

This version: 3 May 2002

*Submission to Victorian Parliament Public Accounts and
Estimates Committee*

***Inquiry into Private Sector Investment in Public
Infrastructure***

John Quiggin

Australian Research Council Senior Fellow

School of Economics

Faculty of Economics and Commerce

Australian National University

EMAIL John.Quiggin@anu.edu.au

FAX + 61 2 61255124

Phone + 61 2 61254853 (bh)

+ 61 2 62578992(ah)

<http://ecocomm.anu.edu.au/quiggin>

Summary & Recommendations

Public debt

Private sector involvement in the provision of public infrastructure has grown substantially over the last two decades. In some instances, this involvement has been beneficial. In other cases, governments have entered into contractual arrangements yielding smaller benefits and larger costs than would have arisen with traditional methods of public procurement.

Support for public-private partnerships in the provision of infrastructure has frequently been motivated by a desire to reduce reported levels of public debt. This rationale for private involvement is unsound and may lead to inappropriate allocation of investment funds and misleading public accounts.

Recommendations on public debt

Medium-term fiscal policy should be developed in the accrual accounting framework based on a generalised 'golden rule' of maintaining a stable ratio of public sector net worth to GDP

Measures of debt and of financial net worth should not be a primary target of fiscal policy. The adoption of a target of 'zero net debt' should be discouraged

Further analysis of optimal ratios of debt to public asset ownership is required. A level of debt equal to 50 per cent of assets is a reasonable interim target

Measures of public debt should be extended to include obligations under leases and other long-term obligations, particularly where these arise from contracting arrangements that replace public investments that would otherwise incur debt

Risk allocation

The fundamental principle stated in the Partnership Victoria documents, that risk should be allocated to the party best able to manage it, is sound. However, the government's preferred position on risk allocation is, in important respects, inconsistent with this principle

Recommendations on risk allocation

Where costs of operation are substantially influenced by decisions made in the construction phase, risk should be allocated to the enterprise undertaking construction through such mechanisms as guarantees. In other cases, risk should be borne by the agency or enterprise providing the relevant service, which should be separate from the construction enterprise.

Except where service specifications are stable and preferable, contracts for the provision of services should be separate from contracts for the construction and maintenance of physical infrastructure.

Public ownership is appropriate where the dominant risk arises from: network risk (where the main network is publicly owned); market risk (where government is the sole or main consumer of services); or regulatory risk

The principle of optimal risk allocation requires the availability of a range of contracting arrangements. A single-contractor model will be appropriate only in a minority of cases. For most infrastructure projects, standard public procurement procedures, with subsequent public ownership of the asset will be preferable.

Public-private comparisons

The use of a public-sector comparator is artificial and meaningless if it is known that, regardless of the outcome of analysis, the public sector comparator project will not be implemented. Comparisons should not be distorted by the inclusion of budgetary savings that represent transfers rather than efficiency gains, by unsound assumptions about the superior efficiency of the private sector or by discount rates incorporating an equity risk premium

Recommendations on Public-private comparisons

Evaluation of proposed partnerships should be undertaken in two stages. If the initial evaluation of the project indicates positive net benefits, it should be evaluated against a public sector comparator. Assessment in the second stage should be undertaken on the basis that, if the public sector comparator is found to yield better value for money, it should be implemented.

The real pretax discount rate applicable to typical public sector comparator projects should be 4 per cent.

While encouraging technical innovation, contracting arrangements with the private sector should avoid financial innovation. Only well-established methods of financing should be employed.

Private Sector Investment in Public Infrastructure in Victoria

1 Introduction

Private sector involvement in the provision of public infrastructure has grown substantially over the last two decades. In some instances, this involvement has been beneficial. In other cases, governments have entered into contractual arrangements yielding smaller benefits and larger costs than would have arisen with traditional methods of public procurement.

The object of this submission is to analyze private provision of public infrastructure in a broad historical and policy context, to indicate both the benefits of appropriate contractual arrangements and the danger in the pursuit of inappropriate goals, such as spurious reductions in measured levels of public debt.

The submission is organised as follows. Section 2 provides historical background regarding the roles of the private and public sectors in Australia since European settlement, with particular emphasis on the period since the 1970s. Section 3 deals with public debt. The central point of the section is that it is not appropriate to use public-private partnerships as a method of reducing reported levels of public debt. Rather, the contingent obligations associated with such partnerships should be treated as having the same characteristics as debt. Section 4 deals with the allocation of risk in contracting arrangements. The fundamental principle stated in the Partnership Victoria documents, that risk should be allocated to the party best able to manage it, is endorsed. However, it is argued that the government's preferred position on risk allocation is, in important respects, inconsistent with this principle. Section 5 deals with the concept of the public sector comparator. A crucial observation is that this concept has failed in the UK because it was clear, in most cases, that there was no prospect of actually implementing the public sector comparator.

Section 6 concerns financial innovation and argues that, while technical innovation should be encouraged, a conservative approach to financial innovation is necessary in the light of past experience. Section 7 illustrates some points with reference to the CityLink project.

2 Historical background

2.1 The long view

Almost any task undertaken by government can be, and has been, undertaken by private enterprises. For example, the transport of convicts to Australia was undertaken primarily by private contractors. However, the First Fleet was effectively a public venture, being under the direct control of Governor Philip, while the Second Fleet was controlled by the contractors, paid on a fixed rate per convict. As a result of the incentive to skimp on food and medical attention, around a quarter of the convicts in the Second Fleet died, and half were unfit for work when they arrived (Clark 1962) whereas the death rate for the First Fleet was minimal.

Similarly, both police and military services can be, and have been, privately provided. Until the 19th century, reliance on mercenary troops was the rule rather than the exception in European wars. However, the crushing defeats experienced by mercenaries at the hands of French and American citizen armies led to the abandonment of this practice. Recent experience, such as that of European mercenaries employed by the Mobutu government in Zaire (now Congo) reinforces the point that private provision of military services is rarely satisfactory. More recently, private prisons have been revived, along with many of the problems of abuse of power and lack of accountability that led to their abandonment in the 19th century (Moyle 1994).

Conversely, as Australian history shows, almost any good or service can be provided by government. The first farm in Australia was the Government Farm on the site of the present Botanic Gardens in Sydney. It was not a success. Another unsuccessful venture was the Queensland government's establishment of publicly-owned butcher shops in the 1920s. Public provision of infrastructure services such as postal services, telecommunications and electricity was more successful.

As these examples illustrate, government enterprises perform poorly in some areas, while private enterprises perform poorly in others. The existing distribution of activities between the public and private sectors is, in large measure, the result of learning from historical experience. Following the experiments of the early part of this century, governments have largely withdrawn from small-scale enterprises, such as butcher shops. On the other hand, governments in Australia and most other countries took over the provision of a range of infrastructure services such as rail transport, postal and telecommunications services, where private operators had failed.

Over the century from 1870 to 1970, the general tendency was towards expansion in the role of government. The State took over the production and supply of goods and services which had previously been provided, to the extent they were provided at all, by the private sector. Australia, a country settled as an arm of the British government's prison system, led the way in public provision of social welfare services, postal and telecommunications services, railways and roads, universal public education and public health services.

Over the first half of the 20th century, other countries became more like Australia. Whereas Australia's state-owned railways and public utilities were an exception in the 19th century, by the early postwar period it was the United States' insistence on retaining such enterprises in private ownership that looked exceptional. After World War II the early Australian experiments with social welfare systems were matched, and on most measures surpassed, by European welfare states.

Attention to this historical experience is important because it provides a great deal of evidence regarding the relative performance of the private and public sectors in a range of activities. The existing allocation of activity between the private and public sectors is not purely haphazard, as much discussion has tended to imply. Rather, public involvement in some areas of the economy, such as agriculture and retail trade has been consistently unsuccessful. Conversely, the public sector's dominance in infrastructure

activities and in the provision of human services such as health and education reflects the inadequacy of earlier systems of private provision.

