DEVELOPING THE DOMESTIC GOVERNMENT DEBT MARKET

FROM DIAGNOSTICS TO REFORM IMPLEMENTATION

Developing the Domestic Government Debt Market

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PREFACE

This is the second volume of a study on the insights from a 12-country pilot program on public debt management and domestic government debt market development. The pilot program was undertaken by a joint team from the World Bank's Banking and Debt Management Group of the Treasury and Corporate Governance and Capital Markets Department. The first volume covers lessons on public debt management.

Developing the Domestic Government Debt Market was prepared by Dimitri Vittas, former senior adviser on financial sector development at the World Bank. It summarizes the analysis and findings of a series of country diagnostic reports and action plans covering the 12 countries that participated in the pilot program. This book draws heavily on the contributions of staff and consultants who took part in the preparation of the country reports. These include Noritaka Akamatsu, Alessandra Campanaro, Tadashi Endo, Thomas Glaessner, Thordur Jonasson, Jeppe Ladekarl, Yibin Mu, David Wilton, and Sara Zervos. Rodolfo Maino of the International Monetary Fund contributed to some of the assessment reports. External consultants include Catiana Garcia-Kilroy, Simon Gray of the Bank of England, and Baudouin Richard of the Belgian Ministry of Finance. Extensive comments on earlier drafts were provided by Noritaka Akamatsu, Thordur Jonasson, Jeppe Ladekarl, Stijn Claessens (who acted as peer reviewer), and Anderson Caputo Silva. World Bank Treasury staff, including Phillip Anderson, Elizabeth Currie, Lars Jensen, Thomas Inge Magnusson, Eriko Togo, and Antonio Velandia-Rubiano, all of whom participated in the pilot program, provided useful comments and insights. Editorial service was provided by David Cheney. Finally, the author would like to thank the authorities in the 12 pilot countries for participating in the pilot program and providing invaluable input to the process.

EXECUTIVE SUMMARY

Sound public debt management is critical for emerging-market and developing countries wanting to build strong, market-oriented economies with sound financial systems that are resistant to crises. Sound public debt management, in turn, requires that countries develop domestic government debt markets that include

- efficient money and primary markets,
- access to a diversified investor base,
- active secondary markets,
- a sound securities custody and settlement system, and
- robust regulation.

These ambitious objectives are difficult to achieve because debt markets involve many aspects that interact with each other in complex ways and are affected by previous policies and developments.

The 12 countries in the joint World Bank–IMF Pilot Program—Bulgaria, Colombia, Costa Rica, Croatia, Indonesia, Kenya, Lebanon, Nicaragua, Pakistan, Sri Lanka, Tunisia, and Zambia—are geographically and financially diverse. This allows for an exploration of similarities and differences in applying principles of sound debt management and market development across a wide range of countries.

The main lessons of the pilot program are as follows:

Money Markets. Money market development has been slow in all pilot countries, mainly due to the difficulty of implementing market-based monetary control. Moving from direct controls (reserve requirements and credit ceilings, for example) to market-based instruments requires effective coordination of monetary policy and public debt management. This may be complicated by the presence of excess aggregate liquidity and the central bank's negative capital position. Strengthening banking supervision and expediting the resolution of banks with solvency and liquidity problems is also important for developing the money market. Opening access to the money market to institutional investors and large nonfinancial corporations may also spur greater competition. The experience of pilot countries shows that parallel and gradual progress on all relevant fronts is necessary.

Primary Markets. Several pilot countries made considerable progress in promoting more efficient primary markets. For example, they reduced the number and frequency of separate issues, made increasing use of market-based auctions, and published annual funding plans and quarterly issuance calendars. The experience of the pilot countries demonstrates the feasibility and benefits of reducing reliance on captive investors and expanding the use of market-based instruments. Moving to the next level of sophistication, however, is more challenging. The promotion of liquid benchmark issues and the adoption of more efficient issuing techniques—such as reopening of issues, buyback programs, and switch operations—require active money markets, well-functioning payment and settlement systems, and effective government cash management.

Improving the functioning of auction markets is another area where early progress can be made. Many countries suffer from auction failures because funding programs are not transparent and the calendar is uncertain. Participation in auctions is sometimes dominated by a few institutions, while the behavior of public sector entities is difficult to predict by other market participants. Most countries improved their auction mechanisms and extended the maturity of their domestic debt. However, none of the pilot countries has yet managed to establish large and liquid benchmark issues, underscoring the practical difficulties of meeting all the required preconditions. The appointment of primary dealers is a controversial issue. Primary dealers may play a useful role when there are a large number of potential investors, but supervision of the extent to which primary dealers fulfill their obligations and do not engage in open or tacit collusion is a problem for countries with weak oversight of financial institutions or for countries dominated by a small number of financial groups. In these cases, granting direct access to auctions to large institutional and corporate investors may stimulate greater efficiency in primary markets.

Investor Base. Promoting a more diversified investor base with different time horizons and risk preferences is important for stimulating the development of the primary market and enabling governments to issue a broader set of instruments across the yield curve. However, the presence of investors other than commercial banks, which tend to dominate the financial systems of most developing countries, depends on a number of other variables. These include the organization of a country's social security and pension system, the saving habits of households, the role of foreign institutions in the local market, the development of the insurance industry, and the promotion of collective investment schemes. Policy measures to change the composition of the investor base take long to yield visible results. In the short run, reforming governments should take into account the preferences and motivations of the existing investor base, while acting to promote its transformation over the longer run.

The financial markets of most countries are dominated by commercial banks, whose participation in bond markets suffers from the same shortcomings as their operations in money markets. In some countries, institutional investors operate as public sector institutions and are often treated as captive investors for nonmarketable government debt. Reliance on captive investors has been reduced in all pilot countries but has not been completely eliminated.

Countries aspiring to join the European Union and the Euro Area will gain access to large potential demand from foreign institutional investors, which is likely to transform totally the functioning of their domestic bond markets. Retail investors also have a role to play in all pilot countries, although greater effort is needed to ensure that delivery systems are reliable and cost effective. Greater use of electronic services is a promising avenue.

Secondary Markets. Secondary markets in the pilot countries are mostly at an early stage of development and developing liquid and efficient markets is among the biggest challenges they face. Trading activity is low and comprehensive statistics on trading volumes and the role of different types of investors are lacking. The volume of trading is expected to rise gradually as countries manage to consolidate instruments and create benchmark issues, promote market intermediaries and institutional investors, ensure a better functioning primary dealer system, and build more efficient trading mechanisms.

Custody and Settlement. Despite the underdevelopment of secondary markets, nearly all pilot countries made considerable progress toward creating electronic custody and settlement systems. Initiatives have included the creation of central securities depositories and real-time gross settlement payment systems, as well as the achievement of delivery versus payment in several countries.

Debt Market Regulation. The pilot countries made substantial progress in several regulatory areas but still have far to go. They have, for example, focused on the regulatory issues affecting the structure and functioning of different segments of the government debt market. Two areas of concern are investment regulations applied to different types of institutional investors and the question of asset valuation in illiquid markets. Valuation issues have received considerable attention in some countries and several have adopted internationally acceptable standards that permit institutions to classify their securities among those held for trading, for investment, or held to maturity.

A key theme of the pilot program is that there is no "one-size-fits-all" solution to developing sound debt markets, given the differing circumstances and institutional capacities in pilot countries. Also, because of the complexity of debt markets, reform programs take a long time to show results and often suffer setbacks and policy reversals. This underscores that reform is a process that demands a strong and sustained commitment to yield substantial and durable results.

1

Introduction

The financial crises in East Asia, the Russian Federation, and Latin America in the 1990s and the early 2000s drew attention to the quality of public debt management in developing countries, and to the role that deeper and more efficient domestic government debt markets can play in reducing financial vulnerability. As a result, officials, academics, financial institutions, and multilateral agencies have stepped up their efforts to promote reform and build capacity in these areas.

The World Bank and the International Monetary Fund (IMF) have contributed to the effort by developing and disseminating sound practices in the areas of public debt management and domestic government debt market development, particularly through the *Guidelines for Public Debt Management* (the Guidelines) and *Developing Government Bond Markets: A Handbook* (the Handbook).[1] While these offer general guidance and are necessarily idealized, they present a set of principles on which there is broad international agreement. For example, government debt managers from some 30 countries commented on the initial draft of the Guidelines, and more than 300 representatives from 122 countries attended five conferences and provided feedback before the Guidelines were finalized. Thus, they provide a sound basis for the development of reforms in countries at different levels of development.

Still, the process of moving from a set of general principles to a program of concrete reforms and capacity building in a particular country is anything but straightforward. For example, many Financial Sector Assessment Program reports underscore the need for improvements in debt management and domestic government debt market development. In general, however, the World Bank and the IMF have not actively extended their assistance to follow up on these recommendations.[2] Recognizing this, a joint World Bank–IMF pilot program including 12 countries was initiated in 2002.[3]

The 12 countries in the pilot program—Bulgaria, Colombia, Costa Rica, Croatia, Indonesia, Kenya, Lebanon, Nicaragua, Pakistan, Sri Lanka, Tunisia, and Zambia—are geographically diverse and represent countries at different stages of economic and financial development.[4] This allows for the exploration of commonalities and differences in applying principles for sound debt management and market development across a spectrum of countries.

The diversity of the pilot countries is illustrated in table 1.1 below.

The purpose of the pilot program is to assist countries in designing a reform and capacity-building program in public debt management and domestic government debt market development. For public debt management, the ultimate objective is to help countries so that the governance

TABLE 1.1 Key Indicators for 12 Pilot-Program Countries, year end 2005

Country	*Population (millions)*	*GDP per capita (US$)*	*Public debt to GDP ratio (percent)*	*Real GDP growth (annual percent)*
Bulgaria	7.7	3,442	31.9	5.5
Colombia	45.6	2,682	47.4	5.1
Costa Rica	4.3	4,491	56.1	5.9
Croatia	4.4	8,418	45.5	4.1
Indonesia	220.6	1,302	46.5	5.6
Kenya	33.4	464	50.1	4.7
Lebanon	3.6	6,210	175.0	1.0
Nicaragua	5.5	895	136.0	4.0
Pakistan	155.8	711	69.0	7.0
Sri Lanka	19.6	1,199	93.9	5.9
Tunisia	10.0	2,862	58.4	4.2
Zambia	11.7	622	68.5	5.1

Sources: Data on population and GDP per capita are based on World Bank (2006); public debt to GDP ratio is based on selected IMF Article IV consultations (IMF 2003, 2004b, 2004c, 2005b) and government Web sites; and real GDP growth is based on IMF (2006b).

arrangements, internal processes, resources, and staff capacity are in place to enable them to

- develop a medium-term debt management strategy with yearly updates, based on a sound analysis of cost and risk, taking account of macroeconomic and market constraints; and
- implement the strategy efficiently, while managing operational risk in a prudent manner.

To facilitate the implementation of a debt management strategy, another explicit goal has been to promote the development of the domestic government debt market by creating the conditions for developing money markets, primary markets, the investor base, secondary markets, custody and settlement systems, and debt market regulation.

To help countries move from a set of principles to a program of concrete reforms and capacity building, the pilot program built on an initial comprehensive diagnostic of country needs. The diagnostic focused on both public debt management and domestic government debt market development and covered all areas that had potentially important policy implications. In addition to the initial diagnostic, the pilot program envisioned two additional stages: formulating a reform plan and implementing the proposed reforms.

Three basic considerations motivated this approach:

1. Because of the high degree of complementarity and interaction between public debt management and domestic government debt market development, it was felt that simultaneous examination of the challenges facing each of these areas would result in better-informed diagnostic reports and more effective reform plans.
2. Within each of these two major areas, it was necessary to examine the full range of relevant issues. For example, to develop a medium-term debt management strategy, addressing the enabling environment was important. This included the governance and legal framework, coordination with other macroeconomic policies, and the quality of internal operations—including risk management, staff capacity, and information systems. Shortcomings and constraints in any of these areas could hinder the development of more efficient strategies. Similarly, a comprehensive diagnostic approach was needed to identify obstacles to the development of important components of efficient domestic government debt markets, such as money markets, primary

and secondary debt markets, the investor base, settlement and custody systems, and debt market regulation.

3. While the above considerations justified a comprehensive approach in the assessment stage, the design of reform plans and implementation programs had to take full account of the stage of development of both institutions and markets, including the institutional capacity of central banks and other state entities. The complexity of debt policies and markets implied that reform plans would take a long time to implement and needed to reflect initial conditions in each country, as well as the existing capacity to adopt basic policy measures.

The pilot program was resourced with World Bank staff from the Treasury Vice Presidency and the Finance and Private Sector Development Vice Presidency, with support from IMF staff or consultants participating on four assessment missions. World Bank regional staff as well as external consultants contributed in specific areas or countries. The staff involved in the program had expertise and practical experience in most aspects of public debt management and domestic government debt market development, and in providing assistance to a wide range of World Bank clients.

Participation in the program was open to governments fully committed to building capacity and to adopting reforms in the areas of public debt management and domestic government debt market development. In some countries, reform was already under way, but the authorities were attracted by the broad scope of the pilot program and wished to take stock and receive advice on the next steps. This publication documents the insights from the 12 pilot countries. It is based on input from the individual country diagnostics, reform plans, and ongoing work to support the implementation of the reform process.

The implementation of reforms is at an early stage in the 12 pilot-program countries. Given the comprehensive nature of the programs and, particularly, the need in some cases for institutional change, it will be years before outcomes can be fully evaluated. Although work is still in progress and an evaluation of the final outcomes of the pilot program would be premature, considerable experience has been gained from the work to date, which will be useful both to countries considering reforms in these areas and to organizations and people providing technical assistance. The experience to date has yielded a deeper understanding of common challenges, of how countries have gone about moving toward sound practices, and of the measures that have been easy to implement and those that have not.

The pilot program does not address the important issue of public debt sustainability, on the assumption that this is addressed separately in each country, mainly through a framework for sound fiscal policy. Nevertheless, interactions are addressed because more efficient debt management and a more efficient domestic government debt market should lower financial risks and over time lower borrowing costs—thus facilitating the attainment of more sustainable levels of public debt. Also not addressed explicitly are positive externalities for overall welfare arising from an efficient domestic government debt market. For example, the provision of a benchmark yield curve facilitates the issuance of corporate and mortgage bonds as well as the promotion of asset securitization. Liquid benchmark issues may also constitute efficient risk-hedging instruments.

Because the focus of the pilot program is to draw on the experiences of the pilot countries to illustrate how governments are transitioning from the diagnostic stage to designing reform plans and implementing them, readers are directed to other sources for more extensive descriptions of sound practices on individual topics or themes.

This study follows a thematic approach to the analysis rather than a country-by-country approach.[5] The companion volume, *Managing Public Debt: From Diagnostics to Reform Implementation* covers several topics related to strengthening public debt management, including debt management strategy and risk management, coordination among debt management and fiscal and monetary policies, governance and institutional arrangements, and capacity and management of internal operations.

The discussion of domestic government debt market development in this book uses a "building block" approach to gain insights into development priorities and approaches across the 12 countries in the pilot program. It describes the current situation in the pilot countries ("current" meaning at the time the needs assessments were made) and provides a comprehensive overview of the policy issues that need to be addressed in promoting the development of government debt markets.

Chapter 2 discusses the essential importance of money markets for the development of a government securities market. Underdeveloped money and repurchase (repo) markets significantly affected the development of secondary markets for government bonds in many of the countries, raising government borrowing costs.

Chapter 3 addresses primary markets and describes how the authorities borrow in the domestic market, including the selection of instruments, issuance techniques, and relationships with financial intermediaries. Although individual countries have made progress in some areas, considerable shortcomings persist.

A diversified investor base supports strong and stable demand for government securities. Chapter 4 explains that the 12 pilot-program countries vary considerably in the composition of investors, but few have well-established contractual savings institutions and in all countries commercial banks play a dominant role.

Chapter 5 considers the importance of well-functioning secondary markets for providing a cost-efficient environment in which market participants can trade government securities in a fair and transparent manner. In most of the pilot countries these markets are at an early stage of development.

Chapter 6 describes how an efficient securities custody and settlement infrastructure strengthens investor confidence, limits exposure to systemic risk, and reduces transactions costs. Considerable progress was made in most of the 12 countries, mainly before the pilot program began.

Chapter 7 discusses the importance of sound debt market regulation. Like any other securities market, the regulatory framework for government securities has three complementary objectives: maintaining fair, efficient, and transparent markets; reducing systemic risk; and protecting investors. In the pilot countries, regulation was either not well developed or was weakly enforced.

Finally, chapter 8 highlights the complexity of reform programs, the interaction between different aspects of debt markets, and the importance of "path dependence" (that is, previous outcomes and measures) in debt market development. It concludes that "one size does not fit all," a finding echoed in a recent report by the IMF on the adoption of market-based monetary policies (IMF 2004a).

2

Money Markets

A money market is the cornerstone of a competitive and efficient system of market-based financial intermediation (World Bank and IMF 2001a). A country's money market must normally be operating well before a government bond market, including both an efficient primary market and a liquid secondary market, can be fully developed.

In a deregulated market economy, a well-functioning money market plays several important roles. It facilitates the conduct of monetary control through market-based instruments, anchoring the short end of the yield curve and supporting the development of the foreign exchange market. It also provides the authorities with better signals of market expectations,[1] allows banks and their customers to better manage their liquidity, and strengthens competition in financial intermediation.[2] A well-developed money market also helps promote private issuance of negotiable certificates of deposit, promissory notes, and commercial paper. As in the case of government debt, active markets in short-term instruments support the development of longer-term corporate bond markets.

ANALYSIS AND PRECONDITIONS

An efficient money market stimulates the development of more active debt securities markets by lowering liquidity risk premiums and enabling investors to hold larger portfolios of longer-term instruments. In countries that rely heavily on short-term instruments for government borrowing, money market efficiency lowers government financing costs more directly.

The development of a well-functioning money market, however, requires the fulfillment of three key conditions:

- A shift from direct to market-based (indirect) methods of implementing monetary policy (including the elimination or significant reduction of central bank accommodation of the liquidity needs of individual banks).
- Adequate management systems that provide reliable estimates of future government cash flows and forecasts of aggregate bank liquidity.
- The presence of banks and other financial institutions with incentives to develop efficient liquidity and risk management services. (Allowing direct access to the money market by nonfinancial corporations and other investors increases incentives for liquidity management.)

An efficient money market also requires such important technical attributes as clear market conventions on pricing formulas; trading conventions and settlement procedures; the disclosure of information on market activity and money market indexes; modern technical and legal infrastructures; and a neutral taxation regime on different institutions, instruments, and transactions. The adoption of standardized master repurchase (repo) agreements and the enforceability of netting and close-out provisions contribute to the smooth functioning of money markets.

Interbank and money markets are often not well developed in middle- and low-income countries. Monetary policy can be implemented through direct instruments, such as changes in reserve requirements or credit ceilings, although the use of such instruments has declined in most countries in recent decades. Liquidity management can, however, be complicated by cumbersome reserve requirements and credit policies favoring priority sectors. Central banks might not hold adequate quantities of marketable securities, most likely because they suffer from negative capital positions; thus, their ability to engage in sterilization operations might be seriously constrained.

In countries where the exchange rate is used as the nominal anchor and monetary policy is implemented through foreign exchange intervention, money market rates can be too rigid, with the central bank providing accommodation on demand to banks with liquidity needs. Even when an interest rate corridor is used, its upper or lower band can become the binding constraint that determines the level of central bank accommodation. In such circumstances, banks and other intermediaries tend to have little incentive to develop treasury operations for liquidity management purposes.

When money market interest rates are not rigidly held within a narrow interest rate corridor, the shallowness of the money market and ineffective sterilization policies can trigger high interest rate volatility. Volatility can be aggravated by poor forecasting of government cash flows, which impedes central bank monitoring of aggregate liquidity.

The structure of the banking system can also discourage the development of active money markets. The banking system (and even the broader economy) can experience sustained periods of excess liquidity, often resulting from large inflows of foreign capital (from foreign donors or through foreign direct investment). The banking system might be dominated by state-owned banks or private banks belonging to family groups that have little incentive to pursue profitable opportunities by offering modern liquidity management services. Widespread use of foreign currencies in financial contracting ("dollarization" or "euroization") and the strong presence of foreign banks can limit the demand for local-currency-denominated money-market instruments.

Lack of confidence in smaller and weaker banks can discourage interbank lending. Surplus banks might be reluctant to deal with deficit banks for both good and bad reasons—such as, on the good side, unwillingness to lend to weak banks and, on the bad side, reluctance to assist potential competitors. The fact that banks short of funds tend to be foreign banks that have a competitive edge in corporate lending aggravates this stance of surplus banks. Central banks can overcome this problem by applying a wider corridor band on banks that make excessive and persistent use of the central bank's credit or deposit facilities. Central banks, however, often place a higher priority on defending the relative position of local banks, especially if they are state owned, than on promoting the development of an active money market.

Strengthening banking supervision and streamlining resolution mechanisms for banks facing financial difficulties are important for reducing market fragmentation. Sustaining banks facing solvency problems with short-term liquidity support is not only bad banking policy, it also undermines the smooth functioning of the money market.

The development of an active money market might also be held back by the failure to adopt a master repo agreement and netting and close-out mechanisms, and from the lack of transparency concerning money market indexes and activity volumes. However, because money markets have developed and functioned adequately in many countries in the absence of these elements, they should thus be seen as important, but not necessary, for the smooth functioning of markets.

CURRENT SITUATION IN PILOT COUNTRIES

The 12 countries in the pilot program suffer to varying degrees from many of the above shortcomings. In some countries, concern about interest rate volatility and a predilection for a rigid interest rate structure led central banks to accommodate individual bank liquidity needs. In Lebanon, the development of the money market is impeded by the prevailing monetary policy, which focuses on maintaining the pegged exchange rate, resulting in inflexible interest rates and substantial excess reserves. The central bank offers extensive standing facilities along the yield curve, which are priced at market rates and encourage banks to place their excess liquidity in longer-term deposits with the central bank rather than in the money market. The central bank also undertakes switch operations at a premium to encourage banks to hold long-term treasury bills to maturity. Similarly, the underdevelopment of the money market in Tunisia is linked to the rigidity of money market interest rates and frequent central bank accommodation of the liquidity needs of individual banks.

