
5 Specific-purpose securitised borrowing

Key points

- Specific-purpose securitised borrowing refers to the issuance of debt instruments such as bonds, debentures and inscribed stocks in the capital market to finance a particular project.
 - Their use by quasi-government entities to finance infrastructure investments in areas such as water, electricity and transportation dates back to the mid-1800s.
- Debts incurred through these bonds are usually repaid from income generated from the investments or government grants and funds.
 - More recently in the United States, issuance is predicated on future anticipated federal-aid funds (Grant Anticipated Revenue Vehicle (GARVEE) bonds).
- In Australia, the use of specific-purpose bonds peaked in the post-World War II era and virtually disappeared by the late 1970s.
 - The corporatisation of government businesses, and reforms in the financial sector were instrumental in their demise.
 - Currently, public borrowing is undertaken through bonds issued by central borrowing authorities (CBAs) in each jurisdiction, and bonds are not linked to specific assets or activities.
- Among the other studied countries, specific-purpose securitised borrowing (through revenue bonds) is only common in North America.
 - In France, Germany and the United Kingdom, public-sector borrowings (other than by the national government) are sourced from financial institutions such as municipal banks.
- In North America, revenue bonds are one of the main sources of debt financing of public infrastructure.
 - They are exempt from US federal income tax but taxable in Canada.
 - The US tax benefits amount to a reduction in the direct cost of financing by up to two percentage points compared to similar taxable bonds, but at a cost of forgone tax revenue.
- Some of the strengths of revenue bonds are exposure of publicly-owned entities to market disciplines and more equitable cost spreading.
 - On the other hand, tax-advantaged revenue bonds have been criticised for distorting market mechanisms, encouraging rent-seeking activities and imposing costs on taxpayers who do not benefit from the infrastructure asset.

Specific-purpose securitised borrowing refers to the issuance of debt instruments such as bonds, debentures and inscribed stocks for the purpose of financing infrastructure by the public sector.¹ In the United States, these instruments are mainly issued by:

- quasi-government entities such as water boards and utility commissions (30 per cent)
- cities, towns and districts (30 per cent)
- local authorities, counties and parishes (27 per cent)
- state and local governments (10 per cent).²

Specific-purpose bonds are issued to finance a particular project such as water treatment facilities, bridges or fire stations. The debt is repaid from the income the project generates, or grants and funds allocated for the purpose. For example, bonds issued to finance the construction of water treatment plants, pumping stations, collection facilities and distribution systems are typically repaid from revenues generated in the form of connection fees and user charges.

Specific-purpose bonds have been used more commonly in countries with a federal system of government (such as Australia, Canada and the United States) than in countries with a unitary and more centralised systems of government — such as France, New Zealand and the United Kingdom (section 5.1).

Specific-purpose bonds are not limited to economic (income generating) infrastructure projects, but have also been used for social infrastructure such as schools and hospitals, where taxation is the source of debt repayment. Indeed, the use of specific-purpose bonds for social infrastructure has increased significantly over the past 20 years (section 5.2).

5.1 Use of specific-purpose bonds as a financing vehicle

The use of bonds to finance infrastructure in countries such as Australia, Canada and the United States dates back to the mid-19th century. With the exception of

¹ The term ‘securitised’ has recently been used in different ways. Traditionally, it was used to refer to borrowings through the issuance of debt instruments in the capital market which are distinguished from borrowings from banks. However, most recently, the term has been used more commonly in reference to mortgage-backed and asset-backed debt instruments (Thompson 1995). In keeping with the traditional terminology, ‘securitised’ refers here to the issuance of debt instruments in the capital market that are usually asset backed.

² The figures are based on the average volume of issuance from 1986 to 2006 (The Bond Buyer (various issues)).

Australia, these bonds have continued to be used as the primary source of debt for infrastructure financing by quasi-government entities.

The experience in Europe

In the studied European countries, borrowing for public infrastructure (other than by national governments) has been through public and private agencies (such as municipal banks) in the form of long-term bank loans (Peterson 2000; Venkatachalam 2005). For example:

- in the United Kingdom, borrowing for public infrastructure projects by local governments has been through the Public Works Loan Board (PWL 2007)
- in Germany, public and private municipal banks play an active role in facilitating debts to local governments in most jurisdictions (bunds)
- in Sweden, the public agency called Kommuninvest i Sveriges Aktieförbund is the dominant lender with a 42 per cent share of the municipal loan market (Moody's Investors Service 2006)
- in France, Spain and other European countries, borrowing is undertaken primarily through private financial institutions such as Dexia, following the privatisation of municipal banks (box 5.1).

The vehicles used for specific-purpose borrowing to finance infrastructure across the studied countries have been influenced by the historical development of institutional and legal frameworks. For example, in the United States, local entities such as cities and counties have constitutionally guaranteed rights to levy tax. The stream of revenue from this secure source made it feasible to issue bonds. In many of the European countries, local entities do not have this source of revenue. Consequently, they have traditionally borrowed through financial institutions.