2.2 *The postwar settlement*

The growth of the State from World War II to the 1970s was largely quantitative rather than qualitative, since the boundary between the private and public sectors was fairly stable. Public expenditure grew steadily as a proportion of gross domestic product (GDP) partly because of the increasing importance of sectors such as health and education, where public funding and provision played a large role, and partly because of demographic changes, particularly increased life expectancy, which led to increased expenditure on age pensions. By the 1970s, public expenditure, and the taxation needed to finance it, had reached around 40 per cent of GDP in Australia and more than 50 per cent in many OECD countries. Since much of this revenue was returned to households in the form of transfer payments, the public share of output and employment was lower, but was still around 25 per cent in typical OECD economies by 1970.

The growth of the State after 1945 was commonly discussed in terms of the ‘mixed economy’, consciously proposed as a ‘third way’ between the unfettered capitalism of the 19th century and the comprehensive State socialism of the Communist bloc. The mixed economy involved large-scale government involvement in an economy that was nevertheless predominantly private. The achievements of the mixed economy were substantial. For more than a quarter of a century, unemployment disappeared from the developed world. Economic growth proceeded at rates never equalled before or since. The development of extensive social welfare systems based on progressive taxation led to a reduction in inequality in incomes and an even greater reduction in inequality in living standards.

The longest sustained period of strong growth and full employment in the history of the world economy coincided fairly closely with the period of maximum expansion of government. Hence, simplistic claims that the private sector is, in general, more efficient

and effective than the public sector are inconsistent with the lessons of history. The central policy problem is to find the appropriate balance between the public and private sectors.

2.3 *The crisis of the 1970s*

The breakdown of Keynesian macroeconomic policies in the early 1970s reversed the trend towards growth of government. The apparent success of free-market economists such as Milton Friedman in predicting and explaining the failure of Keynesianism enhanced the prestige of free-market views, though the gloss was taken off this achievement when the monetarist policies proposed by Friedman proved no more successful than the Keynesian policies they replaced. Higher unemployment implied increased expenditure on social welfare benefits and therefore generated pressure to cut back other areas of public spending. Finally, and perhaps most importantly, the loss of confidence in the capacity of governments to control over the economy implied a greater need to cultivate ‘business confidence’.

The incapacity of government revenue to meet demands for public expenditure has been referred to as the ‘fiscal crisis of the state’. A variety of fiscal expedients, including asset sales, reduction of capital expenditure and deficit financing have been advocated and employed in response to the fiscal crisis of the state. Ultimately, however, there is no easy solution - ‘what you pay for is what you get’.

2.4 *Privatisation*

Privatisation was one of the first financial expedients adopted by governments in an attempt to resolve the ‘fiscal crisis of the state’. It initially appeared that privatisation offered an immediate source of cash that could appropriately be allocated to current expenditure. Early privatisations such as those of Qantas and the Commonwealth Bank. It

soon became clear, however, that privatisation involved the loss of a stream of income (dividend payments and reinvested earnings) into the future, and was therefore similar, in its fiscal effects, to taking on additional debt.

Surveys of Australian experience with privatisation suggest that, in most cases the interest savings from privatisation (assuming all proceeds are used to repay debt) have been less than the earnings foregone as a result of privatisation. Hence, privatisation

As will be discussed below, similar issues arise in relation to the projects for private investment in infrastructure. Private investors must receive a return in the form of payments from governments or infrastructure users. In either case, governments are foregoing income that would accrue to them if the project were publicly owned. It is impossible to obtain infrastructure services at no cost to the public. The only issue is to determine the most cost-effective method of provision.

2.5 *BOOT schemes*

A particularly popular way of packaging infrastructure projects in Australia has been the Build, Own, Operate and Transfer (BOOT) system. Under this system, a private enterprise constructs the project in return for access to a stream of user charges, such as the revenue from a toll. After a period sufficient to cover the cost of construction, the user charges are abolished and the asset is handed over to the public sector. From the viewpoint of the cash system of public accounting, the government pays nothing during the period of private ownership, and receives a free asset at the end. The biggest single Australian example has been the CityLink road project in Melbourne, discussed below.

Despite, or perhaps because of, their superficial appeal, BOOT schemes have not been viewed favorably by Australian economists. The EPAC Infrastructure Taskforce, the NSW Auditor-General, and the Industry Commission have all reported negatively on such schemes

First, the apparent reduction in public debt associated with projects of this kind is

illusory. To provide a return to the operator, the public must either commit to a stream of payments from general revenue or alienate a revenue source such as a toll. As the EPAC Taskforce pointed out, the fiscal and macroeconomic impacts are essentially the same as if the construction of a publicly-owned asset was financed by the issue of bonds.

Second, when used to finance road construction project, BOOT schemes typically involve a misallocation of risk, since the risk in revenue flows is usually related to the planning of the transport network as a whole, rather than to the construction of a particular project. Hence, in most cases, it is preferable for the construction and maintenance of the project to be undertaken by competitive tendering with ownership passing to the network owner (normally the relevant state government) on completion of the construction phase. The gap of \$2 billion between the construction cost of the CityLink project and the tolls paid to the private consortium is, in part, compensation for the real costs of risk misallocation.

Third, the set of road user charges associated with BOOT schemes is ad hoc and arbitrary, being dictated by historical accident rather than economic considerations. On average, the pricing system is perverse, raising the cost of using new, uncongested, roads, then eliminating charges later, when roads are likely to be congested.

Finally, in cases where private ownership is optimal, the commitment to transfer the asset to public ownership must reduce welfare. There may, perhaps, be assets which are optimally owned by the private sector at one point in their lives and by the public sector in another, but the likelihood that such a crossover point will coincide with the date at which the project is 'paid off' is minuscule.

2.6 *Competitive tendering and contracting*

The practice of contracting with private firms for the provision of public services is a very old one. For example, the transport of convicts to Australia was undertaken primarily by private contractors. However, the First Fleet was effectively a public venture, being under the direct control of Governor Philip, while the Second Fleet was controlled by the

contractors, paid on a fixed rate per convict. As a result of the incentive to skimp on food and medical attention, around a quarter of the convicts in the Second Fleet died, and half were unfit for work when they arrived (Clark 1962), whereas the death rate for the First Fleet had been minimal. Subsequent tightening of contractual terms reduced death rates, but also increased costs.

In broad terms, the history of convict transportation has been repeated in more recent experiments with competitive tendering and contracting. In the initial rounds of contracting, private firms have offered to deliver public services at a price far below the cost of public provision. As a range of hidden costs and problems have emerged, contractual terms have been tightened. The results have included improvements in performance, but also the loss of many of the financial savings that originally motivated the move to contracting.

The recent upsurge in private provision of public services began in the early 1980s under the Thatcher government in the United Kingdom. The Thatcher government imposed compulsory programs of competitive tendering and contracting on central government agencies and local governments. A similar approach was adopted by the Kennett government in Victoria and by the Howard government. Other governments have undertaken extensive contracting out without adopting a comprehensive program of this kind.

The increase in support for the policy of contracting out for the provision of public services is closely related to the increasing popularity of the corresponding practice of 'outsourcing' in the private sector. In both the public and private sectors, policies of contracting out or outsourcing have been adopted for a number of reasons.

First, there has been a general shift towards the belief that organisations should focus on the achievement of a single 'core objective' or a small number of such objectives, and should, as far as possible, avoid responsibility for peripheral activities. This belief contrasts with the ideas of the 1960s and 1970s when 'conglomerate' corporations, with subsidiaries engaged in many different industries, were seen as a way of achieving

diversification, and when government agencies typically sought to pursue very broad definitions of ‘the public interest’.

Second, improvements in understanding of the allocation of risk have led to a desire to organise contractual relationships in a way that yields better management of risk. Where specific operational risks can be distinguished from the general operations of an organisation, contracting may provide an appropriate way of managing those risks.

Last, but not least, there has been a desire to reduce the core workforce of public and private sector organisations. In part, this reflects a change in fashions, as ‘downsizing’ rather than ‘empire-building’ has come to be seen as the mark of a good manager. More importantly, many organisations have found it difficult, because of legal restrictions and concerns about morale, to reduce wages and conditions for core employees. Contracting out or outsourcing has enabled corporations to replace core employees with contract employees who receive less favourable wages and conditions and to increase competitive pressure on the remaining core employees.

The primary motive for contracting out the provision of public services to the private sector has been the desire to reduce public expenditure. In Australia, the most widely-used estimate of the cost savings associated with contracting out has been that, on average, the cost of providing public services will be reduced by 20 per cent as a result of contracting out. This estimate is derived mainly from the work of Domberger and his co-workers, and has been employed by the Industry Commission (1996) and other government agencies.

