The Adoption of Indirect Instruments of Monetary Policy

By a Staff Team headed by William E. Alexander, Tomás J.T. Baliño and Charles Enoch

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Part 1. Issues and Overview
Part 2. Case Studies

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The following symbols have been used throughout this paper:

... to indicate that data are not available;

— to indicate that the figure is zero or less than half the final digit shown, or that the item does not exist;

- between years or months (e.g., 1991–92 or January–June) to indicate the years or months covered, including the beginning and ending years or months;

/ between years (e.g., 1991/92) to indicate a crop or fiscal (financial) year.

“Billion” means a thousand million.

Minor discrepancies between constituent figures and totals are due to rounding.

The term “country,” as used in this paper, does not in all cases refer to a territorial entity that is a state as understood by international law and practice; the term also covers some territorial entities that are not states, but for which statistical data are maintained and provided internationally on a separate and independent basis.
Preface

The introduction and refinement of indirect instruments of monetary policy have been elements of many IMF-supported programs in recent years. This paper reviews experiences in a number of countries that have adopted these instruments to obtain insights on the appropriate design of indirect instruments and to identify the supporting policies that are important for these instruments to function properly. It focuses on the transition from direct to indirect instruments and considers the speed of transition in different countries and the sequencing of the reform measures.

The paper also describes how implementing indirect instruments affects the design of monetary policy. It seeks to identify issues regarding the integration of the technical aspects of the operation of monetary policy into the design of IMF-supported programs and the exercise of surveillance as well as the role of technical assistance.

The authors would like to thank Manuel Guitián and J.B. Zulu for their encouragement and support of this project, colleagues in the Monetary and Exchange Affairs Department and other departments of the IMF, and the members of the Executive Board for valuable comments and stimulating discussion. Rozlyn Coleman and Elisa Diehl of the External Relations Department edited the paper for publication and coordinated production. The views expressed here are the sole responsibility of the authors and do not necessarily reflect the opinions of the Executive Directors of the IMF or other members of the IMF staff.
Part I

Issues and Overview
I Introduction

In the late 1970s, industrial countries began phasing out the direct instruments some of them used to operate monetary policy—including credit controls, interest rate ceilings, and sometimes directed credits—and began moving toward full reliance on indirect instruments, such as open market operations, rediscount facilities, and reserve requirements. In more recent years, there has been also an increasing tendency for the developing countries and the economies in transition to adopt such instruments.

The greater use of indirect monetary instruments can be seen as the counterpart in the monetary area to the widespread movement toward enhancing the role of price signals in the economy more generally. Both have the same objective of improving market efficiency. Perhaps even more critically, moves to indirect instruments are taking place in an increasingly more open economic environment, with widespread adoption of current account convertibility and progress in moving to full convertibility. In such an environment, direct instruments have become increasingly ineffective, leading to inefficiencies and disintermediation. In the absence of indirect instruments of monetary policy, the authorities would, therefore, be unable to counter any problems of excess liquidity, which would impede their efforts to stabilize the economy.

With the IMF’s increasing involvement in structural reforms—including those in the financial and monetary spheres—progress toward the adoption of these instruments has been an element in a number of IMF-supported programs. In addition, the Monetary and Exchange Affairs Department (MAE) of the IMF has provided considerable technical assistance in this area. The IMF’s involvement reflects the recognition of the fact that the mere setting of monetary targets cannot guarantee their achievement, however great the commitment of the authorities, if capacity is lacking and the appropriate institutional infrastructure is not in place.

This paper examines the experience of implementing indirect instruments of monetary policy. The experiences of the countries under review illustrate the variety of circumstances under which indirect instruments of monetary policy have been introduced. It also indicates that, to be effective, the adoption of such instruments generally requires prior and parallel reform in the banking and financial sectors as well as a number of concomitant actions regarding the pace and sequencing of the adoption of indirect monetary instruments. By implication, then, the countries’ experiences would caution against premature introduction of such instruments in situations where the required supporting institutional reform is lacking and the necessary concomitant policy measures are not likely in the near future. Moreover, once the process of introducing indirect instruments has begun, pragmatism and the principle of evolution should guide the speed of transition.

Section II describes the characteristics of direct and indirect instruments and explains the reasons for moving from the former to the latter. Section III addresses issues in the reform of monetary policy instruments. Section IV examines a number of countries that have adopted indirect instruments and reviews both how they did it and the results. Since the effective implementation of indirect monetary instruments typically requires many parallel and sometimes prior reforms in central banking and the broader financial sector, the paper also identifies a number of frequent concomitant measures and discusses how important these were to the success of the reform strategy as a whole (Section V). Section VI discusses the design of IMF-supported stabilization programs and the need for technical assistance. Finally, Section VII summarizes the principal conclusions. (The case studies that serve as background for Sections IV and V are contained in Part II.)
II Direct and Indirect Monetary Instruments

Modes of Operation

In implementing monetary policy, a central bank can act in two ways: directly through its regulatory powers, or indirectly through its influence on money market conditions as the issuer of central bank money (currency in circulation and balances with the central bank). The term “direct” refers to the one-to-one correspondence between the instrument (such as a credit ceiling) and the policy objective (such as domestic credit).

This distinction between direct and indirect monetary instruments can operate in two ways:

1. Direct instruments set or limit either prices (interest rates) or quantities (credit) through regulations, while indirect instruments operate through the market by influencing underlying demand and supply conditions;

2. Direct instruments in the form of credit ceilings are mainly aimed at the balance sheets of the commercial banks, while most indirect instruments are aimed at the balance sheet of the central bank.

Influencing market conditions does not exclude the possibility that the central bank targets certain key interest rates or quantities of credit (or sets those pertaining to its own credit facilities). Instead of direct controls, the market mechanism allows participants in the money markets to adapt to the settings of one of these parameters.

Indirect instruments are also referred to as market-based instruments, as they generally change the supply of bank reserves through transactions with banks and nonbanks at market-related prices on a voluntary basis. Different market-based instruments can be distinguished by the specific markets in which the monetary operations are carried out. But even though these instruments are called indirect and market based, they also involve a minimum degree of regulation to govern the conditions of their use: the eligible counterparties, the auction form, and the form of payment at settlement. Within this framework, however, it is the market forces that, through the use of indirect instruments, affect changes to central bank money.

Specific Instruments: Advantages, Disadvantages, and Operational Issues

Tables 1 and 2 describe the characteristics of various direct and indirect instruments of monetary policy and summarize their advantages and disadvantages. The most common types of direct instruments are interest rate controls and bank-by-bank credit ceilings, along with directed lending by central banks. There are three main types of indirect instrument: open market operations, reserve requirements, and central bank lending or discount operations.

Open market operations are broadly defined as the purchase or sale of financial instruments by the central bank, either in the primary market (open market type operations) or in the secondary market (full open market operations). Instruments commonly used for this purpose include treasury bills, central bank bills, or prime commercial paper. Reserve requirements oblige some types of financial institutions to hold a specified part of their portfolio in reserve money (currency or deposits with the central bank). Central bank lending facilities are typically short term and can take a variety of forms; in general, they involve the rediscounting of high-quality financial assets such as treasury bills, collateralized lending through Lombard facilities, or the extension of credit through auctions.

Using indirect instruments, the central bank has the capability of determining the supply of reserve money. This affects the banks' liquidity position, as long as they have to settle their payments obligations

1 Reserve requirements are applied through regulation. However, their monetary effect is realized through the impact on banks' demand for reserve money. Furthermore, reserve money creation is most directly monitored and controlled via the central bank's balance sheet. Therefore, reserve requirements are classified as an indirect instrument in this paper.

2 Strictly speaking, the central bank can determine the supply of reserve money in the long run only under a fully flexible exchange rate regime. However, even under a pegged or managed exchange rate regime, central bank policy usually has a major influence on reserve money, at least in the short run. The scope depends ultimately on the degree of substitutability between domestic and foreign assets.
Table 1. Direct Instruments of Monetary Policy—Overview

<table>
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<th>Instruments</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Issues in Design and Operations</th>
<th>Experience and Assessment</th>
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<tbody>
<tr>
<td>Interest rate controls</td>
<td>Contain the effects of noncompetitive pricing when entry into banking is limited. Limit adverse selection problems, particularly when information on borrowers is scarce or banking supervision is weak. Often resorted to when authorities cannot achieve a target interest rate through market means or when long-term rates are a policy objective.</td>
<td>Allocation of financial resources not based on price mechanism; ceiling easily circumvented by shifting bank deposits into assets yielding market rates (such as foreign exchange) or into goods. Lead to administrative rationing of credit. Floors or ceilings encourage disintermediation or nonbank intermediation. Ceilings make borrowing appear less costly, which encourages overuse of capital.</td>
<td>Design can involve fixing interest rates or spreads.</td>
<td>Various controls are still used in some countries and were used even in industrial countries until the late 1980s. Increasingly ineffective as markets and financial instruments develop. Effectiveness requires a credible enforcement system.</td>
</tr>
<tr>
<td>Bank-by-bank credit ceilings</td>
<td>Can deliver effective control over bank credit if reserve money creation is otherwise controlled. Can minimize loss of monetary control during transition to indirect instruments when transmission mechanism is uncertain.</td>
<td>Because credit ceilings are not market determined, they progressively distort the allocation of bank resources. Can lead to disintermediation and ultimate loss of effectiveness. Difficult to implement if there are many banks and if there are capital inflows.</td>
<td>Quotas may depend on capital, existing credit, and existing deposits. Secondary trading of unused credit quotas introduces elements of market allocation and mitigates distortions.</td>
<td>Used in Western Europe until late 1980s; still used in some African and Asian countries and in transition economies. Supply of base money must be consistent with money demand; otherwise instrument leads to buildup of excess reserves, thereby creating incentives for evasion.</td>
</tr>
<tr>
<td>Statutory liquidity ratios</td>
<td>By providing captive demand for qualifying assets (typically government debt), ratios reduce cost of borrowing for issuer of these instruments.</td>
<td>Distort competition by imposing constraints on banks’ asset management. Distort pricing of securities and stifle secondary trading. Can lead to disintermediation and reduce government fiscal discipline, thereby losing effectiveness as means to control money.</td>
<td>Design involves choosing eligible securities, eligible maturities, and averaging methods, either of requirement, base, or both.</td>
<td>Still used in many countries, but mainly for prudential reasons and, more recently, to provide captive demand for government papers. Used as a monetary policy instrument only to the extent that proceeds from sale of securities are under the control of the central bank. This is typically not the case. May be helpful in short-term liquidity management when proceeds of security sales are sterilized (Singapore).</td>
</tr>
<tr>
<td>Directed credits</td>
<td>Method of distributing central bank credit mostly used to finance particular sectors. In principle, they provide direct control over aggregate central bank credit to the banks.</td>
<td>Credit allocation process is discretionary. Misallocation of resources is possible. May be used to direct credit to public enterprises, thus reducing direct budgetary impact.</td>
<td>Design involves setting a mechanism to allocate credit and to ascertain ultimate use of funds. Usually credit does not require collateral. Occasionally extended through special rediscount facility.</td>
<td>Used in many transition economies. Because of fungibility, they are unlikely to be effective in directing resources. Costly in terms of resource allocation.</td>
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### Table 1 (concluded)

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<tr>
<td>Bank-by-bank rediscount quotas</td>
<td>Place a floor under interbank rates and thereby improve transmission of interest rate changes. Otherwise, used mostly to rediscount (at preferential rate) paper of particular sectors and provide liquidity to particular banks.</td>
<td>Below-market discount rate can discourage development of interbank money market if use of facility is not limited. Fungibility undermines assessment and control of funds' destination if instrument is used primarily to direct credit.</td>
<td>Need mechanism to allocate refinance quotas and review quality of eligible paper.</td>
<td>Used in industrial countries on a limited-access basis where discount rate is below interbank rate (Germany and United States), and elsewhere to provide incentives to lend to particular sectors (Tunisia and China). Discount rate is highly visible rate and can be effective in signaling policy changes.</td>
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### Table 2. Indirect Instruments of Monetary Policy—Overview

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<tr>
<td>Reserve requirements</td>
<td>Help to induce demand for reserves and therefore enhance predictability of reserve demand. An increase in reserve requirements can be useful in one-off sterilization of excess liquidity, or otherwise to accommodate structural changes in demand for reserves.</td>
<td>A high requirement imposes tax on bank intermediation. This can be neutralized through reserve remuneration at market rates. The tax may result in a widening of the spread between lending and deposit rates, which can lead to disintermediation. Not convenient for short-term liquidity management, as frequent changes disrupt bank portfolio management.</td>
<td>Design includes definition and monitoring of requirement base, eligibility of assets, and averaging rules and rate of remuneration. Averaging provides banks with greater flexibility in portfolio management.</td>
<td>Used extensively in some countries, especially in Latin America. Active variation for policy purposes has dropped significantly in industrial countries.</td>
</tr>
<tr>
<td>Rediscount window</td>
<td>Rediscount rate often can enhance transmission of policy stance through announcement effect as a key rate (France, Germany, and United States). Initial impact is wider than with open market operations, which are limited to central banks' counterparties in one or a few financial centers. Develops demand for rediscountable paper. May also be useful in circumstances where open market operations are limited due to lack of paper.</td>
<td>Not very convenient for precise base money targeting; since access to window is usually at initiative of banks. Criteria for rediscountable paper and for access to window have often been utilized to implement selective credit policy.</td>
<td>Rediscount rate can be above-market rate to discourage access. In some countries (United States, Japan, Germany), rate is below market and therefore nonprice rationing must be used. Elements of design include eligible paper and access criteria.</td>
<td>Used in many countries as standard instrument for monetary control, although access at initiative of banks can complicate its usefulness for quantity transactions; its effectiveness is largely determined by provisions that regulate access. Also used for moral suasion.</td>
</tr>
<tr>
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<tr>
<td>Lombard window or overdraft window</td>
<td>Provides facilities for very short-term (collateralized) loans usually priced above any alternative source of funds. Can be key part of payments system arrangements.</td>
<td>See rediscount window above. Disadvantage of preannounced rate facility where access is at discretion of banks.</td>
<td>Lombard requires decision on the part of banks to borrow from central bank with appropriate collateral and other conditions regarding maturity and access. Overdraft occurs automatically and may or may not be collateralized.</td>
<td>Standard facilities in many countries. Lombard rate can be key rate in announcing changes in policy stance.</td>
</tr>
<tr>
<td>Public sector deposits</td>
<td>Given magnitude of daily government flows in and out of banking system, reallocation of government deposits between the central bank and the commercial banks can be key instrument to offset impact of such flows on short-term liquidity.</td>
<td>Lack transparency. Militate against the development of secondary market for government securities.</td>
<td>Allocation mechanisms needed to ensure equitable distribution among the competing commercial banks.</td>
<td>Used in a few countries (Canada, Malaysia, Germany up to end-1993). Requires close coordination of central bank and treasury.</td>
</tr>
<tr>
<td>Credit auction</td>
<td>Offers means of pricing central bank credit. Can be used when markets are underdeveloped and interbank reference rate does not exist; establishes benchmark interest rate; allocates credit on market terms.</td>
<td>Central bank is exposed to credit risks that are difficult to assess. Not necessarily convenient for day-to-day management if turnaround/settlement of auction exceeds end of day; vulnerable to “adverse selection” problem.</td>
<td>Initially, access rules can mitigate credit risk. Credit can become progressively collateralized, as quality securities become available. With sufficient collateral available, such operations could also be structured as repo auctions.</td>
<td>Used temporarily in early phases of transition to indirect instruments to shift from directed credit to market allocation.</td>
</tr>
<tr>
<td>Primary-market sales of central bank paper (open market type operations)</td>
<td>Flexible instrument for short-term liquidity management because issuance is at discretion of central bank, and various auction/tender formats can be used to steer interest rates. If treasury is not willing to accept sufficient interest rate flexibility, central bank papers preserve operational autonomy of central bank.</td>
<td>Central bank may incur losses if large primary issuance is needed to sterilize liquidity. If central bank bills are used in parallel with treasury bills, problems may occur in the absence of strong coordination between the issuing agents.</td>
<td>Management of liquidity can be achieved through staggered primary issuance. Procedures involve decisions on auction system, counterparties, frequency, maturities, and settlement rules.</td>
<td>Used by many countries, particularly when there is a need to separate monetary policy objectives from public debt management objectives. Also used when secondary markets are insufficiently developed to permit open market operations in the secondary market.</td>
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Table 2 (concluded)

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</tr>
</thead>
<tbody>
<tr>
<td>Primary-market sales of government securities (open market type operations)</td>
<td>Management similar to central bank bill if coordination with treasury is appropriate, as treasury bill emission may need to exceed fiscal funding requirements. Encourage fiscal discipline on the part of government if direct central bank financing is discontinued.</td>
<td>Debt-management objective can conflict with monetary management if treasury manipulates auction to keep funding costs below market. When monetary management relies on primary issuance, high frequency of auctions may hamper secondary market development.</td>
<td>Same as above. Sometimes when the central bank has government securities in its portfolio, reverse repo auctions can be used instead of outright sales in primary markets.</td>
<td>Used in many countries when secondary markets are insufficiently developed to conduct open market operations.</td>
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<tr>
<td>Foreign exchange (FX) swaps and outright sales and purchases</td>
<td>In case of deep foreign exchange market but inactive government securities market, swaps can substitute for repo operations in government paper. FX outright sales and purchases may be useful when FX market is more developed than money market.</td>
<td>Central bank can suffer losses if foreign exchange operations are used in attempts to preserve an unsustainable exchange rate.</td>
<td>Need to design appropriate risk-management procedures.</td>
<td>Swaps used on a regular basis by a few countries (Germany, Greece, Malaysia, Switzerland, and Turkey).</td>
</tr>
<tr>
<td>Secondary-market operations (outright purchases and sales or repo operations)</td>
<td>Can be undertaken on continuous basis; hence provide flexibility. Transparent. Enhance market development. Immediacy of response in money market.</td>
<td>Require liquid and deep secondary market, and central bank must have an adequate stock of marketable assets.</td>
<td>Repos have advantage of being automatically reversible, especially well suited for offsetting seasonal fluctuations.</td>
<td>Used by most countries with liquid and deep secondary markets.</td>
</tr>
</tbody>
</table>

*1 Reserve requirements have elements of both a direct and an indirect instrument. This paper follows conventional central bank usage and classifies them as indirect instruments.

across the books of the central bank and provided that they do not have unlimited access to nonpenal funding at the central bank. The effect on banks' liquidity positions results in adjustments to bank, interbank, and money market interest rates to re-equilibrate the demand and supply of reserve balances. Because this chain of events is mediated by the financial markets, the central bank determines overall systemic liquidity, but the market distributes it. The impact of changes in liquidity will be absorbed by those most willing and able to absorb it; for example, purchases of treasury bills are a voluntary sacrifice of liquidity but can be encouraged by appropriate (market) pricing.
III Issues in the Reform of Monetary Instruments

Monetary policy is a major component of economic policy in market economies and an important part of IMF-supported adjustment programs. The central bank in most countries is assigned the primary responsibility for conducting monetary policy and often for formulating it. In addition, some auxiliary functions of central banks—notably, promoting the development of the money market, safeguarding the payments and clearing system, and performing bank regulation and supervision—support the main function.

The basic policy objective of a central bank operating in a market economy with its own currency is now generally considered to be the stability of the nation's currency in the medium term. This represents an evolution from past practices, which gave more prominence to other objectives of monetary policy—including rapid economic growth and a low unemployment rate. In practice, attempts to use monetary stimuli to promote economic growth directly often ran into problems. Typically, the stimuli increased the rate of growth in the short run at the cost of an undesirable rise in inflation, balance of payments difficulties, and a lower rate of growth in the longer run. Hence, during the past decade, there has been increasing agreement that monetary policy can best promote medium- and longer-term growth by maintaining overall price stability.

However, the central bank is also concerned with the stability and efficiency of the financial sector. As the leading financial institution, it is concerned with the efficiency of intermediation between savers and investors, which takes place via the financial system and contributes to economic growth. Moreover, the structure and development of financial markets affect the transmission and impact of central bank policies, which are implemented through those markets. Indeed, in view of these operational linkages, significant changes to the monetary policy framework require parallel measures aimed at the structure and development of financial markets. Full open market operations do not work well, for example, unless the money and interbank markets function effectively.

Roles of Different Indirect Monetary Instruments

In industrial countries with highly developed primary and secondary markets, open market operations with treasury bills or central bank bills have become the instrument of choice. Open market operations involve either direct purchases and sales of securities or repurchase agreements (repos) and reverse repurchase agreements for financial instruments. However, the development of active financial markets is a complex process. In addition to competitive financial institutions, substantial infrastructure must be developed, including large-value transfer systems, book-entry systems for recording ownership transfers, and a sophisticated legal and regulatory framework. Once these transformations have been achieved, open market operations can be a highly effective and flexible tool of monetary policy.

If financial markets are sufficiently deep, the central bank can largely rely on open market operations to affect the overall level of liquidity. In this environment, banks generally meet their individual liquidity needs through the market. However, when there is a liquidity shortage in the system as a whole, those banks unable to meet their liquidity needs in the market borrow from central bank windows. In fact, in some countries, the central bank deliberately

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4 World Bank (1989) discusses how allowing market forces to distribute financial resources can be associated with increased economic efficiency and growth.
5 Repurchase agreements comprise the purchase of assets by the central bank under a contract providing for their resale at a specified price on a given future date; they are used to supply reserves. Reverse repurchase transactions are the sale of assets by the central bank under a contract providing for their repurchase at a specified price on a given future date; they are used to reduce reserves. See Laurens (1994).
6 There was a time in the United States when analysts debated whether there was any need for a discount window—see Friedman (1959, Chapter 2), Johnson (1968), and Board of Governors of the Federal Reserve System (1971).
III ISSUES IN THE REFORM OF MONETARY INSTRUMENTS

creates a liquidity shortage to induce banks to borrow from the central bank. The conditions of such borrowing are a key tool of monetary policy.

