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What Impact will Current Capital Market Conditions Have on Public Private Partnerships? The South East Queensland Regional Economy

Michael Regan*



EXECUTIVE SUMMARY

1. Infrastructure is one of Australia's largest asset classes and plays an important role in the economy's productive capacity, output and microeconomic performance. Governments at all levels provide around 70% of economic and 64% of social infrastructure.
2. Infrastructure is especially important to the Queensland regional economy and for many years, state investment was a demand-response approach to high levels of population growth, particularly in urban areas, and strong regional economic growth.
3. Public investment in infrastructure has declined as a share of gross domestic product (GDP) from around 6% in the 1960s to 3.8% in 2007. The average age of infrastructure is increasing and in 2007, 54% of all new investment was accounted for by depreciation and capital retirements. In Queensland, real infrastructure investment between 1996 and 2004 fell in both per capita and gross state product (GSP) terms.
4. The South East Queensland Infrastructure Plan and Program 2008-2026 (SEQIPP) is a supply-led approach to infrastructure provision and contemplates significant private investment in the next 18 years. The private sector is increasing its share of infrastructure investment and management mainly through outsourcing and public private partnerships which currently account for up to 10% of state capital spending on infrastructure.
5. Internationally, PPPs are being used across a wide variety of economic and social infrastructure projects in more than 85 countries. PPPs are a procurement methodology that brings a rigorous risk-weighted approach to major projects using a competitive bid process and private sector expertise and innovation. PPPs are achieving a number of significant improvements in major project procurement and improved public service delivery. A wide body of evidence supports the following findings:
 - PPPs are bringing forward the delivery of major projects
 - The model is achieving value for money, reducing procurement costs and delivering more projects on time and within budget than traditional methods
 - PPPs are improving the science of state procurement and have led to wider application of Gateway Review and alliance contracting methods with significant benefits for state procurement outcomes
 - Certainty with lifecycle costing
 - High levels of construction and design innovation and new technologies.
6. PPPs are highly leveraged and a number of major assets are either listed on the Australian Securities Exchange (ASX) or controlled by listed portfolio investment funds. PPPs are highly dependant on capital markets for many services including:
 - Raising equity capital through initial public offerings
 - Debt finance
 - Financial risk management
 - Intermediation, credit insurance and related services
 - Innovation from financier-led competitive bids.

7. Conditions in international and domestic capital markets are unstable and volatile. Present conditions exhibit the following characteristics:

- A 50% fall in stock prices since the market peak in 2007 and stock price volatility
- Limited opportunity for on-market equity raisings
- Increased difficulty raising debt and higher debt financing costs
- Limited supply and repricing of credit insurance
- Uncertainty and lack of confidence.

A consequence of these market conditions is limited availability of equity and debt capital and a higher cost of capital. This condition is exacerbated in Australia where projects listed on the ASX make greater use of medium-term corporate debt and periodic refinancing than other countries. Revaluation and refinancing, once revenue maturity is achieved, are key elements of investment economics through increased leverage, a return to equity and a reduction in the cost of debt. Present market conditions would indicate that these opportunities will be considerably reduced over the medium term.

8. Present market conditions imply that future PPPs will be subject to new disciplines - lower leverage, higher reserves, stronger underlying credit credentials, higher debt service coverage criteria and higher cost debt. This will affect both bid depth and state risk allocation with lenders expected to take a tougher approach to the support of delivery and operational risks. This suggests adverse impacts on value for money outcomes for the PPP model in the short-term.

9. PPPs with positive credit characteristics will fare much better regardless of size. These characteristics include:

- More conservative leverage than has been common in recent years
- Availability based payment regimes and benign regulatory frameworks
- Strong reserves and debt servicing capability
- No exposure to patronage risk for debt service coverage
- Availability of appropriate credit insurance
- Capabilities, financial strength and track record of consortium members
- Limited or shared lifecycle servicing obligations.

10. To maintain a PPP bid market and to keep a steady flow of PPP transactions in present market conditions, government has several policy options including the issue of state bonds, the credit guarantee finance model, the supported debt model and direct guarantees. Bonds remain a state option at any time although they are treated as state debt for Loan Council purposes and carry both deadweight and, to the extent that they offer tax deductibility of bondholder interest receipts, revenue costs. Direct guarantees are a contingent liability for the state and offer a relatively low-cost support mechanism for PPP projects. The credit guarantee and supported debt models may lower cost of capital but also increase transaction and agency costs. The options for government are examined in further detail in this report.

11. PPPs deliver procurement benefits and are improving the science of state procurement. Present market conditions do not close the door on PPPs but do provide an opportunity for both government and industry to develop a more refined model that is more appropriate for the new environment. This may require a more scientific costed approach to risk allocation, state guarantee support, improved underlying credit credentials and a rethinking of patronage risk. It is a shared responsibility. It may also encourage a further step in the continuing evolution of alternate major project procurement mechanisms.



1. OVERVIEW

Infrastructure describes the structural framework, systems and networks that facilitate economic and social activity in an economy (Rutherford 2000). Infrastructure is also one of Australia's largest asset classes accounting for around \$616 billion in assets and around 22.8% of GDP each year (ABS 2007) (See Table 1). However, economic and social infrastructure plays a much greater role in the economy because of its extensive multiplier effects on most other sectors of the economy. Infrastructure also accounts for 13.6% of private capital investment and around 17% of aggregate gross fixed capital formation, an important driver of domestic demand, output and economic growth (Regan 2004).

TABLE 1 NET CAPITAL STOCK AUSTRALIA 2005

	\$ million	Av. Age (Years)
NCS (All Industries)	2,405,900	17.1
NCS (I) (Infrastructure)	615,910	19.4
Dwellings	992,494	19.8
Commercial property	712,104	19.8
ASX	959,979	

SOURCE

ABS 5204.0; RBA Bulletin Oct. 2006



In Australia, around 68% of economic and social infrastructure is provided by the state although in recent years, private infrastructure investment grew at a faster rate than that by the state. The average age of infrastructure is increasing and overall net contribution to capital stock accumulation is less than the average for Organisation of Economic Cooperation and Development (OECD) countries (See Table 2).

TABLE 2 NET GROSS FIXED CAPITAL FORMATION AUSTRALIA 2005

	\$ m	COFC* \$ m	%	Net \$ m
GFCF (All Industries)	226 910	134 771	59.4	92,139
GFCF(I):				
Utilities	10 163	5 701	56.1	4 462
Transport	18 527	11 254	60.7	7 273
Communications	6 375	4 135	64.9	2 240
Government	5 181	4 567	88.1	614
Education	5 510	3 820	69.3	1 690
Health	6 088	3 447	56.6	2 641
Total	51 844	32 924		18 920
GFCF(I):GFCF %	22.8	24.4		20.5
NCS(I):NCS %	25.6			

SOURCE

ABS 5204
2006

NOTE * Capital wasting and depreciation.

Infrastructure is an important element of regional economic development. Queensland is especially reliant on land transport infrastructure to service its strongly growing regional economy. The Queensland economy exhibits a number of features that distinguish it from other regional economies such as its greater reliance on the agribusiness, mining, construction, transport, tourism and the retail sectors than is the case nationally. The state is also under-represented in the finance and insurance, manufacturing, property and business services industries. Industry composition is reflected in the strong contribution of the construction and the resources industries to growth in total factor income, a characteristic shared with Western Australia (ABS 2006c). The decentralised nature of the state population and its industry mean that Queensland places greater reliance on land transport infrastructure than other states.