Other studies have suggested that, when the costs of tendering and contract management are taken into account, and if there are no changes in wages and conditions as a result of contracting out, the average cost saving from contracting out will be less than 20 per cent in most cases (Paddon 1991, 1993). Paddon criticises the work of Domberger and cites British estimates that the average cost saving was around 7 per cent.

More importantly, the finding of superior private sector efficiency does not appear

to extend, in general, to capital-intensive infrastructure activities. In the case of water, the opposite finding, that the public sector is more efficient, has been more common (Bhattacharya et al, Teeple and Glycer).

2.7 *The PFI in the UK*

Having used the sale of public assets, typically at large discounts, to finance illusory surpluses during the 1980s, the Thatcher government turned to the Private Finance Initiative as a means of pursuing its principal fiscal objective, reduction of the Public Sector Borrowing Requirement. The initiative had only modest success, largely because government departments and agencies were unwilling to bear the higher costs associated with private financing.

On its election in 1997, the Blair government rejected the earlier version of the PFI, but sought to persist a new and improved version, in which ‘value for money’ would be a crucial criterion. Critical reports from the Auditor-General and from Parliamentary committees have found that this goal has not yet been achieved, in that, to date, PFI initiatives have not demonstrably achieved improved value for money.

One of the most significant defects in the operation of the modified PFI has related to the use of ‘public sector comparators’ as a basis for assessing whether projects offer ‘value for money’. The idea is that if the analysis of the public sector comparator shows that a given project could be undertaken at lower cost by the public sector, then the project will not be considered for the PFI. In practice, however, it is frequently made clear that, if the PFI option is not approved, the project will not proceed.

In these circumstances, the analysis of the ‘public sector comparator’ is not a genuine comparison of options. Rather, it is an administrative hurdle that must be cleared before a PFI project can proceed. In the absence of any prospect of public funding, proponents of the project have a strong incentive to ensure that the comparison is favourable to the private option. It is not surprising that the Auditor-General has concluded that, in

many cases, it is impossible to determine whether PFI projects actually represent value for money.

Further doubt has been cast on the PFI by the poor performance of privatised infrastructure providers. The operator of the rail infrastructure network rail track was forced into administration in late 2001, following years of poor performance. The Labor government blamed this failure on a botched privatisation undertaken in haste by the previous Conservative administration. Early in 2002, however, the partially privatised air traffic control system ran into similar difficulties and now faces the need for a government bailout. This privatisation was undertaken by Labor, apparently against the advice of the relevant safety authorities.

In summary, advocacy of initiatives such as PFI represents, at this point, a triumph of hope over experience. Previous experiments in private ownership of public infrastructure have resulted in high costs and a misallocation of risk. The hope is that with improved contracting procedures, these problems will be overcome and genuine cost savings will be realised.

3 Public debt

The issue of debt has played a prominent role in Australian political debate for many years. As in the accounts of a household or a private business, debt levels *per se* should not be a central target of public fiscal policy. The appropriate target is the level of net worth and, by implication, the sustainability of public expenditure with given revenues. Net worth is the difference between the value of assets and the level of debt.

3.1 Budgetary cosmetics, Loan Council, PSBR

As has already been noted, the primary motivation of the Thatcher government's PFI was the desire to reduce the Public Sector Borrowing Requirement and, ultimately, public debt. Similar concerns have been prominent in Australian jurisdictions, and particularly in Victoria.

Beginning in the 1980s, a number of Australian governments entered into arrangements involving the sale and leaseback of public assets. Early deals of this kind in the 1980s, notably some involving power stations, were often sham transactions designed to evade controls on borrowing imposed by the Loan Council. From the 1990s onwards, sale and leaseback has become standard operating procedure for some governments.

The most egregious deals have been those undertaken by the Commonwealth Department of Finance, which is willing to sell assets, then lease them back at rates of up to 15 per cent, implying that the entire purchase price would be paid back in rent within seven years. As has been noted by the Australian National Audit Office

In effect, this approach ensures that the Commonwealth will hold no property. As the Australian National Audit Office observes 'By applying the hurdle rate of return of 15 per cent in the Commonwealth Property Principles to the selection of properties for sale, it would be unusual for the Commonwealth to own property'.

The idea that problems with public debt can be resolved by encouraging the private

sector to undertake infrastructure investment is superficially appealing. However, a more rigorous economic analysis reveals two fundamental problems with this idea.

The first is, that, in many cases, private infrastructure initiatives have been associated with a series of guaranteed government payments which have exactly the same economic and fiscal effects as the repayment of interest on a debt. In the case of the Sydney Harbour Tunnel for example, the NSW Auditor-General concluded that the effect of the contract was that the Tunnel was actually owned by the State government rather than the nominal private owners, and that the obligatory payments to the owners were, in effect, interest on a debt. Similar points arise where a 'sale' is associated with a long-term leaseback or 'take-or-pay' arrangement.

Related issues arise in relation to macroeconomic concerns. Efforts to restrict the growth of public debt are sometimes motivated by concerns that rising interest rates will 'crowd out' private investment. The magnitude of this effect depends on the extent to which Australian interest rates move independently of world rates. However, the effects on interest rates of borrowing to finance a large infrastructure project are the same whether the project is nominally owned by the government, a private provider, or some combination of the two. In any of these cases, private investors outside the infrastructure sector will feel the same effect.

3.2 *Public debt and net worth*

As with a household or business, the crucial issue in assessing a government balance sheet is not the level of debt but the government's net worth. Net worth is the difference between the value of assets and the value of liabilities. The sale of assets invariably reduces debt. However, asset sales are desirable only if the price received for the asset exceeds its value in continued public ownership, that is, only if net worth is increased.

Government balance sheets frequently distinguish between financial and non-financial assets (the great majority of liabilities are financial). It is more useful, however,

to distinguish between revenue-generating and service-generating assets. An asset that generates revenue contributes directly to the capacity to service the associated debt. If revenue flows exceed interest payments, such assets make a positive net contribution to the government's current operating balance.

By contrast, service-generating assets yield benefits to the public, but provide no direct financial return to government. This does not imply that such assets lack value. However, it is necessary to allocate either general taxation revenue or a hypothecated revenue flow to meet the interest payments associated with financing the provision of such assets.

These points may be illustrated in relation to roads. All publicly-owned roads are part of the government's stock of assets and therefore contribute to the net worth of the public sector. The decision to construct a new publicly-owned road means that the government incurs additional debt equal to the construction cost of the road. This debt may be serviced by tolls, by specific increases in road user charges such as registration fees and petrol taxes, or from general revenue.

In the first case, the road is an income generating asset, and makes a positive net contribution to the operating balance if toll revenue exceeds interest payments. In the third case, it is a service-generating asset, and the cost of the flow of uncharged services makes a negative contribution to the operating balance.

In the current scheme, a toll road owned by a government department would be regarded as a non-financial asset. If however, the road were operated by a government business enterprise, the government's shares in the enterprise would be regarded as a financial asset. This illustrates the arbitrary nature of the distinction between financial and nonfinancial assets.

The possibility of financing additional investment through road user charges suggests that, like most classification schemes, there are intermediate cases in the distinction between income-generating and service-generating assets. Although there is no charge

for the services of individual roads, the road network as a whole may be regarded as an income-generating asset for governments.

It is important to note that service-generating assets are not, in any meaningful sense, ‘inferior’ to income-generating assets. In particular, as will be argued below, tolls are, in most cases, an inefficient method of financing road projects. Nevertheless, the fiscal implications of ownership of service-generating assets are different from those of ownership of income-generating assets and this distinction should be reflected in public accounts.

3.3 *Leases, contingent liabilities and debt*

As has been noted above, the use of long-term leases has become particularly popular as a means of reducing reported levels of public debt. Although the government's obligations to make payments under such leases are effectively equivalent to the requirement to make interest and principal repayments on public debt, the accounting treatment is quite different.

The use, or misuse, of leases to reduce reported debt levels has not been confined to the public sector. A particularly notable example has arisen in the telecommunications sector, where companies with excess capacity engaged in ‘swaps’. Two such companies would lease each other's assets. Although the transaction had no economic effect, each company was able to recognise the capitalised value of future rental receipts as current income, while treating its own obligations as a contingent liability that did not need to be declared as debt.

