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Mobilizing Domestic Capital Markets for Infrastructure Financing

International Experience and Lessons for China

*Anjali Kumar
R. David Gray
Mangesh Hoskote
Stephan von Klauudy
Jeff Ruster*

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(Continued on the inside back cover)

Mobilizing Domestic Capital Markets for Infrastructure Financing

*International Experience and Lessons
for China*

*Anjali Kumar
R. David Gray
Mangesh Hoskote
Stephan von Klaudy
Jeff Ruster*

*The World Bank
Washington, D.C.*

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Anjali Kumar is a senior financial economist in the Finance and Private Sector Development Unit of the World Bank's East Asia and Pacific Region. R. David Gray is a consultant for the Private Participation in Infrastructure Division of the World Bank's Private Sector Development Department. Mangesh Hoskote is a power restructuring specialist in the World Bank's Power Development, Efficiency, and Household Fuels Department. Stephan von Klaudy is a senior financial specialist in the Finance and Private Sector Development Unit in the World Bank's Latin America Region. Jeff Ruster is a senior financial specialist in the World Bank's Private Sector Development Department.

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FOREWORD

At the request of the Government of China, the World Bank's China Department organized and hosted a one-day seminar focused on issues of mobilizing domestic capital markets resources for infrastructure financing, in Beijing, on November 12, 1996. The following report summarizes key elements of the papers presented at the seminar, drawing largely upon the background papers prepared by World Bank staff, and additionally incorporating material presented by both Chinese and international participants. Special emphasis, as reflected in some of the case studies presented, was given to the financing of hydro-electric dam projects, as these represent an area where local costs are large, gestation periods are long, and expanded domestic financing would be particularly valuable. An emphasis was also given to the tapping of bond markets as this is a relatively neglected potential source of financing, for China today. However, a discussion of equity markets is also included.

The World Bank brought together participants representing a broad spectrum of interests. They included Chinese government representatives from power companies and utilities, as well as those government agencies involved in the planning, approval and regulatory process. Overseas experts in the area of project financing were also represented, together with persons from companies with substantial investment interests in China, and representatives of prominent investment banks.

The papers presented demonstrate how a range of mature as well as emerging economies are developing innovative domestic capabilities in financing infrastructure, through domestic capital market development. Policy conditions required to enable domestic markets to equip themselves for such a role are discussed, and potential for government encouragement through credit enhancement mechanisms is detailed. Finally, the papers analyze the extent to which China's domestic capital markets today can play such a role, identify areas which would benefit from strengthening, and recommend specific steps to launch the process.



Yukon Huang
Country Director, China
East Asia and Pacific Region

ABSTRACT

China, like other developing countries, faces the challenge of upgrading and expanding its infrastructure facilities so that economic growth will not be jeopardized by infrastructure-related constraints. Exclusive dependence on external funding presents risks, for example if domestic costs are met by incurring foreign currency obligations. Increasingly, governments in emerging market economies are looking to domestic markets to help fund these massive infrastructure requirements. The domestic banking system is often unable to cope with the demand for long-term funds which such projects generate. Capital markets provide an opportunity for raising long term resources and channeling them to such projects.

The present report draws on experience from industrialized and developing countries in terms of capital market financing of domestic infrastructure projects, and discusses the applicability of these lessons in the Chinese context. It also describes the strategies these economies have adopted to foster capital market development conducive to infrastructure financing, and discusses the role of the government in supporting the development of such financial markets. Mechanisms for credit enhancement, such as guarantee schemes, and pooling arrangements for infrastructure financing, are also discussed. Finally, the report investigates China's present stage of development with regard to capital market development for infrastructure financing, and comments on how the fledgling domestic market could be strengthened.

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The present report summarizes presentations at a seminar held in Beijing, China, in November 1996. Presentations were made by persons from the World Bank, representatives from the Government of China, and overseas expert discussants. Appreciation is expressed for the Government of China participants who presented papers, in particular Mr. Zhu Xian, Acting Director of the World Bank Department, Ministry of Finance, Mr. Tan Aixing, Director of the Ministry of Electric Power and Mr. Xie Ping, Deputy Director, People's Bank of China. Invaluable contributions were made by overseas experts, including Mr. Kevin Wills, Comptroller, Tennessee Valley Authority; Mr. Mitchell Rothman of Ontario Hydro; Mr. Gavin Warnock, formerly associated with the North of Scotland Hydro-Electric Board, and Mr. Philip Sherman of CapMAC, ASIA. Presentations by the World Bank were based on papers prepared by Anjali Kumar (EA2CO), Stephan von Klaudy (LASLG), Jeff Ruster (PSD), Mangesh Hoskote (IENPD) and R. David Gray (PSD).

Many interesting comments were also made during the one-day seminar and discussion, by participants, who also included representatives of a number of Chinese agencies concerned with infrastructure financing, including provincial power utilities, the State Planning Commission, the Securities Committee of the State Council, leading Chinese insurance companies, securities companies, the securities exchanges of Shanghai and Shenzhen, and representatives from the Finance and Planning departments of a number of provinces. Thanks are also extended to overseas participants who were able to attend and participate in the discussions, including representatives from Goldman Sachs, J.P. Morgan, Salomon Brothers, CS First Boston, Bank of America, Merrill Lynch and Morgan Stanley; the Yasuda Fire and Marine Insurance Company, as well as companies with substantial investments in China, such as the Motorola company. Anjali Kumar (EA2CO) was the principal organizer of the seminar, together with Elaine Sun and Barry Trembath (EA2IN) and Zhou Xiaobing at the World Bank's Beijing office. The task reflects a pooling of resources and staff from the China department's Infrastructure Division (EA2IN; Manager, Richard Scurfield) and Country Operations Division (EA2CO; Manager, Klaus Rohland). Invaluable support was provided by Norma Leon (EA2IN) and Adelma Bowrin (EA2CO). The report has been prepared by R. David Gray (PSD) and Anjali Kumar (EA2CO).

ABBREVIATIONS, ACRONYMS AND UNITS

ADB	Asian Development Bank
ADR	American Depository Receipt
ADS	American Depository Share
AFP	Administradoras de Fondos de Pension (Chile)
ANDE	Administracion Nacional de Electricidad (Paraguay)
AyEE	Agua y Energia Electrica (Argentina)
BICE	Banco de Inversion y Comercio Exterior S.A. (Argentina)
BOT	Build-Operate-Transfer
bp	basis point
CEC	California Energy Company, Inc.
CSRC	China Securities Regulatory Commission
CTC	Compania de Telefonos de Chile
EBY	Entidad Binacional Yacyreta
EdF	Electricité de France
EGAT	Energy Generating Authority of Thailand
EGCO	Electric Generating Company (Thailand)
ELECTROBRAS	Centralis Eléctricas Brasileiras S.A.
ENDESA	Empresa Nacional de Electricidad S.A. (Chile)
EPF	Employee Provident Fund (Malaysia)
ESKOM	Electricity Supply Company (South Africa)
FRN	Floating Rate Note
GDP	Gross Domestic Product
GWh	Gigawatt-hour
IDB	Inter-American Development Bank
IDF	Infrastructure Development Fund
IFC	International Finance Corporation
IJC	International Joint Commission (US-Canada)
IMF	International Monetary Fund
IPP	Independent Power Project
JEXIM	Export-Import Bank of Japan
KEPC	Korea Electric Power Corporation
km	Kilometer
kWh	Kilowatt-hour
LIBOR	London Interbank Offered Rate
LOC	Line of Credit
MLA	Multilateral Agency
MOEP	Ministry of Energy and Power (China)
MOF	Ministry of Finance (China)
MW	Megawatt
NIBJ	National Investment Bank of Jamaica
NSHEB	North of Scotland Hydro-Electric Board
OSN	Obras Sanitarias de la Nación (Argentina)
OTC	Over the Counter
PBC	People's Bank of China
PDR	People's Democratic Republic (of Laos)
PICC	People's Insurance Company of China
PLUS	Project Lebuhraya Utara-Selatan

PSEDF	Private Sector Energy Development Fund (Pakistan)
RAM	Rating Agency of Malaysia
SAESA	Sociedad Austral de Electricidad S.A. (Chile)
SCSC	State Council Securities Committee (China)
SDB	State Development Bank (China)
SEEC	Securities Exchange Executive Council (China)
SET	Stock Exchange of Thailand
SOE	State-owned Enterprise
SPC	State Planning Commission (China)
TIC	Trust and Investment Company (China)
TVA	Tennessee Valley Authority
UCS/VSE	Union of Swiss Power Plants
USAID	United States Agency for International Development

CURRENCY EQUIVALENTS

(as of December 31, 1996)

Units of Currency per United States Dollar (US\$)

Argentine Peso (ARS)	1.00
British Pounds Sterling (£)	0.59
Canadian Dollar (C\$)	1.37
Chilean Peso (CLP)	466.86
Chinese Renminbi Yuan (Rmb)	8.28
French Franc (Ffr)	5.25
Hong Kong Dollar (HK\$)	7.74
Indonesian Rupiah (IDR)	2348
Lesotho Maloti (M)	4.68
Malaysian Ringgit (RM)	2.53
Netherland Guilder (NLG)	1.75
Pakistan Rupees (Rs)	40.22
Swiss Franc (Sfr)	1.35
Thai Baht (Bt)	25.59

EXECUTIVE SUMMARY

INTRODUCTION: DEVELOPING CHINA'S INFRASTRUCTURE

Sustaining rapid growth into the twenty first century will pose enormous challenges for China in terms of the provision of infrastructure. World Bank estimates indicate that although the present level of investment in infrastructure, at 7.5 percent of GDP, represent a significant increase from 4.4 percent of GDP in 1984, a further increase to 8-9 percent of GDP between 1995 and 2004 will be required if GDP growth is to be maintained. Infrastructure requirements are the greatest in the poorer and relatively less developed central and western provinces of China, as recognized in the Ninth Five-year Plan document, passed in 1996. The deficiency is most acute for projects which have long construction periods and gestation lags, and hence, relatively high risks, such as hydro-electric power or toll highways.

Financing such projects from the budget of the central government is growing increasingly difficult, and the poorer provinces lack resources to fund such projects from their own provincial resources. Financing through bank loans is an option, but the State Development Bank has limited total resources and the newly commercializing specialized banks cannot provide very long term loans, as their deposits generally are not of sufficiently long maturities. The large volume of loans required for such investments adds to their risk, and commercial banks are often unwilling to lend in such situations without guarantees from some state entity.

Capital markets represent an attractive and potentially important source of financing. Many advanced countries and emerging economies have made use of capital markets for the financing of their infrastructure requirements, through both bond and equity issues. China too has begun to turn to *international capital markets* for raising infrastructure investment funds. The greater challenge for China lies in *tapping domestic capital markets*, for infrastructure projects which have large local construction cost components, thus channeling its exceptionally high savings rate, of 44% of GDP, into needed and profitable infrastructure investments. A growing number of developing countries have developed their securities markets and long-term savings institutions, allowing them to tap domestic markets for infrastructure finance. If China is to finance the tremendous infrastructure needs required to maintain GDP growth, it will also have to develop the institutions necessary to channel domestic savings into infrastructure investment. Lessons of developed and developing countries that have been successful in this area can help China to develop such institutions.

Accordingly, this report focuses on international experience in mobilizing domestic capital market financing for infrastructure projects, and the applicability of such experience to China. Chapter 2 reviews experience in both industrialized and developing countries, in terms of financing infrastructure through domestic capital markets. Chapter 3 outlines the enabling conditions and institutions critical to the growth of local capital markets and their role as providers of infrastructure finance. Chapter 4 describes other mechanisms, including guarantees and development funds, which can be used to mitigate risks for investors in order to encourage domestic resource mobilization. Finally, Chapter 5 analyzes China's capital markets and the current state of infrastructure finance, and sets out practical recommendations on next steps to enhance domestic financial flows to infrastructure.

INFRASTRUCTURE FINANCING AND DOMESTIC CAPITAL MARKETS: OTHER COUNTRIES

Many other countries have been able to successfully tap domestic capital markets to finance infrastructure projects, both through *corporate* or *balance sheet* financing, and increasingly, through *limited recourse* or *project financing*. Examples of *balance sheet* or *corporate* financing from *mature*

market economies include Canada, which successfully financed much of its hydro-project development through domestic bond issues, despite relatively low household savings rates, ranging between 6% to 12% of GDP. Investments were undertaken largely by utilities owned by the provincial governments, with debt fully guaranteed both in terms of principal and interest. The Tennessee Valley Authority of the USA is another example. Although initially funded entirely by the Federal government, the US Congress later required it to be fully financially independent, and asked it to repay government grants received with interest. Initially much of TVA's borrowing was from the Federal Financing Bank, but later TVA found it cheaper to turn to the market and issue its own debt through bonds. Today capital markets provide over eighty percent of the TVA's funding requirements.

Examples of *project financing* for infrastructure, tapping domestic capital markets, are more rare, but there have been some notable examples in Europe; including the Dartford and Severn river crossings in the UK and the Wijkertunnel in the Netherlands. One reason for the success of these issues is the relatively well developed institutional investor base in these countries.

Among *developing economies and emerging markets*, too, there are some notable recent examples of domestic capital market financing. In South Korea, the electric power, telecommunications and gas corporations all have periodic bonds issues for the purpose of raising funds to expand facilities. These bonds have three to five year maturities, and their terms are similar to corporate bonds. Similarly in Thailand, both the Metropolitan Waterworks and the Rapid Transit Authority raise funds from the domestic bond market. Malaysia also has examples of the financing of greenfield projects through domestic capital markets. Its YTL power generation project was financed in its entirety in local capital markets including a 10-year bond and a floating rate term loan. Other examples in Malaysia are the Lumut Power Project, which also included a combination of domestic bonds, a floating rate note, shareholder subordinated loans and internally generated funds; and the North-South Expressway toll road, which issued convertible bonds. In Indonesia, PT Jasa Marga, the state-owned, toll-road operator, which had limited access to foreign investment funds due to legal restrictions, was able to raise 688.7 billion rupiah in local markets (US\$294.2 million) for nine road projects. Several other examples are presented and discussed.

It is to be noted that both domestic equity and bond markets can be approached. Often, a blend of the two is desirable. Investors may in some circumstances prefer the lower risk of a fixed-income instrument. Issues aim to achieve appropriately leveraged overall financing for their projects.

MEASURES FOR DEVELOPING DOMESTIC CAPITAL MARKETS

Countries which have been able to successfully finance infrastructure projects through domestic capital markets have taken a number of specific measures to support their development. A first imperative for domestic capital market development is the accumulation of *contractual savings pools*, which channel savings towards securities, through *institutional investors*. The most important such pools, from the point of view of investments in long term instruments, as required for infrastructure, are pension funds and life insurance funds. Moreover, the rules governing such funds should permit them the flexibility to invest in corporate bonds and equities. The regulations should also permit strong protection for investors to inspire confidence in such savings instruments. In Malaysia, the Employer's Provident Fund (EPF), created in 1991, has become the single largest institutional investor. The *liberalization of investment restrictions* on the EPF was critical to its participation in infrastructure investments. In Chile, the system of pension funds created in the 1980s, together with the establishment of specialized pension funds management companies known as Administradoras de Fondos de Pension (AFPs), provided a pool of well-managed investible resources. Today, AFPs manage assets of US\$26 billion (equal to around 40

percent of GDP) and are commonly credited with playing a central role in more than doubling domestic savings from around 14 percent at the beginning of the 1980s to 27 percent of GDP in 1995.

Second, direct measures are required to strengthen domestic securities markets. These include the establishing of a legal framework for securities issue and trading, and for the supervision of such processes by competent authorities. Appropriate regulations are also required for underwriters, brokers, dealers and other entities providing supporting services for the securities markets. Adequate disclosure for shareholders and a capacity for enforcement of the law in the event of misdeeds is also required. In addition, the government can help the process of securities pricing by liberalizing interest rates, auctioning government debt and establishing regular, benchmark issues. The government can also help the establishment of rating agencies and sometimes permitting, in an early phase, selective tax exemptions on income from privately held securities. Finally, it is the government that can provide a healthy infrastructure for financial trading, through the setting up of a sound payments system which can help reduce the risks of securities trading.

Examples of emerging markets taking such proactive measures include Thailand, where the takeoff of domestic capital markets followed the ushering in of new legislation in the early 1990s; notably the Stock Exchange Act, laws governing the business of securities companies, a Civil and Commercial Code for the setting up of limited companies and a Public Company Act. Supervisory agencies were also clearly defined. Malaysia, which already had a basic legal framework, undertook additional measures, including the creation of a liquidity facility (Cagamas Berhad, 1986) for financial institutions, thereby permitting them to hold a portfolio of securities, the creation of dealer networks to underwrite primary issues of government auctioned securities, the introduction of SPEEDS, a computerized securities trading system, to promote secondary market development, and the establishment of the Rating Agency of Malaysia (RAM), in 1990.

In addition, a major boost to domestic capital market development in many emerging markets has been provided through the divestiture programs of their governments, especially when carefully screened to lower investment risk by maintaining important residual government shareholding, by floating companies with bright future prospects, and by offering new shares at competitive prices. Malaysia in the early 1980s launched such a divestiture program, aiming also to reduce budgetary and management obligations and promote competition. Today infrastructure stock as a percentage of total stock market capitalization is approximately 30 percent. In Thailand, the rapid rise in investment requirements by major public utilities prompted the government to embark on an active program of local share offerings in the 14 largest public utilities, as well as other state enterprises. By 1993, these 14 public utilities held combined assets amounting to over 20 percent of the total capitalization of the Thailand Stock Exchange.

OTHER SUPPORTING MECHANISMS: GUARANTEES AND POOLS

Governments have further helped the development of such new instruments for infrastructure financing by increasing the attractiveness of securities issues through *mechanisms for credit enhancement*, sometimes for a transition period. These range from the minimal level of policy guarantees, which require only that the policy framework remains stable; and escalate up to include back-up guarantees (coordinated with and provided by multilateral financial institutions), refinancing and maturity extensions, performance based grants and contingent lines of credit.

Funding of more than one transaction at a time through securitization arrangements has entailed significant benefits in terms of enhanced credit ratings and market liquidity for infrastructure projects. Infrastructure Development Funds (IDFs), capture these benefits by bundling securities (debt and equity) issued by a pool of infrastructure projects. Governments in both developed and emerging market

economies have supported the development of infrastructure financing through such funds. Such funds can issue bonds to private investors, guaranteed by the government, to raise core capital. The government can also contribute directly with a part of the seed money. In the United States, more than 18 states have established Municipal Bond Banks, which are construction revolving funds, with government guarantees.

CHINA'S DOMESTIC BOND MARKETS AND INFRASTRUCTURE FINANCING

So far, China has made only limited use of its domestic capital markets for financing investment. The *stock of bonds outstanding* as a ratio to GDP has remained virtually unchanged over the last decade. Despite rapid overall growth and increased investment in the economy, there has been no deepening of China's bond markets over this period.

The limited contributions of China's bond market, so far, to its infrastructure investment requirements can be attributed to (i) the role of the Credit Plan in controlling primary issues and the constraints on both local governments and local enterprises in raising funds through bond issues; (ii) the increasing domination of the domestic bond market by Treasury issues, relative to enterprise bonds; (iii) the relatively low levels of liquidity, the limited range of maturities, and difficulties in pricing, within the bond market due to the lack of well-defined 'benchmark' issues, which identify interest rates for different maturities and levels of risk. (iv) The absence of strong professional or institutional investors, who would provide buyers for domestic bond issues, poses a constraint on the demand side. In China, contractual savings are only around 3 percent of GDP, in contrast to much higher ratios in other emerging East Asian markets - for example, 18 percent in Korea; 48 percent in Malaysia and 78 percent in Singapore. (v) Weak market infrastructure, due to the limited role of credit rating agencies, the limited and variable disclosure provided through corporate financial statements, and variable standards of corporate governance, is an additional constraint.

A SUGGESTED BEGINNING

The government can help to develop domestic capital markets for infrastructure financing by supporting, in the first instance, a limited number of suitable pilot projects which can issue securities for raising investment finance. In addition, the government can help by developing the preconditions required for successful issues of corporate securities, through: (i) establishing a set of technical prerequisites and minimum criteria for the issuing firm, regarding capital structure, financial position, corporate governance and management teams; (ii) requiring mandatory ratings of debt issues by reputable and reliable credit rating agencies. Although China's credit rating agencies themselves require strengthening and consolidation, a beginning can be made with agencies which have already been accredited. (iii) Encouraging institutional investors, by passing the laws and regulations required, especially for pension funds and mutual funds. Insurance companies and other institutional investors should be allowed to invest in low risk corporate securities, which meet specified criteria, up to specified limits, in a pilot program. (iv) Further strengthening the domestic government bond market, by approaching full tradability of all issues, dematerializing new issues (i.e., making all issues scripless, with book entry issue and trading), undertaking wholesale sales to financial institutions, adopting auctions for all issues and further increasing the range of maturities; and (v) exempting the bond issues under these pilots from the Credit Plan. Furthermore, to jump-start certain issues of corporate bonds, special features could be considered, such as the provision of partial guarantees or other assurances for debt repayment.

1. THE ROLE OF CAPITAL MARKETS IN INFRASTRUCTURE FINANCING

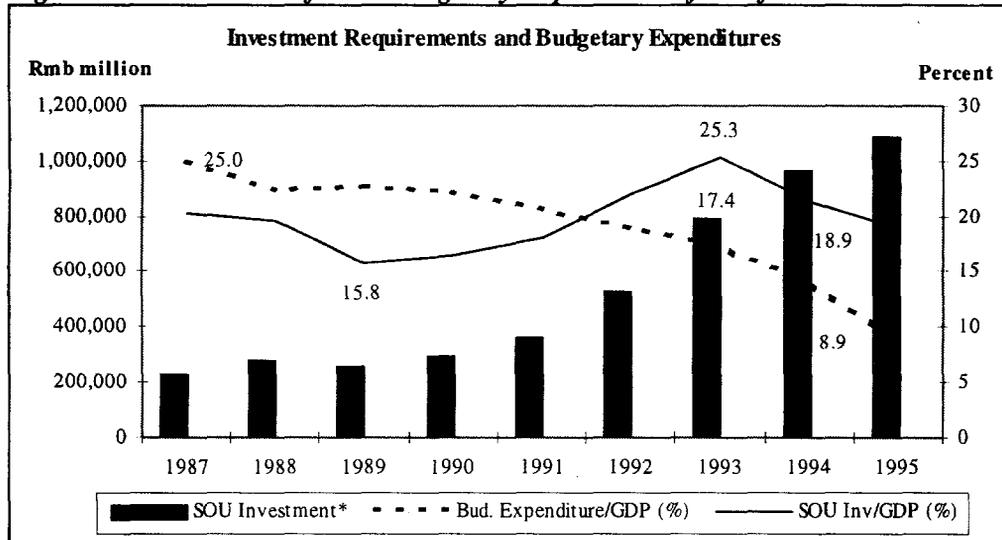
China's growth in the last decade of the twentieth century has been truly spectacular. Sustaining rapid growth into the twenty first century will pose enormous challenges for China. One key area of challenge is the provision of strong infrastructure for the growth of the real sector. World Bank estimates indicate that although the present level of investment in infrastructure, at 7.5 percent of GDP, represents a significant increase from 4.4 percent of GDP in 1984, a further increase to 8-9 percent of GDP between 1995 and 2004 will be required if GDP growth rates are to be maintained. Bottlenecks in the provision of electrical energy, transport and telecommunications can severely retard growth in all productive sectors. The Government of China is interested in considerably expanding the level of financing and development of infrastructure. Investment required over the next ten years is expected to amount to over US\$740 billion, with US\$200 billion in the power sector alone.

CHINA'S INFRASTRUCTURE REQUIREMENTS AND FINANCING RESOURCES

Today China still has huge requirements—and untapped potential—for the development of its infrastructure. An important example is the harnessing of energy from the many rivers of southern China for the provision of hydro-electric power. Many provinces which are poor today, such as Yunnan, Guanxi, Guizhou or Sichuan have enormous and valuable water resources. A key question which confronts China is how such infrastructure developments can be financed. Financial resources of these provincial governments are limited. Financing such projects from the budget of the central government is nearly impossible. Expenditures of the government have not been able to keep pace with GDP growth, as Figure 1.1 shows. Over the last decade, budgetary expenditures as a percentage of GDP have fallen steadily, from 25 percent in 1987 to 8.9 percent in 1995. But meanwhile, investment needs have accelerated, not only in absolute terms but also as a percentage of GDP. Between 1989 and 1993, investment in state-owned units relative to GDP grew by almost ten percentage points, from 15.8 percent of GDP to 25.3 percent of GDP.

Clearly, dependence on the budget for financing is not an option, if present fiscal trends are maintained. In the absence of substantial direct budgetary financing, infrastructure developers must turn to financing through the banking system, or financing through capital markets. Financing through bank loans is an option to consider. In 1994 China established a State Development Bank which has access to medium to long-term funding, and is largely responsible for financing infrastructure and other priority projects, based on criteria enunciated by the government. However, the resources of this single institution are limited. China also has four major state commercial banks and a number of smaller commercial banks which rely mainly on deposits for their funding. In principle, such institutions could also finance infrastructure projects, subject to, of course, the profitability of the project (as these banks are now intended to operate strictly on commercial principles). But there are numerous difficulties in depending on commercial banks as a major source of financing. These include: (a) limitations on their ability to provide long-term loans, as for prudential reasons they are advised to maintain a match between the duration of their assets and liabilities. Commercial banks are funded largely by deposits, which generally are not of sufficiently long maturities to provide such financing. (b) Risks associated with very large volume loans, which require large exposures to single borrowers. Commercial banks are often unwilling to lend in such situations without guarantees from some state entity. (c) Limitations on the ability of

Figure 1.1 China: Shortfall in Budgetary Expenditures for Infrastructure



Source: World Bank data.

commercial banks to finely price risk, through interest rate variations. While this is particularly true of China today in the financial environment of controlled interest rates, even in the absence of such controls banks rarely vary interest rates for each loan they make in a given category. (d) Credit quotas on China's major state commercial banks which still have a bearing on their lending. Such credit ceilings imply that lending for large infrastructure projects are usually only accepted if they are within the state's investment plan.

The implication is that China must turn to newer and more innovative sources of financing for infrastructure projects. Capital markets represent a major potential source of financing. Capital market instruments help to allocate resources to their most profitable uses, and provide a mechanism for the pricing of risk in situations where this may be important and potentially difficult. Many advanced countries have made use of capital markets for the financing of their infrastructure requirements, through both bond and equity issues. China too has begun to turn to such instruments, and over the last year has successfully tapped international capital markets through a variety of instruments for raising infrastructure investment funds.

The greater challenge for China lies in tapping domestic capital markets. The participation of experienced international direct investors and promoters is desirable, and the ability to successfully package offers for international capital markets, which can fill important gaps in funding, is important. But it will be difficult for China to rely exclusively on foreign funding for its massive financing requirements. Moreover, many infrastructure projects (such as road construction, or the building of dams for hydro-electric projects) have large cost components in local currency which could potentially be raised in the domestic markets without the exposure to exchange rate and convertibility risks faced by international investors. China is fortunate to enjoy one of the world's highest savings rates, at 44 percent of GDP in 1994. The challenge is to channel these savings into needed, and profitable, infrastructure investments.

Box 1.1 China Taps International Capital Markets for Infrastructure Financing in 1996

The Guangdong Provincial Expressway B Share Issue: The Guangdong Provincial Expressway Development company (GPED), established in 1993, raised HK\$477.9 million (US\$62 million equivalent) through a B share issues on the Shenzhen exchange. The issue was oversubscribed by a factor of three. Proceeds of the issue are to be channeled into the construction of an 80-km expressway linking Foshan and Kaiping in Guangdong province. The issue was backed by GPED's existing US\$170 million of operating assets, including stakes in the successful and completed revenue-generating toll projects of the Jujiang Bridge and the Guangzhou-Foshan expressway. Trading began on August 15, 1996. Bank of America was the lead global coordinator of the underwriting effort.

In Sichuan Province, around US\$100 million was raised in 1994 through the private placement of equity shares in offshore markets to finance the development of the **Chengdu-Mianyang Expressway**. The provincial partner in this joint venture undertook responsibility for land acquisition and construction of the expressway. Assurances offered to foreign investors included guarantees of minimum toll revenues and preferential profits distribution.

The Zhuhai Highway Bond Issue: The US\$200 million issue, divided into a senior tranche of \$85 million for ten years and a subordinated tranche of \$115 million for 12 years is intended to raise funds for the construction of roads and other infrastructure in the city of Zhuhai, in Guangdong province. Unusually, the bond does not carry any explicit guarantees from the municipal, provincial or central government. But its repayment is tied to specific municipal revenues, derived from toll roads, and fees on auto ownership. In many respects this issue resembles a long term fixed rate municipal revenue bond issue. Morgan Stanley was the lead manager of the placement and most of the issue was placed with institutional investors in the US market.

Source: The World Bank.

Guangshen (Guangdong Shenzhen) Railway Company American Depository Shares: The issue of 12.5 million American Depository Shares, represented some 600 million underlying H shares (with 50 H shares per ADS). The offering also included simultaneously issued H shares in Hong Kong as well as privately placed ADSs, placed largely in Hong Kong with professional investors. According to global coordinators Bear, Stearns & Co., this bond issue worked largely because of the unusual clause permitting significant operational and pricing autonomy to the Guangshen Railway corporation. The amount raised was approximately US\$463 million.

Equity share offerings on the Hong Kong exchange were made by the **Anhui Expressway Company** in November 1996, a public entity in Anhui province which has plans to construct 1,000 km of expressways through 2001 at a cost of US\$2.5 billion. The offerings raised around US\$100 million for investment in three new highway projects and a bridge, including sections of (i) the Hefei Jiezdum Highway; (ii) the Hefei Xuzhou Highway, (iii) the Lianyungang-Xinjiang Highway, and (iv) the Wuhu bridge. The company's balance sheet was secured only by the 134 km Hening Expressway, although the company has access to development rights in roll road corridors, and reduced taxation on operating profits.

Other equity-based capital market financings in the pipeline include: (i) the **Shenzhen Expressway Company**, which in March 1997 undertook the issuance of 650 million H shares on the Hong Kong stock exchange to raise US\$150 million for the completion of an airport expressway; (ii) the **Greater Beijing Region Expressway** which plans an IPO of H shares of US\$150-200 million, in the summer of 1997; and (iii) the **Zhejiang Expressway Company** which also plans an H share issue in 1997 to finance a portion of the Hangzhou Shanghai expressway

So far, China has made limited use of its domestic capital markets for financing infrastructure, or indeed, for financing investment in general. Over the last decade, China has witnessed a trend increase in its investment ratio, that is, investment as a percentage of GDP. From around 10 percent of GDP in 1987, investment in state-owned units¹ increased to 24.4 percent of GDP by 1992, and was almost 16 percent of GDP in 1995. But the ratio of new bond issues to GDP has not risen as fast; from 3 percent in 1988 new issues rose to 5.5 percent of GDP by 1992, but returned to 3 percent by 1995. The implication is that, despite rapid overall growth and increased investment in the economy, there has been no deepening of China's bond markets over this entire period. The stock of bonds outstanding over GDP has remained virtually unchanged over this period; in fact there is some decline from 10.4 percent of GDP to 8.4 percent of GDP between 1992 and 1995. Thus the growth and deepening of China's debt markets has not

¹State-owned units are the only units for which investment data are available. Although these dominate aggregate economic activity, there has likely been a trend increase in the investment of non-state units as well, as evidenced by their increasing share in total output.

kept pace with the rest of the economy. Meanwhile, market capitalization in the equities market increased rapidly until 1994, but has not further deepened since then.

PROJECT FINANCING, RISK ALLOCATION AND INTERNATIONAL DEBT MARKETS

Corporate entities investing in projects may raise debt through their own resources, allocating their contributions to the projects investments to their own balance sheet (*balance sheet or corporate financing*). Such financing exposes the existing company to the risks of its new investment. In many other cases, particularly for large and complex projects, an objective of such entities (generally called *sponsors* of a project) will be to limit their direct liabilities. They will do so by providing a certain amount of equity for the investment and raise debt based on the quality of the project rather than on their own creditworthiness. This financing method has found wide acceptance in infrastructure projects and is generally known as *limited-recourse project financing (project financing)*.