Investment was the major driver of Queensland's economic growth in 2006 with private gross fixed capital formation (GFCF) increasing by 20.1%. There were several underlying factors here - international commodity prices, greater investment and productivity in the resources sector and strong domestic demand in the services sector (Department of Treasury 2006a, p. 5, 8). This trend continued into the 2007-08 year. Given the importance of investment to regional economic performance, the current rate of both public and private investment will play a significant role in the region's future economic, social and spatial development.

Household consumption is also a strong contributor to growth in Queensland supported by population growth and favourable labour market conditions including strong growth in employment. In the 10 years to 2006, non-dwelling capital investment in Queensland increased from 17.7% to 19.3% of GSP.¹ Reflecting a national trend over this period, public investment declined from 5.9% to 5.4% of GSP and private investment increased from 11.8% to 14%. In the same period, national public investment increased slightly from 3.6% of GDP to 3.9% and private investment increased from 12.2 to 13.2% (ABS 2006c). Public capital investment is a major driver of growth in public final demand which reached record levels in 2005-06. The data indicates that non-dwelling public investment in Queensland in this period was the highest of all the states. However, investment was declining in both monetary and per capita terms.

An alternative measure of investment is the value of non-dwelling engineering construction activity.² Queensland accounted for around 22% of expenditure in the 6 years to 2006 which compares with New South Wales 24%, Victoria 16.9% and Western Australia 26%. This is the second highest spending nationally in GSP and per capita terms behind Western Australia. Both states are characterised by large land mass, relatively low population density and, in the case of Queensland, a decentralised economy with around 36% of the State's population and 38% of economic activity located outside the South East Queensland regional economy (SEQRE) (ABS 8762.0 2004, 2006; OESR 2007).

In the 2006 State Budget, the Treasurer announced significant increases in public capital investment with capital outlays of \$8 billion, a 32% increase on estimated actual 2005-05 capital outlays. Around 66% of this expenditure is earmarked for regional areas outside the SEQRE and 43% of the capital will be provided by government business enterprises (GBEs). Central to the major investment strategy is the South East Queensland Infrastructure Plan and Program (SEQIPP). The SEQIPP proposes \$107.4 billion of capital spending across the transport, industry development, water, energy, the health and education sectors over the next 17 years. The program also proposes expenditure on justice services, vocational training, regional sport and recreation (Department of Infrastructure 2008).

A significant component of the SEQIPP program is underway using a combination of procurement mechanisms - traditional procurement, alliance contracting and public private partnerships. PPPs are essentially a procurement method that employs various combinations of private sector capital and management. In Queensland and the other Australian states, PPPs follow a formal project evaluation and selection process based on an output specification for the delivery of services to or on behalf of the state.

1.1 THE ROLE OF INFRASTRUCTURE

Early research into the role of infrastructure was based on simple production function using time series macroeconomic data and a focus on output growth and productivity (Aschauer 1989a). The research that followed established a link between public infrastructure and these variables although estimates of the effect were excessive and the analytical techniques failed to accurately measure two-way causation that was evident in much of the early analysis. Subsequent research established a correlation between infrastructure investment and various measures of growth, productivity, employment, incomes, private sector costs, and regional development was clearly established for both developed and developing economies (Regan

1. Investment includes expenditure on machinery, equipment and non-dwelling construction and excludes livestock and intangible fixed assets. Current prices.
2. Includes public and private investment in roads, highways and urban land sub-division, bridges, railways, harbours, energy, water, telecommunications and heavy industry (ABS 8762.0 September, 2006).

2004). However, the question remained whether it was economic growth that stimulated investment or the other way about.

In recent years, research addressed the causation issues and there has been wider use of disaggregated data and both value and physical measures of infrastructure investment. Single nation case studies and a growing body of evidence for regional economies are providing fresh insights. In particular, the role of endogenous and institutional growth theory, the effectiveness with which infrastructure is used, industry differences, the role of development policy and in particular, the role of private capital investment are now being explored.

A review of the empirical evidence suggests that, as a general rule, economic and social infrastructure contributes to the productive capacity of an economy; it is positively associated with productivity and private sector costs and is an important driver of output growth (Queensland Treasury 2005, Regan 2004). In the past 25 years, a considerable body of research has examined the relationship between state spending on public infrastructure and a number of economic indicators including:

- Output and growth
- Productivity
- Private firm operating costs, returns and profits
- Employment and incomes
- Private sector investment
- Differences in regional development
- The spatial development of industry and communities.

This evidence points to a positive and causal association between public investment in core or economic infrastructure and all of the above indicators. Infrastructure is now recognised as an important contributor to Australia's output and

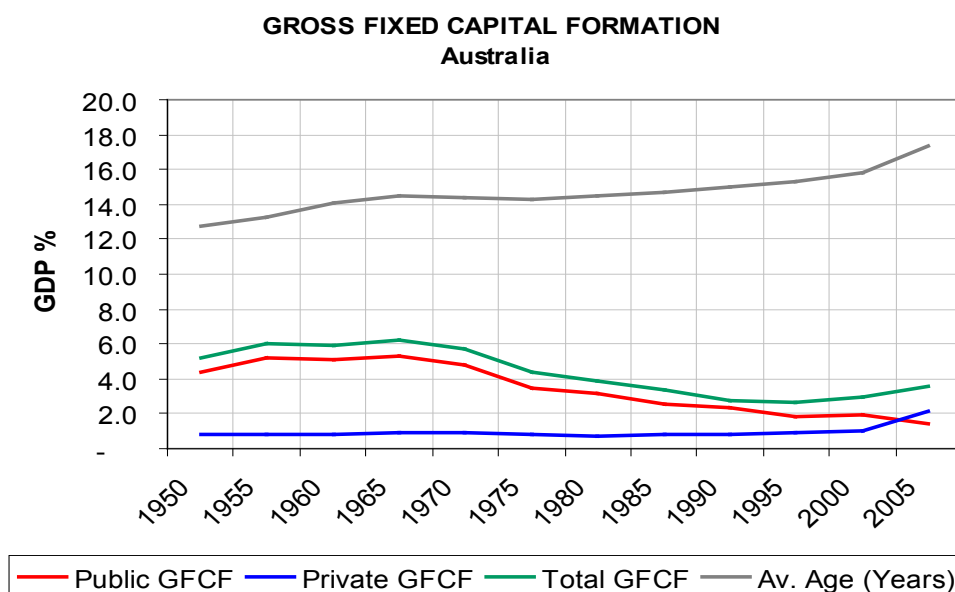


research confirms that it is also an important driver of national productivity performance, private sector costs and returns, employment and incomes. This is particularly the case in Queensland where infrastructure spending by government is the highest in the country.

The empirical evidence suggests that there are several additional broad conclusions that can be drawn from international and single-country studies:

- The effectiveness with which state infrastructure investment is directed and used is just as important as the amount of investment
- There are major differences in the social return offered by different infrastructure industries - land transport and communications generally offer greater productivity and growth returns than other industries
- A significant component of state-owned infrastructure services is not priced on the basis of production cost or opportunity cost
- Infrastructure generates higher returns in urban than regional areas (Regan 2007).