There is no simple answer to the question of when a lease obligation should be regarded as being equivalent to a debt. The crucial issues are the length of the lease and the specificity of an asset. Obviously, the longer the lease on an asset the more the lease is like a debt.

The issue of asset specificity is more complex. A long-term lease on, say, an office

block does not really bind governments to purchase the associated services, since there is a well-established market for such services. If governments find that office space is no longer needed, they can sublet it, or negotiate with the owner to terminate the lease on commercial terms.

By contrast, where governments lease a special-purpose asset such as a hospital, there is no real option of subletting or termination. Once the contract is entered, the government is effectively committed in the same way as if it had purchased the asset using debt finance.

3.4 *Accrual accounting*

Some of the issues discussed above have been addressed by the (still incomplete) shift from cash to accrual accounting in government budgeting. Traditionally, the main object of the Budget (and still an important one today) was to ensure that ministers were accountable for public money, rather than to present an accurate picture of the government's financial position. Hence, accounts were presented in cash flow terms without any distinction between current and capital outlays.

Cash accounting reports the flows of money payments and receipts. If money is received during the accounting period it is counted as revenue, even though it might be paid for services provided the previous or the following year. Similarly, payments are included if they are made this year, no matter when the goods or services purchased are used.

As a result, the proceeds of asset sales were treated exactly like current revenue (or, in some cases, as a reduction in expenditure) and, as far as the Budget was concerned, available for spending in the year in which they are realised. It was gradually recognised that a policy of selling assets to finance current expenditure was unsustainable. A simple *ad hoc* response was to replace the cash measure of Budget balance with an 'underlying' measure, which excluded asset sales.

A more systematic response to the defects of the cash Budget balance measure has been to adopt a system of accrual accounting. All Australian governments are moving progressively to accrual accounting .

The basic idea of accrual accounting is to separate current and capital expenditure and to recognise revenue and expenditure as they accrue, rather than when they are realised as cash payments. Under accrual accounting, the purchase price of capital assets is amortised over the life of the asset, rather than being lumped in with current expenditure in the year of purchase. Accrual accounting is not perfect, but it prevents the use of some of the devices by which governments have fudged their accounts in the past.

The crucial summary measures in an accrual system of accounting are the operating result and the government's net worth. This is the difference between income derived from taxation, grants and government business enterprises and current expenditure on goods, services and interest payments, including an allowance for the depreciation of physical assets. A surplus on the operating result implies that income has exceeded current expenditure, so that net worth is increasing. Similarly, a deficit corresponds to a reduction in net worth.

3.5 *Credit ratings*

A common argument used to justify an strategy specifically focused on reducing debt is that such a strategy will permit an improvement in credit ratings. Before considering the effects of debt reductions on credit ratings, it is important to observe that the direct benefits of a higher credit rating are quite small. For example, in 1993-94, Victoria, with a Standard and Poors credit rating of AA, faced borrowing costs for 10-year bonds 10 to 40 basis points (0.1 to 0.4 percentage points) higher than those of New South Wales with a credit rating two levels higher at AAA. (Moody's ratings were Aa3 for Victoria and Aaa for NSW). On a debt of \$10 billion, the associated interest difference is between \$10 million and \$40 million per year, a trivial amount in comparison with total revenue or

expenditure

In view of the small direct benefits of a credit upgrading, the emphasis placed by many commentators on credit ratings must be attributed primarily to the view that credit ratings represent an impartial judgement of the soundness or otherwise of government fiscal strategies. In general, it is true that policies that tend to have a favourable (or unfavourable) impact on the fiscal sustainability of government policy will also have a favourable (or unfavourable) impact on credit ratings. For example, the introduction of unfunded expenditure programs, or cuts in taxes that are not matched by expenditure savings will tend to reduce credit ratings.

However, this argument does not apply in all cases. Credit ratings are designed specifically to inform and protect the holders of government debt. Policies that specifically improve the position of holders of government debt will be viewed favourably by credit rating agencies even if they are harmful to the state as a whole. In particular, reductions in the level of debt will tend to improve credit ratings even if they are financed by inefficient taxes and charges or by the sale of income-earning assets at inadequate prices. The imposition of inefficient taxes and charges will tend to discourage investment and employment while the sale of income-earning assets at inadequate prices will reduce the net worth of the public sector and, ultimately, the capacity to provide public services, even though both measures may improve credit ratings.

It is paradoxical that many participants in the public policy debate have stressed both the importance of credit ratings and the desirability of emulating the private sector. Over the past three decades, private corporations have generally sought to reduce the cost of capital by increasing debt levels and accepting correspondingly lower credit ratings. Very few private nonfinancial corporations now aspire to a AAA credit rating. In particular, private owners of infrastructure assets typically maintain Standard & Poors credit ratings around BBB.

Of course, there are important differences between the public and private sectors.

Nevertheless, the decisions of private corporations reinforce the point that the pursuit of high credit ratings is not, in itself, a sound basis for public policy.

3.6 The optimal level of public debt and gearing

Fiscal policy should be focused on net worth rather than debt. This is not to say, however, that the level of debt does not matter. It is generally agreed that excessive levels of debt in relation to assets should be avoided, and also that, in most cases, some positive level of debt finance is both financially prudent and more sensible than a ‘zero debt’ or ‘zero net debt’ policy, whether for households, businesses or governments. Zero debt policies typically imply that services, such as the transport services provided by improved roads, must either be foregone or purchased at greater cost than would be associated with debt-financed investments that could provide those services.

While there is wide agreement that a ‘zero debt’ policy makes little sense, there has been little or no analysis of optimal levels of public debt. Developments in the private sector provide some useful information. However, there are fundamental differences between a corporation, financed by a mixture of debt and private equity and a government asset, financed by a mixture of debt and accumulated taxation revenue. In particular, as will be discussed below, the resulting allocation of risk is quite different.

With these qualifications in mind, it may be observed that privately-owned infrastructure assets are typically financed using between 50 and 60 per cent equity and between 40 and 50 per cent debt. As a first approximation, this would seem to be a reasonable rule for the public sector to follow.

3.7 Sustainability and the golden rule

The most important issue in relation to public sector net worth is that of sustainability. As a general principle, public policy with respect to income, expenditure, net worth and

debt should be designed in such a way that existing policy settings can be maintained over time without giving rise to an explosive growth in debt.

This may be seen as an extension of the 'golden rule' principle of maintaining balance between income and expenditure over the course of the economic cycle. The core of the 'golden rule' framework is that, as a general rule, policy should be designed to maintain a stable allocation of public sector resources over the course of the business cycle. Stability is defined in terms of the following ratios:

- (i) The ratio of public sector net worth to state product
- (ii) The ratio of current expenditure to state product
- (iii) The ratio of current income to state product

If GDP is growing, and net worth is positive this rule implies that, on average there should be net surplus of income over expenditure. However, this does not necessarily imply that partial measures of net income, such as the cash or accrual balances for the non-commercial sector should be in balance or surplus.

The general principles underlying the golden rule may be modified to take account of particular circumstances. For example, in a federal system, transfers of responsibility between federal and state governments may imply changes in the optimal ratios of federal expenditure to GDP and state expenditure to state product.

More importantly, while a stable ratio of current expenditure to GDP is a reasonable target in the medium term (a single business cycle of 8 to 10 years), long-term increases in income are accompanied by increasing demands for services such as health and education, which are predominantly supplied and funded by government. Thus, it is reasonable to expect the ratio of current expenditure to GDP to increase gradually over time.

3.8 *Summary and recommendations*

The analysis above shows that the desire to deliver services without affecting the reported level of public debt has been the source of serious policy mistakes in the past.

The following recommendations may help to prevent such outcomes in the future.