Countries with underdeveloped financial markets can conduct open market type operations through central bank interventions in primary markets for securities. A common form of this approach is to hold regular auctions of treasury or central bank bills and to vary the net amount auctioned in order to influence bank reserves. Often, this instrument is used in combination with several other tools, including auctions of central bank credit, use of rediscount facilities, and changes in reserve requirements, in order to achieve the desired reserve impact and smooth day-to-day liquidity fluctuations.

While auctions of treasury bills or central bank bills are used to absorb liquidity, the central bank also needs a complementary instrument to inject liquidity at its initiative. In countries where the depth of the money market is limited, the latter is usually achieved through central bank credit auctions. Assuming the existence of a suitable security (such as commercial bills or some form of government paper), auctions of repo contracts are also a possibility. Central bank credit auctions can be considered a transitory tool until other instruments are established. They allocate central bank credit at market terms and provide the financial system with a benchmark interest rate. However, they potentially carry an adverse selection risk—riskier borrowers bidding up interest rates to get a larger share of credit—and expose the central bank to credit risks that are difficult to assess, as counterparties may fail and adequate collateral in the form of quality securities may be unavailable.

Rediscounts and other forms of central bank credit to the banking system have been used for three different purposes: to relieve liquidity shortages (lender-of-last-resort function), to control monetary and credit conditions, and to allocate credit selectively. In the operation of a discount facility, central banks typically limit access in various ways, either administratively or through adjusting the interest rates on central bank loans. Some central banks rely on the market to limit access, in which case the central bank lending rate needs to be high enough to ensure that, as a first resort, banks seek to obtain funds from other sources, such as deposits and the interbank market. Others, such as the Federal Reserve and the Bundesbank, maintain the discount rate somewhat below market levels and thus have to limit access to the facility administratively. More generally, central banks have to ensure that their lending rate is not so low as to open up arbitrage profits—for example, by borrowing from the central bank to buy risk-free treasury bills.

Some central banks use changes in the discount rate primarily for their announcement effect—as a way of signaling to the market that a change in monetary policy is occurring and that it will be either more or less difficult to obtain funds from the discount window in the future. Other central banks use the discount window as their main instrument to influence money market conditions. They do so by using other instruments (such as sales of treasury bills) to create a systemic shortage of reserve money, which compels banks to borrow from the central bank. Also, in situations where central banks play a large intermediation role through the extension of credit to commercial banks or to the government, instruments to absorb reserves are likely to be the key instruments, thus reducing the role of the discount window.

Reserve requirements directly link central bank and commercial bank liabilities. They can be used as a means of sterilizing excess liquidity. However, they introduce a distortion, insofar as unremunerated reserve requirements are equivalent to a tax on financial intermediation. Thus, required reserves can encourage financial disintermediation if they are above the level banks normally would hold voluntarily (and are not remunerated at the market rate). An additional problem is that reserve requirements lack flexibility. Frequent changes in these requirements—particularly increases—would be disruptive and costly for banks. Furthermore, reserve requirements cannot be used to mop up excess reserves if the latter are unevenly distributed among banks and there is no effective means for banks to redistribute reserve balances among themselves.

In industrial countries, the set of instruments used varies considerably. There has been a tendency to rely more on open market instruments that operate at the initiative of the central bank and less on central bank lending that operates at the initiative of commercial banks as the primary instrument. While most central banks still impose reserve requirements, they

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7 On the use of credit auctions, see Mathieson and Haas (1994) and Saal and Zamalloa (1994).
8 See Laurens (1994) for a detailed review of credit facilities to the banks. The discount facility is often justified as a form of subsidy to be used, for example, to compensate for the cost of reserve requirements.

9 When central banks operate in this way, the lending facility is typically not used for purposes of monetary control, which is effected through other means (such as repos in Germany and the United States). Japan, however, is an exception, since amounts available may be varied daily. For details, see Table 3.
10 For a more detailed discussion of technical issues in the use of monetary instruments, see Smith (1963) and Baláž (1985). See Hardy (1993) for a review of issues involved in setting and using reserve requirements.
rarely change them, and there has been a tendency to lower or eliminate such requirements.\textsuperscript{11}

Case for Adopting Indirect Instruments

The historic popularity and ongoing reliance in many countries on direct methods of monetary control are based on certain appealing characteristics that they exhibit. First, direct instruments are perceived to be reliable, at least initially, in controlling credit aggregates or the distribution of credit and its cost. Moreover, they seem to have performed well, at least in some industrial countries, until the mid-1980s without any immediately apparent negative side effects. Second, they are relatively easy to implement and explain to politicians and the public. Third, their direct fiscal costs are relatively low. Fourth, they are easy to link to a monetary programming format. Fifth, direct controls are attractive to governments that want to channel credit to specific objectives. Sixth, in countries with a rudimentary and noncompetitive financial system, direct instruments may be the only feasible monetary policy instrument until the institutional framework for indirect instruments has been developed. Seventh, during the transition to indirect monetary control, financial markets may be too thin, resulting in strong interest rate effects and volatility, which many governments fear will discourage investment. Central banks may therefore maintain some direct instruments for an interim period until financial markets are sufficiently developed. Eighth, if there is no alternative domestic source of credit, bank-by-bank credit ceilings work regardless of the exchange rate regime. And ninth, direct instruments can, at least temporarily, be attractive as a second best or supplemental instrument in situations of severe specific or general market failures, for example, a severe crisis in the financial sector.\textsuperscript{12}

High Cost of Utilizing Direct Instruments

Against these perceived advantages, however, must be set the costs of inefficient resource allocation and ineffectiveness arising from the evasion and inequity that direct instruments entail. Insofar as credit ceilings are based on amounts extended by particular in-

\textsuperscript{11}For recent surveys of practices in the use of indirect instruments in industrial countries, see Batten and others (1990), Kasman (1992), Laurens (1994), and Kneeshaw and Van den Bergh (1989).

\textsuperscript{12}For a discussion of the advantages and disadvantages of direct and indirect instruments of monetary policy, see Lindgren (1991), pp. 323–25.
### Table 3. Instrument Mix and Operation for Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Reserve Requirements</th>
<th>Standing Facilities</th>
<th>Market Operations</th>
<th>Operating Procedures</th>
<th>Other Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Argentina</strong></td>
<td>All banks; all deposits; 43 percent on demand and savings deposits, 3 percent for 30-59 day deposits, and 0 percent for deposits of more than 60 days. Reserve deposits do not have to be maintained exclusively in the currency of deposit but can be held up to 30 percent in another currency. On-time deposits. Unremunerated. Averaging. Currency in vault is not a reserve asset.</td>
<td>Lender-of-last-resort rediscount facility; maximum 30-day term; not exceeding net worth of borrower bank; not actively used.</td>
<td>Government bonds denominated in foreign currency.</td>
<td>Interbank market.</td>
<td>Reversed transactions against government bonds. The central bank operates within an interest rate band; it sells bonds with repos at the floor interest rate and buys at the ceiling; purpose is mitigating fluctuations in interest rates.</td>
</tr>
<tr>
<td><strong>Chile</strong></td>
<td>Requirements of 9 percent on peso demand deposits; 3.6 percent on peso time deposits; 30 percent on foreign currency deposits. Local currency reserve requirements are held in pesos, those on foreign currencies are held in foreign currency. Remuneration of time deposits. Deposit base is taken as average of daily balances between ninth of each month and eighth of following month. Maintenance is on average basis.</td>
<td>Lender-of-last-resort rediscount facility available to banks all but one day of the month on daily basis. No bank can borrow in the interfinancial market more than 10 percent of its assets.</td>
<td>Central bank's indexed instruments (PRCBs) of wide range of maturities (ranging from 30 days to 20 years). Treasury bills.</td>
<td>Mainly primary markets. Central Bank of Chile has recently started some repos. They are intended to be short term. Banks and pension funds are main participants. Insurance companies have participated since 1993.</td>
<td>Two types of auctions. For papers of less than 90-day maturity, the auction is at the rate posted by the central bank. For the other maturities, the central bank sets the amount, and market participants put in bids for the rate.</td>
</tr>
<tr>
<td><strong>France</strong></td>
<td>All banks; all deposits up to one year maturity. Monthly averaging of reserves only (including vault cash). Unremunerated. 0.5 percent time deposits, 1 percent sight deposits. Not used for monetary policy.</td>
<td>Five- to ten-day repo facility at banks' initiative against private paper and T-bills; banks choose maturities. Rate above call interbank rate. Rate has strong announcement effect, changed parsimoniously.</td>
<td>T-bills and eligible private paper.</td>
<td>No monetary management through primary issuance. Government securities secondary market for outright transactions with all market participants. Reversed transactions against T-bills and private paper with banks. There exists an interbank repo market.</td>
<td>Weekly volume tender of repos; seven days maturity; rate has strong announcement effect. Daily outright transactions with T-bills. Daily bilateral (with key counterparties) overnight reversed transactions for liquidity fine-tuning or interest rate monitoring.</td>
</tr>
<tr>
<td>Country</td>
<td>Reserve Requirements</td>
<td>Standing Facilities</td>
<td>Market Operations</td>
<td>Operating Procedures</td>
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<tr>
<td>Mexico</td>
<td>None.</td>
<td>Emergency lending facility; not often used.</td>
<td>T-bills (CETES) with maturities of 28, 91, and 181 days; 1 and 2 years; long-term government bonds (BONOS); Development Bonds (BONIDES) with maturities of 1 and 2 years; bonds with their capital indexed to the consumer price index with maturities of three and five years (AJUSTABONOS); bonds indexed to the exchange rate with maturities of 91 and 182 days and 1 year (TESOBONOS).</td>
<td>Primary markets of CETES and BONOS not used for liquidity management. Secondary market of CETES.</td>
<td>Outright transactions in CETES secondary market. Reversed transactions in interbank market. Central bank sometimes offers CDs to banks.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>None.</td>
<td>Automatic rediscount of central bank bills with less than 28 days to maturity; penal margin above comparable market rate; penal margin and overall stock of rediscounted bills set as policy parameters.</td>
<td>Separation between public debt management and monetary operations with government securities. Tenders of secured loans to banks as main policy instrument. In addition, buying and selling of (regular and seasonal) treasury bills, float tenders (daily special unsecured overnight credit), and issuance of central bank bills.</td>
<td>Daily float tenders, in which a large part of the government's daily cash receipts is lent back to the banking system for one day. Daily open market operations with treasury bills (and periodically Reserve Bank bills). Reserve Bank bill tenders held twice each week; Reserve Bank bills are central bank liabilities—the only financial instrument banks can discount with the central bank as of right.</td>
<td>Twice weekly primary issuance of central bank bills, by auction. Daily new issue of “seasonal” T-bills of as needed maturities, by auction. Daily repo-type operations against less than face value of underlying securities, by auction. Daily float tenders by auction.</td>
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<tr>
<td>Country</td>
<td>Main Features</td>
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<tr>
<td><strong>Poland</strong></td>
<td>złoty deposits only, up to 50 percent cash in vault; no averaging of base/reserve; unremunerated; 23 percent demand deposits, 10 percent time deposits; used infrequently.</td>
<td>Lombard against T-bills; access at 2–4 percent of capital; three-month term; not always above market rate. Rediscount against bills of exchange; access limit as above less any Lombard credit; three-month term; below Lombard rate. Rediscount for seasonal credit to banks financing agriculture (phased out). Medium-term refinancing of former central plan credits, above Lombard rate. Unsecured overdraft discontinued October 1992.</td>
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<tr>
<td><strong>United Kingdom</strong></td>
<td>0.35 percent of eligible liabilities to be deposited at central bank.</td>
<td>Overnight support given at discretionary interest rate to offset overnight shortage; also lender-of-last-resort facility for banks in liquidity difficulties.</td>
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<tr>
<td><strong>United States</strong></td>
<td>Reserve requirements are currently assessed only on demand deposits and other checkable deposits, but the law allows imposition on other deposit categories; reserve ratios are rarely changed and are at present 3 percent for balances up to $51.9 million and 10 percent for balances above that level.</td>
<td>Adjustment borrowing for short-term liquidity needs; access strictly controlled by Federal Reserve; discount rate below short-term market rates. Seasonal borrowing. Extended credit borrowing for depository institutions in difficulty; interest rates on the latter two are market related; modest volumes.</td>
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</table>

**Case for Adopting Indirect Instruments**

- **United States**: Outstanding treasury and federal agency securities (bills, bonds, and notes).
- **Poland**: No liquidity management through primary issuance. No secondary market. No liquidity through uniform price auction; daily with same-day settlement; 1–14 day maturity; against 100 percent face value. Large reverse repo transactions are used to sterilize central bank credit to government.
- **United Kingdom**: No liquidity management through primary issuance. No secondary market. No liquidity management through uniform price auction; daily with same-day settlement; 1–14 day maturity; against 100 percent face value. Large reverse repo transactions are used to sterilize central bank credit to government.
form of precious metals and consumer durables. In Ghana and Thailand, for example, disintermediation took the form of growth in the informal financial sector; in some other countries, including Egypt and Poland, disintermediation took the form of flight to foreign currency.

Under direct instruments of monetary control, the allocation of credit and its cost is arbitrary and may relate to nonmonetary objectives, such as the promotion of certain sectors of the economy. (The latter was the case, for example, in The Gambia, Indonesia, Malaysia, and Thailand.) However, direct instruments are an ineffective means for determining the final uses of credit, because the fungibility of money makes it impossible to ensure that the credit or the credit ceiling will be used for the intended purpose. While it is possible to determine if certain projects were funded, it is difficult to determine whether they would have been funded anyway. Moreover, direct instruments often lose whatever effectiveness they may initially possess with the passage of time. Experience shows that economic agents often find means to circumvent them, so that more and more economic activity occurs outside the formal financial system. There is evidence that banks themselves may attempt to circumvent direct controls by introducing new products or financing techniques that are outside the boundaries of existing controls or to divert funds into artificially profitable activities created by the controls themselves.\footnote{A classic example of the latter was the “round-tripping” that took place during the “corset” experience in the United Kingdom during the 1970s. See Section IV below and also Artis and Lewis (1981), Fforde (1983), and Bank of England (1982).}

While it is possible to determine if certain projects were funded, it is difficult to determine whether they would have been funded anyway. Moreover, direct instruments often lose whatever effectiveness they may initially possess with the passage of time. Experience shows that economic agents often find means to circumvent them, so that more and more economic activity occurs outside the formal financial system. There is evidence that banks themselves may attempt to circumvent direct controls by introducing new products or financing techniques that are outside the boundaries of existing controls or to divert funds into artificially profitable activities created by the controls themselves.\footnote{A classic example of the latter was the “round-tripping” that took place during the “corset” experience in the United Kingdom during the 1970s. See Section IV below and also Artis and Lewis (1981), Fforde (1983), and Bank of England (1982).}

Finally, like other forms of economic control, direct monetary instruments hamper competition. Inefficient institutions may be protected from competition by limiting the growth of efficient institutions may be protected from the pressures of unfettered competition. For instance, bank-by-bank credit controls protect inefficient banks from competition by limiting the growth of efficient banks. Moreover, if compliance is not uniform, financial intermediaries that comply with the controls may be placed at a disadvantage, further compromising the position of the formal financial sector.

### Advantages of Indirect Instruments

Indirect instruments can provide more effective monetary control than direct controls. Indirect instruments provide the monetary authorities with greater flexibility in the implementation and conduct of monetary policy, whereas direct controls become increasingly ineffective over time, particularly as restrictions on international capital movements are reduced or circumvented.\footnote{However, this does not exclude the possibility that during the transition period, a temporary destabilization of money and credit aggregates or interest rates may occur, making their control or their interpretation very difficult. Indeed, the latter has been a widespread problem. See Section IV below for evidence based on country experiences.}

One reason that indirect instruments are more effective is that unlike direct controls they do not encourage disintermediation and the growth of an informal financial sector, which lowers the share of financial assets that the monetary authorities control. A second reason is that financial innovation (and liberalization) is largely driven by technological developments that reduce information and transaction costs. Since indirect instruments work through, rather than around, markets, they can be used to influence monetary conditions even when specific monetary aggregates become economically less important.\footnote{See International Monetary Fund (1994, pp. 45–53).}

Indirect instruments also permit much greater flexibility in policy implementation. Small, frequent changes in instrument settings are feasible, enabling the authorities to respond rapidly to shocks and to correct policy errors quickly, pre-empting the need for more major shifts in policy. Such timely responses are difficult with direct instruments, particularly credit ceilings, since they are often set on an annual or quarterly basis. Frequent changes in credit limits would also place an undue burden on banks, since banks typically lack the administrative means to adjust their credit portfolios abruptly.

In cases where the exchange rate is flexible, the central bank can choose an inflation objective, which can differ from the international rate of inflation, and set its instruments to achieve it.\footnote{This is not to say that, because central banks can choose an independent rate of inflation, they should do so. Behind the increasing acceptance of price stability as the main goal of monetary policy is the recognition that inflation is a costly process. Thus, the degree of divergence among countries is likely to be limited. For a discussion of the extent to which a flexible exchange rate can insulate an economy from the world at large, see Guitián (1994a, 1994b).} In this case, indirect instruments rely on the central bank’s position as the monopoly supplier of high-powered money, which enables the central bank to create liquidity shortages in the banking sector and to relieve them under conditions of its choosing. In turn,
Changes in the supply of high-powered money can, by affecting liquidity conditions, generate strong interest rate effects. In cases of a managed or fixed exchange rate, the country's rate of inflation will mostly depend on international inflation. In this case, the central bank will need to set its instruments to obtain a balance of payments objective.\textsuperscript{17}

Indirect instruments' reliance on market forces helps to "depoliticize" the formulation of monetary policy and the allocation of credit.\textsuperscript{18} The use of indirect instruments encourages the development of financial markets, which are a rich source of economic signals. As part of the transition process, the authorities develop an awareness of changing market conditions and learn to "listen" as well as "guide." To realize these benefits fully, indirect instruments must be accompanied by a capacity for timely and accurate analysis on the part of the central bank.

Finally, in contrast to the situation where direct instruments are the principal means of monetary control, the use of indirect instruments by the central bank can help to deepen financial markets, encouraging reintermediation.\textsuperscript{19} Unconstrained, competitive, deep financial markets tend to price capital according to its scarcity, in a transparent and efficient way. Credit tends to flow to those able to pay the highest rates (adjusted for risk), hence those able to use resources most productively. One of the main advantages of moving to indirect monetary instruments, together with financial liberalization, therefore, is an improvement in the efficiency of investment, as well as an increase in financial savings.\textsuperscript{20}

Inherent Complexities in the Use of Indirect Instruments

Much of the appeal of direct methods lies in the close and apparently forthright link they seem to have with policy objectives. Such a simple correspondence does not hold in the case of indirect instruments, and policy may be more difficult to implement by indirect methods. Only bank reserves (the monetary base) or, at most, one short-term interest rate (the overnight rate or a money market rate, such as the three-month bill rate) may be controlled in the short run. Therefore, the central bank needs to define its objectives clearly and know how to set its instruments to achieve them. Because of lags in the transmission process, the effects of a particular setting cannot be observed immediately, giving rise to the need for intermediate targets or indicators that can be observed frequently (such as a monetary aggregate or a short-term interest rate).\textsuperscript{21}

Some aspects of financial liberalization that accompany the introduction of indirect instruments may complicate the conduct of monetary policy. In many cases, for example, interest rate liberalization, or the ending of credit controls, destabilizes money or credit aggregates for a time, making their control virtually impossible. In addition, interest rates and exchange rates may become more interdependent. Finally, the opening of the capital account—also an increasing trend, although it does not always accompany the transition to indirect instruments—drastically curtails the authorities' influence over the real rate of interest, even in the short run.

Criteria for Determining the Instrument Mix

In a discussion of what should determine the mix of instruments, general criteria can be distinguished from country-specific ones.\textsuperscript{22} Obviously, a key general criterion is the extent to which the instrument can control the variable that the monetary authority wishes to influence, such as the levels of money, credit, and interest rates. To exercise control, the effects of using the instrument must be predictable. The ability to control is also enhanced if the instrument is flexible, that is, if its monetary effects can be changed or reversed relatively quickly.

A second general criterion pertains to side effects on resource allocation. Would the use of the instrument interfere with financial markets and distort the allocation of real resources? For example, credit controls on each bank may be highly effective in controlling the aggregate amount of credit, but they can lead

\textsuperscript{17}See Guitián (1973, 1977) and Johnson (1973).
\textsuperscript{18}See, for instance, Goodhart (1992).
\textsuperscript{19}It can be argued that the introduction of indirect instruments may result in some disintermediation, as the demand for bank deposits may be reduced following the introduction of treasury or central bank bills as interest-bearing alternatives to bank deposits. However, considering the formal financial system as a whole, reintermediation is encouraged.
\textsuperscript{20}In many countries, real interest rates were highly negative before financial reform, therefore penalizing financial savings. Increasing the incentive to save in this circumstance should increase the rate of saving. However, the empirical evidence on this relationship is not strong and is hampered by the fact that prior to financial deregulation and liberalization, a large share of savings occurred outside the financial system. Consequently, financial deregulation is also likely to affect the distribution of savings, apart from the volume effect. See World Bank (1989).
\textsuperscript{21}To some extent, lags also occur with direct instruments. However, with indirect instruments the effects on aggregate credit and interest rates are less direct and may take longer to occur.
\textsuperscript{22}See International Monetary Fund (1993); for a more general discussion of operational targets for monetary policy, see Goodhart (1992) and McCullum (1989).
\textsuperscript{23}For a more detailed discussion, see Balino (1985) and Lindgren (1991).
to financial disintermediation, slow down market development, and distort the allocation of resources.

A third general criterion concerns the extent to which the instrument contributes to the overall financial development of the country and the stability of its financial system. For instance, as the discussion below illustrates, central bank operations with securities are not only a means of controlling the amount of liquidity but can also encourage the development of financial markets, particularly those for short-term government debt instruments.

A fourth general criterion concerns whether the central bank can use the instrument to deal with financial shocks and stresses on a bank-specific basis, for instance by assisting individual banks to adjust to a temporary outflow of deposits. A discount window can be used to address individual problems of this type.