Project financing typically involves the establishment of a special purpose company (the borrower), whereby a lender's recourse is limited to claims on project cash flow and related assets. This financing technique is best characterized by the allocation of risks to those parties best able to manage them (sponsors, lenders, third-party contractual participants, state-owned enterprises (SOEs) and governments).

Risks fall within three principal categories: *commercial risks* (e.g., construction delays, increases in expenses); *financial risks* (interest and exchange rate fluctuations); and *sovereign risks* (currency convertibility and transferability, contracts with non-government state entities, change of law and trade regimes, etc.). Successful project financing requires the *appropriate allocation of risk* among the parties best able to bear such risks. It is in the context of the allocation and pricing of risk that the role of capital markets has grown in importance in project financing.

International bond markets represent an increasingly important source of long-term capital for limited recourse infrastructure projects. International bond issues by the private sector in developing countries rose sharply from about US\$14 billion in 1991 to a peak of about US\$62.5 billion 1993, then fell slightly to US\$58.4 billion in 1994 and was at US\$19.7 billion in the first half of 1995.

Table 1.1 International Private Sector Infrastructure Bond Issues in Developing Countries

	1991	1992	1993	1994	1995 (first half)
Electricity	398	180	739	1191	975
Telecommunications	945	948	1125	2038	323
Transport	136	289	1178	1042	182
Utilities	...	580	2607	2376	454
Total:	1,479	1,997	5,676	6,647	1,934

Source: *Private Market Financing for Developing Countries*. IMF, November 1995.

Nonetheless, international capital market investment to date for emerging market infrastructure projects has represented only a small fraction of the *US\$14 trillion available worldwide* for investment grade debt (BBB- and above) in 1994. In contrast, private funding of unrated or below investment grade project debt in emerging markets was only about US\$12 billion. This situation is due to the fact that many institutional investors (pension funds, insurance companies, mutual funds) face internal, industry

and governmental restrictions which limit how much they can invest in sub-investment securities to less than 3 percent to 5 percent of their portfolios - of which only 1 percent is allocated to debt investments. This 1 percent is then spread across three asset classes: corporate bonds traded in the Euromarket, local currency sovereign debt, and Brady bonds. In 1994, for example, institutional investors held only US\$126 billion of emerging market debt. Of this amount, US\$65 billion was invested in Brady bonds, US\$43 billion in corporate securities and US\$18 billion in local currency sovereign obligations and other debt instruments. In addition to the impact on the supply of capital, large price differentials of 175 to 350 basis points occur in international capital markets between investment grade paper and anything less. This cost differential has critical implications for tariff structures of infrastructure projects.

The Government of China's long-term foreign debt rating is BBB/A3 as issued by Standard & Poors and Moody's Investor Services, respectively. Given that limited recourse infrastructure financing entails all risks associated with a sovereign issuance (political and macroeconomic instability, foreign exchange availability) as well as additional commercial risks (construction, operation and maintenance, regulatory, force majeure), all-in funding spreads for these project-backed securities should be in excess of those offered for sovereign issuances of similar size and tenor. Consequently, to the extent that key policy and country risks can be mitigated, market liquidity and interest rate spreads for commercially viable and well-structured infrastructure projects should be greatly improved.

RATIONALE FOR DOMESTIC FINANCING

Emerging market infrastructure programs have depended heavily on foreign financing sources, at least in their initial stages of development. Under-developed financial markets in many developing countries are unable to supply the volumes of long-term financing required by private infrastructure projects. According to the IFC, approximately 70 percent of the financing for its greenfield projects undertaken between 1966 and 1994 was derived from foreign sources. However, this heavy reliance on foreign funding has several drawbacks which can have particularly strong effects on infrastructure investments.

First, many infrastructure projects derive revenues denominated only or primarily in local currency. Where obligations to suppliers or providers of debt and equity are denominated in foreign currency, the project is exposed to *convertibility, transfer and exchange rate risks*. Since foreign investors are generally unwilling to bear these risks, risks are often shifted to the government or to consumers. For instance, project tariffs and debt are often indexed to and payable in foreign exchange by a purchasing state enterprise. This was the case, for example, in the power purchase agreement between National Power Corporation of the Philippines and the Subic Bay Corporation, which left the government with substantial exposure to exchange rate risk over the project's life. Second, negative movements in the exchange rate can lead to *asset-liability mismatch* leading to liquidity problems for project financing. Exposure to such conditions can force governments to bail out projects that are deemed too important to fail, such as the toll roads in Mexico subsequent to the 1994 liquidity crisis.

Third, foreign ownership and financing of infrastructure may sometimes be politically unacceptable. Involving local investors through domestic financing for critical infrastructure can help reduce the political sensitivity of such projects. For these reasons, domestic capital markets can be an important alternative, or complement, to foreign infrastructure financing.

STRUCTURE OF THIS REPORT

In recent years, a growing number of developing countries have developed their securities markets and long-term savings institutions which have allowed them to tap domestic markets for infrastructure finance. If China is to finance the tremendous infrastructure needs required to maintain GDP growth, it will have to develop the institutions necessary to channel domestic savings into infrastructure investment. Lessons of developed and developing countries that have been successful in this area can help China to develop such institutions.

Accordingly, this report will focus primarily on international experience in mobilizing domestic capital market financing for infrastructure projects. Chapter 2 reviews experience in both industrialized and developing countries, in terms of financing infrastructure through domestic capital markets. Chapter 3 outlines the enabling conditions and institutions critical to the growth of local capital markets and their role as providers of infrastructure finance. Chapter 4 describes other mechanisms, including guarantees and development funds, which can be used to mitigate risks for investors in order to encourage domestic resource mobilization. Finally, Chapter 5 analyzes China's capital markets and the current state of infrastructure finance, and sets out practical recommendations on next steps to enhance domestic financial flows to infrastructure.

2. CAPITAL MARKETS AND INFRASTRUCTURE FINANCING: INTERNATIONAL EXPERIENCE

A number of countries have been able to successfully tap domestic capital markets to finance infrastructure projects. As the present chapter shows, while several mature market economies have a fairly long history of domestic infrastructure finance through capital market instruments, an increasing number of emerging markets are also developing the institutions and the instruments needed to take advantage of local capital market financing for infrastructure.

The examples cited in this survey focus on hydro-electric projects, however, similar arrangements have been used in the financing of infrastructure projects in other sectors as well. As mentioned in Chapter 1, the benefits of domestic capital are especially great in projects involving large local cost components, such as the construction of roads and hydro-electric dams. From many points of view, hydro-electric projects present one of the most difficult cases for raising finance because of the long start-up period involved and the high construction risks borne by sponsors and investors. As a corollary, it is precisely such projects with long time horizons which can benefit the most from longer-term capital markets financing, relative to financing that would typically be available from commercial banks.

Turning first to examples from mature market economies, it is shown that Canada has successfully financed much of its hydro-project development through domestic bond issues, although through most of the period of development of these projects, household savings ranged between as little as 6 percent to 12 percent of GDP. The United Kingdom, France, the Netherlands and the United States are also included among countries which have undertaken domestic bond financing for infrastructure projects. While the bulk of such financing has been undertaken on a program basis, by existing corporations, a small but significant number of limited-recourse project financing cases which tap domestic capital markets are also available.

DOMESTIC CAPITAL MARKETS IN DEVELOPED COUNTRIES: CORPORATE FINANCING

Canada: Provincial Hydro-Electric Crown Corporations

The hydro-electric power corporations of Canada, such as Ontario Hydro, BC Hydro (of British Columbia); Manitoba Hydro or Hydro Quebec, are all Crown Corporations, under their respective provincial governments. While much of their earlier financing was directly from borrowings through the government, from the late 1980s, they have turned increasingly to issuing their own bonds. The bonds are fully backed by the provincial governments, and this is reflected in their credit ratings, which are frequently identical to those of the sponsoring provincial government. Manitoba Hydro for example represents around 45 percent of the debt of the Manitoba provincial government. Most bond issues are public offerings, though there are a limited number of private placements. Both domestic and overseas buyers can subscribe and a large part of the Canadian issues find a market in the US, or in Japan, in addition to the domestic market. Typical issues are of 20 or 30 year maturities, although 40 year bills have been issued. Bonds are not tax exempt.

Domestic investors include pension funds and the Retirement Savings Plans, who loan their funds largely to provincial governments. Pension funds have a restriction on the percentage of their offshore or foreign assets, which encourages them to turn to domestic investments. The volume of new issues is typically determined by a joint committee of the Hydro-electric Corporation and the provincial government, which determines total borrowing requirements. Total borrowing requirements are reviewed once a year, and new issues are reviewed monthly, based on a phased annual issue calendar spread over the year. The sinking fund for retiring investments is also periodically reviewed.

Table 2.1 Canadian Bond Issues for Hydro Projects

Province	Bond Issue by:	Debt Guarantee Fee	Percentage issue outstanding in foreign currency	Total Outstanding (C\$ billion)
New Brunswick	Province	yes	27	3.5
Quebec	Utility	50	40	37.3
Ontario	Utility	50	14	35.0
Manitoba	Province	50	62	5.6
Saskatchewan	Province	0	36	2.4
British Columbia	Province	2-5	11	8.5

Source: Canadian Energy and Environmental Economics, 1996.

The UK: North of Scotland Hydro-Electric Board

Most of the hydro-electric projects of the UK are in Scotland, and most were built in the 1950s and 1960s, by the North of Scotland Hydro-electric Board, which was established in 1944, as an arm of the Scottish Office. The Board issued bonds for its financing needs, as they arose, typically at fixed interest rates and usually for a 20-year maturity. Bonds were bought mostly by institutional investors and were freely tradable. Although there was no explicit guarantee, it was considered that the issues were as good as sovereign debt, as the Scottish Office (the parent agency of the NSHEB) was directly under the central government of the UK.

In the 1970s, the financing plan changed. Arms of the government were no longer encouraged to issue their own debt; rather their financing needs were consolidated in the overall Public Sector Borrowing Requirement. Debt was thus issued by the central government in the form of Treasury Bonds, and set aside in a National Loan Fund, for on-lending to agencies such as the NSHEB, typically at a fixed interest rate, for 15 years.

France: Electricité de France

Hydro-projects in France were constructed mostly from 1950 to 1965. This coincided with the period of war reconstruction, and hence, the allocation of funds was highly centralized. A special agency was set up in the Ministry of Finance for the allocation of funds to public utilities. Repayable but subsidized loans from this agency covered around 40 percent of EdF's expenses. Long-term interest free loans representing quasi-equity covered another 20 percent, and the rest was financed through the local French government bond market (20 percent). Bond issue quotas or slots were assigned to various public utilities, and these were backed by explicit government guarantees. The price, however, was market determined.

The next phase of EdF's power program development was the setting up of nuclear power plants, in 1975 to 1985. Now more mature, EdF went to the international market to issue bonds. The government of France withdrew its explicit guarantee. But EdF's bond ratings still reflect its 100 percent sovereign government ownership.

The USA

Hydro-electric projects in the USA were developed by agencies such as the New York Power Authority which operates in upstate New York, and had facilities at Niagara Falls developed in the 1960s and 70s. The New York Power Authority is 100 percent state owned, similar to the Crown Corporations of Canada. The facilities issued revenue bonds, with repayment tied to the revenue of the Power Authority. Bond issues against expected revenues were possible as many customers signed long-term power contracts (e.g., municipal electricity companies), providing a core of buyers. The Power Authority also sold power to investor owned utilities and manufacturing companies. Today, buyers' contracts are typically shorter term, and issuing such revenue bonds would be harder.

Many of the large flagship hydro facilities of the USA such as the Tennessee Valley Authority were built on the basis of appropriations from the Federal Government's construction programs which began in the post-Depression era. Thus from 1933 to 1959 TVA used appropriated funds. But in 1959 the Federal Power Act was passed which required the power program to become self financing. TVA was authorized to sell bonds, and was also authorized to borrow as an entity. TVA was required to pay back the appropriations it had used from 1933. TVA's debt today is around US\$27 billion. Appropriations today meet only around 2 percent of its financing requirements, or around \$100 million, compared to the \$5.5 billion which TVA earns in power revenues. Initially much of TVA's borrowing was from the Federal Financing Bank, but this has now declined and TVA finds it cheaper to turn to the market and issue its own debt through bonds. Today only around 1/7th of its borrowings are from the Federal Financing Bank. TVA's bond issues have no explicit guarantee, but they enjoy AAA ratings because TVA is owned 100 percent by the government. TVA floats its paper overseas as well as in the domestic market.

As the above examples show, the tapping of bond markets, including, prominently, domestic bond markets, has played a major role in the development of the power programs of developed countries. It is noteworthy that (1) in virtually all these cases, the bond issues were made as a part of overall balance sheet financing of an existing utility, which already had real assets. Examples of limited recourse or project financing through bond issues are much more rare. (2) It is also noteworthy that in virtually all cases, there was an explicit or implicit guarantee from the state, provincial or federal government. In some cases, after the issuing entity matured (as in the case of EdF or the TVA) explicit guarantees were withdrawn. (3) These countries too, when their economies were less mature, were faced with the problem of reconciling the borrowing requirements of the power authorities with the general borrowing needs of the government. In countries such as France this difficulty was dealt with through the early assignments of 'slots' for borrowing, accorded to the concerned utilities.

Explicit guarantees provided on bond issues, by the local or central government, can either take the form of General Obligation guarantees, or Revenue guarantees. In the former case, repayment and debt servicing is guaranteed by the full tax raising and revenue earning powers of the government concerned. In the second case, repayment is explicitly tied to a given revenue stream, usually, but not always, related to the project or entity concerned. Thus in the case of the New York Power Authority, repayment of bond issues for financing new projects was guaranteed by the expected revenues from power sales of the Authority. In China's recent Zhuhai highway bond issue, there were similar revenue obligations of the bond issue, which were tied to tolls to be raised from highways as well as vehicle usage fees. Clearly, revenue bonds reduce the exposure of the bond issuer or guarantor, but general obligation bonds provide greater confidence to the buyer and the potential market.

DOMESTIC CAPITAL MARKETS, DEVELOPED COUNTRIES: LIMITED RECOURSE FINANCING

In addition to the examples of balance sheet financing by existing utilities, there is an increasing number of long-dated project bonds issued for infrastructure projects in developed country markets. Capital market finance is especially attractive to project sponsors as it provides access to fixed-term debt over a longer-term than banks can offer, thus increasing sponsors' return on equity. While this has been achieved successfully in the United States and the UK, most developed country markets in Europe have been slower to move in this direction. The principal reason for this is the scarcity of long-term institutional investors, such as pension funds and insurance industries, in those markets. Thus, there are fewer potential buyers for long-maturity bonds suited to infrastructure projects. A few countries such as the Netherlands which do have relatively well-developed institutional investors are also venturing into bond-financed project funding. Some examples of project financing in the domestic capital markets in developed countries and financing terms are outlined below.

The UK

First Hydro. This pumped storage hydro-plant in North Wales pumps water to storage facilities at times when energy rates are low and generates power to sell into the grid at peak times by releasing the water to flow downhill. The plant was bought by Mission Energy in 1995 using a £400 million bank loan for the non-recourse financing. However, less than a month after the purchase, Mission refinanced the project through the capital markets in the first ever project finance sterling Eurobond issue. The issue of £400 million of 25.5-year sterling bonds at 9 percent, just 115 basis points over Treasury Gilt, was bought primarily by Scottish and British insurance companies in January 1996.

Dartford and Severn River Crossings. Sterling-denominated project bonds were also issued to finance two greenfield toll road projects: a third tunnel under the Thames River outside London (Dartford) and a second bridge across the Severn River in the southwest of England. The Dartford Crossing was financed through a private placement of £64 million of 10-to-20 year bonds in 1988. The 1992 Severn project raised £131 million in 20-year index-linked bonds, also through a private placement.

The USA

Independence Funding Corp. In 1993, this 1,000-MW, gas-fired cogeneration plant in Scriba, NY was the first independent power producer to receive an investment grade rating and obtain financing through the capital markets in the pre-construction phase of the project. The financing carried no recourse to the project sponsor, with debt service payments secured entirely by project cash flows and assets. Access to the capital markets was enabled by strong power offtake agreements that the project had concluded with power utilities and industrial customers. Secured notes totaling \$716.8 million were issued for the \$863 million project in three tranches: \$157.8 million at 7.9 percent for nine years; \$150.8 million at 8.5 percent for 14 years; and \$408 million at 9 percent for 20 years. The bonds were purchased by US institutional investors under Rule 144A which governs the sale of unregistered securities.

California Energy/Salton Sea Funding Corp. This \$675 million refinancing of California Energy's purchase of Magma Power Co., secured by the cash flows and assets of Magma's stock in the Salton Sea power projects, included a \$200 million offering of limited recourse 8-year, 9.875 percent bonds, below investment grade, which is considered to be the first offering of limited recourse notes in the high-yield notes market. California Energy acquired Magma's stake in the four Salton Sea projects, of which three were operational and one under construction, in February 1995 and sought to refinance part of the \$500 million bank loan it used to acquire Magma through the capital markets. In addition to the

below investment grade (junk) bonds, the Salton Sea Funding Corp. placed \$475 million in investment grade, Rule 144A non-recourse project bonds with US institutional investors in three series with interest rates ranging from 6.69 percent to 7.84 percent and maturities of five, ten and fifteen years.

The Netherlands

Wijkertunnel. This is the first infrastructure project financing to be completed in continental Europe's domestic markets. In contrast to other European nations, the Netherlands has fully funded pension schemes providing a potential source of demand for long-dated infrastructure bonds. The construction of the Wijkertunnel outside Amsterdam in 1993 raised financing from the private sector through the private placement of bonds with Dutch insurance companies and pension funds for a substantial portion of the tunnel's US\$342 million construction cost.

TAPPING DOMESTIC MARKETS IN DEVELOPING COUNTRIES: CHILE, MALAYSIA AND THAILAND

Increasingly, developing countries are meeting the growing need for expanded infrastructure services by turning to the private sector to finance and operate new investments in these sectors. A number of these countries have been able to tap domestic markets to help fund these projects.

Chile

Chile's infrastructure utilities, and its new infrastructure projects, owe a considerable part of their ownership and financing to domestic capital markets, where the primary participants are large institutional investors, mainly pension funds. Such funds were important sources of financing for the Santiago Metro subway system. As of December 31, 1994, pension funds and insurance companies held 14.5 percent of the equity of Compania de Telefonos de Chile (CTC) shares when the company's total shareholder equity was close to \$1.5 billion.

First-time bond offers (bonos sin historia or bonds without history) have been the principal financial instrument for allowing pension funds to invest in greenfield infrastructure projects. Greenfield investments by pension funds have been small. Investment undertaken to date in such assets include the El Melon tunnel, the Camino de la Madera, Transportes Pacific, and Santiago-San Antonio toll roads, along with the Iquique Airport. Pension fund investments in these projects have varied between US\$1 to \$10 million per project.

A second large part of domestic capital market instruments in infrastructure consists of equity shares of divested public utilities. The divestiture program of 1985-90, which included an enterprise in telecommunications (CTC), electricity (Chilectra and Endesa), and water and sewage services was a major source of impetus for development of the domestic capital market for investments in infrastructure. Pension funds have emerged as important investors in divested public utilities. Over 60 percent of all pension fund bond holdings, nearly \$6 billion, were issues by divested utilities. Likewise, pension fund equity positions varied between 10 percent and 35 percent of each firm's equity. Equities of divested utilities account for 83 percent of total equity holdings of pension funds. Since privatization, Chile's pension funds have channeled about \$4.8 billion into electricity and gas distributors and \$1.56 billion into the telecommunications sector.

Chile's pension funds, and mutual funds organized by them, have been increasingly active participants in new infrastructure projects. Funds such as Desarrollo de Empresa Las America Emergente

and CMB Prime own 33.3 percent and 25.9 percent, respectively, of the concession for the Camino de la Madera toll road project. Likewise, the mutual fund Desarrollo de Empresa Las America Emercia has an 8.5 percent stake in a toll road consortium, Infraestructure 2000. Mutual funds for any given borrower can invest up to 40 percent of their assets, 40 percent of the assets of the borrower or 40 percent of the shares of the borrower in a given project.

Malaysia

A landmark example of greenfield project financing through domestic bond issues in Malaysia is the *YTL power generation project*. This was the first independent power project (IPP) contract awarded in Malaysia. The combined capacity of the two plants of this build-own-operate project, Pasir Gudang and Paka, is approximately 1,350 MWs. The project illustrates the value of long-term purchase agreements in raising the attractiveness of infrastructure projects for potential capital market financiers. The project features (i) a 21-year take or pay power purchase arrangement with Tenaga Nasional, the national power utility, (ii) a binding fuel supply agreement with the state-run energy company, Petronas, and (iii) a construction and operations and maintenance agreement with Siemens of Germany.

The YTL project was financed in its entirety in the local markets. The company borrowed RM 3.1 billion (US\$967 million) in two tranches: (i) A RM 1.5 billion fixed rate 10 percent 10-year bond subscribed by the Employee Provident Fund (EPF). Placed in January 1994, the bonds were rated AA3 by the Rating Agency of Malaysia, based on the project's contractual arrangements and feasibility. (ii) RM 1.6 billion floating rate term loan underwritten by Bank Bumiputra and United Malaysian Banking Corp. Project equity, which was financed 100 percent by YTL during the construction period, was then partially sold off to a number of local investors, including Tenaga.

The transaction at the time was considered a landmark in the development of Asia's fledgling local currency corporate bonds markets. The debt package was the largest debt financing in Malaysian history to date and allowed the sponsor to achieve favorable higher interest rates. It was an exceptionally long-dated offering in Malaysia, given that most corporate issues at the time carried five-year maturities.

A *second* major example for Malaysia is the *Lumut Power Project*, also developed under a build-own-operate structure, which provides 1,300 MWs of generating capacity (approximately 11 percent of the nation's total). It was the largest IPP ever in Asia and is currently one of six IPPs operating in the country.

Specifics of the 15-year financing include:

- Non-recourse financing with no government or bank guarantees
- Debt to equity ratio of 73:27
- M\$3.0 billion in debt, 50 percent provided from a *floating rate note* (priced at around 1.5 to 2.0 percent above LIBOR), provided by Bank Bumiputra Malaysia Bhd and Malayan Banking Bhd. and 50 percent through the issuance of *fixed rate debt securities* purchased by EPF with a coupon of around 10 percent.
- Shareholder *subordinated loans* and *internally generated funds* for the balance of the financing, amounting to US\$400 million.

Although no direct government or bank guarantees were provided, the government did play a significant 'indirect' role in the financing. Not only does it control Tenaga, one of the equity partners in the joint venture which at the same time was the power plant's sole customer, it also owned one of the

banks which participated in the bond issue, Bank Bumiputra. Thus, the Malaysian government assumed a large portion of project risk.

A *third* example in Malaysia, this time of a toll road, is the *North-South Expressway*. The project has been entirely financed through local sources and was able to raise the ringgit equivalent of US\$400 million through issuing *convertible bonds*. With total project costs of US\$3.5 billion, it represents the largest BOT undertaken in a developing country. In 1987 Project Lebuhraya Utara-Selatan (PLUS), the concessionaire, was assigned a 30-year concession to construct, operate and finance the road. PLUS is also granted authority to collect and retain all toll charges from vehicles using the expressway during the life of the concession

The Employee Provident Fund, along with a syndicate of 467 other financial institutions, provided the ringgit equivalent of about US\$1.8 billion of debt. To cover cost overruns the project required RM 2.88 billion of additional funding. The concessionaire also raised RM 1 billion in *equity* in the form of redeemable convertible cumulative preference shares placed with Renong.

Under the terms of the concession agreement, the Malaysian government provided a significant degree of support to the project, including most notably the following:

- Support loan of RM 1.65 billion for a period of 10 years;
- Traffic volume supplement to meet any shortfall in traffic volume forecast for the first 17 years; and
- External risk supplement to meet any adverse exchange rate or external loan interest rate movements during the first 17 years.

Unusually, Malaysia's local market investors, and in particular its employee provident fund, have been very active in greenfield ventures. The new US\$8.0 billion Kuala Lumpur International Airport, sold \$2.2 billion in Islamic bonds. Bonds for this project, and for the Shah Alam expressway (US\$510 million) were placed mainly with local institutional investors.

Thailand

The *Rayong Power Transaction in Thailand* is another benchmark for capital market financing in developing country infrastructure projects, which includes both foreign and domestic bond issues, and was also linked to the public offering of equity. Capital markets were approached in two phases. First, equity shares were offered in the Electric Generating Company (EGCO), a holding company for the country's privatized power plants. Shares in this company were first sold to the public with 56 million to foreign investors, 20 million to employees of the Energy Generating Authority of Thailand (EGAT) and the remaining 50 million shares to local investors. The local public offering raised the baht equivalent of US\$180 million. In the second phase, these funds were applied for expansion projects, with the acquisition of Rayong Power Plant being the first of such ventures. To acquire Rayong, EGCO established a new company, Rayong Electricity Generating Company, which borrowed on the domestic and international markets to purchase the 1,232 MW gas-fired combined cycle plant.

The project's funding structure was complex, including loans, straight and convertible (debenture) bond issues, guarantees, and an equity offering, as follows:

- US\$93 million 10-year non-recourse floating rate LIBOR plus 60 bp commercial syndicated loan with Sanwa and Mitsubishi as lead arrangers;

- US\$48 million 10-year LIBOR plus 60 bp guarantee facility led by Mitsubishi, Barclays, Banque Nationale de Paris and Société Général;
- Bt 4.2 billion (US\$168 million) non-recourse working capital facility and 12-year floating rate loan from the Thai bank syndicated loan market with Krung Thai Bank and Government Savings Bank as lead managers;
- Bt 3.5 billion (US\$140 million) 12-year fixed rate 11.25 percent secured debenture offering on the Thai private placement market; and
- US\$141 million private placement bond offering, sold to major US insurance companies. It featured a 12-year average life, 15-year final maturity, an 8.85 percent coupon, and was rated BBB+ by Standard & Pools, or only one notch below the rating of sovereign Thai debt;
- US\$180 million initial equity offering on the local and international markets.

The project's strong 20-year power purchase agreement with the highly regarded EGAT was considered the key to winning the investment grade credit rating necessary to access the private placement market. Under the take-or-pay arrangement, the project company will receive between a 20 to 25 percent rate of return.

Other Developing Country Examples

As the preceding sections show, flotation of locally-issued bonds is more common for governments and established companies, such as those operating in the telecom or power generation sectors. However, as discussed above, examples of bond financing of new projects are starting to arise. While Chile, Thailand and Malaysia are prominent cases, other examples include:

The Philippines. For the \$64.5 million Mt. Apo Geothermal Reservation Project, Oxbow Power Corporation (US) and Marubeni Corp. (Japan), the project sponsors, relied exclusively on *local debt financing* after injecting US\$16 million equity. Citibank Philippines arranged US\$48.5 million of limited-recourse debt from the social security system's power fund with a *floating rate note (FRN)* of 7-year maturity, 2 years grace, and an interest rate of LIBOR+90 basis points.

Indonesia. PT Jasa Marga, the state-owned, toll-road operator, which had limited access to foreign investment funds due to legal restrictions, was able to raise 688.7 billion rupiah in local markets (US\$294.2 million) for nine road projects from 1982-1993.

India. The Indian Development Finance Company raised US\$163 million equivalent in February 1992 through the issuance of AAA-rated 25-year bonds with a fixed-rate yield of 15.54 percent (versus the domestic inflation rate of 9-10 percent at the time), representing the country's first long-term debt instrument.

South Korea. Korea Electric Power Corporation (KEPC) periodically issues bonds for the purpose of raising funds to expand power generating facilities. These bonds have three- to five-year maturities and their terms are similar to those of corporate bonds. The nominal value of KEPC bonds issued between 1983 and 1994 was around US\$7.1 billion. Other infrastructure bonds with maturities of between 3 and 5 years have been issued by the Korea Telecommunication Corporation, the Korea Gas Corporation, the Public Waterworks, and for regional development and highway construction.

Neither India nor South Korea has an important public pension system. Pensions are mostly based on voluntary savings with life insurance companies and on some company-sponsored provident funds or group insurance policies. Despite the absence of strong public policy incentives, these institutions have grown in response to *high growth and savings rates* and their assets represent 10 percent-20 percent of GDP. In addition, mutual funds have expanded vigorously, their assets amounting to 20 percent-25 percent of GDP. Thus institutional investors have an asset base of 30-45 percent of GDP.

The mobilization of large financial resources by institutional investors in both countries has given a boost to the growth of the equity and bond markets. The bond markets amount respectively to 31 percent of GDP in India and 35 percent in Korea in 1990 while the equity market capitalization was respectively 13 percent and 44 percent. Long-term debt increased in India from 12 percent of total assets in 1980 to 21 percent in 1990. Reliance on long-term debt declined in Korea over the same period from 24 percent to 20 percent but this decline was more than compensated by an increase in equity funds from 21 percent to 29 percent of total assets.

Additionally, as shown above, infrastructure projects can also access local *equity* markets through (i) public equity offerings, or (ii) private placements with institutional investors such as pension funds and insurance companies, especially in greenfield projects (e.g., in Chile and Malaysia). In Chile, infrastructure stocks rose from 20 percent to 65 percent of total market capitalization from 1989 to 1993. Argentina's market capitalization increased from US\$3 billion in 1989 to US\$30 billion in 1993, in large part due to the listing of two telecommunications companies that currently make up nearly 40 percent of the total market capitalization.

3. ENABLING CONDITIONS FOR DOMESTIC FINANCIAL MARKET DEVELOPMENT

The previous chapter provided several examples of the successful use of domestic capital markets for infrastructure financing, in both industrialized and developing countries. How have these countries been able to mobilize capital market resources? The present chapter will show that the development of domestic capital markets as a vehicle for infrastructure finance requires a range of enabling institutions and supportive government policies. The first section provides an overview of how such conditions have been brought together, in those emerging market economies which provided the project finance examples of the preceding chapter. In the second section, particular attention is given to the role of institutional investors in capital markets, and vehicles for contractual savings which provide funds for such institutional investors, such as pensions and insurance funds. The third section investigates the broader conditions required for domestic capital market development, including (i) stable macroeconomic conditions which support the predictability of financial instruments, (ii) a stable regulatory framework designed to promote development of financial markets, and (iii) measures to encourage market depth and liquidity and enable the pricing of financial instruments.

DOMESTIC CAPITAL MARKET DEVELOPMENT IN EMERGING ECONOMIES: EXAMPLES

Chile

How did Chile's capital markets develop sufficiently to enable investments in infrastructure through domestic capital markets? *First of all*, through the encouragement of the development of long-term investible resources through the *pension fund system*. Chile implemented a revolutionary reform of its social security system in May 1981 when it replaced the existing social pension systems with a private system of personal pension plans. The prior system operated on a pay-as-you-go basis, which suffered from widespread evasion and faced great financial difficulties. By contrast, the new system of personal pension funds centers upon individual capitalization accounts with fully-funded and fully-transferable benefits.

A striking aspect of the early success of the new pension system has been *the rapid accumulation of long-term funds*. Total funds increased from US\$300 million or 0.9 percent of GDP in 1981 to US\$26 billion or 40 percent of GDP in 1996. The management of these funds has been entrusted to specialized pension funds management companies known as Administradoras de Fondos de Pension (AFPs). Today, AFPs manage assets of US\$26 billion (equal to around 40 percent of GDP) and are commonly credited with playing a central role in more than doubling domestic savings from around 14 percent at the beginning of the 1980s to 27 percent of GDP in 1995 (compared to a regional average of 18 percent). According to recent government estimates, assuming an annual real return of 4 percent, the combined assets of the AFPs will reach US\$52 billion by 2004, representing more than 50 percent of GDP.

Thus the new social security scheme prompted the development of a strong domestic capital market. Currently, 90 percent of Chile's investment needs are financed in the domestic markets, compared with only 40 percent in the 1980s.