Recommendation: Medium-term fiscal policy should be developed in the accrual accounting framework based on a generalised 'golden rule' of maintaining a stable ratio of public sector net worth to GDP

Recommendation: Measures of debt and of financial net worth should not be a primary target of fiscal policy. The adoption of a target of 'zero net debt' should be discouraged

Recommendation: Further analysis of optimal ratios of debt to public asset ownership is required. A level of debt equal to 50 per cent of assets is a reasonable interim target

Recommendation: Measures of public debt should be extended to include obligations under leases and other long-term obligations, particularly where these arise from contracting arrangements that replace public investments that would otherwise incur debt

4 Risk and ownership

4.1 Fundamental principles

The policy document, *Partnership Victoria*, sets out both principles governing risk transfer, and a list of risk classes:

The principle governing risk transfer is that risk will be allocated to whoever is best able to manage it at least cost, taking into account public interest considerations. This does not mean that all risk is transferred. If risk is transferred inappropriately, the Government will pay a premium. The ability to secure risk transfer on worthwhile terms requires the scope of the project to be drawn sufficiently widely. Because there will always be a wide variety of risks associated with potential projects, the structure of a partnership project needs to take account of which party is best able to take responsibility for managing such risks as:

Design and construct risk – to cost, quality and time;

Commissioning and operating risk;

Service under-performance risk;

Industrial relations risk;

Maintenance risk;

Technology obsolescence risk;

Regulation and legal change risk;

Planning risk;

Price risk;

Taxation risk;

Residual value risk; and (where appropriate)

Demand (or volume/usage) risk.

Some subsidiary principles are also presented:

Decisions on risk transfer will also recognise two general principles: Whoever is allocated risk must have the freedom to choose how to handle and minimise it; and Materiality must be considered. Where a department or agency is not the only user of an asset, demand (or volume/usage) risk may also be transferred. The value of risks transferred will be estimated and included in the Public Sector Comparator, to allow for a like-with-like value for money assessment.

The general principle of allocating risk to the party best able to bear it is sound. However, the detailed treatment of risk is less satisfactory. The presentation of such a long list of risks raises the danger of ‘not seeing the woods for the trees’.

Moreover, the analysis in the Partnership Victoria documents is inadequate in crucial respects. The treatment of market risk is not, in general, consistent with the core principle of allocating risk to whoever is best able to manage it at least cost. The treatment of network risk is adequate. Finally, one of the most important aspects of risk, the risk associated with fluctuations in the aggregate economy is not explicitly recognised, and its implicit treatment in terms of discount rates is incorrect.

In this section, a summary of the main categories of risk is presented, with an assessment of the optimal allocation of risk.

4.2 *Construction*

Proposals to undertake a transport infrastructure project typically include an estimate of the costs of construction. However, this estimate may be turn out to be an underestimate because of increases in wages or the costs of other inputs, or because of unforeseen technical difficulties, such as equipment breakdowns and adverse weather. In an economic sense, failure to complete the project on time reduces the present value of the services provided by the project and therefore increases the effective cost of the construction phase. Less frequently, things may turn out better than expected, with the project being

completed ‘on time and under budget’.

In the past, it was common for public infrastructure projects to be constructed by government departments using public sector employees. In general, this has proved less satisfactory than the alternative of competitive tendering. In most cases, it is relatively easy to ensure that the private constructor bears most of the risk associated with the infrastructure projects, and therefore has incentives to overcome the agency problem. By contrast, the incentives for individuals within a government department to minimise costs are relatively weak and diffuse.

In most cases, the optimal allocation of risk requires construction risk (including site risk and design risk) to be borne by the enterprise undertaking construction. This is consistent with the ‘government preferred position’ presented in the Partnership Victoria documents.

4.3 *Operation*

Operational risk encompasses risks relating to industrial relations and maintenance as well as commissioning and operating risk. After completion of the construction phase, an infrastructure asset must be maintained. In addition, the operator may provide a range of operational services using the asset. For some assets, such as roads, costs of operation and maintenance are relatively stable and predictable and are small relative to initial costs of construction. For other assets, such as airports, operations may be complex and subject to substantial risk.

Another important issue regarding risk and operational costs is the relationship between the construction and operation phases. In some cases, decisions made in the construction phase, for example regarding the quality of materials, may have a substantial impact on subsequent costs of operation and maintenance. In such cases, contractual arrangements in which the constructor is required to undertake maintenance may be optimal.

In other cases, there is no such link, and the appropriate contractual relationship involves a ‘turnkey’ contract with payment on completion of the construction phase. Recent public infrastructure projects have involved the creation of a consortium providing a combination of construction, operation and financing, with which the government contracts. In the absence of inherent links between these activities, such an approach reduces the transparency of arrangements and increases the risk of adverse outcomes for the public sector.

In summary, no simple principle can be stated with respect to the optimal allocation of operational risk. Broadly speaking, however, the following result can be stated:

Recommendation: Where costs of operation are substantially influenced by decisions made in the construction phase, risk should be allocated to the enterprise undertaking construction through such mechanisms as guarantees. In other cases, risk should be borne by the agency or enterprise providing the relevant service, which should be separate from the construction enterprise.

This recommendation differs from the ‘government preferred’ approach presented in the Partnership Victoria documents. The preferred approach involves government contracting with a single party or consortium for both construction and operation. This approach will be optimal only in cases where there is a close link between special design features and subsequent operation.

4.4 Service specifications

The principle that risk should be allocated to the party best able to bear it applies to changes in service specifications. Where the services required from an infrastructure project are subject to frequent and unpredictable change, the risk must be borne by the service user, in this case, the government. The more the required risk, the stronger the case for ownership of the relevant activity.

As the costs of changes in service specifications have been recognised, construction

contracts have increasingly relied on a clear preliminary specification of required standards with little scope for changes in specification prior to completion of the project.

In many cases, however, it is impossible to avoid changes in service specifications. This is clearly true in relation to core public services such as health and education, and in the medium term it also applies to less complex activities, such as ancillary services for hospitals. Specifications for such services are inevitably subject to change in the medium term. Among other things, this principle implies that governments, and for that matter private corporations, should not enter into long-term contracts for the provision of even moderately complex services,

Since the optimal term for most service contracts of this kind is shorter than the life of associated capital infrastructure such as schools and hospitals, this analysis reinforces the point that the ‘government preferred’ approach of contracting with a single party is unlikely to be appropriate in such cases.

Recommendation: Except where service specifications are stable and preferable, contracts for the provision of services should be separate from contracts for the construction and maintenance of physical infrastructure.

4.5 *Demand or market risk*

Demand risk refers to the possibility of unforeseen variation in the demand for the services generated by a project. Where there are many consumers, demand risk is appropriately borne by the service provider. However, where there is a single major consumer, that consumer should bear the risk associated with changes in their demand. This situation applies to many public infrastructure projects. The analysis in the Partnership Victoria documents, however, states a ‘government preferred’ position that the private partner should bear the risk in projects of this kind. This is inconsistent with the basic principle of risk allocation.

4.6 *Regulatory risk*

All businesses are subject to regulation, and must bear the risk of possible regulatory change. However, where regulatory risk is the dominant source of risk, the principles of optimal risk allocation require that the government undertaking regulation should bear the risk, either by insuring the returns to the asset owner or through public ownership. The more significant and complex the regulatory risk, the stronger the case for public ownership.

4.7 *Network risk*

The term ‘network risk’ describes a class of risks applying to an individual asset that is one part of a larger network, for example, an individual road in an urban road network. Usage of a particular road will depend, to a large extent, on decisions made with respect to other elements of the transport network. Hence, in many cases, it is inappropriate to consider the risks associated with an individual asset in isolation from the larger network.

In some cases, typically described as ‘interface risk’, interaction with the larger network is of relatively modest importance in relation to the services of the asset in question. In such cases, a division of risk between the owners of the asset and the owners of the network is appropriate.

In other cases, however, the value of the asset is primarily determined by its interaction with the network as a whole. Where network risk takes this form, the optimal allocation of risk can only be achieved if the owner of the network also owns the asset. In particular, this conclusion applies to most urban roads.

Recommendation: Public ownership is appropriate where the dominant risk arises from either:

Network risk (where the main network is publicly owned);

Market risk (where government is the sole or main consumer of services); or

Regulatory risk

4.8 Systematic and idiosyncratic demand risk

A crucial aspect of demand risk is the distinction between risk that is correlated with movements in the general economy (often referred to as systematic risk) and risk that is specific to a particular project (often referred to as idiosyncratic risk). Under plausible conditions, idiosyncratic risk can be pooled and diversified in such a way that no individual bears any significant risk. By contrast, because systematic risks are highly correlated, pooling and diversification has little effect other than to redistribute a given risk within the population.