In general, central banks make use of several instruments of monetary policy, in light of the multiplicity of criteria outlined above. This requires them to coordinate how much each instrument will be used and how its use will affect the overall level of liquidity. Reserve money programming is an indispensable tool in achieving this coordination, since it can be used to analyze systematically the sources and uses of liquidity.

Table 3 illustrates the combinations of instruments and the way they are currently used in a number of countries. The table shows the considerable diversity in the way monetary policy is operated. This diversity reflects several structural and macroeconomic factors: historical circumstances; the general economic environment in which the instruments were developed; the characteristics of the interbank and money markets; the extent of price competition in the banking and securities markets; the reliability and efficiency of the clearing and settlement system for payments; the aggregate and bank-by-bank level of excess reserves; and the sources, magnitude, and expected duration of changes in bank reserves. Although broad operational parameters can be identified, and there is some recent convergence in techniques, particularly within Europe, considerable diversity in the operation of these instruments is likely to persist for some time.

24 These include the seven countries whose experiences are described in detail in Part II as well as some industrial countries whose experiences are briefly discussed later in the following section.
IV  Transition to Indirect Instruments: Selected Experiences

This section analyzes the experience of selected countries in making the transition from direct to indirect instruments. The sample consists of industrial and nonindustrial countries chosen to be broadly representative of the membership’s experience in introducing indirect instruments in recent years.

Their experience suggests that the introduction of indirect monetary policy instruments is most effective and most smoothly accomplished under conditions of a stable macroeconomic environment and sound fiscal policies. In addition, it is crucial to develop a sound and competitive financial system and an adequate supervisory framework. The experience of the industrial countries shows that deep financial markets may take a long time to develop—a consideration that nonindustrial countries should keep well in mind. The transition in most industrial countries has been gradual and fairly smooth. In contrast, some other countries started with large disequilibria and distortions, making rapid and substantial changes necessary. During the transition process in the latter group, it was essential to establish proper incentives and conditions for financial market development as well as guidelines to assess and ensure the soundness, competitiveness, and efficiency of the banking sector.

Experience of Industrial Countries

This review of industrial country experience is brief because most of these countries have been analyzed in detail elsewhere. These experiences are best reviewed separately from those of developing countries and economies in transition, owing to the wide difference in the initial conditions of countries in each group.

Context of the Transition

Most industrial countries abandoned direct controls and began to rely exclusively on indirect instruments of monetary policy between the early 1970s and late 1980s. This was part of a broader process of financial deregulation, liberalization, and innovation. Interest rate and credit controls were eliminated, and new financial instruments and institutions were allowed to develop. In addition, international financial transactions were progressively liberalized. Full reliance on indirect instruments was not only a natural response of the central banks to these developments but was also a necessity in light of the growing ineffectiveness of direct instruments as financial markets became increasingly integrated and economic agents had more opportunities to circumvent controls.

Brief Overview

Canada abandoned direct controls in 1967. The United States, too, has a long tradition of relying mainly on indirect instruments, although some direct credit controls were used as late as 1980.

In most Western European countries, the movement toward full reliance on indirect instruments for the conduct of monetary policy has been gradual. France and the United Kingdom made significant moves toward their use in the late 1960s and early 1970s. However, both countries reverted for a period to some form of direct controls. Greater integration of the economies of the countries that now form the European Union and, in particular, the pressure exerted by financial integration in the second half of the 1980s increased the pace of the transition. It also induced a convergence in the techniques used to implement monetary policy.

In Germany, open market operations became the Bundesbank’s principal vehicle for short-term reserve management in the early 1980s, thereby reducing earlier emphasis on rediscount operations and minimum reserve requirements. Belgium, Denmark, Italy, the Netherlands, and Spain adopted indirect methods of monetary

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IV TRANSITION TO INDIRECT INSTRUMENTS

control in the late 1980s and early 1990s, as did Finland, Norway, and Sweden. A similar process is now under way in Greece, Ireland, and Portugal, with a view toward monetary integration in Europe.

Although Japan has never used credit ceilings, it has used other direct measures, the most important being interest rate controls and moral suasion (window guidance). Its transition to indirect instruments was part of a broader liberalization started in the second half of the 1970s, which is almost complete. In particular, dependence on moral suasion has been significantly reduced since the early 1980s, and window guidance was formally abolished in 1991. While interest rates on bank loans have been free since the 1940s, the liberalization of interest rates on deposits started in the second half of the 1970s and has proceeded steadily. New Zealand, on the contrary, went through a successful “big bang” experience in 1985–86.27

Problems with Transition

The comparatively smooth transition in most industrial countries can be explained largely by the fact that (1) financial markets were already well developed when the central banks increased their reliance on indirect instruments; (2) the macroeconomic situation was generally not far out of balance; and (3) interest rates, although often controlled, were usually close to market-clearing levels and did not cause great distortions.

Despite these relatively favorable conditions, two countries, France and the United Kingdom, suffered setbacks in their first attempts to liberalize the financial system and adopt indirect instruments of monetary policy. In the United Kingdom, the Competition and Credit Control Act of 1971 deregulated interest rates, abolished credit controls, and permitted commercial banks and building societies to compete in each other’s markets. Henceforth, monetary policy was to rely entirely on indirect mechanisms. However, the introduction coincided with a significant deterioration in the fiscal stance, which compromised the ability of the Bank of England to contain the subsequent credit growth. In November 1973, the Supplementary Special Deposit Scheme (the “corset”) was introduced, imposing high marginal reserve requirements on financial institutions. Under the scheme, banks were required to place additional deposits at the Bank of England, in increasingly penal proportions, as their eligible liabilities rose above specified baseline levels. The scheme was abolished in February 1975 but reintroduced in 1976–77 and 1978–80. However, the abolition of exchange controls in 1979 provided additional scope for disintermediation from the domestic banking sector. As a result, with deposits increasingly being made at institutions overseas, the scheme was seen to be ineffective and shortly thereafter it was finally abolished.

In France, the 1967–69 liberalization attempt was designed to ensure that interest rate management would become the central bank’s main policy instrument. However, there were inconsistencies in the use of monetary instruments, and monetary policy suffered from a lack of well-defined policy objectives. To facilitate domestic monetary management at times when interest rate policy was focused on the external sector, the Bank of France intended to use reserve requirements flexibly. Unlimited access to rediscount facilities made increases in those requirements substantially ineffective, however, as they were automatically offset by additional refinancing with the central bank. Reserve requirements on liabilities affected only a small part of the financial sector because several large banks were funded through the government’s budget.

The segmentation and heterogeneity of the French financial system also significantly constrained the central bank’s ability to conduct an interest rate policy and, hence, hampered the transmission of monetary policy impulses. The financial sector’s permanent indebtedness to the central bank and the uneven distribution of that debt made the authorities unwilling to set the discount rate at a penalty level.

The large banks never used their refinancing ceilings in full and aligned their lending rates to the discount rate. By contrast, the other banks, with permanent liquidity shortages, were mainly price takers. They were usually at their refinancing limits with the central bank and were borrowers in the interbank market. Hence, an increase in the money market rate made many of these banks unprofitable. This vulnerability was a major concern for the Bank of France and impeded effective interest rate management. Hence, in times of conflict between internal and external goals, the authorities reverted to direct monetary controls and tightened exchange controls. Thus, France’s first liberalization lasted less than two years (see Quintyn, 1993). The Bank of France reimposed bank-by-bank credit ceilings in 1969, which were abolished only in 1985.

These two episodes highlight the importance of avoiding conflicts between fiscal and monetary policy objectives and, particularly in the case of France, the importance of a well-functioning money or inter-bank market that can rapidly transmit the effects of changes in instrument settings throughout the banking sector. The two countries’ experience also shows the need for healthy and competitive financial insti-
tions and underscores the importance of using the appropriate instrument mix and approaching the introduction of indirect instruments and financial sector liberalization in a comprehensive way. The U.K. example also points to the catalytic effect of opening up the capital account, since such opening undermined the effectiveness of direct instruments, leaving no alternative to indirect methods of monetary control.

Experience of Selected Developing and Transition Economies

This section concentrates on the experience of nonindustrial countries. To keep the scope of the exercise tractable, a maximum of five countries from each region were selected for study, and only countries that were well advanced in the transition to indirect instruments were included. However, the final sample contains countries that made the transition relatively easily as well as countries that encountered significant difficulties. The sample comprises five countries from Latin America and the Caribbean (Argentina, Chile, Jamaica, Mexico, and Venezuela), two from Europe (Hungary and Poland), five from Asia (Indonesia, Malaysia, Philippines, Sri Lanka, and Thailand), four from Africa (Burundi, The Gambia, Ghana, and Kenya), and three from the Middle East (Egypt, Israel, and Tunisia).

Analytical Focus

Nonindustrial countries have faced a wider variety of problems in their transition to indirect instruments than industrial countries, mainly because certain institutional and economic conditions were often lacking. To better understand the complexities in implementing indirect instruments, the subsequent analysis focuses on (1) the initial institutional and macroeconomic conditions in nonindustrial countries, (2) the implementation experience, (3) the characteristics of the monetary policy instruments, and (4) financial sector efficiency and monetary control.

It is difficult to date unambiguously the start of the transition to indirect instruments in particular countries. For analytical purposes, it has been assumed in this paper that the transition started when the central bank began to auction treasury bills or central bank bills. Similarly, it is difficult to be precise about the duration of the transition, which is needed to compare a country's performance before and after the transition. Therefore, the length of the transition was determined case by case, with the endpoint marked by full reliance on indirect monetary instruments. The latter is defined as the point at which interest controls have been eliminated and the directed credits from the central bank amount to no more than 25 percent of total credit.

To varying degrees, all 19 countries in the sample have experienced higher savings mobilization, increased financial intermediation, a move toward positive real interest rates, and, thus, financial deepening following the transition process. However, there were substantial differences in performance (chiefly reflecting each country's willingness to use the new instruments fully), its timing of the reforms, its initial macroeconomic conditions and policies, as well as its institutional and structural characteristics.

Institutional and Macroeconomic Factors at the Outset of Reform

Although the experience of the sample countries during the transition to indirect instruments has been diverse, certain initial conditions were common to most of them. The introduction of indirect instruments was part of a broader set of reforms, which included not only liberalization of the financial sector but also macroeconomic stabilization and liberalization of the economy in general. Most of the countries had an IMF-supported program at the time. Measures to open up the financial sector to new entrants and to allow banks more operational freedom were common to all cases. Table 4 summarizes some of the salient institutional and macroeconomic characteristics at the outset of the reforms. The data on institutional characteristics are mainly derived from information gathered by IMF staff during its regular annual consultation with each of its members. Some involve a substantial element of judgment. (Additional details for some of the countries are included in the case studies in Part II of this paper.)

About 60 percent of the sample was characterized by a banking system owned mainly by the public sector. This is important because, as discussed earlier, the monetary policy transmission mechanism depends on the soundness and competitiveness of the banking system. Further common features were weak and segmented money and interbank markets, lack of effective bank supervision, and a low level of central bank autonomy. The

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28The references to Argentina and Chile relate to the liberalization efforts in the early 1980s.

29Financial savings mobilization is measured as the ratio of deposits to GDP. Financial intermediation is proxied by the ratio of broad money to GDP and the ratio of private credit to GDP. Data from the IMF's International Financial Statistics show that all these ratios have increased since the transition to indirect monetary instruments.

latter was important in that it made many central banks vulnerable to pressures to accommodate the government's fiscal needs. In only two-thirds of the sample countries were the authorities able to enforce direct controls effectively and attain their monetary objectives.

About half the countries in the sample had large macroeconomic imbalances at the start of the reform process characterized by, among other factors, inflation rates well over 20 percent (one-fifth of the sample had triple-digit inflation rates), negative real interest rates, and high fiscal deficits (exceeding 5 percent of GDP). As a consequence, indirect instruments were adopted under less than ideal conditions, which required that they be part of a more comprehensive reform and stabilization program. Thus, the success of the introduction of indirect instruments and that of the stabilization program were closely linked.

As noted earlier, excess liquidity, as reflected in levels of bank reserves that greatly exceed both statutory requirements and banks' normal precautionary requirements, is a common characteristic of monetary frameworks with direct controls. Eighty percent of the sample countries were coping with excess liquidity in the financial system at the time of the reform process. This posed a special challenge to the authorities, since market-based indirect instruments might not be developed sufficiently early in the reform to absorb large amounts of excess liquidity.

**Implementation Experience**

There were significant differences across countries with respect to the measures taken during the reform process as well as to the general pace of reforms. Nor was the experience in all cases smooth; about half of the countries in the sample experienced temporary reversals of reforms. Table 5 summarizes the key features of the transition.

The pace of transition to a market-oriented system of indirect instruments has varied across the nonindustrial countries. Argentina, Chile, and Israel adopted indirect instruments within a year, while the rest took a more gradual approach, and many took three or more years to complete the transition. The latter continued to employ direct instruments, including credit or interest rate controls, directed credits, and subsidized central bank credit, after the introduction of indirect instruments. This was similar to the approach followed by many industrial countries, as discussed earlier. In addition, some central banks sought to complement indirect instruments with informal means, such as moral suasion (for example, Indonesia, Malaysia, Thailand, and Venezuela). Mexico reversed the direction of its policies for a substantial period during the transition—at the time of the debt crisis—and only started to rely fully on indirect monetary instruments six years after their introduction.

In all sample countries, monetary policy reforms were part of a broader financial reform package, including improvements in bank supervision, revisions of the legal framework, and reorganization of the banking system. In addition, in about 70 percent of

---

**Table 4. Initial Conditions in Selected Countries in Transition to the Use of Indirect Instruments**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percent of total 19 countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMF-supported program</td>
<td>89</td>
</tr>
<tr>
<td>Public ownership of banking sector greater than 50 percent</td>
<td>63</td>
</tr>
<tr>
<td>Effective supervision</td>
<td>32</td>
</tr>
<tr>
<td>Independent central bank</td>
<td>11</td>
</tr>
<tr>
<td>Attainment of monetary policy targets</td>
<td>63</td>
</tr>
<tr>
<td>Existence of capital controls</td>
<td>95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percent of total 19 countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual rate of inflation greater than 20 percent</td>
<td>47</td>
</tr>
<tr>
<td>Negative real interest rates</td>
<td>53</td>
</tr>
<tr>
<td>Ratio of fiscal deficit to GDP greater than 5 percent</td>
<td>58</td>
</tr>
<tr>
<td>Excess liquidity</td>
<td>79</td>
</tr>
</tbody>
</table>


Note: The countries are Argentina, Burundi, Chile, Egypt, The Gambia, Ghana, Hungary, Indonesia, Israel, Jamaica, Kenya, Malaysia, Mexico, the Philippines, Poland, Sri Lanka, Thailand, Tunisia, and Venezuela.

---

**Table 5. Features of the Transition to the Use of Indirect Instruments in Selected Developing Countries**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Percent of total 19 countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradual</td>
<td>58</td>
</tr>
<tr>
<td>Reversal of monetary reforms</td>
<td>47</td>
</tr>
<tr>
<td>Fiscal consolidation</td>
<td>68</td>
</tr>
<tr>
<td>Fixed exchange rate regime</td>
<td>53</td>
</tr>
<tr>
<td>Abolition of capital controls</td>
<td>58</td>
</tr>
</tbody>
</table>

Source: IMF staff estimates.

Note: Sample as noted in Table 4.

1 Includes partial liberalization efforts.
the countries, efforts were undertaken to contain excessive fiscal imbalances.\(^{31}\)

Central banks in all the sample countries had to improve control over credit expansion and in many cases absorb excess reserves. For instance, Bank Indonesia drastically curtailed the scope of its subsidized rediscount ("liquidity credits") as a first step of its financial reforms in 1983. Most of the countries also had to eliminate or tighten access to facilities that allowed banks to borrow automatically from the central banks. In addition, excepting Indonesia, all countries limited central bank financing of the government to some extent.\(^{32}\)

Most or all interest rates were liberalized early in the transition to provide adequate scope for market-based instruments. However, only 35 percent of sample countries abolished bank-by-bank credit ceilings at the beginning of the liberalization process, while the rest abandoned them later in the process, after they had gained experience with the use of indirect instruments.

Introducing indirect instruments often required supporting measures that varied depending on each country's situation. For example, Poland's shift to indirect instruments was impeded by a slow and unreliable paper-based payments system that was geared to a centrally planned economy, which the authorities had to modernize. Thus, in designing their monetary instruments, the Polish authorities had to take into account modernization of the payments system that was simultaneously taking place (see Baliño, Dhawan, and Sundararajan, 1994). Conversely, the development of monetary instruments required appropriate changes in the payments system.

Other reforms also had to be undertaken. Several countries, including Egypt, Ghana, Israel, Mexico, and Thailand, began to restructure their commercial banks, many of which had accumulated large non-performing loan portfolios. Banking supervision and regulation had to be strengthened in most of the sample countries to avoid excessive risk taking on the part of banks and to prevent systemic problems. Moreover, increasing competition was an object of reform in all the sample countries. Therefore, reducing barriers to entry and eliminating regulations that restricted competition were key elements of the reforms. Thus, enhanced banking competition and the introduction of indirect instruments reinforced each other. Also, some countries—such as those in Central and Eastern Europe—had to make special efforts to gather and analyze economic information that would shed light on key monetary relationships, knowledge of which was needed to operate indirect monetary instruments successfully.

The need for a comprehensive approach to the introduction of indirect instruments is particularly strong in the case of economies in transition (Sundararajan, 1991). Such introduction can only take place once a two-tier banking system has replaced the monobank system in a way that clearly separates money from reserve money and vests in the monetary authority sole responsibility, as well as sufficient technical and institutional capabilities, for managing the latter. This transformation has required a comprehensive approach to strengthening a wide range of central banking functions and financial structures simultaneously, so that lack of progress in one area would not impede progress in another. Also in those countries, difficulties in establishing and identifying stable relationships between reserve money and broader monetary aggregates have often required cautious strategies for the shift to indirect instruments. These strategies often provide for the temporary retention of credit ceilings while indirect instruments are established and other key functions, such as the payments system, are improved.\(^{33}\) Thus, the reforms that those countries have been undertaking typically need to cover a broader range of issues than those in market economies.

The process of reform has often included temporary reversals. The cases of Argentina, Burundi, Chile, Jamaica, the Philippines, and Venezuela illustrate that point. All of these countries except Burundi and Jamaica faced a serious financial crisis, which prompted the temporary reintroduction of controls on interest rates to alleviate the burden of high real interest rates on borrowers and banks. Reversals in Burundi and Jamaica were a direct response to excessively high fiscal imbalances, which the authorities were reluctant to finance at market rates of interest. Thus, inadequate banking supervision and failure to sustain adequate macroeconomic policy were key factors in the reversal of financial reform.

The overall experience of the sample countries suggests that a successful shift to indirect instruments does not depend on the choice of exchange rate regime. However, that choice could influence the desirable speed of transition to indirect instruments, since fixed exchange rate regimes typically require greater interest rate flexibility. The shift to indirect instruments does not require the removal of capital controls. In most cases, there was a revealed

\(^{31}\)Moreover, a fiscal surplus can help to offset the initial surge of private credit following liberalization. That was the case in Indonesia (see Bisat, Johnston, and Sundararajan, 1992).

\(^{32}\)In Indonesia, the government did not borrow from the central bank even before the transition.

\(^{33}\)It is risky for a central bank to rely only on indirect instruments in cases in which a poorly functioning payments system has made banks' excess reserves too volatile, because those instruments work by affecting the supply of excess reserves to the system.
preference to phase in capital account liberalization only gradually as the authorities became confident that they had the necessary instruments to manage these flows. Capital account liberalization often had two main effects on the money market. On the one hand, it stimulated large capital inflows, which the monetary authorities had to manage. On the other, these inflows contributed to the development of the money and capital markets, for example, by fostering competition from foreign banks and other financial institutions. They also made direct monetary controls ineffective and added impetus to the shift to indirect instruments. Moreover, the deepening of financial markets allowed central banks to use more sophisticated instruments (such as in Indonesia and Mexico). This is consistent with the experience of industrial countries discussed earlier.

Use of Monetary Policy Instruments

Table 6 summarizes the situation with regard to monetary instruments at the end of the transition period. All sample countries started with open market type operations in the primary market owing to the absence of well-developed secondary markets for government securities or central bank paper. During the transition, countries experimented with different types of financial instruments, varying maturities, and different auction frequencies.

The survey indicates a preference for the use of treasury securities as the underlying instrument, versus central bank securities, although about a third of the countries used both instruments simultaneously. Most countries chose maturities of not more than three months. Almost all countries eventually adopted a system of weekly auctions, often after experimenting with longer intervals. A majority opted (also after experimentation) for a uniform price auction. In about 65 percent of the cases, the authorities retained some discretion to modify the auction outcome, typically through the right to reject bids even if the full amount of securities at auction would not be fully allocated at the cutoff rates. Generally, this right is exercised to reject outlying bids or discourage collusion. All countries except Mexico maintained reserve requirements, albeit at different levels. Half of them kept their reserve requirements higher than 15 percent; only in about one-third of the sample did the central bank remunerate required reserves. Reserve requirements therefore imposed a considerable tax on financial intermediation and at the same time provided the authorities with a cheap source of finance.

