corporation and United Water, and they have tended to perform below the industry average. However, one example is not adequate to claim that privatisation does not work, but for the most part, corporatisation appears to be delivering the desired performance outcomes.

All water businesses reported here are required to make tax-equivalent and dividend payments to their respective State governments (with the exception of United Water and ACTEW). Most also receive community service obligation payments. Businesses in the water industry—and to a lesser extent electricity and gas—are in the awkward position of having to actively encourage their customers to consume less of their product, rendering unavailable a substantial section of their business with which to improve financial performance, that is, marketing to increase consumption. Energy providers do have some options available to them to increase demand and supply by investing and promoting renewable energy sources, but this is still very much in the infancy stage. Water providers are in a worse position, since they cannot source their product from anywhere else, and demand and supply are at the mercy of the elements. There is only so far that businesses can go with debt restructuring and labour force reductions in order to improve financial performance. One of the few areas that they might be able to expand into is the provision of skills, expertise and water-saving technology to other water providers in Australia and overseas. However, it is not obvious that giving water providers a corporate focus will yield better outcomes than leaving the business as a statutory authority.





Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

5. Railways¹¹

The financial performance of the Australian railway network has been dismal. Attempts to improve the financial performance of the rail sector have involved introducing third party access to the rail track across the country in the hope of increasing competition in rail services. Stronger financial disciplines have also been introduced (Productivity Commission, 2000).

This poor financial performance highlights the dangers of concentrating primarily on one performance measure. During the late eighties and early nineties, total factor productivity was promoted as a useful single performance measure of government trading enterprises as it was believed to provide 'a ready means of gauging how successful GTE reforms have been' (Steering Committee, 1992, p. 5). However, using the example of Australian National

¹¹ National Rail Corporation is not included as no meaningful information can be extracted due to the substantial changes that took place within this enterprise.

Railways, Waters and Street (1998) show that although total factor productivity improved at Australian National Railways, this was accompanied by deterioration in most financial performance measures. Waters and Street (1998) argue that government trading enterprises can 'buy' improvements in productivity by increasing wages paid to employees in exchange for a reduction in inputs. This is not a problem as long as input costs are still below revenue, but the authors argue that Australian National Railways failed on this front. The data presented here provide some justification for this argument. Returns on assets and equity have been variable and the sharp increase in 1996/97 is predominantly the result of a transfer of assets to National Rail Corporation (Figures 5.1 and 5.2). Liabilities to equity increased between 1991 and 1993, although it improved in subsequent years as assets were sold off (Figure 5.3). Liquidity and interest cover have remained relatively stable (Figures 5.4 and 5.5). However, poor financial performance has not been restricted to Australian National Railways. About the only positive thing that can be said about rail service providers is that their financial performance appears to be improving, albeit from a low base.





Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

In July 1996, the State Rail Authority of NSW was separated into the State Rail Authority (responsible for the provision of city and country passenger rail services), the Rail Access

Corporation (which owns and maintains the NSW rail network), Rail Services Australia (which designs, constructs and maintains rail networks) and the Freight Rail Corporation (responsible for freight services).¹² In the decade prior to this separation, returns on assets and equity were negative more often than not, providing a strong argument for something radical to be done to turn around financial performance. Since restructuring, the financial performance of the State Rail Authority has improved, yielding small but positive returns in 1998/99. The ratio of liabilities to equity and current assets to current liabilities has remained low and stable, and positive profit means that the Authority is now able to make interest repayments. In contrast, the Freight Rail Corporation has enjoyed positive returns since coming into existence. A decline in freight rail charges and abnormal items associated with restructuring costs have led to a fall in returns, although a corresponding decline in liabilities have improved liquidity, interest cover and the total liabilities to equity ratio.



Figure 5.2: Annual rate of return on equity (per cent)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

¹² Rail Access Corporation and Rail Services Australia are not examined in this analysis.