As of 1994, pension funds held 55 percent of all government bonds (including securities issued by the central bank), 62 percent of mortgage bonds and 59 percent of corporate bonds. They also accounted for 11 percent of corporate equities and 9 percent of bank deposits. Likewise, the equity market has grown at a very fast pace since the 1980s. Total market capitalization increased from 11 percent of GDP in 1984 when stock market prices were still suffering from the crisis of the early 1980s, to 45 percent in 1990 and 150 percent of GDP in early 1994.²

Second, in addition to the pension funds, *life insurance and mutual funds* also constitute a significant portion of local capital market funds and in 1994 these mechanisms were valued at 10.8 percent and 4.1 percent of GDP, respectively. Both of these instruments have grown dramatically in recent years. Between 1990 and 1994, the number of life insurance companies in Chile grew from 216 to 276 or 27.8 percent. Similarly, in 1983, a total of four companies offered 7 mutual funds. By 1994, these figures had increased to 13 companies and 57 mutual funds. As of 1994, pension funds, mutual funds and insurance companies total assets were equal to 59 percent of GDP.

A *third* factor contributing to the development of domestic capital markets for infrastructure was the program of *divestiture of public infrastructure utilities*. Divestiture of the state electricity utilities occurred gradually throughout the 1980s. In 1980, two electricity distribution companies, SAESA and Frontel, were sold through a public auction. Edelmag, an integrated regional power utility, was sold to investors in its own region between 1986 and 1989. Other generation and distribution affiliates of ENDESA, the principal state power company, were sold off in 1986 and 1987. The rest was sold in 1989 via stock sales and direct sales to employees. Today individuals and pension funds own around 60 percent of ENDESA.

Chilectra, another state-owned power company was also divested in stages. By 1988, one of its spin-off units, *Chilgener*, was 100 percent owned and controlled by the private sector, including domestic pension funds and financial institutions, company workers and foreign investors. A third company, *Energis*, previously known as Chilmetro, began its divestiture process in 1985. Shares were first sold to the company employees in several tranches. Employees were offered the option of using their legal severance in advance to buy shares. Over 90 percent of them acted upon the offer. In 1986, the process intensified with further sales on the stock market. As a result, the private sector acquired a 62 percent majority stake in the company. In August 1987, the remaining shares were floated. Today two-thirds of the shares are split almost equally between the company's employees and local pension funds.

Malaysia

A *first* important ingredient for achieving high rates of domestic investment in infrastructure in developing countries has been the successful *mobilizing of private savings*. Malaysia provides a good example; its private savings account for two-thirds of total savings, which exceed 33 percent of GDP. But high savings rates alone are not enough. Allowing these savings to be channeled into tradable, securitized assets, that can be priced by the market to reflect the risks they represent, is the next critical step. The final step is to encourage the development of institutional investors who can invest in such assets.

Like Chile, a *second* major boost to local capital market development came with the increase in the role of a major pension fund, the Employee Provident Fund (EPF), created in 1991. In the case of Malaysia, the key element was the *liberalization of investment restrictions* on the EPF, which allowed it to become the single largest institutional investor. EPF was created in order to establish a social security and pension system for employed workers and provides old-age, survivor and disability benefits. The

² However, it receded to around 130 percent after the 1994/95 'tequila effect' of the Mexican crisis.

Fund receives its contributions from the insured person (10 percent of earnings) and the employer (12 percent of payroll). Its total assets in 1994 amounted to RM 82.6 billion. Under the provision of the revised charter in 1991, *the proportion of annual investible funds required to be invested in government securities was reduced from 70 percent to 50 percent.*

Third, in the early 1980s the government decided to allow private participation in infrastructure, and launched a *divestiture program* to reduce budgetary and management obligation and promote competition. Today infrastructure stock as a percentage of total stock market capitalization is approximately 30 percent. In an attempt to attract new capital the government provided generous incentives for new flotations. It lowered investment risk by remaining an important shareholder in all privatized enterprises. Furthermore it only floated companies with bright future prospects. In addition, it insisted on introducing new shares at an extremely low price. As a consequence, all flotations were several times oversubscribed. For example, the March 1992 flotation of 150 million shares of Proton was more than 6 times oversubscribed.

Fourth, for greenfield efforts, the government has provided significant supplementary support, by *assuming some of the risk associated with project financing*, notably, exposing itself to commercial risk. In the North-South Highway project, for instance, in addition to transferring at no cost that portion of the project already in operation, the state was a direct equity and debt participant and provided standby contingent support for shortfalls in revenue should traffic fall below expected levels.

Fifth, in the late 1980s the government undertook *a series of policy measures, aimed at strengthening the financial sector and fostering both increased depth and efficiency of domestic capital markets*, notably:

- *Creation of Liquidity Facility (Cagamas Berhad, 1986)* to enhance the liquidity of financial institutions and thereby permitting them to hold a portfolio of securities, by buying their housing loan portfolio with recourse.³
- *Creation of Dealer Network* to underwrite primary issues of government auctioned government securities.
- *Issue of Government Securities by Auction*, starting in January 1989, with maturity periods of up to 10 years.
- *Preparation of Guidelines for the Issuance of Private Securities* enacted in January 1989.
- *Introduction of SPEEDS*, a computerized securities trading system, to promote secondary market development.
- *Establishment of Rating Agency of Malaysia (RAM)*, in 1990. Corporations seeking to issue bonds or other types of securitized debt are required to have a minimum investment grade rating before going to the debt market.
- *Liberalization of Interest Rates*. As a step towards the opening and development of a more market-oriented interest rate structure, the base lending rate of the banking institutions was completely freed from the administrative controls of the Central Bank.
- *Introduction of Malaysia Savings Bonds*. *Bon Simpanan Malaysia*, a type of discounted savings bonds, were first issued in 1993. The main objective of this issuance was to cultivate

³This developed with the issue of asset backed securities in 1987, through the establishment of the National Mortgage Corporation, known as the Cagamas Berhad (Cagamas). The main function of Cagamas is to repackage housing mortgages into debt instruments. Over the past seven years, Cagamas had issued over RM 11 billion bonds, representing more than 45 percent of the corporate bonds issued in the same period. In 1994 alone RM 8.4 billion worth of bonds were issued resulting in the total corporate bonds outstanding during the year of RM 21.9 billion, a five fold increase from 1988. At the same, the annual issuance of government bonds experienced a reduction from RM 7.4 billion in 1988 to only RM 2.5 billion in 1994.

savings habits, as well as to educate Malaysian individuals in using different savings instruments.

- *Tax Exemption on Income on Private Securities.* Since 1989, the issuance of all non-governmental bonds has been exempted from stamp duty. Additionally, the tax exemption on interest income earned by individuals from non-convertible bonds issued by listed companies was extended to include those issued by unlisted companies that were rated by RAM.

As the government has accumulated a large financial surplus, it has also become less dependent on funding obtained from selling bonds to local institutional investors. As a result, contractual savings institutions have been granted greater freedom in deciding on investment options. In an effort to increase liquidity on the local exchange, the Finance Ministry announced in June 1995 that it would permit the EPF to invest up to 15 percent of its holding in local shares, up from just 9 percent. At the time, the EPF was estimated to be worth US\$35.2 billion and was growing at a rate of over 10 percent per year. Searching for safe investments with long maturity and higher expected returns than most government paper was yielding, EPF has invested approximately 14 percent of its assets in corporate securities, including investments in the Sikap Power project and the Kuala Lumpur International Airport, Kuala Lumpur City Centre Twin Tower, and the Light Rail Transit.

Nevertheless, there are still a series of issues confronting the further development of Malaysia's domestic debt market, where greater future efforts are required from the government. As the examples of the preceding chapter show, however, this does not preclude the initiation of new models of infrastructure financing through domestic debt markets. Some of the present constraints are:

- Limited liquidity in the government bond market implying lack of benchmarks for efficient pricing;
- Lack of market players, since local corporations and high net-worth individuals are limited from entering the bond market;
- Residual restrictions on the EPF, which still require 50 percent of funds to be invested in government securities with most securities mandatorily held till maturity;
- Limitations in the clearing and settlement system which cannot today ensure delivery and payment, safe custody, and quick transfer of ownership.

While the government, and in particular, the Central Bank, assumed a very proactive role in the development of the Malaysian bond market, local market growth has also been greatly fostered by the strong economic growth which necessitated a tight monetary policy. Consequent higher interest rates result in an urgency to seek investment funds from non-traditional banking sources, which are not only cheaper but offer investors greater flexibility in managing their cashflow, and hence stimulates the development of securities issues.

Thailand

Thailand offers a valuable example of *rapid domestic capital market deepening in which state owned enterprises (SOEs) have remained major players. Liberalization of the domestic financial framework and divestiture of state ownership in public utilities contributed to capital market growth.*

As recently as 1990, almost 91 percent of the bonds outstanding in the Thai local markets were government issues. Corporate issues were severely restricted by the Public Company Law and Civil Law which only allowed listed public sector enterprises to issue debt instruments on the Stock Exchange of Thailand (SET). New shares had to be initially offered only to existing shareholders. These provisions

significantly obstructed the mobilization of funds in the primary market, with consequent adverse effects on the secondary market. These restrictions, plus the decline in outstanding government issues as the government's fiscal position shifted to surplus beginning in 1988, resulted in the shrinking of the Thai bond market in the late 1980s.

Subsequent to a series of *legal and regulatory reforms* undertaken by the government, the size and composition of the Thai bond market changed dramatically, with the share of corporate (mostly infrastructure SOE) bonds growing from 3 percent in 1992 to 26 percent of the market in 1994 (roughly US\$14 billion). These securities issues serve as important benchmarks for the rest of the market. For example, in April 1995, the Government Housing Bank raised 1 billion bahts (US\$25 million) with a coupon of 9.62 percent, followed by the Metropolitan Waterworks which raised 1.6 billion bahts (US\$64 million) at a rate of 10 percent and the Rapid Transit Authority which raised 2 billion bahts (US\$80 million) at 9.99 percent. The maturities of SOE bond issues range between 3 and 10 years. The Thai bond market has evolved into the preferred intermediary compared to commercial banks, which provide higher cost funds. While domestic banks charge an average interest rate of 13 percent to 14 percent a year, the all-in cost of issuing a five year bond was about 12 percent annually in 1994. Bonds also offer higher yields, with the market yield for an A-rated bond at 12 percent a year, compared to a 6 percent return on savings deposits and 12 percent interest on one-year deposits.

It was the rapid rise in investment requirements by major public utilities that prompted the divestiture program. Investment in these entities grew from around US\$2 billion in 1989 to about US\$10 billion in 1993 (8 percent of GDP). To keep pace with the trend in investment demand in infrastructure, the Government embarked on an active program of local share offerings in the 14 largest public utilities, as well as other state enterprises. These 14 public utilities held combined assets amounting to US\$28 billion in 1993 compared to about US\$130 billion total capitalization of the Thailand Stock Exchange. By the year 2000, the Metropolitan Electricity Authority, the Telephone Organization of Thailand and the Petroleum Authority of Thailand will all be corporatized and up to 50 percent of their shares will be offered to domestic and foreign investors. Most of these enterprises have since sought additional financing through the country's nascent *bond market*, taking up the lack of demand as the supply of national government bonds dwindled. The local bond market has grown from US\$8.4 billion in 1990 to nearly US\$14 billion in 1994. The supply of debt instruments has increased most notably in state enterprise bonds and corporate bonds by those commercialized entities which are now financing their own debts in local capital markets

Access to Thailand's securities markets had been hampered by the fragmentation of both the legal framework and the supervision system for its securities markets. Relevant legislation included: (i) the Stock Exchange Act, governing activities of the SET; (ii) the Act on the Undertaking of Finance Business, Securities Business and Credit Business, governing the business of securities companies; (iii) the Civil and Commercial Code (for the setting up of limited companies); and (iv) the Public Company Act. Supervisory agencies in charge of the securities business included the Ministry of Finance, the Securities Exchange of Thailand, the Bank of Thailand, and the Ministry of Commerce. These led to inefficiencies in enforcement and reduced the attractiveness of capital markets funding.

The new Securities and Exchange Act addressed several of these weaknesses including the following:

- *Supervision by a single agency*, the new Securities Exchange Commission;
- *Clear definition of new rules and procedures for the supervision of each type of security*;
- *Streamlined procedures for the issuance of corporate debt*;

- Clarification and strengthening of *disclosure requirements* for securities issues;
- *Elimination of double taxation* on debt securities;
- Recognition of *private fund management* as a new type of securities business.
- Permission to establish *over-the-counter markets*; and
- Definition of the *framework for the establishment of securities related organizations*, such as the Securities Depository Center, the Securities Registrar Office and the Securities Clearing House.

Other Countries: Argentina

Prior to 1991, capital market activity in Argentina was limited due to macroeconomic instability and an overregulated market. Investment levels were also low and firms financed much of their operations from retained earnings and what short-term financing was available. Access to international capital was non-existent and the domestic capital markets were not well developed. In addition, the government actively discouraged the issuance of securities through a stamp tax on financial instruments.

The economic reforms of 1991 stabilized the macroeconomic environment and included for the capital markets the *elimination of the stamp tax, establishment of equal legal status for local and international investors, and divestiture of several state-owned enterprises*. The government has also *undertaken measures to promote the development of institutional investors*. For *pension funds*, the government introduced in 1994 a new two-pillar pension structure. The *insurance* industry has been radically deregulated with opening up of the insurance market to the private sector and foreign firms, the substantial elimination of product and price controls and a new regulatory regime based on solvency measures. *Mutual funds'* restrictions on asset placement, which had prevented the development of money market and bond funds that could compete against bank deposits, have been rendered more flexible, and closed end mutual funds, previously not recognized by the law, are now permitted. Mutual funds are now permitted to invest in fixed income securities and money market instruments as well as to specialize in different equity sectors or to have specialized objectives, such as income or growth targets.

These actions have led to a rapid expansion in the size, value and activities within the local capital markets, relative to most developed and some developing countries. While the number of institutional investors and the value of the instruments involved remains small, gradual growth has begun.⁴ In 1995, the value of the reformed pension fund system was close to US\$5.0 billion. The insurance industry, which in the past was particularly susceptible to hyperinflation and economic instability, has been recently reformed and premiums are valued at US\$4 billion. Finally, mutual funds, which are primarily limited to equity investments and have grown much more slowly, are valued at about US\$291 million. Much of the growth in the local capital markets and institutional investors have involved the utilization of short and medium-term instruments, with terms of 2 to 4 years. Investment in infrastructure, which requires long-term financing and is typically highly leveraged, has been limited, but is growing. The domestic corporate debt market is limited to issues of a maximum of US\$50 million.

The infrastructure *divestiture program* during the period 1991-1994, which affected the power, water, gas and rail sectors and may also involve the national airport system, has relied heavily on strategic investors, employee equity sales and international issues. Furthermore, in most divestitures, bidders were prequalified based on financial depth. For example, bidders for more than 10 percent of shares and the operators of the Argentine telecommunications companies—Telecom, Telefonica—were required to have assets exceeding US\$1.0 billion in order to meet obligatory investment goals. These

⁴ One factor which limits the participation of institutional investors in the capital of privatized companies is the lack of adequate legislation protecting the rights of minority investors.

restrictions limited the involvement of institutional investors in infrastructure ventures. The limited investment in corporate entities by institutional investors is also attributed to high price/earnings ratios, the large number of family-owned enterprises and the lack of adequate disclosure information on a consolidated group basis.

Major infrastructure divestiture in Argentina have thus actively and successfully obtained financing through international consortia, long-term financing abroad and equity participation. More significantly, selected investors have often been granted the ability to purchase the majority of available shares. The number of shares typically offered through public offerings has been no more than 30 percent. Equity shares, generally around 10 percent, have also been offered to employees. Moreover, to gain international exposure, enterprises have also been active in issuing ADRs. Finally, the Argentine government has retained majority ownership of certain enterprises, especially in the case of OSN, the national water and sewerage provider.

As domestic capital markets develop and institutional investors become larger, alternatives for infrastructure financing should increase. The corporate bond market, longer bank terms, domestic equity financing and securitization of receivables should lead to the healthy growth of assets held by institutional investors, particularly pension funds.

Finally, institutional investors should receive an additional boost from the development of the new capital markets backstop fund. The fund provides an important example of how guarantees extended by the government and other partner agencies, to leverage government backing, can assist domestic capital market development in its early stages.

CAPITAL MARKETS, CONTRACTUAL SAVINGS AND INSTITUTIONAL INVESTORS

As the preceding country examples have shown, a key ingredient in the development of domestic financial markets in the developing countries described above has been the establishment of vehicles for contractual savings, and a network of institutional investors who manage such savings. The present section first details the nature of such contractual savings, and next examines measures which can be taken to foster their growth.

Contractual savings are defined as arrangements under which part of the income of individuals or groups is put aside and returned at a later stage in form of income, mostly at the time of retirement. They are invested for extended periods in the capital markets and managed by *institutional investors*, including national provident funds, life insurance companies, private pension funds, and funded social pension insurance systems. Major investors in capital market instruments in mature market economies are rarely individual retail investors; rather they are the professional institutional investors; who invest pools of funds gathered from retail sources for specific purposes. The most prominent pools of funds are usually those developed from contractual savings, that is, savings which individuals have committed themselves to make on a regular and obligatory basis. These consist of two main categories; *pension funds*, and *insurance funds*. The importance of such funds for the development of the bond market, and especially in the case of bond financing of infrastructure, is that they provide potential *long-term* investible resources. Pension funds are by nature long term, and insurance funds are long term in the case of life insurance, although non-life insurance funds can also provide significant savings pools. A third segment of the institutional investor base is the *mutual fund* industry. However, liquidity requirements for mutual funds may restrict the extent to which they can make long term and illiquid investments. Other institutions may also operate contractual savings schemes such as save-as-you-earn deposit facilities, housing finance

schemes, and unit trusts. However, like mutual funds, their predominant focus is on short-term financing needs.

Contractual savings are long-term, non-liquid, stable and to some extent accurately determinable, depending on the degree of precision of the actuarial base. Institutional investors thus have long-term liabilities and stable cash flows, which present an ideal basis for long-term finance.

The visible financial and economic success of a few countries, such as Malaysia and Chile, have induced policy makers in many countries to examine the case for reforming and actively supporting their contractual savings industries. Key questions that will inevitably be faced by these policymakers will include the following:

- What is the appropriate role of government in promoting contractual savings?
- What is the case for granting preferential fiscal treatment on contractual savings compared to other types of savings?
- To what extent should contractual savings schemes rely on forced savings and compulsory participation?
- What should the role of foreign financial institutions be in developing the sector?
- Should foreign investments by local entities be allowed?
- What are the legal and regulatory preconditions for well run and stable contractual savings institutions? and
- Given that there are several different types of contractual savings institutions, with distinct advantages and disadvantages, which one should policymakers favor?

Box 3.1 Capital Markets Backstop Facility

In September 1995, the Argentina Backstop Fund was established to provide refinancing commitments to participating local banks under scenarios of financial market disruption. In order to provide liquidity support, the World Bank is providing a US\$500 million contingent line of credit to the Argentine Republic, which in turn entered into a subsidiary loan agreement with the Backstop Fund to support its obligations under the refinancing commitments. To date, two auctions have been conducted with approximately US\$100 million of funding secured through the Fund's operations.

The operation's main objective is to promote local capital market development. Participating banks must first acquire funds by issuing securities in the private markets. As such, the Fund encourages the market to respond to the credit of individual institutions and does not provide financing when the markets are already willing to so. The Fund, therefore, acts as a 'lender of last resort'.

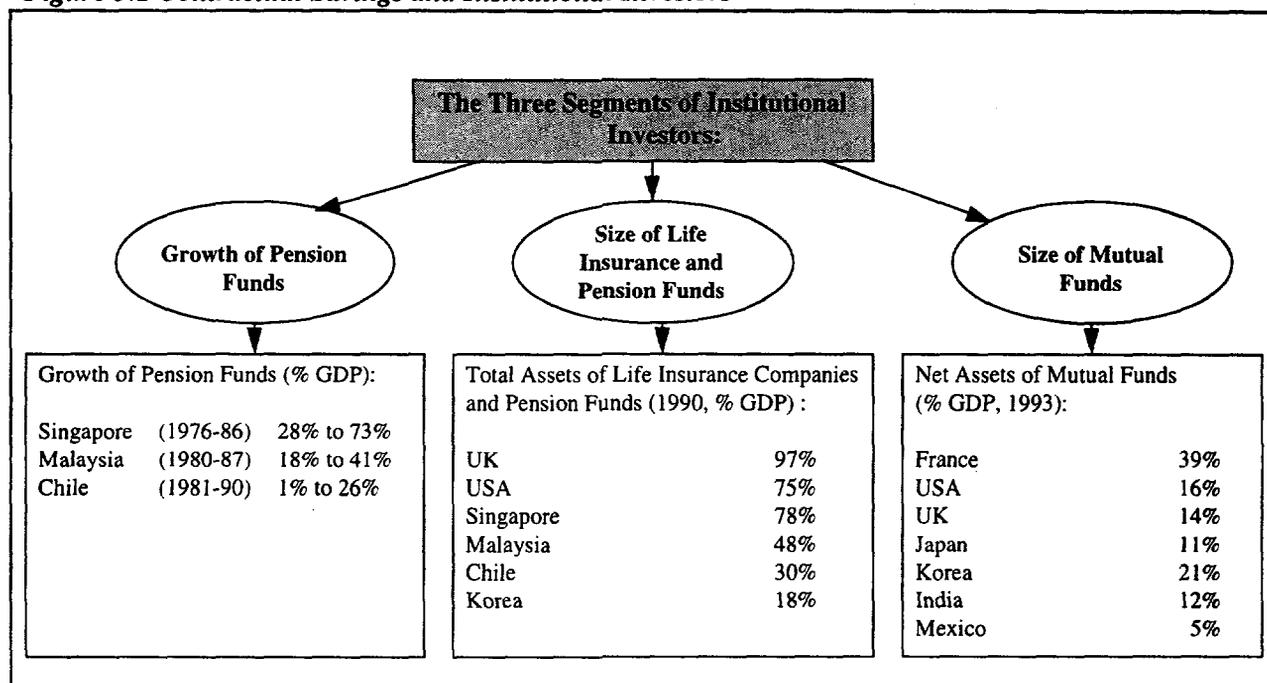
The Fund is owned by the Government and is administered by Banco de Inversion y Comercio Exterior S.A. (BICE), a second-tier government-owned bank. BICE also designates banks that meet established credit standards to participate in the program. Qualifying banks are required to demonstrate as well that their pool of loans meeting certain criteria grows by at least as much as the issuance of the backstopped bonds.

Salomon Brothers acts as financial consultant and provides ongoing support regarding operating and investment activities of the Fund. The World Bank does not approve any individual loans made by the participating banks and the operation of the Backstop Fund relies on the judgment of the local fund administrator and approved domestic rating agencies.

This operation was possible because Argentina had successfully undertaken broader economic reforms which created a more stable environment, as well as capital market initiatives which enhanced and simplified funding operations within the domestic market. The measures undertaken prior to initial operations of the Fund included (i) passage of the Convertibility Law, which established a fixed-peso-US. Dollar exchange rate, Pension Security Reform and Mutual Fund Laws, creating institutional investors, Securities Laws, defining the powers and responsibilities of the Argentine National Securities Commission, and the Negotiable Instruments Law, creating primary and secondary corporate bond markets; (ii) removal of restrictions on foreign portfolio investments, as well as stamp and transfer taxes; (iii) equalization of tax treatment of capital gains for foreign and domestic investors; and (iv) external debt agreement, which although not a reform, was fundamental in allowing the country to return to the international financial markets.

Source: World Bank.

Figure 3.1 Contractual Savings and Institutional Investors



Source: World Bank, FSD.

Such issues will have to be addressed and resolved by policy makers in each country, based on national circumstance and priorities, as a first step towards developing contractual savings institutions.

OTHER REQUIREMENTS FOR DEVELOPING DOMESTIC CAPITAL MARKETS

Macroeconomic Prerequisites

First, regarding required macroeconomic conditions, it should be noted that *inflation* is perhaps the biggest worry for any fixed rate bond investor. Not only does inflation erode the purchasing power of the principal portion of the investment, it also has a strong influence on the *behavior of interest rates* which can cause substantial capital losses. As a result, investments in long-term fixed rate bonds such as those for infrastructure ventures are not only subject to project risk but are also very sensitive to a host of macroeconomic variables over an extended period. Floating rate instruments, on the other hand, need to be complemented with derivatives such as interest rate swaps in order to offer a predictable cost profile for borrowers, especially for highly leveraged infrastructure projects. Derivative markets, however, are very rare in most developing countries.

Bond prices, in any currency denomination, are primarily determined by movements of interest rates in the country of currency denomination. *A stable macroeconomic environment which does not cause sharp volatility in interest rates is important to the efficient development and functioning of long-term bond markets.*

Box 3.2 Contractual Savings Institutions for Long-term Investments

PENSIONS: (1) National Provident Funds. These have been established in Singapore, Malaysia, Solomon Islands, Sri Lanka, India, Nepal and Swaziland. Typically they operate as defined contribution schemes. Benefits depend on contributions and earnings accumulated. Contribution rates are fixed by the authorities and shared by employees and employers. Resource mobilization depends on the age of the fund, coverage, demographic structure, level of contributions, investment income, benefits, retirement age, and working life of members. The replacement, investment and inflation risks are borne by employees, with their solvency and integrity a function of the real rate of return and administrative efficiency.

PENSIONS: (2) Pension Insurance Systems. There are three types of social security systems offering old age pensions: *universal benefit schemes* which provide pension coverage for all residents over a specified age without regard to income, assets or employment status; *universal social assistance schemes*, which limit pension coverage to poor residents meeting certain asset and income limitations; and *social pension insurance schemes* which offer pension benefits to participants after a certain age and subject to certain past employment and contribution requirements. The first two types are welfare plans and are largely funded from budget revenues. The third type is mostly funded by contributions from employers and employees, although governments often make a contribution from budget revenues. Generally, pensions under this system are fixed in relation to average wages or as a proportion of a participant's pensionable salary. The social pension insurance systems of several developing countries, particularly in Latin America, experienced severe financial difficulties in the 1970s and 1980s. Contributions made through payroll taxes were inadequate to cover expenditures, and, with defined benefits, many of these systems did not have sufficient reserves to meet their obligations. Moreover, inflation eroded the real value of their assets and many plans were obliged to make investment in public projects with low rates of return. As a result, payments to pensioners were often in arrears.

PENSIONS: (3) Occupational Pension Schemes involve both defined benefits and defined contributions. Within developing countries those pension funds that exist cover mostly civil servants, military personnel and privileged employees of large public sector corporations and financial institutions. Company-based schemes are found in countries such as India, Zimbabwe, Botswana and other former British

colonies. Occupational pension systems are also more developed in countries that lack national provident funds and have weak social pension insurance systems but where multinational corporations have a relatively strong presence such as Brazil, Mexico and Indonesia. In Malaysia, however, the Employees Provident Fund has a wide coverage and company-based schemes correspond to just slightly more than 1 percent of GDP. In Singapore, occupational pension schemes were of only temporary importance, before other, more attractive investment opportunities for employees' pensions were introduced.

PENSIONS: (4) Personal Pension Plans. This represents a growing form of contractual savings offered and managed by various types of institutions such as commercial banks, insurance companies, brokerage houses and specialized administrators. They share some common features with individual insurance policies, although they have one important benefit from substantial fiscal advantages in the form of tax deferral. Even in countries where life insurance premiums are tax deductible personal pension plans benefit from preferential treatment because they are subject to more generous limits.

INSURANCE: Life Insurance Companies. These companies cover two types of personal risks: the risk of premature death and the risk of excessive longevity. The former is covered by various types of life policies such as whole life and term insurance, while the latter is covered by annuity policies. Most policies contribute significantly to the accumulation of technical reserves and other long-term funds. Their investible funds, arising both from the creation of technical reserves and the reinvestment of net earnings to the benefit of policyholders can be several times annual premiums. Life insurance is offered by three major types of companies: stock companies, owned by their shareholders; mutual companies owned by the firm's policyholders; and state-owned companies. In less developed financial markets, different combinations of joint ventures between local and foreign insurance companies exist. The development of the life insurance industry depends on the level and distribution of income and wealth, the social culture and family structure, the efficiency, solvency and public image of insurance companies, the tax treatment of insurance premiums and benefits, the availability of social security benefits, the degree of macroeconomic and political stability and the regulatory framework.

Source: World Bank.

In light of these concerns, it should be no surprise that domestic bond markets are underdeveloped in those Latin American countries (Argentina, Colombia, and Mexico) where episodes of hyperinflation have been frequent.

In Argentina, for example, the corporate share of bond issues is as little as 0.82 percent of GDP. The unstable macroeconomic environment and hyper-inflation until 1988 did not provide the basic

conditions necessary for development of long-term bond markets. Most of the 105 registered issues of bonds by 1993 featured limited maturities between 2 and 4 years. Also, corporate debt issues in the local markets have been limited to US\$50 million and feature less than 5-year maturities.

However, as discussed in the preceding section, recent improvements in the country's economic management both through macroeconomic and structural reforms as well as regulatory and tax reforms specific to bond market development, have created the potential for growth of its capital markets. Following widespread macroeconomic policy and capital market reforms in 1994, private pension funds had accumulated about US\$2.5 billion of assets by early 1996. Although bond maturities are still short of what would be suitable for financing infrastructure projects, the government has also established a capital markets development mechanism to stimulate long-term funding in the local markets.

In Colombia, domestic bond markets are also just emerging. Compared to the US\$2 billion of targeted annual investments by the private sector over the next 5 years, the combined demand for infrastructure bond issues among all local financial institutions and institutional investors is estimated at US\$200 million.

Nonetheless, the interest rate on the latest issue of 5-year government bonds has declined to 25 percent, resulting from a downward trend in inflation. This, combined with prudent fiscal policies, growing demand for long-term securities by local investors, and recent reforms to the pension system, holds promising prospects for development of long-term bond markets over the short to medium term. In an effort to specifically foster local capital market participation in infrastructure assets, the government is currently in the process of implementing financial support mechanisms to enhance secondary market liquidity for local institutional investors.

The next major macroeconomic requirement, for any significant development of domestic capital markets, is *interest rate deregulation*. Without interest rate deregulation, bonds will not be able to compete with bank deposits even when a fair market yield is initiated by reference to the government-bond or treasury sector. Investors need to have positive real interest rates on deposits for savings to translate into investment. In most developing countries, the mobilization of long-term savings in the private sectors is often restricted because long-term rates are not high enough to compete with shorter-term investments which offer less risk (e.g., government securities);

Increasing Financial Market Efficiency: Deepening Markets

Other measures which would help the creation of more liquid and competitive capital markets include:

- *Establishing benchmarks, which enable the pricing of bonds.* This usually requires the regular issue of government debt in established maturities, and in sufficient volumes for establishing benchmarks. Countries where a fiscal deficit suggests that government borrowing from the public is necessary for the financing of the deficit have a valuable opportunity to use public debt issues to establish benchmarks. In countries tending to run a near balanced budget, domestic bond markets sometimes tend to shift to offshore benchmarks for pricing.
- *Using auction-based systems to sell bonds,* run according to internationally accepted principles, and phasing out syndicated issues for government debt.
- *Encouraging financial institutions to engage in active liquidity management,* for which they are likely to hold government debt. This deepening of the domestic market for government debt will further strengthen the development of benchmark yields.