In most sample countries, many of the building blocks necessary for an active and efficient money market were in place by the end of the transition period. The necessary instruments, including prime-quality assets like treasury bills and bonds, central bank bills and bonds, banker’s acceptances, and certificates of deposit, had been created. Most countries had also developed legal and technical procedures for clearing and settlement. But despite all these developments, secondary markets remained weak. Thus, as shown in Table 6, the central bank’s money market interventions were still mainly conducted through the primary or issue markets in about three-fourths of the sample. In about one-half of the coun-

Table 6. Use of Monetary Instruments in Selected Countries at the End of the Transition Period

<table>
<thead>
<tr>
<th>Use of instrument</th>
<th>Percent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19 countries</td>
</tr>
<tr>
<td>Open market operations</td>
<td></td>
</tr>
<tr>
<td>Market</td>
<td></td>
</tr>
<tr>
<td>Primary markets</td>
<td>50</td>
</tr>
<tr>
<td>Predominantly primary markets</td>
<td>30</td>
</tr>
<tr>
<td>Predominantly secondary markets</td>
<td>20</td>
</tr>
<tr>
<td>Instrument</td>
<td></td>
</tr>
<tr>
<td>Treasury bills only</td>
<td>53</td>
</tr>
<tr>
<td>Central bank bills only</td>
<td>16</td>
</tr>
<tr>
<td>Both</td>
<td>31</td>
</tr>
<tr>
<td>Maturity</td>
<td></td>
</tr>
<tr>
<td>1-3 months</td>
<td>63</td>
</tr>
<tr>
<td>3-6 months</td>
<td>58</td>
</tr>
<tr>
<td>More than 6 months</td>
<td>21</td>
</tr>
<tr>
<td>Weekly auctions</td>
<td>95</td>
</tr>
<tr>
<td>Type of auction</td>
<td></td>
</tr>
<tr>
<td>Uniform price</td>
<td>74</td>
</tr>
<tr>
<td>Multiple price</td>
<td>26</td>
</tr>
<tr>
<td>Retains discretion to modify auction outcome</td>
<td>63</td>
</tr>
<tr>
<td>Reserve requirements</td>
<td></td>
</tr>
<tr>
<td>Less than 15 percent</td>
<td>58</td>
</tr>
<tr>
<td>Remunerated</td>
<td>32</td>
</tr>
<tr>
<td>Rediscant facilities</td>
<td></td>
</tr>
<tr>
<td>Access limited</td>
<td>79</td>
</tr>
</tbody>
</table>

Source: IMF staff estimates.
Note: Sample as noted in Table 4.
1The central bank basically intervenes through the issue market but may sporadically also do repos or reverse repos with the banks or primary dealers.
2As some countries issue different maturities simultaneously, the percentages do not add up to 100.

34The level of the tax depends positively on the size of the reserve requirement and negatively on the rate of remuneration, if any, that applies to required balances.
tries, these open market type operations were still the dominant technique, but some central banks had also started to supplement them with interventions in the secondary markets (mainly repos or reverse repos). Only 20 percent of the central banks relied entirely on open market operations through secondary markets.

In addition to the introduction of open market type operations, most countries in the sample kept a rediscount facility in place. However, in order to improve monetary control, many countries restricted access by setting their rediscount rate at a margin above the market rate; others put limits on access to this facility.

Financial Sector Efficiency and Monetary Control

This section examines the impact of the use of indirect monetary instruments on efficiency in the financial sector and on the degree of monetary control by considering the level and the volatility of two sets of key financial variables before and after the transition to indirect monetary instruments.35 The first set includes proxies for the performance of the banking system; the second set includes variables that are used as proxies for the degree of monetary control.36

Financial Sector Efficiency

To assess the implications of introducing indirect monetary instruments, the levels of the following monthly data in the pre- and posttransition periods were examined: interest rate spreads (difference between lending and deposit rates), the share of banks in the overall deposit and credit market for all financial institutions (bank and nonbank), and the share of credit to the private sector in total domestic credit. Standard F-tests were utilized to test for significant shifts in the means of the above variables in the periods preceding and following the transition to indirect monetary instruments.37 Table 7 provides the information on the sample countries and the results of the analysis.

Interest rate spreads can be used as a proxy for the efficiency of financial intermediation and the level of competition in the financial sector.38 The experience of most of the sample countries indicates that the interest spreads of banks initially widened during the transition and then narrowed significantly in the posttransition period, suggesting increased efficiency of services in the financial sector. In all but three countries (The Gambia, Jamaica, and Tunisia), spreads fell between the pre- and posttransition periods.39 The results of the F-tests indicate that those changes were statistically significant.

An analysis of the deposit market shares indicates a significant increase in deposit mobilization by the banking sector relative to nonbank financial intermediaries for all countries. Loan market shares show similar trends.40 The ratio of loans to deposits has also increased in most of the sample countries, suggesting increased intermediation as a result of the elimination of credit ceilings. Available data for some sample countries indicate that this trend was accompanied by a decline in excess reserves, which is also consistent with improved financial intermediation and a better functioning payments system.

The share of total credit extended to the private sector has increased in most countries. In some cases (The Gambia, Indonesia, and Jamaica), this ratio is greater than unity, indicating the repayment of outstanding credit by the public sector.

Finally, after the transition, all countries in the sample had moved toward or maintained positive real lending rates.41 This suggests a more efficient allocation of credit following the removal of controls.

35 As monthly data are not available for Argentina, Burundi, Chile, Hungary, and Poland for the specified period, these countries are not included in the sample used in this section. Thus, the sample includes Egypt, The Gambia, Ghana, Indonesia, Israel, Jamaica, Kenya, Malaysia, Mexico, the Philippines, Sri Lanka, Thailand, Tunisia, and Venezuela.

36The transition period varies according to the country experience, where the pre- and posttransition periods refer to the three years preceding and following the specified transition period. Strictly speaking, these “before and after” comparisons do not control for other developments that might have had an impact on the outcome. As a result, they cannot yield unambiguous conclusions about the efforts of implementing indirect instruments. However, as these comparisons focus narrowly on the financial sector, there can be a presumption that the results primarily reflect the effects of implementing indirect instruments of monetary control.

37 Chow tests are a special form of F-test that check for the stability of regression coefficients over two or more subsamples of the data. This is done by running an autoregressive regression (in first differences, in some cases, to ensure stationarity) for each variable for the whole sample, then running the same regression for the subsamples and comparing the sums of squared residuals.

38 However, developments in interest rate spreads are not comparable across countries as transaction costs and other factors vary across countries.

39 The decline in spreads could also reflect a lowering of reserve requirements, which would drive down the cost wedge between lending and deposit rates.

40 Deposit market share is the ratio of deposits mobilized by banks to deposits mobilized by the total financial sector (banks and nonbanks). Loan market share is the ratio of loans extended by banks to loans extended by the total financial sector. There may be some measurement problems if the banking survey has not been collected consistently across periods. The deposit data are available for only seven of the countries in the sample, and the loan data are available for only seven countries.

41 The five countries excluded from this section (owing to data availability) have also established positive real interest rates since the transition.
Table 7. Trends in Financial Variables Between Pre- and Posttransition Periods

<table>
<thead>
<tr>
<th>Interest spreads</th>
<th>Egypt</th>
<th>The Gambia</th>
<th>Ghana</th>
<th>Indonesia</th>
<th>Israel</th>
<th>Jamaica</th>
<th>Kenya</th>
<th>Malaysia</th>
<th>Mexico</th>
<th>Philippines</th>
<th>Sri Lanka</th>
<th>Thailand</th>
<th>Tunisia</th>
<th>Venezuela</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean1</td>
<td>6.00</td>
<td>11.88</td>
<td>8.10</td>
<td>6.00</td>
<td>140.20</td>
<td>3.39</td>
<td>6.53</td>
<td>2.71</td>
<td>12.21</td>
<td>8.26</td>
<td>5.82</td>
<td>5.72</td>
<td>2.15</td>
<td>5.44</td>
</tr>
<tr>
<td>Mean2</td>
<td>5.00</td>
<td>13.53</td>
<td>5.20</td>
<td>11.88</td>
<td>325.4</td>
<td>5.08</td>
<td>5.21</td>
<td>3.06</td>
<td>5.65</td>
<td>6.36</td>
<td>3.93</td>
<td>5.62</td>
<td>2.71</td>
<td>4.49</td>
</tr>
<tr>
<td>Mean3</td>
<td>4.00</td>
<td>13.26</td>
<td>3.40</td>
<td>3.07</td>
<td>27.10</td>
<td>4.92</td>
<td>2.71</td>
<td>4.10</td>
<td>4.50</td>
<td>2.74</td>
<td>2.26</td>
<td>2.68</td>
<td>2.58</td>
<td>2.51</td>
</tr>
<tr>
<td>F-test</td>
<td>—</td>
<td>4.01*</td>
<td>11.23*</td>
<td>8.47*</td>
<td>19.20*</td>
<td>5.51*</td>
<td>—</td>
<td>4.75*</td>
<td>8.01*</td>
<td>7.63*</td>
<td>5.65*</td>
<td>10.28*</td>
<td>—</td>
<td>8.40*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deposit market share of banks</th>
<th>Mean1</th>
<th>Mean2</th>
<th>Mean3</th>
<th>F-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>0.97</td>
<td>0.99</td>
<td>0.82</td>
<td>0.90</td>
</tr>
<tr>
<td>The Gambia</td>
<td>1.00</td>
<td>0.98</td>
<td>0.99</td>
<td>0.90</td>
</tr>
<tr>
<td>Ghana</td>
<td>0.70</td>
<td>0.68</td>
<td>0.70</td>
<td>0.80</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.85</td>
<td>0.79</td>
<td>0.85</td>
<td>0.82</td>
</tr>
<tr>
<td>Israel</td>
<td>0.70</td>
<td>0.72</td>
<td>0.70</td>
<td>0.72</td>
</tr>
<tr>
<td>Jamaica</td>
<td>0.62</td>
<td>0.71</td>
<td>0.62</td>
<td>0.71</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.68</td>
<td>0.72</td>
<td>0.68</td>
<td>0.72</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.78</td>
<td>0.79</td>
<td>0.78</td>
<td>0.79</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.89</td>
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<td>0.89</td>
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<td>0.78</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>0.92</td>
<td>0.92</td>
<td>0.92</td>
<td>0.92</td>
</tr>
<tr>
<td>Thailand</td>
<td>1.08</td>
<td>1.08</td>
<td>1.08</td>
<td>1.08</td>
</tr>
<tr>
<td>Tunisia</td>
<td>1.23</td>
<td>1.23</td>
<td>1.23</td>
<td>1.23</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0.76</td>
<td>0.76</td>
<td>0.76</td>
<td>0.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Loan market share of banks</th>
<th>Mean1</th>
<th>Mean2</th>
<th>Mean3</th>
<th>F-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>0.87</td>
<td>0.87</td>
<td>0.87</td>
<td>2.94*</td>
</tr>
<tr>
<td>The Gambia</td>
<td>0.82</td>
<td>0.82</td>
<td>0.82</td>
<td>2.94*</td>
</tr>
<tr>
<td>Ghana</td>
<td>0.82</td>
<td>0.82</td>
<td>0.82</td>
<td>2.94*</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.62</td>
<td>0.62</td>
<td>0.62</td>
<td>2.94*</td>
</tr>
<tr>
<td>Israel</td>
<td>1.04</td>
<td>1.04</td>
<td>1.04</td>
<td>2.94*</td>
</tr>
<tr>
<td>Jamaica</td>
<td>0.76</td>
<td>0.76</td>
<td>0.76</td>
<td>2.94*</td>
</tr>
<tr>
<td>Kenya</td>
<td>0.89</td>
<td>0.89</td>
<td>0.89</td>
<td>2.94*</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>2.94*</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>2.94*</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>2.94*</td>
</tr>
<tr>
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<td>0.86</td>
<td>0.86</td>
<td>2.94*</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.81</td>
<td>0.81</td>
<td>0.81</td>
<td>2.94*</td>
</tr>
<tr>
<td>Tunisia</td>
<td>1.23</td>
<td>1.23</td>
<td>1.23</td>
<td>2.94*</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0.76</td>
<td>0.76</td>
<td>0.76</td>
<td>2.94*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Share of credit to private sector in domestic credit</th>
<th>Mean1</th>
<th>Mean2</th>
<th>Mean3</th>
<th>F-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>9.03*</td>
</tr>
<tr>
<td>The Gambia</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
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Sources: IMF staff estimates and International Financial Statistics, various issues.

1Mean1, mean2, and mean3 are the sample means for the pretransition, transition, and posttransition periods, respectively. The F-test (Chow test) is the test statistic for the stability of the regression coefficients between the pretransition (mean1) and posttransition periods (mean3). The autoregressive regressions are of the form x_t = f(x_t-1), where x is the financial aggregate variable. The F-tests that are significant at the 1 percent confidence interval are indicated by an asterisk.

2Limited data are available for the posttransition period.
Table 8. Trends in Monetary Indicators

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Sources: IMF staff estimates and International Financial Statistics, various issues.

1Mean_0, mean_1, and mean_2 are the sample means for the pretransition, transition, and posttransition periods. Sdev_0, sdev_1, and sdev_2 are the mean-weighted sample standard deviations for the pretransition, transition, and posttransition periods, respectively. The F-test_{01} (Chow test) is the test statistic for the stability of the regression coefficients between pre- and posttransition periods. The F-test_{02} and F-test_{12} (Goldfeld-Quandt test) are the test statistics for the stability of the standard deviations between the pretransition and transition periods and between the transition and posttransition periods, respectively. The autoregressive regressions are of the form \(x_t = \beta x_{t-1}\), where \(x\) is the financial variable. The F-tests that are significant at the 1 percent confidence interval are indicated by an asterisk.

2Limited data are available for the posttransition period.

3Money market rates for Indonesia, Kenya, Malaysia, the Philippines, Sri Lanka, Thailand, and Tunisia and treasury bill rates for the Gambia, Ghana, Israel, Jamaica, and Mexico.

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IV TRANSITION TO INDIRECT INSTRUMENTS

Monetary Control

To assess the impact on monetary control of the introduction of indirect monetary instruments, the level and volatility of the following monthly data series were examined: money multiplier (M2/M0), ratio of narrow money to broad money (M1/M2), and short-term interest rates (money market or treasury bill rates). Volatility is measured as the coefficient of variation (the mean-weighted sample standard deviation) in the periods before, during, and after the transition to indirect monetary instruments. Standard F-tests were used to test for significant shifts in the standard deviations before, during, and after the transition. Table 8 provides the results of the analysis.

In all countries except Jamaica, the volatility of the multiplier increased substantially between the pre-transition period and the transition itself, underlining the potential for a loss of monetary control. However, in most of the sample countries, the variability of the money multiplier fell substantially between the transition and posttransition periods, implying a potential improvement in monetary control. A comparison between the pre- and posttransition periods yields a mixed picture: eight countries showed a higher volatility, six a lower one, and two showed no change. The results of the F-tests indicate that most changes in volatility were statistically significant.

In all the sample countries, the transition process has been characterized by unstable money or credit aggregates, making their interpretation and control difficult. In most of them, the volatility of the M1/M2 ratio rose during the transition period but fell after the transition. The F-tests indicate a significant change in this ratio before and after the transition period, implying a structural break after the monetary reform process. This decline in the level and volatility of the M1/M2 ratio may indicate a shift toward long-term deposits and increased confidence in the banking system or may be a result of positive and higher real interest rates.

The volatility of short-term interest rates mostly increased during the transition period. This may be a sign of a more active interest rate management or simply reflect the fact that interest rates became more market determined. The posttransition experience is less uniform, as about 70 percent of the countries experienced lower interest rate volatility. This is consistent with the expectation that after an initial jump caused by liberalization, interest rate volatility goes down as the central bank and the market gain experience operating in a liberalized environment. However, in most countries, volatility still remained above the level of the pretransition period.
The experiences of industrial and nonindustrial countries confirm the essential validity of the two basic reasons for introducing indirect instruments: to establish effective monetary control and to improve the efficiency of financial intermediation by allowing an allocation of financial resources on a market-determined basis.

As to effective monetary control, there is little doubt that, transitional problems aside, industrial countries have been able to exercise firm monetary control through the exclusive use of indirect instruments. As the literature on the subject is large and readily available, this paper does not focus on it. The previous section noted, however, the experience of some industrial countries in which the usefulness of direct instruments declined precipitously following the liberalization of the capital account. That experience provides unambiguous evidence that there is no alternative to adopting indirect methods if monetary control is to be sustained. Capital account convertibility greatly increases the means for circumventing direct methods of monetary control.

As regards nonindustrial countries, the evidence presented in the preceding section also suggests that once the transition period is complete, the volatility of both money multipliers and key monetary aggregates declines to manageable levels, tending to make them more predictable. Also, interest rates generally move to positive levels in real terms and, as reflected in increased volatility of short-term rates, become more sensitive to both market conditions and central bank actions after the transition. Thus, once the transition period is complete, the technical conditions exist for effectively implementing monetary policy by using indirect instruments.

Similarly, the evidence strongly suggests that the efficiency of financial sector intermediation improves. Interest rate spreads narrow sharply, and the growing share of bank loans and deposits in overall financial sector activity suggests that reintermediation through the banking system increases markedly following the removal of the direct controls. Positive real rates of interest and the increase in the private sector's share of total credit—while not unambiguous indicators—can be viewed as presumptive evidence of a more rational allocation of credit as direct controls cease to be binding.

That said, the country experience also points to the substantial difficulties and costs that are often encountered during the transition to indirect methods of monetary control. These need to be recognized and thoroughly addressed. While some countries have been able to make the transition rapidly and rather smoothly, transition has been a lengthy process for many others. About half the countries in the nonindustrial sample encountered reversals, and many experienced severe financial crises—although such setbacks were not always related to the shift to indirect instruments. Moreover, in most countries, unsettled conditions during the transition temporarily made it technically harder to maintain monetary control.

Thus, stable economic conditions and a sustainable fiscal position are desirable when introducing indirect instruments of monetary policy. They are, however, neither necessary nor sufficient: adopting strong adjustment measures seems to be more important in the long run than the initial macroeconomic conditions. Countries that start with large fiscal deficits and high levels of inflation but achieve fiscal and monetary consolidation have a better chance of a relatively smooth transition process. Conversely, countries with favorable initial conditions but that undertake expansionary policies and those with extreme initial macroeconomic instability (such as triple-digit inflation and a fiscal deficit larger than 10 percent of GDP) are more likely to experience reversal of financial liberalization, even severe financial crises.

The question arises whether the evidence for indirect instruments is strong enough to support the case for introducing them in all circumstances, particularly for a small isolated economy where direct...
Instruments seem to be working reasonably well and where the conditions for the successful use of indirect instruments appear to be lacking. Two points need to be considered. First, even if an economy lacks a well-developed domestic financial market, its residents will have some access to overseas financial markets (see Mathieson and Rojas-Suarez, 1993). Thus, the extent of financial competition that is relevant for the analysis cannot be established simply by counting the number of domestic banks. Second, monetary instruments can be designed to take into account the limitations of the domestic banking system. For instance, if insufficient banking competition prevents the running of an efficient auction of government or central bank securities, the categories of institutions that can participate can be broadened. Thus, institutional investors, large enterprises, and even individuals can be allowed to present bids.

In fact, the introduction of instruments like government securities can enhance competition by providing the public with a quality paper that can compete with bank deposits and by facilitating other operations—like collateralized lending. Moreover, the indirect instruments discussed in this paper are wide ranging; some of them can be effective when others might not function well. For instance, reserve requirements can often substitute for credit ceilings and improve the efficiency of financial intermediation, even in cases in which more market-oriented instruments (such as open market operations) may not function properly owing to poor competition. In sum, a pragmatic approach to the design, use, and phasing in of indirect instruments is warranted. That the adoption of indirect instruments will entail costs should hardly be surprising. As a key component of the broader process of financial sector liberalization, adopting such instruments has been associated with instability and overheating in particular markets.\(^\text{44}\)

## Concomitant Reforms

The risk that countries will incur heavy transition costs suggests that implementation should be carefully planned and comprehensive in order to avoid major pitfalls. As with the more general case of financial sector liberalization, however, theory offers little guidance on such practical aspects as key supporting measures, the pace of reform, and sequenc-

\(^{44}\)By definition, financial sector liberalization involves freeing up interest rates and ending the direct allocation of credit. The liberalization program should explicitly include a conscious effort to develop new techniques and instruments, in order to maintain monetary control. In some cases, however, the need to revise the means of monetary control has been recognized only as an afterthought.

\(^{45}\)Note that a strict prohibition on monetary financing of the government's fiscal deficit by the central bank. A comprehensive program for public debt management can facilitate the observance of those limits. Such a program would involve widening the range of debt instruments and holders, adopting market-based selling techniques, and strengthening secondary-market arrangements and coordination with monetary management (see Sundararajan and others, 1994). It is also necessary to recognize the potential conflict between the goals of debt management and monetary policy and to prepare to resolve possible conflicts in favor of monetary policy. Thus, there

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## Insulate Monetary Policy from Deficit Financing

When the fiscal deficit is large, the achievement of monetary objectives is likely to come under strain because it becomes difficult to sell a large volume of securities to finance the deficit; such sales raise the interest rate. Moreover, the budget would need to make room for the additional interest cost of borrowing at market rates. Thus, strains arise if the authorities are reluctant to accept the interest rate consequences of an expansionary fiscal policy or if concern over the cost of securities sales leads to pressures to reduce the volume and monetize the government financing shortfall.

As a practical matter, fiscal balance is probably sufficient to remove this pressure and allow the transition to go forward uninterrupted, but the evidence presented in the preceding section is that very few countries start from this position. Instead, a program of strict fiscal control and progressive deficit reduction was shown to be closely correlated with successful transition. Deficit reduction by itself, however, will not prevent such pressures from emerging at a later stage, leading the authorities to revert to direct methods of monetary control (the U.K. experience).

Additional measures are therefore desirable, including the setting of strict limits on monetary financing of the government’s fiscal deficit by the central bank. A comprehensive program for public debt management can facilitate the observance of those limits. Such a program would involve widening the range of debt instruments and holders, adopting market-based selling techniques, and strengthening secondary-market arrangements and coordination with monetary management (see Sundararajan and others, 1994). It is also necessary to recognize the potential conflict between the goals of debt management and monetary policy and to prepare to resolve possible conflicts in favor of monetary policy. Thus, there
must be a willingness on the part of the government to refrain from pressuring the central bank to keep interest rates low to minimize fiscal costs. Many countries have been addressing these issues by increasing central bank independence.46

**Strengthen and Integrate Money Markets**

Because control by the central bank over the supply of reserve money is the fulcrum of indirect monetary control, such methods will not be fully effective unless the “market” for short-term bank liquidity (either an interbank or a money market) can signal and transmit the central bank’s actions rapidly and transparently to all market participants. Thus, fairly seamless money and interbank markets are essential to the full use of indirect instruments. The relatively developed state of these markets was an important factor in explaining the smooth transition in most of the industrial countries. Conversely, segmented markets and a relatively slow pace of development are important factors in explaining why comparatively few nonindustrial countries have yet made the transition from open market type to full open market operations (the principal exceptions among the nonindustrial countries in the sample being Chile, Indonesia, and Mexico).