DIAGRAM 1 INFRASTRUCTURE SPENDING GDP % AUSTRALIA 1950-2007



1.2 STATE INFRASTRUCTURE SPENDING

In Australia, Commonwealth, State, Territory and Local governments provide around 72% of all economic and social infrastructure (Regan 2004). In most OECD countries, infrastructure spending has declined over the past 20 years. In Australia, state capital spending on infrastructure has declined over a much longer period and most new investment after 2004 was provided by the private sector (Diagram 1). The average age of infrastructure capital stock has also increased since the 1950s and 53.5% of all current investment is accounted for by depreciation and capital retirements (ABS 2008).³ In Queensland, state infrastructure spending in the period 1996-2004 fell in both GSP and per capita terms.⁴

The major challenge for the Queensland Government is maintaining an optimal level of investment, achieving value for money and ensuring efficient delivery and lifecycle management. Accessing private capital and improving procurement efficiency are central to the achieving these outcomes.

2. PUBLIC PRIVATE PARTNERSHIPS

PPPs have been widely employed in developing economies for over 10 years as a small but significant alternative method of procuring economic and social infrastructure. During calendar year 2008, international capital markets experienced high levels of instability with a sharp fall in the share market prices of listed infrastructure securities, a sudden and acute contraction in structured and project debt markets and institutional restructuring that saw state bailouts or acquisitions of a large number of privately owned financial institutions. These events were quickly felt in Australia and reflected in sharp falls in security prices, a decline in business and asset-based lending and a sharp rise in lender spreads for corporate, project and structured finance. Capital market observers suggest that current market indicators reflect conditions that are the worst since the Great Depression and economic forecasters are predicting continued capital market instability in the short to medium term and a long recovery period.

In Australia, PPPs account for around 10% of state capital spending in Victoria, around 7% in Queensland and lesser proportions in the other States and the Commonwealth. PPPs are highly leveraged in listed or private forms and rely on capital markets for both equity and debt capital.

A significant body of evidence points to the advantages of PPPs over traditional procurement methods. The benefits include:

1. The delivery of projects on time and on budget
2. Reduced procurement costs and improved value for money outcomes
3. Improved project management - integration of design and construction processes and full lifecycle costing
4. Adoption of an output specification to encourage design and construction innovation and new technologies
5. Improved public services and qualitative user outcomes (Mott McDonald 2002, Fitzgerald 2004, Allen Consulting 2007; National Audit Office 2005).

These results are supported by a comparative review of state procurement methods undertaken in 2008 by Bond University (Regan 2008c). This study identifies the improved performance of PPPs, build own operate transfer (BOOTs) and, to a lesser extent, alliance contracting methods using ex ante measures of value for money, the optimal alignment of incentives and process management. (Regan 2008).

PPPs also offer a rigorous project selection and evaluation process using a risk-weighted analytical framework that features both qualitative and quantitative measurement techniques. This process is now being applied to traditional procurement processes and is achieving similar value for money improvements.

The empirical evidence suggests that PPPs are improving government infrastructure performance in three additional ways:

1. PPPs are an important innovation in the evolution of the science of major project procurement and studies suggest they are a more efficient method of project delivery than the alternatives (See Appendix 2).
2. PPPs are worth preserving - along with alliance contracting and the input specification models, they are driving favourable value for money outcomes and form part of the diverse procurement tool box available to government for appropriate applications.
3. Private capital markets provide an important alternative source of capital for governments hard pressed to meet the high levels of investment needed to renew Australia's ageing infrastructure.

3. Declining public capital spending on infrastructure was also a feature of OECD countries over the past 20 years.

4. This is partly explained by the high population growth in the State over this period especially in the SEQRE which accounts for around 68% of state population and GSP.

3. PUBLIC PRIVATE PARTNERSHIPS AND CAPITAL MARKETS

The past 12 months has been a turbulent time for global credit markets. In Australia, there has been a dislocation in the asset-backed and corporate bond markets with rating downgrades for monoline bond insurers and calls on guarantees for recently commissioned projects. This has affected both distribution and credit guarantee pricing (Reserve Bank of Australia 2008). Nevertheless, Australia has fared better than many OECD countries with exposures confined to relatively few projects although full and partial refinancing of a number of mature projects in the next 18 months will test this (Debelle 2008).

3.1 EQUITY CAPITAL

In 1995 an Infrastructure Sector Index was created on the ASX and within a brief time, infrastructure achieved recognition as a distinct asset class. By 2001, market capitalisation of the sector reached \$18,557 million and within 12 months, this had increased to \$25,632 million (Regan 2004). The early practice of forming diversified multi-sector portfolio funds (Infrastructure Trust of Australia 1996; Australian Infrastructure Fund 1997) evolved to a sector-specific focus within a few years with the listing of Macquarie Airports Group and the creation of Macquarie Infrastructure Group. The Transurban and Hills Motorway initial public offerings (IPOs) were the first single asset property vehicles. The market experienced considerable "churn" in the period 1995-2003 with few of the original companies in the sector surviving in the same form 8 years later.

Australian superannuation fund managers became the largest investor group in this asset class. The long-term investment horizon and low demand elasticity offer a good match for the fund manager's liabilities and yield requirements. In 2001, institutional investors accounted for 75.8% of listed infrastructure vehicles, a greater level than for other sectors of the ASX at that time (Regan 2004). Studies conducted in recent years suggest that listed economic infrastructure investments exhibit distinct asset class characteristics. In the relatively benign market conditions of the 1990s, these investments offered effective counter-cyclical properties avoiding the return volatility of other leading sectors such as manufacturing, transport, telecommunications and indirect property. Additionally, infrastructure offers different reactions to movement in leading economic indicators such as United States and domestic GDP, short and medium-term interest rates, inflation and stock price movements (AMP Capital 2006, Regan 2004). Recent events in capital markets may have removed some of the insularity to market volatility previously believed to be a characteristic of this asset group and infrastructure has revealed a vulnerability to delivery risk, high leverage and patronage risk in conditions of uncertainty.

The three recent Queensland PPP projects were large by Australian standards and commenced with the Southbank Institute (2004) to be followed by the North-South By-Pass Tunnel (2006) and the



Airport Link project (2008). PPP projects are capitalised with high levels of debt which is well suited to long-term capital-intensive projects. Infrastructure is a specialised asset class possessing hedging characteristics not commonly found in other asset classes. These characteristics include:

1. Stable, indexed revenue streams
2. Low variable cost structures
3. High earnings before interest tax and depreciation (EBITDA) margins
4. Long-term investment horizon.

Infrastructure also features low demand price elasticity although recent evidence from toll roads suggests that this asset group may be the exception. These assets are well suited to high levels of debt which has the effect of lowering the sponsor's weighted average cost of capital and improves return on equity. Several early PPP toll road IPOs employed stapled security structures and high leverage compared with other capital intensive assets such as resources projects, direct and indirect property. The market appeal of these assets was their robust and indexed revenue stream, strong debt service coverage and the long-term investment horizon which matched the long-dated liabilities of pension and fund managers.



The important role that capital markets play in the capitalisation of these assets is demonstrated by the early toll road PPPs.⁵ Australia's first toll road was the Sydney Harbour Tunnel commissioned in 1988 and this was followed by Hills Motorway in 1999 and the Transurban City Link project in Melbourne which was commissioned in 2001. Transurban listed in the ASX in 2001 and undertook a program of expansion in recent years which included the acquisition of Hills Motorway in Sydney, an interest in other Australian toll roads and new projects in North America. The EastLink project was listed as ConnectEast Group in November 2004 prior to construction commencing and included completion risk in the parcel of risks transferred to buyers of its securities.