- *Concentrating debt instruments* in a small set of standardized and liquid benchmark issues, and setting a predictable issuing calendar.
- *Strengthening domestic money markets* (such as the market for repurchase agreements, or, as in the case of Malaysia, by special instruments such as the asset-backed securities of Cagamas).
- *Establishing futures contracts on government debt.*
- *Encouraging the establishment of broker-dealer networks.*
- *Providing adequate clearing and settlement systems.* A good broker-dealer network plus reliable information services to disseminate bid and offer prices are essential to secondary market trading. Smooth and secure delivery of securities, settlement of trades, and transfer of title in an electronic environment is essential for sustained growth.
- *Establishing credit rating agencies*, since most international investors are unable to purchase emerging market bonds which have not been rated by an approved agency. Rating agencies make different credits comparable and provide for credit assessment support for investors without such capacity. In the United States, the government has facilitated the development of rating agencies, though in an indirect way, by institutional regulations (e.g., the Uniform New Capital Rule) that use ratings as a measurement of risk.
- *Improving monitoring and supervision capabilities* of financial institutions engaged in capital markets and enforcing accounting, auditing and disclosure standards.
- *Simplifying the tax regime for securities.* The tax regime can also significantly influence the accumulation and flow of private capital. Stamp and withholding taxes, as well as related registration fees, can often act as a discouragement to new issuance and can create barriers to entry to trading on the secondary market. Complicating the tax analysis are differences in treatment of residents and non-residents, institutions and individuals, treasury and corporate securities, and interest and capital gains. Disparities between debt and equity withholding influence the broad range of securities choices. Corporate taxation can also weigh heavily on trading activity and limited deductibility can raise the cost carrying bond portfolios.
- *Clearly defining a consistent legal and regulatory framework* including Company Law (issues related to management and control, rights of shareholders, capitalization and distribution requirements, ease of incorporation), Securities Law (listing requirements, disclosure requirements, financial reporting, insider dealing, establishment of investment funds), Tax Law, and Criminal Law (as the biggest problem often relates to adequate enforcement of the three previous laws). Similarly, modifications to investment guidelines of contractual savings entities would increase their ability to purchase longer-term securities in the primary and secondary markets. This can occur, for example, through the phasing out of issuer-based guidelines to ones based on prudential criteria (i.e., based on credit rating criteria).
- *Clearly defining regulations on negotiable instruments, collateral, mortgages on moveable and immovable property and on foreclosure and bankruptcy.*

Another way to strengthen the development of domestic financial markets is to encourage competition, through facilitating wide participation by and between banks, securities firms, mutual fund companies, venture capitalists, insurance companies, pensions funds and investment banks. This creates incentives for the development of a system with low unit costs, professional management and conditions which create incentives for entities to seek and invest in long-term securities. Enhancing competition will sharpen incentives to eligible institutions to improve their yields to their contributors, including via investment in longer-term securities.

Regulating Emerging Capital Markets: Basic Principles

Many emerging economies lack all the key regulatory elements of an efficient 'market-based' system at the outset. Apart from a Securities Law and Companies law, key legislation includes provisions for securities registration and collection procedures, contracts, secured transactions, and bankruptcy. Regulatory institutions must be strengthened so that they have technical, human and financial resources to effectively engage in market development or oversight activities.

Other factors that could impede market development include (i) insufficient market transparency; (ii) retaining control, over regional 'capital', which is often a shared objective of managers and local authorities. Resistance to dispersion of such control can at times be substantial; (iii) lack of experience with commercial contracts and their enforcement encourages liberal reinterpretation of the original bargain or looking for loop-holes through which parties can 'legally' renege. This obviously provides significant disincentives for anything but spot market transactions.

A formalized regulatory environment requires at least a minimum of rule compliance mechanisms or else the legitimacy of the law will be damaged if the mechanisms contemplated by the law are not quick to develop or are impotent. Experiences in other countries have revealed that early specialized securities market laws are often too ambitious. As such, they are generally ignored and are rapidly overtaken by other rule-making. Early legislation often involves extensive borrowing from other systems by people without direct experience to judge what to borrow and how to create workable local systems. Given the limited capacity of formal rule-making institutions, their resources should be focused initially on defining those norms which are critical for the market to develop and to begin to build institutional arrangements for future rule-making and rule compliance.

Indeed, disciplining the excesses of a 'free market' is not the principal objective of the regulatory framework. In an emerging market context, the principal function of the regulatory framework is *developmental*. The basic parameters of the legal and regulatory framework should therefore define property rights, allocation of economic interests, risks and responsibilities, resolve conflict, structure institutional configuration (sector, market, firm), as well as encourage and discourage what is produced, how it is distributed, and how it is transferred. Market participants whose activities will be guided by the regulatory framework include issuers, investors, rating agencies, registrars, transfer and payment agents, depositories custodians, brokers, asset management companies, clearing and settlement organizations, and trading systems.

It should be noted that developing the regulatory framework requires more than creating an 'enabling environment' of conditions for desired market responses and developing the regulatory framework is interwoven with building securities market institutions. Many regulatory and institutional factors may influence the functioning of stock markets. For example, mandatory disclosure of reliable information about financial intermediaries may enhance investor participation in equity markets. Regulations that instill investor confidence in brokers and other capital market intermediaries should encourage investment through and trading in the stock market.

Clearly, the regulatory framework must be adapted to the financial system of the country in question. One key issue in this regard is the degree of separation which the country chooses to maintain between banks and non-banks. Whether securities underwriting, brokerage or trading may be undertaken by a banking institution as in the 'universal banking' systems of Germany, or whether a strict US-type separation to be maintained, is a highly controversial issue.

Even in a transitional environment, policymakers can nonetheless contribute to the development of the regulatory framework through informal rule-making by, inter alia, publicizing policy papers that discuss institution building issues, conducting technical training seminars and other forms of public education, and supporting and incentivizing, perhaps via the tax code, new market initiatives.

4. ENHANCEMENTS FOR ENCOURAGING MARKET DEVELOPMENT

Even given an available pool of domestic savings, established financial vehicles for mobilizing infrastructure finance, and a sound legal and regulatory framework to promote investment, some initial measures, involving help from the government, may be needed to give incentives to potential investors and to help mitigate risks. These enhancements should be designed for a transition period, until domestic capital markets deepen sufficiently. They are not a substitute for thoroughgoing macroeconomic and policy reform but can, however, play an important role in fostering frontier projects to help establish the credibility of the government's commitment to private involvement in infrastructure. Such enhancements essentially constitute a form of 'insurance' against project risks and help capital markets to price the cost of capital at much attractive to the market.

CREDIT ENHANCEMENTS AND OTHER SUPPORT MECHANISMS

Infrastructure projects by their very nature are highly risky and in the absence of enhancements, returns are often not high enough to justify pure equity financing. Debt financing too is only likely to be forthcoming if risks can be adequately mitigated through credit enhancements or support mechanisms.⁵ In order to increase the attractiveness of debt issues for infrastructure, the government can take a pro-active role by instituting mechanisms for credit enhancement, such as different types of targeted guarantees, partial subsidies or direct participations. The following is an overview of key options available.

Policy Guarantees

Countries that have succeeded in attracting financing for infrastructure projects have first established a system for *protecting private investment*. Second, they have created mechanisms for parties to *bind themselves through contracts*, including the granting of collateral to secure obligations (whether by pledge, assignment, mortgage, power of attorney, trust, sale-leaseback, title retention or otherwise). Finally, they have provided for *enforcement of agreements* reached.

During the interim period, as the policy framework is tested and interpreted by the courts and regulatory authorities, it may be necessary for the government to reduce certain risks of investors and lenders by guaranteeing compensation, e.g., in case of currency inconvertibility, payment defaults by SOEs, and change of law or regulatory framework. These *policy guarantees* could also be 'backed up', i.e., credit-enhanced, by multilateral or bilateral guarantees or contingent lines of credit. As these institutions are mostly 'AAA' rated, projects supported by them may obtain a credit rating equal to, or even higher, than that of the country.

In order to assure the transitional character of this instrument, reduction and cancellation provisions should be built in. Moreover, guarantees should be structured to achieve the maximum leverage (for example, by compensating for only part of the outstanding commitments of the project) in

⁵ These can either be structural (e.g., senior/subordinated structures, overcollateralization, payments 'cascade' or 'waterfall' arrangements associated with the project's cash flow, and/or the use of liquidity facilities, etc.), or purchased in the market from third parties (e.g., monoline financial guarantee insurance).

order to keep the level of contingent liabilities of the government to a minimum. Other key issues to be addressed include budgetary exposure management, minimization of the impact on the government borrowing capacity, and clarity of guarantee provisions.

Refinancing and Maturity Extension Guarantees

In order to improve lenders' assets/liabilities match and assure investors the required maturities for project debt, the government could at the time of financial closing provide a guarantee to *refinance* the project debt at a given point after construction and at a pre-defined interest rate. This commitment could be enhanced by multilateral or bilateral guarantees or contingent lines of credit. It should be designed to provide liquidity support should market disruptions occur at the time of a scheduled refinancing (e.g., a bond redemption), but not to refinance a project with unsatisfactory performance.

Maturity extension guarantees assure payment of debt service to lenders over the later maturities, thus addressing long-term credit risk concerns. Refinancing guarantees help lenders better manage their balance sheets and funding operations and therefore aim at facilitating the participation of both local and international commercial debt providers, while maturity extension guarantees are specifically targeted to institutional investors who can already provide extended maturities, but may not be willing to do so in specific projects.

In order to insulate the government from undue commercial risks, these guarantees should only be callable if the project's performance is satisfactory, that is, if a minimum debt service coverage ratio is achieved and the concession agreement fully complied with. Provisions to allow for renegotiation of the maturity covered could introduce flexibility when risk perceptions improve. Moreover, the guarantees can be tailored to meet project-specific needs, for instance, through covering of a balloon payment at the end of the maturity to lower debt service and thus tariffs in the earlier years.

Performance-Based Grants

In those cases where: (i) the project's social benefits in the form of economic development, health or environmental protection exceed public willingness to pay tariffs which cover costs and meet investor return requirements; (ii) marginal cost is below average costs (e.g., a hydro-electric facility or an uncongested toll-road); or (iii) it is politically not feasible to raise tariffs to cost recovery levels over the short term, the government could agree to provide performance-based grants in the form of supplements to the unit tariff paid by the end-user. These grant payments could be reduced over time as tariffs are brought up to cost recovery level.

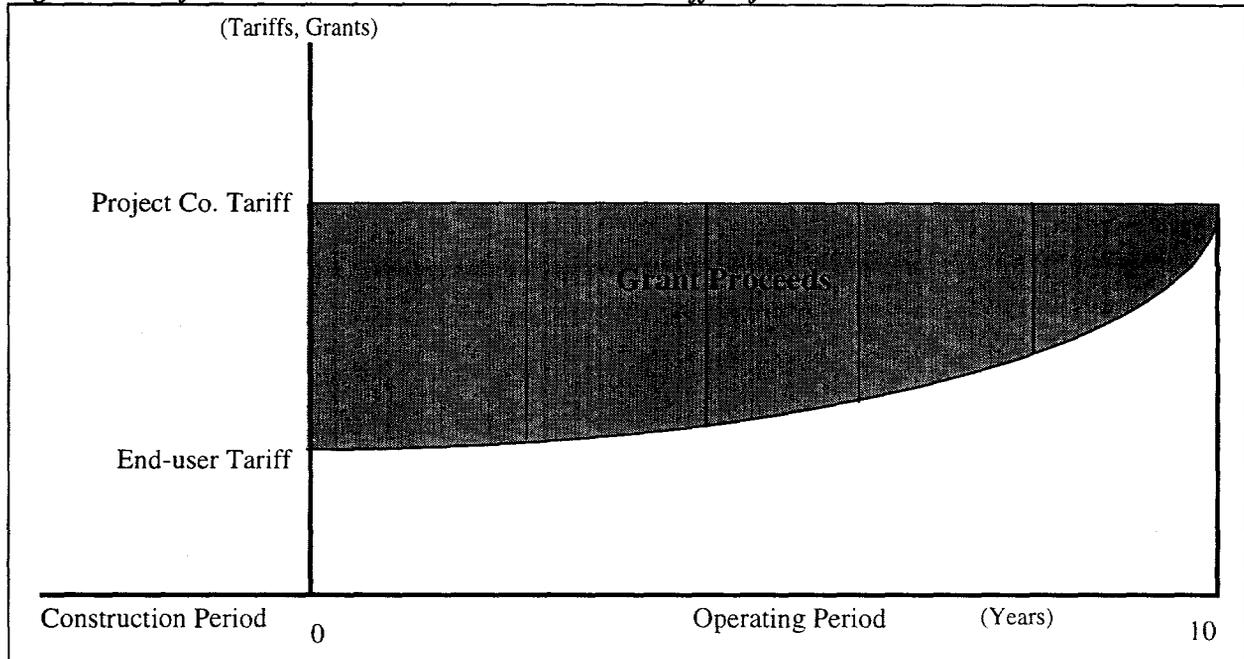
The subsidy could be structured to minimize the government's exposure to commercial risks if it is paid only when the project is in compliance with the concession and permitting arrangements. A grant reduction clause should be introduced from the beginning for the case when actual profits are in excess of base case projections. Some type of cancellation, profit sharing, or tax arrangement might be considered for this case.

Contingent Lines of Credit (LOC)

Access to construction funding, mostly provided by commercial banks, can be quite difficult for many infrastructure projects, as (i) it is a local business that requires great familiarity with the institutions, laws and regulations and actors specific to the project being financed, and (ii) it is contingent on a good understanding of limited-recourse project financing concepts. Commercial banks, and more so institutional investors, have thus only rarely assumed the full construction risk and generally require comprehensive completion guarantees by sponsors and construction companies. For this reason, private

funding for infrastructure projects with major construction works and long construction periods is relatively scarce. In transport projects the financing issues are aggravated by the uncertainties regarding traffic levels and growth.

Figure 4.1 Performance-Based Grants and Gradual Tariff Adjustments



Source: World Bank

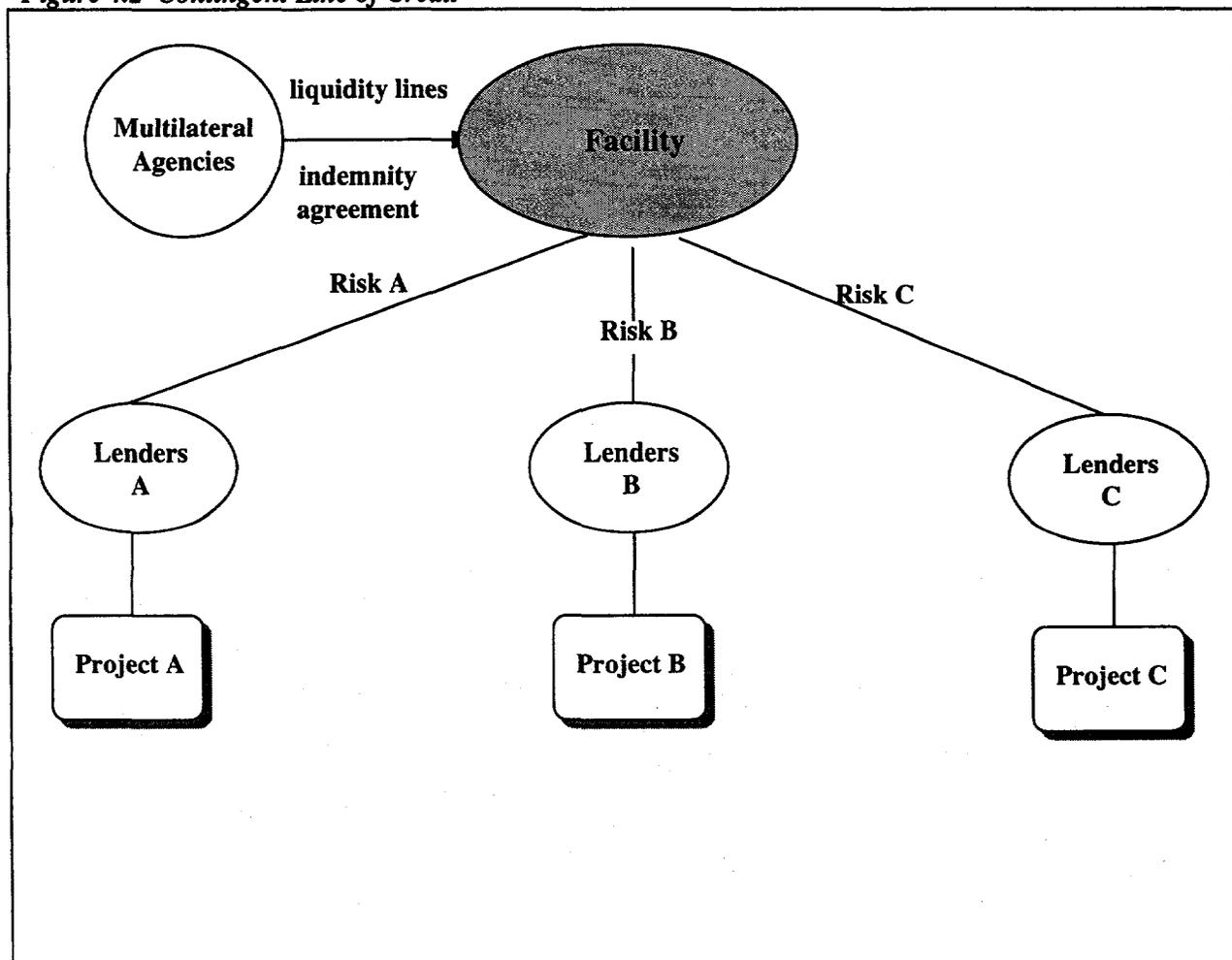
Under such circumstances, the government may look to mitigate these risks through certain contingent credit support mechanisms. However this support should be considered as an option only if it: (i) serves to tap private funding which otherwise would not be available; (ii) is based on a rigorous cost-benefit analysis comparing scenarios with and without government support; (iii) can be precisely limited in scope without exposing the government to other risks that private investors are already willing to assume; (iv) does not subordinate government participation to that of equity holders; and (v) is offered under commercial terms and conditions. The LOC could also serve to enhance debt service and operating contingency reserves required by the commercial lenders to cover possible cash flow deficiencies during the operating period.

Recognizing that this instrument does potentially expose the government to certain specified commercial risks, it would be important to include *disincentives* regarding availability and use. For example, absorption of initial losses by private participants, penalty points for bids which seek access to these funds, commercial fees and interest rates, cancellation provisions, amortization before allowing dividend payments to the equity holders, and certain conversion features allowing the government to share the project's upside potential.

Partially Subordinated Debt

Given risk considerations of foreign lenders and limitations of local capital markets, availability of debt financing for infrastructure may be insufficient over the short and medium term. Under these conditions, project sponsors may approach the government seeking direct equity or subordinated debt funding for the projects in question. However, as the government would thus, in principle, expose itself to all project risks, this should be the last-resort option. Nevertheless, it would still be possible to achieve

Figure 4.2 Contingent Line of Credit



Source: World Bank.

some protection against certain commercial, in particular equity-type, risks. If, for example, loss to the project's debt financiers results from failure to comply with the concession arrangement, the government could be treated on a pari-passu basis with other senior lenders. Moreover, disincentives similar to those listed for LOCs could be built in as well as a clear definition of exit mechanisms for government financial participation.

The following issues need to be addressed when the support mechanisms outlined above are designed and implemented: (i) treatment of support mechanisms in bidding documents; (ii) appropriate pricing to allow for an adequate allocation of risks among project participants; (iii) funding mechanisms (capital markets, bank debt, government budget resources, borrowing from multilateral or bilateral sources); (iv) possible conflicts of interest if one area of the government is required to negotiate policy guarantees with other governmental entities involved in the project; and (v) procurement, environmental and other related matters.

Examples of Public Sector Support Vehicles

The following provides some examples of different support mechanisms for private infrastructure related ventures.

Pakistan Private Sector Energy Development Fund (PSEDF). PSEDF was created in 1988 for institution building and to provide subordinate debt financing for limited recourse private power projects. The fund is to serve as a catalyst for attracting equity and commercial loans. PSEDF was capitalized with a World Bank loan of US\$150 million. The loan was co-financed in the amount of \$314 million by USAID, Nordic Investment Bank and the governments of France, Italy, Japan and the United Kingdom. The fund was replenished in January 1995 through a \$250 million World Bank loan co-financed by JEXIM with a \$110 million loan and a Government of France loan of \$10 million.

PSEDF provides debt financing of up to 30 percent of the financing needs of private energy projects. Projects sponsors are expected to mobilize 20 to 25 percent equity and raise the remaining 45-50 percent of funding in the domestic and international financial markets. The repayment period for on-lending the Fund's resources to sub-projects is up to 23 years with 8 years grace.

PSEDF provided US\$602 million in subordinated loans to the Hub Power project. PSEDF has also extended a \$20 million loan to the \$100 million APL oil pipeline between Karachi and the Hub site. In addition to Hub, PSEDF has provided or has committed partial financing for five new power projects with total costs of about US\$2,100 million.

While the 1995 financing of the Hub Power project constituted the main focus of the PSEDF, plans are underway to extend its financing services to private projects in other infrastructure sectors under a new designation as the 'Long Term Infrastructure Credit Facility of Pakistan.'

Jamaica Private Sector Energy Fund. The Private Sector Energy Fund was created by the Government in 1992 as a measure for enhancing the availability of long-term, non-recourse financing for private companies investing in the energy sector. The Fund was co-financed by the World Bank and the IDB which provided US\$40.5 million each in loans.

The Fund is administered by the 'Private Power Unit' of the National Investment Bank of Jamaica. An Administrative Agreement between the Government and NIBJ specifies the duties and authority of the latter under the fund. The selection of sub-projects, their approval and the finalization of the contractual arrangements have been entrusted to a Ministers' Steering Committee.

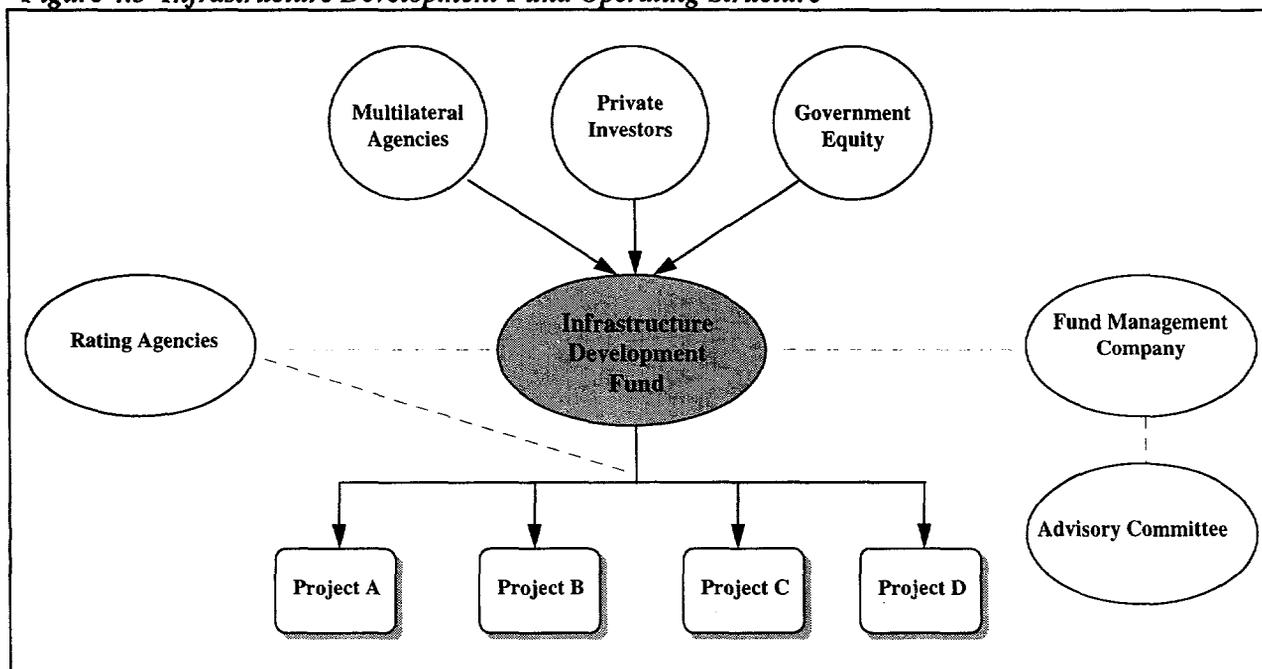
This fund is more targeted than the Pakistan fund and focuses on providing long-term financing for two build own operate subprojects: (a) a 60 MW diesel power plant, with an investment of around US\$130 million, and (b) a 30 MW combustion turbine plant

The Fund pays up to 70 percent of the costs of a sub-project, with the remaining 30 percent being equity. The sub-project sponsors assume full completion and operating risks. However, the higher the amount of limited recourse financing mobilized from other commercial sources, the lower the minimum equity contribution that a sponsor must fund.

POOLING AND SECURITIZATION STRUCTURES

Funding of more than one transaction at a time through securitization arrangements has entailed significant benefits in terms of enhanced credit ratings and market liquidity for infrastructure projects. One vehicle for capturing these benefits is an Infrastructure Development Fund (IDF), which bundle securities (debt and equity) issued by a pool of infrastructure projects. The credit support for these offerings would consist of the combined projects' assets and operative arrangements (construction,

Figure 4.3 Infrastructure Development Fund Operating Structure



Source: World Bank.

offtake, concession, insurance, etc.), guarantees, contingency reserves and combined cash flows generated by the portfolio of projects.

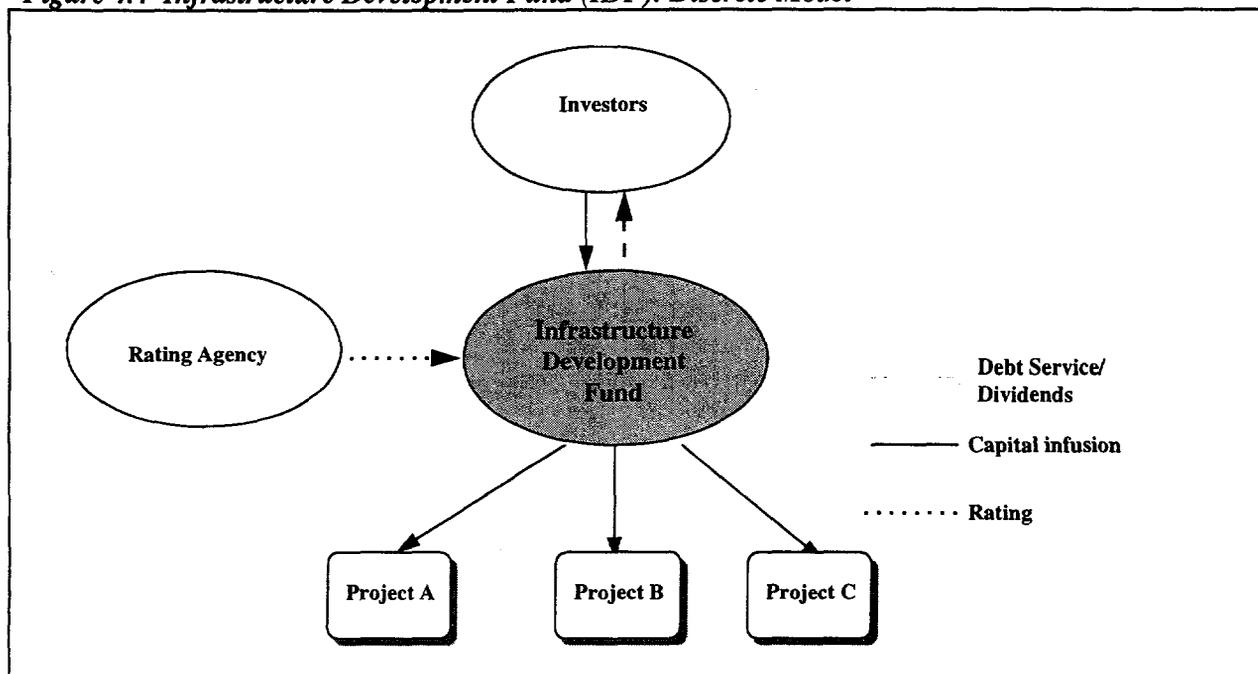
On the basis of the composition of fund investors, markets targeted, type of funding products offered, fund manager qualifications, government involvement, possible credit enhancement through multilateral or bilateral institutions, and overall investment strategy, the IDF could seek a credit rating. To the extent that the IDF can achieve a rating in the investment grade end of the market, this would: (i) significantly increase the investor base to which it has access; (ii) reduce its all-in borrowing costs; (iii) open up new investor markets; (iv) provide for stable access to capital; and (v) provide for greater flexibility with respect to market timing.

There are a number of options for the design of IDFs. The chosen strategy will ultimately depend on the government's sectoral and financial objectives, the degree of development of the regulatory environment, characteristics of the pipeline of available projects and the degree and form of government support. The following offers an overview of the basic design options for IDFs and their investment strategy.

Discrete Pool

Under this structure the IDF would, before financial closing, identify a defined pool of projects for which it would provide financing. The fund manager function under this structure would be very limited. As investors would conduct their own due diligence and the IDF would be established just for a single financial offering, a trustee/agent bank would be required to administer the project's cash flow and oversee compliance with the project's operative and financial agreements. Discrete pools do not lend themselves easily to greenfield projects, as institutional investors are, for the most part, uncomfortable with construction risk. However, over time, an increasing share of greenfield projects may be feasible for each pool when investors become more familiar with the structures and risks involved.

Figure 4.4 Infrastructure Development Fund (IDF): Discrete Model



Source: World Bank.

Example: Coso Funding Corporation. In December 1992 Lehman Brothers put together a US\$560 million Section 144A placement for three operating 80 MW California Energy Company (CEC) geothermal projects.⁶ This transaction, structured as a discrete fund, benefited from the fact that these projects were substantially similar (same sponsor, technology, geothermal field, operator, power purchase agreement structure, offtaker) and there was no element of construction risk. The bonds were rated BBB-/Baa3 by Standard & Poors and Moody's Investor Services, respectively.

By pooling the three projects, each with its own contracted cash flows from AA/Aa3 rated Southern California Edison, Coso avoided having to finance the three related projects separately. This eliminated both the potential for one financing to interfere with the others and the need to designate artificial boundaries for each plant's underground geothermal fuel supply. Pooling also allowed for a public bond issue, by providing the necessary size and liquidity, which would not have been achievable with three separate and smaller financing.

Example: Tribasa Toll Road. In November 1993, Salomon Brothers placed \$110 million of unrated notes issued by the Tribasa Toll Road Trust 1, which holds two Mexican toll road concessions. The proceeds of these notes were used to refinance the indebtedness of these two toll road projects already in operation.

An interesting feature of this deal was the separation of contractual (18 years) and scheduled amortization (12 years). Failure to make scheduled amortization serves to trap cash in the special purpose vehicle (by cutting off dividends and other distributions to the project sponsors) but does not constitute a default allowing acceleration of the notes (however there is a 1 percent increase in the interest rate

⁶The Section 144A placement refers to a specific provision for meeting SEC requirements for private placements of securities with qualified institutional investors. These securities are not approved for trade by retail investors.

upon such an event). A failure to make contractual amortization does constitute such a default. This is by far the longest limited recourse transaction completed to date in Mexico.

Quasi-Blind Pool

A quasi-blind pool would effectively represent the creation of a infrastructure bank or operating company. The IDF would be formed as a public-private partnership between the government (which may or may not contribute cash) and strategic sponsors, such as developers, contractors and equipment providers, local investors (who will be the primary managers of the IDF) and small shareholders. The IDF's ability to access capital will be based on a diversified corporate portfolio rather than on an individual project or specific pool of projects. The management and operating expertise of the strategic sponsors would thus be crucial for the performance and access to re-financing of the IDF.

An initial package of projects could be identified upon establishing the IDF (*Phase I*) and subsequently expanded (*Phase II*). The IDF could then seek to securitize a portion of its portfolio by issuing debt and/or equity offerings which would be backed by the cash flow generated from these projects (*Phase III*). 'Sales proceeds' received from these offerings could be (i) invested in new projects and/or (ii) paid to IDF investors as capital gains.

Advantages of the quasi-blind model center upon increased flexibility to changing market conditions and investment opportunities, as well as reduced transaction costs. However, given the added risk to investors, market liquidity may be limited and cost of funding higher than in the discrete pool model. Depending on market conditions, a private-sector quasi-blind model may prove to be more viable once a positive track record of private investment as developed via discrete pool financing or through a series of individual undertakings has been established.