There are two key aspects to market development. First, measures to improve market infrastructure must be implemented at an early stage. As shown by the case of Poland, reform of the payments system to streamline the clearance and settlement of financial transactions is essential. Other infrastructure that has to be developed includes an appropriate legal framework to permit securities trading (covering such issues as settlement procedures, collateral arrangements, trading rules, and the regulatory framework for securities markets) and suitable market instruments and techniques (such as banker’s acceptances, commercial paper, and repos). These conditions facilitate interbank transactions and active liquidity management.47 In addition, the recent emphasis given by many countries to refining their payments systems demonstrates that the development and steady evolution of market infrastructure must be ongoing concerns.

Second, the central bank has to play an active role in market development. Perhaps somewhat paradoxically, the introduction and experimental use of indirect instruments at an early stage—even if they cannot be fully effective—can be essential to developing the conditions necessary for their becoming effective monetary instruments. As shown by the case studies of Indonesia and Mexico, by adopting market-based indirect instruments and transacting at market-related interest rates at an early stage, central banks can play a catalytic role in developing financial markets in general, and money markets in particular.

**Restructure the Banking System and Foster Competition**

A healthy and competitive banking and financial system is also a key element in ensuring that central bank actions to control the supply of liquidity are fully and rapidly transmitted. If the commercial banks do not respond to the signals given by the central bank by altering interest rates or liquidity conditions, indirect instruments will not have the desired effect on monetary and credit conditions and hence on the final economic objectives.48 Commercial banks may respond sluggishly to changes in their reserve position because their management is not used to a commercial environment, because they are not subject to hard budget or liquidity constraints, or because their financial position is so bad that they are unable to respond. Some instruments may be more appropriate than others in such cases of financial system fragility. For instance, using treasury bill auctions to reduce excess liquidity would create fewer problems for banks than increasing reserve requirements, especially if the latter are unremunerated. Responses of weak financial institutions may even be perverse; for example, weakened financial institutions may bid up interest rates to extremely high levels as they are forced to seek high-risk, high-return investments. This points to the need for clearly defined sanctions on management and owners of improperly operated banks.

The use of indirect instruments can be hampered by monopolistic or collusive behavior. It is important, therefore, that, as part of the process of introducing indirect monetary instruments, the authorities encourage competition in the banking sector through measures such as privatizing state-owned banks, removing barriers to entry, deregulating the domestic sector, and opening the market to foreign banks.49 Banks should be subject to hard budget and liquidity constraints and

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46A discussion of some of these efforts is included in Effros (1994) and Lindgren and Dueñas (1994). To be truly effective, however, independence must relate to the choice of instruments for achieving the goals of monetary policy and not to the determination of the latter. See DeBelle and Fischer (1994).

47Technical assistance has often been instrumental in effecting needed reforms.

48For a discussion of some of these issues in the context of credit auctions, see Mathieson and Haas (1994) and Saal and Zamalloa (1994).

49The presence of international banks may be particularly important in small economies where limited economies of scale might otherwise prevent development of a competitive banking system. Also, home country supervision gets around the problem of weak host country supervision for those banks.
be financially strong enough to operate commercially under the new monetary arrangements.

The case studies suggest that, without appropriate restructuring to deal with problem loans and problem banks, weaker segments of the banking sector may be unable to adapt to the newly competitive environment, raising the risk of a financial crisis. Existing weaknesses in banks’ asset positions become increasingly difficult to manage as the economy becomes liberalized and debtors can no longer accumulate arrears. For example, banks holding old government paper issued at low rates may face capital losses when interest rates increase. The imposition of hard budget constraints and the ending of interest rate subsidies, which frequently accompany financial liberalization and the introduction of indirect monetary instruments, put pressure on banks’ financial positions.

Adapt Supervisory and Regulatory Framework to Market Conditions

In an environment of liberalized interest rates and unrestricted credit allocation, the ongoing solvency of particular financial institutions hinges on the ability of those institutions to manage new credit and market risks. Safeguards—in the form of minimum capital standards, provisioning for doubtful loans, limits on loan concentration, collateral requirements, collateral valuation standards, and adequate enforcement mechanisms—are needed to foster prudent behavior by financial institutions. Financial reporting and disclosure standards are needed to guarantee transparency in the operations of financial institutions and provide a basis for the public to assess the creditworthiness of particular financial institutions. For instance, Chile and New Zealand have strengthened requirements on information disclosure, with a view to facilitating the role of the market in assessing the situation of individual banks.

The too frequent experience has been that financial liberalization—in the absence of such measures—leads to financial crisis and subsequent reversion to direct methods of monetary control. Some experiences (such as Chile and Indonesia) suggest that these problems may surface long after the transition to indirect instruments has occurred.

Bolster the Technical Capacity of the Central Bank

Regardless of the instruments they use, central banks need to build up their technical capacity to maintain monetary control in an increasingly sophisticated financial world. Reliance on indirect instruments requires that the central bank have the capacity to project the demand and supply of reserves and their effect on broader credit and monetary aggregates; it also assumes that the central bank has the legal capacity to utilize indirect instruments, which may require changes in central bank legislation. Thus, the central bank will need a programming framework and some idea of the money multiplier relationship to estimate how much reserve money to add or withdraw to achieve the required effect on broader money and credit aggregates. This can be particularly difficult during the transition period when several of the key behavioral relationships tend to become unstable, at least temporarily, thereby greatly diminishing the information content of past observations. In those circumstances, central banks have to adjust their implementation strategies and tactics accordingly. The case of New Zealand, discussed in more detail in Part II, illustrates this point.

As part of their programming framework, central banks need to develop a framework for managing the liquidity they provide to the market in order to ensure that the short-run instrument setting is consistent with the policy objectives. Specifically, such a program provides the central bank with indications about the timing and the size of its interventions, which helps in making indirect instruments of monetary policy most effective.

To be useful, a reserve money program requires timely and accurate data on the central bank balance sheet and on financial sector developments. Timely and accurate reporting, as well as a short-term information system to provide early indications of monetary and interest rate developments, is helpful in implementing a system of indirect instruments. (See, for instance, the case study on Poland in Part II.)

Although market development will require further refining, the basic elements of an indirect monetary instrument strategy, frequently involving open market type operations, can be introduced fairly quickly as suggested by the experience of countries in the sample.

Pace of Transition

Chart 1 summarizes the experience of the sample countries in making the transition from direct to indirect instruments of monetary policy. It shows clearly that the sample divides almost equally into two distinct camps: those that were able to make the transition within one or two years and those that took much more time (many on the order of five or

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50 See Sundararajan and Baliño (1991) for case studies analyzing the relationship between financial reform and financial crisis.

51 Direct instruments also require that a substantial body of information be available to policymakers.
more years). For the sample as a whole, the average length of transition was close to four years, and the median was three years. If the industrial countries are included in the sample, the evidence suggests a clear tendency for a lengthy transition.

While there are examples of both industrial and nonindustrial countries that have made successful transitions without subsequent reversals or major difficulties (Israel and New Zealand), the experience summarized in the preceding section suggests that a gradual pace makes a transition smoother and reversals less likely. The clear preference for gradualism is likely linked to the fact that such an approach provides more time for the necessary concomitant measures. It takes time to develop the infrastructure requirements (legal and regulatory framework, payments systems, and so forth), while the market-oriented nature of indirect instruments implies that the requisite development of financial markets and financial institutions may also take time. The central bank, too, must refine its operational capacity, often in circumstances where it is competing with the evolving financial sector to retain highly skilled personnel. Moreover, time is often needed to contain large fiscal and quasi-fiscal imbalances that constrain the operational autonomy of the central bank. Indeed, when the lengthy list of conditions needed to support full reliance on indirect instruments is considered, the case for gradual transition is strengthened.

However, circumstances do not always permit a country to undertake reforms at a gradual pace. Macroeconomic instability may create an urgent need for new instruments to strengthen monetary control to a level not achievable using direct instruments except at extreme cost (measured in terms of a loss of efficiency in the allocation of economic resources). For instance, direct instruments may have become ineffective or made obsolete by financial innovation or greater openness to international capital flows.

In these cases, the experiences of the sample countries show that rapid transitions can succeed, provided that the approach is sufficiently comprehensive and encompasses reforms in prudential regulation, payments, clearing and settlement systems, accounting and reporting systems, and the legal framework for financial transactions. In this regard, early action in the area of bank supervision and regulation is critical to control the risk of financial crisis, which has often precipitated reversals.

### Sequencing

Although country experiences vary in regard to the specific instruments used in making the transition from direct to indirect instruments, certain broad patterns in the sample suggest the following stylized path for introducing indirect instruments of monetary control. The various concomitant measures to make the indirect instruments effective have to be introduced in parallel, taking into account their impact on monetary control and market development, as well as technical linkages among individual measures (Sundararajan, 1992).

**Initial Stage**

Typically, a country introducing indirect instruments will need to absorb a liquidity overhang as a first step. However, even in the absence of an overhang, a central bank will need an instrument to absorb liquidity at its own initiative. Reserve requirements may be the only way to fulfill both needs at this stage of the transition and should be implemented as needed. By increasing the reserve requirements, a central bank can ensure the required sterilization. If the sterilization is attempted using other means alone—such as sales of securities—

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52In addition, a rapid approach has the advantage of delivering the benefits of the shift to indirect instruments earlier.

53This sequencing is offered as an observation based on positive economics—what countries in the study have done in practice—rather than as a normative prescription.

54Reserve requirements are included in the first stage because they can often be implemented early in the liberalization process. Moreover, countries with well-developed banking systems often find it useful to retain them, albeit at low levels, to facilitate interbank settlements, for example.
which banks may be unwilling to buy if markets are underdeveloped, it may be less certain. Moreover, reductions in reserve requirements can be used to inject funds in the market.

In addition, and particularly in cases of underdeveloped interbank markets, the central bank will need a mechanism to provide temporary accommodation (as lender of last resort) to individual banks having difficulties meeting their interbank settlement obligations. Thus, an overdraft or Lombard facility is likely to be needed as well.

The central bank will require a mechanism to provide funds to the market. This is particularly the case for economies in transition, in which commercial banks usually depend on the central bank for substantial amounts of financing. The central bank needs a credit facility to supply liquidity at its own initiative and to provide for the secular growth in domestic credit. In the initial stages, credit auctions can accomplish that purpose, as they provide a way to inject desired amounts of funds in a market-determined way. As noted earlier, though, this instrument needs to be designed carefully, to minimize adverse selection and distress borrowing.

At this point, the central bank should begin to eliminate interest rate controls and initiate technical and legal preparations that will foster money and government securities markets and strengthen competition in banking. While some countries have maintained certain controls (such as maximum or minimum interest rates on some loans or deposits, and ceilings on spreads), there will be little room for indirect instruments to operate unless all short-term interest rates have been freed and banks have some scope to determine deposit and lending rates.

Second Stage

At the second stage, the authorities should introduce open market type operations in the form of auctions of short-term government or central bank securities and bring about a greater degree of interest rate flexibility. Sometimes, central banks will prefer to issue their own securities. Among the reasons for such a preference would be the government’s inability or unwillingness to issue the types of debt needed for monetary management and the risks of conflict between monetary policy and public debt management.

The issuance of primary debt has proved to be a powerful instrument that allows central banks to gain many of the advantages of open market operations even before their secondary markets are sufficiently developed for the central bank to operate in them. The issuance of government or central bank paper also provides a strong impetus to the development of secondary markets, which then have a basically risk-free paper to trade and a basis for pricing it. Moreover, that paper can also serve to underpin other market operations, such as repos, or serve as collateral.

The authorities should begin to reduce reserve requirements in the second stage, as operations with securities can serve to sterilize any excess liquidity that might result from those reductions. At this stage, auctions of government securities (or central bank securities), if often have to be combined with other instruments—such as short-term credit auctions, a Lombard window, or bill rediscounting—to facilitate both monetary control and money market developments.

Third Stage

In the third stage, the authorities should press ahead with the reforms to develop the money market further, in particular the secondary market for securities; this will provide the central bank with the opportunity to operate flexibly and continuously and will require further adaptations and refinements in instruments. However, experience shows that this process could take considerable time. Progress depends on how quickly the institutions, instruments, and infrastructure of the market are developed. The central bank can help in accelerating the necessary reforms.

As shown by the wide variety of experiences summarized in the case studies, the sequencing outlined above is anything but rigid. Variations are both inevitable and highly desirable. For example, depending on the degree of market development, a country may be able to undertake the first and second stages simultaneously. Other variations will depend on factors such as the degree of openness of the capital account and whether the government has a need to issue securities.

The question arises as to when a country should abolish direct instruments and rely solely on indirect instruments. No general answer can be given. Widespread interest rate controls, if binding, allow little room for the development of indirect instruments and need to be eliminated early in the
process of reform. While it would be unwise to introduce bank-by-bank credit ceilings (if they were not already being used), countries may choose to maintain such ceilings temporarily while they develop indirect instruments. Such a choice could be appropriate, for instance, if the volatility of the demand for reserve money made it difficult to control monetary conditions solely through reserve money management. In those cases, ceilings can be made gradually less binding until they are phased out completely.

More generally, however, it may be useful to adopt a “belt and braces” approach: although usually only one set of instruments is binding at a time, direct and indirect instruments can coexist for a period until the financial markets are sufficiently developed to ensure the effectiveness of indirect instruments. Thus, it is important to stress that a country need not initially rely solely on indirect instruments. In fact, the transition can involve introducing indirect instruments even before the banking and financial markets are developed to the point where those instruments can be fully effective, because, as observed earlier, the use of these instruments can powerfully contribute to market development. Therefore, the case for a gradual transition to full reliance on indirect instruments of monetary control should not be interpreted as a case for delaying the process of transition. Indeed, the earlier the process begins, the more time, and hence discretion and flexibility, will be available to make the full transition. The value of this approach is that it allows banks (and the central bank) to familiarize themselves with the operational modalities of market-based instruments.

Many central banks, including those in countries with developed banking systems, have used moral suasion as a supplement to other instruments. It is hard to judge the advantages and disadvantages of this technique, since it can take many forms, sometimes facilitating and at other times preventing market reactions. Insofar as it represents an interference with the normal functioning of markets—by encouraging banks to carry out actions that go contrary to normal market incentives—central banks should eschew this technique once other instruments are in place.

Netherlands and Portugal) have allowed banks to trade unused credit ceilings. Note that while this makes credit ceilings less disturbing, other problems remain: since aggregate credit remains constrained, tradable credit ceilings can still result in a reserve money overhang. Moreover, rents accrue to those banks that receive the initial allocation of credits.

57 Also, direct instruments can be redesigned to make them more market oriented. For instance, some countries (such as the
VI Implications for Fund Operations

Program Design

Performance criteria in IMF-supported financial programs typically include a ceiling on the expansion of net domestic credit, which can be defined in various ways. These criteria may be viewed as a special case of the intermediate target that is often specified in a more general framework for formulating monetary policy. Within this general framework, such targets can be implemented using indirect instruments; thus, these instruments can also be used in implementing domestic credit ceilings in IMF-supported programs.

The primary objective of IMF-supported programs is balance of payments viability, which requires control over domestic financing in order to bring aggregate expenditure to a sustainable path. The rationale for focusing on domestic credit rather than money supply is that, in an open economy under a fixed or incompletely flexible exchange rate, a given quantity of money is compatible with different levels in international reserves that may not be consistent with the balance of payments objective. On the other hand, the authorities can determine the division of the supply of money between foreign and domestic assets through control over domestic credit and thus attain a foreign asset position consistent with the desired balance of payments position.

The literature on balance of payments crises has shown that the viability of a fixed exchange rate (or a preannounced crawling peg) depends on the growth of domestic credit not exceeding the growth of the demand for money. Excess growth of domestic credit relative to the demand for money results in a loss of foreign exchange reserves. Thus, control of credit expansion has been a cornerstone of IMF-supported programs. In combination with reductions in fiscal deficits, the contraction of credit growth under IMF-supported programs has typically resulted in improvements in current account balances and increases in reserves.

In cases in which the exchange rate is not firmly fixed, indirect instruments can be aimed at a range of credit or monetary aggregates—some of the latter quite narrowly defined. Indeed, few countries without IMF-supported programs currently specify credit as an intermediate target; instead, monetary policy in these countries aims at intermediate targets, such as interest rates or various definitions of the money supply, or directly at final objectives, such as inflation. Thus, the use of indirect instruments gives access to other targets, presenting additional options for the design of IMF-supported programs.

The ability to control broad monetary and credit aggregates with indirect instruments is likely to be imprecise in the short run. For purposes of establishing performance criteria in IMF programs, therefore, it could be desirable to set target ranges rather than specific point ceilings.

The use of target ranges is consistent with the flexibility in conditionality that the IMF has long espoused. Target ranges or review of performance criteria can be particularly helpful in cases in which prospective instability in the demand for money, credit, or reserve money over the program period—or the limitations of the measures within the control of the authorities—prevents the setting of precise quantitative targets at the outset. The implementation of indirect monetary instruments, coupled with target ranges or reviews of performance criteria, could be particularly useful if control of inflation becomes an explicit goal of a macroeconomic program.

Formulating program targets at the level of the central bank (that is, reserve money or central bank credit), rather than at that of the banking system, becomes an increasingly attractive option when indirect monetary instruments are used. As a general principle, performance criteria should apply to variables that not only have a close link to the ultimate

58 For the rationale, see Guitián (1973). For explanations of the role of performance criteria in IMF conditionality, see Guitián (1981, 1994b). Of the 50 IMF programs in place at end-1992, 48 targeted credit (of which 22 targeted net domestic assets of the central bank) and 2 targeted money (Guitián, 1994c).
Role of Technical Assistance

As the preceding sections have made clear, central banks face numerous technical issues in using indirect instruments of monetary policy. The successful introduction of such instruments hinges on appropriate policies, structures, and procedures being in place. Moreover, much of what is known about implementation is based on the analysis of actual experiences. Therefore, IMF members can avoid some pitfalls in the introduction of indirect instruments by making efforts to analyze the experiences of other members.

The IMF supports those efforts by providing technical assistance in the monetary and exchange fields. In addition to the IMF’s unique position to facilitate the analysis and exchange of information on practical experiences, the objectives of successfully introducing indirect instruments—strengthening monetary control and making financial intermediation more efficient—are crucial to the success of IMF-supported programs. This assistance has in many cases taken a comprehensive multitopic approach. In addition to providing advice specifically on the modalities of introducing indirect instruments (for instance, suggesting an appropriate instrument mix to achieve a chosen target, what form of securities should be issued, and what the auction modalities should be), assistance focuses on money and financial market development, debt management, banking legislation, banking supervision, accounting, payments systems, monetary and economic research and analysis, monetary programming, information systems, and central bank management.

Assistance has been given on restructuring the portfolios of the commercial banks (and sometimes the central bank). Because of the links between domestic and foreign market developments, support is also given to developing a market-responsive foreign exchange system and to the associated reforms of exchange arrangements and markets. Assistance from the Monetary and Exchange Affairs Department in these areas is carefully coordinated with other departments of the IMF providing assistance in related fields and with other donors and cooperating central banks.

Since the adoption of indirect instruments requires careful planning and takes time to accomplish, technical assistance involves following the process through its various stages. This assistance may be provided through a combination of staff visits, visits of experts from cooperating central banks, missions (which include experts as well as staff), and longer-term expert assignments, including series of visits or the placement of one or more advisors within the central bank for an extended period. Workshops and seminars are also effective tools to provide assistance. The mix of resources provided by the IMF depends on the circumstances, including the central bank’s needs, its demonstrated commitment to reform, and its track record in implementing technical assistance advice.
VII Conclusions

1. There is a strong case for implementing indirect instruments of monetary policy based on the following observations:
   - Moving to indirect instruments of monetary control leads to efficient financial intermediation.
   - Indirect instruments can provide effective monetary control, especially in circumstances where direct instruments have been largely circumvented. This is particularly likely as new financial instruments develop and the opening of the capital account provides a wider range of financial alternatives. In such a setting, the shift to indirect instruments becomes a matter of necessity.
   - Indirect instruments permit the authorities to choose from a larger set of targets than is possible with direct instruments. This is especially important when the relationship between particular aggregates, such as a credit variable, and the final objectives of the authorities, such as price stability, has been weakened or has become hard to establish. Often this is brought about by economic reform or financial innovation.