Excess liquidity characterizes most of the pilot program countries It discourages banks from investing in treasury systems to manage liquidity as a profit center in Indonesia, Kenya, Lebanon, Nicaragua, and Zambia. Excess liquidity results from ineffective sterilization of large external inflows. And ineffective sterilization is linked to inadequate holdings of marketable securities—associated either with the negative capital position of central banks (Costa Rica and Nicaragua) or with poor forecasting of government cash flows and aggregate liquidity. The problems posed by excess liquidity are compounded in some countries by reductions in cash ratios and reserve requirements. Though desirable in principle, such reductions entail difficult timing decisions. These experiences help underscore the practical difficulties of implementing market-based policies. The prevalence of excess liquidity leads banks to invest in long-term securities. This, in turn, results in asset and liability maturity mismatching and vulnerability to interest rate and liquidity risk.

Cumbersome reserve requirements impeded liquidity management in Kenya, Pakistan, and Zambia. In Pakistan, the reserve requirement system and the targeting by the central bank of the six-month treasury bill rate (rather than a shorter rate) led to highly volatile very short rates. Countries that curtailed passive accommodation (Bulgaria, Colombia, Costa Rica, Croatia, Indonesia, Kenya, Pakistan, Sri Lanka, and Zambia) suffered volatile interest rates.

The structure of the banking system affected the development of the money market in several countries. In Nicaragua and Tunisia, the banking systems are dominated by large state-owned banks or family banks with little incentive to promote efficient liquidity management. Banking systems in other countries (Bulgaria and Croatia, for example) are dominated by foreign banks in an environment of widespread dollarization or euroization of financial contracting. Because foreign banks can meet their liquidity needs in foreign currency through their parents, they have weaker incentives to develop the local money market. Lack of confidence in weak banks is a particular concern in Indonesia, Kenya, and Zambia, although several other countries suffer from market fragmentation. This seems to be less of an issue in Lebanon, probably because its prudential banking supervision is more effective.

On the technical front, several countries suffer from the absence of standardized master repo agreements and effective netting and close-out arrangements, as well as a lack of transparency of money market indexes and activity volumes. The absence of a master repo agreement hindered the development of the repo market in Bulgaria, Kenya, Lebanon, Tunisia, and Zambia. Technical inconsistencies weakened the effectiveness of the master repo agreement in Indonesia. In Tunisia, although a formal repo market has yet to be developed, commercial banks offer their corporate customers "liquidity contracts" for their holdings of government securities. Under these contracts, the banks agree to repurchase these securities at a predetermined price at the option of their customers. The contracts are effectively open-ended repo agreements. In offering these services, the banks rely on the rigidity of interest rates and on central bank accommodation for the provision of liquidity. These facilities, also known as *dépôts adossés,* enjoy several advantages over ordinary bank deposits: they bypass the prohibition of interest payment on sight deposits, avoid the imposition of reserve requirements, and help achieve a lower monetary target. They stimulate the demand for government securities by nonbank investors, but the banks are the effective holders of long-term government bonds and also assume the interest rate (price) risk. Development of an active money market would make such facilities obsolete, but it has been held back by the delayed implementation of a new law on repos and the introduction of a master repo agreement, as well as by the continued prohibition of participation by nonfinancial entities (corporations and individuals) in formal repo activities.

Despite the above characteristics, a few countries (Colombia, Costa Rica, Pakistan, and Sri Lanka) managed to develop active money markets. Sri Lanka's money market—especially the repo market—is well developed, even in the absence of a master repo agreement and netting arrangements. The main participants in money markets in Sri Lanka are commercial banks, primary dealers, finance companies, and institutional investors (pension and provident funds and insurance companies). A small number of interdealer brokers facilitate transactions between dealers. At one time, the central bank operated a discount window where liquidity was accessed by commercial banks and primary dealers. The main instruments of monetary control were standing facilities for repo and reverse repo transactions, as well as outright sales and purchases of government securities. Regular changes in their cost influenced money market rates and banking system liquidity. The money market experienced periods of tight and ample liquidity and interest rate volatility, while the high leverage of primary dealers gave rise to some concern. However, this system was changed recently. The discount window was discontinued and the central bank adopted an auction system for repos and reverse repos.

In Colombia, the money market makes extensive use of repo agreements and some use of certificates of deposit and interbank loans. Treasury bills are held mostly by public sector entities and are not traded. The central bank adopted an inflation targeting framework with intermediate target values for monetary aggregates. It also established an intervention band for interest rates in its market operations on repo transactions with primary dealers, which are collateralized with different types of public securities. However, the money market is dominated by public sector entities, including the treasury, which is a major participant in the repo market. This dominance mainly results from limitations in the money market's cash management operations. Market fragmentation is further aggravated by the presence of weak banks.

Costa Rica was able to develop an active money market even though its banking system is dominated by state-owned banks and banks belonging to family groups with a relatively small number of independent institutions. The Costa Rican case is interesting because the country has two money markets, one for commercial banks and one for stock exchange brokers. At the same time, both markets are operated by the stock exchange, a highly unusual arrangement for money markets. Moreover, each market has two segments, one in local currency and the other in U.S. dollars, the latter reflecting widespread dollarization. The markets are based on *recompras*—described as involving two transactions, a sale and a simultaneous repurchase, rather than conventional repo transactions (known as *reportos*). Legal uncertainties surround the use of *recompras,* with adverse effects on overall market liquidity. However, market participants claim that despite their segmentation and reliance on stock exchange facilities, the money markets fulfill the basic functions of facilitating liquidity management and enabling the financing of long positions. Several important issues need to be addressed, however, including integrating the two markets, extending direct access to large institutional and corporate investors, and strengthening the legal underpinnings of the market, especially by improving netting and close-out arrangements.

In Pakistan, the money market covers call money and repo transactions, as well as treasury bill auctions. The market benefited from the adoption of a standardized master repo agreement with an effective close-out mechanism. Although the interbank repo segment dominates, the money market is also open to nonbank participants. The high level of activity in the interbank repo market reflects the needs of commercial banks for active reserve requirement management. Active management is complicated by the use of a short (one-week) averaging period with a lower daily minimum. Coupled with the central bank policy of anchoring the six-month treasury bill rate, this leads to highly volatile short rates.

ACTION PLANS AND REFORM PROGRAMS

Action plans and reform programs for the development of money markets in the pilot-program countries focused on three areas:

- Improvements in implementing monetary policy through market-based instruments
- Legal and regulatory changes to support the growth of the repo market
- Greater transparency of money-market trading activity

Further progress is also required in strengthening banking supervision but this falls outside the scope of action plans under the pilot program.

Of the three areas, improving the implementation of monetary policy presents the most difficult challenge. As highlighted in a recent IMF report (IMF 2004a), considerable progress has been made around the world in moving from direct controls (such as reserve requirements, credit ceilings, and interest rate controls) to market-based instruments of monetary policy. However, the adoption of base-money targeting—and later on, inflation targeting—requires a number of demanding technical preconditions. Among these are an efficient government cash management system that accurately predicts government funding needs, and a central bank that can provide reliable forecasts of aggregate liquidity. Also necessary are effective coordination between monetary policy implementation and public debt management, and clear separation of the instruments used for monetary policy and funding purposes.

These preconditions are difficult to fulfill in developing countries, and the difficulty is compounded in countries with high levels of public debt that rely excessively on commercial banks to fund this debt. Lebanon illustrates these difficulties. Even though it has a sophisticated banking system with strong banking supervision and no market fragmentation, it lacks an active money market. The exchange rate is used as the nominal anchor of monetary policy and the central bank focuses on maintaining the exchange rate peg and avoiding interest rate volatility; interest rate volatility can be seen as a sign of weakness and financial instability. The Lebanese central bank offers extensive facilities along the yield curve to encourage commercial banks to place their excess liquidity in longer-term deposits with it. It also undertakes switch operations with commercial banks at a premium to encourage them to hold to maturity longer-term treasury bonds.

Reducing excess reserves, encouraging greater money market activity, and giving market forces more scope in determining interest rates require improvements in forecasting aggregate liquidity and government funding needs. It might also require a reduction in the total level of public debt. Introducing a master repo agreement and developing money market indexes could improve the functioning of the money market but such measures would not bring about much change without a commensurate change in the way monetary policy is implemented.

The Tunisian authorities also want to avoid interest rate volatility and financial market instability, even though the level of public debt is lower than in Lebanon. Tunisia is progressing gradually toward adopting a base-money-targeting framework with a wider interest rate corridor. The central bank is reducing its accommodation of individual bank liquidity needs and is encouraging the development of an interbank repo market. A draft law for the creation of a repo market was prepared and submitted to parliament but had not been adopted when this report went to press. The repo market will initially be limited to banks and will subsequently be expanded to cover nonbank investors. The use of *dépôts adossés,* a form of quasi-repo agreement between banks and their customers, will continue to stimulate demand for long-term government bonds by nonbank investors—even though these bonds are effectively held as collateral by banks, which also assume the interest rate risk.

Several countries (Bulgaria, Colombia, Costa Rica, Croatia, Indonesia, Kenya, Pakistan, Sri Lanka, and Zambia) allow greater volatility in short-term interest rates. They are all trying to improve their forecasting of aggregate liquidity and government funding needs to contain the volatility of interest rates. In some cases, changes in reserve requirements, especially reductions in required cash ratios, complicate the management of excess liquidity and contribute to heightened interest rate volatility. Use of a sufficiently long average maintenance period for reserve requirements adds flexibility to the liquidity management function of individual banks.

In Pakistan, the central bank needs to shift its operating target from the six-month treasury bill rate to the one- or two-week rate. It also needs to refine the reserve requirement structure by extending the average maintenance period from one week to at least two weeks, and to introduce standing facilities. Streamlining the forecasting of government cash flows and improving coordination between the various governmental authorities and the central bank would permit better monitoring of aggregate liquidity.

Similarly, in Kenya, improvements in government cash management are needed to enhance the monetary authority's ability to forecast the level of banking system liquidity. At the same time, more active management of excess liquidity in the banking system is needed to avoid the high volatility of money market interest rates and to strengthen incentives for banks to engage in liquidity management.

In Zambia, recent improvements in forecasting and better coordination between the central bank and the ministry of finance helped ease interest rate volatility. Strengthening banking competition by licensing investment banks and expanding the capital of brokers would also help stimulate the development of the money market.

In Colombia, the central bank adopted an inflation targeting framework with intermediate target values for monetary aggregates. It also established an intervention band for interest rates in its market operations on repo transactions with primary dealers, which are collateralized with different types of public securities. In addition to improved forecasts of government cash flows, other measures that would improve the functioning of the money market include the adoption of a master repo agreement, promotion of securities borrowing and lending facilities, and creation of clearing facilities for repo transactions. Greater transparency of money market activity and more effective use of treasury bills in establishing the yield curve would also stimulate the development of the money market.

A reform project to deepen and enhance the efficiency of the Colombian government bond market received funding under the FIRST program. Several consultants from Brazil, Mexico, and other countries are participating. The project goals include clarifying the legal definition and standing of repo transactions, harmonizing market conventions (for example, with regard to haircuts, yield calculations, and pricing formulas), streamlining the tax and accounting treatment of repo transactions, and fostering the adoption of a master repo agreement. The project also seeks to establish a revolving issuing strategy for treasury bills to provide a yield curve at the short end of the market. Support is also given to the gradual transfer of government cash holdings to the government's account with the central bank and reduced treasury participation in the repo market. This will lead to the elimination of the captive placement of short-term securities with public sector entities.

In Costa Rica, a major challenge is integrating the two existing money markets that cater to the needs of banks and brokers and opening the integrated market to institutional and corporate investors. Recapitalization of the central bank, replacement of central bank bills by treasury bills for monetary operations, and building a modern technical infrastructure for registering and trading public securities would all help deepen the money market.

Improvements in Bulgaria's ability to forecast liquidity needs helped reduce volatility. The development of a money market index by the primary dealer association supports increased activity on the interbank money market and provides a benchmark for future money market mutual funds. In Croatia, better forecasting of government cash flows and closer coordination with the central bank would also enhance liquidity management. Croatia also improved the transparency of money market activity through broad dissemination of relevant data. The central bank launched open market operations in 2005 that boosted the development of the domestic money market and allowed a gradual reduction in reserve requirements.

The Indonesian central bank is planning a fundamental reform of its monetary policy framework as it moves toward adopting inflation targeting. The reform will include, among other things, reducing the use of standing facilities and the use of government securities to conduct open market operations. The central bank needs to strengthen its ability to manage excess liquidity. This strengthened ability will require a more efficient government cash management system and greater reliance on repo transactions. For its part, the ministry of finance should consider issuing treasury bills to fund temporary cash needs.

Stronger banking supervision in Indonesia is essential for reducing the fragmentation of the money market, which results from the credit risks in the banking system and the tight counterparty exposure limits on smaller or riskier banks. To alleviate this fragmentation, repo transactions must also be promoted as collateralized instruments. The central bank's launching of the central securities depository, which is capable of supporting the clearing of repo transactions and the ongoing efforts to adopt a master repo agreement, is an encouraging development. Broadening access to nonbanks and nonfinancial corporations will also help deepen the money market.

In Sri Lanka, the monetary authorities recently adopted a reserve money framework and intend to move to inflation targeting over the longer term. The main challenges in the money market have been the high level of interest rate volatility and the high leverage of primary dealers. These imply a strong need for more effective regulation of the capital adequacy of primary dealers. A study of the prudential and conduct regulation of primary dealers was undertaken by an international consultant under the pilot program. As a result, the central bank introduced a new code of conduct and a new supervision manual for primary dealers, while a risk-weighted capital adequacy framework was developed and became operational in July 2006.

Adopting master repo agreements as well as legal and regulatory changes covering netting and close-out arrangements, and strengthening the legal effectiveness of collateral used for repo transactions, are a high priority in all countries. In addition, promoting greater transparency of money market operations, with the compilation and broad dissemination of appropriate indexes of money market volumes and rates, would support the development of money markets in all pilot-program countries.

CONCLUSIONS AND INSIGHTS

Although an active and liquid money market is the cornerstone of a fully developed bond market, progress in money market development has been slow in all pilot countries. Only 4 of the 12 countries have money markets that are at more than a rudimentary stage of development.

The biggest challenge in developing active money markets is implementing market-based monetary control. Moving from direct controls, such as reserve requirements, credit ceilings, and controlled interest rates, to market-based instruments requires effective coordination of monetary policy and public debt management. Such coordination can be complicated by the presence of excess aggregate liquidity and the central bank's negative capital position.

Improving the ability of central banks to obtain reliable forecasts of aggregate liquidity and enhancing the efficiency of government cash management to ensure more accurate estimation of future funding needs pose major technical challenges. But equally critical are fundamental policy changes, such as eliminating passive central bank accommodation of individual bank liquidity needs that would create incentives for banks to develop and offer sophisticated liquidity and risk management services to their customers.

Strengthening banking supervision and expediting the resolution of banks with solvency and liquidity problems are also important for stimulating the development of money markets because these actions reduce market fragmentation on quality grounds. Opening access to the money market to institutional investors and large nonfinancial corporations can also spur greater competition. Such an approach is more relevant in countries dominated by noncompetitive banking systems.

The adoption of master repo agreements, legal and regulatory changes covering netting and close-out arrangements, and strengthening the legal effectiveness of collateral used for repo transactions all contribute to higher efficiency. Promoting greater transparency of money market operations through the compilation and broad dissemination of appropriate indexes of money market activity and rates would also spur the development of money markets.

The experience of pilot countries shows that parallel and gradual progress on all relevant fronts is necessary. A cautious approach seems fully justified because of the paramount importance of maintaining effective control over aggregate liquidity and ensuring macroeconomic stability. Introducing an interest rate corridor with increasingly wider bands to penalize banks that make excessive and persistent use of either credit or deposit facilities might accelerate money market development. The widening of bands could be linked to progress in technical areas, such as forecasting of aggregate liquidity, banking supervision, and legal reforms supporting the development of repo transactions.

3 Primary Markets

The operation of the primary market should be transparent and predictable and maximize competition among investors to obtain the best possible results for the government. This objective can be achieved by ensuring that the primary market is open to, and accessible by, the largest possible number of participants and by disseminating in advance relevant and timely information on the government's finances and funding operations.

Issuing techniques, including public subscription, auction, and syndication, should be market based and transparent. More advanced operations, such as reopening of issues, buyback programs, and switch transactions, could be used when markets become more sophisticated. Issuing strategies should weigh the preferences of investors against the government's own cost-risk targets and should seek as far as possible to promote benchmark issues in key maturities that facilitate the growth of secondary markets. Consultation and effective coordination between fiscal and monetary authorities is essential for avoiding auction failures.

The appointment of a network of primary dealers with well-defined privileges and obligations can be beneficial when there are a large number of investors, especially institutional investors, provided the risk of collusion can be minimized. The regulation of primary markets—including prudential norms for primary dealers and their technical infrastructure—needs to be commensurate with the depth and sophistication of these markets.

ANALYSIS AND PRECONDITIONS

The fundamental prerequisite for an efficient primary market is a government debt office that analyzes strategic options, discharges supporting operations (such as record keeping and debt servicing functions), and consults with the markets. A reliable cash management system that enhances the predictability of government funding needs is also important for an effective issuing strategy.

Traditionally, primary market activity in middle- and low-income countries relied on captive placement of government securities. Captive placement involves the state's use of coercive powers to force commercial and savings banks (through reserve and liquid asset requirements) as well as pension funds and insurance companies (through prescribed minimum investment ratios) to invest in government securities. Captive placement ensures the financing of the government at low direct cost and limited risk but it implies a command-economy approach and exposure to economic efficiency losses and misallocation of resources.

Reliance on captive placement declined around the world in recent years and was replaced by the development of market-oriented funding strategies. The fundamental objective is to minimize the cost of government borrowing over the medium term, subject to a prudent level of risk. A market-oriented funding strategy requires the use of issuing techniques and debt instruments suitable to the level of development of local markets.

With respect to issuing techniques, public subscription and use of retail distribution networks (bank branches and post offices) would be appropriate at an early stage of market development. More wholesale market–based mechanisms (auctions and syndications) and more advanced operations (reopening issues, buyback programs, and switch transactions) could be used as the markets become deeper and more sophisticated.

The organization of auctions often depends on the structure and level of development of the local financial system. Most governments use multiple-price auctions because they can result in higher auction proceeds by encouraging competitive bidding and limiting the risk of auction manipulation. In countries with more competitive and sophisticated financial systems, however, uniform-price auctions might encourage higher bids and generate better results for the government. Uniform-price auctions are often used for securities in greater demand, such as treasury bills and inflation-protected bonds.[1] Thus, countries might use different auction mechanisms for different instruments.

Direct auction participation can be limited to appointed primary dealers, especially when the number of investors is large, or it can be open to all authorized banks as well as other institutional investors. To ensure adequate participation and efficient outcomes, auction organization should also cover noncompetitive bids to allow participation in auctions by retail and small institutional investors. Limits on auction allocations to individual bidders would prevent attempts at market cornering and price manipulation. Direct financial incentives to successful bidders could encourage greater auction participation and stimulate demand for government securities. Such arrangements proved useful in a number of Organisation for Economic Co-operation and Development (OECD) countries while market participants built their capacity in treasury operations. However, such measures should be temporary to avoid distorting the market formation of interest rates. Finally, the credibility of auctions would be substantially enhanced by announcing auction results—such as bid and allocated amounts and average and marginal prices—in a timely fashion, and by avoiding both auction cancellations and allocating significantly smaller amounts than announced.

With regard to instruments, the strategy should aim to avoid excessive reliance on short-term instruments (treasury bills) that tend to be held by commercial banks. The ultimate objective would be to attain a stable redemption profile across the yield curve and minimize exposure to interest rate, exchange rate, and rollover (refinancing) risk. The move away from complete reliance on short-term instruments should be gradual, depending on the composition and sophistication of investors. Such a move also depends on public confidence that long-term returns will not be eroded by unexpected future inflation or taxation.

Issuing strategies should weigh the preferences of existing investors against the government's cost-risk targets. Medium-term bonds with variable cost, either floating interest rates, linked to a short-term rate, or indexed to the exchange rate, seem attractive to retail investors. Fixed-rate instruments with longer maturities, however, appeal more to long-term institutional investors such as pension funds and life insurance companies. Demand from mutual funds would fall between long-term institutional investors and households. Long-term price-indexed instruments tend to be in strong demand by both long-term institutional investors and households, as long as there is sufficient confidence in the reliability of the price index and indexation mechanism.

The issuing strategy should seek as far as possible to promote benchmark issues in key maturities that facilitate the growth of secondary markets. At the same time, the strategy should take into account the financial sophistication and risk management capabilities of both intermediaries and investors. Promotion of benchmark issues can be constrained by several factors, including the limited absorptive capacity of the market, especially when payment and settlement infrastructure is weak; pressures on yields caused by maturing large issues; nascent money and secondary markets, which might prevent use of buybacks and switches; and the inability of government debt managers to accumulate adequate cash reserves ahead of large maturities. Uncertainty about the size of liquidity premiums that can be extracted from a more active secondary market can also weaken the authorities' incentives to establish large benchmark issues.

Alternative market-based funding sources—either domestic (short-term treasury bills and commercial bank credit lines) or foreign (commercial paper and international bank credit lines)—can alleviate upward pressure on interest rates and should be taken into account in determining the issuing strategy and auction planning. In countries with underdeveloped money markets, direct borrowing from the interbank market and active participation in money market activities might not be feasible.

The combination of effective forecasting and management of aggregate liquidity by the central bank and reliable government cash management is critical for successful auctions and for stimulating adequate competition among market participants. Coordination of monetary, fiscal, and public debt management policies, and integration of central bank liquidity and government cash management, represent difficult technical challenges for most developing and emerging-market countries.