The Public Transport Corporation came into being in 1989 through the amalgamation of the State Transport Authority and the Metropolitan Transit Authority.¹³ In 1993, the Melbourne-Shepparton and Melbourne-Warrnambool train services were contracted to Hoy's Roadlines and West Coast Railway respectively. In August 1999, the rest of the rail network service provision was contracted out, with the National Express Group operating country services and the northern Melbourne metropolitan train services, and Melbourne Transport Enterprises operating the southern Melbourne metropolitan train services. Over the period for which data is available (1987/88 to 1997/98), the Public Transport Corporation has not enjoyed particularly positive financial outcomes. Returns on assets and equity and interest cover have been predominantly negative, and the ratio of current assets to current liabilities has been low. One of the few positives is that liabilities to equity have declined over this time. The Corporation is another interesting case of where 'comments on own performance' could lead the casual observer to believe that things are going well. In the 1993, 1995 and 1998 Steering Committee reports, about the only discussion of financial performance was a continued use of the phrase 'the Public Transport Corporation's call on government funds was reduced by \$x'. Increases in productivity, employment reduction and an increase in passenger numbers received the most attention. Admittedly, the Corporation was in the middle of restructuring in an attempt to improve operations, but the lack of focus on financial measures (even if they are poor) in combination with non-financial measures is concerning. Given the lack of financial improvement and the continued drain on the public purse, it is not surprising that rail services have now been contracted out to private operators.

¹³ The only information pertaining to rail operations in Victoria is available from the Steering Committee on National Performance Monitoring of Government Trading Enterprises, and therefore the earliest data is 1987/88.



Figure 5.3: Liabilities to equity (ratio)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

Although Queensland Rail is 136 years old, there is little financial information available prior to 1992/93. As Queensland Rail was corporatised in 1995, this makes a pre- and postcorporatisation comparison difficult. Returns on assets and equity improved after corporatisation, but the decline in freight rates mentioned above has also restricted profitability. Liabilities to equity have increased in recent times due to new capital works programs, but liquidity has remained constant (Productivity Commission, 2000). Financial performance measures for Westrail that are related to equity were adversely affected in 1988/89 by a \$1.7 billion superannuation payment that resulted in a negative equity position (Steering Committee, 1995). It was not until 8 years later that this was reversed, when the Western Australian State Treasury assumed responsibility for Westrail's unfunded superannuation liabilities (Productivity Commission, 2000). This outcome has led to mixed results. Returns on assets have been positive, returns on equity and liabilities to equity have been variable, and liquidity and interest cover have been stable. Restructuring within Westrail began in 1995/96, which saw non-core activities outsourced, workforce reductions, rationalisation of assets and restructuring of costs (Productivity Commission, 2000). However, Westrail has also been affected by a fall in freight rates, and operating profits have predominantly been positive due to abnormal revenues.

Figure 5.4: Current ratio (ratio)



Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

One of main problems with rail is that it is difficult to diversify into other areas. That is, rail operators would find it more difficult to develop an obsolete rail yard into a hotel or convention centre for example, which is what Hobart Port Corporation has done with one of its piers (see below). Additionally, opening up the track to third parties may not introduce many new operators, given the size of the costs associated with establishing train services, as compared to road services for freight and transport. Queensland Rail exemplifies an indication of how difficult it is to have a financially viable rail network where, in 1991/92, Queensland Rail reported a surplus for the first time in nearly 50 years (Steering Committee, 1993). Expecting rail operators to act like private companies may therefore not be the best way to achieve best practice in the rail industry. Prior to corporatisation, Queensland Rail reported a 36 per cent increase in wagon productivity, a 27 per cent increase in locomotive productivity and a 30 per cent increase in labour productivity (but productivity alone is not a sufficient measure of performance), and there is no reason to believe that a corporate entity would have achieved a better result. Although some financial gains have been made in the past 5 years, the majority of the profit gains have been associated with large community service obligation payments and abnormal revenues from the sale of assets, rather than because of an underlying strength in business operations themselves.



Figure 5.5: Interest cover (times)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

6. Ports

According to the Productivity Commission (2000, p. 163), "Individual port authorities experienced considerable structural, institutional and commercial change between 1994/95 and 1998/99. The primary aim of these reforms has been to replicate market disciplines including the establishment of clear objectives that eliminate the conflict between commercial and non-commercial objectives, which existed previously". For the most part, this reform has involved corporatising the various port authorities. Although the ports themselves could still be seen in the light of a monopoly service provider, the shake-up of Australian ports has led to a number of services (such as stevedoring, towage, pilotage and bulk terminal operations) being contracted out to private businesses (although some port authorities already had such schemes in place prior to corporatisation, see for example, Martin, 1995, p. 54). There was considerable angst at the outset regarding attempts to improve the performance of Australian ports, and there is mixed evidence about whether things have improved.