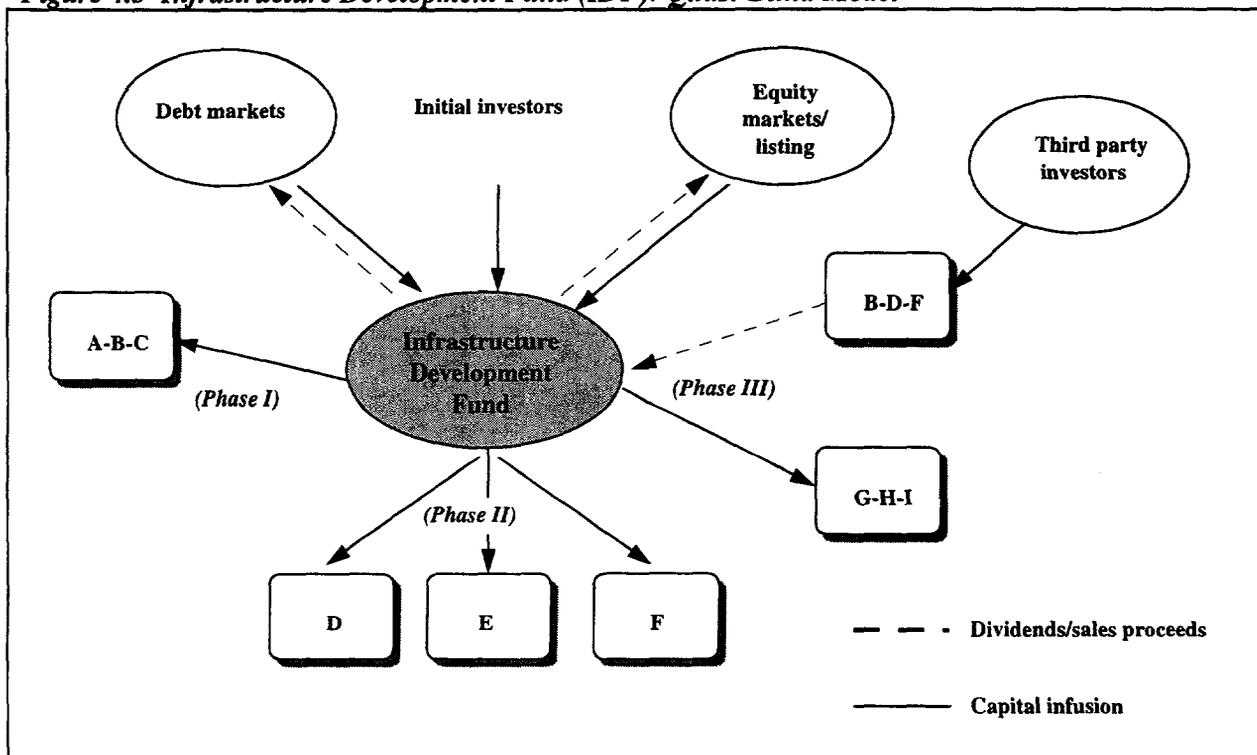
Example: California Energy Company. In March 1994, CEC issued \$529 million of senior discounted notes. This represented the largest debt offering to date by an IPP and provided evidence of investor's growing appetite for international power development. The net proceeds are to be applied as debt or equity investments in future domestic and international power projects, including a few identified geothermal power projects in the Philippines and Indonesia.

The Senior Discounted Notes are subordinated to debt at the project level and are repaid from the equity dividends from CEC's projects. Thus, effectively the note holders provided financing on a subordinate debt basis for a quasi-blind pool of projects.

Example: Morgan Stanley LIPTEC Fund. In October 1994, Morgan Stanley brought to market the LIPTEC fund for the Long Yuan Group Power Co., which is wholly-owned by the Ministry of Energy and Power (MOEP) of China. This consisted of a \$110 million 144A placement rated 'A-' by Moody's (equal to the sovereign rating) with a 7-year final maturity, 4 year average life, priced at around 120 -150 bps over the equivalent US treasury rate (approximately 20 to 25 bps over sovereign paper of similar maturities). Investors were promised only that the fund would invest in a series of capital improvements of certain power stations, (basically a blind fund, though two of the projects were briefly described in the prospectus).

The fund was established as a British Virgin Island partnership. Investors, comprised mainly of US insurance companies and pension funds, looked only to LIPTEC for repayment of the debt. Although investors did receive a comfort letter from MOEP affirming that it would do all that it could to make sure that LIPTEC complied with its debt obligations, no guarantees were given for risks relating to convertibility, breach of contract, change of law, revocation of permits, government interference, etc.

Figure 4.5 Infrastructure Development Fund (IDF): Quasi-Blind Model



Source: World Bank.

OTHER INFRASTRUCTURE DEVELOPMENT FUNDS

Construction Revolving Fund

Similar to the Municipal Bond Banks established in more than eighteen US states, a government-sponsored IDF could provide construction financing or guarantees for greenfield projects. Once these projects had established an operating track record they could be refinanced on a stand-alone basis in the private markets or the IDF guarantee could fall away.

Depending on the pipeline of projects, the respective timing for entering into commercial operation, and governmental budgetary considerations, refinancings of IDF loans could take place on a pooled or individual basis. The refinancing proceeds received could then be subsequently reinvested in new greenfield projects. Special attention would be required regarding the IDF's exposure to effectively all commercial risks during the construction phase, as well as the possible negative effects on the growth of private sector funding options.

Insurance Funds

A government-sponsored IDF, possibly backed up by multilateral or bilateral support, could provide credit insurance for debt issued by infrastructure projects. If the IDF could achieve an investment grade rating and provide coverage for the full array of project, policy and country risks, the bonds issued by the private projects should achieve a rating equal to that of the IDF. This would substantially increase market liquidity. If risks are manageable, the IDF's gearing ratio can be high, its premiums low and the

net reduction in interest costs substantial for the project. Bond insurance companies in the US have gearing ratios of 100 to 150:1 and offer very low premiums; this allows the issuer to capture the 0.75 percent to 1.5 percent interest rate difference typically prevailing between AAA and BBB-rated bonds. Close review of the government's exposure to commercial risks would be required. Over time, as the sector and IDF operating track record is developed, direct private shareholding in the IDF could be sought.

First Loss Tranche

In addition to the IDF options presented above, certain investors (e.g., the government, IFC, ADB, local investors), in return perhaps for a higher yield, could agree to subordinate their investment in the IDF to that of others. Should the IDF portfolio not generate the cash flow originally expected, first loss tranche investors would absorb initial losses up to a pre-agreed level. Such a structure would provide an additional cushion of protection to senior investors and could lead to a reduction in the IDF's overall cost of borrowing. As an approximation, the initial size of the first loss tranche should be large enough to cover a default of the largest individual project in the portfolio. Over time, as the IDF develops a track record, the government could sell its stake to strategic investors or IDF shares could be listed in the local stock exchange and sold to retail investors.

Leveraging/Equity Offerings

The IDF, potentially for all the proposed structures, could pool either some or all of its projects and issue securities in amounts sufficient to pay off existing debt and provide investors with their required return. These securities could be backed by a dedicated portion or all cash flow generated by the IDF's portfolio of investments, as well as the capital contribution of its investors. Similarly, the IDF could seek a listing on the local or regional stock exchanges. Many closed-end equity infrastructure funds have been set up to allow for possible listings after an initial time period (typically around 5 years), sufficient to allow for preliminary returns on investments as well as to allow the overall portfolio of investments to develop the required track record that many stock exchanges and investors require. Once a closed-end fund lists, the next possibility is its conversion to an open-capital company (similar to an open-ended mutual fund), the assets of which can then be packaged and sold retail, to spawn a family of mutual funds.

Implementation, Management and Benefits

The design of an IDF would require careful definition of a number of key implementation features including (i) review of project pipeline; (ii) general operating framework, policy guidelines and risk management strategy; (iii) core investor base, specifically the government's participation and shareholder's agreement; (iv) legal and regulatory framework, (v) promotional measures and incentives; (vi) type of fund and development role; (vii) investment criteria; (viii) fund management; and (ix) choice of financial products.

If the IDF is developed under the quasi-blind model in conjunction with private investors, it will need to be managed by an independent fund manager of international stature with experience in analyzing project loans. The fund manager must be viewed by the investment community as being free from outside influence. For credit rating purposes, initially the discretion of the fund manager may need to be limited to those projects outlined in the prospectus.

The management and supervisory structure would include (i) the *Board of Directors*, responsible for reviewing and supervising the fund manager's activities; (ii) the *Credit Committee*, responsible for all credit commitment decisions; (iii) the *Advisory Committee*, which could provide on a periodic, project-

specific, or as-requested basis recommendations, information, or technical assistance; (iv) the *Audit Committee*, responsible for reviewing financing and accounting matters; and (v) a *Facility Administrator*, responsible for maintaining the IDF's books and records, preparing and filing reports with respect to reporting requirements and performing other accounting and general administrative services.

The impact of credit enhancements and implementation of IDF operations for domestic capital market infrastructure financing can be expected in several important areas: (i) improved access of projects to capital markets; (ii) reduced transaction costs; (iii) introduction of innovative, tailor-made financial products, e.g., standardized securities and high-quality non-government bonds; (iv) enhanced market liquidity; (v) fostering of local credit rating mechanisms and agencies; (vi) initiation of limited-recourse credit assessments; and (vii) extension of maturities.

5. CHINA'S DOMESTIC BOND MARKET AND INFRASTRUCTURE FINANCING

So far, China's domestic bond markets, and its capital markets in a broader sense, have only made limited contributions to the financing of China's infrastructure requirements. This chapter first examines the underlying reasons on the supply side, in terms of bond issue, bond trading, and the structure and regulatory framework of bond markets. The next section examines the demand side, in terms of the buyers for China's securities issues. The final section outlines an agenda for action which could strengthen the domestic bond market, in terms of its contributions to infrastructure financing. It draws upon both the experience of other countries, described in the previous chapters, and the special circumstances of China's domestic bond market.

THE STRUCTURE OF CHINA'S DOMESTIC BOND MARKET

The Primary Market: Control of Bond Issues

According to current regulations, the issue of debt for the financing of infrastructure in China can either be undertaken directly by the central government (in which case the extent to which a project is likely to be financed depends on its overall budgetary priorities), or by a local enterprise (such as a provincial power company or electricity authority). *Local governments, or provincial governments are not presently permitted to issue their own bonds, due to the center's need to control the creation of aggregate credit.*

There was a growth in corporate debt until 1992 (comprising local enterprise bonds and short-term enterprise bills) and financial bonds, issued by banks, reflecting (i) the increased liquidity of capital markets from 1990 and therefore the increased likelihood of using debt issues as financing instruments; (ii) increases in bond prices, due to increased liquidity, which further raised their attractiveness for enterprises; and (iii) the desire of banks for funds to finance their own capital market activities, or those of their TIC subsidiaries.

The *aggregate volume* of enterprise bond issues (permitted only to SOEs) is supervised by the PBC head office. Until 1993, central regulation of the quantity of local bond issues was loose, and the issue quantities exceeded the aggregate quota, due to local governments' interest in boosting investment. With the tightening of investment approvals following the overheating episode of 1993, corporate bond issue quotas have been strictly controlled. With the passage of the 1993 "Administrative Rules on Enterprise Bonds", the PBC, together with the MOF, the SPC, and the State Council Securities Committee (SCSC) have regulated the aggregate volume of issue of corporate bonds in response to liquidity conditions, as well as, it appears, the government's borrowing requirements. There is overlap in role assigned to these agencies, which has rendered the task of regulations difficult. The lack of clear-cut allocation of tasks renders the job of regulations more difficult. On occasions when enterprise bond issues have appeared to threaten bank deposits, or the banks' ability to meet lending quotas, the PBC has clamped down on enterprise bond issues.

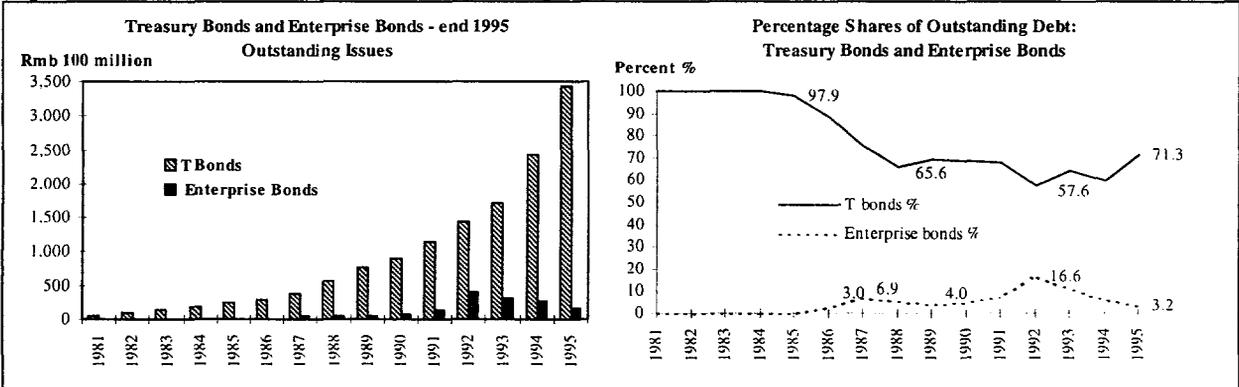
Approval to issue bonds is given to *local* state enterprises by the local State Planning Council and the local PBC, within the quota allocated to the locality by the credit plan. But local governments are not permitted to make any changes to the issue quotas set by the central authorities. *The allocation of the*

quota between companies is based on a combination of financial and (de facto) political criteria. While an acceptable rating by a credit rating agency is required, the priorities of industrial policy (i.e., the sectors and projects which the government wishes to encourage are given greater weight in practice. Finally, the *coupon rate* is also controlled. The Administrative Rules require that coupons at issue cannot exceed by more than 40 percent, interest on bank deposits of comparable terms. Such a provision limits the extent to which the market can price risk.

Today, Treasury debt dominates total debt issues, and although total debt on issue in China has grown rapidly, the central role of Treasury issues (i.e., central government debt) has increased over time, rather than decreased. Although there had been some trend decline in the share of Treasury issues until 1992, the decline has been reversed over the three years 1993 to 1996. It has been difficult for other economic agents to gain permission to issue new debt. State financial institutions and state enterprises were also authorized to issue debt from the mid-1980s, and in the early 1990s, some diversification of debt occurred.

In 1992, treasury bills accounted for 33 percent of the outstanding issue, treasury bonds as a whole comprised 38.5 percent, while financial bonds and corporate bonds accounted for another 6.4 percent and 43 percent respectively. From 1993, there was a significant increase in the value of treasury bills issued, primarily due to government’s decision to cease to finance its deficit through borrowing from the PBC. Government debt issues in 1994, at over Rmb 113 billion, increased threefold over 1993, and rose further to an expected Rmb 190 billion in 1996. Enterprise bond issues, meanwhile, were reduced, in both absolute and relative terms.

Figure 5.1 China: Treasury Bonds and Enterprise Bonds (1981-1995)



Source: World Bank data.

As Figure 5.1 illustrates, there has been a marked increase in the share of Treasuries in total outstanding debt since 1992; from 57.6 percent to 71.3 percent. Meanwhile the share of enterprise bonds has fallen from 16.6 percent to 3.2 percent.

The decline in the share of enterprise bonds has occurred not only because of the relative increase in volume of Treasuries issued, but also because of an absolute restriction, through the credit quota mechanism, in permitted new corporate bond issues. Annual new local enterprise bond issues, which had increased from Rmb 4.4 billion in 1990 to Rmb 10.5 billion in 1991 and Rmb 25.4 billion in 1992, fell back to Rmb 5 billion in 1993, and to Rmb 4.5 billion by 1995. The result has been an absolute decline in outstanding issues. There has been a similar decline in the issues of short-term commercial paper by enterprises.

Table 5.1 China: Enterprise Bonds Issued 1990 to 1995 (Rmb 100 million)

	1990	1991	1992	1993	1994	1995
Local Enterprise Bonds						
Issued	44.16	105.51	254.38	49.63	51.76	45.28
Redeemed	22.97	37.9	48.44	77.26	100.1	152.5
Outstanding	65.81	133.42	339.96	311.73	263.39	156.17
Short-term Paper						
Issued	55.55	108.18	230.95	191.2	189.2	170.85
Redeemed	42.15	69.95	132.28	170.03	215.02	173
Outstanding	46.46	84.68	183.35	204.52	178.7	176.55

Source: State Council Securities Committee.

It is however noteworthy that the recent bond issues which have been permitted suggest an emphasis on construction and infrastructure development, as the data below on recent domestic bond issues suggests.

Table 5.2 China: Recent Issues of Corporate Bonds (1995 and 1996)

Issuer	Date of Issue	Size of Issue (Rmb billion)	Coupon at Issue
China Petrochemicals Group (Comprising Maoming Petrochemicals, LiaoYang Petrochemicals and Tianjin United Chemicals)	December 1995	3.8	15%
China Railway (Ministry of Railway)	December 1995	1.53	15%
Huabei Power Corporation (Huabei Electronic Power Group)	December 1995	0.35	15%
Jilin Petrochemicals	January 1996	0.80	15%
Guangdong Meishan Railways Corp.	January 1996	0.15	15%
Pudong Construction (Shanghai City Construction Investment corp.)	February 1996	0.50	14.5%

Source: Data provided by the Securities Exchange Executive Council.

Enterprise bonds in China, once issued, are typically fairly illiquid. Few are listed on the major exchanges of Shanghai and Shenzhen, and as a consequence, are not actively traded. In 1996, only five corporate bonds were listed in the Shanghai exchange, and one on the Shenzhen exchange.⁷

The principal considerations driving the recent constriction in enterprise bond issues appear to have been (i) the need to maintain tighter macroeconomic control over credit expansion; (ii) increased demand for Treasury funding; and (iii) problems encountered with early enterprise bond issues, particularly the large spate of issues of 1992. Regarding (i), while the need to maintain control over monetary aggregates is recognized, the government is gradually attempting to move away from direct measures of control, through credit quotas, towards indirect control mechanisms, which control the expansion of base money, such as open market operations, or the use of rediscounting windows. Meanwhile, the government can gradually reduce the overall scope of the Credit Plan, for example by permitting the issues of securities which meet other requirements such as specified minimum ratings. Regarding (ii), the government should be careful not to let its own demand for public savings 'crowd out' investors' demand in the productive sectors. The threshold is likely to be further than apparent; the generally lower price paid by the government for recent debt issues by auction, as compared to debt issued through the bank or finance department networks, suggests that the government had paid too high a price for its borrowings until recently.

⁷ The five enterprise bonds listed on the Shanghai exchange in 1996 are: Shenneng Pudong, Jiushi Pudong, Pudong Investment, Fengpu, and Pudong Construction. The sole enterprise bond listed on Shenzhen is the Shenzhen Pingnan company. (Source: SEEC)

Finally, regarding (iii), it is true that the regulatory authorities have recently faced problems with enterprise debt issued earlier in this decade. Some of the issuer enterprises are allegedly unable to meet their obligations, now that repayment is due. While this suggests that regulators should set stricter standards for enterprise bond issues, for example by expanding the role of credit rating agencies and improving standards for disclosure, it does not imply that the regulator has to protect investors against the defaulting enterprises. Better standards of corporate governance can also be made a requirement, for example, all bond issuing enterprises could be required to be registered as limited liability companies, with managers held accountable to their boards for misdeeds. Unlike bank deposits, investments in securities are rarely subject to regulatory protection against default.

General Considerations Affecting the Strength of the Domestic Bond Market

While the first step towards opening up the domestic bond market to support infrastructure development is the gradual expansion in the issuing entities, this alone will not be enough to sustain the market unless other features of the domestic bond market are strengthened. The government is largely aware of these factors, and enormous strides have been made in the past two years towards dealing with these shortcomings. Some areas where further reinforcement is desirable are pointed out.

First, the *pricing* of enterprise bonds or any other domestic debt is strongly influenced by the pricing of Treasury issues, as these dominate the market. Indeed, China can be considered fortunate, unlike many other East Asian countries, that the government has a sufficiently significant borrowing requirement to trigger the development of a domestic debt market, and to provide benchmarks for corporate issues. Until this year, the government sold most of its debt at a fixed coupon, set with reference to the deposit rate on bank deposits of comparable maturity, plus a margin, to ensure adequate offtake. It has been shown that the government tended to pay too high a rate of interest for its debt, since the coupon rates thus fixed were typically above market yields. A calculation of yields at issue shows that they have typically been below the coupon rate (Annex Table A3.13).

In 1996 for the first time the government auctioned a large part of its debt. However, the largest issues of the year, representing relatively long maturities (3 and 5 year maturities; three issues of Rmb 30 billion each or more) and representing around half of total debt issue by volume, were not auctioned (Annex Table A3.11) As the government proceeds to auction the largest part of its debt, the pricing of other instruments on the market, such as corporate securities, will become easier, as government issues will offer a benchmark for their pricing.

Other factors that would aid the development of benchmarks for pricing non-government debt are an increase in the *tradability* of government debt, which would also aid pricing based on comparable secondary market yields, an increase in the *homogeneity* of debt issued (which itself would aid tradability) and a *more regular issue calendar*, throughout the year. The government needs to gradually encourage the development of *longer maturities*, and encourage the participation of *wholesale buyers*, such as financial institutions, in bond offtake.

In all these areas, the government made broad progress in 1996. The majority of issues of 1996 were *tradable*.⁸ However, early indications for 1997 suggest that once again the government is reverting to a large proportion of retail and non-tradable debt, with predetermined coupons and prices.

⁸ Although there were two notable exceptions; the May-15 issue of 5-year bonds for Rmb 30 billion, and the September-3 issue of 5-year bonds to insurance companies. Although the latter was for a relatively small amount, only Rmb 4 billion, its non-tradability is significant, as insurance companies are precisely the type of institutional investor whose active portfolio management should be encouraged.

Deepening the domestic bond market is also likely to occur if issues are more *homogenous*. Again, the government has made progress on this front in the past two years. The large variety of government debt on issue (see Annex Table A3.1) have been significantly reduced. Over the last three years, the government has issued no new debt in categories such as National Construction Bonds, National Key Projects Construction Bonds, Special National Bonds, or National Investment Bonds. Moreover, it has actively retired outstanding issues, in 1995, of Domestic Bonds and Local Investment Corporation bonds. A consolidation of different varieties of debt issued by the sovereign central government is desirable, although this must not be taken to imply that debt issue by non-government agencies should be discouraged.

Until 1994, *the issue calendar for treasury bills was bunched up* in a small number of issues, typically in the first half of the year, rather than in several offerings spread over the year. Sales were made on what was effectively a tap basis over a period which took several months. The implication was that in the absence of regular maintenance of sufficient a volume of short-term debt on issue, the development of a liquid secondary market was not possible. Consequently a short-term market yield curve could not develop. Moreover, the absence of a liquid short-term market presents problems for the use of indirect methods of monetary control. Second, the absence of a regular supply of debt of any maturity to the market implies that there is no 'current' issue to provide a 'benchmark', either long or short term. Third, investors cannot plan orderly acquisitions of new issues over the year in line with their cash flows. One-off issues put considerable strain on the liquidity management and risk management capabilities of banks and institutions. In a market economy such an issue pattern would limit the number of bidders and effectively limit the supply of credit, both of which would operate to raise interest rates. *Such factors also affect the attractiveness of non-government paper to domestic investors.*

In 1996, the government made a major step forward in terms of issue timing and frequency, by issuing its debt according to a preannounced calendar, throughout the year. Ten debt issues were scheduled, from January to November, and total borrowing has been fairly evenly spread throughout the year. There is still scope for further streamlining of issues, for example by adopting a biweekly issue pattern, as in many mature economies. *This would further aid the pricing of non government debt, as well as encourage more active institutional investor participation in the market, for liquidity management purposes.*

The changing profile of *maturities* of government debt reflect the gradual increase in the influence of market forces in China's debt market. When the government first resumed debt issue in the early 1980s, ten-year bills could be issued, due to the administered placement mechanism adopted. By the late 1980s the authorities were forced to acknowledge investor discontent, expressed by the emergence of secondary markets where government debt traded at large discounts. In response, the government was obliged to progressively shorten maturities on treasury bills from ten to five, and then to three years. The 1994 treasury bill issue included six-month and one-year maturities for the first time, tailored to meet the needs of banks and wholesale investors for the balancing of short-term assets and liabilities. In 1996, the government reentered the long end of the market, with seven and ten year issues. The offtake of the ten year issue was reasonably satisfactory, which suggests for the first time a deepening in investor confidence in the long end of the market. Three month issues were also made for the first time, for liquidity management, and to encourage the launching of open market operations.

If infrastructure projects are to be financed through this market, there is a need to further deepen the issue of long maturity bonds. From the perspective of the investor, limited enthusiasm for debt of long maturity can be due to: (i) the lack of payment of coupons, and the long intervals to redemption on most issues; (ii) high and uncertain rates of inflation, which make the real value of the redemption amount difficult to predict, and usually (in the experience over the last few years) less attractive than the

nominal value, (iii) due to the low incidence of default on most forms of investment within the framework of a planned economy, investor perception of, and allowances for, risks, are low. Consequently, risks are considered to be indistinguishable, equal and negligible. As such the security of a long-term government bond which may be attractive elsewhere carries little premium in China today. (iv) Liquidity in the bond market is still low. If liquidity increased significantly, investors would be more tempted to hold bonds of longer maturities. It is interesting that the ten year bond issued in 1996 is one of the first to pay regular interest. The decline in inflation rates, and the non-issue of any short maturity bonds with inflation subsidies this year, have probably also contributed to its success. Further extensions of both the long end (over ten year) and short end (30 days) is encouraged.

Additionally, the government should continue to encourage the offtake of its paper *by wholesale buyers and institutional investors*. Historically the major target market of debt sales has been individuals, who accounted for up to 80 percent of total offtake until 1994. This stands in contrast to developed debt markets where the major target market of primary issues consists of wholesale investors such as banks, insurance companies and mutual funds. In 1995, around two thirds of debt was still placed with individuals, but in 1996, the bulk of new debt issues were sold, in the first place, to financial institutions acting as primary dealers, who in many cases sold these on to individuals. The 5-year certificate issue of 15 May however was an exception. Greater institutional offtake is to be encouraged as institutions are less likely to hold bonds to maturity, and thus more likely to contribute to the creation of a liquid secondary market.

Finally, the government has to pay greater attention to the clarification of legal entities for infrastructure projects in instances where corporate ownership or governance responsibility are not clear. The instruments issued will reflect such uncertainties in risk premia that could be high.

Credit Rating Agencies and New Issues of Securities

An institutional feature critical to the development of a healthy corporate bond market is the presence of widely used and reliable credit rating agencies. The development of credit rating agencies has been encouraged since 1991. Rating companies must be approved by the PBC before they can publish their ratings. The PBC's headquarters have approved only two agencies so far, China Chenxing Securities Rating Company Limited and Dagong International Securities Rating Company Ltd., although some other agencies have been approved by PBC at a local level. In all, 82 credit rating agencies are said to exist, about 30 of which operate at a national level. However, at present, they are of variable standard. Not all the rating agencies call themselves credit rating agencies; some are accounting firms and others are consultant firms. The ownership structure is also diverse, reflecting the variety of entry points into the new industry. Some regional rating companies are subsidiaries of the local PBC. Of the two credit rating companies in Shanghai, one is a subsidiary of the Shanghai Academy of Social Sciences and the other is a subsidiary of the Shanghai University Institute of Finance and Trade.

Rating agencies are used in the process of selecting the enterprises to be granted permission to issue bonds. At present their role is of marginal importance to the government and investors. In the debt issuing process rating agencies distinguish the poorly performing companies from those with an acceptable performance. However, among the acceptable companies the right to issue debt is not determined solely, or even primarily, on the basis of the rating agencies' assessment. The local PBC and SPC give weight to policy priorities. Investors do not place much weight on the rating agencies assessments because of a general excess supply of investible funds and because enterprises rarely fail due to state ownership. As long as socialized governance creates soft budget constraints on enterprises the risk assessment role of rating agencies will be marginalized. A strengthening of their role is imperative for the successful development of a non-sovereign domestic debt market.

Secondary Markets in China's Debt Securities

Although the secondary market for China's debt securities progressed rapidly after the setting up of the exchanges in 1990, compared to debt markets in other countries the market remains illiquid; liquidity is not sufficiently to meet the transaction needs of larger participants, and pricing and trading practices across different exchanges and trading networks are still to be unified. Trading activity and pricing continue to be driven largely by the weight of liquidity available.

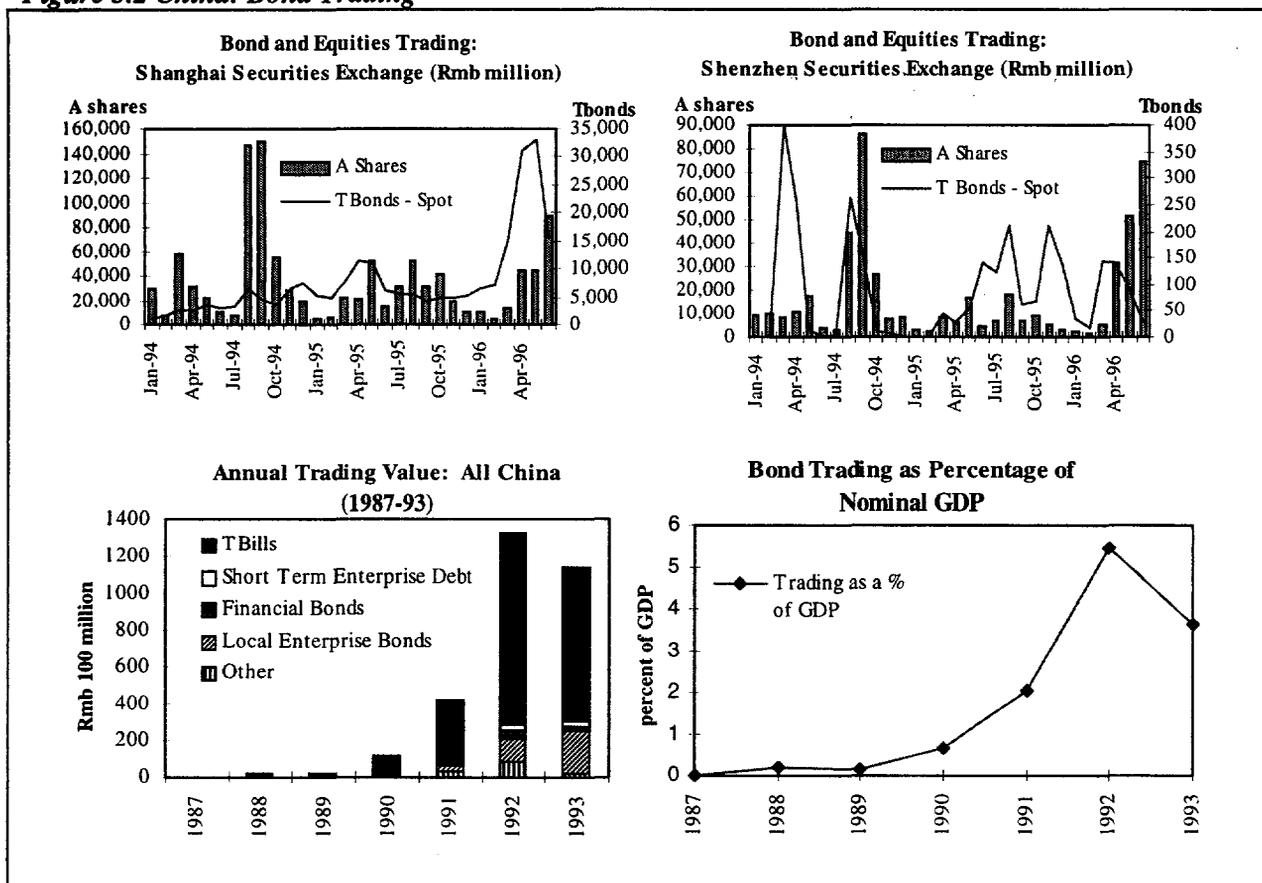
There are no unified standards for listing bond issues in China. Financial and enterprise bonds are listed according to the requirements of the local trading center. The Shanghai stock exchange undertakes to list bonds provided the issue amount is greater than Rmb 100 million, the maturity is greater than two years and the credit rating is A+ or higher. Only five enterprise bonds are listed on this exchange today.