The issuing strategy for marketable instruments is often complicated by continuing reliance on nonmarketable debt, as well as by extensive recourse to central bank credit and captive sources of finance. Further complications arise when issuing activity is influenced by monetary (rather than funding) considerations. This occurs when sterilization operations are needed to remove surplus liquidity. The costs of sterilization operations, which reflect the cost of conducting monetary policy, constitute a fiscal burden, but failure to establish appropriate cost-sharing arrangements can lead to disputes and strain relations between the monetary and fiscal authorities.

Similar complications also arise when central banks issue their own instruments for sterilization. Monetary and fiscal authorities must consult about auction dates and issuance volumes, especially when central bank and government securities fall in the same maturity range. The potential conflict might extend to longer maturities when central banks suffer from quasi-fiscal deficits and need to fund their negative net capital positions with longer-term debt.[2] Extensive coordination between the monetary and fiscal authorities on the timing of their respective funding operations becomes essential. Central banks in dollarized or euroized countries with fixed-rate and crawling-peg exchange regimes require access to a wide range of instruments, including long-maturity certificates of deposit or long-dated deposit facilities, to be able to maintain flexible domestic interest rates and meet foreign exchange targets. Simultaneous issuance of government and central bank securities results in market fragmentation and hinders the development of liquidity for the market as a whole.

The appointment of a network of primary dealers with well-defined privileges and obligations is an important aspect of auction organization. The main role of primary dealers is to ensure the absorption of newly issued securities and to distribute them to final investors. Primary dealers can play a beneficial role in countries with many institutional investors (commercial and savings banks, pension funds, insurance companies, and mutual funds). A primary dealer system could prove detrimental, however, in a country with a small financial sector because of the added risk of collusion. In such countries, granting direct auction access to large institutional investors can limit the scope for collusion.

Eligibility criteria for primary dealers include sound financial capacity and effective supervision, adequate management skills and technical capacity, an active market presence, and a willingness to share market information with the authorities. The dealers' main privileges are the right to bid at auctions and have access to second rounds in auctions, as well as some information advantages from consultative meetings with the authorities. Their principal obligation is to take a certain amount of securities at government auctions.[3]

CURRENT SITUATION IN PILOT COUNTRIES

The pilot-program countries made good progress in putting in place several of the building blocks of a primary market but considerable shortcomings persist.

With respect to issuing techniques, all pilot countries expanded their use of marketable instruments at the expense of relying on captive placement and nonmarketable debt. However, private placement with an underlying element of coercion is still practiced in Colombia, Costa Rica, Nicaragua, Sri Lanka, and Tunisia. In Costa Rica, public sector entities were previously allowed to participate in auctions on a noncompetitive basis but were recently required to enter into direct negotiation with the treasury. Pakistan continues to rely heavily on nonmarketable debt. Recapitalization and restructuring bonds, which have been used in Bulgaria, Croatia, Indonesia, and Tunisia, have been placed directly with the banks concerned; such bonds, however, became tradable after a while or were exchanged for marketable instruments.

Public subscription and retail distribution, mostly of nonmarketable instruments, are still in use in most pilot countries. Retail savings certificates play a dominant role in Pakistan and nonmarketable debt is important in Sri Lanka, Tunisia, and Zambia, although in Sri Lanka new nonmarket borrowing is currently negligible and nonmarketable debt is declining.

Marketable instruments are increasingly issued at auctions, often through electronic bidding systems. Croatia, however, issues longer-term euro-linked securities through a syndicate of domestic banks. In Pakistan, auctions are still based on a manual system. Syndication is used for bonds offered on international markets, often following requests for proposals and a competitive bidding process to select managers.

Most countries use multiple-price auctions. In some (for example, Lebanon and Tunisia), however, auction prices can fluctuate slightly and are guided by monetary policy concerns. Croatia uses uniform-price auctions for treasury bills and syndication for longer-term bonds.

Direct auction participation is often limited to primary dealers, if such a system exists, or to authorized banks—and in some cases to other financial institutions such as pension funds. In Croatia, however, no eligibility criteria are in place for participating in treasury bill auctions to ensure the timely settlement of successful bids. Any interested investors, including individuals, may participate directly in the auctions if they meet minimal requirements. Despite the open auction system, no settlement failure has occurred.

Most countries suffer from too-frequent auctions and from a failure to act as price takers. Allocated amounts often deviate from those announced. In Sri Lanka, auctions are sometimes cancelled or auction amounts substantially reduced. Tunisian auctions of short-term instruments follow a stable pattern with respect to amounts announced and accepted, but auctions of longer-term instruments are volatile. This volatility has been linked to the variability of government cash flow and technical shortcomings in cash management and forecasting. In Costa Rica, the authorities do not indicate auction amounts. The proportion of accepted bids varies considerably from auction to auction and is occasionally set very low. The Bulgarian authorities, however, generally act as pure price takers by pre-announcing the amount for sale and then automatically accepting cutoff prices, leading to the full sale of the amount offered.

Auction performance can be further improved by greater use of noncompetitive bidding (Tunisia and Zambia), setting limits on individual allocations (Kenya, Nicaragua, Tunisia, and Zambia), and improved knowledge of the demand for government securities, either through market surveys or ongoing dialogue with market participants. In Pakistan, auctions suffer from the prohibition of bids from other investors.

Pilot countries increasingly use standardized, fungible instruments. Progress is pronounced in Costa Rica and, especially, in Nicaragua, where the starting point was one of excessive fragmentation linked to specific events (such as land expropriation and bank insolvencies). All other countries made considerable progress in reducing instrument fragmentation and moving toward creating benchmark issues.

Nevertheless, none of the pilot countries has yet managed to establish large and liquid benchmark issues, although some make more active use of reopening issues (Colombia, Croatia, Indonesia, and Nicaragua), switch transactions (Costa Rica and Indonesia), and buyback operations (Indonesia). In Lebanon, weekly auctions and failure to reopen existing issues resulted in a fragmented market and in the absence of benchmark issues. Nonetheless, the central bank undertakes switch operations with commercial banks to exchange maturing treasury bills for longer maturities. Direct borrowing from the interbank market (a recent trend in OECD countries) is not feasible in pilot-program countries because local money markets are much too small relative to government cash flows.

With respect to instruments, the preponderant forms are zero-coupon treasury bills or coupon-bearing medium-term bonds. Some countries make extensive use of instruments with price indexation (Colombia) or foreign-currency indexation (Colombia, Costa Rica, Croatia, and Nicaragua). Croatia, Kenya, Sri Lanka, and Tunisia dramatically extended the longest maturity of their debt instruments, either placed largely with captive investors or issued to investors seeking higher yields under conditions of chronic excess liquidity. Pakistan issues marketable bonds with long maturities (up to 20 years) but they remain relatively unimportant. In several countries (Colombia, Costa Rica, and Lebanon), marketable debt is either short term or medium term but at variable cost, implying a large exposure to interest rate, exchange rate, and rollover risks.

All pilot-program countries suffer from an inability to forecast aggregate liquidity and government cash flows adequately, and from difficulties in effectively coordinating monetary and fiscal policy. The negative capital positions of central banks in Costa Rica and Nicaragua inhibit their capacity to engage in sterilization operations. At the same time, the need to issue either treasury bills or central bank securities for monetary purposes is creating market confusion in all countries, to varying degrees. This is a major source of market fragmentation because investors often perceive central banks to be more creditworthy than central governments and demand lower interest rates than on identical securities issued by the ministry of finance. This is an issue in Costa Rica, where the central bank issues longer-dated debt in direct competition with the finance ministry.

All countries tried to establish issuance calendars and to pre-announce auction amounts and maturities, but a lack of transparency and predictability persists. In most countries, calendars are not always respected and allocated amounts often deviate from those announced. In Costa Rica, the issuance calendar stipulates only the dates of the issue, with no indication of amounts or even a targeted range. Similarly, in Lebanon auction results are not disclosed in sufficient detail, although as a result of recent changes they are currently announced on Reuters Page BDL 10 and in major newspapers. In Tunisia, auction results are not always disclosed in a timely way. Publication of an annual borrowing plan and a quarterly issuance calendar, followed by full disclosure of auction results in a timely manner, would increase transparency and predictability. Borrowing plans and issuance calendars, however, require reliable forecasting of short-term cash flows and longer-term funding needs. They are difficult to implement in the absence of effective cash management and a separation of long-term funding needs from daily balancing of cash positions. Ideally, short-term deficits should be financed with short-term debt, but this is not possible without a reliable cash forecasting function and an adequate public financial management system. Finally, spreading longer-term debt issuance through the fiscal year (as most OECD countries do) is not feasible in any of the pilot countries.

Five of the 12 pilot-program countries (Croatia, Indonesia, Kenya, Lebanon, and Zambia) do not use primary dealer systems, mainly because of the fear of collusion among a small number of eligible institutions. Sri Lanka introduced a primary dealer system, which is now working reasonably well, but the high financial leverage of primary dealers at times causes concern, although this is no longer an issue following the introduction of new regulations. In Colombia, the primary dealer system suffers from lack of competition and commitment; this is also true for Bulgaria (where all the local operating banks are primary dealers), Costa Rica, and Nicaragua (where the exclusive privilege was recently withdrawn). Tunisia introduced a primary dealer system several years ago, but because of technical shortcomings it has been dormant in recent years. Pakistan has a primary dealer system in place but its relevance is limited because marketable debt accounts for a very small part of total domestic debt. The primary dealer system in Zambia was abolished a few years ago when direct access to the primary market was granted to non-bank investors to contain collusion among banks and increase competition. The authorities are, however, thinking about reintroducing it.

Some countries with primary dealer systems (Colombia, Sri Lanka, and Tunisia) experienced auction failures even when their primary dealer obligations included underwriting commitments. Similarly, obligations relating to the secondary market were not effectively monitored (Colombia) or were waived altogether (Tunisia).

In Colombia, the August 2002 crisis revealed that primary dealers did not have the resources, incentives, or commitment to continue their market-making activities in a highly volatile interest rate environment. New regulations were issued to overcome the weaknesses linked to the lack of competition and commitment in times of stress. Primary dealers continue to have exclusive access to the periodic primary and second-round auctions of treasury bonds, to meetings with the authorities concerning public debt issues, and to the centralized trading system run by the central bank. Their obligations include minimum underwriting levels and the continuous provision of buy-sell quotes. But primary dealers are now required to have a minimum acceptable rating, a specified minimum net worth, and direct links to the electronic system of the central bank, including the payment system and electronic custody. The central bank now evaluates primary dealers on a weekly basis to address these shortcomings.

In Sri Lanka, primary dealers must meet several criteria. They are allowed to trade on their own account, as well as on behalf of customers, but are not allowed to trade or intermediate any instruments other than government paper. The main privileges of primary dealers are access to auctions, serving as counterparts to central bank transactions in the secondary market, access to monthly meetings with the central bank, and some minor fiscal incentives. In return, each primary dealer must bid for a minimum of 10 percent of tendered amounts at each auction, create and maintain a secondary market for government securities, and abide by a code of conduct. Primary dealers are also required to comply with risk management and internal organization guidelines determined by the central bank. Primary dealers used to operate with high leverage, reflecting the underdeveloped state of the risk management framework. However, new prudential regulations addressed this issue.

Primary dealer arrangements are based on bylaws or special central bank directives in Bulgaria, Sri Lanka, and Tunisia. These arrangements are often detailed and rigid relative to the approach taken in more developed markets, where dealer arrangements take the form of private agreements.

The monitoring of primary dealer obligations is ineffective, especially when debt managers are charged with supervisory responsibilities that conflict with their funding objectives.

The complete absence, or weak presence, of nonbank institutional investors in most pilot-program countries undermines the development of the primary market. No pilot country has a large, pluralistic, mature, sophisticated institutional investor sector. Although institutional investors are well established in Colombia, Kenya, and Sri Lanka, they are either dominated by public sector institutions (as in Sri Lanka) or have not yet reached the requisite level of maturity and sophistication. This generally impedes rapid extension of the average maturity of domestic debt. It also discourages the establishment of benchmark issues, although several countries made limited progress in both these areas.

ACTION PLANS AND REFORM PROGRAMS

Several pilot countries acted to improve the functioning of their primary markets—particularly with respect to reducing the fragmentation of issues. Even though most markets continue to suffer from instrument fragmentation, Costa Rica, Nicaragua, Sri Lanka, and Tunisia substantially reduced the number of outstanding issues. Several countries—especially Kenya, Sri Lanka, and Tunisia—also extended the maturity of their debt and changed the composition of domestic debt toward fixed-rate marketable instruments. Latin American countries continue to make greater use of instruments indexed to foreign currency or to price inflation.

The action plans and reform programs of pilot-program countries identify a number of areas meriting improvement, including

- greater and more reliable use of issuance calendars,
- enhanced performance of auctions, and
- more effective oversight of primary dealer systems.

In Lebanon, the primary market functioning of the primary market deviated significantly from best practice. It lacked transparency since the volume of debt maturing was not announced prior to the auction nor was the accepted volume in each maturity disclosed after the auction. Weekly auctions and a failure to reopen existing issues resulted in market fragmentation and the absence of benchmark issues. The authorities are studying ways to improve cash management and the forecasting of government funding needs; enhance the transparency of auctions; consolidate government securities into larger, fungible issues; and determine the appropriate frequency of longer-term issues. Auction transparency has improved and the accepted amount in each maturity is announced on Reuters Page BDL 10. Government initiatives in these areas, however, are constrained by the currently heavy public debt burden and the almost complete absence of contractual savings and institutional investors. Lebanon has no primary dealer system—nor has it any plans to introduce one in the near term—mainly because the authorities are concerned about the potential for increased oligopolistic behavior by the banks.

The main focus of Tunisia's action plan is to improve further a domestic auction market that works reasonably well. The authorities adopted a series of measures to enhance the efficiency of auctions, including an effort to spread debt issues as evenly as possible through the fiscal year, public announcement of a range for the amount to be issued, an increased share of noncompetitive bids, greater disclosure by the treasury of its objectives, application of an upper limit on auction allocations to single investors, promotion of benchmark issues over a wide range of maturities, use of buyback and reopening techniques, and more timely announcement of auction results. The system of primary dealers should be reformed and reactivated to make all financially sound banks eligible for primary dealer status; such status, however, should be conferred only on those institutions committed to bidding competitively at every auction and meeting their market-making obligations.

In Kenya, measures to improve the functioning of the primary market and increase its transparency should include publication of an outline of the borrowing requirement at the start of each year—indicating the likely timing and amount of issuance—and an announcement to the entire market, well in advance of each auction, of the amount to be sought and the maturities offered. The authorities should also promote the use of benchmark securities by issuing in key maturities and reopening issues, strengthening auction rules, announcing a minimum amount for each maturity on offer, and releasing critical information to all market participants. They also need to improve forecasting of government cash flows, particularly in connection with large irregular payments and receipts, and promote better coordination of monetary, fiscal, and debt management policies.

The Zambian authorities are considering reintroduction of a primary dealer system aimed at achieving fair and wide distribution of government securities and increased liquidity in the secondary market. In a small market such as Zambia, however, the risk of collusion among dealers is always great. Through the right mix of incentives (exclusive participation in auctions and other privileges, for example) and market-making obligations and controls (setting a maximum allocation amount for each successful bidder and monitoring post-auction dealer activity), the primary dealer system could work. A balanced consideration of distribution and market-making capacities in selecting primary dealers will also help optimize the system.

Other measures to improve the functioning of primary markets in Zambia should include more predictable and consistent issuance of domestic debt over the medium term, appointing nonbank financial institutions as off-tender agents to revitalize the noncompetitive bidding system, setting aside a specific portion of each issue for noncompetitive bids by nonbank investors, and setting a limit on the maximum allocation to a single bidder.

Colombia should adopt several measures to improve the functioning of its primary market. First, it should increase auction transparency and predictability by articulating a coherent funding strategy and assessing investor demand. Consolidating issuance mechanisms and redesigning primary auctions to allow public entities to submit noncompetitive bids on the basis of acceptable predetermined criteria would also enhance the efficiency of auctions. An important initiative is revitalization of the primary dealer system by determining minimum capital and liquidity requirements for primary dealers and evaluating their obligations with regard to their operational, risk management, and distribution capacity. Strengthening central bank oversight of primary dealer performance is a key element of this process.

Following Colombia's August 2002 crisis, the regulatory framework covering primary dealers was strengthened and a weekly system of evaluating primary dealer performance instituted. Risk management capabilities of primary dealers need to be improved further, however, especially with regard to short selling, securities borrowing and lending facilities, and interest-rate derivative markets.

Colombia's FIRST project, which aims to stimulate further development of the government bond market, emphasizes eliminating reliance on captive placement of treasury securities with several public sector entities. It also seeks to improve the regular issuance of treasury securities to enable market determination of the yield curve.

In Costa Rica, the absence of a well-defined overall issuance strategy creates market uncertainty and impedes the efficiency of the primary market. The strategy, which should be communicated to market participants, should include an assessment of the choice of debt instruments (for example, indexed or non-indexed, Costa Rican colón versus dollars) in light of overall cost-risk trade-offs and other key targets and policy parameters (exchange rate and fiscal policy stance). In addition to the dates of auctions, the annual issuance calendar should indicate the magnitude of funding needs, while a quarterly update should specify the targeted range for each issue. Public sector entities should be allowed to participate in auctions on a noncompetitive basis and should not have to negotiate directly with the authorities for their investments in government securities. In any case, the annual calendar and quarterly updates should indicate the funding needs of the government, both on a gross basis and on a net basis, after taking account of the likely demand from public sector entities.

Primary auctions in Costa Rica are now open to banks and brokers but there is no primary dealer system. The lack of secondary market liquidity and uncertainty about the issuance strategy of the authorities discourage auction participants from bidding aggressively. The authorities should consider opening auction participation to other large investors. A stock exchange proposal to create a primary dealer system with limited privileges and obligations might also merit support.

In Nicaragua, both the central bank and the ministry of finance are taking steps to increase the volume of standardized securities and both are committed to issuing new standardized debt through competitive auctions. The central bank refinances maturing nonstandardized instruments with new standardized ones, while the finance ministry plans to undertake exchange and debt buyback operations to accelerate the process of standardization. Auction rules were improved by eliminating the fees paid to participating brokers and by opening auctions to banks. However, one of the drawbacks of the auction process is the small number of participating institutions. The central bank controls potentially collusive behavior by applying reserve prices based on an internally estimated spread on U.S. treasury bills and the London interbank offered rate. This spread is eventually modified depending on the bids of market participants. There are no rules related to maximum amounts to be allocated per bidder. A formal auction calendar should be adopted and published by both the ministry and the central bank.

In Croatia, development of the primary market could benefit from a move away from reliance on large syndications—in which primary arrangers assume no market-making obligations—to a system of regular auctions spread throughout the fiscal year and conducted through primary dealers. Pre-funding, switch transactions, and buyback operations could be used to reduce refinancing risk. During the transition to a primary dealer system, syndicated issues can continue, using auction participation as one of the main criteria for selecting primary syndication managers. Such an approach would increase the transparency and predictability of the issuance calendar, enhance market liquidity, and strengthen market confidence.

Further technical assistance is being provided to the Croatian authorities under the action plan to improve the functioning of its primary market. The technical assistance covers the introduction of an electronic auction system and the creation of a primary dealer system. Under the terms of reference, the consultants will, among other things, assess the compatibility of the Bloomberg Auction System with the Croatian government securities market. The consultants will also define any gaps in functionality, review the legal basis for electronic bids for government securities, and develop an auction manual defining the auction stages (creating new securities for auction; setting up auction terms; determining competitive and noncompetitive bids; collecting, ranking, and selecting bids; allocating amounts; announcing results; and receiving payments). The assistance will also include help in formulating the selection criteria for primary dealers, defining their rights and obligations, developing application and withdrawal procedures, and setting up performance evaluation models. The program will also help create an appropriate supervisory model, focusing on the capital adequacy and conduct of primary dealers and on their underwriting and market-making obligations.

In Indonesia, an issuing calendar should be announced and the ministry of finance should be prepared to act as a price taker to provide greater certainty and encourage aggressive bidding by market participants. The ongoing modernization of government cash management will improve the quality of cash flow forecasts. The recent practice of reopening existing fixed-rate issues and the use of buyback operations will help promote benchmark issues and establish a benchmark yield curve. Auctions are currently open to banks, money brokers, and securities companies that satisfy minimum requirements set by the central bank. The promotion of the repo market and the offer of delivery-versus-payment settlement facilitated by the creation of the central securities depository have also made possible the introduction of a primary dealer system. The Indonesian authorities, however, need to study carefully the pros and cons, as well as the business feasibility, of a primary dealer system.

In Sri Lanka, the market's current instrument fragmentation can be reduced by limiting coupon changes and consolidating issues, with a view to creating a benchmark yield curve. Such a change will, however, require improved cash management practices and projections, use of short-term borrowing instruments combined with front loading of sales, and eventual buyback of bonds maturing within the year. Issuing longer-term instruments, especially inflation-protected bonds, would meet strong demand from both institutional and retail investors. The primary market continues to suffer from the direct placement of more than 60 percent of marketable securities with the state provident fund and other state-controlled institutional investors. This undermines market determination of interest rates.

Strengthening risk management practices and the prudential oversight of primary dealers in Sri Lanka is a high priority. An increase in trading volumes and greater interest rate volatility would strain the solidity of primary dealers. Implementation of the new prudential and conduct regulation of primary dealers—encompassing a code of conduct and a supervision manual for primary dealers as well as a risk-weighted capital adequacy framework (which became operational in July 2006)—will help address these issues.

The Sri Lankan authorities need to improve risk management practices of the repo market, to include the introduction of a master repo agreement and the pledging of adequate collateral. The effectiveness of such measures will be strengthened by the recent creation of the central securities depository and the likely progress in the dematerialization of securities. The lack of hedging instruments also hampers efficient risk management, putting even more pressure on the risk management procedures actually in place, especially when taking into account the obligation to quote prices in a large number of government securities. Further improvements in government cash management and better coordination of monetary, fiscal, and debt management policies would create a sounder framework for primary issuance and for the development of the primary market.