However, there appears to be some signs of convergence with increased use of bonds in some of the European countries. For example, local governments in Sweden have become an important part of the municipal bond market (Jackson 2007; Peterson 2000).

The Australian experience

In Australia, quasi-government entities such as electricity commissions and water boards used specific-purpose bonds to finance capital works from the mid-1800s. For example, Victoria passed legislation in 1855 — the *Water Works Debenture Act*

Box 5.1 **Municipal banks in Western Europe**

Municipal banks in some Western European countries have a long history of financing local government infrastructure projects. For example, in France Caisse des Depots was established in 1816 before it was replaced by Credit Local de France (CLF) in 1987. In Spain and Belgium, municipal banks were also established in the late 1800s.

Historically, municipal banks in Europe were publicly owned or heavily regulated in monopolistic municipal credit markets. For example, municipal banks in Germany were allowed exclusive access to local savings accounts paying below-market rates on deposits. Some of the municipal banks also received substantial government subsidies in the form of capital contributions as well as government guarantees on the loans (Magrassi 2000; Peterson 2000).

Since the late 1980s, however, municipal banking across Western Europe had been reformed as part of financial sector liberalisation across the wider European Union. The reforms were geared towards decreasing government subsidies including debt guarantees, as well as changing the ownership of municipal banks. Consequently, in some countries (Belgium, France and Spain) municipal banks were privatised. Indeed, CLF merged with Credit Communal Belgique (Belgian municipal bank) in 1996 to form what is now a global public finance company — Dexia.

In the remaining European countries (such as Germany and Sweden) municipal banks still remain in public ownership, although they operate in a less regulated environment with virtually no government subsidy (Rhee and Stone 2003). Indeed, most of the publicly-owned municipal banks now source their funding from global financial markets. For example, *Kommuninvest* in Sweden issued bonds worth over US\$9.5 billion in the global market in 2004 (Kommuninvest 2007).

1855 — allowing the Metropolitan Board (which later became Metropolitan Water and Works Board) to issue debentures and inscribed stocks to finance water-related infrastructure projects.

Debentures and inscribed stocks were also used in other jurisdictions to varying degrees throughout the 1900s. By the mid-1970s, there were a large number of entities, each with their own capital-market instruments competing in a reasonably small domestic financial market. This resulted in a relatively high cost of financing.

In response, policy makers took up alternative financing vehicles such as the provision of loans at favourable terms from state government-owned banks. However, with the microeconomic reform of government trading enterprises (GTEs) during the 1980s and 1990s, these subsidies were removed.

As discussed in chapter 4, all borrowings by state and territory governments (including by GTEs) have now been brought under their respective CBA. In issuing bonds, CBAs do not distinguish between the purposes of borrowing nor do they

communicate on whose behalf (the Crown or a specific GTE) they are borrowing. Thus, specific-purpose borrowing no longer exists in Australia.

The North American experience

Specific-purpose bonds in the United States are known as *revenue bonds* and together with *general obligation (GO) bonds* make up what are known as *municipal bonds*. The key distinction between revenue and GO bonds is that revenue bonds are payable from specific project-related revenues, while GO bonds are primarily paid from general appropriations (box 5.2).

Municipal bonds have been used in Canada and the United States to finance public infrastructure for over a century (Peterson 2002). The nature of municipal bonds, however, is slightly different in the two countries. For example, in most Canadian provinces, municipal bonds are mainly issued by borrowing agencies called *municipal authorities*. In the United States, on the other hand, individual entities have a mandate to issue municipal bonds in their own right (El Daher 2000; Moody's Investors Service 2007).³

Municipal bonds in the United States are generally exempt (over 90 per cent of those issued) from the federal (and often state) income taxes, while this is not the case in Canada.

In the United States, the municipal bond market is the third largest debt market, behind those for Treasury securities and corporate bonds. As at December 2006, there was over US\$2.4 trillion outstanding against municipal bonds. In contrast, the Canadian municipal bond market is relatively small.

The discussion in the remainder of this chapter is concentrated on US revenue bonds because of the prevalent use in that country to finance public infrastructure.

5.2 The US experience

In the United States, revenue bonds have been widely used for economic infrastructure projects, although their use for social infrastructure investments such as schools and hospitals has increased significantly over the past twenty years.

3 In Canada, municipal governments face various restrictions in raising debt from the capital market. For example, municipal governments are only allowed to borrow solely for capital expenditure, and are also constrained by requirements prohibiting municipal deficits (FCM 2002).

Box 5.2 **Difference between revenue and GO bonds**

There are two key differences between revenue and GO bonds — relating to the income source of debt repayment and the legislative requirement of issuance.