Like bond issues, and perhaps even more so, bond trading is overwhelmingly dominated by Treasury bills. Annual treasury bill trading volume rose steeply from Rmb 105 billion in 1990 to Rmb 1050 billion in 1992. Bond trading declined in 1993, as equities trading escalated. Even today, despite the much smaller total volume of equities on issue, the market for stocks is far more liquid than the market for bonds. While the total volume of bonds on issue is approaching Rmb 500 billion, and the stock of equities on issue is closer to Rmb 100 billion, monthly trading in A shares at the Shanghai exchange varies from Rmb 20-150 billion, while monthly trade in treasury bills varies between Rmb 5 and 35 billion.

Yet, relative to more mature bond markets, the degree of liquidity is still poor. Treasury bills, relative to other debt instruments, are the most liquid security, but even for these securities, while a bid and offer price is always available, large cash trades can take time to complete. Other debt issues are much less liquid. Annual trading volume, as a percentage of GDP, which had risen to 6 percent in 1992, fell to below 4 percent in 1993, and 2.5 percent by 1994.

Many of the causes of the lack of liquidity stem from practices alluded to above in the primary market; the lack of homogeneity in the stock of debt, the focus on retail investors as the primary target market, the pricing mechanism (with reference to deposit rates rather than secondary market yields), the non-payment of regular coupons, and the lack of a regular issue calendar. These are themselves a reflection of the uneasy coexistence of such markets with controls on the financial sector (such as the credit plan, and controlled interest rates). The limited range of maturities of primary issues also inhibits liquidity. A greater variety of maturities would stimulate trading by providing investors with the opportunity to acquire assets of different maturities, *ie, change the duration of their portfolios*, as their view of future risks changed.

Figure 5.2 China: Bond Trading



Source: World Bank.

A second group of causes concerns the *supporting market infrastructure*. Normally, the *money market* plays an important role in assisting bond market liquidity through the *provision of funding for bond portfolios via either loans or repurchase agreements*. Repurchase agreements (repos) further assist liquidity by enabling investors to quickly obtain funds without having to sell their bonds. In China, the money market has not adequately helped to assist the development of bond market liquidity. Trading in repos in 1994 was estimated to have reached Rmb 153 billion, at the two exchanges of Shanghai, Shenzhen, and the OTC market at Wuhan. The bulk of this trade was conducted in the OTC market at Wuhan (Rmb 145 billion). But in the Shanghai exchange, repo trade was only Rmb 6 billion; around 15 percent of its trading volume in spot Treasury bills of Rmb 46 billion. In 1995, there was a contraction in repo trade, following the Barings incident in Singapore, which led the government to declare all repo transactions in OTC markets to be illegal (Annex Table A3.12). Although repo trade at Shanghai has meanwhile accelerated, the total for the two exchanges in 1995 amounted to only Rmb 121 billion. However bond trading had also contracted and the estimated total trade, for Treasury bills, for 1995, amounted to Rmb 77.5 billion.

There has been some revival in 1996, and by September this year, total repo trade (now confined to the exchanges of Shanghai and Shenzhen), had reached Rmb 682 billion. This year, the money market in China has also seen boosts through the establishment of the interlinked interbank money market, which began trade on April 1, 1996. There has also been a large expansion in commercial papers, although there is still no formal market for these papers. The more liquid the money market, the more certain bond owners can be that it is a *stable funding source* and the more they can rely on the short-term

yield curve as representing the cost of carrying a bond inventory. All these factors affect the attractiveness of bondholdings as forms of investment; whether corporate or government. Government policy today appears to be more geared towards the separation of money and bond markets than to developing mutually supportive and reinforcing links between them.

The Regulatory Framework

Without the presence of a sound and well supervised regulatory framework, it will be difficult for China's bond markets to deepen. The regulation of debt securities in China is less well defined and more fragmented than the regulation of equities. The State Council Securities Policy Committee and the China Securities Regulatory Commission are essentially focused on the supervision of equity markets. According to present regulations, (i) The *MOF* is in charge of the *issue of state treasury bonds*; (ii) the *PBC* is in charge of the *approval of bonds issued by financial institutions and the securities of investment funds*; (iii) The *SPC* is in charge of the inspection and approval of *state investment bonds and bonds issued by state investment companies*; (iv) the *central PBC and the SPC* are together in charge of the approval of *central enterprise (corporate) bonds*; and (v) *provincial or municipal-level offices of the PBC and SPC, in consultation with the corresponding governments*, are in charge of the approval of *regional enterprise (corporate) bonds*.

This division of responsibilities covers regulation only in the primary market, and its fragmentation reflects the great variety of government debt issued in China until 1993. The PBC is responsible for bond *trading* activities only to the extent that it approves securities trading centers. Monitoring bond trading on a daily basis, to the extent that this occurs on the two officially recognized exchanges, is within the realm of the CSRC, which is meant to supervise the activities of the exchanges. But monitoring the actual trading of bonds, especially government bonds, has been a gray area. The PBC, while responsible for the trading of government securities, has not had the capacity for regular monitoring, and has tended to control by the issue of ad hoc regulations as problems are manifest. Even at the official exchanges, the CSRC has hesitated to intervene, as this could be regarded as an encroachment on the PBC. As a consequence bond trading has been relatively unsupervised, and the incidents of 1995 concerning bond futures trading demonstrate the potential hazards of the situation.

Two major issues concerning the regulation of China's bond markets are raised here. The first concerns the extensive role of the government in the operation of the markets. First of all, access to the bond market in China is restricted in several ways. The State Council, through the SPC, regulates the volume of securities issued and their terms, by setting annual limits on the amount of bond (and share) issues, and the maximum interest that can be paid on corporate bonds (see Company Law above). Second, access to overseas issues or listings of bonds by individual enterprises is also defacto restricted, to one of the approved banks or major TICs. Third, the local government of the province in which a company is located must approve companies for public offering of bonds (or equities), and additionally, local SPC approval is also required for bond issues.

A second key area of concern in the regulatory structure for bond markets in China today is the fragmentation of oversight, both functionally, for different segments of the securities markets, (and for different parts of the market for each security, i.e., primary and secondary markets), and regionally, between central and regional authorities. The CSRC and SCSC are the principal central authorities. The PBC's role in securities regulation is largely effected through its branch offices. Additionally, the MOF has begun to assume a role in this area, and regional governments have powerful bodies of securities legislation. The PBC remains responsible for all bond trading activities, including financial futures on T-Bills, and the supervision of mutual funds. Unlike the CSRC, the PBC has a regional presence, through

its branch offices. In the future, efficient supervision of China's bond markets will require a clarification and consolidation of these functions.

DEMAND FOR INFRASTRUCTURE BOND ISSUES: THE INVESTOR BASE

As discussed in Chapter 3, enabling bond issues, or other capital market instruments, to be used for the financing of the real sectors of the economy, such as large infrastructure projects, requires investors, typically institutional investors such as pension funds or insurance companies, who are willing to buy these securities. The absence of professional investors in China is notable even relative to other emerging market economies. China's contractual savings today amount to only three percent of GDP. This is an apparent anomaly in a country with a record high savings rate: 44 percent of GDP. Yet contractual savings as a proportion of GDP in China are much lower than other developing East Asian countries, such as Korea (18 percent), Malaysia (48 percent) or Singapore (78 percent). A primary reason is that under the system of central planning, the state assumed the functions of providing pensions, housing and social security primarily through state enterprises. Services such as domestic insurance were not permitted. With the transition towards a market economy, China today has to face the problem of how to build up such institutions.

Box 5.1 The Regulation of Corporate Bonds under the Companies Law

China passed a Companies Law in December 1993, which came into effect on July 1, 1994. In the absence of a national securities law, the Companies Law has some provisions which would usually be found in a securities law. Many of these provisions are valuable and offer investor protection in the absence of a securities law. But some others may be considered unduly restrictive.

The companies law requires that all bond issues must be approved by the Securities Administration Department of the State Council which will grant or withhold approval within limits prescribed by the State Council. *All bonds must be listed* to facilitate transfer by, and among, existing and new bondholders. However, *where* the bonds are to be listed is not clear. Bonds may be bearer or registered bonds. Bond issues must be preceded by an Information Memorandum, and the Company Law sets out provisions relating to its contents, and also relating to approval documents which must be delivered to the Securities Administration Department; and the form and contents of the bond certificates themselves. The issuer is also obliged to maintain a Register of Bondholders. Bonds may be issued by shareholding companies with at least two shareholders which are state-owned entities or by wholly state owned companies.

The Companies Law also provides that a company may only issue bonds if: it satisfies conditions on (i) *minimum net asset value*; (ii) *a maximum ratio of bonds issued to net assets*; (iii) *the ratio of distributable profits to interest payments*; (iv) *the use of funds raised, which must be invested in industries which comply with the policies of the state, and may not be used to cover losses or non-productive expenditures*; (v) *the interest rate, which may not exceed the limit set by the State Council*; and (vi) *any other conditions which may be imposed by the State Council*. A company will not be permitted to issue bonds if: (vii) on the last occasion when it issued bonds, the company failed to raise the full amount required, or (viii) the company has defaulted in payment of principal or interest on bonds already issued. The State Council is also empowered to set limits on the scale of all company bond issues and the CSRC may only approve bond issues within this overall limit. A company can also issue convertible notes if it satisfies the conditions applicable to both a bond issue and a public share issue. The Company Law does not envisage companies issuing unlisted securities such as short-term floating rate notes issued to a syndicate of banks. Some of these provisions are unusual (eg, (iv), (v) and (vi), and also the provision that the state council is empowered to set limits on the scale of company bond issues. They reflect the coexistence of central planning and the emerging market economy.

Source: The World Bank.

Insurance Funds

The insurance industry is growing rapidly but is dominated by a single large state-owned company, which holds around 90 percent of the market. It is still structurally biased towards non-life insurance, which provides relatively shorter-term funds for investment, compared to life insurance. While both the life and non-life business appear relatively well managed, the restrictions on investment, lack of profitable financial investment opportunities, in the face of the relatively high inflation rate, lower the real financial performance of PICC.

China's new insurance law of 1995 is a good start in implementing an internationally acceptable standard of insurance regulation, with management accountability, a strong focus on contract law, emphasizing a balance in protecting the rights of the insured and the insurer, and a strong emphasis on defining the role of the regulator. But in terms of encouraging the development of long-term contractual savings and active institutional investors, who could provide a market for infrastructure bonds, the law is disappointingly cautious. The investment of funds is limited to bank deposits, government bonds, and other forms of fund application specified by the State Council. Investment in enterprises (presumably including the holding of equity shares or corporate bonds) is explicitly precluded. While this caution is prompted by the regulator's responsibility for safeguarding long-term savings, it also eliminates potential support to the offtake of infrastructure bonds. Permitting investment up to certain thresholds, even if low, or subject to certain minimum ratings, would have been preferable.

The new law vests considerable authority in the supervisory body and its capacities. For example, until its passage, insurance premiums were subject to a controlled tariff but with a wide range of variation of 30 percent above or below the approved premiums. The new law states that all basic insurance premium rates shall be formulated by the supervisory body while other rates shall be filed with the supervisory body. This may reduce the discretion permitted to insurance companies to determine premia.

Pension Funds

Chinese pension funds are even less developed than the insurance sector. A major reason why pension funds have grown so slowly in China is the prevalence of unfunded pension schemes. Second, the population coverage of the current schemes is very small and excludes the large rural population of China. With the urban population representing 30 percent of the total population and a coverage ratio of urban workers of about 60 percent, the overall coverage of the pension system is probably only about 18 percent of the economically active population. But the system also has three mitigating factors that enhance the potential for reform: the current *low level of pension spending* (which makes pension reform and the transition to a new system easier and less costly); the high rate of *economic growth*; and the very high rate of household *saving*.

The enterprise-based character of China's pension system has often been held to be a factor responsible for its inadequacy. But this feature is far from unique to China and is found in many high and low income countries. Enterprise or company-based schemes suffer from portability, vesting, funding and labor mobility problems in all countries. What is unique to China and its current pension problems is a combination of three additional features: the absence of a social safety net or public pillar covering all workers; the complete reliance on 'pay-as-you-go' rather than even partially funded pension financing systems; and the economic problems of many state-owned enterprises.

Annual contributions are low, amounting to only Rmb 50 billion, or around 1.5 percent of GDP. In Eastern Europe, pensions correspond to 10 percent or more of GDP. Annual pension expenditures are around Rmb 45 billion, leaving a very small investible surplus per year, of only Rmb 5 billion. By 1993, the total accumulated capital amounted to Rmb 27 billion, of which Rmb 7 billion was invested in specially issued non-marketable treasury bonds and the rest mostly in bank deposits. The rate of return has been well below the rate of inflation in recent years and has eroded the real value of accumulated balances.

Mutual Funds

China's mutual funds grew rapidly in number and size over the period 1990 to 1993, gaining attention as domestic investors began to realize their potential as instruments for investment. But the government's attitude towards the development of the mutual fund industry has been one of extreme caution, possibly due to a fear of diversion of deposits out of the banking system. Since 1993, the PBC has not formally approved the establishment of new domestic mutual funds (see Annex 1 for details).

Most domestic funds (90 percent) are trust funds, with the principles of establishment and operation stipulated in the trust contract. Fund managers tend to be amongst the more experienced people in the financial services industry. Some domestic funds achieved much better results than the stock market during the two year period. The fund issue market is stable and the launching cost is low compared to issues on the stock market. Information disclosed about funds tends to be reasonable compared to that disclosed by individual companies. On the Shenzhen and Shanghai exchanges, the share price of most funds is higher than their net asset value.

Mutual funds could constitute a potential source of investment in domestic securities issues infrastructure. The two main difficulties regarding their contribution today are (i) the government's restriction on their growth, imposed since 1993, and (ii) the absence of any official national level legislation or regulation on domestically established investment funds. This makes it difficult for funds to form an investment policy, and also limits investor confidence in the funds. The only national regulation is one concerning foreign joint venture funds, issued in 1995. Local laws have been developed, but they are not uniform and are sometimes inadequate. Underlying contractual issues also require clarification.

In the absence of national legislation, some local PBC branches, notably at Shenzhen and Shanghai, have issued regulations to cover mutual funds operating in their areas. The stock exchanges of Shanghai and Shenzhen can also issue regulations, and the informal stock trading centers throughout China such as Shenyang, Dalian, Tianjin and Hainan have also done so. These local regulations (both those issued by the exchanges and by local branches of the PBC) differ, as expected, and terms and definitions can also be different for each jurisdiction. A national regulatory standard for all aspects of fund management is urgently required.

Bondholdings by Institutional Investors

The authorities in China have recently begun to encourage institutions to hold treasury bills. In both 1995 and 1996, the Ministry of Finance earmarked special issues of Treasury bonds for insurance companies, and financial institutions such as pension funds and mutual funds. However, these issues have not all been tradable. Such bondholding does not encourage the institutional investors to become active managers of investible resources. Moreover, as pointed out above, major segments of the contractual savings industry are not permitted to hold non-Treasury bonds. This may be interpreted as another instance of the 'crowding out' of non-Government borrowing by the Government, that has occurred in recent years.

AN AGENDA FOR ACTION

Based on the foregoing analysis, what can be suggested, in terms of an action plan to stimulate the support for financing China's infrastructure projects through the domestic securities markets? An agenda is suggested below. The agenda points out certain measures that can immediately be taken to jump-start the channeling of funds into these much needed sectors, but it also points to the more basic features of not only the bond market, but other areas of the financial system, and economic regulation,

which will need attention if the sustained development of a deep and healthy domestic capital market for infrastructure is to develop.

Immediate and Short-term Action

- *Allow more enterprise/corporate bond issues*; reverse the trend from 1993 of restricting their issue. Gradually expand and eventually eliminate quotas for enterprise/corporate bond issues. Initially the expansion permitted could be targeted at very broadly defined priority sectors, such as infrastructure development.
- *So long as any quotas remain, allow them to be global and national*, rather than regional. Permit the choice of issuing enterprise to be market determined (e.g., through ratings, and adequate underwritings) rather than by local governments.
- *Require mandatory ratings* of corporate bond issuers, to avoid the large scale issue of bonds which companies are later unable to redeem. Ensure that all rating agencies are accredited and reliable. Permit overseas rating agencies to assign ratings, if necessary, at least initially.
- *Ensure stricter corporate governance*, and a clearer separation of the state and the issuing enterprise. If all issuers are perceived to be issuers of riskless government risk due to the state's ownership of enterprises, the pricing of risk will not be possible. A first step would be corporatization with the establishment of clear and effective governance mechanisms in the issuer enterprises.
- *Remove restrictions on the interest rates that corporate issuers can offer*. The market's pricing of risk should be reflected in interest rate differentials. Thus the government's concerns that high rates offered on corporate bonds will deflect demand from Treasuries, or lead to deposit flight, should not be a problem if the high-interest bonds are also given a very low 'junk bond' rating, which reflects their riskiness.
- *For issuers of infrastructure bonds, consider government (central or local) supported credit enhancements*, such as guarantees. At least revenue linkages should be permitted, even if general guarantees by local/provincial governments are prohibited.
- *Remove restrictions on the investments that are permitted to institutional investors*, such as insurance companies. To protect the insured, the present blanket restrictions can be substituted by restrictions on the maximum percentage of investible funds that can be invested in such securities, or, by restrictions on minimum ratings for the securities invested in infrastructure.
- *Remove restrictions on the tradability of bonds issued to contractual savings institutions*

Medium-term Measures for Encouraging Institutional Investment

- *Clarify the regulatory framework for bond issuing and trading*, especially the overlap (and occasional gaps) between the various regulatory agencies involved. It is unusual to require a central bank to oversee corporate bond issues, particularly when the oversight of their trading is governed by an independent regulator. The consequence is that any form of regulation is loose.
- *Establish a regulatory framework for mutual funds, and remove the present restriction against setting up new funds*. These are potential investors in China's infrastructure securities.
- *Adopt measures to deepen and strengthen the government bond market*, which will increase overall bond market liquidity and help establish benchmarks for pricing. These measures include more frequent (eventually bi-weekly) bond issues, tailored to the government's cash flow requirements, more homogeneity in issues, full tradability of all issues, scrippless issues

with book entry trading, using a centralized depository to encourage the emergence of a unified national market.

- *Encourage government bond issues of a greater variety of maturities.* More paper at the short end of the market would encourage liquidity management, and encourage institutions to hold bond portfolios. More issues at the long end would eventually support the development of a market in long maturity infrastructure bonds, by establishing a yield curve at that end of the spectrum.
- *Strengthen the money market.* This will enable financial institutions to find the liquidity to finance the holding of their bond portfolios.
- *Initiate reform of the pension system,* which would also encourage the accumulation of funds for investment.
- *Launch a publicity program,* to educate the public to become discriminating investors, in parallel to strengthened corporate financial disclosure.

Fundamental Systemic Reforms

The final set of measures suggested are not necessarily long term, but they are fundamental and likely to be difficult to implement. Yet, unless they are eventually tackled, it will be difficult to lay strong foundations for the development of a sound system for infrastructure finance, or a sound financial system in general. These fundamental areas are:

- *Interest rate controls.* As long as the government continues to control interest rates, it is difficult for the market to price risk, and difficult for bond issues to reflect the real riskiness of the projects they represent. In the medium term, continued controls on interest rates distort capital market pricing. While wholesale liberalization is difficult all at once, and likely to be chaotic, gradual liberalization could begin for example by freeing up short-term interest rates, freeing up lending rates, and broadbanding various categories of interest rates.
- *The Credit Plan.* As long as the credit plan remains, the issue of 'credit quotas' for securities issues will remain. Selective relaxation is at best a temporary solution. Eventually as the government is better able to control monetary aggregates through alternative mechanisms aimed at base money supply control, the credit plan should be eased out.
- *State Enterprise Governance Mechanisms.* Finally, as long as state enterprises are not subject to binding budget constraints, investors will perceive them to be riskless. Ad hoc bailouts imply that the pricing of any bonds they issue will distort investors' perception of risk, and prevent this market from helping to allocate resources efficiently.

All these measures must be tackled with some degree of simultaneity if China's domestic bond markets are eventually to take root and serve to support its growing investment requirements

Suggested New Bond Issuers: An Illustration

Who would issue bonds to raise funds for new hydropower investments? Overseas experience suggests that government owned utilities are the traditional issuers of bonds. However, in China the situation is not so clear cut, since there are different entities engaged in investment in the power sector at the provincial level, and because of the transitional nature of power sector reform, not all of these are well placed to raise funds from the capital markets at the present time. This concluding section suggests ways in which bonds could be issued, in a practical pilot infrastructure project.

Provincial Power Investment Companies. Given the current status of accounting reform, these companies are the best placed to obtain credit ratings which should be the first requirement for issuing

bonds. This is because they are relatively new and their accounts are reasonably clean since the ownership of their assets is clearly defined. Moreover, they have assured sources of income, since the principles of setting and adjusting tariffs are defined in the 'new power/ new price' regulations. These companies could issue bonds based on the collateral provided by the income generated by their existing power plants (and those under construction) after allowing for debt servicing (interest plus repayments). Since most of the investments made by these companies are derived from power development fund surcharges, they generally have substantial capacity to take on new debt.

Securitizing Existing Hydropower Assets. Existing hydropower assets in the basin could be transferred to a new company which would then use these assets and the projected income stream from them as collateral to back the issue of bonds. Both joint investment and state-owned hydro-plants could be securitized provided their ownership is reasonably well defined, and can be translated into shares in the new company. In forming a new company, the transferred assets would be revalued and a new power sales agreement would be defined. Funds raised by issuing bonds based on the future income stream from the existing hydropower plants could be transferred to the owners of the company as capital payments or used to retire existing debt owed to the State Development Bank. The capital transfers to the equity investors would then be available to provide equity investment in new hydro power plants, and under the central government policies on cascade development of river basins, the retired debt could be used by SDB to make loans to the same new hydro plants.

Direct Issue of Bonds by Provincial Power Companies. This option is less attractive at present because of the uncertainties in the revenue streams since tariff policy is not yet fully defined. Furthermore, pending full definition of assets, and full implementation of accounting reforms, it is difficult for these companies to provide financial statements which conform to international accounting standards. However, as these companies become corporatized and when tariff principles under the Electricity Law are elaborated under the implementing regulations, then these companies could also issue bonds to finance new investments.

Bond Issue by Project Company. Many new thermal power plants are developed by project companies which raise funds in their own right. This is referred to as project financing. However, the requirements for issuing debt are considerably more onerous than 'balance sheet' financing which is used in the previous examples. Contracts for construction and operation have to be finalized before the debt funds are sought. This is difficult for large hydropower projects. It is particularly difficult to get an acceptable lump sum price for construction of the power plant, because of many construction risks which could affect cost and completion schedules. These include risks associated with geology, hydrology, rapidly changing prices of local inputs, poorly defined resettlement requirements in an environment of rapidly changing living standards, etc. Therefore if debt issue by the project company were to be envisaged, it should preferably occur towards the end of construction, when construction cost and time and power market uncertainties have been reduced to a minimum. The scope for the new company taking on additional debt may be limited since it may already be quite highly leveraged with foreign debt and SDB debt. Ideally, any issue should be delayed until project construction is virtually complete when proceeds of the issue could be used to retire SDB debt and fund construction of later projects in the basin.

ANNEXES

ANNEX 1. MUTUAL FUNDS IN CHINA

Mutual funds were formally established in China from 1991. From two funds with total assets of Rmb 90 million in 1991, funds grew rapidly in number and size, to 73 funds with total assets of Rmb 6 billion at the end of 1993. Thus money held in funds is small in comparison to the several hundred billion Rmb in securities and the Rmb 3 trillion or so individual deposits. Fund management organizations have developed rapidly, despite the lack of basic laws or rules, for example for fund establishment, transfer of units or the management of the assets of the fund.

The first Chinese mutual fund, the Wuhan Securities Investment Fund, was established in October 1991 in Wuhan Municipality with a capital of Rmb 10 million. The first corporate closed end mutual fund, the Shandong Zibo Town and Township Enterprise Investment Fund was approved by the PBC on 3 November 1992. This fund was the first fund listed on the Shanghai Stock Exchange and trading commenced on August 1993. The largest fund launched has been Tian Zhee in Shenzhen, an Rmb 581 million fund established on 5 February 1993 comprising of investment in securities (58 percent), projects (22 percent), bank deposits (16 percent), property (3 percent) and others (1 percent). The size of the smallest fund launched has been Rmb 10 million. Fifty five of the 73 mutual funds which existed at end 1993 were listed on the stock exchanges and five of those funds were traded on the two markets concurrently (this must have been an informal arrangement as dual listing is not permitted). Most of the funds launched have investment policies involving a combination of investment in securities and real estate.

With the 'overheating' of the economy in 1993, the PBC grew concerned about the rapid development of mutual funds and on 19 May 1993 issued an *Emergency Notice* announcing the immediate cessation of the issuing of non-PBC approved mutual funds. Since the *Emergency Notice*, no new domestic investment funds have been approved. Although the establishment of new funds has been restricted, the secondary market for established funds has grown on both stock exchanges and in stock trading centers.

Looking at informal trading centers, as of 1995, there were reported to be 12 funds listed on the Southern Securities Exchange Center (Guangzhou), eleven in Wuhan, nine in Tianjin, eight in both Shenzhen and Shenyang respectively, seven in Dalian and four in Hainan. Funds which are not listed on the formal exchanges at Shanghai and Shenzhen are nevertheless sometimes traded there. For example, the Shenyang stock trading center has an electronic link to the Shanghai stock exchange and six or more funds which have been approved by the Shenyang PBC but not by the head office of PBC. These do not meet the Shanghai listing criteria, but are traded on its exchange. A similar situation occurs in the Shenzhen exchange where non listed funds from the Guangzhou stock trading center are traded.

In addition to purely domestic mutual funds, foreign-related mutual funds with both Chinese and non-Chinese sponsors are also developing. In 1993, the Shanghai Pacific Technology Investment Fund was launched by nine Chinese financial institutions and a US-based fund management company in Shanghai. This was the first Sino-foreign joint venture China fund set up in the PRC. The fund focuses on investment in technological projects in Shanghai. After

this fund was launched, other foreign-related funds raised substantial amounts of money: the CMEC China Industrial Fund has raised US\$50 million and Norinco has raised US\$185 million. The Guangdong Development Fund, China Torch High Tech, GITIC & Goldman Sachs Fund were all also launched in 1993. At the end of 1994, China Capital of Singapore was able to raise and manage up to US\$1 billion in finance for infrastructure projects in northeastern China. International fund managers have launched over 50 China related funds for foreign investment since 1990. These China related funds operate outside China and are of two types: (a) funds invested in listed shares (B Shares, H Shares or N Shares) and (b) funds directly invested in China. As at April 1995, 20 of the funds were operated by members of the Hong Kong Investment Funds Association. In addition, many mutual funds for direct investment in China with non Chinese sponsors developed around late 1993, for example, CAAC, China Renaissance, Innovative International, ING Beijing, HSBC China Investment Fund, Enterprise Fund, Zhonghua Investment, New China Hong Kong Infrastructure, China Walden, China Canton, Richinia China Capital, Carr Indosuez Telecommunication and Citicorp Capital Asia.

These investment funds have mixed investment policies, usually a combination of direct investment and indirect portfolio investment, with direct investment predominating at present. (Approximately 40 percent of investments are estimated to be in securities market, with the balance in property and other forms of direct investment). Most funds have diversified their investment to minimize risk, investing in securities, treasury bills, treasury bill futures, corporate bonds, real estate and industry. Investors in the Chinese funds are, for the most part, individuals, unlike most mature securities markets where mutual and pension funds constitute a major source of long-term investment capital in form of securities investment. The number of unit-holders is relatively large as an individual holding is by government policy restricted to a maximum of 1,000 Rmb. Many domestic funds have a bank acting as custodian for the fund's units and making dividend payments. Dividend yields have usually been high compared to deposit rates. It is not known whether any of the funds have a custodian separate from the fund management company itself, responsible for the fund's investment holdings. All funds in China are currently closed end (although there is no regulatory bar to open ended funds).

ANNEX 2. ROYALTY ARRANGEMENTS IN HYDRO-ELECTRIC POWER PROJECTS

INTRODUCTION

In many cases those infrastructure projects, such as roads or hydro-electric projects, which have long construction periods and high domestic construction costs, also face legal or jurisdictional complexities, due to the multiple jurisdictions over which their effects are felt. In addition to exploring the aspects of raising domestic financing for such projects, this study also investigated possible solutions to some of the legal difficulties that have to be resolved before such projects can be initiated. The present annex focuses on one set of such difficulties, the issue of water sharing agreements which confronts hydro-electric projects. Principles applied over time in various parts of the world to arrive at water sharing agreements are discussed, and payment arrangements by resource users to resource owners in specific projects are detailed, as examples for new projects that could emerge in countries such as China.

The sharing of rights to common water resources between neighboring states or entities is a complex and sensitive issue. There are over 200 internationally shared river basins in the world, most of which are shared by only two countries. However, a handful of rivers, including the Danube and the Nile are common to nine or more countries. In many cases, these relationships are governed by a network of bilateral or multilateral treaties for the sharing of water rights between the states, including provisions for navigation, diversion of waters for flood control, irrigation and hydro-electric generation. However, many of these agreements are incomplete, in that they do not always represent all parties whose interests are affected by the exploitation of these resources.

Similar issues for the shared use of water resources apply in the intra-national context. The actions of one state or province may affect the quantity or quality of water to upstream or downstream users in another state within the country, either for good or ill. In the United States, the allocation of water rights is the subject of interstate compacts, approved by Congress. Some of the most important aspects of water sharing agreements involve provisions for the development of projects affecting flood-management, irrigation, or the exploitation of the hydro-electric potential of shared rivers and the equitable apportionment of benefits from these projects. The present section describes legal theories governing the use of shared water resources. The following sections survey international and national laws and agreements adopted in specific projects, which reveal a variety of innovative arrangements to allocate benefits between parties, whether through cost-sharing, compensation, or royalty arrangements.

Legal Aspects Of Water Rights

Legal thought on the sharing and exploitation of shared water resources and the rights of upstream and downstream riparians has evolved to reflect the reality of the trans-jurisdictional nature of natural resources. Recent thinking on water resource management stresses the environmental and hydrological features of water resources and the responsibilities of users toward these common resources rather than the traditional political divisions along which riparian rights have historically been drawn.

The Principle of Absolute Territorial Sovereignty. Among the legal principles on the degree of sovereignty exercised by a state over the use of river resources, the *Harmon Doctrine* was probably the earliest formulation. It states that countries should exercise absolute sovereignty over the use of rivers and other natural resources located within their territory, no matter what the effects of the resource use on neighboring countries. This principle is referred to as the Harmon Doctrine after the United States Attorney General who applied the idea to a dispute between the United States and Mexico in 1895 over the polluting of the Rio Grande River. This doctrine rejects any claim of international law upon the actions of a government with regard to natural resources, casting the matter rather as a political one to be decided between the nations. This legal stance, however, has fallen into disfavor and is viewed as an inadequate doctrine for reconciling opposing interests with regard to shared natural resources.

The Principle of Prior Appropriation. While conceptually distinct from the Harmon Doctrine, this similarly restrictive principle maintains the priority of the rights of the state that puts the water to use first, thereby protecting those uses which existed prior in time. This principle takes no account, however, of the effects on other users and may lead to inequities between states which differ in their degree of economic or technical advancement and ability to develop resource use. Further, in rewarding those who first put water to use, the doctrine does not take into account either thorough planning or environmental uses of the river. Consequently, although the doctrine is the legal basis for the allocation of water resources in the western United States, it has received little international support.

