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## Chapter 6

# Debt Instruments and Methods of Sale

Debt instruments are the legal embodiment of a credit transaction, setting out the terms and conditions of the loan, including how the principal is to be repaid, how long a debt will be outstanding, and how interest is figured and paid. Method of sale considerations involve the procedures by which debt is offered to the final investors and the debt obligations exchanged for the bond proceeds.

The general parameters of what instruments should look like and how sales are conducted are often covered in a nation's securities laws. As a rule, the precise details of these matters are determined by the market. Financial markets are fluid, and what might be attractive one day can be unattractive the next. Inflexibility is costly. However, in new markets both the borrowers and lenders are often unaccustomed to the process and perhaps unwary of the risks.

A major concern at the national level is to avoid creating regulations that interfere with the flexibility of lenders and borrowers in structuring debt in ways that best suit both parties. This chapter examines several of the alternatives that may be used in the design (often referred to as *structuring*) of subnational government debt transactions. It describes debt structure and illustrates the range of instruments available to suit the profiles of issuers and investors.

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### Maturity or Term of Debt

The *maturity* of a debt instrument refers to the period from the time the funds are borrowed to the time the principal is due to be repaid. The maturity should be matched to the economic life of the asset that the debt is financing. Ideally, the amortization of the liability on one side of the balance sheet is matched by the depreciation of the asset financed on the other side. Thus

infrastructure assets, such as water systems, roads, or municipal buildings, which typically have lives of 15 to 30 years, should be financed with long-term bonds of similar duration. Matching asset life to debt term is also sound public policy because then facilities can be paid for by those who use them.

In many emerging market economies, however, private investors are unable or unwilling to extend loans beyond a few years. Even if longer term capital is available, the upward sloping yield curve—the longer the term of the debt, the higher the interest rate payable—may cause borrowers to prefer shorter-term debt. Investors want extra compensation for the lack of liquidity of long-term lending and the increasing uncertainty about economic conditions, price levels, and interest rates far into the future. However, this is not always the case. Short-term interest rates may be temporarily driven up by liquidity shortages and efforts to defend the currency. If expectations are that the prevailing level of interest rates is unsustainably high, and if rates are expected to fall, then the yield curve may be inverted, with short-term rates higher than long-term rates. In such cases, some borrowers may borrow on a short-term basis, if they believe long-term rates will fall. Others may choose to lock in the relatively lower long-term rates.

There is also a tradeoff between the lower rates typical of short-term debt and refinancing risk. If the debt is shorter in maturity than the life of the asset, the borrower is exposed to refinancing risk—new debt may have to be raised during the life of the asset at a higher rate than the original loan. If the borrower's credit risk has worsened, it may not be possible to refinance. Refinancing can, of course, work in favor of the borrower, if, for example, interest rates fall or the borrower's credit improves. In the case of general obligation bonds, this could happen as a result of the improved general creditworthiness of the subnational government. In the case of project finance, the construction and initial phases of operation are riskier than the later phases of a mature project, when it may be possible to refinance at lower rates. However, financiers are aware of this and rely on the later phases to provide some compensation for the additional risk taken at the outset. Thus they would probably reserve for themselves the right to refinance. All in all, maintaining an unhedged position is risky and usually not advisable with public funds.

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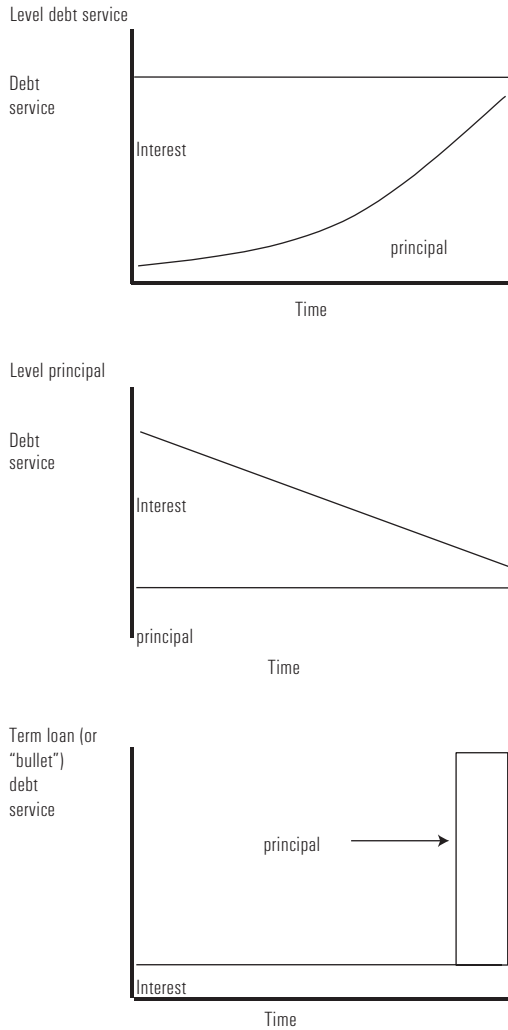
## **Debt Service or Repayment Structures**