In Pakistan, the primary market suffers from design shortcomings, including the prohibition of bids, competitive or noncompetitive, from other investors; the failure to introduce an electronic auction system; and setting coupons at levels that lead to significant deviations between issue price and face value. A clear plan over time to replace national savings certificates, which suffer from lack of adequate records, with marketable bonds would expand the scope of the primary market. Reopening particular bond issues and undertaking buyback operations would accelerate the development of the market.

CONCLUSIONS AND INSIGHTS

Several pilot countries made major strides in promoting more efficient primary markets. They reduced the number and frequency of separate issues, made increasing use of market-based auctions, and published annual funding plans and quarterly issuance calendars. The experience of the 12 pilot countries demonstrates the feasibility and benefits of reducing reliance on captive investors and expanding the use of market-based instruments.

Moving to the next level of sophistication is more challenging. The promotion of liquid benchmark issues and the adoption of more efficient issuing techniques—such as reopening of issues, buyback programs, and switch operations—require active money markets, well-functioning payment and settlement systems, and effective government cash management.

Early progress can also be made by improving the functioning of auction markets. Many countries suffer from auction failures because funding programs are not transparent and the calendar is uncertain. Participation in auctions is sometimes dominated by a few institutions, and other market participants are unable to predict the behavior of public sector entities. Taking steps to improve the predictability and performance of auctions is an important component of reform programs.

Most countries improved their auction mechanisms and extended the maturity of their domestic debt. However, none of the pilot countries managed to establish large and liquid benchmark issues, underscoring the practical difficulties of meeting all the required preconditions. All countries have tried to establish reliable issuance calendars with pre-announced auction amounts and maturities, but setbacks involving large deviations from announced plans and even cancellation of auctions continue to bedevil several countries.

The appointment of primary dealers is a controversial issue. Primary dealers can play a useful role when there are a large number of potential investors. In these instances, market communication can be facilitated by primary dealers, who convey to the authorities the views and expectations of market participants and provide firm underwriting commitments. Primary dealers can also undertake to act as market makers, at least for key benchmark issues.

However, supervision of the extent to which primary dealers fulfill their obligations is an issue in countries with weak oversight of financial institutions or in countries dominated by just a few financial groups. Also, primary dealers need to maintain adequate capital for the risks and leverage they assume. Granting large institutional and corporate investors direct access to auctions might be a more suitable approach when there are concerns that primary dealers could engage in open or tacit collusion and thus undermine market development.

4

Investor Base

A large and diversified investor base is important for ensuring strong and stable demand for government debt securities. The investor base should ideally include both domestic and foreign investors and all types of institutions, ranging from commercial banks to insurance companies, pension funds, and mutual funds, as well as individual investors.

The structure and composition of the investor base are closely linked to the state of development and sophistication of a country's financial system. The role of state-owned institutions, the presence of foreign banks and insurance companies, the strength of contractual savings institutions, and the financial wealth of the household sector affect the functioning of the government securities market. Promoting a heterogeneous investor base with different time horizons, risk preferences, and trading motives is vital for stimulating active trading and high liquidity. A heterogeneous investor base is also critical for enabling the government to execute its funding strategy under a wide range of market conditions.

Governments should aim to ensure equitable treatment of all types of investors, while financial institutions should be regulated to ensure their solvency and proper operation. Asset allocation limits and valuation rules broadly affect the investment policies of institutional investors; they need to be designed carefully and be adapted to the changing circumstances of regulated institutions.

ANALYSIS AND PRECONDITIONS

Commercial banks typically demand short-term securities for their liquidity management needs. The strong demand for such securities is often reinforced by statutory reserve and liquid asset requirements. In countries with well-established repurchase (repo) markets, commercial banks might, in addition, demand longer-term securities for use as collateral for their repo operations. A competitive banking industry with a stronger presence of foreign banks, weaker involvement of public sector banks, and lesser reliance on central bank accommodation is more conducive to the development of active money and bond markets.

Despite the short-term nature of their deposit bases, commercial banks may hold large amounts of medium- and long-term government bonds. This might reflect the stable nature of retail deposits collected from their extensive branch networks, but it might also reflect the recapitalization of both public and private banks that have received injections of new capital in the form of long-term government bonds. Banks can also seek to invest in medium- and long-term bonds when faced with persistent excess liquidity. Two major and related constraints on commercial banks with large holdings of fixed-rate, medium- and long-term bonds are their risk management capacity and the difficulty of trading efficiently and profitably in illiquid secondary markets. Banks also face valuation problems, which they try to overcome by classifying some of their bond holdings as "held to maturity" and valuing them at amortized cost.

Contractual savings institutions, with their longer-term orientation, are critical for developing the long end of the market. Pension funds and life insurance companies have the potential to stimulate the development of the government securities market because they enjoy economies of scale and have access to highly professional asset management services. To achieve their full potential, however, pension funds and life insurance companies must fulfill a number of preconditions:

- They should not be treated as captive sources of government funding and should be free from compulsory investment requirements.[1]
- They should have a pluralistic structure and not be dominated by a small number of public sector entities.
- They should reach a mature stage in their development. During the phase of rapid accumulation of long-term capital resources, pension funds and life insurance companies tend to engage in buy-and-hold strategies and to rebalance their portfolios through changes in the asset allocation of their net new inflows. During this phase, they can

be important participants in the primary market, but they need to reach a mature stage before they become active participants in the secondary market. Maturity occurs when their new net inflows become a small fraction of their total assets and rebalancing their portfolios requires active trading of their asset stocks.

- Even when mature, pension funds and life insurance companies must adopt sophisticated asset allocation strategies and emphasize the benefits of diversified portfolios and professional asset management. This requires access to a competitive and professional asset management industry, the use of specialized asset management mandates, and monitoring of investment performance against appropriate benchmarks. Even under such circumstances, institutional investors might engage in buy-and-hold strategies for some of their assets (the use of inflation-protected bonds, for example). In general, however, mature institutional investors engage in active trading to rebalance their asset portfolios and even pursue active yield-enhancement strategies—such as securities lending and options writing—when permitted.

Nonfinancial corporations are usually interested in placing their liquid funds in very short-term instruments; they have a strong interest in using the repo market when it is well developed. Except in countries with established records of financial stability, retail investors tend to prefer investing in short-term securities or in medium-term securities with coupons indexed to short-term interest rates or to foreign currencies. Retail demand for long-term, inflation-indexed securities can also be strong in countries with credible indexation mechanisms. Targeting the household sector can be a feasible transition strategy in countries seeking to move away from complete reliance on commercial banks and public institutions but lacking a well-developed base of institutional investors. However, targeting retail investors usually involves high distribution and transactions costs, unless a modern electronic delivery system is used. Retail investors are often offered nonmarketable instruments with special features that are issued only to them. Such instruments tend to cause segmentation of the market for public debt and to constrain the development of primary and secondary markets in marketable securities. Retail investors should ideally have access to marketable securities with features that appeal to them but do not preclude their holding by other investors.

Mutual funds represent an intermediate solution between long-term institutional investors and retail investors. Mutual funds combine the benefits of portfolio diversification and professional management with low operating costs. Their demand for long-term instruments is constrained by the preference of individual investors for short- and medium-term instruments. In illiquid markets, mutual funds face difficult valuation problems and can suffer from unexpected peaks in investor redemptions. In some countries, mutual funds are exempt from the debit tax on financial transactions imposed on most other investors. In such cases, mutual funds might become dedicated vehicles for investing pension fund and insurance company assets in an effort to avoid the tax on financial transactions. As dedicated vehicles, they can invest in long-term securities to a greater extent than ordinary mutual funds.

Foreign institutional investors—including pension funds, insurance companies, and mutual funds, as well as commercial and central banks and hedge funds—can compensate for the absence of domestic institutional investors in countries that allow them access to their domestic markets. Of course, granting domestic market access to foreign investors should be dictated by the overall approach to capital account liberalization. Countries that open their domestic markets to foreign investors must pursue policies that are credible in the eyes of large international institutional investors and have realistic prospects of economic convergence with more advanced countries. Such attributes are greatest in countries in the process of joining the financial markets of well-developed economic unions and currency areas, such as Southern and Eastern European countries joining the European Union. They might also be shared by other developing countries that are fully committed to credible policies.

CURRENT SITUATION IN PILOT COUNTRIES

The 12 countries covered in the pilot program vary considerably in the composition and sophistication of their investor bases. Few have well-established contractual saving institutions, however, and in all of them commercial banks continue to play a dominant role in the financial systems.

Commercial banks are the primary investors in government securities in several of the pilot countries—Bulgaria, Croatia, Indonesia, Lebanon, Pakistan, Tunisia, and Zambia. In contrast, in Colombia, Kenya, and Sri Lanka, the investor base is more diversified, due to the relatively stronger presence of institutional investors, especially provident and pension funds. In a few countries, the role of the banks is matched by special types of nonfinancial investors, such as small landowners that hold expropriation bonds in Nicaragua and various nonfinancial public entities in Costa Rica. Institutional investors are virtually nonexistent in Nicaragua and Pakistan.

In Costa Rica, public sector institutions—including state-owned banks, the state-owned insurance monopoly, and the social security institution—are dominant holders of government securities. In Tunisia, the public sector (through the holdings of state-owned banks and social security institutions) is an important investor in government securities. The public sector in Sri Lanka, through the public provident funds and several state-owned commercial and savings banks, also plays a major part in the government debt market.

In most countries, commercial banks invest in government securities partly by choice and partly for regulatory reasons, because they are required to hold government securities for statutory reserve and liquid asset requirements. Foreign-owned commercial banks tend to be more active traders than domestic banks and to participate in repo transactions. Because of persistent excess liquidity, commercial banks in several countries shifted their investments from short-term treasury bills to medium- and long-term bonds.

In Bulgaria and Croatia, commercial banks (mostly foreign owned) are the main investors in government securities in the domestic market. In Indonesia, banks are the largest investors in government securities. Banks are, however, gradually liquidating their holdings of recapitalization bonds—by transferring them from their investment to their trading accounts and subsequently selling them in the secondary market to meet growing demand from institutional investors.

In Lebanon, commercial banks and the central bank hold the vast majority of outstanding domestic government debt. Commercial banks are also major investors in eurobonds issued by the Lebanese government. In Nicaragua, commercial banks have been buying expropriation bonds from small landowners at heavy discounts and using them at face value to discharge their tax liabilities. In Tunisia, primary dealers and commercial banks hold more than 80 percent of domestic marketable debt, one-third for their own accounts and the rest for their customers. The offer of so-called liquidity contracts[2] by commercial banks to their corporate customers stimulated the demand for government securities by nonbank investors. These contracts are in some sense open-ended repo agreements with no fixed term and are exercisable at book value at any time at the option of customers.

In Sri Lanka, commercial banks are not major holders of government securities, but the National Savings Bank, a state-owned banking organization, holds nearly a sixth of government domestic debt. It collects savings from more than 12 million account holders and invests some 90 percent of its funds in government securities. The savings bank is willing to trade its government securities; engages in repo transactions; and owns a primary dealer subsidiary, which gives it direct access to primary offerings. It also participates in private placements of government securities.

Nonbank institutional investors can play a major role in developing government securities markets. As noted above, they have a relatively stronger presence in Colombia, Kenya, and Sri Lanka. Several types of institutional investors are active in Colombia, ranging from investment funds managed by brokerage firms to mutual funds managed by fiduciary companies and pension funds (voluntary and mandatory), special employee severance payment funds, and insurance companies. Despite pension reform in the early 1990s, the role of pension funds in Colombia remains limited, although these funds demand substantial long-term, inflation-protected bonds and have the potential to accumulate considerable contractual savings. Many institutional investors belong to financial conglomerates, suggesting a highly concentrated investor base. However, pension and mutual funds claim that they operate independently of the financial groups to which they belong.

In Kenya, institutional investors—pension funds and insurance companies—play a key role in the financial system. In addition to the National Social Security Fund, numerous company pension schemes are regulated and supervised by the Retirement Benefits Authority. The investment policies of most pension funds emphasize the benefits of diversified portfolios and professional fund management. As a result, the fund management industry is well developed. The authorities are attempting to develop performance tables for fund managers, promote specialized mandates, and generally stimulate competition in the fund management industry.

In Sri Lanka, by far the largest single investor in government securities is the Employees' Provident Fund, a compulsory scheme for private sector employees (and quasi-government employees). It invests a growing share of its assets in treasury bonds but still has large holdings of nonmarketable rupee loans. The fund engages in repo market transactions and trades a small part of its portfolio. It usually places surplus liquidity in repos rather than buying government securities outright in the secondary market. Most acquisitions consequently take place in the primary market. The fund follows a buy-and-hold strategy because its total resources are still growing; it exhibits strong demand for long-term assets.

In Indonesia, the pension system consists of four types of schemes: voluntary employer-sponsored pensions, a mandatory provident fund for private sector employees, a military force pension scheme, and a civil service pension scheme. Of these, the first two are funded, defined-contribution plans that generate long-term financial resources and a strong demand for government bonds. The defined-contribution pension funds grew rapidly from a low starting point and are shifting their assets from bank deposits to government securities in response to the decline in bank deposit rates.

In Tunisia, the pension system is dominated by two unfunded social security institutions, one covering private sector employees and the other civil servants. These have relatively modest resources that are mostly invested in government securities, occasionally at the behest of the authorities. Their holdings represent about 20 percent of domestic marketable debt.

In Zambia, the pension system rests on two pillars. The national pension scheme is the largest fund in the country and invests heavily in government securities. Occupational pension schemes exist for a large number of companies, including some state-owned entities. Large government arrears to both the national scheme and the state-owned occupational funds have slowed the growth of the sector. Because of the negative real interest rates on government securities in recent years, several of the occupational pension funds diversified into foreign-currency deposit accounts and real estate. Although pension funds are required to use external asset managers, the fund management industry is not yet well developed and the requirement not fully observed in practice.

Several countries implemented systemic pension reforms in recent years. The beneficial impact of these reforms on asset accumulation and debt market development has yet to fully materialize. Bulgaria and Croatia introduced new funded pension pillars in 2001 and 2002. Pension funds and other nonbank financial institutions grew quickly following these and other recent reforms and contributed to the establishment of benchmark issues and the extension of debt maturities, although their total size is still small compared with banks. Costa Rica implemented a pension reform in 2000 that created a second pillar of individual capitalized accounts currently managed by eight administrators. This complements the first pillar consisting of three large funds operating on a partially funded basis.

The insurance business, especially life insurance, is underdeveloped in all pilot-program countries. In Costa Rica, insurance continues to be a state monopoly. In Indonesia, insurance companies are registering steady growth. They are not required to invest in government securities, but their resources represent an important source of demand. In Lebanon, life insurance suffers from past high inflation, a weak regulatory framework, and unfavorable tax treatment. In Tunisia, life insurance continues to lag considerably behind most other countries of similar income, despite recent measures offering favorable tax treatment to group life insurance and a major effort to revamp the insurance industry and strengthen insurance regulation and supervision. In Sri Lanka, insurance institutions are required to place a minimum of 50 percent of life insurance funds and 30 percent of general insurance funds in government securities. But insurance institutions do not hold significant amounts of government securities in absolute terms because they are still relatively small.

Mutual funds are underdeveloped in all pilot-program countries, with the possible exception of Colombia, Costa Rica, and Tunisia. In Colombia, investment funds grew rapidly in recent years, benefiting from their exemption from the debit tax on financial transactions that has affected the operations of other types of institutional investors. Inconsistent valuation rules created additional distortions. An attempt to rectify these problems by mandating the use of market values triggered a mini-crisis in mid-2002 because investor redemptions forced investment funds to liquidate their assets in a falling market. The introduction of more sophisticated valuation rules addressed investor concerns.

Costa Rica also witnessed a large increase in assets under management of investment funds that operate as open funds. In principle, the funds have specialized objectives, such as capital growth, income, or short-term (money market) or super funds. In practice, however, the asset composition of the various types of funds does not differ much and is dominated by government debt. Despite their high growth, investment funds face serious risks from large declines in asset values. These risks arise from the illiquidity of asset markets and the absence of restrictions on redemptions, as well as from flawed capital regulation and valuation rules.

In Tunisia, mutual funds, mostly open-ended investment companies specializing in bonds or in mixed bond and equity portfolios, grew rapidly over the past decade and benefited from favorable tax treatment. Most of their assets are invested in government securities. Mutual funds value their debt securities at historical cost, which discourages active trading, provides an exaggerated sense of stability in mutual fund prices, exposes mutual funds to the risk of investor redemptions, and can also result in unequal treatment of different groups of investors.

In Indonesia, fixed-income mutual funds invest almost exclusively in government securities. The benefit of tax exemption conferred on fixed-income mutual funds investing in government securities for the first five years of operation is proving to be a powerful incentive stimulating their growth. Mutual funds are expected to grow even faster because of the decline in bank deposit rates. Such funds do not, however, have access to the repo market, which complicates their liquidity management because their assets are placed in illiquid markets but their customers enjoy redemption rights on demand.

Except in Lebanon, retail investors have little direct involvement in the marketable part of public debt in all pilot-program countries. In Nicaragua, small landowners continue to be important investors in government bonds through their holding of expropriation bonds, but their importance is decreasing as a result of growing sales of such bonds to commercial banks. In Pakistan, Sri Lanka, and Tunisia, retail investors participate in government securities indirectly through the large operations of postal savings institutions and the offer of other nonmarketable forms of public debt. In Sri Lanka, retail investors invest actively in repos, which are more liquid than bank deposits and carry a higher interest rate (partly because repos are not subject to reserve requirements). Repos are also used by primary dealers to create smaller denominations of treasury bonds. This practice exposes investors to credit risk, especially given the uncertain legal framework of the repo contract, and weakens the advantages of government bonds as default-free instruments.

Foreign retail investors in Lebanon and foreign institutional investors in Colombia and Costa Rica are important participants in the foreign-currency-denominated public debt of these countries. Foreign investors play a limited or no role in the domestic-currency debt of all pilot-program countries, partly because of the presence of foreign exchange risk and partly because of restrictions on foreign investor participation in domestic markets. In Pakistan, foreign investors have unrestricted access to domestic government securities but have shown little interest in using this facility, probably because of the lack of market liquidity.

ACTION PLANS AND REFORM PROGRAMS

Although the pilot program's country diagnostic reports recognize the critical importance of a diversified investor base—especially the promotion of contractual savings institutions—action plans and reform programs do not include specific policy measures in this area. Most of the necessary reforms would have to address broader and more complex political and socioeconomic issues, which are beyond the scope of the current pilot program. Action plans do, however, emphasize the need for equitable tax and regulatory treatment of all types of investors.

In Lebanon, developing the contractual savings and mutual fund sectors is a key policy challenge because the market is totally dominated by commercial banks. A significant first step in expanding the role of institutional investors would be to decentralize fund management at the National Social Security Fund and to allow more active management of its assets. The growth of private pension funds and life insurance companies requires more fundamental reforms in promoting and regulating contractual savings. A neutral tax treatment of all types of financial institutions would require the abolition of double taxation of savings in mutual funds, pension funds, and life insurance.

The Tunisian authorities attempted in recent years to promote mutual funds and the life insurance sector. In response, mutual funds (especially bond funds) experienced significant growth. The life insurance sector, however, responded feebly to generous tax incentives and a revamping of regulation and supervision of the sector. The pension sector continues to be dominated by two unfunded social security institutions. The authorities are considering a proposal to allow nonresident investors to invest in Tunisian government securities. Given the low level of real interest rates and the limited liquidity of the market, however, huge inflows are not expected. Whether foreign investors will prefer short or long maturities is also unclear. A simple overall limit, independent of instruments and maturities, can be applied. Another possible reform under consideration is to encourage the Post Office to invest the retail funds it mobilizes through its branch network in marketable securities rather than nonmarketable debt. Such a reform would have to be implemented gradually and would require an upgrading in the financial market skills of Post Office staff.

In Kenya, institutional investors, especially occupational pension funds and insurance companies, are well established, with investment policies that emphasize diversification and professional asset management. But the coverage of these institutions is limited. Expansion of coverage, greater accumulation of assets, and increased influence of institutional investors would require fundamental and far-reaching changes in the socioeconomic structure of the country, particularly, a sizable reduction in the relative importance of the informal labor market.

In Zambia, the development of a more diversified investor base will require the government to take several actions, including settling its arrears to the various pension schemes and the state insurance company, adopting a tax regime that promotes long-term contractual savings, and strengthening the regulation and supervision of institutional investors.

Several types of institutional investors operate in Colombia, ranging from various forms of investment funds to pension funds (both mandatory and voluntary), severance funds, and insurance companies. These institutions, however, are growing slowly. Investment funds benefited from exemption from the debit tax on transactions but have suffered from valuation difficulties in illiquid markets. The authorities need to streamline the investment regulations that apply to these institutions. Inconsistent valuation rules that gave rise to the mini-crisis of 2002 have already been addressed, but the government must still remove competitive and investment distortions arising from differences in tax treatment.

Costa Rica faces identical hurdles, even though pension funds are at a much earlier stage of development and the insurance industry remains a state monopoly. Investment funds grew considerably but were affected by valuation problems associated with the low level of liquidity in the secondary market and the need to use valuation models and price vectors (with their various shortcomings). Also, public sector institutions are pervasive in Costa Rica and dominate banking, insurance, and pensions. A reduced role for such institutions requires a fundamental policy shift toward privatization.

Nicaragua has no collective investment schemes, such as mutual or pension funds. The opening of primary auctions to banks was an important step in the right direction. The authorities could also take advantage of growing regional demand among financial groups for standardized public debt securities, which might compensate for the small number of banks in Nicaragua. The regional links of Nicaraguan financial groups could facilitate such a strategy. These regional aspects also apply in Costa Rica.