The EastLink project in Melbourne was listed on the ASX by Macquarie Bank, ABN Amro followed with the North-South By-Pass Tunnel (Clem 7 Motorway) in Brisbane in 2007 and Macquarie Bank with the Airport Link (BrisConnections) project in Brisbane in 2008. The collapse in equity prices for both these projects in 2007-08 was partly a result of the sharp fall in stock prices and highly-leveraged infrastructure stocks in particular. Falling stock prices also attributed to concern about traffic forecasts and high energy prices which adversely affect the patronage and financial economics of these assets. The veracity of traffic forecasts has been a problem for transport projects for many years and attracted wide publicity with the troubled Sydney Airport Rail Project, Brisbane's Skytrain, and the Cross-City Tunnel in Sydney.

In 2008, the recently opened Lane Cove tunnel and EastLink projects also failed to achieve forecast revenue within the early ramp-up period. Recent research by Bond University estimates that 65% of security price contraction in 2008 for listed infrastructure motorway stocks is due to systematic or market risk factors common to the sector. The balance of the loss of value mainly reflects unsystematic or project-specific risk concerns (Regan 2008d). Research by Standard and Poor's using 282 international transport projects identified systemic overestimation of patronage with land transportation projects (Standard and Poor's 2002, 2004). The average error rate was 30% (projects on average achieved 70% of forecast revenue in the first 3 years of operation). Research in 2006 using a sample of 210 projects found that:

1. 25% of projects had an average forecasting error +/- 40%
2. 50% of projects had an average forecasting error +/- 10%
3. If the error is evident in year 1, it will continue during the revenue "ramping up" period (Flyvbjerg, Skamris Holm and Buhl 2006; Standard and Poor's 2004).

It is disconcerting that optimism bias has been a problem with transport forecasting for over 25 years despite significant changes in measurement methods and the benefit of precedent. The study suggests that forecasters are not learning from experience.

An alternative view is that PPPs are long-term investments and early stage patronage error does not necessarily mean projects are not viable in the medium to long term. The recent purchase of Sydney's Cross City Tunnel by Leighton Contractors, financed by ABN Amro, indicates that even at patronage levels around 60% of those originally forecast, the investment is viable to the new owners.

Few other PPPs are listed on the ASX as single asset investments although most are dependant on off-market bond issues and debt syndication for the limited recourse finance that they require.

5. The Hills Motorway, Transurban and Sydney Harbour Tunnel projects were BOOT transactions and not implemented under State Government PPP policies. However, for these purposes, the wider definition of PPP is used and this includes outsourcing as well as the build own operate (BOT) and BOO procurement methods (Regan 2008).

3.2 DEBT CAPITAL

Most infrastructure debt in Australia takes the form of bank loans, the issue of bonds or private placements with institutional investors and fund managers. The stapled security offerings of listed infrastructure groups are treated as equity although a significant component of the subscription price is structured as a loan to another entity within the group. Many listed and unlisted PPP projects raise debt by issuing bonds. The capital structure of the Southern Cross Station project in Melbourne employed three tranches of bonds:

- US dollar denominated 11.5 year fixed-rate bonds (A\$126 million)
- Australian dollar denominated 12 year floating-rate bonds (A\$200 million)
- US dollar denominated 30 year indexed bonds (A\$135 million).

The composite bond method of financing PPPs is widely used in Britain and Canada and is based on project finance principles and high leverage. An advantage of this financing method is the opportunity to structure financial risk management into the tenor, currency and pricing of the bond issue. Standard & Poor's survey of unlisted European PPP projects in the period 2004-06 suggests initial debt capitalisation averages 76-82% increasing to 85% at the first refinancing (National Audit Office 2005; Standard & Poor's 2004, 2005).

TABLE 3 CAPITALISATION OF THE IPO PPP MODEL

AUD millions	RiverCity Motorway Brisbane	BrisConnections Airport Link Brisbane	EastLink Melbourne
IPO Equity Raising	724	1,226	1,120
Bank debt	1,434	3,055	2,088
Dividend Reinvestment Plan	150	361	297
Deferred Equity	155	200	290
State Contribution	377	47	
Total	2,840	4,889	3,795
Construction Cost	2,003	3,400	2,502
Debt: Equity Ratio	a 51%	62%	55%

SOURCE Prospectus 2004, 2006, 2008.

NOTES

a Market capitalisation at date of listing on the ASX. Debt %

The pricing of debt is largely determined by credit ratings for the larger Australian projects and by credit evaluation for privately sourced senior, junior and mezzanine finance. Present tight liquidity in capital markets, higher spreads and tighter credit standards suggest that sponsors of new PPPs will need to adjust overt leverage levels more in line with the average debt levels of the market as a whole. In March 2008, average debt capitalisation of the ASX All Industrials stood at 64.3%. Such a figure is non-weighted and fails to take into account the important relationship between stable, indexed revenue and debt servicing capability that are a feature of mature infrastructure investments. These properties suggest that infrastructure has the capacity to support debt levels over and above ASX sector averages and the appropriate level of leverage is best determined on a case by case basis.⁶ Non-listed investments are generally more highly leveraged than either listed infrastructure or ASX market averages.

6. Infrastructure assets possess many of the characteristics of listed property. Research conducted in recent years found that the return of listed property trusts and infrastructure assets disclose a statistically significant correlation and both asset classes show a strong negative correlation with direct property. In a test of leading economic indicators, both asset groups showed a strong negative correlation to short and medium-term interest rates and some similarities in the way that returns were negatively correlated with those of fund managers with a lead time of less than 6 months. Neither listed property nor infrastructure shares a correlation with short-term movements in Australian and US GDP, short, medium and long-term bond rates, the labour participation rate or inflation (Regan 2004).

3.3 INTERMEDIATION AND CREDIT ENHANCEMENT

Credit enhancement or credit wrapping is a technique for reducing investor's cost of debt for a PPP project. The underlying credit rating of most Australian PPP projects is BBB (Standard and Poor's 2004, 2005). Credit wrapping is essentially an AAA guarantee of the borrowing consortium's bonds purchased for a fee which is less than the difference in borrowing costs between the two rating standards. This can be significant over the life of a PPP with the spread of 5 year corporate bond swap rates at 30 June 2008 standing at 159 basis points (1.59% pa) for BBB and 106 basis points for AA (RBA 2008). At 30 September, the spreads were 251 basis points and 135 basis points respectively. The monoline insurer guarantees against default in the payment of both bond interest and principal.