Figure 6.1: Crane rate (ship time divided by crane intensity)

Source: Bureau of Transport Economics, Waterline, various issues

The Bureau of Transport Economics puts out a regular newsletter called *Waterline*, which contains information on stevedoring productivity, waterfront reliability and port interface charges. Figure 6.1 shows the crane rate (ship time divided by crane intensity) for the five major ports (and the average across the five) between December 1995 and September 2000. The crane rate for all ports has increased substantially over the past 5 years—with a particularly strong acceleration over the past 12 months—and is now the highest it has been in the history of the series.

On the other hand, industry data from the ABS on selected financial performance measures point to a slightly different outcome, although it should be noted that this measure includes other services to transport that have nothing to do with ports. Returns on assets and equity and the ability to cover interest payments are lower than when the reforms began in 1994/95, although liquidity has improved and long-term debt to equity (after a brief rise in 1997/98) is back to 1994/95 levels.



Figure 6.2: Annual rate of return on assets (per cent)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

NSW ports

Sydney Ports Corporation, Newcastle Port Corporation and Port Kembla Port Corporation were all formed in mid-1995 following the break-up of the Maritime Services Board of NSW into separate corporate entities. Prior to this break-up, the financial performance of the Maritime Services Board was fairly constant. Since the corporatisation of the individual ports, there has not been any obvious change in the financial performance of ports in NSW, with the exception of the 1999 performance of Port Kembla. Reduced coal throughput and a reduction in the tonnage fee at the coal terminal resulted in a 28 per cent fall in revenue between 1997/98 and 1998/99, contributing to a \$34 million operating loss in 1998/99. Port

Kembla Port is now examining ways in which to diversify operations in order to reduce their exposure to the coal industry (Productivity Commission, 2000), a course of action that may have been influenced by the greater financial accountability of the corporatised entity.

Queensland ports

The Port of Brisbane Authority was corporatised to become the Port of Brisbane Corporation in July 1994. By its own analysis, the Port of Brisbane (in 1995 at least) was considered to be one of the cheapest and efficient of the major Australian container ports, with the Authority working with the State government 'to ensure that the Port of Brisbane's operations and growth were not affected' by corporatisation (Martin, 1995, p. 54). Four key principles were outlined as the means to achieve this aim, including clarity of objectives, management autonomy and authority, strict accountability for performance and competitive neutrality. The financial performance measures given below suggest that for the most part, the Port of Brisbane Corporation was successful in achieving this aim, as both before and after financial performance are of a similar, stable nature. Martin (1995) attributes this to the observation that prior to corporatisation the Authority had been run on a commercial basis, thereby already operating under a system that closely resembles a corporatised business. Perhaps the biggest concern is that the distance between Brisbane and other Eastern Seaboard ports introduces an element of monopoly power to the Port of Brisbane Corporation, making users of the Brisbane port somewhat uneasy. The primary concern is that the Government shareholder will exploit this monopoly power to increase government revenue, despite a stated aim by the Port of Brisbane Corporation to maximise trade while providing a 'reasonable return for its shareholders, which is normal commercial practice' (Martin, 1995, p. 61). The Port of Brisbane Corporation has attempted to allay concerns about such matters by indicating that increasing charges is not in its best long-term interests, as once they cross a threshold level, it may be cheaper-even including land transport charges-to use other Eastern Seaboard ports (Martin, 1995).



Figure 6.3: Annual rate of return on equity

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

The Gladstone Port Authority was corporatised in 1994, and since this time has had mixed performance outcomes. Prior to this event, Gladstone reported a steady decline in returns on assets and equity, which continued after corporatisation. However, in line with Gladstone's stated aim of reducing debt, the liabilities to equity ratio has declined and interest cover has increased. The exception was 1998/99—not shown in the graph—where interest cover fell to –108.8, largely driven by a \$139.2 million write-down of non-current assets that resulted in a significant operating loss in 1998/99. Similarly to Port Kembla Port, Gladstone is looking to limit its exposure to the coal industry by diversifying.

South Australian Ports Corporation

South Australian Ports Corporation—corporatised in 1995—has experienced some large movements in financial performance measures relative to the other Australian ports, matched perhaps only by the Fremantle Port Authority. The fall in returns on assets and equity and interest cover in 1995/96 is primarily a statistical artefact, arising from a revaluation of assets using the deprival rather than historic cost method as part of the corporatisation process.