There are several common cash flow profiles of debt, which describe the ways a borrower pays interest and principal over the life of the liability (fig-

ure 6.1). In addition, interest rates may be fixed or floating and bonds may pay interest on a variety of “coupon” dates.<sup>1</sup>

**Loan Structure and Cash Flow Profiles**

The debt service (that is, combined principal and interest) may be paid in approximately equal installments over the life of the debt, which is called



**Figure 6.1. Debt Service Structures**

*level debt service*. Another, more conservative approach is the *level principal structure*, in which the principal is repaid in equal increments and interest in declining increments, leading to a more rapid repayment of debt. This front-end-loaded structure frees up future borrowing capacity quickly and leads to progressively smaller debt service payments. Alternatively, the debt service schedule may be structured to increase over the life of the debt. A *term bond structure* typically has periodic interest payments but the principal falls due at the end. This back-end-loaded structure, sometimes called a *bullet loan*, is common in short-term securities and bank loans.

The variations on loan structures are practically limitless. Their shapes can be influenced by grace periods, deferrals of payment of the principal or interest or both for periods of time. Such structures are used when loans are to be paid from project earnings and there is a construction or start-up period before receipts start to flow. Original discount bonds, called *zeros* when they fully discount future interest payments, pay no or reduced interest. The investor realizes a return by buying the bond substantially below its principal value. Such bonds can be issued at discount or created synthetically by investment banks by stripping the coupon off a standard term or serial bond. Zeros are attractive to parties who want to secure a fixed amount of capital in the future without being exposed to reinvestment risk. Zero bonds are created synthetically when the coupon stream is stripped from a bond and sold to an investor who is interested primarily in an annuity flow.

Cash flow profiles can be engineered to match the cash flows generated by the activity being financed. Liabilities can be index linked, where revenue flows are expected to vary with an index, such as inflation or an input cost. Interest payments can go up or down, depending on the movement of the index. As noted, amortizing payments can be structured with an escalating profile, with lower debt service in the early years. This is common in commercial property finance, for example, where there is a “ramp-up” period when rentals are expected to escalate, and can be appropriate for certain municipal assets. Similarly, interest payments for initial periods can be deferred by using bond proceeds to pay interest costs in early periods (capitalized interest).

### **Fixed or Floating Interest Rates**

Bank loans or municipal bonds may be made at fixed or floating rates of interest. In emerging market economies, the variable rate may be the only interest payment structure available for obligations beyond a short maturity.

Both have advantages and disadvantages. Floating rate debt implies continuous uncertainty about the cost of debt, but it can be appropriate where the matching revenues are expected to vary with changes in interest rates. However, this is not usually the case for municipalities. Financial flexibility and access to liquidity are important considerations for floating rate borrowers. If there is limited ability to change taxes or rates to respond to rising interest rates, then over-reliance on variable rate debt is worrisome. The rating company Standard and Poor's generally recommends that the combined short-term debt and variable rate debt not exceed 20 percent of total debt, but the share depends on the circumstances and degree of flexibility and matching of revenues with debt service.<sup>2</sup>

### **Cash Flow Concerns**

There are several considerations in deciding on the cash flow of municipal bonds. Bonds may pay interest on a variety of "coupon" dates. Although semiannual payments are the most common in developed markets, structured loans can have varying coupon profiles (semiannual, quarterly, even monthly) to suit the cash flow requirements of the borrower and the capacities of the issuer. Most municipal bonds in emerging markets have had short maturities and many have had term bond or bullet maturity structures, meaning that most loans to subnational governments have been for construction and start-up costs. Implicit in the repayment structure has been the requirement that the borrower roll over the loan into a new one at maturity or come up with alternative means of long-term financing. This approach subjects issuers and lenders to great uncertainty about future debt service requirements and effectively holds borrowers hostage to future changes that may be forced on them when they come back to the market to renew the loan.