With revenue bonds, repayment of debt (both principal and interest) can come from either income generated by the issuing entity (such as user charge revenues) or grants and funds appropriated by higher levels of government for a specific program (such as annual recurrent funding to hospitals or payments similar to Medicare).

General obligation bonds, on the other hand, are backed by the *full-faith-and-credit* of the issuing government and could take a form of *limited* or *unlimited* tax claims:

- *Limited tax bonds* are backed by a specific tax such as those on assessed property value. With such bonds, the full taxing power of the issuing entity does not apply. For example, special-purpose district bonds are issued to finance a specific project and the repayment of such bonds comes directly from taxes levied on the district neighbourhood rather than from general taxation across the jurisdiction.
- *Unlimited tax bonds* are those GO bonds supported by the general taxing power of the government. State governments derive their revenues from sales and income taxes, while local governments rely mainly on property-related taxes.

In most jurisdictions, a plebiscite is required to approve a GO bond in excess of a certain threshold.

The extent to which revenue bonds are used to finance infrastructure projects across the United States is not available from reliable data sources. Nevertheless, based on data on the total amount of municipal bonds issued, revenue bonds accounted for about 65 to 70 per cent of the annual municipal bonds issued over the past twenty years.

Revenue bonds for economic infrastructure include those issued to finance long-term investments in utilities (water and sewer, gas and electricity) and transportation (airports, seaports, roads, bridges, tunnels and mass transportation facilities). The details of one such bond issue are outlined in box 5.3.

Revenue bonds for social infrastructure are issued to finance facilities in education, healthcare (including hospitals, aged-care facilities and rehabilitation centres), housing and public facilities (such as fire stations, prisons and recreation facilities). Over 45 per cent of the total value of municipal bonds issued over the past six years was for social infrastructure projects (table 5.1).

Revenue bonds are used for projects with varying sizes. For example, among the revenue bonds issued in 2007, one of the smallest issues (US\$400 000) was to finance the construction of part of an elementary school in Simpson County, Kentucky.

Box 5.3 Example of utility revenue bonds — Omaha Public Power District

The Omaha Public Power District (OPPD) issued a series of Electric System Revenue bonds worth US\$245 million in 2007. The proceeds of the bonds were to be used for capital expenditures.

Both the principal and interest on the bonds are secured by the revenues, income, receipts and profits from the electricity supplies. The utility retails electricity to 47 cities and villages. It also wholesales electricity to five municipalities.

The due diligence makes it clear that OPPD has no taxing power and that the bonds are not the obligations of the State of Nebraska. It is also clearly stated that the State or any of its political subdivisions is not liable for the repayment of the bonds.

Source: OPPD (2007).

Table 5.1 US municipal bonds sales for infrastructure by use of proceeds

Use of proceeds ^a	2000		2003		2006	
	Principal amount	Market share	Principal amount	Market share	Principal amount	Market share
	US\$m	%	US\$m	%	US\$m	%
Utilities	20.1	10.0	51.8	13.5	54.9	14.2
Transportation	26.7	13.3	40.4	10.5	41.6	10.7
Education	48.4	24.1	91.2	23.8	106.6	27.5
Healthcare	17.9	8.9	28.6	7.5	40	10.3
Housing	20.1	10.0	26.5	6.9	30.5	7.9
Public facilities	9.3	4.6	12.9	3.4	14.6	3.8
Other	58.4	29.1	132.1	34.4	99.6	25.7
All	200.9	100.0	383.5	100.0	387.8	100.0

^a Utilities comprises water and sewer, gas, flood control and sanitation. Transportation refers to airports, seaports and marine terminals, toll roads, highways, streets, bridges, tunnels, parking facilities and mass transit. Education comprises primary, secondary and higher education infrastructure. Healthcare includes hospitals, nursing homes, continuing-care community services, assisted living and general medical facilities. Housing includes both single-family housing and multi-family housing. Public facilities include government buildings, fire and police stations, prisons, civic and convention centres, parks and zoos. Other includes infrastructure for general-purpose, industrial and economic developments, as well as non-government office building and environmental facilities (such as solid waste disposal, resource recovery, pollution control and recycling).

Source: The Bond Buyer (various issues).

Traditionally, GO bonds were the most commonly used financing instruments for social infrastructure projects. However, the use of revenue bonds to finance social infrastructure projects has grown because of:

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- the commercialisation of certain activities undertaken by agencies such as housing and hospital financing authorities — that is, the need to detach the activities of these agencies from general government and its taxation power, and to provide a separate source of finance to those agencies
 - a desire to place certain activities on an efficient and equitable basis, whereby users (rather than the taxpayers at large) pay for benefits through user charges and fees
 - an expanding definition of what constitutes the public purpose or ‘*publicness*’ of goods or services. For example, historically, facilities such as stadiums and convention centres were not considered to be public purpose facilities and consequently were financed by the private sector with no (limited) public subsidy (Jacobson and Tarr 1995)
 - a growing reluctance of voters to approve GO bond issues — as required in over 40 states (Elmer 2005)
 - constitutional and statutory GO debt limits — as imposed in most jurisdictions (44 states) at both the state and local government levels.