TABLE 4 CREDIT INSURANCE MARKET, AUSTRALIA, 2007-08

	Market Share %	2007	Rating 2008		
			S&P	Moody's	Fitch
MBIA	37	AAA	AA	A2	
Ambac	25	AAA	AA	Aa3	
FSA	17	AAA	AAA	Aaa	AAA
FGIC	11	AAA	BB	B1	CCC
XL/Suncora	9	AAA	BBB-	B2	CCC
Assured	1	AAA	AAA	Aaa	AAA

SOURCE RBA August 2008

Most PPP projects in Australia are highly leveraged, debt is generally raised by the issue of rated bonds and the project's (underlying) credit rating is calculated by reference to the credit characteristics of the PPP deal and this includes the track record and credit strength of the consortia members as a measure the principal contractor's capacity to complete delivery of the project. In Australia, few of these companies are rated above investment grade (BBB). Borrowings costs are correlated with risk reflected in credit ratings. In the past 12 months, spreads have increased. Consortia issue bonds and these are credit-wrapped by AAA rated intermediators and rated by credit agencies. The effect is to reduce the cost of debt and extend maturities.⁷

In June 2007, the Australian credit-wrapped bond market stood at \$27 billion, accounting for around 7% of the domestic non-government bond market (RBA 2008). This market has increased dramatically in size in recent years, doubling since 2004 largely as a result of strong growth in the number of motorway PPP projects commissioned in this period. In June 2007, over 60% of this market was shared by two institutions - MBIA and Ambac (see Table 4). At that date, the guarantees of all 6 firms in this market were rated Standard and Poor's AAA. In August 2008, only 2 of the firms retained their AAA status with MBIA and Ambac re-rated to AA and FGIC and XL/Syncora re-rated to BB and BBB- respectively. The rating downgrades are reflected in increased margins between credit wrapped bonds and other non-government unsecured AAA-rated bonds in the secondary market. Average margins increased from an average 25 basis points (0.25% pa) in July 2007 to 130 basis points (1.3% pa) in July and 240 basis points (2.4% pa) in November 2008.

The recent revised credit ratings of (monoline) credit insurers followed a general repricing of risk on international and domestic capital markets and will impact both the cost and availability of future debt raisings and financial risk management tools for PPP projects.

7. The definitions of credit ratings AAA, AA, BBB and BB are set out in under Abbreviations.



4. PPPS ARE DEPENDANT ON CAPITAL MARKETS

PPPs generally concern the production of economic and social infrastructure services and are heavily dependant on capital markets. This dependence occurs at five levels.

1. Equity capital

Australian PPP projects draw their equity capital from the ASX, listed portfolio investors, banks, private equity, fund managers and institutional investors. Three of Australia's largest and most recent toll road projects were listed on the ASX and listed portfolio investment vehicles hold significant interests in ports, airports, toll roads, energy production and distribution within Australia and overseas. The ASX is the single largest source of PPP equity capital in Australia.

2. Debt capital

PPPs are highly leveraged using medium-term bank debt, project finance or long-term bonds. These securities are placed in debt markets and with private investors. Australian PPPs also make greater use of medium-term corporate debt than traditional long-term project finance. This permits investors to take advantage of short-term revaluation and refinancing although it requires consortia to assume refinancing risk and more frequent visits to the debt market than would be the case with conventional project finance.

3. Financial services

The financial economics of PPPs place strong reliance on capital markets for fragmentation of risk and services that include intermediation (debt and equity underwriting), credit enhancement (monoline insurance), credit rating and financial risk management.

4. Market drivers.

In Australia, the drivers of the PPP bid market are the financial service providers. Their selective participation or withdrawal from future bids combined with barriers to entry created by softer market conditions may lead to some realignment of the bid market. Whether building and facility management contractors are willing to assume a greater equity and mezzanine finance role in their bids remains to be seen.

5. Capital market innovation.

PPPs benefit from capital market innovations such as the stapled security, unit trust structures and credit enhancement. Recent credit rating downgrades for financial intermediaries including credit insurers will adversely impact competition in PPP bid markets, weaken value for money outcomes and affect the fast-tracking of infrastructure projects which are major attractions of the PPP procurement method. PPPs are strongly dependant on capital markets although the level of dependency varies across industry sectors, projects and the nature of the revenue stream. In present market conditions, capital will generally be harder to find, it will be more expensive and stricter credit standards may require bidders to take a more conservative approach to risk acceptance. This suggests some weaknesses in bid depth, diminishing private sector appetite for greenfield projects and those projects involving patronage risks. A less competitive bid market may also have an adverse impact on value for money outcomes. In summary, debt markets have become strongly risk averse. For projects involving the refinancing of existing debt against mature revenue streams, availability payment streams and sponsor-provided equity, bid market depth and debt market activity levels are expected to remain buoyant albeit with stricter credit standards.

5. PRESENT MARKET CONDITIONS

The present conditions in debt markets follow 12 months of instability that had its origins in the US sub-prime mortgage market and sub-optimal risk pricing in international capital markets for some years. The asset write-downs, lack of liquidity and low confidence in the market that followed, led to a repricing of risk, a significant increase in spreads (risk premiums) in interbank markets and higher corporate borrowing costs. These conditions were recognition of the deterioration in risk management practices in the financial services industry and lack of trust in financial institutions and capital markets over the preceding 12 months. A decade of low interest rates, bank asset disintermediation and high leverage in buoyant market conditions created circumstances for a pro-cyclical correction which was amplified by tighter liquidity conditions (Reserve Bank 2008).

Capital markets in Australia and overseas are presently characterised by:

1. Historically low share prices
2. Limited opportunity for new on-market capital raisings
3. Reduced activity in mergers, acquisitions & divestments
4. A fall in asset values at odds with underlying fundamentals.

The instability in debt markets has spread to equity markets with sharp falls in share prices experienced in all OECD countries. The ASX's 200 Share Price Index fell 29.95% in the 12 months to 30 September 2008 and ASX market capitalisation stood at \$1.333 trillion on 31 August 2008, a fall of 14.98% over the previous year (RBA 2008). In the past 12 months, uncertainty in capital markets was accompanied by volatile currency exchange rates. In the 12 months to 27 October 2008, the Australian dollar fell 27.4% against the US dollar and 38% against the Japanese yen (RBA 2008d; Australian Financial Review 27 October 2008). Market conditions have stabilised in recent weeks although the survey of capital market executives suggests that asset price and exchange rate instability may be the predominant market characteristic in the medium term. A number of survey respondents held the view that equity prices and the falling exchange rate may not stabilise before mid 2009 (see Appendix 3).

In tandem with uncertainty in the equity market, international and Australian debt markets are experiencing a liquidity squeeze following the collapse of the United States property market and write-downs in sub-prime debt that has threatened most United States financial services corporations. Additionally, risk has been re-priced and distortions introduced with state interventions.⁸



International portfolio investment in the sub-prime debt market has produced a default risk in other capital markets and led to a crisis in confidence.

A consequence of present market conditions and reduced liquidity is the reduced availability of corporate and project finance, increased borrowing costs and by extension, increased cost of equity capital. Project finance is a specialised form of finance although not commonly used for Australian PPP projects where the benefits of short-term revaluation and refinancing of assets favours medium-term corporate finance (Regan 2007b, pp. 21-24). There will also be significant demand for medium-term corporate finance in the infrastructure sector with the refinancing of existing listed assets in the period 2009-12 including Transurban, the ConnectEast and RiverCity Motorway Groups.

Capital market uncertainty in the past 6 months has also had a significant impact on the listed infrastructure sector. The major Australian investment banks actively packaging and managing assets experienced sharp declines in share price with consequential impacts on portfolio debt structures, borrowing covenants and asset liquidity. The IPO model is not presently an option for PPP projects and the ASX is unlikely to be a source of equity capital for some time yet in this country.

8. For example, cash deposits in Australian banks guaranteed by the commonwealth are now, in effect, risk free. This has effectively altered the cost of capital for individual and portfolio investors.