### **Legal Restrictions**

A final area of policy regarding the structure of instruments concerns restrictions that may be placed on interest rates or on the maximum maturity of bonds. Interest rates may be capped by "usury rates" that set an absolute ceiling on rates. While this was once common practice in the United States, the restriction has disappeared for all practical purposes over the last 20 years. Limiting interest rates has the effect of rationing capital away from governments during periods of high interest rates. Such restrictions continue as a matter of contract in variable rate instruments, however, where a cap is specified or a borrower may purchase a rate cap contract

from a commercial bank that will agree to pay the excess interest for a fee. The other common restriction is on maximum maturity of bonds, which is often specified in conjunction with the expected useful life of the improvement being financed. Again, these restrictions are seldom effective and the market itself provides the limitation on how far it will extend debt, especially at fixed interest rates.

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### **Methods of Sale for Securities**

Municipal securities can be sold to investors in a number of ways. Bonds can be auctioned competitively to the highest bidder or placed with the final investor, much as a direct loan is made from a bank. In most emerging markets the offering is made through negotiation, with the borrower selling its bonds through a financial services firm (such as an investment banking firm or, for larger issues, a combination of firms, called a *syndicate*). The firm underwrites the issue, agreeing either to buy all the bonds offered at a certain price or to act as an agent and make a “best effort” to sell the bonds, receiving a commission on the bonds sold.

### **Characteristics of Markets: Setting Interest Rates and Other Terms**

A competitive sale environment requires an active market with a large number of issuers offering fairly standardized securities and a large number of investors interested in owning them. The large volume of activity results in a number of bankers following the market, making bids, and placing bonds to investors. It also means that there are other professionals who help to design the issues, prepare documents, and run the auctions.<sup>3</sup> The competitive auction, with several underwriters bidding on a bond issue, is common in the U.S. municipal bond market but a rarity in other markets. It may, however, become more prevalent as markets thicken in activity and experience develops.<sup>4</sup> A strong point in its favor is the transparency of the transaction, since barring collusion among bidders, the public auction clearly identifies how the bonds are priced.

Where bond markets are less homogeneous and sales are irregular, issuers typically rely on negotiations, hiring an underwriter to help prepare the issue and seek out possible investors. The negotiations can be made competitive by injecting elements of competition among firms into the underwriting selection process and subsequently by holding underwriters to the projected terms of the issue. To help achieve competition, the issuer may employ the services of a financial adviser knowledgeable about the de-

sign of transactions and the marketing of securities. The adviser usually helps the issuer select an underwriter and, among other tasks, helps to ensure that the issuer is being dealt with fairly by the underwriter (box 6.1).

The underwriting process has the advantage over the use of a best effort marketing arrangement of guaranteeing that sufficient funds will be borrowed. However, the investment banker undertakes the risk of reselling the issue and demands more remuneration when acting as an underwriter than when acting as a placement agent. To make a profit and to cover risk and expenses, the underwriter buys the bonds at a discount—for less than the value at which they are reoffered to the final investors. This price difference is known as the *spread*.

The mechanics of selling bonds and setting interest rates and other terms differ for various domestic securities markets. In countries with relatively small and inactive markets, the terms of the bond offering may be set well in advance of the sale date. The bonds then may be sold on a given day with a discount or premium to make returns competitive with then-prevailing conditions. Fixing terms before the sale date puts the underwriter at greater risk, so issuers pay an interest rate premium. Another approach is to commit to having the bonds underwritten at a certain mark-up or in relationship to some regularly published interest-rate index, usually that on government bonds. Finally, the terms can be determined by offering the bonds at a proposed structure and then changing the terms to meet the effective demand from investors in what amounts to an “informal” auction. The terms and their acceptability to the issuer remain open until the sales contract (the bond purchase agreement) with the underwriter is signed.

The bond instruments or other evidence of ownership then are delivered physically or electronically and money is exchanged for them (settlement). Depending on market conventions and the nature of the security, the issuer or the underwriter may have selected a paying agent or a trustee to receive funds from the issuer and to pay interest and principal. The trustee also oversees the bond contract between the issuer and ultimate buyers of the bonds, the investors, and looks after the interests of the investors, making sure that the terms of the bond contract are observed.

### **Importance of Impartiality and Transparency**

Beyond the procedures set down by national enabling laws, the specifics of the bond offering are a matter of contract among the underwriter, the issuer, and the ultimate investor. Thus the issuer needs to obtain sound legal

**Box 6.1. Selecting an Underwriter through Competitive Negotiation**

The city of Krakow proposed a 15 million zloty bond issue in 1996. With the assistance of a financial adviser, the city sent a solicitation to a large number of investment banking and commercial banking firms, describing the project and needed funds, providing information about the city, and asking for proposals. The solicitation and selection process contained several elements designed to make the choice of firms transparent and competitive. The solicitation contained a tentative maturity structure for the issue and asked respondents to price the bonds (provide interest rates) and indicate their gross profit, assuming that the bonds had been sold on a given day. In addition, the respondents were asked to estimate an itemized list of costs and to indicate which costs would be met from their profits and which would be paid by the city. Firms were asked to critique the structure and suggest alternatives and to describe their experience and financial capacity.