The Principle of Absolute Territorial Integrity. In direct contrast to the Harmon doctrine, this principle holds that downstream users have an absolute right to an uninterrupted flow of the river from the upstream territory and thus prohibits any development that would adversely affect the lower riparian. This view, however, places an unfair burden on upstream users and has received little international support.

The Principles of Restricted Territorial Sovereignty and Restricted Territorial Integrity. This principle provides for a mechanism which could bring about a balance between the extremes discussed above. It states that all states are free to use territorial water, provided that this use does not prejudice the rights and uses of other riparian states. This doctrine grows out of the customary international law principle of *sic utere tuo ut alienum non laedas* which limits a state's actions to the extent that such actions injure another state. Whether a river use is lawful under these principles is decided by determining the degree of harm caused to the other state and balancing this against the equitable reasons in favor of that use. Because of its ability to balance interests among states, this doctrine has been widely favored in attempts to codify international water law, through both the Helsinki Rules and the Draft Articles.

The Principle of "Community of Interests." This principle treats the entire river as a single hydrological unit that should be managed as an integrated whole such that no state may affect the resource without the cooperation and permission of its neighbors. While this concept of managing a resource based upon its hydrological features as opposed to its political boundaries could have positive environmental benefits, such cooperation among states has, in practice, been difficult to achieve.

Parties to an Agreement

Development of hydro-electric projects requires that the concerns of all affected parties be identified and addressed. In this context, the rights of owners and users of water resources must be taken into account to achieve an equitable balance of interests. A partial list of the various parties likely to be

affected by the development of such projects and the gains and losses which are likely to accrue to them are outlined below.

Resource Owners. While the ownership of water resources is reasonably defined by national and international laws, hydro-electric resources are not necessarily congruent to water resources. Hydro-electric power generation requires a non-consumptive use of water flowing through an entity's territory, but it also requires the concentration of the slope of a stretch of the river into a 'head' which is used to drive hydro-electric turbines. It could therefore be argued that the owner or owners of the stretch of river over which head is concentrated are part owners of the resource. This would therefore bring in upstream riparians if the reservoir extends into their territory, or downstream riparians if the power conduit traverses their territory or if the powerhouse is located within it. In this context it should be remembered that riparians are not only states and provinces, but also land owners. The concept that people affected by a development should share in its profits is gaining acceptance worldwide.

It is generally accepted that a resource owner should derive compensation for the use of the resource and from this derives the concept of 'royalty'. However, there is no universally recognized method for deriving royalties. Some determinations (for example, the Lesotho Highlands and Columbia River agreements, discussed below) recognize the concept of an economic 'rent,' the difference between the cost of producing a good from the resource in question, and the cost of obtaining that good from other sources. These agreements then provide for a more or less equal sharing of the rent between resource owner and end user. Thus the royalty, expressed as a proportion of revenue or net income, is dependent on the economic viability of the resource.

Upstream Riparians. Whether or not it is accepted that upstream riparians are part owners of the resource, they are certainly affected by its development, if the reservoir extends into their territory. Agreement must therefore be reached with them before the development can proceed. Losses derive from loss of the use of productive land, unmitigated environment impacts, and from loss of assets and disruption from relocation of the population living within the reservoir. However, it should be noted that if environmental and resettlement programs in the reservoir are handled well, these aspects can be transformed into net gains. Development based resettlement programs can leave the resettled populace better off with improved housing and community facilities and increased income. Others in the area will also benefit from flow on effects from expenditure in resettlement and other programs in the catchment. These programs can significantly add to the overall level of economic activity in contiguous areas. Agreements should recognize and provide compensation for losses, but also recognize positive benefits accruing.

Downstream Riparians. Downstream riparians could be affected positively or negatively. Hydro-electric power generation is a non-consumptive use of water, so there is only a small usage of water related to increased evaporation. However, for storage projects the flow distribution will be changed. Dry season flows will increase and flood flows will reduce causing positive impacts with respect to increased flows available for irrigation, reduction in flood damage, and increase in energy production and firmness of this energy from downstream hydro-electric power plants. The value of all of these benefits can be increased by varying the operation of the hydro-electric power plant, but generally at the cost of reduced power benefits. It is therefore important to explicitly recognize downstream benefits in any agreement between parties as was done in the case of the Columbia River treaty. However, it should also be mentioned that there can be some disbenefits to downstream riparians, such as reduced flows while the reservoir is filling, and unmitigated environmental impacts such as reduced fish catches.

Taxation Beneficiaries. This is an important source of income from power generation. If a share of tax (income or sales) goes to local governments, then this benefit should be explicitly considered when

agreements are negotiated. Conversely, the government where the power purchaser is located could lose this revenue.

Water Rights—Compensation and Royalties

A survey of hydropower projects in developing countries shows that payment of royalty for water usage in hydropower projects is quite common and that similar principles for royalty arrangements or compensation for water use in power generation apply whether the river system is 'international' or 'intra-national.' A capsule summary of these projects is provided below and are classified by geographical regions.

EXAMPLES OF WATER SHARING AGREEMENTS: AFRICA

Lesotho-South Africa: Royalty Payment for Savings Realized from Cross-Border Project

On October 24, 1986, the governments of Lesotho and South Africa signed the Treaty on the Lesotho Highlands Water Project. The project was designed to export water from Lesotho to South Africa and included the construction of dams, tunnels and a 72 MW hydropower power plant. The entire cost of the water transfer component, including construction, operation and maintenance, were to be borne by South Africa. The project also provided an opportunity for Lesotho to increase its local power production and thus reduce its dependence on power from ESKOM, the South African utility.

In addition to the cost-related payments, South Africa also agreed to make payments to Lesotho in the form of a royalty on water transferred. The amount of the royalty was based on 56 percent of the savings realized by undertaking the Lesotho Highlands project, rather than a less advantageous project in the Orange Vaal which would have cost twice as much. The royalty payments were estimated to grow with the water deliveries from M 66.5 million (US\$25.7 million in 1990 prices) in 1997 to M 202 million (US\$80.0 million) per year between 2021 and 2044. The royalties comprise three parts: a fixed monthly payment reflecting savings in investment costs (over the Orange Vaal project); a cubic meter payment based on savings in electricity use attributable to pumping operations; and a cubic meter payment based on other savings.

The method for calculating the royalty was based on a comparison of two hypothetical models for the two projects. The savings derived from completing the Lesotho Highlands project were thus computed *before* construction actually began. The royalty payments are also indexed for inflation.

This arrangement was a tremendous boon to Lesotho—the exploitation of its water resources has been compared to the country finding oil—and the royalty represented a net benefit to Lesotho, as all the cost of exporting the water was borne in full by South Africa. South Africa also profited, however, by implementing this project over the sub-optimal alternative.

Most of the revenues received from the project, including royalties, were paid into a state-controlled 'development fund' to be used for development oriented programs, as a reserve for financing government shortfalls in revenue, and to achieve a steady stream of investment income for the government of Lesotho through investments in Lesotho and abroad. The government of Lesotho sought financing for the hydropower component of the project from the World Bank and other donor agencies, but no provision seems to have been made for using the royalty payments to finance construction of the hydro-electric plant.

EXAMPLES OF WATER SHARING IN THE AMERICAS: NORTH AND SOUTH

United States and Canada: Compensation for Downstream Benefits

In 1961, a treaty relating to the cooperative development of the Columbia River was concluded between the US and Canada. The agreement provided for the construction of storage dams on the Canadian side to improve the flow of the river. Prior to this agreement, the United States had been threatened by flood damage from the unregulated Columbia River. In 1948, a flood killed 50 people and caused over \$100 million in damages. In addition, damming the river upstream would allow for more efficient hydro-electric power production at downstream facilities. By controlling the river and evening out the water flows, the US could increase its power production at existing generating facilities. The optimal sites for building the storage dams to achieve these benefits lay upstream on the Canadian part of the river. In addition, the development of these sites held potential for the eventual production of hydro-electric power in Canada as well.

The proposed projects for developing the Columbia's resources were put forward by an International Joint Commission (IJC) between the two countries, whose proposals formed the basis for the negotiation of the Columbia River Treaty. The treaty called for the construction of three dams in British Columbia to provide 15,500,000 acre-feet of storage to improve the flow of the river. The US agreed to maintain its existing hydropower facilities downstream so as to take maximum advantage of the improved stream flow. For the downstream benefits accruing to the US, the treaty specified a "return to Canada for hydro-electric operation and [the] compensation to Canada for flood control operation."

The compensation paid by the United States to Canada was in two parts: (i) monetary payment for flood control, and (ii) hydro-electric energy amounting to one-half of the downstream power benefits resulting from the water storage and improved water flow.

Payment for Flood Control. The United States was entitled to submit flood control plans and associated criteria for each of the dams to be built by the Canadians. Canada agreed to conform to these specifications in the construction of the three storage facilities. In return, the US was to pay to the government of Canada upon the commencement of operations of the dams, \$1,200,000, \$52,100,000, and \$11,100,000 respectively, in US dollars. The treaty also set out reductions in these payments in the event that the facilities were not put into operation according to the agreed schedule. Additional compensation was arranged for flood control provided by Canada for the first 60 years of the treaty upon a call by the US for water management during flood periods. This included a fixed monetary compensation as well as restitution in the form of electric power for hydro-electric capacity foregone by Canada as a result of its operations to meet the US need for flood control. After 60 years, compensation was to be made for the operating expenses incurred by Canada for the flood control and compensation for economic loss arising from Canada's foregoing alternative uses of the storage capacity, a portion of which could be paid in electric power upon Canada's request.

Payment for Downstream Power Benefits. The downstream power benefits arising from the construction of the storage facilities on the Canadian side are defined as "the difference in the hydro-electric power capable of being generated in the United States of America with and without the use of Canadian storage." Under the treaty, Canada was entitled to one-half of these benefits, to be paid in kind. The level of the benefits were to be determined in advance, prior to the Canadian storage facilities becoming operative.

The initial arrangement specified that Canada would operate the storage facilities in such a way as to produce optimum power generation downstream in the United States. However, as generation capacity came on-line at-site in Canada, the water management was to be altered in order to achieve optimal conditions for generation in both Canada and the US, subject to restrictions on the overall reduction of downstream benefits to the US

By agreement between the two countries, the facilities could be operated for maximum advantage in generation either in the US or Canada alone, in which case, compensation was to be made in electric power to offset the loss in the other's generating capacity.

The theoretical underpinning of the Columbia River Treaty is an innovative attempt to apportion benefits from cooperative development through a detailed compensation scheme aimed at optimizing development of the shared waterway as a whole. However, it is interesting to note that, under the formula for compensation of downstream power benefits, the United States agrees to pay for the increase in generation due to improved water flow computed by comparing generation capacity *with* the Canadian storage facilities and *without*. This is not necessarily the obvious solution. Another method would have been to compare the advantages of *joint action* versus *unilateral action* by the United States, and to make payment for the net benefit derived from the joint development over the unilateral. For this reason, it has been argued by some,¹ that the Columbia River Treaty in fact left the US worse off than it would have been had it undertaken a unilateral course of action. However, the treaty should be viewed against the background of the broader national interests of the two countries and their overall relationship, rather than as an isolated event.

United States and Mexico: Cost-Sharing for Works Procuring Downstream Benefits

The Governments of the United States and Mexico signed an agreement regulating the shared usage of their common waterways in 1944. The treaty empowered an International Boundary and Water Commission, consisting of an American and a Mexican section, to make provisions for the joint use of international waters. The treaty allocated water rights between the two countries in respect of the Rio Grande and the Colorado and Tijuana Rivers. The treaty also calls for the joint development of dams for conservation and hydro-electric generation. The agreement states that the cost of construction, operation and maintenance of dams on the Rio Grande for the diversion of water flows should be prorated between the two governments "in proportion to the benefits which the respective countries receive therefrom, as determined by the Commission and approved by the two Governments." As to hydro-electric generation on the Rio Grande, the two governments agreed to pay half the costs each for construction, maintenance and operation of generating plants and to share the energy in the same proportions.

The two governments agreed to construct various facilities within their own territories in order to convey the waters from the Colorado River agreed upon under the terms of the treaty. In consideration for the use of some of the works on the American side for delivery to Mexico of its allotment of waters, Mexico was to pay for part of the construction of these works.

Mexico was to pay to the United States "a proportion of the costs actually incurred in the construction of Imperial Dam and the Imperial Dam-Pilot Knob section of the All-American Canal." The proportion was to be determined by taking into consideration the proportionate uses of the facilities by the two countries. In addition, Mexico was to pay for a proportion of the operation and maintenance of

¹See Barrett, Scott, *Conflict and Cooperation in Managing International Water Resources*. World Bank Policy Research Working Paper #1303, pp. 10-11.

the facilities, the costs to be prorated between the two countries based on the water delivered annually to each by the facilities.

However, the treaty provides that “in the event that revenues from the sale of hydro-electric power which may be generated at Pilot Knob become available for the amortization of part or all of the costs of the facilities ... the part that Mexico should pay of the costs of said facilities shall be reduced or repaid in the same proportion as the balance of the total costs are reduced or repaid.”

This is an interesting arrangement that is concerned mostly with the allocation and conveyance of waters between the two nations. The generation of hydro-electricity is regarded as a secondary, though desirable, goal of development. Here, the primary purpose of the dams is to regulate the flow of water for conservation and delivery of waters and the revenues from power generation are used to pay down the obligations of the downstream beneficiary of improved water flow ensured to it from the dam facilities.

Argentina and Paraguay: The Yacyreta Hydropower Project

Yacyreta is a major low head hydro-electric project on a branch of the Parana River, in the area of the Yacyreta island, where it forms the boundary between Argentina and Paraguay. The Yacyreta complex is located about 400 kilometers downstream from Posadas (Argentina) and Encarnacion (Paraguay). The main works consist of a dam, spillways, powerhouse and the associated infrastructures, and it is considered the biggest civil engineering work under construction in the world. As well as its power generating facilities, it has many peripheral activities including a navigation lock, an international toll road, and a hotel.

The electrical output from the plan, once it is completed, will be shared between the two countries, although it has always been recognized that Paraguay's electricity requirements are small so that Paraguay will require little, if any, of the output of Yacyreta.

The Yacyreta project is developed by the ‘Entidad Binacional Yacyreta’ (EBY) a binational entity with legal, financial and administrative capacity and technical responsibility for the study, design, supervision and execution of the construction of the hydro-electric project. EBY, an entity set up by a bilateral treaty between Argentina and Paraguay, is not a commercial entity, nor a simple arm of either the government of Argentina or Paraguay, but a binational owned state enterprise. In 1990 the cost of the project had risen well above budget and the two governments agreed to sign *reversal notes* to the Treaty, to restructure some of the financial terms in the original treaty and to specify in greater detail payment and costs of the project.

Yacyreta was established with a capital of US\$100 million equally shared between Agua y Energia Electrica (AyEE) for Argentina and Administracion Nacional de Electricidad (ANDE) for Paraguay. The Yacyreta Treaty provides for a financial tariff to cover all the project's annual cash obligations such as debt service, cash operating costs, dividends to ANDE and AyEE at the rate of 12 percent per annum on paid-in capital, mandatory repayments to ANDE and AyEE at the rate of US\$166 (pegged to 1973 prices and indexed to an escalation factor) per GWh generated, and adjustment for any negative or positive balance in the prior year's cash flow.

The Treaty provides that all the power generated by Yacyreta will be purchased by ANDE and AyEE in equal amounts or their local designees under successive 8-year contracts. Because Paraguay's energy demand is not significant and Paraguay will be able to purchase power at a lower price elsewhere, by reselling its entitlement to Argentina, Paraguay would get compensation payment from the Argentine

Government at the rate of about US3 mills per kWh (1973 US\$). At 1973 prices, the compensation payment would represent about US\$25 million per year. This compensation payment is also indexed yearly under a formula in the 1973 Yacyreta Treaty.

Paraguay and Brazil: Cooperative Development and Sharing of Royalties

Under the Treaty of Itaipú in 1973, the governments of Paraguay and Brazil made provisions for the development of what was then the largest hydro-electric project² in the world. The state-owned electricity companies of the two nations, Administración Nacional de Electricidad (ANDE) of Paraguay and Centrais Eléctricas Brasileiras S.A. (ELECTROBRAS) formed the binational entity of Itaipú with equal capital participation by each. The costs of developing the installation on the Paraná River of a 224 m high concrete main gravity dam with a power house at its base and associated works, was to be financed equally by the two countries. The plans called for 14 generating units of 765 MW each for a total capacity of 10,710 MW.

The cost of electricity supplied by the project was to include an amount necessary for paying the developers of Itaipú a 12 percent return on their paid-in capital, as well as the amount necessary to pay royalties to the contracting governments equivalent to US\$650 per gigawatt-hour generated and metered, totaling at least US\$18 million per year, to be divided between the two countries.

EXAMPLES OF WATER SHARING: ASIA

India and Nepal: Royalties for Use of Resources in Neighboring Territory

The governments of India and Nepal entered into an agreement in 1954 for the development of a dam and hydro-electric facilities on the Kosi River. The government of India had plans to develop a barrage and connected works on land lying within the territory of Nepal. The purpose of the works was for flood control, irrigation, and the generation of hydro-electric power for India. The project would also have some erosion prevention benefits within Nepal itself.

Under the agreement, Nepal was to acquire the land to be transferred to India for the project and receive compensation both for the lands required for the various works and the area submerged by the reservoir. For purposes of computing the compensation, all affected lands were classified either as cultivated lands, forest lands, village lands and houses, or waste lands. Although the government of India was to be the owner of the land transferred to it for the project, there was to be no alteration of sovereignty rights or territorial jurisdiction over the lands, which remained part of Nepal.

The government of Nepal was entitled to purchase up to one-half of the power generated at the power house installed on the barrage site for a tariff fixed upon between the two governments. However, for all electricity produced at the site which was not sold to Nepal, the government of Nepal received payment of "royalty in respect of power generated and utilized in the Indian Union." Nepal also received royalties for stone, gravel, and ballast from Nepal territory used in the construction of the works and compensation for timber from its forests, excepting those materials used for erosion prevention on the river bank within Nepal itself.

²Itaipú is still the largest, but the Guri Hydropower project in Venezuela with a capacity of 10,000 MW is the largest energy producer. The Three Gorges hydropower project, when completed, will become the largest hydropower project.

Although the land and works were procured by the government of India to induce downstream benefits, Nepal sought compensation for the use of its water resources through a system of royalty payments. In addition to securing for itself an option to purchase up to half the power from the works within its territory, Nepal benefited from a royalty imposed on electricity exported to the neighboring territory.

Thailand and Laos: Nam Theun II Hydro-electric Power Project

The proposed Nam Theun 2 project involves development of a 50 meter high dam, a 681 MW hydro-electric complex, and transmission lines to connect it to the Thai electric transmission grid. The project is designed to export electricity to Thailand, where electricity demand is increasing by about 14 percent per year. The project's financing requirement is projected at about \$1.2 billion, substantially more than the financing capabilities of the Lao PDR which had a GDP of about \$1.6 billion in 1994. The estimated cost includes construction costs of US\$831 million, development expenditures of US\$107 million and financing costs (including interest during construction) of US\$249 million.

The project's potential contribution to the Lao economy is substantial. The Government is projected to receive a cash inflow of about \$3 billion over the 25 year concession period, and about \$450 million a year for the remaining life of the facility. The project company has been granted an exclusive right to use and manage the water resource in the reservoir and upstream catchment area, while the Government of Lao PDR guarantees no diversion of water from the area for other purposes except power generation.

Rates of tax and royalty for the project will be fixed for the duration of the concession and under the concession agreement between Lao PDR and the project company. The provisions are as follows:

- **Royalty**—A fee on project revenue received by the project company before any deductions. The royalty is designed as a step increase: first fifteen years, 5 percent; next five years, 15 percent; last five years, 30 percent.
- **Resource Levy/Profits tax**—A tax on the project company's net income after all normally recognized deductions and depreciation subject to tax holiday of five years from the start of commercial operation. The tax structure is also a step function: first five years, no tax; next seven years, 5 percent; next six years, 15 percent; and the last seven years, 30 percent.

In the event that water quantities are below agreed levels (based on statistical analysis of historical data), the concession agreement will provide for the royalty/resource payment to be adjusted to compensate for such decreases in revenue.

Pakistan: Hydropower Royalty

Pakistan's hydro-electric power policy framework for the private sector specifies the terms for private construction and operation of private hydro plants, including the tariff structure for electricity sold from the plants. A royalty to the government for use of the hydro resources is incorporated in the tariff. The policy states, "The Provincial Governments view hydropower potential as an important resource to generate funds for development. A nominal price for the use of water has therefore been proposed in the Bulk Power Tariff at the rate of US Cents 0.233/kWh (Rs 0.07/kWh)." This price will be paid to the concerned province as consideration for use of its natural resources and to provide resources for investment in the sector.

Part of the reason for this provision is to level the playing field between private and public hydro projects. The Constitution of Pakistan, Article 161 (2), awards the 'net profits' from federal hydro-electric projects to the provincial government in which the project is located as a kind of royalty. This provision does not apply to projects built in the private sector, and is replaced by the payment to the provinces incorporated into the Bulk Power Tariff.

EUROPE

Switzerland: Royalty Arrangement in Hydro-electric Power Projects

Switzerland has about 1,200 electric companies. The Union of Swiss Power Plants (UCS/VSE) is an organization of 450 companies. Among these companies, 163 generate close to 95 percent of the national electricity supply and meet more than 70 percent of the final demand. This group is overseen by the Federal Energy Office.

The public and private interests are narrowly mixed. According to the UCS/VSE, the source of capital is as follows: cantons 40 percent, communes 31 percent, the private sector 27 percent and the railroads 2 percent. Therefore, 73 percent of the capital comes from the public sector. The private sector, however plays a significant role in electricity generation. As a result, public capital is earmarked mostly for distribution.

The 1981 Water Rights Law which sets a cap on the royalties payable is currently under review. Varying royalty rates between cantons has created disparities in royalty revenues in some of these cantons. The Alpine cantons are pressing for a standardization of the royalty rates at which electricity producers are charged in different cantons. A national referendum on May 17, 1992 approved a law on water protection. The new law, which took effect on November 1, 1992 places minimum flow requirements on all new hydro plants and on existing plants when current concessions are renewed.

Most of the water rights for dams and power stations in the Alpine cantons fall due within the next five years. The cantons have warned the central government in Berne that they will not permit Switzerland join the international convention of the Alps unless the electricity sector yields to their demand to increase the royalty paid for water supplies used to produce hydro-electricity sourced in their cantons from SFr54/kW to SFr80/kW plus a levy of SFr120/kW of energy contained in storage dams.

CONCLUSION

There are many aspects to be considered in arriving at an equitable allocation of benefits from the shared use of water resources and the development of hydro-electric projects. Too often, the parties fail to recognize and consider the chain of interests involved in hydropower projects on shared rivers. However, as seen above, there have been numerous attempts to apportion these benefits through compensation and royalty arrangements between upstream and downstream beneficiaries and developers of these facilities. Some of these arrangements are designed to recognize the value of indigenous water resources and the right of the entity providing these resources to royalties for their use (e.g., Kosi River and Itaipú). Others are designed to provide compensation to upstream developers for the positive effects accruing to downstream users, in terms of improved stream flow and flood control, from the construction of works on the shared waterways (e.g., Columbia and Colorado Rivers). The increased capacity for hydro-electric generation is one of the primary benefits arising from the construction of these facilities. The arrangements illustrate a number of innovations for apportioning these benefits, either through

royalties derived from the sale of the hydro power, by sharing the power in some equitable proportion, or as payment to one party to offset its costs incurred on behalf of the other.

ANNEX 3. STATISTICAL DATA ON CHINA'S DEBT MARKETS

Annex Table A3.1 China: Debt Securities Issued and Outstanding (1981 to 1995) (Rmb 100 million)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Treasury Bonds^a															
Issued	48.7	43.8	41.6	42.5	60.6	62.5	116.9	188.77	223.91	197.23	376.25	520.78	381.31	1137.55	1510.86
Redeemed	0	0	0	0	0	6.7	18.4	21.66	13.22	76.22	111.6	238.05	124.79	405.8	496.96
Outstanding	48.7	92.5	134.1	176.6	237.2	293.1	391.5	558.64	769.33	890.34	1154.99	1437.72	1694.24	2425.79	3439.69
1. Treasury Bills															
Issued	48.7	43.8	41.6	42.5	60.6	62.5	62.9	92.16	56.07	93.46	199.41	395.64	314.77	1117.93	1486.76
Redeemed						6.7	18.4	21.66	13.22	49.59	106.65	120.41	105.75	349.76	297.99
Outstanding	48.7	92.5	134.1	176.6	237.2	293.1	337.5	408.03	450.88	494.75	587.51	862.74	1071.76	1839.93	3028.7
2. Fiscal Bonds															
Issued								66.07	0	71.09	64.63	65.14	66.54		
Redeemed												0.02	9.38	0.42	126.66
Outstanding								66.07	66.07	137.16	201.79	266.91	324.07	323.65	196.99
3. National Construction Bonds															
Issued								30.54	0	0			0		
Redeemed										21.58	4.95	2.25	0.9	0.29	0.45
Outstanding								30.54	30.54	8.96	4.01	1.76	0.86	0.57	0.12
4. National Key Project Construction Bonds															
Issued							54			0			0		
Redeemed										5.05					41.13
Outstanding							54	54	54	48.95	48.95	48.95	48.95	48.95	7.82
5. Special National Bonds															
Issued									42.84	32.68	17.21		0		
Redeemed														39.61	30.02
Outstanding									42.84	75.52	92.73	92.73	92.73	52.92	22.9
6. Inflation-proof Bonds															
Issued									125						
Redeemed												115.37	7.26	1.61	0.71
Outstanding									125	125	125	9.63	2.37	0.76	0.05
7. Special Purchase Bond															
Issued													0	19.62	24.1
Redeemed															
Outstanding														19.62	43.72
8. National Investment Bonds^b															
Issued											95	60	0		
Redeemed													1.5	14.11	
Outstanding											95	155	153.5	139.39	139.39
9. National Investment Corporation Bonds^b															
Issued							30	90	22.53	6.15	2.29	8.01			
Redeemed											0.83	2.04	2.38	1.92	
Outstanding							30	120	142.53	148.68	150.14	156.11	153.73	151.81	151.81

Annex Table A3.1 (cont.)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
10. Central Government Enterprise Bonds															
Issued												74.1			
Redeemed															74.1
Outstanding												74.1			0
Financial Institutions Debt															
11. Bank Financial Bonds^b															
Issued					5	30	60	65	60.66	64.4	66.91	55			
Redeemed						5	30	40	70.11	50.07	33.67	30	34.29	13.54	
Outstanding					5	30	60	85	75.55	89.88	123.12	148.12	113.83	100.29	100.29
12. Policy Financial Bonds^c															
Issued														776	
Redeemed															
Outstanding														776	776
13. Trust Fund Securities^d															
Issued												12.18			
Redeemed															
Outstanding												12.18	12.18	12.18	12.18
14. Investment Fund Securities^e															
Issued												9.8			
Redeemed															
Outstanding												9.8	9.8	9.8	9.8
Enterprise Bonds^f															
15. Local Enterprise Bonds															
Issued						0	32.42	25.34	11.19	44.16	105.51	254.38	49.63	51.76	45.28
Redeemed						0	7.94	12.41	13.83	22.97	37.9	48.44	77.26	100.1	152.5
Outstanding						9.85	35.72	47.26	44.62	65.81	133.42	339.96	311.73	263.39	156.17
16. Short-term Paper															
Issued						0	1.39	11.24	37.14	55.55	108.18	230.95	191.2	189.2	170.85
Redeemed						0		5.09	11.63	42.15	69.95	132.28	170.03	215.02	173
Outstanding							1.39	7.54	33.05	46.46	84.68	183.35	204.52	178.7	176.55
17. Domestic Bonds															
Issued						0		33.69	30.71	26.89	30.27	111.51			
Redeemed						0			13.88	22.51	28.94	44.23			123.51
Outstanding								33.69	50.52	54.9	56.23	123.51	123.51	123.51	0
18. Housing Construction Bonds															
Issued						0						6.43			
Redeemed						0									6.43
Outstanding											0	6.43	6.43	6.43	0
19. Local Investment Corporation Bonds															
Issued						0						4.37	0		
Redeemed						0									4.37
Outstanding											0	4.37	4.37	4.37	0

Annex Table A3.1 (cont.)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Subtotal Debt Securities															
Issued	48.7	43.8	41.6	42.5	65.6	92.5	240.71	414.04	386.14	394.38	689.41	1287.51	622.14	2154.51	1726.99
Redeemed	0	0	0	0	0	11.7	56.34	79.16	122.67	213.92	282.89	495.04	408.75	736.38	1030.87
Outstanding	48.7	92.5	134.1	176.6	242.2	332.95	518.61	852.13	1115.6	1296.07	1702.58	2495.65	2634.34	4052.27	4822.49
Stocks (capital raised)															
A shares							10	25	6.62	4.28	5	50	194.83	49.62	22.68
B Shares ¹												42.26	42.86	39.01	
Hshares ²													60.54	110.15	54.81
Large Sum Negotiable CDs³															
Issued								59.26	141.8	503.53	426.85	500		164.84	
Redeemed									77.96	231.63	391.6	300	432.96	583.12	
Outstanding								59.26	123.1	395	430.25	630.25	197.29	0	0
GDP at Market Prices(Rmb 100m)	4775	5182	5787	6928	8527	9688	11307	14074	15998	17681	20188	24020	31380	45006	57730
(%) DO/ GDP	1.02	1.79	2.32	2.55	2.84	3.44	4.59	6.05	6.97	7.33	8.43	10.39	8.39	9.00	8.35
(%) T Debt issues/ GDP	1.02	0.85	0.72	0.61	0.71	0.65	0.56	0.65	0.35	0.53	0.99	1.65	1.00	2.48	2.58
(%) SO / GDP	1.02	1.79	2.32	2.55	2.84	3.44	4.68	6.65	7.78	9.59	10.59	13.40	9.97	9.45	8.49
(%) Tbond/DO	100.00	100.00	100.00	100.00	97.94	88.03	75.49	65.56	68.96	68.70	67.84	57.61	64.31	59.86	71.33
(%) Ent. bonds/DO	0.00	0.00	0.00	0.00	0.00	2.96	6.89	5.55	4.00	5.08	7.84	16.59	11.83	6.50	3.24
(%) Tbond spot trade/GDP ⁴														2.49	3.25
(%) TBond trade/GDP															54.39

¹Treasury bonds are categories 1-8, issued by the Ministry of Finance. The Special Purchase bonds introduced in 1994 are issued to insurance companies and pension funds.

²For 1995, no numbers have been provided for categories 8, 9,11,12,13,14 and therefore the same outstanding balance has been assumed for 1995 as 1994.

³Issued by the new State Development Banks, to other financial institutions. Non tradable, of three and five-year maturities, with respective coupon rates of 12.5 and 14.0 percent.

⁴Enterprise bonds listed here are local enterprise bonds; central government enterprise bonds are listed in (10) above with other categories of central government debt.

⁵B share and H share data for 1995 are from a World bank data base; the combined value is cited.

⁶For short-term CDs, the numbers provided suggest a negative outstanding balance for 1994 and 1995. A zero balance has therefore been assumed.

⁷No trade data are available for Wuhan for 1995. It is therefore assumed that trade in Wuhan increased by the same percentage as trade in Shanghai.

Source: State Council Securities Policy Committee and China Securities Regulatory Commission, Beijing, China.