In both Bulgaria and Croatia, institutional investors—including pension funds, insurance companies, mutual funds, and building societies—are likely to grow substantially, following recent reforms and the adoption of European Union rules. Although these institutions will be allowed to invest more freely in foreign assets, they are expected to have a strong demand for government securities. Over the longer term, integration into the Euro Area will open the government securities markets to large potential demand from European institutional investors.

In Indonesia, institutional investors are expected to continue posting robust growth and to play a more important role in government securities markets. Mutual funds should be allowed to participate in repo transactions, which will improve their management of liquidity and their response to redemption demand. Prudential rules rather than outright prohibition should be used to regulate the level of borrowing through the repo market.

All types of institutional investors should be encouraged to adopt professional asset management, which will likely result in a significant shifting over time of asset allocation from bank deposits into government securities.

In Sri Lanka, the investor base is dominated by captive sources of funds. These include the several state-controlled institutional investors and commercial banks, which are required to comply with statutory reserve and liquid asset requirements. While this can lower government borrowing costs, it is not conducive to market development and it hampers the formation of market-determined rates of interest. These problems can be mitigated to some extent by changing the main state provident fund's approach to the primary market and, if feasible, by changing it into a fund-of-funds regime. Efforts to develop a new regulatory framework to support the expansion of private pension and provident funds have stalled, however, because of political developments and government preoccupation with more pressing issues (ethnic war and tsunami reconstruction). Stronger investor protection and greater transparency, as well as a neutral tax regime across institutions and instruments, are important for promoting a more diversified investor base.

In Pakistan, the authorities plan to stimulate the development of the insurance and pension fund sectors, although the growth of contractual savings is likely to be slow. The government also plans to substitute the nonmarketable instruments now sold through the National Savings Schemes with bond mutual funds that would be distributed through the same channels but would invest in marketable securities.

Retail investors play an important role in several countries. They are a strong presence in Pakistan, Sri Lanka, and Tunisia, but have the potential to expand in all countries. Action plans emphasize the importance of developing electronic distribution and record-keeping systems to ensure that the cost of reaching retail investors does not exceed that of issuing through wholesale markets. Foreign institutional investors are a small presence in the domestic government debt markets of a few countries. Their participation could be expanded if countries succeed in maintaining macroeconomic and financial stability and lowering the risk of currency losses.

CONCLUSIONS AND INSIGHTS

Promoting a more diversified investor base with different time horizons and risk preferences is important for stimulating the development of the primary market and enabling governments to issue a broader set of instruments across the yield curve. However, the presence of investors other than commercial banks, which tend to dominate the financial systems of most developing countries, depends on a number of other variables. These include the organization of a country's social security and pension system, the saving habits of households, the role of foreign institutions in the local market, the development of insurance, and the promotion of collective investment schemes. Policy measures to change the composition of the investor base take a long time to yield visible results. In the short run, reforming governments should take into account the preferences and motivations of the existing investor base, while acting to promote its transformation over the longer run.

The absence of large, mature, and pluralistic institutional investors—especially pension funds and life insurance companies—is a major constraint on debt market development in all pilot countries. Attracting these investors is a major goal of social security and pension reforms, which face complex political and socioeconomic challenges. Moreover, even with successful implementation of systemic pension reform, contractual savings institutions amass large financial resources only gradually because the rate of accumulation, though steady, is slow.

The financial markets of most countries are dominated by commercial banks, whose participation in bond markets suffers from the same shortcomings as their operations in money markets. Development of more active money markets will enhance the efficiency of commercial banks' participation in bond markets but, as noted earlier, this brings its own challenges.

In some countries, institutional investors operate as public sector institutions and suffer from difficult governance issues because they are often used as captive investors for nonmarketable government debt and are not allowed to optimize their risk-reward objectives. Gradual progress has been achieved in this respect in some of the pilot countries, although none has succeeded in adopting strong safeguards to insulate the management of public sector institutions from political interference.

In a few countries, institutional investors make use of specialized asset management mandates, which can improve the efficiency of asset management and stimulate the development of secondary markets. However, specialized mandates are not financially viable when institutional investors are at an early stage of development and money and bond markets are small.

In countries aspiring to join a well-established economic area with large institutional investors—such as countries wanting to join the European Union and the Euro Area— access to large potential demand from foreign institutional investors is likely to transform totally the functioning of their domestic bond markets.

Retail investors have a role to play in all pilot countries, although greater effort is needed to ensure that delivery systems are reliable and cost effective. Greater use of electronic services is a promising avenue.

5

Secondary Markets

Well-functioning secondary markets promote efficient price discovery, facilitate liquidity and risk management, and bolster the development of the primary market. They do so by providing a cost-efficient environment in which market participants can trade government securities in a fair and transparent manner. Active secondary markets improve the valuation and pricing of government securities, especially medium- and long-term bonds that are, by definition, issued less frequently than short-term bills. They provide an exit mechanism for investors in medium- and long-term securities, while permitting governments to issue longer-term debt to better manage exposure to interest rate and rollover risk.

Trading activity and liquidity are heightened when a competitive market structure is established. This applies not only to competition among dealers but also sometimes among trading platforms, in cases when activity is consolidated in a small number of liquid instruments, when transactions costs (including transaction taxes) are minimized, when the market infrastructure is sound and robust, and when market participants have varying transactions needs and investment horizons. Primary dealers (that comply with their market-making obligations) and interdealer brokers (that facilitate trading among dealers) contribute to greater market liquidity.

Active and liquid secondary markets are, however, difficult to develop. They require a sufficient number of market intermediaries and institutional investors with incentives to trade, appropriate instruments and transaction types, and well-established trading mechanisms. Such mechanisms cover not only the technical infrastructure for trading, clearing, and settlement facilities, but also prudential and business conduct rules, effective market surveillance, and investor protection.

ANALYSIS AND PRECONDITIONS

In many respects, the key ingredient for active and liquid secondary markets is the presence of market intermediaries and institutional investors with the right incentives to trade. In most developing countries, commercial banks dominate the local financial system. They have strong incentives to develop sophisticated liquidity management and treasury operations when their access to central bank accommodation is limited and monetary policy is implemented through market-based instruments. Under these circumstances, banks promote the development of an active money market—initially a traditional interbank lending market but ultimately a more modern and secure repo market. Banks might also develop a strong interest in trading medium- and longer-term securities even though the impact of banks is likely to be much smaller than that of asset managers and nonbank institutional investors.

Nonbank institutional investors include pension or provident funds, insurance companies, and mutual funds. These institutions have strong incentives to trade medium- and long-term government securities when they have a pluralistic structure and have matured beyond the buy-and-hold strategies of their rapid accumulation phase. The impact of these institutions on trading is greater when they hire professional asset managers and adopt specialized mandates that focus on performance measurement and stimulate competition in asset management. Foreign institutional investors, with their more advanced risk management capacity, can provide a major stimulus to the development of liquid secondary markets. Their presence, however, depends on capital account liberalization and the adoption of credible macroeconomic policies.

The appointment of a network of primary dealers with specific privileges and obligations can stimulate the growth of secondary-market trading. However, as with primary auctions, the benefits of a primary dealer system are greater when there are many domestic and foreign institutional investors, when primary dealers are properly capitalized, and when an effective oversight system is in place to ensure that they discharge their market-making obligations in a competitive way.

The development of secondary markets is influenced by the types and design of government securities. Successful issuance of fixed-rate, medium- and long-term securities is important to limit government exposure to interest rate and rollover risks. Demand for such instruments is greatly facilitated by an active and efficient secondary market, which enhances liquidity and facilitates price discovery and valuation. Trading activity is often inhibited, however, by the fragmentation of securities into a large number of small and nonstandardized issues, while a high frequency of auctions allows investors to adjust their portfolios in the primary market.

Issuing strategies should promote large benchmark issues of standardized, fixed-rate, long-term securities, especially in the presence of domestic and foreign institutional investors with sophisticated risk-management policies. Use of modern techniques, such as reopening issues and buyback programs, would accelerate the elimination of market fragmentation. Less frequent auctions would force investors to channel their portfolio rebalancing transactions through the secondary market. However, if there are only a few domestic and foreign institutional investors, the issuing strategy should target commercial banks and retail investors, which tend to prefer short-term or floating-rate, medium-term securities. In bank-dominated financial systems, developing medium-term benchmark issues is a major challenge because instrument standardization requires skillful management of refinancing risk.

The permissible range of transaction types affects the efficiency of trading structures. In most emerging-market economies, spot or cash transactions are the main or only type of transaction permitted. Repurchase (repo) agreements and forward transactions are sometimes also found, but more sophisticated transactions types—such as switches, futures, options, short selling, and securities lending—are usually absent. Secondary markets bridge the gap between the government's need for long-term finance and the market's demand for liquid instruments. Use of repos and other synthetic products, including strips, goes one step farther by combining customization of instruments and maturities for end investors with the benefits of growing securities standardization for issuers.

To facilitate trading and wide participation in the market at both the wholesale and retail level, governments should adopt standardized transaction conventions for pricing, trading units, trade agreement formats, settlement cycles, instruction formats, and time periods. Because developing countries cannot quickly alter the institutional landscape of their financial systems, initiatives to improve market conventions are a first priority. Ensuring that these conventions comply with best international practices not only broadens domestic participation but also attracts participation by nonresident investors. The conventions, however, should take account of expected trading activity and the size and sophistication of financial sector participants.

Trading systems are broadly categorized into dealer or quote-driven markets and auction agency or order-driven markets. In quote-driven markets, dealers quote bid and ask prices to investors, who decide whether to buy or sell at those prices. In order-driven markets, orders from investors are consolidated on the order book of the auction agency. Orders are then matched according to predetermined rules, either on a continuous basis or at periodic intervals. Over-the-counter (OTC) markets tend to be quote driven, while the majority of organized exchanges are order driven, although there are exceptions to this pattern (such as the London Stock Exchange, which is a quote-driven market).

Government securities in most countries are traded on OTC markets. In some countries, however, trading takes place on the stock exchange, while hybrid systems also exist. Stock exchange trading is often supported by a trading monopoly that allows stock exchange members to extract excess profits from order execution, but a stock exchange monopoly is difficult to enforce. Parallel OTC trading develops when large intermediaries and investors are excluded from the stock exchange, when stock exchange brokers are weakly capitalized, and when transactions costs are high. Some stock exchanges defend their market positions by lowering their transactions costs and offering membership to large banks. Nevertheless, the ease of trading government securities, which are amenable to standardization, has enabled the migration of trading to OTC markets in most countries.

OTC markets provide immediacy of trading but, especially when they are rudimentary or at early stages of development, suffer from a lack of transparency and trade discontinuities. When there are many dealers, interdealer brokers provide services to match specific orders between dealers. These specialized trade execution services play a crucial role in these markets.

To promote dealer markets, many countries appoint a small number of properly capitalized primary dealers with underwriting responsibilities in the primary market and market-making obligations in the secondary market. Primary dealers, however, find it hard to discharge their market-making obligations and provide firm quotations on a continuous basis in an underdeveloped market with low trading volume. An effective oversight system is required to ensure that primary dealers comply with their obligations and to justify the privileges granted to them.

Electronic and automated trading facilities, covering order routing and processing as well as price quotation and dissemination, enhance the efficiency of markets. In organized exchanges, electronic trading removes the spatial limitations of a physical trading floor and expands the potential number of participants, resulting in deeper and more liquid markets and more efficient price discovery. Similarly, in OTC dealer markets, electronic markets centralize dealer quotations on screen-based networks and allow automatic execution of trades. Compared with decentralized OTC markets, they provide increased price and trade transparency and facilitate real-time auditing of transactions for improved market surveillance. Electronic trading facilities, however, might be too expensive for markets with low trading volumes.

Hybrid market structures, such as the Italian MTS system, combine a quote-driven, multi-dealer system (in which major dealers are obliged to display bid-offer prices continuously during operating hours) with a centralized matching facility that aggregates dealer quotes in a single order book and matches best anonymous bids and offers subject to nondiscretionary priority rules. This unique market architecture benefits from the transparency and cost efficiency of a central electronic matching system, as well as from the liquidity and immediacy of a quote-driven system. Such hybrid market structures appear suitable for large wholesale markets.

The efficiency of secondary markets also depends on the prudential, trading, and conduct regulation of market participants.[1] Capital adequacy rules should aim to ensure the solvency of market intermediaries. Risk-sensitive prudential requirements for dealers and institutional investors promote not only sound risk management but also active trading and, therefore, liquidity in the secondary market.

Trading rules cover a wide range of issues, but rules that require pre- and post-trade transparency are particularly important for promoting market liquidity, discouraging market manipulation, and inspiring investor confidence in the integrity of dealers and of the market as a whole. Any sound secondary market structure seeks to reconcile the conflicting business interests of different groups of market participants, while providing competitive trading opportunities for end investors. Timely pre-trade price information provided by dealers encourages the active participation of investors. This must be balanced, however, against the need to promote market making because a strict requirement of high pre-trade transparency can overburden dealers and discourage their market-making activities.

There is also a trade-off between transparency and liquidity because greater price and trade transparency tends to increase conflicts of interest between dealers and investors. Total transparency in illiquid markets might expose dealers to exploitation by market participants and could result in the setting of tight counterparty exposure limits that undermine trading efficiency. Delayed trade reporting to the market can discourage fraud and market manipulation but without undermining the offer of market-making services.

Interdealer brokers promote transparency while retaining anonymity by conveying pre-trade prices among dealers on an anonymous basis and revealing the identity of counterparties only after the completion of transactions. However, interdealer brokers require large volumes of trading and might not be viable in less active markets. To overcome this “chicken and egg” problem, interdealer systems that consolidate information on trade quotations on an anonymous basis could be offered by a central authority, such as the central bank or the stock exchange, or by a third-party service provider.

Rules of conduct should aim to prevent fraud and misrepresentation, market manipulation, front running, and self-dealing. But to be effective, conduct rules must be enforced consistently and effectively. Weak enforcement undermines investor confidence and inhibits the development of secondary markets. Rules could be established, monitored, and enforced by a regulatory authority or by a self-regulatory organization, such as a dealers’ association.

CURRENT SITUATION IN PILOT COUNTRIES

Secondary markets in pilot-program countries are mostly at an early stage of development. In nearly all countries, trading activity is very low. In Bulgaria, Colombia, Costa Rica, and Sri Lanka, however, trading is considerable, especially if repo transactions are taken into account. Croatia and Indonesia recently saw large increases in trading, albeit starting from low bases. Trading activity is modest in Kenya, Lebanon, and Tunisia, and even more so in Nicaragua, Pakistan, and Zambia.

Secondary markets are dominated by commercial banks and brokerage firms in most pilot countries. Nonbank institutional investors are either weak or adopt buy-and-hold strategies. Institutional investors are present in the secondary markets of Colombia, Costa Rica, Kenya, and Sri Lanka, but their trading activities are small. In Sri Lanka, the institutional segment of the market is dominated by public sector entities, such as the Employees’ Provident Fund and the National Savings Bank. These entities follow buy-and-hold strategies and prefer to execute transactions in the primary market. In Kenya, institutional investors—including occupational pension funds and insurance companies—use specialized mandates and have access to a professional asset management industry. However, population coverage and assets under management remain relatively small. In Colombia and Costa Rica, much of the nonbank institutional activity is channeled through investment funds, mainly because of their exemption from the tax on financial transactions.

Primary dealer systems were introduced in Bulgaria, Colombia, Pakistan, Sri Lanka, and Tunisia. Their obligations to provide market-making facilities in the secondary market were poorly monitored and generally unfulfilled. However, monitoring of primary dealers was significantly strengthened in Sri Lanka following implementation of policy measures promoted by follow-up work under this pilot program. Interdealer brokers emerged in three of the countries (Colombia, Indonesia, and Sri Lanka). Primary dealer systems play an active part in Sri Lanka, which lacks an interdealer market. The primary dealers operate as agency-only brokers with name revelation after the completion of a transaction.

Almost all pilot countries made considerable progress in standardizing instruments. Nonetheless, instruments are still predominantly zero-coupon short-term bills or coupon-bearing medium-term bonds with variable rates linked to treasury-bill, inflation, or foreign-exchange rates. In Nicaragua and Pakistan, nonmarketable debt continues to account for a large part of total domestic government debt. Despite the adoption of benchmarking as a goal of debt policy, no country has yet managed to establish large and liquid benchmark issues. Indonesian debt managers were able to build benchmark issues in short- and medium-term maturities but they lack benchmarks in maturities longer than five years. Several countries, including Colombia, Croatia, Kenya, Sri Lanka, and Tunisia, managed to extend the maturity of debt to 10 years or longer, but liquidity in these maturities is lower than for shorter issues.

In most countries, the vast majority of trading is in cash or spot transactions. Repo markets are relatively active in Bulgaria, Colombia, Costa Rica, and Sri Lanka. Other derivative markets are nonexistent in all pilot countries, although the authorities in Colombia, Indonesia, and Sri Lanka are discussing the creation of interest rate futures.

Trading is conducted mostly on telephone-based OTC markets. In Costa Rica, Kenya, Nicaragua, Tunisia, and Zambia, stock exchanges enjoy trading monopolies, but the monopolies are not effectively enforced in view of the high transactions costs of exchange trading. In Costa Rica, stock exchange trading is required by law, but an OTC market has developed where deals are first negotiated between counterparties and then posted on the stock exchange trading system. The additional cost of stock exchange trading is reportedly low, but the obligation to go through the stock exchange still delays the execution of trades and introduces another element of uncertainty. In Kenya, the weak capitalization of brokers and the stock exchange's refusal to admit banks as authorized dealers led professional investors (including pension funds) to deal directly with each other, circumventing the trading monopoly of the stock exchange. Trades, however, must involve brokers who complete the settlement instructions sent to the central bank. In Tunisia, trading between dealers and intra-group transactions are conducted mostly on the OTC market. In Zambia, trading takes place on the OTC market but clearing and settlement are carried out through the stock exchange.

In some countries (Bulgaria, Colombia, Croatia, and Indonesia), trading is fragmented between the OTC and stock exchange markets. In Croatia, block trades among institutional investors are made on the OTC market, while retail transactions are channeled through the stock exchange. Trading fragmentation is not a severe problem in Bulgaria, Croatia, and Indonesia because the OTC market dominates. Trading in Colombia, however, is fragmented among several exchanges, undermining overall market liquidity.

In Colombia, the fixed-income market is served by two sophisticated electronic trading systems—SEN (*Sistema Electrónico de Negociación*), operated by the central bank, and MEC (*Mercado Público de Valores*), run by the stock exchange—as well as by the OTC market. The SEN trades public debt securities. Direct participants include credit institutions, trusts, broker-dealers, independent broker-dealers, pension fund managers, and several public entities (including the central bank and the treasury). The SEN also generates real-time public information for the whole market on amounts and prices. The system allows for spot and forward buy-and-sell operations, repos, reverse repos, and interbank operations (the latter only among financial entities empowered to transact).

The SEN holds two daily sessions: one for the first tier of participants and the other for the second tier of traders. The first tier, which involves the trading of public securities, takes place anonymously and is restricted to transactions among market makers or potential market makers. Primary dealers (market makers) have exclusive access to this tier. In the second tier, any entity linked to the SEN can buy and sell securities and repos, and can conduct simultaneous operations and interbank operations in accordance with the legal regime. The second tier operates semianonymously; the counterparty is not identified until the transaction has been closed or matched.

Colombian public debt held by private and institutional investors is traded on the MEC. The stock exchange promoted the creation of a trading platform to handle government debt securities and corporate bonds at the retail level. The MEC is open for direct trading for all government and financial institutions.

In Indonesia, trading is divided among an interdealer market, a trading platform for dealers operated by the Surabaya Stock Exchange, and the OTC market. Most trading activity is concentrated in the benchmark issues of two-, three-, and five-year bonds and the variable-rate recapitalization bonds that are liquidated by recap banks.

Market transparency, both pre- and post-trade, is weak in all countries. Indicative price quotations are provided by large dealers in Bulgaria, Colombia, Croatia, Indonesia, Kenya, Lebanon, and Sri Lanka. Post-trade transparency in Bulgaria and Sri Lanka is limited to the publication of secondary market transactions by the monetary authorities. A positive development in Sri Lanka was the publication of a bond market index by one of the primary dealers, which allowed investors to compare and track the performance of government bonds. Unfortunately, this service was discontinued. In Indonesia, the interdealer market collects both pre- and post-trade data on interdealer transactions but the reported data are incomplete because of user fees imposed on reporting dealers. Bloomberg, which is used by all members of the interdealer market, offers a more representative reference yield curve. Its role is likely to grow because it has been endorsed by the interdealer market association as a post-trade information-reporting platform.

ACTION PLANS AND REFORM PROGRAMS

Action plans and reform programs for the development of active secondary markets in pilot-program countries have included measures to

- consolidate instruments and create benchmark issues,
- promote intermediaries and institutional investors,
- ensure that primary dealers fulfill their market-making obligations, and
- establish trading mechanisms that better reconcile the conflicting goals of trade transparency and broker anonymity, as well as trade immediacy and centralized processing.

Some of the above measures, such as benchmarking and instrument consolidation or promotion of institutional investors, are also covered under action plans concerning primary markets and the investor base.

In Lebanon, activity in the secondary market is low, despite the fact that the existing trading infrastructure and market access do not pose immediate problems and are capable of increased levels of trading activity if such issues as trading rules, trading transparency, and the regulatory framework are addressed. Action plans emphasize improving pre-trade transparency by encouraging more banks to provide indicative screen quotes as well as enhancing post-trade transparency by fuller and faster reporting of trading activity. The limitations from the shortcomings of the primary market and the absence of institutional investors constrain the growth of trading volumes.

In Tunisia, trading must take place on the stock exchange but in practice it is dominated by OTC transactions among intra-group entities, or between banks and their customers. Trades are required to be reported to the central securities depository but action is needed to ensure that reported transactions data are full and correct. Post-trade transparency needs to be improved by publishing a yield curve on the basis of the preceding day's reported transactions. The market-making obligations of primary dealers require more effective monitoring and enforcement. A procedures manual for more effective supervision of the government securities market needs to be adopted and implemented. Financial intermediaries should be required to use market prices for valuation purposes to avoid misrepresentation of their financial soundness and to ensure equitable treatment of all investors.