A combination of factors was used in selecting the finalists, but the cost of borrowing was the most important. All costs, including future interest payments and fees paid by the city, were made comparable by using an all-in-cost internal rate of return calculation. Responses were analyzed by a committee, and individual firms were contacted to clear up any questions. Of the eight firms and syndicates that responded, the top three were invited to make presentations and to make their best and final offer. A syndicate was selected. The final offer committed the underwriting syndicate to price the proposed bonds on a par with Polish Treasury bonds of the same maturity, a highly aggressive bid.

Subsequently, Krakow received an investment grade credit rating from Standard & Poor's and sold bonds (Deutsche mark denominated) in the Euro market in late 1997. It was the first Polish city to do so.

Source: Petersen and Crihfield 2000.



and financial advice that is independent of that given by the underwriter and the final investor.

The transparency of the method of sale matters. The large amounts involved in bond sales and the ability of financial firms to make large profits on bond issues can be a temptation for corruption (see box 6.2).

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### **Investments Related to Borrowing**

An important element of subnational government borrowing is the types of investment that are permitted for the following.

- Proceeds of a borrowing that are awaiting application to the intended purpose.
- Funds held for paying debt service, including intercepted funds and reserve funds.

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#### **Box 6.2. Rigging a City's Bond Sale**

Saõ Paulo was a heavy borrower in the Brazilian bond markets. As of January 2000 its outstanding debt was over 10 billion reais or nearly 1,600 reais per capita (equivalent then to about \$800), some 20 times the average debt of Brazilian municipalities. The city's large appetite for borrowing was driven by more than its fiscal needs.

In early 2000, when the national government was negotiating an arrangement to allow the city to refinance its debt, a scandal broke out involving corruption in previous city bond sales. The mayor, who was formerly the city's finance officer, was accused of having rigged past bond sales. He sold bonds at a steep discount to a select group of underwriters and then participated with them in the profits when the marked-up bonds were reoffered on the open market. The mayor was removed from office by court order in March 2000.

Source: World Bank 2001.

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In the case of bonds, such funds should be held in a custodial arrangement, segregated from other funds of the subnational governments, and invested with minimal credit risk exposure.<sup>5</sup> The funds must be available when needed for their intended purposes, and there should be no market risk associated with liquidation of the investments.

The legal framework for subnational governments is often silent on the parameters for investing bond-related funds, sometimes with unfortunate results.<sup>6</sup> Too much rigidity, as, for example, requiring that bond proceeds be held by the national treasury in non-interest-bearing accounts, can make bond issuance less attractive and more awkward to structure efficiently.<sup>7</sup> Regulation of allowable investments may be desirable, balancing flexibility and the need for prudent investment instruments in a changing environment.

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## Notes

1. A useful guide to concepts and terminologies used in designing and marketing subnational debt, along with many illustrations, is World Bank 2002c.

2. In the United States, where there is an upward sloping yield curve from short-term to long-term maturities, there has been a reward of 100 to 200 basis points for using variable-rate instead of fixed-rate debt. Debt typically can be called at the reset date, allowing flexibility to restructure debt.

3. Other professionals include financial advisers, legal counsel, auditing firms, and printers to produce the documents. There also may be banks to handle the investment of proceeds and to oversee payments under the debt contract (trustees and paying agents).

4. In Romania, for example, some cities are beginning to solicit bank loans on the basis of “bid sheets” that set forth the structure and terms that the city seeks and then asks for the respondent to fill in the interest rate. A motivating factor is the law on procurement, which generally forbids acquiring goods and services without a competitive bidding process.

5. In South Africa, municipalities may invest in a relatively short list of investments, including bank deposits and government securities (LGTA, Section 9).

6. In the 1998 Odessa bond issue in Ukraine, the proceeds of the borrowing were invested in the Ukrainian interbank market at negative arbitrage, many of the proceeds were unaccounted for, the projects were not completed, and the city defaulted on payment on the bonds.

7. In Romania local general governments must deposit funds in non-interest-bearing national treasury accounts, while enterprise funds can use private bank accounts.