The Partnership Victoria documents do not explicitly address systematic risk. Rather, systematic risk is reflected in the ‘cost of capital’ or ‘discount rate’ applied to projects, which is typically substantially higher than the real rate of interest applicable to public debt. This issue is discussed in Section 5

4.9 Summary recommendation

The Partnership Victoria documents envisage a preferred position in which governments contract with a single party which undertakes design, construction, financing and operation of an infrastructure facility. Such a position will yield an optimal allocation of risk only in special circumstances including the following conditions

- Close integration between construction and operation phases
- Simple and unchanging service specifications
- Stable demand for services or multiple users in addition to government
- Stand-alone projects or limited interface risk
- Limited regulatory risk

If any of these conditions are not met, the single-contractor model is unlikely to be appropriate. In general, the optimal allocations are likely to be a mixture of

- Standard public procurement in the construction phase, with full public ownership thereafter
- Standard public procurement in the construction phase, with the constructor retaining responsibility for maintenance
- Standard public procurement in the construction phase, with separate contracting for provision of associated services
- A single-contractor model

Recommendation: The principle of optimal risk allocation requires the availability of a range of contracting arrangements. A single-contractor model will be appropriate only in a minority of cases. For most infrastructure projects, standard public procurement procedures, with subsequent public ownership of the asset will be preferable.

5 Public-private comparisons

5.1 The need for real comparisons

As was noted above, one of the most significant defects in the operation of the British PFI has related to the use of ‘public sector comparators’. The problem is that, in many cases, if the PFI option is not approved, the project will not proceed. In these circumstances, the analysis of the ‘public sector comparator’ is not a genuine comparison of options. Rather, it is an administrative hurdle that must be cleared before a PFI project can proceed.

To overcome this problem, it is necessary that the analysis of the public sector comparator should, as far as possible, be a comparison of alternative methods of implementing a given project. This entails an expectation that, if the public sector comparator proves more cost-effective it will, in general be implemented.

The central implication is that private infrastructure projects should be considered as part of an integrated planning process based on systematic benefit–cost analysis. Proposed projects should be subject to a preliminary benefit-cost analysis, with the critical ratio being the same as that required for approval of publicly-funded projects. If the estimated benefit-cost ratio for a proposed project exceeds the critical value, it should be evaluated against a public sector comparators, with the expectation that the more cost-effective option will be implemented.

5.2 Real and spurious sources of cost difference

Many assessments of contracting arrangements have been based on claims that on average, the cost of providing public services will be reduced by 20 per cent as a result of contracting out. This estimate is derived mainly from the work of Domberger and his co-workers, and has been employed by the Industry Commission and other government

agencies.

However, other studies have suggested that, when the costs of tendering and contract management are taken into account, and if there are no changes in wages and conditions as a result of contracting out, the average cost saving from contracting out will be less than 20 per cent in most cases. Arbitrary assumptions about cost savings have led to failures in contracting, notably in the case of the (now-abandoned) system of centralised contracting for IT services adopted by the Commonwealth government.

In assessing the costs of private provision against a public sector comparator, it is important to ensure that only genuine social cost savings arising from differences in productivity and efficiency are taken into account. Sources of cost difference that should be disregarded include:

- Exemptions of state instrumentalities from taxes
- Ability of private enterprises to avoid or minimise taxes
- Differences in wages and conditions

5.3 *The cost of capital*

The central principle on which the Partnership Victoria approach is allocated is that, as far as possible, risks should be explicitly identified and then allocated to the party best able to manage them. This principle is not applied, however, in the selection of discount rates in the evaluation of the public sector comparator

If all risks have been identified and taken into account, the appropriate procedure for the evaluation of costs and benefits is to compute the present value using a riskless discount rate such as the rate of interest on government bonds, implying a real rate of discount of 3 to 4 per cent.

By contrast, the evaluation procedure proposed by the Partnership Victoria documents calls for a real rate of discount of around 6 per cent. For a long-lived project with returns that are stable in real terms, the effect of using a 6 per cent rather than a 3 per cent real rate of discount is to reduce the present value of benefits by about half.

The justification for the use of a higher rate of discount is that it takes account of ‘systematic risk’, that is, of the correlation between the returns from the project and fluctuations in the economy. There are a number of fundamental difficulties with this approach.

First, as with other risks, the appropriate method of taking systematic risk into account is by reducing the expected or certainty-equivalent, value of benefits, not by adjusting the discount rate. Except in very special circumstances, the use of adjustments to discount rates as a correction for any form of risk is inappropriate. However, given the entrenched nature of this practice, it is unlikely to change.

Second, and most importantly, no attempt has been made to evaluate the actual social cost of systematic risk. Standard principles of economic analysis suggest that this cost is quite small. The risk premium arises from the covariation between project returns and aggregate national or state income, which, expressed in proportional terms, is less than 1 per cent for most projects. Under plausible assumptions about risk aversion, the appropriate deduction from project benefits should also be less than 1 per cent.

Rather than estimating costs directly, the systematic risk premium applied to public projects by the Treasury is based on the observations of the ‘equity premium’ in private markets. The equity premium is the difference between the average return to equity (shares in private companies) and the rate of return to riskless debt (government bonds or top-grade corporate debt). This premium is around 6 percentage points, and since most projects are financed with roughly equal proportions of debt and equity, the effect is to raise the ‘weighted average cost of capital’ by around 3 percentage points, as noted above.

The fact that the equity premium observed in private markets greatly exceeds plausible estimates of the social cost of systematic risk is well-known in the economic literature under the name of the ‘equity premium puzzle’. Despite the development of a vast literature on this topic, no generally agreed explanation of the anomalously large

equity premium has emerged.

Nevertheless, it is clear that at least some of the premium is accounted for by the fact that the 'efficient markets hypothesis', under which the market return to equity would exactly reflect the social cost of risk, is invalid. The efficient markets hypothesis requires, first, that all households should be able to smooth their consumption over time, if necessary by borrowing at a rate close to the riskless bond rate and second, that all income-earners should be able to insure themselves against fluctuations in their income. Neither of these conditions is met. The result is that individual and household consumption is more risky than would be expected under the efficient markets hypothesis. Individuals and households therefore demand a premium in return for holding risky equity.

By contrast, governments can smooth their income and expenditure over time by borrowing at the real bond rate to finance deficits during recessions and repaying debt out of surpluses arising in periods of boom. Moreover, the way in which risk is spread through the tax system is quite different from the insurance mechanisms available in private capital markets.

There is, therefore, no reason to suppose that the risk premium associated with private equity investments is a useful guide to the cost of systematic risk in returns to public investments. The cost of risk for public investments is lower than for the private sector and probably equivalent to a discount rate adjustment of less than 1 percentage point.

Recommendation: Evaluation of proposed partnerships should be undertaken in two stages. If the initial evaluation of the project indicates positive net benefits, it should be evaluated against a public sector comparator. Assessment in the second stage should be undertaken on the basis that, if the public sector comparator is found to yield better value for money, it should be implemented.

Recommendation: The real pretax discount rate applicable to typical public sector

comparator projects should be 4 per cent.

6 Financial innovation

A great deal of the support for proposals for private investment in infrastructure rests on claims that private involvement permits the use of ‘innovative financing arrangements’. It is frequently assumed that the use of such innovative arrangements can make projects feasible even though the same projects would not pass the benefit–cost tests applied to proposed projects using traditional financing methods.

A typical recent example is an editorial in the *Sydney Morning Herald* (19 April 2002), referring to a railway project that is in jeopardy because of a ‘blowout’ in estimated costs. The editorial states:

‘It is up to the Government to come up with innovative financing arrangements - very likely in partnership with the private sector - to make the line a reality.’

Another phrase frequently used in this context is ‘financial engineering’.

There are a number of reasons why claims of this kind should be viewed with suspicion. The first is that, historically, government involvement in ‘financially innovative’ arrangements has been fraught with danger for the public. With the arguable exception of collective agriculture, few government activities have failed as regularly or incurred as large losses, as involvement in financial innovation.