Sources of income for debt repayment

The source of funds for the repayment of revenue bonds is generally determined by the nature of the investment. For investments in economic infrastructure, funds typically come from income generated by the project. For example, toll fees are mainly used for toll-road bonds, while fares are the most common source of funds for the repayment of transit bonds.⁴

Funds for the repayment of social infrastructure bonds primarily come from sources such as government grants, local tax revenues and lease payments. Government grants include those from the federal as well as state and local governments.

Local tax revenue is usually hypothecated from existing taxes (such as payroll tax) or new taxes levied through specific legislation. For example, almost 60 per cent of the Los Angeles County Metropolitan Transport Authority transport revenue bonds were backed by incomes from specifically legislated sales tax (LACMTA 2007).

Recently, other sources of debt repayment have been used. For example, anticipated federal government grants — known as Grant Anticipated Revenue Vehicles (GARVEE) — have been used to finance highways and bridges (box 5.4).

⁴ Debt repayment, more often than not, may come from revenues generated from organisation-wide operations, as opposed to from incomes exclusively generated by the project the debt is sought for.

Lease payments are another source of funds used to repay bonds issued for social infrastructure such as schools, police stations and correction centres. Typically, the bond issuing authority operates as a separate entity from the lessor. For example, monthly lease payments from the Bath County (in Kentucky) Board of Education are used to repay bonds issued to finance the renewal of a primary school by the Bath County School District Finance Corporation (RSA 2007).

Other sources of funds for social infrastructure bonds include rent and monthly mortgage repayments (housing bonds) as well as patient charges, private insurer payments and government funding (hospital bonds).

Revenue bonds are not backed by the issuing entity's taxation powers. Further, when default occurs, the US municipal bankruptcy code does not provide for the liquidation of assets and the distribution of the proceeds to creditors (box 5.5).⁵

Consequently, credit analysis of revenue bonds is focused on the nature of the income sources that back the bonds. For example, revenue bonds are required to have a debt coverage ratio — the ratio of annual revenues to the annual debt service charges — of around 1.5 to 2. No such requirement exists for GO bonds.

Box 5.4 Grant Anticipated Revenue Vehicle Bonds

Grant Anticipated Revenue Vehicle (GARVEE) bonds allow states to finance the construction and upgrading of highways with the pledge that the repayment will come from future federal-aid highway grants.

GARVEE bonds have existed since the mid-1950s. However, their use was limited by various conditions. One such condition was that states could only use their apportioned federal-aid highway funds to repay the principal component of the debt. Interest repayments were only eligible for some interstate projects.

A 1995 amendment, however, removed these restrictions, allowing states to use their apportioned federal-aid highway grants to meet both interest expenses and the retirement of principal. Consequently, their use grew significantly. For example, at the end of December 2006, the cumulative value of GARVEE bond issues reached US\$6.2 billion, financing projects in 18 states.

Source: FHWA (2007a).

5 The bankruptcy code governing revenue bond issuing entities is known as 'municipal bankruptcy' or commonly referred as 'Chapter 9'. Filing for Chapter 9 provides a financially distressed municipality protection from its creditors while going through debt restructuring.

Box 5.5 Default experience — Valley Health System, California

Valley Health System is a California Local Health Care District. It owns and operates three acute hospitals and a skilled nursing facility with over 500 beds.

Unable to meet its ongoing financial commitments including repayments on hospital revenue bonds worth \$US34 million, Valley Health System filed for bankruptcy (Chapter 9) in December 2007.

Filing for Chapter 9 sheltered the organisation from any litigations or claims over its incomes while restructuring its operations. As part of the restructuring process, the board approved a bond measure that would have refinanced existing borrowings. However, this proposition and an attempt to sell the organisation to a private health care company were voted down by the public.

Source: Bagley (2007).

In addition to stringent credit analysis, revenue bonds face a series of restrictive covenants. They include establishing funds (such as operating reserve and debt service reserves), setting the minimum user charges (to satisfy both expenses and debt servicing), and restrictions on further leverage (whether additional bonds with the same lien may be issued or not).

5.3 Policy issues

The most contentious policy issue associated with municipal bonds in the United States has been their exemption from federal income tax. The tax-exemption status has been a subject of court cases and congressional committee hearings. Furthermore, the extension of the tax advantage to the private sector has created conflict between federal and state governments.