6. HOW ARE PPPS AFFECTED BY PRESENT MARKET CONDITIONS?

The prevailing capital market conditions are expected to have the following effects on PPP bid markets:

1. Risk is in the process of being repriced but has not yet stabilised. This will place sustained short-term pressure on the pricing of debt capital for PPP projects.
2. A reduction in the availability of debt capital in the short to medium term.
3. Tighter credit standards including lower debt to equity ratios (leverage), higher debt service coverage ratios (interest cover) and wider use of capital reserves and sinking funds to manage revenue volatility risk.
4. Limited availability and increased cost of credit enhancement services and tougher credit rating standards.

A further effect will be the disappearance of the IPO capital-raising model for transportation projects in the short to medium term (1-5 years). The Australian equity market has demonstrated a long-standing appetite for infrastructure securities. The many innovations include the single asset investment vehicle, sector-specific investment vehicles and innovations such as the stapled security. Nevertheless, present uncertainty suggests that the IPO method of raising capital is not feasible in present market conditions and unlikely to make a re-appearance in the new future. There are three factors at play here:

First, the market is wary of high debt levels and distress premiums are greater now than at any time in the past 15 years.

Second, the market has demonstrated a reluctance to carry delivery risk. Promoters may need to revert to quarantining the delivery risks for future large-scale construction projects. The investment grade credit rating given to the Lane Cove Tunnel project by Standard and Poor's in 2006 was influenced by the underlying credit rating of the constructor, Leighton Group and a qualitative assessment of that company's capabilities and track record.

Third, new IPOs will need to address the question of optimism bias in forecasting and the perception of systemic forecasting error.

The survey of PPP financial advisers and lenders suggests that PPP transactions will be harder to do in present market conditions but not impossible. The degree of difficulty increases with projects that carry patronage risk and those that require investors to absorb high levels of delivery and operational risk. The degree of difficulty in raising capital for future PPP projects can only be determined on a case by case basis. The factors that will mitigate finance risk for PPP projects in present market conditions include:

- conservative leverage
- high debt service coverage ratios
- adequate reserves
- source and stability of the payment stream
- underlying credit rating
- benign abatement regimes
- availability of appropriate credit insurance
- capabilities and track record of consortium members, and
- less aggressive state risk allocation.

Refinancing risk is also a potential difficulty for existing projects although mature projects with strong revenue streams, staged maturities and availability-based payment arrangements mitigate this risk. For projects not featuring these covenants, refinancing risk presents a more serious problem.

The survey of finance executives suggests that the cumulative effect of recent events in capital markets can be expected to have the following long-term impacts on the PPP bid market.

1. Equity will be difficult to source. The demise of the IPO equity raising option will also mean the end of other equity-raising techniques employed with this model such as the dividend reinvestment plan and deferred equity subscription arrangements. Firms will find it increasingly difficult to meet new minimum equity capital standards and the short-term outlook is for higher cost of equity pricing.
2. It may be increasingly difficult for small firms and non-credit rated market participants to find a place in consortium line-ups. In tighter capital market conditions, this is expected to result in a reduced number of players in the bid market.
3. The construction industry will be reluctant to provide long-term equity capital for PPPs when the alternative is relationship contracting and lower project risk absorption.

A contraction of the PPP bid market has important implications for the future provision of infrastructure in Queensland. These include:

1. A decline in the number of PPPs with the loss of benefits available from this procurement method
2. A slowing of the roll-out of the South East Queensland Infrastructure Plan and Program with consequential effects on both transitional and long-term economic development in Queensland (Regan 2007)
3. A greater emphasis on State provision of infrastructure financed through state debt or taxation with associated "deadweight" costs.

Financiers and advisers responding to the survey agreed that new PPP transactions over the next 12 to 18 months will attract higher spreads or risk premiums. As previously identified, this is especially the case with greenfield projects that carry market or patronage risk. Projects where the revenue is by way of state availability payments such as projects in health, justice and education and the refinancing of mature market risk projects should be easier to finance although risk pricing, leverage and debt servicing criteria are expected to be tougher throughout 2009.

A further factor influencing the financing of PPP transactions is the relative maturity of the industry and the allocation of risk. Research by the Australian Centre for Public Infrastructure in 2006 suggests that some infrastructure industries attract lower lending risk premiums than others. Mature tollway projects, energy generation and transport hubs (airports and ports) and social infrastructure

generally attract lower debt funding margins, on average, than projects in higher risk categories such as in the water and urban transport industries. This research was based on capital market indicators for the period 1995 to 2005 and a return beta proxy for unlevered systematic risk (Regan 2006).

7. WHAT IS THE MEDIUM TERM OUTLOOK?

The difficult conditions presently being experienced in overseas and domestic debt markets are not expected to continue indefinitely. Anecdotal response from industry suggests that equity and debt finance will continue to be available for PPP projects in the sub-\$300 million capitalisation sector of the market. However, as noted, lending criteria will be tougher and projects with lower delivery and operational risk profiles are more likely to raise capital than those with projects carrying greater risk burdens. In this latter category are projects requiring high levels of innovative design or technology, patronage risk and greenfield land transport projects.

A significant part of the problem for PPPs in Australia is the wide use of IPOs and medium-term corporate finance as opposed to long-term project finance more common in Europe and the United States (Regan 2007b). The IPO may not be an option in the foreseeable future and medium-term corporate debt may be difficult to source. However, financiers and credit rating agencies report that larger projects with lower overall credit risk will continue to attract long term project finance. Project finance creates a problem for the Australian PPP financing model for several reasons including the early stage refinancing to capture shift in the risk and return profile of the project, the preference for early stage contractor withdrawal, and an inability to extract the preferred risk and incentive framework favoured by local firms.

Adverse market conditions also present opportunities and Australia's capital market has proven adroit in developing innovative financial solutions designed specifically to facilitate investment in this asset class. The stapled security, deferred equity contribution and composite group structure are examples of this. Superannuation fund managers and institutional investors are attracted to the properties of these assets particularly:

- High capital intensity and EBITDA margins
- Low variable costs and high yield in maturity
- Indexed long-term cash flows
- A long-term investment horizon that is well matched to the tenor of fund liabilities.

This group of investors have a reduced appetite for delivery and forecasting risks associated with land transportation projects. However, as projects shed early-stage risks and revenue streams mature, these projects are more attractive to fund managers. Further innovation in structuring PPP projects for listed and unlisted investments may well target the quarantining of early stage project risks with a view to attracting earlier participation by fund managers.



Further innovation in the PPP model is also a possible response to present market conditions. PPPs are a hybrid procurement form that has proved remarkably resilient since its first use in Australia with the Sydney Harbour Tunnel in the 1980s. Continued refinement of the model to meet changed circumstances including the withdrawal of franchisees, the apportionment of windfall gains, extension of the model to complex social infrastructure services including specialised applications in corrective services, the health sector (Royal Children's Hospital, Royal Women's Hospital) and education (schools projects in NSW, Victoria and Queensland).

8. WHAT ARE THE ALTERNATIVE PPP FINANCING MECHANISMS?

If new infrastructure projects are harder to deliver as PPPs, the options for privately financing state infrastructure services are few. Alternative procurement methods are as follows.