2. The development of indirect instruments is a complex process that usually requires considerable time to be completed. While some countries have succeeded in making a rapid and relatively smooth transition, the experience of others suggests that substantial difficulties and costs can be encountered and that the transition can be protracted if adequate concomitant measures are not adopted. Typically, such countries experience a temporary reduction in the effectiveness of monetary control, and some of them halt temporarily (and sometimes reverse) their reform efforts. Key concomitant reforms are needed to minimize these difficulties and ensure as smooth a transition as possible. They need to be part of a comprehensive approach to the introduction of indirect instruments that includes the following elements:
   - Monetary policy needs to be insulated from the pressure of financing the government's fiscal deficit. The authorities must curtail monetary financing of the fiscal deficit and ensure that the government accepts market rates of interest on its debt and refrains from pressuring the central bank to keep market interest rates low. Enhancing central bank independence can help to achieve these goals. Limits on central bank credit to the government must be supported by a comprehensive program to develop public debt management and government securities markets.
   - Weak and segmented money and interbank markets need to be strengthened. As liquidity management by the central bank provides the fulcrum of indirect methods of monetary control, indirect instruments cannot work well unless the interbank and short-term money markets can transmit the central bank's actions rapidly and transparently. The central bank must play an active role in the development of the market infrastructure, including the payments and settlement system, the legal and regulatory framework of the markets, and the introduction of suitable market instruments and techniques. At the same time, the central bank needs to stimulate trading in these markets. Introducing at an early stage some market-based indirect instruments that can be transacted at market interest rates can be the catalyst in developing the money and financial markets needed before full reliance on indirect instruments is possible.
   - The banking system often needs to be restructured to create healthy banks and foster competition. Generally, financial restructuring needs to deal with nonperforming loans and problem banks and with strengthening the managerial capacity of weaker banks, which may be poorly equipped to adapt to the newly competitive environment. The privatization of state-owned banks can contribute to this end.
   - The supervisory and regulatory framework needs to be reinforced. All too often, experience has been that, in the absence of such measures, financial liberalization leads to financial crisis. Thus, safeguards—in the form of minimum capital standards, standards for provisioning for doubtful loans, limits on loan concentration, collateral requirements and collateral valuation standards, and adequate enforcement mechanisms—are needed to encourage prudent behavior. Financial reporting and disclosure standards are also needed to improve transparency, so that the market can play its role in ensuring financial discipline.
The technical capacity of the central bank needs to be strengthened. Reliance on indirect instruments requires that the central bank develop a forecasting framework for short-term reserve money in order to project the demand and supply of currency and bank reserves and their effect on broader credit and monetary aggregates. That framework requires timely and accurate data—including early warning indicators—on financial sector developments as well as on the central bank's balance sheet and must be based on a quantification of key monetary relationships. A comprehensive research program is often required.

3. Implementation of indirect instruments is easier and less likely to suffer reversals if the authorities can do it gradually, in line with the speed with which concomitant measures can be introduced and financial markets developed. Sometimes, though, a rapid introduction of indirect instruments is necessary, for instance, when direct instruments have become ineffective or too costly to operate. In these circumstances, especially where institutional reforms and concomitant policy measures are both lacking and unlikely, the introduction of indirect instruments may be costly and there may be reversals. If, however, direct instruments are still effective and concomitant reforms are not yet in train, full reliance on indirect instruments could be premature.

4. Countries should introduce indirect instruments even if there is doubt about their immediate effectiveness for monetary management. A key question is when to abolish direct controls. Again, the precise answer depends on the specifics of the case. A gradual phaseout—a belt and braces approach—is often appropriate. In that approach, some pre-existing controls—such as credit ceilings—are used as a backstop until full reliance on indirect instruments becomes possible.

5. Sequencing has varied among countries, but a stylized path can be established. The first stage normally requires the use of both reserve requirements to absorb liquidity and a credit facility—such as a credit auction—to provide for the growth of domestic credit. An overdraft or Lombard facility at a penal interest rate is also needed. Liberalization of interest rates must begin at this stage.

In the second stage, the authorities should introduce auctions of short-term government or central bank securities. This not only assists the development of financial markets but also gives the authorities more flexibility in managing monetary operations and allows for a reduction in reserve requirements. At this stage, the authorities operate a mix of market-based instruments to foster both monetary control and market development.

In the third stage, the central bank should accelerate the development of institutions and financial market infrastructure and begin to rely on full-fledged open market operations. Total reliance on such operations is not possible until the secondary market is working well. At this stage, any remaining direct controls should be eliminated.

6. Indirect instruments, whether specified at the level of the central bank or the banking system, can serve to attain domestic credit expansion targets in IMF-supported programs. Moreover, indirect instruments introduce a degree of flexibility that is lacking when only direct instruments are available to the authorities. This flexibility increases the range of options for selecting program targets, which may be particularly useful if greater emphasis is placed on objectives like inflation, as suggested during the recent review of IMF conditionality.
Part 2

Case Studies
Part II provides additional details on selected countries' experiences with the introduction of indirect instruments. It consists of seven case studies (Chile, Egypt, Ghana, Indonesia, Mexico, New Zealand, and Poland), which are part of the country sample discussed in Part I. These seven countries were chosen because, with their wide range of experiences, they illustrate particular aspects of the process of adopting indirect instruments, including, in particular, the frequent need for accompanying actions and issues of the sequencing and pace of reform.

The results of these studies contribute importantly to the conclusions presented in Section V of Part I, and there is little, if any, need to reiterate those conclusions. But it is worth noting that, although each case provides its own lessons, they all serve to illustrate the mutually reinforcing nature of concomitant reforms that need to be undertaken in various areas. These include the insulation of monetary policy from the pressure of financing the fiscal deficit, the strengthening and integration of money markets, the restructuring of the banking system and the encouragement of bank competition, the adaptation of the regulatory and supervisory framework to market conditions, and the enhancement of the technical capacity of the central bank.
The transition to indirect instruments of monetary policy in Chile started as early as 1974, as part of a broad package of economic liberalization measures. The most important reforms in the monetary policy framework took place between 1974 and 1976. However, starting in 1981, the country experienced severe external shocks and entered a major banking crisis, the impact of which lasted until 1987 and the extent of which impaired the ability of the central bank to conduct its monetary policy; it also caused a temporary reversal of some of the initial reform measures. Since 1987, the Central Bank of Chile (CBC) has been able to increase its reliance on indirect instruments again, although massive inflows of capital since the early 1990s have been putting heavy pressure on it. During that period, the central bank has continuously refined its open market operations and supplemented them with other instruments and measures, particularly reserve requirements.

Motivation for Reform

Chile’s economy of the early 1970s was characterized by weak or negative growth and domestic and external imbalances. In 1973, the annual inflation rate was approximately 500 percent, and the fiscal deficit reached 21 percent of GDP. Monetary policy operated through interest rate ceilings, quantitative credit controls, directed credits, and a system of reserve requirements. Real interest rates were negative.

The pre-1974 financial sector in Chile consisted of 20 government-owned commercial banks, 1 foreign-owned commercial bank, and a limited number of nonbank financial institutions. The activities of the financial sector were highly regulated and restricted.

Process of Reform

Chile is often presented as an example of a successful stabilization program that combined financial and external trade liberalization and deep structural reforms, including in the monetary area. Beginning in the mid-1970s, the Chilean authorities focused their stabilization efforts on reducing the fiscal deficit and conducting a tight monetary policy; the latter pushed real interest rates upward. The fiscal situation improved gradually until it showed a surplus in 1979, and public sector savings increased drastically. On the other hand, as inflation did not abate as fast as expected, the government turned to the use of the exchange rate as the anchor of its stabilization program: the inflation rate declined from 212 percent in 1976 to 20 percent in 1981. Chile initiated a program of privatization, including in the banking sector, cut tariffs uniformly, and opened its current and capital accounts between 1976 and 1982. A variety of measures had been adopted to prepare the introduction and full implementation of indirect monetary control in 1976. Interest rate decontrol began in 1974 with the liberalization of short-term money market rates. In 1975, commercial bank interest rates were freed. Reform of monetary control procedures started in 1975 with a gradual reduction of subsidized and selective credits, the removal of quantitative credit controls, and a reform of the central bank’s discount window.

The new policy framework, in full operation since 1976, was based on auctions of central bank credit and treasury bills, supplemented by a redesigned discount window and reserve requirements. Initially, the level of the latter was high (75 percent on sight deposits and 47 percent on time deposits). In 1975, the central bank started remunerating these reserves. In 1977, the reserve requirement was lowered to 10 percent on sight deposits and 4 percent on time deposits. Subsequently, the reserve requirement was unified, and remuneration was phased out in 1978.

Among the measures adopted in this period were the privatization of most commercial banks, the lowering of the barriers to entry for domestic banks and financial institutions as well as for branches of foreign banks, the easing of restrictions on the scope of activities, and the free access of domestic banks to borrow abroad. Steps to strengthen the supervisory, regulatory, and legal systems included raising the minimum capital requirements and the penalties for
noncompliance, restricting the concentration of bank ownership, and increasing reporting requirements.

Notwithstanding these reforms, fundamental weaknesses in the prudential system remained, particularly with regard to the establishment of adequate standards for credit provisioning and the enforcement of regulations. In the face of severe external shocks, which included high international interest rates, a sharp drop in copper prices, and increases in oil prices, these weaknesses contributed to the major banking crisis that began in 1981. The crisis brought about a reversal of some of the reform measures and significantly impaired the ability of the central bank to conduct its monetary policy.¹

The postreform period can be divided into two subperiods: (1) the period from 1981 to 1987, which was marked by the banking crisis, severe external shocks, and the related setbacks in the ability of the CBC to implement monetary policy under the new indirect instruments framework; and (2) the period after 1987, which was marked by a new economic stabilization program and a regained soundness of the country's financial system, which in turn enabled the central bank to apply and develop its indirect monetary policy framework.

Despite the measures that had been taken at the time of liberalization, the banking sector remained vulnerable and eventually had a crisis that the government had to address in the early 1980s. The supervisory and regulatory framework still showed several weaknesses, the most important one being the lack of a precise definition of the limit on loans to a single borrower (or interrelated borrowers). During the privatization process, several commercial banks were purchased by large conglomerates. As a result, this high concentration of ownership, together with the lack of regulation on bank loans to interrelated entities, led to a concentration of bank lending to a small number of groups. In addition, depositors had little incentive to monitor the riskiness of banks because they expected the government to rescue them in case of crisis.

The combined effects of the banking crisis and the external shocks led to a significant setback in the ability of the CBC to implement its monetary policy and led to a partial reversal in the monetary policy reform process. First, there was a reversal of some interest rate liberalization measures in that the central bank began to post “suggested” deposit rates. Second, with the transfer of large amounts of problem loans to the central bank, the latter became the main provider of liquidity to the banking system.

¹The banking crisis in the early 1980s was attributed to a combination of factors, including high real interest rates that aggravated the situation of borrowers in distress. For a discussion of these factors, see Velasco (1991).

Much of this credit was provided through various subsidy programs. These emergency measures dominated monetary policy actions from 1981 to 1986-87. At the peak of the crisis, in 1983, the authorities abandoned the exchange rate as the nominal anchor of their stabilization program.

The authorities' strategy for re-establishing a sound financial system consisted in (1) strengthening the regulations governing the banking system, (2) implementing programs to reduce the debt-service burden of the private (nonbank) sector, and (3) recapitalizing the private financial system through central bank purchases of substandard loans and, subsequently, through the sales of shares of the troubled banks to the private sector. These rescue operations and subsidy programs resulted in substantial operating losses for the CBC, which amounted to the equivalent of roughly 10 percent of GDP.

In 1985, Chile adopted a new orthodox stabilization program based on sound fiscal and monetary policies, coupled with an acceleration of structural reforms. These measures contributed to increased savings and investment, and there was sustained and rapid real growth of GDP in the following years. The impact of these measures could be felt as early as 1987. Most subsidy programs were phased out. The use of indirect instruments to conduct monetary policy was gradually resumed.

In October 1989, Congress enacted a new central banking law, providing legal autonomy to the CBC. According to this law, the central bank has a mandate to preserve the stability of the currency and the normal execution of domestic and external payments. To pursue these objectives, the law vested in the central bank the powers to formulate and implement monetary, credit, financial, and foreign exchange policies and to issue regulations on monetary, credit, financial, and foreign exchange matters.

Since 1987, the CBC’s main operational objective has been to set domestic real interest rates at levels consistent with the objectives for economic growth and price stability. (As a result of this policy, there have been considerable variations in the growth rate of liquidity over time.) Sales of the central bank’s indexed instruments (PRCBs) are the main tool of monetary policy, and most financial instruments in Chile are still indexed. On the other hand, the use of treasury bills in the central bank’s operations has gradually disappeared, owing to the improving fiscal position that reduced the need to issue those bills. The central bank’s key interest rate is the rate on its 90-day instruments (the reference rate). This rate is set by the central bank, and the 90-day notes are sold “on tap” to the banks.

A wide range of PRCBs with different maturities has been developed by the central bank during the past few years. Up to 1989, the maximum maturity of
the central bank's open market instruments was 360 days. In April 1989, a new PRCB with a maturity of 10 years was added to the spectrum. In the course of 1992 and 1993, several other maturities, of between 4 and 20 years, were added, with a view to increasing the breadth of the market. In contrast to shorter-term maturities, the market rate for longer-term PRCBs (maturities longer than 90 days) is determined on the basis of bids received by market participants for a preannounced quantity to be auctioned.

Starting in 1990 and reaching a peak in 1992 and 1993, Chile has been experiencing large inflows of capital. These inflows, initially encouraged by the differential between interest rates in Chile and those abroad, have put a heavy burden on the central bank's monetary policy. In an effort to limit currency appreciation and at the same time contain the growth of credit, the central bank stepped up its sales of promissory notes. In addition, in 1990, it increased the commission on swap operations and established a minimum of one year for such operations. Later in the year, the central bank reintroduced partial remuneration of bank reserves (equivalent to the monthly inflation rate in excess of 1.5 percent). In 1992, it increased reserve requirements and imposed an additional requirement of 20 percent on new foreign borrowing, later extended to all foreign exchange deposits at commercial banks and increased to 30 percent. More recently, the central bank has also started short-term transactions in repurchase agreements; pension funds, insurance companies and banks are the main participants in these operations.

Lessons

The financial sector was first liberalized in some key areas, and quantitative monetary controls were phased out and replaced by new, indirect instruments. However, improvements in banking regulation and supervision were insufficient to avoid a costly financial crisis. In turn, that crisis led the central bank to reintroduce some interest rate controls and to provide direct support to banks in difficulties. Once the country had recovered from the banking crisis and the external shocks and had stabilized its macroeconomic conditions, the central bank resumed full reliance on indirect methods of monetary policy. Since then, the central bank has been continuously refining its open market operations, particularly by improving the auction mechanisms and widening the maturity range of its promissory notes—the latter to facilitate the development of a market for longer-term paper. These improvements were supplemented with revisions in other instruments, particularly reserve requirements, and the introduction of new instruments, particularly foreign currency swaps.

Indirect monetary instruments have also enabled the central bank to cope with the large capital inflows that have occurred since 1990. To sterilize the effects of its purchases of foreign exchange, it has relied heavily on sales of its promissory notes. However, these massive issues, in turn, have led to new operating losses, one of the main problems the central bank has had to cope with during the past decade.
Ill Egypt

Egypt’s transition to indirect instruments of monetary policy has two salient elements: pervasive distortions in the economy at the outset of the transition and a drastic improvement in expectations about the country as the transition took hold. Thus, at an early stage of the transition, Egypt faced extremely large capital inflows. The reluctance of the authorities to accept the full consequences of the inflows for the exchange rate led the Central Bank of Egypt (CBE) to undertake large sterilization operations. However, the magnitude and the persistence of the inflows, coupled with the relatively rudimentary state of Egypt’s market-based instruments, put this policy under considerable strain.

Motivation for Reform

In 1990, because of the need to correct the large fiscal imbalances, sluggish growth, high inflation, and a weak external position, Egypt embarked on a comprehensive economic adjustment program. In the context of this program, in early 1991, the Egyptian authorities launched a program of monetary reform.

At that time, monetary policy was essentially accommodating, and the authorities maintained selective credit controls. Stringent exchange controls and price controls were used to cope with balance of payments pressures. Interest rate ceilings resulted in negative real interest rates, and the resulting demand for credit was kept in check through bank-by-bank credit ceilings. Moreover, negative real rates of return on Egyptian pound (LE) assets and expected depreciation raised the share of foreign currency deposits in broad money to more than 50 percent at the start of the reform period.

Prior to the 1991 reforms, government securities were issued on a nonmarket basis and were largely held by the public sector banks. Reserve requirements had been set at 25 percent for an extended period of time (15 percent on foreign currency deposits). The CBE directly controlled credit to the public and private sectors through loan-to-deposit ratios and bank-by-bank credit ceilings for specific classes of credit uses, based on the banks’ shares in the credit market. The CBE maintained a schedule of lending and deposit rates for banks. It also provided liquidity by automatically discounting government bonds. The discount rate was seldom used to discourage access, and there were no formal limits on access. Moreover, the discount rate was used to provide cheap credit to priority sectors. The CBE granted lines of credit to the housing and industrial specialized banks.

Against this background, the reforms aimed to enhance the role of market forces in the conduct of monetary policy, the allocation of credit, and the mobilization of savings. Greater efficiency in financial intermediation was expected over time as a result of increased competition in the financial sector, reduced restrictions on bank entry, and the development of money and capital markets. To assist in this process, prudential supervision of banks was to be tightened, and their capital structure strengthened. With the pressures on the existing control system building up, especially on the external side, it was clear that external liberalization would be a central part of any reform program.

Process of Reform

At the outset of the reform, the exchange rate was unified and floated. Foreign exchange bureaus were recognized in order to give depth to the foreign exchange market. At this time, interest rates were liberalized, with the authorities retaining control only over the floor rate on three-month deposits; this remaining control was abolished the following year.

Weekly three-month treasury bill auctions started in January 1991, with the aim of providing a benchmark interest rate and serving as the main instrument of monetary policy. The CBE began developing its monetary programming capability. Auctions of 6-month bills and 12-month bills were started in fiscal year 1992, with about 25 percent of the offerings purchased by the nonbank sector. In January 1991, the reserve requirement was unified at 15 percent and applied to all classes of deposits and maturities.
The supply of reserves through the discount facility was also tightened by raising the discount rate to penal levels—two points above the treasury bill rate—and the CBE strengthened its control over rediscount operations. A substantial volume of automatically rediscountable government bonds held by the banks were replaced by bills that were discountable only at the CBE’s discretion. After April 1991, new lines of credit to specialized banks carried market-related rates. Bank-by-bank credit ceilings were discontinued in October 1992, and monetary targets were established at the level of the CBE’s net domestic assets.

Along with the move to market-determined interest rates and improved instruments of monetary control, the authorities launched a program to address weaknesses in banks and reinforce the prudential and regulatory framework. Some banks were considered vulnerable to the combined effect of the monetary and exchange reforms because of low capital and large foreign exchange exposure. A program to recapitalize weak banks was completed in May 1991, and regulations on foreign currency exposure were articulated in April 1991. Minimum capital requirements were outlined in 1991, and banks were given two years to comply with these standards. Finally, the banking law was amended in June 1992 to provide for the establishment of a deposit insurance scheme.

Monetary reform was accompanied by substantial foreign exchange market liberalization and fiscal adjustment. The resulting rapid turnaround in perceptions of the Egyptian economy caused sizable and persistent capital inflows. In order to contain the resultant exchange rate appreciation, the authorities intervened heavily in the exchange markets, accumulating over $16 billion of reserves. To contain the resultant monetary expansion, there was substantial sterilization of this intervention. The rudimentary state of Egypt’s money and capital markets meant that much of this activity occurred in the treasury bill market, which grew rapidly to more than LE 31 billion (almost $10 billion) by late 1993.

The banking sector remained dominated by four large public sector banks. To foster competition, joint-venture banks with foreign participation were encouraged, and branches of foreign banks were licensed to perform an increasing range of banking activities. Nevertheless, interbank activity has grown only slowly.

In the past three years, Egypt has achieved much progress in the transition to indirect monetary control. Direct controls on credit have been eliminated, and interest rates and exchange rates liberalized. High domestic yields have resulted in sizable capital inflows and increased remittances. Inflation has dropped dramatically and is running at about 7 percent a year.

However, because of the large budgetary impact of the sterilization of capital inflows, the Ministry of Finance has curtailed issuance of treasury bills. Auction volumes fell from a peak of around LE 1100 a week in December 1993 to about LE 200 a week in April 1994. The 6- and 12-month treasury bill auctions have been discontinued since March 1994.

Lessons

The introduction of indirect instruments, together with the external liberalization and fiscal adjustment that occurred, has brought sizable economic benefits. The CBE has demonstrated considerable organizational and technical capability in the operation of the Treasury bill market. The absorption of the sizable capital inflows and the concomitant success in bringing down inflation demonstrate the effectiveness of the indirect instruments.

However, problems have emerged as a result of the heavy burden put upon the treasury bill as the main indirect policy instrument. The size of the sterilization operations in the face of the capital inflows, while interest rates remained relatively high and fiscal financing needs very low, has caused concern particularly at the Ministry of Finance about the cost of the operation.

It can be seen, therefore, that central banks and finance ministries have to share broadly the same monetary policy objectives. In particular, since the cost of operating monetary policy has to fall ultimately on the government, either directly through paying interest on treasury bills or indirectly through lower remittances from the central bank, the finance ministry must be prepared to accept the costs of operating monetary policy. If there is a reluctance to issue sufficient securities, or use other market means to absorb banks’ excess liquidity, this may lead to a reigniting of inflationary pressures and the undermining of the reform process as a whole.

The Egyptian experience also points to the key importance of financial sector deepening early in the reform to generate a vigorous response from the markets. Otherwise, the lack of development of long-term financial markets can encourage capital inflows into the short-term market (the treasury bill market) rather than long-term investments (such as equity stock). Similarly, issuance of medium-term bonds would encourage further financial sector development.
Ghana introduced indirect monetary instruments after major reform efforts to reduce the macroeconomic imbalances and an initial period of institution building. Its experience illustrates that certain key measures that affect the structure of the financial system need to be in place in order to ensure momentum in the transition to a market-based monetary control system. Furthermore, even when these conditions are met, the ultimate success of the program in achieving macroeconomic stability depends critically on fiscal responsibility and disciplined control of money and credit.

Motivation for Reform

In Ghana, the period prior to 1983 was characterized by large fiscal deficits, high rates of growth of domestic credit and broad money, an inflation rate exceeding 70 percent, and external imbalances fostered by wide differences between the official and parallel market exchange rates. Credit ceilings, which were derived in proportion to each bank’s credit market share, were imposed on all banks. Such a scheme perpetuated market shares independent of a bank’s competitiveness and efficiency. In addition, highly negative real interest rates and measures to control fraud—freezing bank deposits pending investigation for tax liability—weakened confidence in the banking system and led to a significant switch of bank deposits into currency outside banks, particularly to rapid growth of the informal financial sector.