Tax exemption

The exclusion of municipal bond interest from the federal income tax lowers the interest cost of financing public infrastructure projects. This tax concession, borne by federal taxpayers, is effectively a subsidy to state and local government infrastructure investment. In theory the tax exemption is equivalent to an intergovernmental transfer, and as such suffers from some of the same risks to efficiency (see chapter 4). In practice it is an opaque subsidy that is not explicitly costed nor subject to the same political scrutiny that an intergovernmental grant would be subject.

The tax-exemption was first introduced in the early 1900s. The rationale was the doctrine of intergovernmental tax immunity, rather than any policy or economic considerations (box 5.6). However, various economic rationales based on the theory of public goods and spillover benefits have since been articulated to justify the subsidy.

According to the theory of public goods, goods and services that have positive externalities may not be provided by the private sector at a ‘socially optimal’ level (chapter 2). The provision of such goods and services by state and local governments can add to the welfare of a nation.

Economic rationales based on the theory of public goods, on its own, do not necessarily justify federal government subsidisation of state and local governments’ activities. From an economic perspective, a federal government subsidy can only be justified when some of the benefit from public provision should accrue to taxpayers who reside outside the state or local area providing the service (Zimmerman 2000).

Beyond the public goods and spillover benefits arguments, tax exemption has also been justified on the basis of income redistribution (APPA 2006). Consequently, tax-exempt bonds have been used to subsidise facilities such as housing for low-income earners and publicly-owned utilities in rural and regional areas.

Box 5.6 The origin of tax exemption of municipal bonds in the United States

The origin of the tax exemption of state and local government bonds in the United States dates back to 1913, when the federal income tax was first adopted. Incomes earned from holding state and local government bonds were excluded from the federal income tax base on legal basis and the doctrine of intergovernmental tax immunity.

For a long time, the legal basis was believed to stem from the *Tenth Amendment* of the Constitution. In 1988, however, the US Supreme Court (*South Carolina vs Baker*) ruled that the legal doctrine is a statutory law, not a Constitutional one. This implies that, as a statutory law, the Congress can revoke the exemption.

Thus far, the Congress has not moved to revoke the tax advantage. However, Congress has enacted measures, most notably in the late 1960s and in 1986, that placed restrictions on the use of tax-exempt bonds.

Some of the restrictions are intended to curb the private use of municipal bonds and prevent state and local governments from engaging in arbitraging opportunities for the purpose of making profit.

Source: GFOA (2005); Zimmerman (1991).

Private-activity bonds

Tax-exempt private-activity bonds are issued by state and local governments (and their authorities) to be used by the private sector for broadly defined public purposes. The state or local government does not generally pledge its credit for payment of the debt. The bonds are repaid solely from the users of the financed infrastructure.

The increased use of private activity bonds for facilities that do not necessarily exhibit the characteristics of public goods became quite prevalent before the 1980s tax reforms. State and local governments increasingly stretched the definition of public purpose. Bonds issued for facilities such as stadiums, retail outlets and hotels were given tax-exemption status under the premise of economic development.

Indeed, by the early 1980s, state and local governments issued more private-activity bonds than bonds to finance traditional public projects. For example, over 70 per cent of the total dollar value of municipal bonds issued between 1983 and 1985 were tax-exempt private-activity bonds (Maguire 2001).

Alarmed by the ever expanding application of these bonds, the US Congress introduced strict conditions and limits on the use of private-activity bonds in 1986 (box 5.7). Subsequently, the use of private-activity bonds fell by 28 percentage points between the early 1980s and the end of 1995.

In the early 2000s, private-activity bonds have been predominantly used for social infrastructure such as housing and student loans. For example, the housing sector accounted for over 25 per cent of the total private activity bonds issued between 2003 and 2005, while student loans accounted for almost 10 per cent (Maguire 2006).

Private-activity bonds and public–private partnerships

Some of the restrictions on private-activity bonds militate against their use in public–private partnerships (PPPs) arrangements. For example, limits to the proportion of proceeds to be used by the private sector (under the private business use condition) discourage PPPs which involve revenue sharing, private equities and long-term operating contracts (Saunders 2007).

Further, the ‘private business use’ restriction makes some of the PPP arrangements unattainable because the restriction requires that no more than 10 per cent of the proceeds of the issue are to be used by the private sector.

Box 5.7 Federal law restriction of private-activity bonds

To qualify for tax exemption, private-activity bonds must fit into one of the seven eligibility categories, meet the volume cap requirement, and adhere to the 'private use' tests.

One of the tax-exempt categories is publicly-owned entities while the remaining six are:

- small issue bonds — bonds issued to finance manufacturing facilities with capital less than US\$10 million
- mortgage bonds
- veterans' mortgage bonds
- student loan bonds
- redevelopment bonds
- facilities for non-profit corporations.

The volume cap restriction applies to the amount of private-activity debt that can be issued within a state, in a given year, to the greater of either US\$80 per capita or US\$239 million.