Traditional Procurement

Traditional procurement or adversarial contracting is a relatively flawed procurement model with recent evidence suggesting that it is not an appropriate method for managing the delivery of complex infrastructure projects and services. A number of studies employing comparative analytical techniques suggest that traditional procurement fails to meet value for money assessment criteria, it is correlated with significant cost overruns and late delivery and by virtue of the articulated delivery approach, this method often fails to address the key considerations of lifecycle costing and asset management. This is examined in further detail at Appendix 1.

Relationship Contracting

Relationship contracting is a form of project delivery designed around the shortcomings of traditional procurement. The Latham Report (1994) and the Egan Report (1998) were reviews of the poorly performing United Kingdom construction industry and both identified weaknesses in the adversarial basis of lowest price tender procurement. Both reports pointed to the benefits of alliance contracting and were influential in its wider use for government projects in Britain and Australia.

Relationship contracting is a collaborative approach to procurement under which there is agreement on price and method, a sharing of risk and rewards and an avoidance of adversarial methods to project manage the delivery, resolve disputes and settle claims. Relationship contracting may take the form of a long-term project articulated into a series of separate contracts with the same contractor group. However, it does not offer the lifecycle costing and delivery performance characteristics of PPPs, outsourcing or BOOT delivery. Accordingly, performance is mainly measured on the basis of *ex ante* measures such as delivery time and cost.

Recent studies suggest that relationship contracting is improving procurement and service delivery outcomes (NAO 2005) (see Table 5). Contractors in Australia have long expressed a preference for non-adversarial contracting over both the traditional and PPP procurement models.

TABLE 5 PROCUREMENT OUTCOMES 1999-2008 A

		On Budget	On Time	User Benefits b
Traditional Procurement	e	25%	34%	27%
	d	27%	30%	35%
	f	55%	63%	55%
Gateway Programs	d	69%	73%	65%
Alliance Contracting	e	77%	78%	Refer notes
PFI (UK)	f	78%	76%	n.a.
PPP (Australia)	g	79%	82%	74%
UK Defence Contracts	h	17% (14%)	8% (24%)	Met requirements

SOURCE

MR 2008

NOTES

- a Sources as noted. Sample sizes vary. Parenthesis denotes average overruns for sample
- b Qualitative assessment from independent NAO 2004, 2006 reports. Defect reporting.
- d 2000-01 results: NAO 2001 Modernising Construction. Delivered on or under time and price.
- e 1999 results: NAO 2005 Improving Services Through Construction Part B
- f 2004 results: NAO 2005 Improving Services Through Construction Part A
- g Fitzgerald 2005; Audit Office Reports Victoria & NSW 2004-08; IPA 2007
- h NAO 2004, 2006 MOD Defence Contracts

State and Municipal Bonds

The Australian Government introduced an infrastructure borrowings taxation scheme in 1992 which was designed to stimulate private investment in infrastructure with a tax exemption of interest derived from qualifying loan facilities. The program was modified and extended in 1994 as the Infrastructure Borrowings Taxation Concession and replaced in 1997 with the Infrastructure Borrowings Tax Offset Scheme. The latter program was limited to large scale land transport projects and was not widely used. Each of these programs granted a tax benefit to secured private lenders but not the unsecured risk-taking equity investors. Accordingly, the scheme was mainly employed by promoters to develop hybrid tax advantaged debt securities for high net worth individual investors. The scheme was phased out in 2004.

The United States has long supported tax exempt bonds as a method of raising private infrastructure finance for state and local governments. The program authorises state and local governments to issue tax exempt bonds for investment in ports, urban transport, public schools, waste management systems, energy, water, intercity rail services, public housing and airports. The scheme has been criticised for many years as an inefficient method of attracting private infrastructure investment. The major objections concern:

- The low equivalence between the tax benefit granted to corporate and high net worth individual investors and interest savings to state and local governments (average marginal tax rate saving 35.7% and interest rate savings of 1.80% per annum)
- The tax exemption to investors with high marginal rates of tax fails the test of Pareto efficiency
- The arrangement operates as a transfer payment to state and local governments with authority to issue the bonds at the discretion of state and local governments
- The extension of the program to quasi-social infrastructure such as sports stadiums and public entertainment facilities
- Eligibility for the tax exemption is denied to lending institutions, public and private pension funds and institutional investors (Regan 1999).

Alternative arrangements include direct federal government interest rate subsidies for state and local infrastructure borrowings and the issuance of tax exempt debt securities which permit the separation of the tax exemption component for sale in capital markets which is a variation to a carbon trading scheme.

Credit Guarantee Finance

Credit guarantee financing (CGF) was introduced in the United Kingdom in 2003 to provide a mechanism for using public debt capital to finance PPP projects. The arrangement requires the participation of credit enhancement agencies to raise the credit rating of the project to AAA status with the state assuming a senior debt role in the project. The nucleus of the transaction is the guarantee furnished by the consortium's bankers or a credit enhancement agency (monoline insurer) to the state as security for the loan. The objective of CGF is to reduce the consortium's cost of capital and thereby improve the long-run and overall value for money outcomes for the state. This arrangement is a departure from traditional project finance principles whereby senior debt is secured only by recourse to the underlying project assets. CGF is, in fact, full recourse debt and this does affect the traditional incentive mechanisms that are a feature of conventional project financings.

The CGF model was trialled with two PPP projects in the health sector in 2004 (Leeds) and 2005 (Portsmouth). In the Leeds project, the consortium's financiers provided the credit guarantee and for the Portsmouth project, the guarantee was furnished by a monoline insurer. An assessment of both projects identified lifecycle interest cost savings to be in the range 8-16% of aggregate finance costs.

The CGF model can lower the cost of capital and improve value for money. It also creates practical problems. These include:

1. The spread in funding costs at the AAA credit rated level between Commonwealth and United Kingdom governments, Australian state governments and private firms. The effective saving in interest cost may reduce interest costs by 50 basis points in average market conditions although the implicit risk transfer back to central government is of similar dimension.
2. Application of CGF requires Treasury to assume the role of an arm's length lending bank which involves loan administration, legal and advisory fees, oversight and industry-specific technical knowledge and the transaction and/or agency costs involved.
3. CGF introduces another layer of contractual complexity into the PPP transaction which contributes to additional transactional and decision-making friction and incurs time and cost delays.



4. Volatile capital market conditions have reduced the number of monoline insurers issuing credit guarantees in Britain and Australia which transfers this role to consortium bankers. This is not the core business of banks and not the optimal method for them to leverage their balance sheets to maximise interest spreads, underwriting and transaction fees.
5. PPP consortia are generally a collection of entities with different incentives and timing objectives. Therefore flexibility is of high importance and it is common for them to lock in on medium term debt with a view to potential refinancing windows where risk has diminished and asset value improved. The CGF model with its long term debt obligations inhibits this flexibility, which may reduce competitive tension in the bid process.
6. PPPs are an incomplete contract - commercial and financial settings change, risk profiles are dynamic, opportunity may arise for revaluations and re-financings and real and embedded options may change the marginal return on investment or underlying financial economics. Long-term debt arrangements may inhibit sponsor flexibility.
7. Economies of scale suggest that for the CGT program to derive large scale benefits for the state, it would need to be applied to a large number of industry-specific projects.⁹

The CGF model has not been applied beyond the Leeds and Portsmouth hospital PFI contracts. Guidelines have been put in place together with standard form documentation (HM Treasury 2003). There is no commitment to proceed further with CGF although it remains an option for the future.