In Kenya, secondary trading must be undertaken through the stock exchange. An OTC market has nonetheless developed, although settlement rules force trades onto the stock exchange. The current broker stamping of settlement instructions serves the OTC segment as a price reporting channel but comes with the cost of broker commissions. Action plans recommend that transactions between wholesale professional investors be authorized to be carried out through the OTC market but subject to a real-time price reporting obligation.

In Zambia, action plans also recommend the allowance of OTC trading, together with the reintroduction of a primary dealer system and adoption of a cost-effective, Internet-based price dissemination service. Plans also suggest streamlining the supervisory and regulatory framework of asset management companies, to promote the use of specialized mandates and effective monitoring of the performance of pension funds and other collective investment schemes.

Colombian action plans emphasize the importance of improving pre- and post-trade transparency. The plans recommend collecting and aggregating volume and price data from the three existing trading platforms and the timely dissemination of the information to market participants. The SEN system resembles a synthetic interdealer broker system that encourages trading among dealers with trade transparency while retaining dealer anonymity. Action plans propose expanding participation in the SEN through the possible creation of sub-settlement accounts. The plans emphasize developing repo markets and introducing efficient and secure facilities for short selling and for lending and borrowing securities. These facilities, and the development of interest rate derivative markets, will help primary dealers improve their risk management capacity and better fulfill their market-making obligations. Institutional investors, especially mandatory pension funds, could play a more active role in the secondary market once they reach a more mature stage. They currently invest heavily in inflation-indexed bonds that they buy and hold.

In Costa Rica, secondary market activity is low in all instruments with more than 12 months to maturity. This discourages primary auction participants from bidding aggressively. The stock exchange plans to introduce a primary dealer system with limited privileges and obligations. Under this proposal, primary dealers will be required to act as market makers in a select number of benchmark issues and for relatively small amounts targeted at retail investors. In return, the stock exchange proposal envisages primary dealers having the right to participate in small supplementary (second-round) auctions at the cutoff price. The stock exchange is also planning to introduce an interdealer broker system to be operated by the exchange, which will compile firm quotations from primary dealers and disseminate them to the market on an anonymous basis. Once the new system is well established, the stock exchange also plans to propose the authorization of short selling and securities lending and borrowing facilities. The stock exchange proposal also envisages the central bank's use of regulations on bank capital that favor holdings of liquid benchmark issues by commercial banks. Such an approach would enhance the prospects of success of the primary dealer system and the emergence of liquid benchmark issues.

In Nicaragua, the potential for secondary market development depends on the success of the issuance strategy, especially the emphasis on promoting benchmark issues and eliminating the current fragmentation of the market. Removing the stock exchange's formal monopoly for secondary market transactions and the tax incentives for issues listed and traded on the stock exchange would also be an important precondition.

In Bulgaria and Croatia, market transparency and low trading levels do not pose immediate problems because securities are closely held and the secondary markets seem reasonably liquid to support small and medium transactions. Bid-ask spreads are adequate, although liquidity is limited for large-scale orders, especially for those of mandatory pension funds. Over time, however, both pre- and post-trade transparency needs to be improved through increased compliance, development of real-time quotation systems, verification of reported trade data by cross-checking with the clearing and settlement information of the respective central securities depositories, and improved regulation and oversight of market participants. Development of a repo market would also ensure greater access to funding for large portfolios of government securities. In Croatia, formalization of syndications or introduction of a primary dealer system with clear market-making obligations for primary arrangers or dealers would enhance liquidity. Caution is needed, however, to ensure adequate competition and compliance.

In Indonesia, the promotion of the repo market through a master repo agreement is a high priority. Inconsistencies between the accounting treatment of repos on the books of market participants and the recognition of ownership transfer in the central securities depository should be addressed in parallel to make the master repo agreement effective. Permission and provision of securities lending services are also needed to enable tri-party repos, which should further enhance the usefulness of repos as a financing tool. Removing the prohibition against mutual funds participating in repos, and developing government securities repos by the central bank for open market operations, would also help develop the repo market.

Market structure and transparency in Indonesia need to be improved to keep transactions costs as low as possible and to reconcile the conflicting interests of different groups of professional market participants. The current interdealer trading platform suffers from high fees that discourage its use by dealers. Transparency is inadequate for both pre-trade information (bid and ask price quotations) and post-trade data (prices and volumes of executed trades). The organization of trading needs to evolve either toward (a) an electronic system that promotes anonymity with pre- and post-trade transparency and matching of a centralized system with the liquidity and immediacy of a quote-driven multi-dealer system, or toward (b) a competitive interdealer broker system that facilitates trading among dealers. The achievement of straight-through processing between the trading and settlement systems and delivery-versus-payment settlement—made possible by the creation of the central securities depository and its effective links with the new real-time gross settlement payment system—will enable realization of the benefits of modern electronic markets. Recently, the Surabaya Stock Exchange was appointed as the agency responsible for collecting bond trading data and disseminating them to the public on a real-time basis.

In Sri Lanka, recent initiatives are expected to favor the development of a more liquid secondary market. These include the introduction of the central securities depository and its effective links to the new real-time gross settlement payment system; the adoption of the Bloomberg bond trading system, which will increase both pre- and post-trade transparency; and the new prudential regulation of primary dealers, which will curb excessive leverage positions by primary dealers and thus might help expand the activities of interdealer brokers. However, the secondary market suffers from the dominant position of state-controlled institutional investors, which follow buy-and-hold strategies and prefer to execute their transactions in the primary market. Developing a broader investor base (including foreign institutions) and changing the asset management policies of existing institutional investors are important for promoting a more liquid market.

In Pakistan, despite the establishment of a primary dealer system, secondary market trading is effectively nonexistent and is dominated by repo transactions carried out only among banks. Bid-ask spreads are high and the market suffers from an absence of investors with heterogeneous outlooks and a dearth of suitable securities.

CONCLUSIONS AND INSIGHTS

Secondary markets in the 12 pilot-program countries are dominated by commercial banks and brokerage firms. Institutional investors are either weak or follow buy-and-hold strategies and use new inflows of funds to rebalance their portfolios. Most countries rely on OTC markets but a few require trades to be made, cleared, or settled through the stock exchange. Some countries have both OTC and stock exchange markets. Nonetheless, trade transparency continues to be weak. Pilot-program countries have yet to resolve the trade-off between transparency and liquidity.

Developing liquid and efficient secondary markets is one of the biggest challenges facing policy makers in developing countries. Secondary markets in the countries in the pilot program are mostly at an early stage of development. The trading activity is low, and comprehensive statistics on trading volumes and the role of different types of investors in the secondary market are lacking. Much progress has been made over recent years in collecting data on primary market activity—covering the size and composition of public debt by currency, maturity, and interest rate, and in some cases by holder—but little reliable information is available on secondary market activity.

The volume of trading will increase gradually as countries succeed in consolidating instruments and creating benchmark issues, in promoting market intermediaries and institutional investors, in ensuring a better functioning primary dealer system, and in building more efficient trading mechanisms. However, the level of market liquidity is unlikely to reach that of large countries with very advanced markets.

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Custody and Settlement

The sound development of government securities markets requires an efficient securities-settlement infrastructure to facilitate the smooth flow of transactions in the primary and secondary markets, strengthen investor confidence, stimulate the pace of market expansion, and limit exposure to systemic risk.

A well-functioning settlement system should have a clear and sound legal basis and be subject to regulatory oversight. The legal framework includes general laws, such as property and insolvency laws, and laws specific to the operation of securities-settlement systems. Securities-settlement laws cover

- the enforceability of transactions,
- protection of client assets,
- immobilization or dematerialization of securities,
- netting arrangements,
- securities lending,
- finality of settlement,
- arrangements for achieving delivery versus payment,
- default rules, and
- liquidation of collateral and pledged assets.

The effective operation of securities-settlement systems requires internal rules and procedures that are enforceable with a high degree of certainty.

ANALYSIS AND PRECONDITIONS

An efficient custody and settlement system is critically important for government securities markets because transactions are large and settlement failures can lead to sizable losses for participants, as well as contribute to considerable systemic risks. The insolvency of a market participant can have wide repercussions in an insecure and inefficient system. Imposition of tight exposure limits on counterparties would have a negative effect on market depth and liquidity. In addition, fixed-income trading activity is highly sensitive to both the costs and risks of transactions. Efficient custody and settlement systems lower both costs and risks and thus stimulate trading activity.

The most critical aspect of an efficient settlement system is the achievement of delivery-versus-payment (DvP), which requires the finality of transfer of both funds and securities. Lack of DvP leaves traders exposed to principal risk and impedes anonymous trading. Under these circumstances, large banks and institutions deal only with a small circle of investors while the broader market remains fragmented, nontransparent, and underdeveloped. The achievement of DvP, however, demands considerable progress in several legal and technical areas.

The analysis of the structure and performance of securities-settlement systems draws a distinction between presettlement risks and settlement risks, as well as between operational risks and custody risks. With respect to presettlement risk, speedy confirmation of trades between direct market participants (and some categories of indirect participants) is essential for ensuring agreement on trade details and facilitating early detection of errors and discrepancies. Trade confirmation systems are becoming increasingly automated. Quick, accurate verification of trades and matching settlement instructions are vital for avoiding settlement failures.

Rolling settlement cycles, whereby trades settle within a given number of days after the trade date rather than at the end of specified account periods, reduce the time between trade execution and settlement and limit exposure to counterparty risk. However, shortening the settlement cycle is costly because of required system improvements to avoid an increased incidence of settlement failure. To compensate, different settlement cycles might be applicable to different types of securities.

Counterparty risk can be further reduced by the creation of central counterparties (CCPs) that are interposed between buyers and sellers. CCPs require robust risk management systems, however, including monitoring and collateralization of open positions and use of netting arrangements. Thus, they might not be appropriate in all markets. In particular, the feasibility of CCPs is often questionable in government securities markets where transaction volumes tend to be large and to take place among large traders and investors.

Securities lending and borrowing, including repurchase (repo) agreements, facilitate the timely settlement of trades. However, they also require robust risk management systems, involving master legal agreements, credit evaluations, collateralization of exposures, and daily mark-to-market valuation of both exposures and collateral.

Settlement risk is reduced by the creation of central securities depositories (CSDs) and the promotion of finality of settlement. CSDs facilitate the immobilization or dematerialization of securities and their transfer by book entries in securities accounts maintained at the CSDs. They are able to reduce settlement and custodial costs as a result of economies of scale, greater automation, reduction of errors, and avoidance of the risks of theft and destruction. CSDs also support the development of securities lending operations.

CSDs help reduce or even eliminate principal risk by linking securities transfers to funds transfers and achieving DvP. DvP can be realized in different ways. Securities or funds transfers (or both) can be settled on a gross trade-by-trade basis or on a net basis, while finalization of transfers can be in real time, intraday, or at the end of the day. The essential element is that the transfer of securities is final only if the corresponding transfer of funds is final. DvP does not require simultaneous final transfers of securities and funds. Blocking the securities concerned in the account of the seller or its custodian by the CSD allows time for the confirmation of the transfer of funds. This is then followed by the release of blocked securities to the account of the buyer or its custodian. But blocked securities should not be subject to any third-party claims. Achievement of DvP by the CSD enables local agents to offer DvP to their customers. By eliminating principal risk, it promotes market widening (increases the number of market participants) as well as market deepening (increases counterparty exposure limits).

The timing of settlement finality is an important element of securities-settlement systems. Final settlement should occur no later than the end of the settlement day to minimize the risks of systemic disruptions from the failure of a market participant. Intraday or real-time finality helps reduce systemic risks for active traders or for complex transactions. But intraday or real-time settlement can impose additional costs that might not be justified in less active markets. In fact, the choice between real-time gross settlement (RTGS) and multilateral net settlement (MNS) for securities transactions should reflect their relative costs and benefits and take into account market demand, technical requirements, and relevant risk management provisions.

The main disadvantage of MNS is that it increases exposure to systemic risk if one of the participants defaults. The main problem with RTGS is the need for market participants to hold excess liquidity for settlement purposes and the policy issues that arise when intraday credit is provided by the central bank to minimize such balances. The operation of RTGS, however, requires good online communications to ensure that bilateral transactions are settled on an ongoing basis and any settlement failures attributable to a lack of either funds or securities are resolved without long delay. Despite the superiority of RTGS for securities transactions, technical and cost considerations associated with low trading volumes do not support its use in emerging markets. RTGS for other large payments could be established and pave the way for extending RTGS to securities transactions. Nevertheless, because trades in government securities tend to be large and entail greater systemic risks in cases of settlement failure, they are better candidates for the adoption of RTGS than are other types of securities.

CSDs that extend intraday credit to participants, or operate net settlement systems, should institute risk controls to ensure timely settlement in the event of participant default. These controls should cover both adequate collateralization and position limits to minimize the impact of the unwinding of positions, which may be necessary if one or more participants are unable to settle. Assets used to settle the ultimate payment obligations arising from securities transactions should be free of credit and liquidity risk. Ideally, the central bank could act as the cash settlement agent, but if this is not practicable, the CSD may organize itself as a limited-purpose bank and become the settlement agent by offering cash accounts to its members. This approach would be practicable only if the CSD obtained a limited banking license exempting it from onerous bank prudential standards and supervision.

A well-functioning securities-settlement system should aim to minimize operational risk associated with deficient information systems, weak internal controls, human error, and management failures. All key systems should effectively control access to prevent external intrusions and should provide audit trails. Contingency plans should include backup systems to resume operations after a system disruption and recover lost data. All entities holding securities in custody should employ accounting practices and safekeeping procedures that fully protect customers' securities.

Securities-settlement systems should also be supported by adequate governance, access, information transparency, and regulatory oversight. Effective governance rules are required to ensure that the potential benefits are not lost as a result of monopolistic behavior by any of the entities of the settlement system. Governance arrangements for CCPs and CSDs—including ownership structure, board composition, and management accountability—should satisfy public interest requirements, especially for system performance, safety, and efficiency. CCPs and CSDs should have objective and publicly disclosed criteria for participation to ensure fair and open access. Direct participants must have sufficient technical, business, and risk management expertise; necessary legal powers; and adequate financial resources. CCPs and CSDs should provide market participants with sufficient information to evaluate the risks and costs associated with using their services.

In many countries, CSDs for government and central bank securities are operated by the central bank, while CSDs for other securities are linked to the stock exchange. CSDs linked to stock exchanges are governed by stock exchange members, who may exclude banks and may also be undercapitalized. In contrast, CSDs operated by central banks have better links with RTGS payment systems, but commercial banks may benefit from preferential access to such entities. Offering CSD and payment system access to nonbank dealers—especially to nonbank primary dealers—can reduce the preferential benefit of commercial banks but raises different problems.

Securities-settlement systems should be subject to transparent and effective regulation and oversight, involving close cooperation between the central bank and the securities regulator. They should use or accommodate international communications procedures and standards to facilitate efficient settlement of cross-border transactions. CSDs that establish links to settle cross-border trades should design those links carefully to reduce settlement risks.

CURRENT SITUATION IN PILOT COUNTRIES

Several pilot-program countries have reasonably well-developed settlement infrastructures, but few seem to have in place all the elements of an efficient system. Indonesia and Sri Lanka made considerable progress in this direction in recent years.

Trade confirmation systems are highly advanced in all countries and rolling settlement cycles have been adopted in all cases. However, except for Croatia, where the CSD acts as a CCP for small transactions, CCPs are not established in any of the 12 pilot countries. Similarly, securities lending is not authorized, although several countries use repo transactions.

Dematerialization of securities and maintenance of settlement accounts through a national CSD were implemented in Bulgaria, Croatia, Indonesia, Sri Lanka, Tunisia, and Zambia.

In Bulgaria, all government securities are dematerialized and registered in the CSD operated by the central bank. A second depository system, operated by the stock exchange, clears and registers all other listed securities. In Croatia, government bonds were dematerialized by the CSD, which is a nonprofit, limited-liability company, owned jointly by the government, the National Payment Agency, banks, brokers, and the stock exchange. The authorities plan to privatize the CSD. Transactions are settled by book entry. For treasury bills, the depository function was operated by the ministry of finance, although it was transferred to the CSD in 2005. Most transactions, especially large ones, are settled on a gross basis on a same day (T+0) or next day (T+1) cycle. Smaller transactions are settled on a T+4 cycle by multilateral netting and novation, with the CSD serving as the CCP to all such transactions.

In Indonesia, the CSD for government securities operated by the central bank offers efficient custodial services and DvP settlement, thus eliminating counterparty risk. The CSD has the technical capability to provide advanced services such as repo clearing, collateral management, securities lending, and short-sale clearing, as well as bond stripping, but such transactions are not yet permitted by appropriate regulations. Valuation of collateral in providing these services (except for bond stripping) remains a problem because of the lack of reliable information on benchmark yields and the volatility of end-of-day yields.

Lebanon has two depositories, one for instruments denominated in local currency (Lebanese pounds) at the central bank and the other for eurobonds at MidClear, a joint stock company. Treasury bills are held in dematerialized form, but the central bank's certificates of deposit are in material form, with the associated costs and risks. In Tunisia, the CSD is responsible for clearing and settling all transactions involving government securities on the primary and secondary markets, including the over-the-counter (OTC) market. Securities are dematerialized and an automated accounting system is in place.

In Colombia, the fixed-income market is served by two sophisticated electronic trading systems: the SEN (*Sistema Electrónico de Negociación*) system operated by the central bank and the MEC (*Mercado Público de Valores*) system run by the stock exchange. The trading systems are supported by two CSDs: DCV and Deceval. DCV only registers public securities. OTC trading is, furthermore, supported by the reporting and registration system Inverlace, S. A., operated by the stock exchange.

In Sri Lanka, trading in both the spot and repo markets was until recently telephone-based. Because all securities were in physical form, settlement of trades required physical delivery. The rate of failed transactions was low because market participants worked around the settlement inefficiencies or relaxed requirements (for example, if delivery of the correct security could not be made, another could be delivered temporarily in its place). Settlement took place either by electronic funds transfer or by check. Checks and securities were often exchanged simultaneously, which left recipients with risk exposure to uncleared checks. The authorities created a CSD in 2004 and facilitated implementation of a securities-dematerialization program.

Among pilot-program countries, Costa Rica, Kenya, Nicaragua, and Pakistan have underdeveloped CSD services. In Kenya, the national debt office in the central bank is the registrar of government securities and operates an in-house electronic registry. The settlement rules for treasury bonds are laid out in the stock-exchange trading and settlement rules as T+3. For small transactions, buyers may make payment either by interbank transfer or check, but interbank transfers are required for all large transactions.

Nicaragua has only one electronic trading system, which belongs to the stock exchange and therefore can only be used by brokers. It is directly linked to the CSD, which is a subsidiary of the stock exchange. All securities are still issued in paper form with a low proportion immobilized at the CSD. The current CSD structure embodies high custodial risk for investors because it does not have strong capital backing. The settlement process and infrastructure also lack basic standards, such as settlement accounts at the central bank or DvP capability. The custodial services are cumbersome and inefficient because investors have to withdraw their securities from the CSD and seek to obtain payment from the issuer (at maturity and for each coupon payment). Under this scheme, banks hold a minimum balance of their public debt holdings (less than 5 percent) at their broker account at the CSD to facilitate sporadic repo transactions when they need liquidity. The low usage of the settlement infrastructure, together with the small size of the market, diminishes the risks associated with its current state of development.

In Pakistan, treasury bills and government bonds are fully dematerialized and trading is effected in book entry form. However, the registry of government securities maintained at the central bank is still a manual two-tier depository system. Each financial institution (including primary dealers) that is an approved dealer in government securities maintains separate accounts for its own securities and for those of its customers and is not allowed to pledge the latter as collateral for its repo transactions.

DvP is offered in Bulgaria, Colombia (only for the trading platform and the CSD operated by the central bank), Croatia, Indonesia, Pakistan, Sri Lanka, and Tunisia. In Bulgaria, batch settlement is conducted four times a day with DvP. In Colombia, the interface of SEN with DCV ensures settlement on a DvP basis but the MEC does not offer DvP. In Croatia, regardless of the settlement method, the CSD ensures that DvP is achieved. However, the DvP process is executed on separate systems, that is, not on a real-time basis. The lack of real-time DvP stems from the statutory ban on direct participation of CSD in the RTGS payment system operated by the central bank for wholesale interbank payments. In Indonesia, the CSD is built on the RTGS payment system, which is also operated by the central bank and is accessible only by banks. Hence, in principle, access to the CSD is also limited to banks. The central bank, however, has begun to selectively accept securities companies in the CSD. In Pakistan, despite the use of a manual book-entry system, settlement is carried out on a DvP basis. However, its inefficiency is seen in the waning of secondary market transactions half an hour before the cutoff time. In Sri Lanka, a new payment system featuring RTGS, a CSD (known as CDS in Sri Lanka), and securities dematerialization were implemented in 2004. The new system introduced real-time settlement with DvP and thus reduced the counterparty and systemic risks of the old system. In Tunisia, DvP with guaranteed cash settlement at the central bank has been achieved.

A key weakness in Kenya's current system is the lack of DvP. There is no link between the transfer of funds and the transfer of title, which greatly increases settlement risk. At the daily transactional level, market participants reduce settlement risk by settling directly with each other, rather than through inadequately capitalized brokers; they require the name of the counterparty before delivering securities. Counterparties who do not have interbank limits must complete their leg of the transaction first.

In Zambia, the cash and securities legs of a government securities trade settle at the central bank. However, because the two departments dealing with each of these legs are not linked electronically, there is no DvP. Trades currently settle on the same day (T+0). Interbank government securities repos are not required to clear at the stock exchange, and the parties to a repo operation report their transaction directly to the central bank by fax for settlement. DvP has also yet to be offered in Costa Rica and Nicaragua.