In addition to the above two requirements, private-activity bonds must meet at least one of the following tests to qualify for tax-exemption:

- 'private business use' — no more than 10 per cent of the proceeds of the issue are to be used in the trade or private business. The 10 per cent threshold was, recently, reduced to 5 per cent for certain private businesses
- 'private payment' — no more than 10 per cent of the payment of principal or interest on the issue is secured by properties used in a trade or private business.

Sources: GFOA (2003); Solomon (2007); Zimmerman (1991).

Another restriction is that private-activity bonds cannot be issued for a single project if the total cost exceeds US\$20 million unless it is for an exempt facility.

Financing costs of revenue bonds

The direct cost of financing

Data on revenue bond yields are not readily available. However, based on municipal bonds data, as would be expected tax-exempt bonds typically command lower interest rates than comparable corporate bonds. For example, between 2000 and 2006, the yields on AAA-rated municipal bonds were lower than corporate bonds (of the same rating) by between 0.9 to 1.9 percentage points (table 5.2). The

Table 5.2 Yields and yield spreads between AAA-rated tax-exempt municipal bonds and AAA-rated corporate bonds (per cent)

<i>Year</i>	<i>Tax-exempt municipal bonds</i>	<i>Corporate bonds^a</i>	<i>Yield spread^b</i>
2000	5.8	7.6	1.8
2001	5.2	7.1	1.9
2002	5.0	6.5	1.4
2003	4.7	5.7	0.9
2004	4.6	5.6	1.0
2005	4.3	5.2	0.9
2006	4.4	5.6	1.2

^a From December 2001, data for corporate AAA series were industrial bonds only. ^b Corporate bond yield minus yield on tax-exempt municipal bonds.

Source: Council of Economic Advisors (2007).

interesting question is whether the cost saving to the issuing government is less than the revenue loss to the federal government.

In principle, the yield spread between comparable revenue and corporate bonds should equal the average marginal federal tax rate of the typical investor. This has been estimated to range between 30 to 35 per cent (Dwek 2002). This implies a yield spread between 1.6 to 2.7 percentage points. In reality, however, the spread was generally less than this between 2000 and 2006 (table 5.2). This suggests that municipal bonds are less attractive to investors than comparably rated corporate bonds, or that investors in fact face lower marginal tax rates.

The relative aversion to revenue bonds is not explained by a difference in default rates. A study by Litvac, McDermott and Koo (2007) found that ‘essential purpose’ enterprises — which are typically natural monopolies or those strongly protected against competition — have consistently lower default rates than private-sector entities issuing similarly rated corporate bonds. Based on data over the period 1987 to 2002, the five- to 15-year cumulative default rates averaged 0.24 per cent compared with the 10-year cumulative default rate of 0.43 per cent for AAA-rated corporate bonds. Where default occurs, revenue bonds generally have relatively higher likelihood of a recovery rate than comparable corporate bonds. For example, between 1970 and 2000, the average recovery rate on defaulted municipal bonds was 66 per cent of the par value, while for corporate bonds it was around 42 per cent (Fidelity Investment 2007).

While the data suggests a puzzle about why such revenue bond yields do not reflect the full value of the tax exemption, it difficult to compare the price of bonds solely on the basis of the underlying risk rating associated with the issuing entity. The

observed yield on a bond depends on a range of other factors, such as call provisions, maturity dates, liquidity, issuance costs, insurance coverage and tax incidence. For example, it may well be that revenue bonds are less liquid than comparably rated corporate bonds.

Flexibility

Revenue bonds generally lack some of the flexibilities common in institutional lending such as renegotiating repayments and loan restructuring. With revenue bonds, any change to the contractual agreement (indenture) usually requires securing votes from the majority bondholders. There are, however, some mechanisms (such as call and put provisions) whereby bondholders can hedge against some of these inflexibilities. For example, call provisions can be used to mitigate risk associated with changes in interest rate.

Call provisions allow bond issuers the right, but not the obligation, to buy back the bonds from the bondholder at the call price. Both the call dates and the call prices are set at the time of issuance. The attraction of this provision is that bond issuers are able to engage in a form of refinancing if the interest rate at the time of the call date is going against them. Indeed, this provision is prevalent, being contained in over 80 per cent of revenue bonds issued over the past ten years.

Transaction costs

Transaction costs are incurred to facilitate the bringing together of bond issuers and investors. These costs include fees paid to financial advisers, bond counsels and bond-rating agencies. Transaction costs also include the underwriters' spread, which is the difference between the price the underwriters pay the bond issuing entity and the price the underwriters receive from the resale of those bonds to investors.