In 1983, the government of Ghana started a comprehensive program of financial and structural reforms, named the Economic Recovery Program. In the first phase, 1983–86, the program focused on price liberalization, reduction of the imbalances in government finances, and containment of rapid credit expansion. During the second phase, 1987–89, the main focus of policy actions shifted to structural issues, such as liberalization of the exchange and trade system, privatization of the major state enterprises, tax reform, downsizing of the civil sector, and institutional and financial reforms to strengthen the domestic banking system.

Economic performance during the 1983–89 period was impressive: real GDP growth averaged more than 5 percent a year; inflation declined from 120 percent to 25 percent by end-1989; the balance of payments switched from a large deficit to sizable surpluses; external arrears were eliminated; and the debt-service ratio fell to less than 30 percent of exports.

However, underdeveloped financial markets and the associated high transaction costs limited the ability of economic agents to dispose quickly of built-up money balances. This resulted in a substantial increase in currency outside banks and boosted the demand for foreign exchange in the parallel foreign exchange market. In view of these developments and the resurgence of inflation, the Ghanaian authorities launched a monetary policy and financial sector reform in 1989 supported by the IMF and the World Bank. During the period 1990–91, the program aimed at improving the regulatory framework for financial sector activities and banking supervision, restructuring the banking system, and implementing a market-oriented system of monetary control based on indirect instruments.

Process of Reform

The transition to an indirect system of monetary control was gradual. As a first step, the government focused on improving the structure of the banking system and enacted the Revised Banking Act of 1989. The new law provided for tighter risk exposure limits, higher minimum capital adequacy ratios, stronger accounting standards, and more stringent reporting requirements for banks.

The financial restructuring plan for the banking sector addressed the problem of banks’ nonperforming loans and other claims on both state-owned enterprises and the private sector. These nonperforming assets were either replaced by Bank of Ghana (BOG) bonds or offset against debts owed to the BOG and the government (“bad bank approach”).
a result, banks were able to meet the new capital adequacy requirements.

The BOG proceeded to unify the minimum cash and liquid reserve requirements for banks and introduced open market type operations. In addition, a stock exchange was set up. In the context of liberalizing interest rates and credit controls, the BOG removed limits on maximum bank lending rates and minimum bank term deposit rates and controls on sectoral allocation of bank credit. In addition, the government made sizable net repayments to the banking system during this period, which led to a substantial deceleration of net domestic credit and, to the extent that the repayments were made to the BOG, contributed to a sterilization of liquidity and a reduction in excess bank cash reserves in relation to bank deposits. A large volume of liquidity was also sterilized through the sale of nonredispensable BOG instruments. The BOG introduced reserve requirements, securities auctions, and refinance instruments.

A cash reserve requirement and a separate secondary liquidity requirement were imposed on commercial banks. Beginning in December 1990, bank deposits at the BOG to meet the cash requirement were remunerated at 3 percent, a rate later raised to 5 percent. After the cash reserve requirement was reduced from 27 percent to 5 percent over the three years that ended in December 1993, remuneration on deposits to meet the cash requirement was eliminated in January 1994. The cash requirement is uniform for both time and demand deposits, while there are no requirements on foreign-currency-denominated deposits. Both government and private deposits are subject to cash reserve requirements.

Eligible liquid assets to fulfill the secondary reserve requirement are defined as government medium- and long-term securities and treasury bills, BOG bills, and commodity bills; call deposits with the discount houses are no longer considered eligible liquid assets.

Money market financial instruments or securities (including BOG issued bills and bonds, treasury bills and notes, and commodity bills) are traded through weekly auctions at the BOG. The auctions are open to banks and nonbanks alike. However, existing limits on bank financing of the government have encouraged banks to bid for BOG securities. Thus, banks' holdings of government securities have been almost nil. On the other hand, nonbanks have not faced this constraint. The auction uses a multiple-price format, and participants can submit multiple bids of both prices and quantities; there are no non-competitive bids. As long as the banks meet the criteria for banking supervision, they have access to the auction.

The postauction cutoff rate is determined by the volume of sales. However, a bid may be rejected by the BOG if it is "out of line" with the majority of the bids and is not of "significant" volume. During the week, the same securities are also offered on tap at the weighted-average rate determined in the previous auction.

The interbank secondary market for government and BOG securities is very thin, but discount houses account for some secondary-market transactions. The fairly liquid position of most banks and the automatic access to the tap during the week have hindered the development of a secondary market. The BOG does not engage in repurchase operations. By law, discount houses stand ready to provide liquidity to commercial banks. They have automatic access to the BOG discount window, although within weekly limits. The banks also have direct access to the discount window, but the BOG is not obliged to rediscount securities held by the banks.

Ghana has put in place many of the building blocks necessary for an active and efficient money market. Instruments include treasury bills and bonds, BOG bills and bonds, bank acceptances, and certificates of deposit. Adequate settlement procedures also exist. Nevertheless, the money markets are still rudimentary when such tests as turnover, liquidity, and responsiveness are applied.

Interest rates on auctioned government and BOG instruments have remained constant over long periods. Thus, the yields on government and BOG instruments do not convey useful information about the short-run pressures and activities in Ghanaian money markets.

In addition, commercial bank rates on loans and deposits tend to lag in adjusting to changes in the rate on government and BOG securities. Three years after the introduction of indirect instruments of monetary policy, bank deposit and lending rates were still negative in real terms. Interest rates were unresponsive to the tightening in domestic liquidity for three main reasons: (1) the large share of public ownership in banks and the oligopolistic structure of the banking system; (2) concerns of BOG about the impact of high interest rates on its own profitability; and (3) concerns regarding the balance sheet position of banks when they were replacing nonperforming assets.

In the absence of active secondary markets, control of the money base by BOG is accomplished by adjusting the net amount of BOG bills issued each week.

Lessons

Ghana has had a relatively successful transition from a system of direct monetary control to a policy framework that relies on indirect instruments. Several key factors were critical in affecting the timing
of the reforms. First, the reforms in the financial sector ensured the soundness of the banking system and increased public confidence. Second, the increase in profitability and independence of the BOG was important in ensuring an efficient conduct of monetary policy. The BOG suffered heavy losses on its foreign liabilities because it assumed the foreign exchange risk of loans undertaken by a number of state enterprises and government-owned banks; this considerably inhibited the efficient use of monetary policy instruments initially. The revaluation losses accumulated by 1990 were converted into interest-bearing long-term government bonds, which allowed the BOG again to conduct a more independent monetary policy without being impeded by concerns about its own profitability. Finally, the fiscal containment was crucial in determining the successful transition and efficiency of indirect instruments.

Ghana’s experience suggests that even though the indirect instruments of monetary policy may be in place, their efficiency in achieving macroeconomic stability is determined also by fiscal responsibility and by the control of money and credit by the authorities.

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3The sizable depreciation of the cedi led to large exchange losses for banks and enterprises with high foreign exchange exposure.
Indonesia moved toward indirect monetary control in the 1980s in the context of a market-oriented adjustment program that included reforms of the financial sector, government finance, trade, and industry. Contrary to the cases of many other countries undergoing similar transitions, the move took place in an environment of generally favorable macroeconomic and fiscal conditions and an exchange rate system virtually free of restrictions. Because of continuous pressure on the exchange rate, significant capital outflows, and related liquidity crunches in the banking system, Bank Indonesia (BI) was forced partially to redesign some of the initial reform measures; however, the broad direction of the reform was maintained.

Also contrary to many other countries' experiences, improvements in banking supervision and measures to enhance competition in the banking system, which is dominated by state-owned banks, lagged behind the reorientation of monetary policy and somewhat delayed the full benefits from the introduction of indirect monetary policy instruments. These delays also contributed to the banking crises in the early 1990s, which included severe difficulties for, and even the failure of, several financial institutions.

Motivation for Reform

Until the beginning of the 1980s, the financial sector in Indonesia was highly regulated and barely competitive, and monetary policy relied heavily on direct instruments. BI used credit ceilings and interest rate controls to conduct its monetary policy with the objective of curtailing expansion of domestic credit in a booming economy and accumulating foreign exchange reserves. It also intervened extensively in credit allocation. Aggregate credit ceilings, which were translated into credit ceilings for each bank, were the main monetary policy instrument. Nonbank financial institutions were exempt from those ceilings.

Interest rate ceilings were imposed on both domestic currency deposits and credits and rarely changed, but they did not apply to nonbank financial institutions or to foreign and domestic private banks. As a consequence, these unregulated sectors could increase their combined market share to more than 20 percent of the gross assets of the total financial sector. Under this policy, from 1981 to 1983 state banks' deposit rates were negative in real terms, while their private and foreign competitors were in a position to offer highly positive real interest rates. The rigid structure of the banking system and of interest rates distorted financial intermediation, reduced the banking system's international competitiveness, and—together with uncertainties about the future exchange rate—contributed to currency substitution. Foreign currency deposits within the domestic banking system accounted for roughly one-fourth of total bank deposits in 1982, and Indonesian residents increasingly built up deposits abroad.

The effectiveness of monetary policy was also impaired by the quasi-automatic access of banks to so-called central bank liquidity credits at subsidized interest rates. These credits were used to refinance priority sector loans, representing a heavy involvement of BI in credit allocation. A fast expansion of liquidity credit in the presence of binding credit ceilings raised banks' excess reserves, which averaged 7 percent of deposits in 1978–82, and boosted banks' holdings of foreign assets at the expense of the central bank.

Overall, the prereform system of monetary control was effective in controlling credit expansion, but undesired side effects occurred, such as excess liquidity, financial repression, distortions in financial intermediation, currency substitution, and a reduced competitiveness vis-à-vis other Asian financial centers. In addition, the interbank market as well as money and capital markets were underdeveloped and segmented, and banking supervision was inadequate. However, given the abundance of oil revenues, the government's balanced budgets, and the relatively open access to foreign financial markets, the negative side effects of the monetary control system did not become fully apparent.

This changed drastically when, in the early 1980s, monetary policy was unable to react to the slowdown of the economy and to the deterioration in the
balance of payments resulting from falling oil prices. The government began to focus its attention on the reform and expansion of the non-oil sector and recognized the importance of improving both the growth prospects and the efficiency of the financial system.

**Process of Reform**

Indonesia relied on a gradual approach to reform its financial sector and move toward indirect monetary control. During the entire reform process, BI had to react to speculative capital movements and pressure on the exchange rate, the impact of a major devaluation, and rapidly changing liquidity situations in the banking sector and in certain bank groups. This complicated and slowed the reform process and made the domestic money market vulnerable to sharp contractions and expansions. Nevertheless, Indonesia maintained a largely unrestricted capital account and focused instead on improving the functioning of its domestic financial markets. Macroeconomic and fiscal conditions were largely favorable during the reform years.

In June 1983, credit ceilings and most interest rate controls were removed, and liquidity credit refinancing was sharply reduced. Eight months later, BI introduced open market operations as the main monetary policy instrument, complemented by new rediscount facilities. BI maintained foreign currency swaps and, to a lesser degree, reserve requirements. Open market type operations took the form of regular auctions of central bank certificates (SBIs). No government debt instruments were available, given the prohibition against government borrowing. SBIs were offered competitively in a multiple-price auction and issued in bearer form in three different denominations with maturities of 30 and 90 days; a 15-day maturity was offered only between October 1984 and May 1985; and a 180-day maturity was added in 1988. The frequency of auctions was increased from once a week initially, to three times a week (October 1984), then to five times a week (July 1985), but then scaled back again to a weekly schedule in August 1986. Auction participation was open to banks and nonbank financial institutions, but the public was allowed to purchase SBIs in the secondary market.

Two new rediscount facilities were established in February 1984, eligible only to banks that were classified as “sound” or “sufficiently sound.” One was designed mainly to help banks to overcome temporary liquidity shortages in their day-to-day reserve management, the other to promote long-term lending and assist banks facing significant maturity mismatches. Limits existed on the use of each facility, and they were used initially only with reluctance, as the discount rate was kept at a penalty level and borrowing was thought to damage banks’ prestige.

The central bank also used foreign currency swaps to control liquidity and stabilize exchange rate expectations. The swap premium was set administratively by BI and altered several times during the first years of the reform process. In contrast, reserve requirements were kept unchanged until 1988.

The ultimate objectives of the central bank’s monetary policy remained unchanged under the new regime. After introducing SBI auctions, BI began using the auction cutoff interest rate as its main operational target, basically pegging it at a level considered consistent with the exchange rate policy and letting market forces determine the quantity. This reflected the authorities’ concerns that money targeting in the face of financial reform would lead to unacceptably high levels of real interest rates, which might hamper the economic recovery. As a consequence, though, monetary and credit aggregates expanded rapidly and were highly variable, while interest rates throughout the financial system were sticky. Excess reserves persisted, particularly among state-owned banks.

Soon after the beginning of the reform, the money market expanded considerably. However, by mid-1984 it still lacked sufficient depth and liquidity to cope with the sizable capital outflows that resulted from devaluation expectations, thus contributing further to the pressure on the exchange rate. Overnight, interbank interest rates reached 90 percent in September 1984. The liquidity crunch also led to the full use of the existing refinancing facilities. BI relieved the liquidity crunch by directing liquidity-searching banks to a new emergency credit facility and imposing limits on interbank borrowing. Repayment of the special credit facility was due within one year according to a staggered schedule. This central bank assistance eased speculative pressures and lowered interest rates.

To strengthen the money market, facilitate the injection of liquidity, reduce the market’s segmentation, and expand the transaction maturity profile, BI introduced a standardized form of banker’s acceptances (SBPUs) to the money market in February.
In general, SBPU rates closely followed the prevailing SBI rates. An investment company (FICORINVEST) was designated as a market maker in SBPUs. Banks were granted individual ceilings to rediscount SBPUs with BI. While private banks relied heavily on the SBPU rediscount facility, state-owned banks still had large excess reserves, which BI tried to mop up through its open market operations in SBIs. Given the role of BI as partner for transactions with both bank groups, regular interbank trading diminished further, making interbank rates more volatile and somewhat delinked from the prevailing SBI and SBPU rates.

While sales of SBIs were modest initially, they picked up in mid-1985 because of efforts by BI to increase their liquidity. For example, in August 1985, FICORINVEST began to rediscount SBIs before maturity.

After renewed pressure on the exchange rate, the authorities devalued the rupiah by 31 percent in September 1986 but continued their efforts to maintain stable interest rates. However, the speculative surges against the rupiah continued, fueled by the availability of excess funds to state-owned banks, which further depleted the central bank’s foreign reserves. At the same time, though, many private and foreign banks had reached their rediscount ceilings and had to borrow short term in the money market, which increased interest rates.

The central bank introduced measures in 1987 to end the speculative attacks on the exchange rate, reverse capital outflows, and eliminate the excess reserves in the banking system. It shifted toward targeting international reserves and allowed the exchange rate and the interest rate to become more market determined. In addition, SBPU rediscount ceilings were eliminated; state-owned companies were forced to transfer some of their deposits from state-owned banks to BI; and the discount rate was raised significantly to induce liquidity-searching banks to sell their foreign exchange to the central bank. Furthermore, the central bank introduced competitive daily auctions of one-week repurchase agreements in SBIs or SBPUs to regain the initiative in transactions with the banking system.

The above measures made the excess liquidity among state-owned banks disappear rapidly, and the liquidity positions of the different bank groups began to converge, while the central bank’s foreign assets began to increase. BI regained the initiative in dealing with the banking system, devaluation pressures disappeared, and interbank interest rates became less volatile and finally began to drop.

In late 1988, a broad package of financial reform (PAKTO) was announced, which also included measures to refine the daily money market operations of BI. A syndicate of 15 private banks and nonbank financial institutions was established to act as dealers and agents for the issuance of SBIs in the weekly auctions and as market makers in the secondary market. BI began to channel all its money market operations through the syndicate. Furthermore, all existing limitations on interbank borrowing were eliminated. PAKTO reduced reserve requirements to a uniform rate of 2 percent on all third-party liabilities. Reserves freed by this decision were absorbed by forced temporary purchases of three- and six-month SBIs by banks. In addition, the premium on foreign currency swaps became market determined.

The PAKTO also included deregulation of financial activities and a strengthening of the supervisory system. Banking deregulation included a relaxation of barriers to entry, to opening branches, and to establishing joint ventures of foreign and domestic institutions; an easing of restrictions on foreign exchange operations; and an expansion of the types of operations that particular banking groups can conduct (for example, allowing public enterprises to deal directly with nonstate banks). As a consequence, competition increased considerably, with a doubling in the number of banks from end-1988 to end-1993, while profit margins, after an initial surge, fell.

BI improved its on-site and off-site surveillance of the banking system and introduced a comprehensive system of capital adequacy and other ratios, provision requirements for bad debt, bank ratings, and standardized accounting principles. Because of increasing difficulties experienced by some banks, including a growing share of nonperforming assets, BI has continued to refine its prudential regulations, without, however, being able to prevent severe banking difficulties, even the failure of some banks, during the past two to three years.

BI has also continued to refine its monetary policy instruments and reserve money management during the 1990s. The 1988 PAKTO reform initiated a rapid growth in bank intermediation. In spite of an increase in interest rates on open market operations and a further reduction in liquidity credits, commercial banks were able to sustain high levels of lending, mainly through increased recourse to offshore borrowing. The increasing demand pressures, led by a rapid growth of investment demand, contributed to an acceleration of inflation.

To contain the growth of money and credit aggregates, BI forced the conversion of state enterprise deposits into SBIs, required the transfer of government deposits to the central bank, limited domestic borrowers’ access to foreign funds, overhauled its swap operations, introduced a limit on banks’ short-term obligations to nonresidents, and further tightened prudential regulations and bank monitoring.
Lessons

The move toward indirect monetary control, combined with a far-reaching reform of the banking system and financial markets as well as prudent macro-economic and fiscal policies, led to gains in resource allocation and financial intermediation and improved the international competitiveness of Indonesian banks.

The new system was able to cope with two liquidity crunches, in 1984 and 1986–87, which were caused by speculative capital outflows. The ratios of private sector credit to GDP and of M2 to GDP rose significantly in those years, while the ratios of currency to deposits and of foreign currency deposits to total deposits fell continuously. Private sector credit growth exceeded the growth of deposits during the first years after the abolition of credit and interest rate controls but soon leveled off. The number of financial institutions rose markedly. Competition among banks increased, as shown by the growing market share of private banks from 10 percent in 1982 to 23 percent in 1989, while the share of state-owned banks declined from 80 percent to 69 percent over this period.

Unlike the sequencing pattern in some other countries, the reform of monetary instruments in Indonesia preceded improvements in financial markets and in the structure of the banking system. The segmentation of the banking system between state-owned banks on the one hand and private and foreign banks on the other diminished only after the reorientation in the central bank’s monetary policy in 1987. The recent difficulties and failures of some financial institutions can, to a large degree, be attributed to these delays in reforming the structure of the banking system.

The interest rate targeting of the central bank during the initial phase of the reform slowed down the development of financial markets, as it contributed to a stickiness of interest rates throughout the financial system. Nevertheless, interest rates have been largely positive in real terms since the beginning of the reform. After the 1986–87 crisis, which led to the abandonment of the interest rate targeting, BI actively promoted the development of financial markets and increasingly used them for its monetary policy.

The slow development of financial markets can also be attributed, at least partially, to the incomplete removal of liquidity credits. Central bank refinancing remained high, particularly during the first few years of the reform, and began to decline only after 1988 when the second phase of the financial sector reform improved the structure of the banking system, enhanced the efficiency of the financial markets, and increased competition, and after 1990 when liquidity credits were further curtailed.

Contrary to the usual experience of countries undergoing financial liberalization, Indonesia maintained an open external capital account during the entire reform process. Various shocks forced BI to redesign some features of the new instruments and refocus its operational target; however, the broad direction of the reform toward a more market-oriented approach continued. Overall, the redefinition of the central bank’s operational target in 1987 and the subsequent strengthening of financial markets and the banking system contributed to a reduced vulnerability.
VI Mexico

Mexico's financial reform and transition from direct to indirect instruments of monetary policy have occurred relatively recently and appear to be quite successful, although some significant problems remain. Reform, which began in the mid-1970s, was interrupted by the debt crisis of the 1980s but was accelerated from 1988. The most recent reforms (from 1988 to 1991) were aided by the gradual development of financial markets (especially for government debt) over the relatively long period that preceded financial liberalization and were supported by tighter financial policies.

It is often difficult to assign a date to the adoption of indirect instruments in a particular country, and this is especially true for Mexico. For most case studies in this paper, it has generally been assumed that the transition started from the date of the first treasury bill or central bank bill auction. However, in the case of Mexico, it was decided to date the beginning several years later for two reasons. First, although several important reforms in the 1970s preceded the introduction of treasury bill auctions in 1978, not many reforms took place at the end of the 1970s. Second, during the early 1980s, the direction of policies was reversed for a substantial period as Mexico grappled with the effects of the debt crisis. Thus, for purposes of this study, the beginning of the transition was dated as 1988—after which there was a relatively rapid series of financial reforms.

Motivation for Reform

The Mexican reform aimed at increasing efficiency through greater reliance on market forces, promoting the growth and deepening of financial markets, and improving the effectiveness of monetary policy. The period from 1982 to 1988 was characterized by increased financial restrictions and an expansion of the market for informal credit. Banks were nationalized at the start of the period, after which the number of banks declined from 60 to 18. From 1982 to 1988, the financial system was regulated by interest rate restrictions, domestic credit controls, high reserve requirements, and required lending to the government by banks. Most of the growth in credit over the period was channeled to the public sector, and ex ante real interest rates were highly negative. During this period, use of direct instruments encouraged attempts to micromanage monetary conditions by imposing a complex structure of interest rates and credit controls, which caused further distortions and inefficiencies.