Figure 6.4: Liabilities to equity (ratio)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

Fremantle Port Authority



Figure 6.5: Current ratio (ratio)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

The Fremantle Port Authority was commercialised in July 1996, although looking at the figures below, an investor in the Port could be forgiven for thinking that this business operated in a high risk, uncertain return market. However, by their own analysis, a lack of government equity means that little weight should be placed on financial measures that utilise equity in their calculation (Steering Committee, 1995). As a result, returns on equity are excluded from Figure 6.3, and liabilities to equity are not included in Figure 6.4. Even so, returns on assets have fluctuated between a low of -33.4 per cent to a high of 20 per cent. Although the role of the port is to 'facilitate trade in an efficient and commercial manner', a more immediate concern has been to address debt levels (Productivity Commission, 2000). That they have been relatively successful in achieving this aim is shown by the continued

improvement in interest cover, although whether being corporatised has assisted in achieving this objective is another matter entirely.

Tasmanian ports



Figure 6.6: Interest cover (times)

Source: Steering Committee on National Performance Monitoring of Government Trading Enterprises, Productivity Commission, Ibis Business Information

The major Tasmanian ports, while not exhibiting as much variability as some of their mainland counterparts, have experienced returns well below the industry average. All were corporatised in July 1997, but this change in commercial focus does not appear to have changed financial performance outcomes a great deal in the two years since. The major outcome for Burnie Port was a revaluation of assets arising from adopting the deprival method of valuing non-current assets, which contributed to a 250 per cent increase in

operating losses in 1997/98. In comparison, Hobart Port appears to have taken a much more aggressive approach, driven in part by a fall in total port throughput of more than 20 per cent since corporatisation (Productivity Commission, 2000). However, a combination of diversification into port-related property (the Elizabeth Street Pier now houses a hotel and convention centre), a movement into stevedoring and the purchase of a 49 per cent stake in the Hobart International Airport has acted to offset the decline in 'standard' revenue. The Port of Launceston has had a different experience from Burnie and Hobart, with several incidents—outside their control—leading to operating losses between 1995/96 and 1997/98, including Coastal Express Line ceasing general cargo shipping and an increase in expenses due to an oil spill (Productivity Commission, 2000).

Darwin Port Authority

Darwin Port Authority had its name changed to Darwin Port Corporation in 1998, which was coupled with a move to a more commercial focus. With only one year of financial data since this change, it is too early to determine whether the change to a commercial outlook has improved the way the Port operates, as at present Community Service Obligations are propping up operating profit.

7. Conclusion

The motives for change are many and varied, and there are a number of issues that should be considered before embarking on a process of change in government businesses and an analysis of the effectiveness of these changes. From the data available, there does not appear to be any discernible sustained difference in financial performance in the selected businesses examined here. However, there are several important caveats to be made before concluding that the reform of government trading enterprises has had little or no impact to date.

First, the reforms were started less than a decade ago, and for most industries are still underway. Thus, there are unlikely to be many noticeable gains while management and staff are adjusting to the new conditions. Second, there are other outcomes that are important considerations for governments when making decisions about whether—and how—to implement reforms. These include pricing, service delivery, reducing government debt, more transparent operating procedures and improving the ability to obtain funds for investment, rather than relying on the government budgetary process. None of these issues were considered in this paper. Nevertheless, they should be borne in mind when examining any

analysis that looks at the impact of government trading enterprise reform. Third, there is no counter factual argument to compare it with, which means that there is no way of knowing whether the financial performance of these enterprises would have been worse without the introduction of these reforms. Last, but not least, an exercise such as this one, which attempts to make comparisons across businesses and over time, is hampered by the extent of the changes that have taken place over the past decade. Asset revaluations, debt for equity swaps, debt restructuring, sales, purchases, reclassifications and asset transfers have all had a part in influencing financial performance measures. Hence, any analysis based on the data presented should be interpreted with care.