Bond counsel fees are costs unique to municipal bonds. The primary role of a bond counsel is to certify the issuer's legal authority to issue the obligation and provide legal opinion on the tax-exempt status of the security being offered. Bond counsels also provide legal advice such as the procedures issuers must follow to obtain authorisation prior to issuing (Joseph 1994).⁶

Transaction costs are determined by a number of factors including the size of the bond issue, the bargaining power of the issuing entity and the market conditions. The larger the size of the bond issue the lower the average transaction costs due to

6 Bond counsels do not have to be engaged for the issuance of corporate bonds or the US treasury securities.

economies of scale. Indeed, economies of scale are one of the main benefits of issuing bonds through third parties such as the CBAs in Australia or bond banks in the United States.⁷

Reliable and up-to-date data are not available on transaction costs. However, based on earlier research, underwriters' margins are the largest issuance cost, followed by either financial adviser fees (for smaller issues) or bond counsel fees (larger issues) (table 5.3). For example, for bonds worth in excess of US\$75 million, the underwriters' margin is around 0.9 per cent of the value of the bond. For those bonds with values less than US\$5 million, the underwriters' margin is estimated around 1.3 per cent of the value of bond (table 5.3).

Table 5.3 Components of issuance costs^a, 1988

<i>Type of issuance cost</i>	<i>Unit</i>	<i>Size of bond issue in US\$million</i>					
		<i>5 or less</i>	<i>6–10</i>	<i>11–24</i>	<i>25–49</i>	<i>50–74</i>	<i>75 +</i>
Amount of costs							
Underwriter's margin	'000	35.4	83.4	180.9	362.5	560.2	1 962.5
Financial adviser	'000	14.3	21.8	32.9	29.9	32.1	63.5
Bond counsel	'000	11.5	17.9	37.2	59.2	56.6	81.9
Moody's rating	'000	3.4	5.2	6.8	8.3	11.5	15.8
Standard & Poor's rating	'000	4.3	5.7	6.9	9.4	10.6	15.2
Proportion of costs							
Underwriter's margin	%	1.31	1.25	1.06	1.03	0.92	0.90
Financial adviser	%	0.63	0.31	0.02	0.09	0.05	0.04
Bond counsel	%	0.47	0.24	0.04	0.16	0.09	0.06
Moody's rating	%	0.15	0.07	0.04	0.02	0.02	0.01
Standard & Poor's rating	%	0.16	0.08	0.04	0.03	0.02	0.01

^a Components of issuance costs not shown include independent audit, notice of sale and official statements.

Source: FMRC (1989).

Loss of tax revenue

The tax deduction of incomes from revenue bonds by investors results in forgone tax revenues for both the US federal and state governments. The loss of revenue can be significant. Assuming a marginal tax rate of 30 per cent and taxable interest rate

⁷ Bond banks are government agencies that sell securities and re-lend bond proceeds to governmental entities such as local governments and government-owned business. Bond banks are more common in small states in the United States and some European countries. They are more suitable to small entities who would otherwise face steep transaction costs and whose bonds are difficult to market. Bond banks are able to consolidate many smaller loans into a size that is more readily adaptable and marketable to the credit markets.

of 7 per cent, the federal tax loss can amount to 2.1 percentage points for each dollar of the bond issue.

Empirical evidence suggests that, over the past ten years, forgone federal government revenue amounted to around US\$27 billion a year (Marron 2006). The tax loss is not limited to the federal government, since state governments also exempt revenue bonds from their income taxes.⁸

5.4 Strengths and weaknesses

Strengths of specific-purpose bonds include exposure to market-based disciplines and user-based funding of public capital works. However, revenue bonds can lack some of the flexibilities of bank loans and may also result in a relatively higher transaction costs. Further, tax-advantaged revenue bonds have been criticised for causing market distortions and encouraging rent-seeking activities. Any estimates of the financing costs of revenue bonds need to take into account forgone tax revenues as well as the yield and transaction costs.

Market-based disciplines

Ideally, revenue bonds are not backed by taxpayers other than the direct beneficiaries, so that investment and funding of projects will be based more on commercial merit rather than other considerations.

Specific-purpose bonds are more efficient where they are backed by income generated from the infrastructure investment, including government payments for services. This link between the performance of the asset and servicing of the debt provides a greater incentive for due diligence about the asset by investors in the bonds. However, the strength of this incentive depends on the nature of the funding arrangements. Exposure to market-based disciplines is weaker if the bond servicing payments are sourced from revenues unrelated to the performance of the asset.

User charges can also improve efficiency in the planning and operation phases of an infrastructure asset. The efficient provision of services is enhanced if consumption benefits are linked to the costs of providing the services via fees, service charges or local taxes (Leigland and Thomas 1999; Martinez-Vazquez 1999). Revenue bonds are usually backed by income streams from any of these three sources. For example,

⁸ Because state income tax rates are much lower than the federal government, the tax loss at a state government level is likely to be much lower.

the use of toll-road bonds requires that the issuing entity generates sufficient funds to repay the debt servicing as well as the principal.