Second, while some applications of ‘financial engineering’ involve nothing more than the application of the principles of risk management described above, many others have involved the creation of artificial structures designed to avoid taxes, artificially boost profits and conceal debt. Many recent corporate failures may be attributed, in large measure, to excessive reliance on innovative financing.

Third, while an efficient allocation of risk may reduce the cost of a project, in most cases, changes in financing arrangements are unlikely to render a project viable that would otherwise fail a benefit–cost analysis. In many cases, the effect of innovative financial arrangements is to circumvent standard procedures for project evaluation. The

result is that projects are selected on the basis of financial packaging rather than inherent merit.

Finally, as has been argued in previous chapters, traditional finance through public debt provides a highly cost-effective method of raising capital and spreading risk. Experience has shown that the overt and hidden costs of ‘innovative financing’ are generally greater than the cost of traditional methods of finance.

6.1 Public-sector experience in Australia

In general, the experience of the Australian public sector with innovative financial arrangements has not been particularly satisfactory. In part, this reflects the political incentives surrounding the adoption of such arrangements. The pressure to adopt innovative arrangements is greatest when desired projects cannot be financed using traditional methods, because of constraints imposed through the policy process.

The crucial problem is that, to the extent that such constraints are justified, the use of innovative arrangements to circumvent them is likely to lead to the implementation of financially unsound projects.

Even where critical constraints are not in fact justified (as appears to be the case with the restrictions on aggregate borrowing imposed through the Loan Council in the 1980s), the adoption of innovative financial practices is fraught with danger. By circumventing a range of controls, the danger of poor project selection and financial loss to the public is enhanced. The danger is even greater if the innovative nature of arrangements is used as a pretext for invoking commercial confidentiality.

Adverse experience with innovative financial arrangements has also arisen as a result of exogenous policy change. For example, the deregulation of the banking system during the 1980s fundamentally changed the policy environment with respect to state-regulated or state-owned financial institutions such as building societies and state banks. These institutions responded by adopting a range of innovative lending practices that

were highly praised at the time.

The results, including the failure of the State Banks of Victoria and South Australia the failure of the Pyramid group of building societies and the failure of a number of state-regulated financial institutions in Western Australia were disastrous.

It is important to note that these failures did not arise as a result of public ownership *per se*. The State Banks had operated successfully f

A more recent episode that yields some important lessons is the apparent loss of billions of dollars as a result of currency swaps undertaken by the Commonwealth Treasury. It rapidly became apparent during recent Senate hearings on this topic that the Treasury lacked the expertise to present a clear statement of the financial implications of the swaps contracts, let alone a coherent assessment of the costs and benefits. The Treasury had relied heavily on external advisors, whose reports, in retrospect appeared ambiguous at best.

6.2 *Private-sector experience with financial innovation*

Although financial innovation has been, on balance, a beneficial process, many innovations have not been beneficial. Moreover, periods of rapid financial innovation have generally given rise to fraud and waste on a large scale.

As has been noted above, the most recent period of large-scale financial innovation in Australia was that following financial deregulation in the 1980s. In addition to the public sector failures noted above, there were large-scale failures in the private sector. A common thread in these failures was the use of financial innovation to conceal the fact that the operations of 'entrepreneurial' enterprises such as Bond Corporation and Rothwells were fundamentally unsound and, in some cases, chronically unprofitable.

More recent experience has arisen from the speculative boom in the United States, exemplified by the rise and fall of the Enron corporation. Before its recent spectacular bankruptcy, Enron was nominated by Fortune magazine as 'America's most innovative'

for six years in succession. It grew rapidly to be the No 7 firm in the Fortune 500 (in terms of reported revenues) in 2001.

Enron attributed its success to two basic principles. The first was an ‘asset light’ approach. Whereas traditional energy businesses owned power stations, pipelines and transmission systems, Enron believed that a modern corporation should not be in the business of owning assets. This business was best dealt with through contracts with private partners.

The second principle was that of financial innovation. Enron's army of lobbyists were vociferous in their claim that private-sector innovation would yield outcomes far superior to those achieved through public sector regulation, let alone public ownership. In particular, Enron lobbied vigorously for the deregulation of the electricity industry in California and elsewhere. The system adopted in California reflected a compromise between Enron and established distributors such as PG&E, which also went bankrupt last year.

A third factor in Enron's meteoric rise, not publicly acknowledged until near the end, was the practice of shifting debt off the balance sheet through complex contractual arrangements. This practice was crucial in maintaining a strong credit rating, seen as a vital vote of confidence by Enron management.

In retrospect, it has become clear that Enron's financial innovations concealed the fact that many of its investments were unsound and many of its operations were unprofitable. The damage was exacerbated by the fact that the innovations permitted the officers of the company to enrich themselves at the ultimate expense of shareholders and creditors and by the chaotic and costly nature of a bankruptcy process involving thousands of legally separate, but interrelated, corporate entities.

6.3 *Summary and recommendations*

By its very nature, financial innovation involves the creation of new, and poorly

understood financial risks. Even when innovation undertaken by the most sophisticated international financial institutions, disasters such as the failure of Long Term Credit Management and the collapse of Enron abound.

In the absence of highly developed financial market expertise within government, involvement in innovative financial arrangements always carries the danger of unfavorable bargains and exposure to unrecognised contingent risks. There is however, little likelihood that state governments in particular will be able to acquire the kind of expertise possessed by international financial institutions and little justification for doing so.

The conservatism associated with traditional methods of public finance reflects the poor track record of governments with respect to financial innovation. Rather than taking the lead in this respect, governments in general, and Australian state governments in particular would be well-advised not to adopt financial arrangements untested enough to be described as ‘innovative’. Over time, experience will show which arrangements yield genuine benefits and which are merely cosmetic forms of ‘financial engineering’. Only when such experience has been accumulated should governments adopt new types of financial arrangements.

The discussion of financial risk and sponsor risk in the Partnership Victoria documents indicates awareness of the relevant points. However, it is not clear that the recommended protections are adequate. Given adverse past experience, a highly conservative approach to financial innovation is indicated. Victoria should leave experiments in this area to the private sector and to other jurisdictions willing to bear the losses associated with inevitable failures.

Recommendation: While encouraging technical innovation, contracting arrangements with the private sector should avoid financial innovation. Only well-established methods of financing should be employed.

7 The case of CityLink

The CityLink road project is, on most measures the largest single private infrastructure project ever undertaken in Australia. The project has had a significant impact on traffic congestion and has probably yielded positive net benefits. Nevertheless, almost every aspect of the contractual and financing arrangements surrounding the project has been unsatisfactory, with the result that many of the potential benefits of the project have been foregone.

The first unsatisfactory feature of the contracting arrangements was the absence of a public sector comparator. Evaluation of the project proceeded on the basis that it would only go ahead if it was privately constructed.

A natural consequence of this decision was the assumed necessity of using tolls as a financing method. Although other approaches, such as 'shadow tolls' are feasible, they do not appear to have been considered. These approaches

In general, the use of tolls to finance the construction of new roads designed to divert traffic from existing congested routes is a mistake. Economic theory suggests that the appropriate role of tolls is to discourage use of congested roads. The imposition of a toll on users of a new road, while existing congested roads remain toll-free, produces price signals exactly opposite to those consistent with efficiency. The resulting diversion of traffic onto existing roads

Tolls are also costly to collect, when compared with general road user charges such as registration fees and petrol taxes. While the electronic tolling system reduces costs for regular users of the system, it imposes substantially greater costs on occasional users than would a toll-gate system with cash payments. A system of this kind is particularly inappropriate when applied on the main entry route used by interstate and country visitors to Melbourne, and the CityLink toll has undoubtedly had an adverse impact on inbound tourism.

The use of a BOOT contractual arrangement is a further breach of sound contracting principles. The primary motivations for the adoption of BOOT systems, in which the asset is handed over to the public at the expiry of a specified term, include the spurious appearance of providing ‘something for nothing’ to the public sector, and the possibility of exploiting tax loopholes. In both cases, any apparent benefits are realised at substantial cost to Australian society as a whole.

A final negative feature of a BOOT approach is the implied commitment to remove tolls precisely at the time when congestion is likely to have increased enough to justify a toll. If the aim of contractual design were to take the economically optimal pricing and risk allocation arrangement, and implement the exact opposite, a BOOT scheme would be the ideal choice.