In Lebanon, there are no DvP arrangements for domestic securities, unlike for eurobonds. This increases credit risk and impedes efficient cash management by banks.

RTGS payment systems for large-value transactions do not operate in most pilot-program countries. Colombia and Croatia have RTGS systems in place but they are not linked to the CSDs. Indonesia and Sri Lanka implemented effectively linked RTGS and CSD systems in recent years. RTGS payment systems are in the advanced planning stages in Bulgaria, Kenya, Lebanon, Pakistan, Tunisia, and Zambia.

ACTION PLANS AND REFORM PROGRAMS

Most pilot-program countries made considerable progress with respect to custody and settlement. Although this progress partly reflects initiatives undertaken in the pilot program, the modernization of custody and settlement either largely predates the pilot program or relates to broader reforms of national payment systems.

Action plans and reform programs agreed on under the pilot program reflect the state of development and technical progress in different countries. A major concern relates to the governance rules that regulate participation in CSDs and RTGS systems, as well as the sharing of benefits and costs.

In Lebanon, the main initiatives aim at changing the law governing certificates of deposit to allow their dematerialization. The authorities also plan to transfer custody of all securities to MidClear and to develop an RTGS payment system for large-value transactions. In Tunisia, the efficiency of the settlement infrastructure is expected to be enhanced further with the planned introduction of an RTGS system.

Enhancing the efficiency of settlement facilities in Kenya could be achieved by upgrading the depository services of the central bank, using the Central Depository and Settlement Corporation as a subdepository for custody and clearing of trades in government securities, or allowing the central bank to take operational control of the Central Depository and Settlement Corporation. In evaluating these options, the authorities should take into account the systemic importance of the settlement system and the need for links to the RTGS system.

In Zambia, a payment system offering RTGS was introduced in late 2004, but it is not yet fully integrated with the financial system and is not yet linked with the CSD.

Colombia's action plan covers second-generation information technology changes at the level of the DCV (the CSD that is operated by the central bank). Such technology changes would permit a centralized securities lending and borrowing facility and allow the creation of subsettlement accounts; these, in turn, would allow access to the SEN system by a larger number of market participants. Because securities lending and borrowing among primary dealers is already carried out over the counter through simultaneous repo transactions, the new facilities aim to extend these services to end investors, especially the growing group of nonbank institutional investors.

In Costa Rica, the settlement infrastructure is fragmented and inefficient but plans are under way to develop a CSD for all government debt and to promote dematerialization.

Costa Rica's infrastructure for clearing, custody, and settlement of securities is fragmented into three different trading regimes with no effective links. The central bank, in conjunction with other agencies, is now developing the new *Sistema de Anotacion en Cuenta*, which will effectively create one centralized depository for all government debt. Initially, this entity will be operated by the central bank but later it will likely be divested to be managed by a special entity with broad ownership and professional management.

The new depository will permit the effective linking of secondary trading on the stock exchange with the OTC market. It will allow for much greater flexibility in the types of transactions that can be undertaken by all market participants across these markets (for example, electronic negotiation of securities based on bilateral or multilateral netting, exchange traded, or over the counter). It will use custody accounts independent of the trading platform, encourage dematerialization of securities, and allow for fungibility of securities on deposit.

Nicaragua's CSD is operated by the stock exchange and is supported by poorly capitalized brokers. Nicaragua's settlement infrastructure needs major upgrading to stimulate the overall development of the government securities market.

In Bulgaria, the planned introduction of an RTGS system for large-value payments is a major initiative. In Croatia, treasury bills formerly held in a depository operated by the ministry of finance were recently transferred to the CSD. The key task remaining is to allow the direct participation of the CSD in the RTGS payment system operated by the central bank for wholesale interbank payments. This will permit the offer of DvP on a real-time basis.

Indonesia's introduction of the CSD effectively linked with the RTGS payment system, and the offer of DvP, provided a major stimulus to the development of the market. Remaining issues include the pricing of settlement services, access to the system by a broader range of potential participants, governance of the system, linkages with other clearing service providers, and cross-border settlement. In Sri Lanka, the creation of the CSD and RTGS payment system are also major steps forward that will improve market efficiency and promote greater trading activity.

The payment system in Pakistan is undergoing crucial legal, regulatory, and technological reform, with the planned adoption of a new law on electronic funds transfers and the installation of an RTGS system. The new law will address safety and soundness issues of the payment systems, including the finality of payment and a zero-hour rule. The new RTGS system will interface with the central bank's general ledger system and the subsidiary general ledger accounts for government securities. Additional reform options include permission to use government securities held in customer accounts for collateral purposes and transfer of the custodial function for government securities to the Central Depository Company of Pakistan Limited (CDC)—and CDC participation in the central bank settlement facilities.

A legal review of the relationship between Pakistan's public debt laws and the contemporary working of government securities markets is warranted. Legal concepts such as beneficial ownership, title transfer by registration, collateralization, close-out netting, and electronic proof of ownership are central to the custody and settlement systems of contemporary securities markets. Accordingly, the authorities have incorporated them into Pakistan's securities market laws, rules, and regulations when individual needs arise. Nevertheless, the public debt laws remain out of alignment with these legal concepts. The misalignment not only hampers the development of the country's government securities market, it also destabilizes the market.

CONCLUSIONS AND INSIGHTS

Despite the underdevelopment of secondary markets, nearly all pilot countries made considerable progress toward creating electronic custody and settlement systems. To a significant extent, the modernization of custody and settlement either largely predates the pilot program or relates to broader concurrent reforms of national payment systems.

Action plans and reform programs agreed to under the pilot program reflect the state of development and technical progress in different countries. A major concern relates to the governance rules that regulate participation in CSDs and RTGS systems, as well as the sharing of benefits and costs.

Electronic trade confirmation, rolling settlement cycles, and dematerialization of securities were achieved in nearly all pilot-program countries. Several countries offer DvP, while a few have implemented RTGS payment systems for large-value transactions. However, MNS systems for securities transactions seem to work well; thus the choice between RTGS and MNS should reflect their relative costs and benefits and should take into account the level and sophistication of market demand.

7

Debt Market Regulation

A country's legal and regulatory framework affects the structure, functioning, and development of its government securities markets. Like any other securities market, the regulatory framework for government securities should have three distinct but complementary objectives:

- Maintaining fair, efficient, and transparent markets
- Reducing systemic risk
- Protecting investors

As borrower and issuer of securities, the government should be enabled by legislation to borrow and set ceilings on public debt. Legislation should also clarify the authority for different government entities to act in these markets, and should specify the central bank or other institution to act as agent for the government.

As for intermediaries and investors, an appropriate set of rules and regulations—commensurate with the state of development of local markets—should govern the organization of the primary and secondary markets in government securities. Such rules should also influence the roles of different types of market participants.

ANALYSIS AND PRECONDITIONS

The first basic objective—maintaining fair, efficient, and transparent markets—is best achieved by discouraging market manipulation and insider trading and by promoting equitable access for all market participants. Disclosure of material information on both primary and secondary market activity in a timely and reliable way is essential. Although governments as sovereign issuers may be exempt from these statutory regulations, they would benefit from providing timely and reliable information to market participants.[1] Governments are subject to registration and information disclosure rules when they issue securities through public offerings in foreign markets.

To achieve the second objective, reducing systemic risk, the authorities must require intermediaries to comply with adequate capital requirements and effective internal control systems. They must also discourage intermediaries as well as investors from assuming excessive leverage and risk exposure. Effective and reliable clearing and settlement systems are also essential for reducing systemic risk.

Investor protection, the third basic objective, requires adequate rules on market conduct for all intermediaries and institutional investors. These cover the segregation and safekeeping of assets and the avoidance of conflict of interest. The rules must also require the disclosure of reliable information to enable investors to make their own decisions about the relative risks and rewards of particular investments. Prudential regulations and requirements for effective internal control systems also aim to protect investors from the failure of individual institutions.

The basic objectives of regulation can only be met with effective enforcement—a major challenge in all countries but especially in developing and emerging-market countries. Enforcement requires both clear rules and effective surveillance of markets; adequate human, financial, and technical resources; a well-functioning judiciary system; and the political will to apply the rules credibly and without bias.

Many of the regulations delineate which institutions can participate in different markets and stipulate the privileges and obligations of authorized institutions. Other rules relate to how markets operate and determine the procedures necessary to gain access to money markets, participate in auctions, distribute securities, or conduct operations on secondary markets. Relations with customers are covered by business conduct rules.

Participation in interbank money markets is in the first instance confined to authorized banks that have settlement accounts with the central bank and are settlement members of the payment system. The money market often extends beyond the interbank setting, however, to involve nonbank institutional investors as well as retail investors. Developing a master repurchase (repo) agreement, establishing clear netting and close-out arrangements, and extending repo transactions to nonbank investors strengthen the infrastructure for collateralized lending between banks, as well as between banks and their customers.

A difficult regulatory issue concerns designating primary dealers, stipulating their obligations and privileges, and strengthening their financial solvency. Primary dealers play an important role in markets with a large number of intermediaries and institutional investors. However, it is often difficult to ensure the creation of a competitive primary dealer system and make certain that primary dealers fulfill their underwriting and market-making obligations. In such situations, granting direct access to primary auctions to large institutional investors may discourage anticompetitive behavior by primary dealers.

Another important regulatory issue concerns the requirement to list and exclusively trade government bonds on organized exchanges. While this requirement may aim to improve market transparency and access, it creates a monopoly for stock exchange members and often results in high commissions that discourage trading. Inadequate capitalization of stock exchange members can also increase counterparty risks for investors. Permitting over-the-counter (OTC) trading with or without stock exchange trading can promote greater liquidity but adequate oversight and transparency must be ensured.

The rules on pre-trade and post-trade information transparency are a contentious issue affecting both stock exchange and OTC trading. While full transparency enhances price discovery and market supervision and thus stimulates trading activity and market liquidity, full transparency might not be feasible in markets suffering from high concentration and low levels of liquidity. In such markets, requiring full, real-time transparency for both pre- and post-trade information might be counterproductive. It could cause market activity to freeze up and existing liquidity to be drained because dealers would be reluctant to reveal their positions and allow other participants to trade against them. Intermediate solutions to this problem involve using indicative, rather than firm, two-way price quotations by dealers; increasing regulatory reporting of all trades (albeit with some reasonable delay and without public disclosure); and developing a system that reports bid offers and trades on a no-name basis to preserve anonymity.

Regulations regarding the valuation of government securities also have a large impact on both market conduct and supervision. Valuation rules raise a difficult issue. In principle, mark-to-market valuation rules should be applied to trading portfolios. However, faced with illiquid securities, market participants—especially institutional investor—might avoid investing in long-term securities and concentrate their holdings in the short end of the market. Allowing mark-to-model valuation, especially the use of amortized cost for long-term securities held to maturity, avoids this problem, but it discourages trading activity in the secondary market and creates potentially large gaps between book and fair-market values.

Many countries follow the provisions of international accounting standards, in particular IAS 39, which allow financial institutions to classify their securities as those held for trading purposes, those held for investment purposes, or those held to maturity. Only those in the first category must be marked to market. The third category is often used for medium- and long-term bonds that are required to be valued at amortized cost. In this way, financial institutions investing in bonds with longer maturities do not suffer from the price gyrations of illiquid markets. Allowing institutions to use mark-to-model valuations for assets held to maturity, however, may discourage trading activity.

CURRENT SITUATION IN PILOT COUNTRIES

In the 12 pilot-program countries, the regulatory framework for government securities covering market integrity, systemic risk, and investor protection is either not well developed or weakly enforced. Most countries apply minimum entry standards for market intermediaries, as well as capital and other prudential requirements. But the pilot countries often lack adequate rules for segregating and protecting client assets. In addition, procedures for dealing with the failure of a market intermediary are not well specified. Disclosure requirements are also inadequate, as are transparency and valuation rules. Weak enforcement is a problem in all pilot countries.

The regulatory framework seems most advanced in Colombia, although the 2002 mini-crisis exposed some significant weaknesses. Pakistan made considerable progress in modernizing its regulation of securities markets and strengthening the role of regulatory agencies. The securities markets regulator in Pakistan has comprehensive powers of surveillance, inspection, investigation, and enforcement but has yet to demonstrate effective and credible use of these powers.

In Lebanon, the prudential and conduct regulation of banks is highly sophisticated and effective, but the regulatory framework of the nonbank sector is lagging considerably, reflecting the underdevelopment of nonbank financial institutions. A code of conduct for intermediaries and oversight of their activities would enhance market credibility.

Tunisia has a modern regulatory framework in place that covers market integrity, systemic risk, and investor protection. For instance, the framework prohibits market manipulation (insider trading or collusive behavior distorting market prices). It also requires that trade instructions be executed in the best interests of customers, that trade confirmations be forwarded in a timely manner, and that trade data be saved for a specified minimum period. However, weak enforcement, linked to the nascent state of the capital markets, undermines the effectiveness of the regulatory framework.

Bulgaria and Croatia are expected to gradually adapt to European Union standards, while Indonesia and Sri Lanka have addressed important weaknesses highlighted by the financial crises of 1997 and 2001. A major gap exists in Sri Lanka because the regulatory framework effectively applies only to primary dealers and regulated financial institutions. Interdealer brokers in government securities (which have not sought to obtain primary dealer licenses and are not regulated institutions) are effectively unregulated market intermediaries. In Kenya, the regulatory framework on market integrity, systemic risk, and investor protection is reasonably well developed but enforcement is weak.

In recent years, Costa Rica considerably strengthened its regulatory framework for the securities markets. However, the self-regulatory role of the stock exchange should be more clearly defined to ensure that it complements the oversight function of the securities commission. In Nicaragua, new capital market legislation is under consideration but it proposes to create a legal monopoly of the stock exchange for all secondary market transactions.

In all countries, the development of the money market suffers from the absence of standardized master repo agreements and netting arrangements. In Colombia and Sri Lanka, where the repo market is better developed, weak prudential supervision of primary dealers was a concern. Applying risk-based capital and liquidity requirements on primary dealers and other intermediaries is a policy challenge in these two countries, mainly because the primary dealer system is better established. In Lebanon, the money market operates under an informal set of arrangements and would benefit from clear operating rules and greater transparency. In Tunisia, the absence of a legal framework for repo transactions and the authorities' efforts to prevent nonbank participation have constrained the emergence of an active repo market.

Primary auctions are functioning reasonably well in all pilot-program countries. However, auction transparency could be enhanced in nearly all countries (except Bulgaria) through timelier and fuller disclosure of aggregate auction results. Kenya, Tunisia, and Zambia lack single-bidder limits, which leaves scope for potential market manipulation.

The primary dealer systems in Colombia and Sri Lanka have clearly specified privileges and obligations. Colombia introduced a new evaluation system to ensure compliance with the rules and adequate competition and commitment. Sri Lanka's prudential regulation of primary dealers used to be weak and some dealers operated with unduly high leverage. However, the prudential regulation of primary dealers was strengthened significantly in recent years.[2] In Tunisia, the primary dealer system was ineffective because most primary dealers failed to comply with their underwriting and market-making obligations. The regulatory framework for primary dealers in Pakistan is well developed but their role is limited by the extensive use of nonmarketable securities and the weak presence of institutional investors.

Croatia, Indonesia, and Zambia have not introduced a primary dealer system and allow nonbank investors direct access to the primary market. Kenya and Lebanon also lack primary dealer systems but only banks have direct access to primary auctions. The main reasons for the absence of primary dealer systems are concerns about the potential for collusive behavior and the difficulty of ensuring that primary dealers fulfill their obligations.

Pre-trade and post-trade transparency in the secondary market is an issue in all pilot-program countries. Primary dealers or large banks make indicative price quotations in most of the countries but they often report trade information late and incompletely. Trade transparency is often limited to central bank reporting of past primary auctions and dated averages of secondary market prices. However, in promoting pre- and post-trade transparency, care must be taken to balance the interests of intermediaries and investors. Kenya, Tunisia, and Zambia require stock exchange trading of government securities, but in practice most trading takes place on the OTC market.

Valuation rules are a problem in all countries, because mark-to-market valuation is not meaningful in illiquid markets, and other rules discourage trading activity. Valuation rules are undermined by the lack of liquidity and the high volatility of interest rates in markets that are not rigidly controlled by the authorities. However, valuation problems may also exist in countries with rigidly controlled interest rates if the rates deviate from market-clearing levels. These problems are more pronounced when authorities do not act as price takers in primary auctions.

In Colombia, the regulatory and tax framework—especially the debit tax imposed on financial transactions and related exemptions—provide incentives for undertaking transactions through investment funds. In addition, the valuation model adopted before the 2002 crisis created distortions in pricing and liquidity of certain market segments. Valuation and tax rules encouraged the hiding of capital losses and gains and the use of complex structures and vehicles that increased financial fragility and vulnerability to changes in market conditions, including changes in tax and valuation rules. New valuation methodologies and guidelines were adopted after the mini-crisis of 2002, along with stronger supervision of the leverage, risk exposure, and duration mismatches of financial intermediaries.

Valuation rules also created problems in Costa Rica. The valuation of securities is based on a model developed by the stock exchange, which generates a price vector. Most investors must mark all securities with greater than 180 days' maturity according to the appropriate price vector generated on a daily basis. Valuation of portfolios of government securities remains complex in Costa Rica, except in the very short end of the curve, because of illiquidity and structural problems. The accounting treatment of fixed-income portfolios and related mark-to-market regulations now in place distort government debt market development. Such treatment provides perverse incentives for the holding of different maturity assets across investor types, thus harming liquidity in money markets, such as repos.

The valuation of government securities on the books of mutual funds and other institutional investors is an issue in Indonesia and Tunisia. In Indonesia, mark-to-market valuation is required, but its credibility is undermined by the unreliability of pre-trade price information and the volatility of post-trade prices.

In Tunisia, financial intermediaries and collective investment institutions are allowed to record their fixed-income assets at historical cost. This gives rise to unfair treatment of investors because profits and losses caused by fluctuations in market interest rates are shared equally among shareholders, regardless of when they invested their funds. Moreover, collective investment portfolios show an artificially stable liquidation value, leading investors to believe that their investments are a risk-free, fixed-income stream.

Without a reference yield curve, neither financial intermediaries nor their regulators are able to quantify the interest rate risk assumed by intermediaries that finance their fixed-income portfolios with short-dated liabilities. The institutions operate with significant duration gaps. They are subject to interest-rate risk, which may lead to capital losses amid rising interest rates. The stable nature of retail deposits suggests that liquidity risk may not be excessive. However, greater interest rate flexibility and improved sophistication among depositors will gradually increase the mobility of deposits. This, in turn, requires banks to become more vigilant in their risk management practices.

In Lebanon, banks must comply with the provisions of IAS 39. They are required to value their trading portfolios at market prices but are allowed to use valuation at acquisition or amortized cost for their investment portfolios. This creates an aversion to holding trading portfolios and leads to lower trading activity. Potentially requiring mark-to-market valuation of investment portfolios is a sensitive issue in Lebanon, however, because it could increase exposure to instability in the banking sector.

These problems highlight the importance of sound prudential regulation of intermediaries and institutional investors. Apart from the mismatching of assets and liabilities of collective investment institutions in several countries (Colombia, Costa Rica, Indonesia, and Tunisia), weak prudential regulation of primary dealers is an issue in Colombia, and especially Sri Lanka, where primary dealers used to operate with very high leverage. However, as already noted, new prudential regulations and more effective monitoring have reduced leveraging to reasonable levels.

ACTION PLANS AND REFORM PROGRAMS

All pilot-program countries recognize the basic goals of the regulatory framework—ensuring market integrity, reducing systemic risk, and protecting investors. The countries also have in place special rules and provisions that directly affect the structure and functioning of money, primary, and secondary markets; the operations of investors; and custody and settlement systems.[3]

Valuation issues received considerable attention in several counties, including Colombia, Costa Rica, Indonesia, and Tunisia. Tunisia's action plan recommends moving to a mark-to-market valuation, while allowing banks and other institutions to place some of their securities in a "held-to-maturity" category that would require valuation at amortized cost. Indonesia's action plan suggests requiring members of the interdealer market to offer indicative quotes at the end of the day for selected benchmark issues. These could be used to produce a reference yield curve for valuation purposes. In Colombia, the action plan supports the new valuation methodology and guidelines adopted after the mini-crisis of 2002, along with stronger supervision of the leverage, risk exposure, and duration mismatches of financial intermediaries. Costa Rica's action plan underscores the need for developing a reference yield curve through a market-based valuation methodology and the adoption of consistent and nondistortionary accounting rules.

In Costa Rica, the valuation of securities is based on a methodology employed by the stock exchange, which generates a price vector. Most investors must mark all securities with greater than 180 days' maturity according to the appropriate price vector generated on a daily basis. Valuation of portfolios of government securities remains complex except at the very short end of the curve, because of illiquidity and various structural problems. The accounting treatment of fixed-income portfolios and related mark-to-market regulations now in place distort government debt market development, providing perverse incentives for holding different maturity assets across investor types and harming liquidity in money markets, such as repos.

CONCLUSIONS AND INSIGHTS

Pilot-program countries made substantial progress in several regulatory areas in recent years, but still have far to go in achieving an effective system of financial regulation and supervision with satisfactory enforcement. Action plans focused on the regulatory issues that affect the structure and functioning of different segments of the government debt market, including participation in money markets, access to primary auctions, appointment of primary dealers, and trade transparency. Two areas that extend beyond these fundamentals concern the investment regulations applied to different types of institutional investors and the vexing question of asset valuation in illiquid markets.

Regarding the investment regulations applied to institutional investors, the action plans emphasized asset diversification with prudent risk management and the gradual relaxation of quantitative restrictions on the investment policies of pension funds, insurance companies, and mutual funds. The removal of any minimum prescribed investment requirements is stressed as a means of eliminating reliance on the captive placement of funds. Captive placement can lower borrowing costs in the short run, but it impedes market development and may entail large efficiency losses over the longer run.