Access to competitive debt markets enhances the efficient pricing of bonds. The vast majority of revenue bonds are issued through competitive tendering as opposed to negotiation mechanisms. The issuer invites underwriters to bid for the purchase of bonds, then chooses the most attractive offer. Competition among bond underwriters is likely to ensure the least cost of the services provided by the bond issuing entity which will be reflected in lower yields. Empirical evidence suggests that yields declined by between 1 and 1.5 percentage points following the entry of commercial banks to underwriting revenue bonds.

Market discipline can be imposed through the contractual agreement of revenue bonds, which typically includes conditions such as the minimum user charge. Such provisions require the borrower to maintain a level of net project revenues at a specified minimum margin on the debt service (Fabozzi 2000). Further, indentures can specify the status of new loans (in terms of hierarchy) or a limit to further debt. These conditions are aimed at ensuring that bond issuers are making sensible investments and that they do not over leverage, as well as protecting the bond purchasers (Temel 2001).

User-based cost spreading

The use of revenue bonds to finance infrastructure can potentially encourage user-based cost recovery of public services across multiple generations. The term to maturity of revenue bonds can be designed in a way that matches the expected useful life of the assets in most cases (Fabozzi 2000). Thus, the consumption of services can be broadly matched with payments for those services. Matching the duration of assets with those of liabilities prevents some users making a disproportionate contribution, or debt being passed from one generation to following generations, that do not benefit from the investment.

Further, the debt is typically repaid from user revenue collected through fees or hypothecated taxes, rather than general government appropriations. This reduces transfers across taxpayers in different regions and between users and non-users.

Nevertheless, with tax-exempt bonds, the general taxpayers' subsidy of the interest remains. As a result, the tax-exempt nature of revenue bonds can result in inequity when some communities use revenue bonds to finance projects that do not provide a benefit to all taxpayers. For example, the tax exemption of bonds issued by public utilities benefits customers (by way of lower prices) at the expense of the broader community.

Market distortion arising from tax-exempt status

The use of tax-exempt revenue bonds enables publicly-owned businesses to sell their goods and services at a lower price than their private-sector counterparts, all other things being equal. This advantage is said to encourage monopoly government ownership with implications for competition and innovation (Edwards 2006).

It should be noted, however, that in many of the studied countries, there are policies aimed at ensuring the private sector is not disadvantaged by unfair competition from the public sector (that is, competitive neutrality). For example, in Australia, GTEs are subject to debt guarantee fees on their debt to offset other competitive advantages implicitly provided by government guarantees.

Another type of market distortion relates to private investment. The ability to source capital below the market rate can potentially increase the after-tax return of investment financed by tax-exempt bonds, thereby reallocating resources away from non-tax exempt investments that have a fundamental higher rate of return.

In addition to the market distortions, tax-exempt bonds have implications for the distribution of the overall tax burden on the community. Tax exemption encourages higher marginal taxpayers to invest in bonds to minimise their tax burden, especially when marginal tax rates are relatively high. The effect of this is that individuals on lower marginal tax rates contribute relatively more to the overall tax burden. The overall tax burden on the community becomes less progressive as a result.

Rent seeking

The tax-exempt nature of revenue bonds has also been criticised for encouraging rent-seeking activities. Rent-seeking refers to making money by manipulating the economic environment rather than by undertaking activities with the intent of a profit through trade and production of wealth (Kaufman 2004; Pasour 1983).

Zimmerman (2004), a critic of tax-exempt bonds, has identified rent-seeking activities by those promoting the private use of revenue bonds to access low-cost debt such as developers of stadiums and convention centres. He has also claimed that parties such as underwriters tend to increase bond volumes and issuance costs to take advantage of tax subsidies. The latter concern seems to have had been shared by legislators, who since 1986 have limited the issuance cost to a maximum of 2 per cent of revenue bond proceeds.

Key characteristics of specific-purpose bonds

These strengths and weaknesses are reflected in the characteristics of the financing vehicle:

Risk management — specific-purpose bonds should force better management of project risks than funding by budget appropriation. However, the link between the productive efficiency and bond service could be weak where debt service payments are met from revenue sources unrelated to project service delivery.

Transaction costs — competition in the underwriting market lowers transaction costs, but these can still be considerable with brokers and rating agencies required to provide information on the investment to the market. As long as the market for these types of bonds remains sound, cash to finance projects should be readily available and projects delays can be avoided. Some revenue bonds contain provisions for greater flexibility for both investors and issuers. In general, they are less flexible than most corporate bonds and other market funding mechanisms, which may result in higher costs if refinancing is desirable during the life of the asset.

Market and other disciplines — specific-purpose bonds should provide the underwriters and investors with an incentive to undertake due diligence on the investment. Public agencies that have carriage of the investment will also have an incentive to be better informed in order to assess the potential to service the bonds. This may improve the information going into the investment decision and hence allocative efficiency.