Annex Table A3.2 China: Trade in Debt Securities (1987 to 1993)(Rmb million)

	1987	1988	1989	1990	1991	1992	1993
1. Treasury Bonds		2,420.85	2,126.00	11,593.53	37,017.28	108,257.42	83,056.49
Treasury Bills			2,383.09	2,094.17	10,488.64	33,954.79	105,023.65
Fiscal Bonds							
National Construction Bonds				14.84	4.66		
National Key Project Construction				37.76	16.99	9.75	29.49
Special National Bonds							
Inflation-proof Bonds					1,090.48	3,033.00	3,233.77
2. National Investment Bonds						5,160.55	1,468.97
3. National Investment Corporation Bonds			8.61	25.67	216.24	3,159.45	543.24
Key Enterprise Bonds				2.62			
Capital Construction Bonds				5.99	25.67	216.24	
4. Financial Bonds	12	69.58	46.11	46.22	781.47	3,501.92	2,224.77
5. Local Enterprise Bonds	91.63	115.87	79.09	105.58	2,463.28	12,822.93	23,450.92
Subtotal^a	99.63	2,545.94	2,259.81	13,537.15	48,370.80	265,648.35	841,925.62
6. Enterprise Stock ^b	8	9.22	23.15	1,812.37	8,674.00	136,248.00	733,406.00
7. Jumbo CDs	0	12.85	12.16	41.59	102.27	278.61	307.42
8. Short-Term Enterprise Negotiable Certificates	0	0	6.48	34.31	1,014.29	3,080.21	3,002.09

^aBond trading is estimated on a gross basis.

^bEnterprise stock trading includes officially recognized centers only.

Source: State Council Securities Committee.

Annex Table A3.3 China: Securities Trading on China's Principal Exchanges (January 1994 to June 1996) (Turnover, Rmb million)

	SHANGHAI SECURITIES EXCHANGE							SHENZHEN SECURITIES EXCHANGE							WUHAN TRADING CENTER		
	Equities		Treasury Bonds			Funds	Total	Equities		Treasury Bonds			Funds	Total	Treasury Bonds		
	A Shares	B Shares	Spot	Repurchase	Futures			A Shares	B Shares	Spot	Repurchase	Futures			Spot	Repurchase	Futures
Jan-94	29,436	1,867	994	92	2,528	62.5	34,979	9,426	280	0	0	0			6,130	0	0
Feb-94	7,389	353	1,461	3	360	17.7	9,584	10,347	121	0	0	0			2,210	0	0
Mar-94	57,517	727	2,551	1	2,781	246.9	63,824	8,432	95	400	0	0			13,144	0	0
Apr-94	30,397	579	2,661	36	11,305	111.7	45,089	10,798	87	256	0	0			4,428	8,856	0
May-94	21,567	985	3,464	312	20,828	58.3	47,214	17,677	128	15	0	0			3,012	11,122	0
Jun-94	9,726	690	2,937	856	64,644	33.8	78,886	4,015	105	1	0	0			18,514	10,078	0
Jul-94	7,204	425	3,136	562	101,027	54	112,409	2,955	107	2	0	0			2,258	9,164	0
Aug-94	147,007	1,448	6,376	426	121,141	3349.6	279,747	44,471	183	263	0	0			1,248	15,518	2699
Sep-94	149,589	1,136	4,512	384	123,285	5256.8	284,163	86,476	189	156	0	1,682			433	20,706	3962
Oct-94	54,942	927	3,499	656	56,620	1695.9	118,340	26,723	121	11	267	3,603			468	21,936	9861
Nov-94	28,405	1,049	6,592	1,156	513,127	773.9	551,103	7,910	87	6	408	9,305			324	24,259	104353
Dec-94	19,495	577	7,545	1,833	888,425	469.5	918,344	8,400	42	0	588	16,703			13,060	23,792	124712
Totals	562,674	10,763	45,728	6,317	1,906,071	12,131	2,543,682	237,630	1,545	1,110	1,263	31,293	0	0	65,229	145,431	245,587
Jan-95	4,579	446	5,173	1,567	1,436,064	89	1,489,129	2,813	55	0	657	32,802	1,133	37,460			
Feb-95	5,626	663	4,917	2,177	1,489,922	94	1,503,399	1,979	39	0	514	120,756	474	123,762			
Mar-95	22,848	462	7,555	5,891	824,019	197	860,972	8,196	59	44	443	247,740	1,010	257,492			
Apr-95	20,363	447	11,500	6,401	708,110	271	747,092	5,887	55	27	376	156,676	437	163,458			
May-95	52,013	694	11,008	7,090	510,494	1009	582,308	17,262	114	56	735	206,494	1,623	226,284			
Jun-95	15,408	421	6,157	13,737		331	36,054	4,472	139	139	738		416	5,904			
Jul-95	31,370	554	5,489	11,500		793	49,706	7,181	334	124	572		372	8,583			
Aug-95	52,083	827	5,636	10,777		2423	71,746	18,598	237	212	700		3,670	23,417			
Sep-95	30,888	527	4,110	10,781		6447	52,753	7,107	190	61	677		3,508	11,543			
Oct-95	40,814	358	4,792	11,066		9852	66,882	9,295	253	67	480		4,562	14,657			
Nov-95	18,549	423	4,789	14,536		6452	44,749	5,768	126	211	798		2,486	9,389			
Dec-95	9,723	228	5,319	18,055		2609	35,934	3,032	97	132	1,000		755	5,016			
Totals	304,264	6,050	76,445	113,578	4,968,609	30,567	5,540,724	91,590	1,698	1,073	7,690	764,468	20,446	886,965	0	0	0
Jan-96	10,037	368	6,341	18,312		5952	41,010	2,128	158	33	1,083		930	4,332			
Feb-96	4,469	170	7,006	10,716		985	23,346	1,319	62	17	422		266	2,086			
Mar-96	13,858	449	15,034	19,378		2348	51,067	5,524	179	144	1,125		1,493	8,465			
Apr-96	44,105	468	31,058	37,621		4962	118,214	31,519	158	140	1,068		7,765	40,650			
May-96	43,818	502	33,185	61,212		3340	142,057	51,905	466	90	963		15,439	68,863			
Jun-96	8,931.5	730	15,656	80,577		2820	189,098	74,761	1,843	32	2,046		11,546	90,228			

Source: State Council Securities Committee.

Annex Table A3.4 China: New Issues of Securities (1994 to 1996)

	1994			1995			1996/Jan - Jun		
	A shares	B shares	H shares	A shares	B shares	H shares	A shares	B shares	H shares
No. of Issuers	30	15	8	11	12	3	59	8	3
Amount Issued (100,000,000 Shares)	10.97	10.4	45.69	5.32	10.76	15.38	15.71	6.8	18.3
Currency	Rmb	HK\$, US\$	HK\$	Rmb	HK\$, US\$	HK\$	Rmb	HK\$, US\$	HK\$
Exchange where listed	Shenzhen, Shanghai		Hong Kong	Shenzhen, Shanghai		Hong Kong	Shenzhen, Shanghai		Hong Kong

Source: State Council Securities Committee.

Annex Table A3.5 China: International Securities Issues (1994 to 1996 Q2)

	1994	1995	1996 Q1	1996 Q2
Bond Issues				
By Issuer Type (US\$ Millions)				
Sovereign	\$ 1,607.90	\$ 394.67	\$ 400.00	\$ 700.00
Public	2258.73	993.47	406.04	178.45
Private	0.00	45.00	0.00	0.00
Total	\$ 3,866.63	\$ 1,433.14	\$ 806.04	\$ 878.45
By Issue Type (US\$ Millions)				
Fixed Rate	\$ 3,092.95	\$ 1,232.92	\$ 686.04	\$ 828.45
Floating Rate Note	773.68	155.22	120.00	50.00
Convertible	0.00	45.00	0.00	0.00
Warrants for equity	0.00	0.00	0.00	0.00
Total	\$ 3,866.63	\$ 1,433.14	\$ 806.04	\$ 878.45
Equity Issues				
By Share Type (US\$ Millions)				
ADR	\$ 1,090.61	\$ 348.38	\$ 0.00	\$ 390.20
GDR	107.20	0.00	0.00	0.00
H-Share	1038.63	60.02	299.48	152.51
B-Share	331.26	239.37	0.00	40.37
Other	34.27	18.53	0.00	82.78
Total Amount	\$ 2,601.97	\$ 666.31	\$ 299.48	\$ 665.86

Note: 1996 Q1 and Q2 only.

Source: World Bank.

Annex Table A3.6 China: International Bond Issues (February 1994 to June 1996)

Closing date	Issuing Enterprises	US\$ equiv.	Cur	CUR amt	Issue price	Spread	Coupon	Issue type	Maturity date	Moodys	Listings
1994											
17 Feb 1994	People's Republic of China	1,000.0	US\$	1,000.000	99.4060	85.00	6.5000	FX	17 Feb 2004	A3	LX,SI,HK
07 Mar 1994	CITIC Hong Kong Finance Ltd	64.7	HK\$	500.000	99.9500	185.00	6.9000	FX	07 Mar 2001		UQ
16 Mar 1994	Bank of China	400.0	US\$	400.000	99.7100	98.00	6.7500	FX	15 Mar 1999	Baa1	UQ
16 Mar 1994	Bank of China	100.0	US\$	100.000	99.7000	135.00	8.2500	FX	15 Mar 2014	Baa1	UQ
25 May 1994	Bank of China	145.9	YEN	15,000.000	100.0000		4.6500	FX	25 May 2001	Baa1	TO
25 May 1994	Tian Jin International Trust & Investment Corp	126.5	YEN	13,000.000	100.0000		4.4500	FX	25 May 1999		TO
30 Jun 1994	Guangdong Enterprises (Holding) Ltd	150.0	US\$	150.000	100.0000		6-mth Libor+2.00%	FRN	30 Jun 1999	Ba1	LX
11 Jul 1994	People's Construction Bank of China	143.7	YEN	15,000.000	100.0000		6-mth Libor+0.45%	FRN	11 Jul 2001	Baa1	HK,SI
13 Jul 1994	People's Republic of China	304.0	YEN	30,000.000	100.0000		4.9500	FX	13 Jul 2004	A3	UQ
13 Jul 1994	People's Republic of China	304.0	YEN	30,000.000	100.0000		4.4000	FX	13 Jul 1999	A3	UQ
14 Jul 1994	Bank of China	180.0	DM	300.000	101.4250		7.1250	FX	14 Jul 1999	Baa1	FF
25 Aug 1994	Shandong International Trust & Investment Corp	130.0	US\$	130.000	100.0000		6-mth Libor+0.60%	FRN	25 Aug 2001	Baa2	SI
30 Sep 1994	Shenzhen International Trust & Investment Corp	150.0	US\$	150.000	100.0000		6-mth Libor+0.64%	FRN	30 Sep 2001		HK
26 Oct 1994	China International Trust & Investment Corp	200.0	US\$	200.000	99.5010	140.00	9.0000	FX	15 Oct 2006	A3	NY
08 Nov 1994	CITIC Pacific Finance Ltd (Cayman)	200.0	US\$	200.000	99.9050		6-mth Libor+0.50%	FRN	08 Nov 1997		LN,HK
02 Dec 1994	Bank of Communications	123.1	YEN	12,000.000	100.0000		4.7500	FX	02 Dec 1999	Baa1	
26 Dec 1994	Hainan International Trust & Investment Corp	144.8	YEN	14,500.000	100.0000		5.0000	FX	26 Dec 2001		UQ
1995		3,866.6									
22 Mar 1995	Agricultural Bank of China	154.2	YEN	15,000.000	100.0000		4.3000	FX	22 Mar 2000	Baa1	TO
17 Jul 1995	China Southern Glass Holding Co Ltd	45.0	US\$	45.000	100.0000		5.2500	CONV	17 Jul 2000		UQ
21 Jul 1995	China International Trust & Investment Corp	345.8	YEN	30,000.000	100.0000	30.00	2.4500	FX	21 Jul 2000	A3	UQ
21 Aug 1995	China Merchants Holding Co Ltd	112.8	YEN	10,000.000	100.0000		3.4000	FX	21 Aug 2002		UQ
21 Aug 1995	China Merchants Holding Co Ltd	225.5	YEN	20,000.000	100.0000		2.9000	FX	21 Aug 2000		UQ
06 Nov 1995	People's Construction Bank of China	155.2	HK\$	1,200.000	100.0000		see text.	FRN	06 Nov 2002	Baa1	HK
11 Dec 1995	People's Republic of China	296.0	YEN	30,000.000	99.7500	33.00	3.0000	FX	11 Dec 2002	A3	UQ
11 Dec 1995	People's Republic of China	98.7	YEN	10,000.000	100.0000	104.00	4.6500	FX	11 Dec 2015	A3	UQ
1996 Jan-Jul		1,433.1									
30 Jan 1996	People's Republic of China	100.0	US\$	100.000	98.6220	299.00	9.0000	FX	15 Jan 2096	A3	UQ
30 Jan 1996	People's Republic of China	300.0	US\$	300.000	99.6800	113.00	6.6250	FX	15 Jan 2003	A3	UQ
25 Mar 1996	China Merchants Holding Co Ltd	120.0	US\$	120.000	100.0000		6-mth Libor+1.10%	FRN	25 Mar 2001		LX
27 Mar 1996	State Development Bank of China	286.0	YEN	30,000.000	100.0000		4.0000	FX	27 Mar 2006	A3	UQ
16 May 1996	Guangdong International Trust & Investment Corp	50.0	US\$	50.000	100.0000		6-mth Libor+1.00%	FRN	16 May 1999		UQ
03 Jul 1996	People's Republic of China	700.0	US\$	700.000	99.5650	80.00	7.3750	FX	03 Jul 2001	A3	LX,HK,SI
24 Jul 1996	Fujian Investment and Enterprise Corp	128.5	YEN	14,000.000	100.0000		4.1000	FX	24 Jul 2006		UQ
		1,684.5									

Notes: 'Issue type': CONV: Convertible; FRN: Floating rate note; FX: Fixed rate

'Listings': FF: Frankfurt; HK: Hong Kong; LN: London; LX: Luxembourg; NY: New York; SI: Singapore; TO: Tokyo; UQ: Unquoted

Source: World Bank data.

Annex Table A3.7 China: International Equity Issues by China (January 1994 to July 1996)

Offer date	Issuing Enterprises	Cur	CUR amt	US\$ equiv.	Listings	Share type	Ind.
1994							
06 Jan 1994	Shanghai Industrial Sewing Machine Co Ltd	RMB	274.050	31.500	SH	V,X,I	EC
10 Jan 1994	China First Pencil Co Ltd	RMB	65.980	7.584	SH	V,X,R	MA
24 Jan 1994	Shanghai Shangling Electric Appliances Co Ltd	RMB	456.596	52.500	SH	V,X,I	MA
04 Mar 1994	Shanghai Steel Tube Co Ltd	RMB	276.800	31.816	SH	X,V	IS
14 Mar 1994	Shanghai Material Trading Centre Co Ltd	RMB	112.250	12.902	SH	V,X	MO
22 Mar 1994	Yizheng Chemical Fibre Co Ltd	HK\$	2,380.000	308.071	HK	V,X,I	TX
13 Apr 1994	Shanghai Automation Instrumentation Co Ltd	RMB	151.032	17.360	SH	V,X	EN
10 May 1994	Tianjin Bohai Chemical Industry (Group) Co Ltd	HK\$	408.000	52.805	HK	V,X,I	CM
18 May 1994	Dongfang Electrical Machinery Co Ltd	HK\$	162.725	21.062	HK	V,X,I	EN
18 May 1994	Dongfang Electrical Machinery Co Ltd	HK\$	318.375	41.208	HK	V,X,I	EN
17 Jun 1994	Luoyang Glass Co Ltd	HK\$	662.475	85.617	HK	V,X,M,I	GC
17 Jun 1994	Luoyang Glass Co Ltd	HK\$	250.025	32.313	HK	V,X,M,I	GC
28 Jul 1994	Qingling Motors Co Ltd	US\$	60.300	60.300	HK,QI,PO	G,M,X,I	AM
28 Jul 1994	Qingling Motors Co Ltd	US\$	46.900	46.900	HK,QI,PO	G,M,X,I	AM
28 Jul 1994	Qingling Motors Co Ltd	HK\$	207.000	26.794	HK,QI,PO	M,X,I	AM
04 Aug 1994	Shandong Huaneng Power Development Co Ltd	US\$	66.790	66.790	NY	A,M,X,I	EU
04 Aug 1994	Shandong Huaneng Power Development Co Ltd	US\$	199.500	199.500	NY	A,M,X,I	EU
04 Aug 1994	Shandong Huaneng Power Development Co Ltd	US\$	66.790	66.790	NY	A,M,X,I	EU
05 Oct 1994	Huaneng Power International Inc	US\$	156.250	156.250	NY	A,I,V,M,X	EU
05 Oct 1994	Huaneng Power International Inc	US\$	312.500	312.500	NY	A,I,V,M,X	EU
05 Oct 1994	Huaneng Power International Inc	US\$	156.250	156.250	NY	A,I,V,M,X	EU
08 Nov 1994	Shanghai Hai Xing Shipping Co Ltd	HK\$	1,261.440	163.245	HK	V,I,X,M	TS
08 Nov 1994	Shanghai Hai Xing Shipping Co Ltd	HK\$	315.360	40.811	HK	V,I,X,M	TS
09 Nov 1994	Shanghai Lujiazui Finance & Trade Zone Development Co Ltd	RMB	1,139.000	133.601	SH	V,X	RE
11 Nov 1994	Zhenhai Refining & Chemical Co Ltd	HK\$	1,212.372	156.840	HK	V,I,X	OG
22 Nov 1994	Zhenhai Refining & Chemical Co Ltd	HK\$	215.628	27.895	HK	V,I,X	OG
29 Nov 1994	Huaxin Cement Co Ltd	RMB	172.260	20.227	SH	V,X	CN
30 Nov 1994	Harbin Power Equipment Co Ltd	HK\$	1,024.650	132.531	HK	V,I,A,X,M	EN
08 Dec 1994	Chengdu Telecommunications Cable Co Ltd	HK\$	224.000	28.973	HK	V,I,X	TC
08 Dec 1994	Chengdu Telecommunications Cable Co Ltd	HK\$	224.000	28.973	HK	V,I,X	TC
12 Dec 1994	Harbin Power Equipment Co Ltd	HK\$	185.760	24.027	HK	V,I,X,M	EN
Total 1994				2,543.932			
1995							
26 Apr 1995	Yizheng Chemical Fibre Co Ltd	HK\$	980.000	126.720	HK	V,A,X	TX
19 May 1995	Jilin Chemical Industrial Co Ltd	US\$	80.738	80.738	NY,HK	A,V,I,X,M	CM
19 May 1995	Jilin Chemical Industrial Co Ltd	US\$	100.923	100.923	NY,HK	A,V,I,X,M	CM
19 May 1995	Jilin Chemical Industrial Co Ltd	HK\$	143.331	18.530	NY,HK	V,I,X,M	CM
30 May 1995	Guangdong Electric Power Co Ltd	HK\$	850.493	109.954	SZ	V,X	EU
28 Jun 1995	Northeast Electrical Transmission/Transformation Machinery	HK\$	419.679	54.254	HK	I,M,X,V	EN
28 Jun 1995	Northeast Electrical Transmission/Transformation Machinery	HK\$	44.631	5.770	HK	I,V,M,X	EN
03 Jul 1995	Shanghai Jintai Co Ltd	RMB	184.000	22.160	SH	V,I,X	EN

Annex Table A3.7 (cont.)

Offer date	Issuing Enterprises	Cur	CUR amt	US\$ equiv.	Listings	Share type	Ind.
14 Sep 1995	Jiangling Motors Corp Ltd	RMB	45.257	5.441	SZ	V,M,X	AM
14 Sep 1995	Jiangling Motors Corp Ltd	RMB	332.701	40.000	SZ	V,A,M,X	AM
26 Sep 1995	Inner Mongolia Erdos Cashmere Products Co Ltd	RMB	429.000	51.566	SH	X,I,V	TX
13 Nov 1995	Shenzhen Great Ocean Shipping Co Ltd	RMB	116.280	13.985	SZ	I,X	TS
Total 1995				630.040			
1996, Jan to Jun							
15 Jan 1996	Jingwei Textile Machinery Co Ltd	HK\$	174.253	22.536	HK	V,I,X	TX
24 Jan 1996	Jingwei Textile Machinery Co Ltd	HK\$	58.979	7.628	HK	V,I	TX
26 Apr 1996	Nanjing Panda Electronics Co Ltd	HK\$	412.368	53.313	HK	I,M,V,X	EC
26 Apr 1996	Nanjing Panda Electronics Co Ltd	HK\$	103.092	13.328	HK	I,M,V	EC
10 May 1996	Guangshen Railway Co Ltd	US\$	173.422	173.422	NY,HK,QI	A,I,V,M,X	RL
10 May 1996	Guangshen Railway Co Ltd	US\$	216.777	216.777	NY,HK,QI	A,I,V,M,X	RL
10 May 1996	Guangshen Railway Co Ltd	HK\$	640.367	82.783	NY,HK,QI	I,V,M	RL
27 Jun 1996	Wuxi Little Swan Co Ltd	HK\$	312.480	40.367	SZ	I,X	MA
29 Jan 1996	Tingyi (Cayman Islands) Holding Corp	HK\$	1,226.366	158.615	HK	I,M,X	FD
29 Jan 1996	Tingyi (Cayman Islands) Holding Corp	HK\$	340.657	44.060	HK	I,M,X	FD
Jan-Jul 96				812.829			
16-Dec-94	Pearl River Tyre (Holdings) Ltd ^a	A\$	45.200	34.274	AS	I,X	RP
01 Jul 1996	Road King Infrastructure Ltd ^a	HK\$	1,003.456	129.632	HK,PO	I,X	CN
01 Jul 1996	Road King Infrastructure Ltd ^a	HK\$	177.080	22.876	HK,PO	I	CN
5-Oct-94	Shanghai Posts & Telecomm. Equipment Co Ltd ^a	RMB	202.800	23.765	SH	V,X	TC
12-Jul-94	Foshan Electrical & Lighting Co Ltd ^a	RMB	301.000	36.265	SZ	V,X	EC

^aBermuda listings. ^bPrivate placements.

Notes: Codes used in the column headed:- **Industry**

AM: Automotive; CM: Chemicals; CN: Construction; EC: Electronics/Electrical;
 EN:Engineering; EU:Energy/ Utility; FD: Food / Drink; GC: Glass and Ceramics; IS: Iron/ Steel; MA:Manufacturing
 MO:Metals & Ores; OG:Oil / Coal / Gas; RE: Real Estate; RL: Railways;
 RP: Rubber - Plastics;TC:Telecoms/Communications; TS:Transport & Shipping; TX:Textiles - Clothing

Codes used in the column headed:- **Share type**

A: American depositary; G:Global depositary share; I: Initial public offer; M:Multi tranche
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 QI:SEAQ International; SH:Shanghai; SZ: Shenzhen; SH:Shanghai

Source: World Bank Data Base.

Annex Table A3.8a China: Enterprise Bond Issues (1990 to 1993)
(Issued at a par value of 1 unit = Rmb 100)

Issuing Enterprises
ICBC (Industrial and Commercial Bank of China)
BOCOM (Bank of Communications)
Bank of China Investment bonds
PCBC (People's Construction Bank of China)
Pudong Dev. Bank
Jilin Petrochemical
Shanghai No3 steel
Dazhong Hua
Shanghai Energy
Shanghai Energy Pudong branch
Jiabao
Zhonggang
Jiu Si
Jiu Si Pudong branch

Source : SEEC (Securities Exchange Executive Council).

Annex Table A3.8b China: Enterprise Bond Issues (1995)

Issuing Enterprises		Size (Rmb billion)	Coupon %	Date
China Petrochemical	Maoming Petrochemical, Liaoyang Petrochemical, Tianjin United Chemical	3.8	15	Dec. 1995
China Railway	Ministry of Railway	1.53	15	Dec. 1995
Huabei Power	Huabei Power Corporation (Huabei Electronic Power Group)	0.35	15	Dec. 1995
Jilin Petrochemical	Jilin Chemical Group	0.8		Jan. 1996
Guangdong Meishan	Guangdong Meishan Railway Corp.	0.15		Jan. 1996
Pudong Construction	Shanghai City Construction Investment Corp.	0.5	14.5	Feb. 1995

Source: SEEC (Securities Exchange Executive Council).

Annex Table A3.9 China: Government Bonds Issued in 1994

Date of issue	25-Jan	31-Jan	1-Apr	1-Apr	April 1
Years to maturity	6-month	1-year	2-year	3-year	1-Apr
Issued to whom	institution	institution	households	individuals	funds (pension etc.)
Certificate or paperless	paperless	paperless	certificate	bearer bills	paperless
Immobilized or not	book entry	book entry			
Tradable or not	tradable	tradable	tradable		not
Redeemable or not				ltd redemption	redeemable
Listed on	SS/SZ	SS/SZ	SS/SZ		
Issue method	primary dealer	primary dealer	fiscal institutions	bank branches	private placement
Inflation indexed or not	no	not	not	yes	yes
Pricing method	fixed	fixed	fixed	fixed	fixed
Coupon rate	9.8	11.98	13	13.96	15.86
Amount of issues (Rmb billion)					
Planned	5.00	10.00	27.00	60.00	2.00
Actual	5.03	8.24	28.52	70.01	1.96

Notes: Jan 25 issue: In Shanghai Stock Exchange, the 6-month bills were converted into 3 year bonds later on.

April 1 issue: purchasers were allowed to use old treasury bills held to buy the new bills. The bills were sold by 1:

Total amount of Treasury issue in 1994 (Rmb billion): 113.754 (104.00 planned).

Total redemption of Treasury issues (Rmb billion): 35.8.

Total outstanding (Rmb billion): 228.64.

Source: Securities Exchange Executive Council (SEEC).

Annex Table A3.10 China: Government Bonds Issued in 1995

Date of issue	1-Mar	1-Mar	1-Jul	26-Aug	21-Nov
Years to maturity	3-year	3 year	5-year	1-year	3-year
Issued to whom	institutions	individuals	Funds(pension etc.)	institutions	individuals
Certificate or paperless	bearer bills	certificate	certificate	paperless	certificate
Immobilized or not				book entry	
Tradable or not	tradable	not tradable	not tradable	tradable	not tradable
Redeemable or not				redeemable	
Listed on	SS/SZ			SS/SZ	
Issue method	local fin. dept.	specialized banks	direct placement	primary dealer	spec. banks
Inflation indexed or not	not	yes	yes	not	
Pricing method	fixed	fixed	fixed	fixed	
Coupon rate	14.5	14	15.86	11.98	
Amount of issues (Rmb billion)					
Planned	25	104.1	2.6	10	6
Actual	25	105.682	2.3	11.889	6.1038
Percentage issue for the year	16.6	69.9	1.6	7.9	4

Notes: Total amount of Treasury bill issue in 1995 Rmb billion: 150.975 (147.7 planned).

Total redemption of Treasury issues: Rmb 432.9 billion (principal only; not including interest paid).

The actual amount paid for redemptions, including the inflation subsidy, is estimated at Rmb 67 billion.

Total outstanding: Rmb 330 billion.

Source: Securities Exchange Executive Council (SEEC).

Annex Table A3.11 China: Government Bonds Issued in 1996^a

Date of issue	8-Jan	12-Feb	10-Mar	15-Mar	2-Apr	15-May	6/14/1996 ^b	6-Aug	3-Sep	1-Nov
Issued to whom	institutions	institutions	institutions & individuals	institutions	institutions	individuals	institutions	inst. & indiv.	insurance funds	inst. & indiv.
Years to maturity	1-year	6-month	3-year	3-month	1-year	5-year	10-year	3-year	5-year	7-year
Certificate or paperless	paperless	paperless	certificate	paperless	paperless	certificate		certificate	certificate	
Immobilized or not	book entry	book entry		book entry	book entry					book entry
Tradable or not	tradable	tradable		tradable	tradable	not tradable	tradable	tradable	not tradable	tradable
Redeemable or not						redeemable (after 6 mos)				
Listed on	SS/SZ	SS/SZ		SS/SZ	SS/SZ		SS/SZ	SS/SZ		SS/SZ
Issue method	primary dealer	primary dealer		primary dealer	primary dealer	bank branches		primary dealer	fin. institutions	primary dealer
Inflation indexed or not	no	no	no	no	no	no	no	no	no	no
Pricing method	auction	auction		auction	auction		auction(yield)			auction
(buying price Rmb)	89.2	95		97.58	89.25					
Coupon rate	12.11	10.53	14.5	9.92	12.04	13.06	11.83	10.98	8.8	n.a.
Amount of issues (Rmb billion)										
Planned	13.5	21	30	15	10	30	12	30	4	20
Actual	13.5	21	35	15	10	30	12	30	4	n.a.

^aNo bonds were issued with an inflation subsidy in 1996. Total Treasury issues in 1996 (Rmb billion): 166.5 (161.5 planned). Total redemption of Treasury issues (Rmb billion): estimated at approximately 100.00. Total outstanding (Rmb billion): 401.16 (by Sept. 1).

^bThe June 14 issue of 10-year bonds pay interest every year.

Source: Securities Exchange Executive Council (SEEC).

**Annex Table A3.12 China: Bond Repo Market Trading Volume, Shanghai Exchange
(January 1995 to September 1996) (Rmb 10 billion)**

	Total	3 days	7 days	14 days	28 days	91 days	182 days
1995.1	0.19		0.01	0.03	0.04	0.07	0.05
1995.2	0.22		0.03	0.01	0.04	0.11	0.03
1995.3	0.59		0.08	0.05	0.09	0.27	0.10
1995.4	0.64		0.16	0.08	0.16	0.17	0.07
1995.5	1.07		0.40	0.16	0.20	0.24	0.07
1995.6	1.37		0.79	0.16	0.14	0.18	0.10
1995.7	1.15		0.68	0.14	0.10	0.16	0.08
1995.8	1.08		0.57	0.19	0.13	0.18	0.00
1995.9	1.04		0.55	0.14	0.22	0.13	0.00
1995.1	1.11		0.60	0.13	0.16	0.23	0.00
1995.11	1.45		0.87	0.16	0.20	0.23	0.00
1995.12	1.71		1.11	0.21	0.17	0.22	0.00
Total	11.62						
1996.1	1.83		1.06	0.30	0.17	0.30	0.00
1996.2	1.07		0.36	0.16	0.41	0.15	0.00
1996.3	1.94		0.99	0.41	0.26	0.28	0.00
1996.4	3.76		2.43	0.48	0.31	0.33	0.21
1996.5	6.12	1.92	2.68	0.68	0.46	0.23	0.15
1996.6	7.56	2.80	3.36	0.65	0.41	0.24	0.10
1996.7	13.74	5.37	5.19	1.28	1.09	0.70	0.11
1996.8	15.36	6.26	6.16	1.58	0.90	0.39	0.08
1996.9	16.78	5.04	7.55	2.44	1.38	0.31	0.05
Total	68.17						

Sources: Securities Exchange Executive Council (SEEC); People's Bank of China.

Annex Table A3.13 China: Treasury Bill Coupon Rate, Deposit Rates and Inflation (1981 to 1994 Q4)

Year	Maturity (years)	Coupon (%)	Yield at issue ^a (%)	Comparable Deposit Rate (%)	Inflation: Retail Price Index (%)
1981	10	8		6.84	2.4
1982	10	8		7.92	1.9
1983	10	8		7.92	1.5
1984	10	8		7.92	2.8
1985	5	9		8.28	8.8
1986	5	10		9.36	6.0
1987	5	10	8.3	9.36	7.3
1988	3	10	8.9	9.72	18.5
1989	3	14	12.0	13.14	17.8
1990	3	14	12.0	11.88	2.1
1991	3	10	8.9	8.28	2.9
1992(1)	5	10.5 ^b	8.6 ^b	9.00	5.4
1992(2)	3	9.5	8.5 ^b	8.28 ^b	13.0
1993(1)	3	13.96 ^b	12.0 ^b	12.24	13.0
1993(2)	5	15.86	12.0	13.86	13.0
1994(1)	0.5	9.8	9.8	9	21.7
1994(2)	1	11.98	11.6	10.98	21.7
1994(3)	2	13.0	11.9	11.7	21.7
1994(4) ^c	3	13.96 ^b	12.0 ^b	12.24	21.7

^a'Yield at issue' here implies the yield reestimated on a YTM basis.

^bPlus the inflation adjustment at maturity.

^cThe 1994(4) issue is inflation indexed and is nontradable. The rates here are rates before index adjustment.

Sources: Securities Exchange Executive Council and World Bank staff calculations.

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