Valuation issues received considerable attention in some counties. To address this problem, several countries adopted internationally acceptable standards that permit institutions to classify their securities as those held for trading, those held for investment purposes, and those held to maturity. Market valuation is required for trading portfolios, and model valuation is permitted for the second type, while cost amortization is the preferred option for the third category. However, one requirement of this approach is that regulated institutions should have limited discretion in redefining their portfolios. In addition, model valuation should be based on objective methodologies that do not distort incentives.

8

Complexity and Path Dependence

Most pilot-program countries made some progress in developing government debt markets, according to the diagnostic assessments, but the markets still suffer from major gaps and shortcomings in several key areas.

A few of the countries (Colombia, Costa Rica, Pakistan, and Sri Lanka) have active money markets, but even in these countries repurchase (repo) markets operate in weak legal and regulatory environments. All countries face persistent excess aggregate liquidity and have difficulty implementing market-based monetary policies.

Secondary markets are even less well developed because countries lack intermediaries and investors with strong incentives to trade. Both pre-trade and post-trade transparency is weak and markets are dominated by commercial banks and brokerage firms. In some countries (especially Colombia and Sri Lanka), secondary markets are more active but are nevertheless prone to periods of high volatility. The functioning of secondary markets is undermined by tax and regulatory provisions that distort the trading activities of some institutions.

Commercial banks generally dominate the investor base in the pilot countries. Institutional investors, especially pension and mutual funds, are either effectively nonexistent (Lebanon, Nicaragua, and Pakistan) or are recent entrants in the markets and thus lack the critical mass to have a large impact on debt markets (Bulgaria, Croatia, Indonesia, and Tunisia). Pension and provident funds have a sufficiently long history in a few countries, but either were dominated by public sector entities (Sri

Lanka) or their size was constrained by their limited coverage (Kenya and Zambia). Mutual funds are a relatively strong presence in Colombia and Costa Rica, where they have benefited from tax and regulatory exemptions that have distorted investor incentives in their favor, but they suffer from difficult valuation issues in generally illiquid markets.

The two areas in which considerable progress was made are the promotion of more efficient primary markets and the establishment of electronic custody and settlement systems.

As for the promotion of more efficient primary markets, initiatives included the reduction in the number and frequency of separate issues, the use of market-based auctions for the issuance of new securities, the promotion of benchmark issues, and the extension of maturities. Most significant was the gradual shift away from relying on captive placement of government securities with commercial banks and institutional investors, especially public sector institutions. In several countries, however, the authorities continue to resort to private placement with an unmistakable element of coercion, especially when faced with weak demand at prevailing prices.

Initiatives concerning custody and settlement systems included the creation of central securities depositories (CSDs), the installation of real-time gross settlement (RTGS) payment systems, and the achievement of delivery versus payment (DvP) in several countries.

Two key findings of the pilot program are

- the great complexity of the reform programs, and
- the extensive interaction between various aspects of debt markets.

The interaction between the various elements of debt markets underscores the importance of path dependence in each country's debt market development. Interaction and path dependence are unique to each country and require the formulation and implementation of policies that avoid "one-size-fits-all" approaches.

Debt market development reform programs are far more complex than reforms in public debt management. They affect numerous actors in addition to the debt manager and the central bank, including all kinds of investors and intermediaries, asset managers, dealers, brokers, traders, and arbitrageurs as well as custodians, suppliers of many supporting services, and regulators. Reforms also require the creation of several complementary trading, settlement, and information systems.

Given this high complexity, it is not surprising that reform programs take a long time to yield positive results. Nor is it surprising that setbacks occur, such as partial and temporary policy reversals or, at worst, small financial crises. The pilot program underscores the important lesson that reform is a process, not an event, as highlighted many years ago by Caprio, Atiyas, and Hanson (1994) in their study of financial policy reforms. The 12 pilot-program countries made considerable progress in several areas of debt market development, but also suffered setbacks. A strong and sustained commitment is needed to see the reform program through.

COMPLEXITY

The great complexity of reform programs is evident in the efforts of many countries to develop money markets. Despite their central importance for efficient and competitive market-based financial intermediation, few developing countries have been able to develop well-functioning money markets. The biggest challenge in developing such markets is often the difficulty of implementing market-based monetary control. Moving from direct controls—such as reserve requirements, credit ceilings, and controlled interest rates—to market-based instruments requires effective coordination of monetary policy and public debt management. This coordination may be complicated by the presence of excess aggregate liquidity and the central bank's negative capital position. A gradual and cautious approach is thus often the only feasible and sensible course.

Improving the ability of central banks to obtain reliable forecasts of aggregate liquidity and enhancing the efficiency of government cash management to ensure more accurate estimation of future funding needs pose major technical challenges. Equally critical, however, are fundamental policy changes, such as eliminating passive central bank accommodation of individual bank liquidity needs, which will create incentives for banks to develop and offer sophisticated liquidity and risk management services to their customers.

Strengthening banking supervision and expediting the resolution of banks with solvency and liquidity problems are also important for stimulating the development of the money market because market fragmentation would be reduced on quality grounds. Opening access to the money market to institutional investors and large nonfinancial corporations can also spur greater competition. Such an approach is more relevant in countries dominated by oligopolistic, noncompetitive banking systems.

Adopting master repo agreements, as well as legal and regulatory changes covering netting and close-out arrangements, and strengthening the legal effectiveness of collateral used for repo transactions, contribute to higher efficiency. In addition, promoting greater transparency of money market operations through the compilation and broad dissemination of appropriate indexes of money market activity and rates would also stimulate the development of money markets.

Several pilot countries made major strides in promoting more efficient primary markets, including reducing the number and frequency of separate issues, making increasing use of market-based auctions, and publishing annual funding plans and quarterly issuance calendars. A gradual move away from relying on captive placement of government securities also took place.

Moving to the next level of sophistication is more challenging. The promotion of liquid benchmark issues and the adoption of more efficient issuing techniques—such as the re-opening of issues, buyback programs, and switch operations—require the presence of active money markets, well-functioning payment and settlement systems, and effective government cash management.

Improving the functioning of auction markets can also yield early progress. Many countries suffer from auction failures because funding programs are not transparent and the calendar is uncertain. Participation in auctions is sometimes dominated by a small number of institutions, and other market participants have difficulty predicting the behavior of public sector entities. Taking steps to improve the predictability and performance of auctions is an important component of reform programs.

The appointment of primary dealers is a controversial issue. Primary dealers can play a useful role when there are many potential investors. In these instances, market communication can be facilitated by primary dealers who convey to the authorities the views and expectations of market participants and provide firm underwriting commitments. Primary dealers also undertake to act as market makers, at least for key benchmark issues.

Supervision of the extent to which primary dealers fulfill their obligations, however, is an issue in countries with weak oversight of financial institutions or in countries dominated by a few financial groups. Also, primary dealers need to maintain adequate capital for the risks and leverage they assume. When concerns arise that primary dealers might engage in open or tacit collusion and thus undermine market development, it may be better to grant large institutional and corporate investors direct access to auctions.

Promoting a more diversified investor base with different time horizons and risk preferences helps stimulate the development of the primary market and enables governments to issue a broader set of instruments across the yield curve. However, the presence of investors other than commercial banks, which tend to dominate the financial systems of most developing countries, is determined by other variables, including the organization of a country's social security and pension system, the saving habits of households, the role of foreign institutions in the local market, the development of the insurance industry, and the promotion of collective investment schemes. Policy measures to change the composition of the investor base yield visible results only gradually. In the short run, reforming governments should take into account the preferences and motivation of the existing investor base, while acting to promote its transformation over the longer run.

Secondary markets in pilot-program countries are dominated by commercial banks and brokerage firms. Institutional investors are either weak or adopt buy-and-hold strategies and use new inflows of funds to rebalance their portfolios. Most countries rely on over-the-counter markets but a few require trades to be made, cleared, or settled through the stock exchange. Some countries have both over-the-counter and stock exchange markets. A big challenge is that trade transparency continues to be weak. Pilot-program countries have yet to resolve the trade-off between transparency and liquidity.

Despite the underdevelopment of secondary markets, nearly all pilot countries made considerable progress in creating electronic custody and settlement systems. Nearly all countries have electronic trade confirmation, rolling settlement cycles, and dematerialization of securities. Several countries offer delivery versus payment (DvP), while a few have implemented real-time gross settlement payment systems for large-value transactions. However, multilateral net settlement systems for securities transactions seem to work well so that the choice between real-time gross settlement and multilateral net settlement should reflect their relative costs and benefits and should take into account the level and sophistication of market demand.

The effectiveness of the regulatory framework and the vital importance of strengthening enforcement have received extensive attention in recent years, not least in the joint IMF–World Bank Financial Sector Assessment Program. The pilot-program countries progressed in several regulatory areas in recent years but still have far to go in achieving an effective system of financial regulation and supervision with an acceptable level of enforcement. The pilot-program action plans focused on the regulatory issues that affect the structure and functioning of different segments of the government debt market, including participation in money markets, access to primary auctions, appointment of primary dealers, and trade transparency. Beyond these fundamental concerns are the investment regulations applied to different types of institutional investors and the vexing question of asset valuation in illiquid markets.

Internationally, financial institutions are allowed to classify their securities among three categories: those held for trading, for investment purposes, and to maturity. Market valuation is required for trading portfolios, and model valuation is permitted for investment holdings, while cost amortization is the preferred option for securities held to maturity. To ensure consistent valuations over time, regulated institutions should enjoy limited discretion in redefining their portfolios.

INTERACTION AND PATH DEPENDENCE

The second main finding of the pilot program is the extensive interaction between different aspects of the functioning of debt markets and the importance of path dependence in each country's debt market development. The first and most important interaction is between the issuing strategy and the composition and sophistication of the investor base. Debt managers need to weigh the preferences of existing investors against the government's long-term cost-risk objectives. Important sequencing issues arise that are hard to resolve and call for a gradual approach that takes full account of local conditions.

Many developing countries start their reform programs from positions of excessive reliance on short-term instruments and captive sources of finance. For such countries—which also often have policy credibility problems arising from high inflation and ineffective tax collection—issuing long-term fixed-rate securities or even securities indexed to local inflation may be too costly or even impractical.

Countries that find themselves in this situation should initiate their reform programs by addressing the refinancing risk and the excessive reliance on captive commercial banks for funding their domestic debt. This may require issuing variable-cost, medium-term instruments targeted at the household sector, provided the sector has adequate financial savings. Offering large spreads to retail investors and paying high commissions to intermediaries might be necessary to shift reliance away from captive sources. Exploiting the new possibilities offered by electronic delivery systems might also represent an attractive and more cost-effective approach.

Taking steps to trim primary deficits, attain sustainable levels of public debt, and boost the transparency of debt operations would pave the way for the next stage of reform in pilot-program countries. When reliance on captive investors is substantially reduced and policy credibility established, countries should focus on developing active money markets and then liquid secondary markets with benchmark issues of fixed-rate, long-term securities. Measures to promote a diversified investor base—especially local pension funds and insurance companies—are important but large and mature institutional investors take a long time to emerge.

The creation of benchmark issues and the promotion of secondary market activity have a greater chance of success if institutional investors have reached a mature stage of development beyond the buy-and-hold strategies that characterize the early years of operation. Use of asset managers with specialized mandates is more fruitful at this stage and also contributes to greater trading activity. Integrating with international markets by allowing foreign investors to invest in local debt instruments and domestic investors to invest in foreign markets can also be beneficial. Having access to international institutional investors can radically change the policy options open to national debt managers.

In some countries, institutional investors have a strong presence but are overshadowed by public sector institutions, which are treated as captive investors for holding public debt. Relaxing the degree of captivity and encouraging plurality in asset management is essential for moving toward sound practices in such countries. Use of mutual funds, especially money market and short-term bond funds, may be an option for countries that have had some success in promoting collective investment institutions.

There are also interactive effects among money, primary, and secondary markets. An active money market facilitates the financing of long positions, but when trading activity is limited the demand for position financing facilities is small. The development of the money market itself depends on the structure of the banking system, especially the presence of competitive and sound banks, but also on the presence and role of nonbank institutional investors.

A high frequency of new issues weakens the incentives to trade on the secondary market because investors can change the composition of their portfolios by participating in auctions. However, decreasing the frequency of issuance is difficult without adequate trading activity on the secondary market. An active secondary market will not only allow new issues to be reduced, but, through its price discovery function, will also stimulate more efficient bidding in auctions of new securities. Thus, despite the difficulties in developing and using benchmark issues, some efforts should be made to establish some benchmarks, initially at the shorter end of the yield curve, because better pricing of secondary market trading will facilitate more efficient bidding in primary auctions. Re-opening of existing issues, buyback programs, and switch operations contribute to the emergence of benchmark issues.

Efficient trading and settlement systems contribute to higher trading volumes but their economic viability depends on large trading volumes. This creates a "chicken and egg" problem whose resolution is determined by the development of institutional investors and professional asset managers. The use of long-term, fixed-rate instruments reduces the exposure of governments to interest rate and refinancing risk, but it transfers risk management challenges to intermediaries and investors who may not have the systems and expertise to cope with these challenges.

The role of primary dealers depends on the sophistication and effectiveness of regulatory oversight. In addition to ensuring that primary dealers fulfill their obligations and avoid collusive behavior, supervisors need to enforce adequate prudential standards to prevent excessive leverage and risk taking. This issue demanded attention in those pilot-program countries where secondary market activity was more advanced, illustrating the interaction between markets and regulation.

The choice between multiple-price and uniform-price auctions depends on the structure and level of development of the local financial system. Multiple-price auctions encourage competitive bidding and lower the risk of auction manipulation and collusion. In countries with more competitive and sophisticated financial systems, however, uniform-price auctions can encourage higher bids and generate better results for the government. Uniform-price auctions are often used for securities in greater demand, which in most countries tend to include treasury bills and inflation-protected bonds.

Valuation rules are also affected by the structure of demand. When commercial banks predominate, valuation rules pose fewer problems. The value of bank deposits does not depend on the valuation of securities. With mutual funds, however, the value of liabilities is equal to the value of assets. Inconsistent valuation can expose mutual funds to the risk of large redemptions and might also lead to unequal treatment of different groups of investors.

All of the above underscore the need for tailoring policy advice and reform programs to the specific requirements of each country and to the level of development of each country's financial system.

NOTES

CHAPTER 1

1. The Guidelines, published in March 2001, and the Handbook, published in July 2001, were followed by the "Accompanying Document to Guidelines for Public Debt Management" (2003), which contained 18 case studies written by country authorities on how they implemented public debt management based on sound principles.
2. IMF 2005a. See also IMF (2006a).
3. The World Bank has been responsible for most of the work.
4. The first assessment missions took place between 2002 and 2004: Bulgaria, June 2002; Colombia, November 2002; Costa Rica, 2003; Croatia, February 2004; Indonesia, April 2004; Kenya, January 2004; Lebanon, December 2003; Nicaragua, January 2004; Pakistan, November 2004; Sri Lanka, October 2002; Tunisia, May 2004; and Zambia, May 2004.
5. Several individual country case studies will be made available on the World Bank Web site as well as on the Web sites of the relevant country authorities.

CHAPTER 2

1. Central banks determine the level of short rates, but in countries with better developed money and debt markets, investor expectations, whether rational or not, are reflected in rates along the entire yield curve.
2. In bank lending, competition is increased by enabling wholesale banks without large branch networks to obtain the funding needed to finance their lending operations. In the deposit market, competition is strengthened by providing direct access to the money market to nonbanks (institutional investors, other nonbank financial institutions, nonfinancial corporations, and even households), often through the use of the more flexible repurchase (repo) market.

CHAPTER 3

1. This tends to be the norm in most countries. In South Africa, however, uniform-price auctions are used for fixed-rate bonds that have a well-

established presence in the local market, while multiple-price auctions are used for three recently introduced instruments: treasury bills, floating-rate bonds, and inflation-linked bonds. This example underscores the importance of local conditions (Julies 2005).
2. In principle, central banks should avoid issuing longer-dated securities because their use creates confusion in the market. The preferable policy would be for the central bank to be recapitalized through a direct transfer of funds from the government.
3. Primary dealers usually also have privileges and obligations linked to the functioning of secondary markets.

CHAPTER 4

1. It is often argued that prescribed minimum investment requirements can serve a useful prudential purpose when the prudential supervision framework for pension funds and insurance companies is not adequately developed. However, a rudimentary prudential regulatory framework could be adopted, prohibiting or severely circumscribing investments in volatile or unregulated assets but permitting investments in government bonds and deposits in large or well-capitalized banks without invoking minimum ratios. Minimum investment requirements imply investor captivity and often result in low returns on holdings of government bonds.
2. Liquidity contracts, also known as *dépôts adossés,* are used to bypass the prohibition or low level of remuneration of sight and short-term deposits.

CHAPTER 5

1. Valuation rules affect trading activity but are discussed later in the chapter under debt market regulation.

CHAPTER 7

1. To avoid the perception of conflict of interest between the debt manager and the monetary authorities, debt management responsibilities are being devolved from the central bank in several pilot countries. If debt management is conducted by the central bank, arrangements that delineate debt management and monetary policy functions are important. These include setting different days of the week for holding auctions for debt management and open market operations. The arrangements also separate policy instruments by ensuring that the central bank operates in the short end of the yield curve and the debt manager operates in the longer end.
2. As part of regulatory framework modernization, liquidity requirements for primary dealers were increased twice and a risk-weighted capital adequacy

system was established. Both on-site and off-site supervision is now conducted over primary dealers, who provide daily and weekly information to their regulator. Stress tests were also introduced and all primary dealers conduct internal stress tests on a regular basis.

3. The effectiveness of the regulatory framework and the crucial importance of strengthening enforcement were addressed in reports produced under the joint IMF–World Bank Financial Sector Assessment Program. The program was launched in 1999 following the East Asian crisis, and assessment reports have now been prepared for nearly 80 countries around the world.

REFERENCES

Campanaro, Alessandra, and Dimitri Vittas. 2004. "Greco-Roman Lessons for Public Debt Management and Debt Market Development." Policy Research Working Paper 3414, World Bank, Washington, DC.

Caprio, Gerard, Izak Atiyas, and James Hanson. 1994. *Financial Reform: Theory and Experience.* New York: Cambridge University Press.

Dattels, Peter. 1995. "The Microstructure of Government Securities Markets." IMF Working Paper 95/117, Washington, DC.

Dornbusch, R., and M. Draghi, eds. 1990. *Public Debt Management: Theory and History.* Cambridge: Cambridge University Press.

Glaessner, Thomas G., and Zeynep Kantur. 2004. "Two Case Studies on Electronic Distribution of Government Securities: The US Treasury Direct System and the Philippine Expanded Small Investors Program." Policy Research Working Paper 3372, World Bank, Washington, DC.

IMF (International Monetary Fund). 2003. "Costa Rica: 2002 Article IV Consultation." Washington, DC.

———. 2004a. "Monetary Policy Implementation at Different Stages of Market Development." Monetary and Financial Systems Department, Washington, DC.

———. 2004b. "Pakistan: 2004 Article IV Consultation." IMF Country Report No. 04/411, Washington, DC.

———. 2004c. "Republic of Croatia, 2004 Article IV Consultation and Request for Standby Arrangement—Staff Report." IMF Country Report No. 04/253, Washington, DC.

———. 2005a. "Financial Sector Assessment Program: Review, Lessons, and Issues Going Forward." Washington, DC.

———. 2005b. "Indonesia, 2005 Article IV Consultation." IMF Country Report No. 05/326, Washington, DC.

———. 2006a. "Report on the Evaluation of the Financial Sector Assessment Program." Independent Evaluation Office, Washington, DC.

———. 2006b. *World Economic Outlook*. Washington, DC.

Julies, Anthony F. 2005. "Designing Government Debt Management Strategies: The Case of South Africa." PowerPoint Presentation. December Treasury Workshop. World Bank, Washington, DC.

Missale, Alessandro. 1999. *Public Debt Management.* Oxford: Oxford University Press.

OECD (Organisation for Economic Co-operation and Development). 2002. *Debt Management and Government Securities Markets in the 21st Century.* Paris: OECD.

Scarpelli, D. 2001. *La Gestione del Debito Pubblico in Italia*. Rome: Edibank.

Sundararajan, V., Peter Dattels, and Hans J. Blommestein, eds. 1997. *Coordinating Public Debt and Monetary Management*. Washington, DC: International Monetary Fund.

Wheeler, Graeme. 2004. *Sound Practice in Government Debt Management.* Washington, DC: World Bank.

World Bank and IMF (International Monetary Fund). 2001a. *Developing Government Bond Markets: A Handbook*. Washington, DC: World Bank and IMF.

———. 2001b. *Guidelines for Public Debt Management*. Washington, DC: World Bank and IMF.

———. 2003. "Accompanying Document to Guidelines for Public Debt Management." World Bank and IMF, Washington, DC.

———. 2006. "Croatia: Assessment Report—Central Government Debt Management and Domestic Debt Market Development." Washington, DC.

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Domestic government debt markets play a critical role in managing public debt effectively and in reducing the vulnerability of developing countries to financial crises. Many aspects of debt markets—money, primary, and secondary markets; a diversified investor base; and sound securities custody and settlement systems and regulation—interact in complex ways and are affected by previous policies and developments.

Developing the Domestic Government Debt Market: From Diagnostics to Reform Implementation draws insights from a joint pilot program set up by the World Bank and International Monetary Fund to design relevant reform and capacity-building programs in twelve countries. The experiences of these geographically and economically diverse countries—Bulgaria, Colombia, Costa Rica, Croatia, Indonesia, Kenya, Lebanon, Nicaragua, Pakistan, Sri Lanka, Tunisia, and Zambia—illustrate the challenges, obstacles, and progress in applying principles of market development.

Developing the Domestic Government Debt Market will serve government officials contemplating or in the process of reforming their practices, providers of technical assistance, and practitioners working on building capacity in debt market development. Because effective development of debt markets is one key piece in sound public debt management, readers will also be interested in the companion volume, *Managing Public Debt,* based on the same joint pilot program.

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