9. A further criticism of the CGF model is that it doesn't offer the incentive mechanism available with conventional PPPs whereby senior debt providers possess a right of subrogation in the event of default and are incentivised to negotiate a commercial and operational rescue of the project whilst maintaining service delivery. Under CGF, the incentives are less clear.

The Supported Debt Model

The Queensland Government is presently running a pilot program for a PPP in the education sector using a hybrid variation of CGF described as the supported debt model (SDM). The SDM has several distinguishing characteristics:

1. The State refinances a predetermined level of project debt when the PPP is commissioned and operational.
2. The level of state debt employed is calculated using a formula that equates to a minimum asset value (or recoverable amount) in the event of consortium default.
3. The construction and residual (junior) debt finance needs of the project will be met by private financiers. SDM preserves traditional ex ante incentives and does not require credit enhancement or supporting private guarantees.
4. The lower cost of state debt reduces lifecycle finance costs which are passed on to the state through an improved value for money outcome.

The SDM takes advantage of the significant change in risk profile that accompanies the commissioning of a PPP project. The SDM is calculated against a notional risk-free minimum value for the project against which the state can make debt capital available to the project at cost. The SDM has three distinctive characteristics:

1. SDM financing is attractive from a value for money perspective, particularly given the recent increased spreads for private sector debt following the global credit crisis.
2. The SDM model attracts high initial administrative tasks although this reduces once the project is commissioned. Overall contractual friction should be less for SDM than CGF with lower transaction and agency costs.
3. The state debt is senior in status and private junior debt providers assume a stronger role in the administration of the transaction preserving the important incentive framework that underpins lifecycle contractor performance.

SDM has parallels with conventional project finance but shares little in common with the short to medium-term corporate finance employed in most Australian PPPs. An implication of the model that may adversely affect improved value for money outcomes is the requirement for higher levels of privately sourced junior or mezzanine debt or equity capital which carries high risk premiums. Recent research suggests that the average state contribution to PPP debt capitalisation will be around 70% suggesting a mezzanine/junior debt participation of around 30% in addition to an equity contribution. The overall cost of debt will be determined on a project basis and particularly on the underlying credit strength of the consortium and its members. The use of higher levels of private mezzanine/subordinated debt and equity capital in prevailing market conditions may in fact increase a PPP project's average cost of capital. The break-even point for SDM is narrow and estimates suggest that this may occur when average private debt

spreads exceed 500 basis points (McKenzie 2008). Depending on the unsystematic risk profile of the underlying transaction, this is most likely to occur in prevailing market conditions. SDM may raise the sponsor's overall cost of capital and this could offset a significant part of the cost savings achieved with lower cost senior state debt.

A second issue is the likelihood that SDM may remove the incentive for the consortium to revalue the contract and refinance. Refinancing has several important advantages for mature projects - it permits an increase in senior debt (thereby reducing more costly subordinated debt and overall cost of capital), it permits higher leverage and it permits a withdrawal/return to equity. Refinancing gains are shared with the state under Australian PPP guidelines.

Debt Guarantees

An alternative form of state support for PPP projects not widely used in Australia is the use of state guarantees to support privately sourced project finance in adverse capital market conditions. Debt guarantees, unlike the CGF and SDM approaches, are a contingent liability of government for borrowing limit purposes and do not attract the "crowding out" and deadweight cost disadvantages of direct state capital contributions. They can also reduce the overall debt funding costs and improve the value for money outcomes for PPP transactions. Other advantages include:

1. The preservation of traditional incentive frameworks which are important to the effectiveness of the PPP procurement method
2. Flexibility - guarantees may be full or partial and may be withdrawn over time
3. The refinancing option remains available to private investors
4. The cost of a state guarantee is small
5. Transactional and agency costs are less than under the CGF or SDM
6. This method of support does not require the state to assume a loan administration role.

Research in developing countries points to the relatively low risk of state guarantee support for project senior debt compared to other forms of assistance for PPP projects. A review of state support for Indonesian BOT toll roads measured the contingent liability of five forms of support - revenue guarantees, interest subsidies, tariff guarantees, minimum traffic guarantees and guarantees of debt. The study found that the probability of a guarantee being called in projects with an average 80:20 debt to equity ratio was 5% compared with 89% for tariff guarantees, 54% for interest guarantees and 39% for traffic guarantees. On a risk payoff basis, project debt guarantees were found to be the least risky form of guarantee for government (Wibowo 2004). The findings of this study are supported by recent research by the World Bank (Irwin 2003).



9. Market Opportunities

Financiers, advisers and the credit rating agencies indicate that present market conditions favour PPP projects with strong credit attributes. Many of the characteristics of these projects are highlighted above but can be summarised here. PPP projects have a greater chance of success in attracting private debt and equity finance in present market conditions if they possess more of the following characteristics:

- An availability based revenue stream
- Equitable and not wholesale risk allocation by the state
- A benign regulatory framework with a graduated abatement regime, incentives for high performance and robust mechanisms for dispute resolution
- Low leverage or equity contributions commensurate with actual project risk
- Strong debt service coverage and adequate stand-by liquidity
- Manageable technology and lifecycle risk
- Strength in the underlying financial covenants
- Track record, financial or well rated contractors
- Adequate measures for project and financial risk management (Standard and Poor's 2007, 2008).

Projects that meet this criteria are generally PPPs in the social infrastructure sector especially non-core service delivery in health, education, public buildings, law courts and police stations, corrective services, waste management, energy and the water resources industries. Project size is not a barrier to raising capital for PPPs with these characteristics.

Governments keen to maintain a strong bid market should consider fast-tracking projects that meet these criteria. Governments should also consider a more equitable cost-based approach to risk transfer and guarantees to support privately-sourced senior debt in projects that are suited to delivery by PPP but cannot be financed in present market conditions. This may not be a significant number of projects and will mainly concern those with complex construction or patronage risk. Such a measure will also have the advantage of preserving value for money outcomes in an environment of higher cost private capital.

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Abbreviations

ABS	Australian Bureau of Statistics
ASX	Australian Securities Exchange
BOO	Build own operate
BOOT	Build own operate transfer
BOT	Build own transfer
EBITDA	Earnings before interest, tax depreciation and amortisation
EBITDA%	Margin EBITDA as a percentage of enterprise revenue
CGF	Credit guarantee finance
GBE	Government business enterprise
GDP	Gross domestic product
GFCF	Gross fixed capital formation
GSP	Gross state product
HMT	Her Majesty's Treasury (United Kingdom)
IPO	Initial public offering
OECD	Organisation of Economic Cooperation and Development
OESR	Office of Economic and Statistical Research (Queensland)
PPP	Public private partnership
RBA	Reserve Bank of Australia
SDM	Supported debt model
SEQIPP	South East Queensland Infrastructure Plan and Program
SEQRE	South East Queensland Regional Economy

Standard and Poor's Issue Credit Rating Definitions

AAA	The obligor's capacity to meet its financial commitment on the obligation is extremely strong.
AA	This rating differs from AAA only to a small degree. The obligor's capacity to meet its financial commitment on the obligation is very strong.
A	The obligation is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than higher rated obligations.
BBB	The obligation exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to meet financial commitments under the obligation.

Ratings BB or less are regarded as having significant speculative characteristics.

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