The CityLink project also illustrates the inappropriate allocation of risk that arises when one element of a larger urban transport network is handed over to private ownership. The returns to the owners of the project depend to a large extent on decisions made regarding other aspects of the network. This risk may be mitigated, if the government commits itself not to take actions that would reduce future traffic flows, but such commitments involve a costly loss of flexibility to respond optimally to changing circumstances. Alternatively the owners of the project may be compensated through a higher rate of return. In the case of CityLink it appears that a combination of these approaches was adopted.

Finally, the CityLink project illustrates the difficulties that arise from the desire on the part of government to deal with a single party, representing a consortium of interests, rather than to contract separately with relevant parties. During the series of contractual disputes that delayed full implementation of the project, the government was left in the position of a passive bystander.

In total, the effect of these inappropriate contractual arrangements is to substantially increase the costs of the project and reduce the benefits relative to the alternative of a

standard public procurement procedure with the capital cost being met by the issue of debt, serviced by road user charges. An estimate of the excess cost may be obtained by comparing the present value of toll revenue to be levied over the value of the project, which appears likely to be around \$4 billion, with the construction cost, around \$2 billion. The loss of benefits arising from traffic diversion, and constraints on planning flexibility is harder to estimate. However, if the toll is assumed to capture 50 per cent of benefits in terms of reduced travel time, and the elasticity of demand is between 1 and 2, the welfare cost may be estimated at between 12.5 and 25 per cent of the total value of benefits in the absence of a toll.

References and bibliography

- Arrow, K. and Lind, R. (1970), 'Uncertainty and the evaluation of public investment decisions', *American Economic Review* 60(2), 364–78.
- Bhattacharyya, A., Parker, E. and Raffiee, K. (1994), 'An examination of the effect of ownership on the relative efficiency of public and private water utilities', *Land Economics* 70(2), 197–209.
- Borcherding, T., Pommerehne, W. W. and Schneider, F. (1982), 'Comparing the efficiency of private and public production: the evidence from five countries', *Zeitschrift für Nationalökonomie Journal of Economics* Supplement 2, 127–56.
- Clark, C. M. H. (1962), *A History of Australia: I From the Earliest Times to the Age of Macquarie*, Melbourne University Press, Melbourne.
- Constantinides, G. M., Donaldson, J. B., and Mehra, R. (1998), Junior can't borrow: a new perspective on the equity premium puzzle, NBER Working Paper Series No. 6617, National Bureau of Economic Research, Cambridge, MA.
- Constantinides, G. M. and Duffie, D. (1996), 'Asset pricing with heterogeneous consumers', *Journal of Political Economy* 104(2), 219–40.
- Department of Treasury and Finance, Victoria. (2000), *Partnerships Victoria*, Melbourne.
- Domberger, S. (1995), 'What does privatisation achieve? — A comment on Quiggin', *Australian Economic Review* (2nd quarter), 43–7.
- Domberger, S., Doyle, G., and Hall, C. (1996), Competitive tendering and contracting: a response to the critics, No. CT02-96 April, CTC Research Team, Graduate School of Business, University of Sydney.
- Domberger, S., Hall, C. and Li, E. A. L. (1995), 'The determinants of price and quality in

competitively tendered contracts', *Economic Journal* 105(433), 1454–70.

Domberger, S., Meadowcroft, S., and Thompson, D. (1986), 'Competitive tendering and efficiency: The case of refuse collection', *Fiscal Studies* 7(4), 69–87.

Domberger, S., Meadowcroft, S., and Thompson, D. (1987), 'The impact of competitive tendering on the costs of hospital domestic services', *Fiscal Studies* 8(4), 39–54.

Domberger, S. and Piggott, J. (1986), 'Privatisation policies and public enterprise: a survey', *Economic Record* 62(173), 145–62.

Economic Planning Advisory Commission (EPAC) (1995), *Final Report of the Private Infrastructure Task Force*, AGPS, Canberra.

Economic Planning Advisory Commission (EPAC) (1995), *Interim Report of the Private Infrastructure Task Force*, AGPS, Canberra.

Grant, S. and King, S. (1993), 'Auctions and privatisation: a nontechnical introduction', 131–49 in Davis, K. and Harper, I. (ed.), *Privatisation: The Financial Implications*, Allen & Unwin, St. Leonards, NSW.

Grant, S. and Quiggin, J. (2000), 'The interaction between the equity premium and the risk-free rate', *Economic Letters* 69, 71–79.

Grant, S. and Quiggin, J. (2002), 'Public investment and the risk premium for equity', *Economica* forthcoming.

Grant, S. and Quiggin, J. (2002), 'The risk premium for equity: implications for Clinton's proposed diversification of the social security fund', *American Economic Review* forthcoming.

Grossman, S. and Hart, O. (1983), 'An analysis of the principal–agent problem', *Econometrica* 51(1), 7–46.

Harris, A. C. (1996), 'Financing infrastructure: private profits from public losses', New South Wales Auditor-General, Public Accounts Committee, Parliament of New South Wales Conference, 'Public/Private Infrastructure: Still Feasible?', Sydney, 31 July.

Hathaway, N. (1997), 'Privatisation and the cost of capital', *Agenda* 4(1), 1–10.

Hirshleifer, J. (1965), 'Investment decisions under uncertainty: choice-theoretic approaches', *Quarterly Journal of Economics* 79(4), 509–36.

Hirshleifer, J. (1989), *Time, Uncertainty and Information*, Basil Blackwell, New York.

Industry Commission (1990), *Annual Report, 1989-90*, AGPS, Canberra.

Industry Commission (1996), *Competitive Tendering and Contracting by Public Sector Agencies*, AGPS, Melbourne.

Kocherlakota, N. R. (1996), 'The equity premium: it's still a puzzle', *Journal of Economic Literature* 34(1), 42–71.

Mankiw, N. G. (1986), 'The equity premium and the concentration of aggregate shocks', *Journal*

of *Financial Economics* 17, 211–19.

Mehra, R. and Prescott, E. C. (1985), 'The equity premium: a puzzle', *Journal of Monetary Economics* 15(2), 145–61.

Modigliani, F. and Miller, M. (1958), 'The cost of capital, corporation finance and the theory of investment', *American Economic Review* 68(2), 261–97.

Moyle, P. (1994), 'Private contract management of corrections in Victoria: some pressing issues that will challenge policy makers', 27–36 in Moyle, P. (ed.), *Private Prisons and Police: Recent Australian Trends*, Pluto Press, Leichardt, NSW.

Officer, R. (1985), 'Rates of return to shares, bond yields and inflation rates: an historical perspective', Chapter 14 in Brown, R., Ball, R., Finn, F. and Officer, R. (ed.), *Share Markets and Portfolio Theory*, UQ Press, Brisbane.

Officer, R. (1999), 'Privatisation of public assets', 1–22 in CEDA (Committee for Economic Development of Australia) (ed.), *Privatisation: Efficiency of Fallacy? Two Perspectives*,

Quiggin, J. (1994), 'The fiscal gains from contracting out: Transfers or efficiency improvements?', *Australian Economic Review* September, 97–102.

Quiggin, J. (1995), *Private Infrastructure: A response to the EPAC Taskforce Interim Report*, James Cook University.

Quiggin, J. (1996), 'Competitive tendering and contracting in the Australian public sector', *Australian Journal of Public Administration* 55(3), 49–57.

Quiggin, J. (1996), 'Private sector involvement in infrastructure projects', *Australian Economic Review* (1st quarter), 51–64.

Quiggin, J. (1998), 'Private Infrastructure Options: BOOTs, BOTs and BOOs', Conference on 'BOOT: In the Public Interest?' organised by the Australian Centre for Independent Journalism, Australian Mekong Resource Centre, Sydney University and Community Aid Abroad. University of Technology, Sydney.

Swan, P. (2000), Does 'illiquidity' rather than 'risk aversion' explain the equity premium puzzle? The value of endogenous market trading, No. 18 December, School of Business, University of Sydney.

Teeples, R. and Glycer, D. (1987), 'Cost of water delivery systems: specification and ownership effects', *Review of Economics and Statistics* 63(3), 399–408.

Walker, B. (1994), 'Privatisation: a re-assessment', *Journal of Australian Political Economy* 34, 27–52.