Nevertheless, the information here suggests that there is a case for more careful analysis of whether there is a requirement to go down the path of privatisation, corporatisation, mergers or divestures, but given the scope of the changes that have already been made, such an exercise has an air of 'closing the gate after the horse has bolted'. However, considering the importance of the issue, there is an obvious justification for having more in-depth studies of the effects that the various changes have had on the financial performance and service delivery of each of the businesses that are affected. This could then aid in determining whether the respective governments will have to do more to ensure competitive markets, adequate regulation where a competitive market is not feasible, or other such measures to ensure that the market is working effectively. It is probably fair to say that, given the considerable amount of resources that have been devoted to the reform agenda, and the consequences of such reform, there is little in the way of a dedicated monitoring/evaluation program of the reforms that have been undertaken so far. The Productivity Commission reports on the financial performance of government trading enterprises (Financial Performance of Government Trading Enterprises 1994-95 to 1998-99), but their reporting is limited to those enterprises that are willing to provide data, and private companies are excluded all together. The ABS also provides some information on financial performance by industry, and has a dedicated publication on the electricity, gas and water industries. Outside of these efforts, there is little other analysis.

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Variable	Definition	Sources	
Individual businesses			
	Earnings before interest and tax and after abnormals	All individual business financial measures	
Return on assets	Average total assets	Steering Committee on National Performance Monitoring of	
	Operating profit after income tax	Government Trading Enterprises (1993, 1995, 1996, 1998)	
Return on equity	Average total equity	Productivity Commission (2000)	
	Total liabilities	Where information is not available from the above sources, data was obtained from IBIS Business Information.	
Liabilities to equity	Total equity		
	Current assets		
Current ratio	Current liabilities		
	Earnings before interest and tax and after abnormals		
Interest cover	Gross interest expense		
Industry			
	Operating profit before tax	Rail, Ports (Other Services to Transport), Water (ANZSIC codes	
Return on assets	Total value of assets	62, 66, 37 respectively)	
	Operating profit before tax	ABS Product Number 8140.0.40.002, <i>Summaries of Industry Performance</i>	
Return on net worth ^a	Net worth		
	Non-current liabilities		
Long-term debt to equity	Net worth	Electricity, Gas	
	Current assets	ABS Cat. No. 8226.0, Electricity, Gas, Water and Sewerage Operations – Australia	
Current ratio	Current liabilities		
	Earnings before interest and tax		
Interest Cover	Interest expenses		

Appendix: Definition of Performance Measures

a. For Electricity and Gas, return on funds is used, which is measured as earnings before interest and tax/(net worth + non-current liabilities)

Title	Number	Author(s)
The Theory and Measurement of Profitability	7/98	Gow/Kells
The Definition and Measurement of Productivity	9/98	Rogers
The Definition and Measurement of Innovation	10/98	Rogers
Innovation in Australian Enterprises: Evidence from the GAPS and IBIS databases	19/98	Rogers
Productivity in Australian Enterprises: Evidence from the ABS Growth and Performance Survey	20/98	Rogers
Profitability in Australian Enterprises	21/98	Feeny/Rogers
Performance of Australian Government Trading Enterprises: An Overview	22/98	Loundes
The Performance of Small and Medium Enterprises: An Overview using the Growth and Performance Survey	1/99	Rogers
The Performance of Large Private Australian Enterprises	2/99	Feeny/Rogers
Labour Productivity in Australian Workplaces: Evidence from the AWIRS	19/99	Loundes
Market Share, Concentration and Diversification in Firm Profitability	20/99	Feeny/Rogers
The Determinants of Corporate Effective Tax Rates: Evidence from Australia	21/99	Harris/Feeny
Determinants of Profitability: An Empirical Investigation Using Australian Tax Entities	01/00	Feeny
Understanding Innovative Firms: An Empirical Analysis of the GAPS	08/00	Rogers
Import Competition and Labour Productivity	09/00	Bloch/McDonald
Analysing Firm-Level Labour Productivity Using Survey Data	10/00	Rogers/Tseng
Management and Industrial Relations Practices and Outcomes in Australian Workplaces	12/00	Loundes
Habit Persistence in Effective Tax Rates: Evidence Using Australian Tax Entities	13/00	Harris/Feeny
Foreign Competition, Foreign Ownership and Innovation in Australian Enterprises	20/00	Lofts/Loundes
A Dynamic Panel Analysis of the Profitability of Australian Tax Entities	22/00	Feeny/Harris/Loundes
The Effect of Diversification on Firm Performance	02/01	Rogers

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