The background for the reforms in monetary policy instruments helped to ensure their success. In the mid-1970s, there was a move from specialized banking to full-service banking. The securities market was modernized, and the market for public debt was established. In 1978, treasury bill auctions were introduced, with the view to using Certificates of the Treasury (CETES) as an indirect instrument of monetary policy. However, the volumes of CETES offered for sale in the auctions were initially quite small, and yields were fixed by the authorities. As of late 1982, participants were allowed to present their bids in terms of amounts and yields; after that, both the primary and the secondary markets for CETES began to develop rapidly. The auctions for CETES have been conducted weekly. In addition, the authorities followed a policy of gradually eliminating quantitative controls on credit.

During the 1970s and 1980s, there was a gradual development of financial markets—in particular, markets for corporate stock and for money and bonds. By the early 1990s, the Bank of Mexico (BOM) could rely on open market operations as the principal instrument of monetary policy.

Process of Reform

A series of financial reforms was introduced in 1988–91, but the groundwork had been laid much earlier. In late 1988, quantitative restrictions on banker’s acceptances were removed, and banker’s acceptances and deposits were subjected to a 30 percent liquidity ratio. In 1989, interest rates were deregulated, and restrictions on bank lending were removed. In April 1989, the high reserve requirements were replaced by a 30 percent liquidity re-
requirement; and in September 1991, the liquidity requirements were abolished and the authorities began to use the sale of government debt to control the money supply.

After 1988, exchange rate policy was geared to reducing inflation and providing greater certainty with respect to the evolution of the peso. At the core of this policy was the effort of the authorities to anchor the peso to the dollar, first through a crawling peg system and, from November 1991, through a band—the upper limit of which allowed for gradual depreciation of the peso. Foreign exchange controls were abolished in November 1991.

In developing its market for public debt, Mexico made innovative use of adjustable-rate instruments and of instruments indexed for inflation. Interest rates on Development Bonds (BONDES) were adjusted at regular intervals. Also, in 1989, the Federal Government introduced two new indexed debt instruments: Federal Treasury Bonds (TESOBONOS), which are quoted in pesos but indexed to the exchange rate, and Federal Government Indexed Bonds (AJUSTABONOS), which have three-year and five-year maturities and are indexed to the national consumer price index. Such instruments have guaranteed savers the availability of a positive real rate of interest.

Participation in the auctions for short-term government securities, or CETES, was initially restricted to a group of licensed dealers, but is now no longer so restricted. All banks and exchange houses can participate in the auctions. Maturities of the CETES range from 28 days to 2 years. Interest rates on CETES are freely determined at auctions, although the central bank sometimes buys or sells in the market to moderate transitory swings in interest rates and in money market liquidity. Operations of the central bank include outright sales as well as repurchase and reverse repurchase agreements, which the deepening of financial markets has made possible. Credit auctions are also used to supplement these operations.

Financial reform included rapid privatization of the banking sector. On May 2, 1990, Congress began to consider legislation that would privatize the banks. Then, on September 4, 1990, the rules and regulations for the privatization process were issued. The first bank was sold in June 1991, and the last bank was sold in July 1992.

When interest rates were liberalized and legal reserve requirements and the liquidity coefficient abolished, commercial banks found that their procedures for evaluating an increased volume of loans to the private sector were insufficiently developed. This factor, combined with the slowdown in economic activity and high levels of interest rates in the 1980s, caused the proportion of overdue credits to increase.

In the face of these challenges, the authorities strengthened bank supervision. New criteria for rating credit portfolios were introduced to strengthen capitalization requirements. In March 1991, a new system for rating credit portfolios and creating reserves was introduced. Banks were required to classify the loans in their portfolios and to create reserves according to the risk classification. In addition, banks' capitalization standards were strengthened in accordance with the Basle Concordat. Thus, the Diario Oficial of May 20, 1991, established that the capitalization requirement for 1991 was 6 percent, which was to be increased to 7 percent in 1992 and to 8 percent in 1993.

The economic effects of the financial liberalization program are difficult to separate from those of the economic stabilization program that was introduced at approximately the same time. Under the latter, fiscal policy was dramatically tightened and monetary policy was made much more stringent. The trend toward financial disintermediation, which had characterized the earlier 1980s, was reversed and financial deepening began to occur. (For instance, the ratio of broad money to GDP increased substantially.) In addition, since 1989 Mexico has experienced a major improvement in the availability of foreign savings after several years of very limited access to international capital markets.

Financial reform was accompanied by substantial private capital inflows and rapid growth of the monetary aggregates. The authorities viewed the increase in the money supply as to some extent reflecting the remonetization of the economy following the stabilization of the economy and the reduction of inflation from very high levels and reflecting distortions resulting from an increase in interest rates on interest-bearing checking accounts relative to other rates. In these circumstances, it was argued that the stance of monetary policy was better judged by the evolution of net credit of the BOM, which indicated a very restrictive monetary policy stance. Authorities made a major sterilization effort in the face of large private capital inflows.

The ultimate objective of Mexico's monetary policy is price stability, and stabilization of the peso-dollar exchange rate serves as the intermediate target. Limits are set annually on the growth of central bank domestic credit, with the BOM informing the executive branch and Congress at the beginning of the year of the ceiling on domestic financing. Generally, interest rates are determined by supply and demand in the money market, although the BOM may attempt to smooth erratic fluctuations.

Mexico’s main instrument of monetary policy is operations in both the primary and secondary markets for government debt instruments. As described earlier, government securities are sold at weekly auctions conducted by the BOM. Participation in the
auctions is mostly limited to Mexican financial intermediaries (including banks and stock houses). In the future, the BOM is expected to authorize newly licensed foreign banks to participate in the auctions.6

In addition, the BOM intervenes daily in the secondary market for government securities. The interventions are guided by estimates of liquidity conditions and take place every working day. They primarily involve operations with repurchase agreements and reverse repurchase agreements rather than direct transactions.

Because of federal surpluses, the BOM began to exhaust its holdings of government securities, hampering its ability to conduct open market operations. To meet this problem, a new mechanism or fund has been established, by which the BOM is permitted to purchase government securities directly from the government. The proceeds of these purchases are deposited in a special government account with the BOM. These deposits are remunerated at the market rate of interest for the specific government security acquired by the central bank. The funds are not readily available to the government, although they can be used to buy back the securities sold to the BOM. The BOM also has the authority to impose reserve requirements or to auction credit but generally prefers not to use these instruments.

The BOM does not operate a discount window or other short-term credit facility; however, banks are allowed to run an overdraft in their correspondent accounts for very short periods. The central bank permits a bank to “keep the books open” on an overdraft of the previous day. After that, the bank must cover the overdraft by whatever means it can. For this service, the bank is charged a fee related to the interest rate on CETES.

The banking sector continues to have problems with regard to nonperforming loans (recent data indicate a deterioration); there are still some weaknesses in the regulatory framework, and the restructuring of the banking sector is still ongoing. In the latter regard, there have been a number of mergers between domestic banks, several new bank licenses have been granted, and the market is being opened up to foreign banks (partly reflecting the provisions of the North American Free Trade Agreement). The exchange rate developments since December 1994 and the subsequent adjustment measures will probably affect the banking sector. However, it is too early to know what these effects might be.

**Lessons**

Mexico’s experience with financial reform and the introduction of indirect monetary policy instruments suggests several preliminary conclusions. Financial reform was probably set back because of the nationalization of banks following the debt crisis of 1982. However, the gradual development of financial markets over a relatively long period helped to ensure a successful liberalization and the use of open market operations as the main tool of monetary policy. Also, efforts to improve the financial conditions of the banks through enhanced bank supervision and regulation have facilitated the transition to indirect instruments of monetary policy, as has the high level of human resource development in the financial sector generally and in the BOM particularly. The process of adopting indirect monetary policy instruments was also supported by a return to macroeconomic stabilization. While the reasons go beyond the adoption of indirect instruments of monetary policy, in this process Mexico had to face difficulties, such as destabilizing capital inflows, high interest rates, some corporate and financial sector distress, and, at least in the short run, slow economic growth.
New Zealand’s experience with financial sector and monetary policy reform is of particular interest because of the breadth of the reforms, the speed with which they were implemented, and the absence of reversal. In a span of nine months, in 1984–85, New Zealand’s financial sector went from being one of the most heavily regulated among industrial economies to one of the least regulated.

Motivation for Reform

The motivation for economic and financial liberalization was the persistently poor performance of the New Zealand economy, relative to other industrial economies, and the recognition that institutional and regulatory rigidities hampered the economy’s ability to adjust to structural changes in the economic environment. The financial sector reforms were intended both to remove microeconomic inefficiencies and to achieve macroeconomic control—in particular, to bring about a more efficient allocation of credit through deregulation of the financial sector and to enhance monetary control via the development of open market operations.

A tentative process of deregulation had taken place in 1976, with the partial decontrol of interest rates. But it came to an end with the re-establishment of interest rate controls in 1981 and their extension in 1982 in conjunction with an anti-inflation program of comprehensive wage and price controls. In 1984, however, an extensive process of reform began, with the bulk of the financial liberalization measures being introduced in the period between July 1984 and March 1985. The financial sector reforms were accompanied by extensive reform of trade, the tax system, labor markets, and the financial management of government (including a review of the role and structure of the central bank), plus privatization and corporatization of state-owned enterprises, substantial reduction in assistance to industry, and industry deregulation.

Prior to 1984, financial sector regulations in New Zealand segmented the financial market. Segmentation comprised direct controls on the price of financial services and the portfolio composition of financial institutions, entry restrictions, and specific cost advantages for the regulated activities. Three broad categories of direct controls existed at the start of 1984: (1) ceilings on many of the deposit and lending interest rates of bank and nonbank financial intermediaries; (2) restrictions on the balance sheet composition of financial institutions—which included reserve asset ratios for trading banks and public sector security ratios for other financial institutions, credit growth guidelines, and priority lending guidelines—and restrictions on the types of activities different types of institutions could undertake; and (3) foreign exchange controls, which included restrictions on residents’ purchases of foreign exchange, overseas borrowing, and access to domestic financial markets of foreign-owned companies.

The heavy regulatory system had a number of adverse effects. It not only discouraged domestic savings but also channeled too large a share of those savings to investment projects of low or negative overall economic benefit. In addition, it reduced competition among financial institutions, reduced the scope of financial services, and was akin to a tax on regulated institutions and activities—which affected their relative competitiveness and shifted funds to the less regulated institutions and activities. Furthermore, it created a conflict between monetary control and the maintenance of low interest rates.

The ability of the Reserve Bank of New Zealand (RBNZ) to achieve monetary control and carry out an independent monetary policy was compromised by its commitment to buy or sell government debt at administratively set prices, so as to peg interest rates on government debt at below-market levels. This, in effect, compelled the RBNZ to monetize large fiscal deficits, a requirement that at times conflicted with the RBNZ’s commitment to buy and sell foreign exchange at a fixed exchange rate. Moreover, the reserve asset ratios and public sector security ratios were used as an instrument of monetary policy—to affect the flow of credit—and to keep interest rates

7For some types of deposits, the interest rate ceiling was zero.
on government securities artificially low by creating a "captive" demand for them. There was, therefore, little incentive for the government to foster the development of secondary markets in government securities.

**Process of Reform**

**Financial Reforms Since 1984**

A new government brought about major changes in the regulatory system and the conduct of monetary policy, beginning in July 1984. The situation called for both macroeconomic stabilization and a broad program of reforms. The conventional recommendation is to first bring about macroeconomic stabilization and subsequently to introduce capital market reforms. In New Zealand's case, the sequence was reversed. At its inception, the reform program was greatly influenced by the prevailing economic situation, in particular, the foreign exchange crisis. In the four weeks leading up to the election, the RBNZ's foreign exchange reserves had been depleted, despite extensive overseas borrowing, as widespread expectations of a devaluation in conjunction with frozen interest rates led to a run on the currency. The currency was devalued by 20 percent, and all interest rate controls were removed. Restrictions on foreign exchange transactions were removed in October–December 1984, and the New Zealand dollar was floated a few months later in March 1985.

**Principles Guiding the Reform Program**

Two principles guided the reform program: (1) the government should avoid interventions that discriminate for or against particular activities or institutions, and (2) activities should be as contestable as possible. These principles implied both policy neutrality with respect to various activities and free entry. Macroeconomic policy was to support the reform program's overall objective of increased efficiency. In particular, monetary policy was to be directed firmly at the achievement of price stability, so as to prevent the distortion of market signals, while fiscal policy was to remove distortionary subsidies and incentives, so as to be as neutral as possible in its effect on production.

These principles were reflected in several reform measures:
- the abolition of reserve requirements;
- the payment of interest on settlement balances;
- the financing of fiscal deficits by the sale of medium-term government securities to the private sector, and the market determination of interest rates on government securities issued through auctions;
- the amendment to the Reserve Bank Act to make price stability the primary function of monetary policy and to give the RBNZ the necessary independence to achieve it; and
- the adoption of a policy of open entry into the banking system and the reform of banking supervision.

**Monetary Policy Operating Procedures**

The elimination of interest rate controls and compulsory asset ratios necessitated a change in monetary policy operating procedures. Before outlining these procedures, two institutional changes made in 1983 should be noted. These were the introduction of the tender scheme for government bonds and the issuing of foreign exchange dealerships to a wide range of financial institutions. These proved to be important building blocks for the new monetary policy regime: the first for the nonmonetary funding of fiscal deficits and open market operations, and the second for the transition to a floating exchange rate.

The change in monetary policy approach from operating through direct regulatory controls to operating through market-based instruments had the effect of encouraging further development and deepening of the main financial markets. For example, once controls on financial markets were lifted and the government moved to a policy of funding its deficit in the domestic markets without recourse to implicit central bank finance, secondary markets in government securities developed quickly. In general, the growth and development of financial markets was stimulated by several factors. One is that deregulation contributed to "reintermediation," that is, a reversal of the previous trend of the main financial institutions losing a share of the overall financial market to less controlled intermediaries. A second factor involved a general freeing up of access to credit, which permitted both households and corporations to shift the structure of their balance sheets toward greater use of debt. A third factor was that financial reform encouraged innovation in financial markets, including the development of new financial products. Finally, the monetary reforms meant that all financial institutions had to be much more active in monitoring and predicting the effects of policy and other influences on interest and exchange rates. Thus, the amount of analytical resources applied in

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8 However, the actual sequences of particular reforms emerged as a product of circumstances rather than as an a priori commitment to a particular path, given that the overall reform strategy was one of exploiting all opportunities for change when circumstances presented them.
financial markets was increased substantially, which contributed to a more active involvement in the markets. In all of this, the RBNZ took a hands-off approach—following the principle that creating the right environment was the best way to stimulate economic activity and the development of markets.9

The new monetary policy framework aimed at influencing the excess demand for liquidity in the banking system. Operationally, this involved controlling the supply of “primary liquidity,” defined as settlement cash and government securities that can be discounted for settlement cash on demand.10 Effective control over primary liquidity required the RBNZ to engage in open market operations in nondiscountable government securities. It also required insulation of primary liquidity from fiscal influences, which was accomplished by financing fiscal deficits with medium-term nondiscountable securities. Finally, by allowing the New Zealand dollar to float, the level of primary liquidity was insulated from swings in net capital flows. Once controls were lifted and the government moved to a policy of funding its deficit in the domestic markets without recourse to central bank finance, secondary markets in government securities developed quickly.

Transitional Issues

The 1984–88 period was largely a transition period for monetary policy, as the RBNZ sought, first, to isolate primary liquidity from fiscal deficits, seasonal fluctuations in government expenditures and revenues, taxation reforms, and foreign capital flows, and, second, to assess the implications for primary liquidity of structural shifts in the financial sector. These developments required frequent adjustments in the targeted level of primary liquidity and its definition.

The securities discountable at the RBNZ, and hence the definition of primary liquidity, underwent a number of changes. Before December 1984, all government securities were discountable. From December 1984 until December 1985, only securities with less than six months to maturity were discountable, while from April 1986 eligibility was further restricted to securities with less than one month to maturity. Since December 1988, only RBNZ bills with 28 or fewer days to maturity have been discountable. These changes, and especially the switch from treasury bills and government bonds to the RBNZ bill as the sole discountable security, were made to avoid the effect on primary liquidity of marked seasonal variations in government financial flows.

Domestic liquidity was significantly affected by capital flows in 1984–85. Following the 20 percent devaluation in July 1984 and the removal of interest rate controls, a large inflow of foreign exchange led to a rapid buildup of liquidity. To absorb the excess liquidity, the government adopted an active program of public debt sales. To help absorb the liquidity inflow, tender sales now had to be supplemented by RBNZ sales from its stock of treasury bills. The situation was reversed in early 1985. Negative sentiment regarding the short-term prospects for the New Zealand dollar resulted in large capital outflows and a sharp contraction in domestic liquidity. (In early March, in the days following the floating of the exchange rate, overnight rates reached several hundred percent, while 90-day rates reached 35 percent.) This led the government to cancel its March tender sale, while the RBNZ injected cash into the system. The decision to float the exchange rate in March 1985 was taken partly so that the authorities would be able to exercise greater control over domestic liquidity conditions.

Other transitional problems arose from shifts in the linkage between policy instruments and policy goals. Deregulation of the financial sector and the real side of the economy altered historical relationships between, on the one hand, primary liquidity and interest rates, the exchange rate, and monetary and credit aggregates, and, on the other hand, between these last variables and real activity and prices. This led the RBNZ to adjust the base level of primary liquidity and other policy instruments on the basis of a range of indicators. The Reserve Bank Act of 1989, which took effect on February 1, 1990, formally made price stability the overriding objective of monetary policy and gave independence to the RBNZ to facilitate achievement of this goal.

The institutional and regulatory framework adopted in the reform of the financial sector has two main features: the promotion of effective competition—by removing restrictions and privileges that resulted in artificial market segmentation and engendering contestability—and the strengthening of prudential supervision. With respect to the first feature, the most notable reform was the removal in 1986 of entry barriers to the banking sector. Entry is now unlimited in the sense that there are no quantitative limits on bank registrations, and any institution (including foreign institutions) can register as a

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9 For a more detailed discussion, see Swinburne (1993).
10 The RBNZ has two primary policy instruments: the supply of settlement cash and the supply of discountable government securities. The supply of settlement cash is controlled mainly through open market operations, while the supply of discountable securities is controlled through regular tenders.
11 To offset the unpredictable, day-to-day effects of the transfer of government revenues into the RBNZ’s accounts on the cash market, each morning the bank tenders out to the settlement banks the previous day’s government revenue flow. These are called “float tenders.”
The number of banking groups rose from 4 in 1987 to 21 in 1990 but has since declined to 15.

Two other important reforms were the opening of the payments system to competition by allowing any institution to open a settlement account at the RBNZ and the reform of community-owned banks, which removed all restrictions on their operations and phased out the government guarantee of their deposits. The latter reform was part of a supervisory policy that explicitly rejected government-mandated deposit insurance. The objective of prudential supervision in New Zealand is confined to preserving confidence in the financial system as a whole; it is not aimed at protecting depositors’ funds or preventing the failure of individual institutions. The role of the central bank is to maintain the liquidity of the financial system and to monitor the financial condition of institutions from the perspective of preventing systemwide problems. To this end, the RBNZ was granted wider powers of inspection and information collection and powers to facilitate the orderly exit or reconstruction of failing institutions.

Lessons

New Zealand was able to go, in the span of a few years and without backtracking, from a highly regulated financial system to a very liberal environment in which the central bank conducts monetary policy solely through indirect instruments. Several factors contributed to the speed with which the reforms were implemented: a high degree of political commitment to the implementation of the necessary reforms; sophisticated capital and short-term money markets; a sound banking system; and a well-functioning payments system. In addition, the transition was eased by a technically sophisticated central bank staff, supported by a well-developed statistical reporting system.

The successful transition to indirect instruments was supported by the following factors: the curtailment of the government’s direct access to central bank financing; the liberalization of the foreign exchange market; a monetary policy firmly oriented to price stability, backed by legislation ensuring the independence of the central bank; a new competition policy, contributing to the desegmentation of the financial sector; and new prudential measures and a strengthening of bank supervision. In addition, the transition was supported by intensive research at the central bank on monetary control and a flexible approach to liquidity management.

banks and the larger nonbank financial institutions. In the 1989 amendment, the RBNZ’s responsibility for prudential supervision was confined to registered banks.
**VIII Poland**

Poland had a centrally planned economy until the late 1980s when it undertook comprehensive economic and financial reforms, including adoption of indirect instruments of monetary policy. The transition to indirect instruments of monetary control has met with notable success, although some refinements are still necessary. The reform has been multifaceted, covering several central banking functions simultaneously as well as parallel reforms to strengthen the payments system and modify the regulatory framework. Important strides have been made in strengthening the institutional framework, improving the accounting and payments system, fostering the development of money markets, and widening the array of instruments available to the central bank for the conduct of monetary policy.

The National Bank of Poland (NBP) now relies on open market operations as its main instrument of monetary control. Banks have also adapted well to the new monetary policy instruments and the new legal framework and have begun to compete actively in terms of price, quality, and diversity of banking services. For most banks, interbank and treasury bill rates—which reflect market conditions—have become the key benchmark rates for pricing both lending and deposit rates.

**Motivation for Reform**

The economic situation in Poland deteriorated in the late 1980s. Large fiscal deficits financed primarily by the domestic banking system contributed to substantial increases in broad money and an acceleration of inflation. A large float, which was partly due to an inefficient payments system, complicated monetary management. Thus, a primary objective of the reform was to reduce domestic disequilibria and improve efficiency. The need to control inflationary pressures underscored the requirement to develop more effective means of absorbing liquidity, limiting access to central bank credit, and financing the government from less inflationary sources.

After a series of attempts to move to a more decentralized market-oriented economic system, a new momentum for reform was initiated in late 1988. The new government, which took office in October 1988, committed itself to establishing a market economy while at the same time stabilizing the economy. In this context, comprehensive reforms were introduced to restructure the financial system and more generally to improve the allocation of financial resources.

In pursuing these reforms, many structural obstacles had to be overcome to facilitate the emergence of a competitive commercial banking system, to strengthen monetary management techniques, and to modernize the operations of the NBP. For example, the supporting legal framework needed to be changed. The NBP, which previously operated as a monobank, had its central banking functions formally separated from commercial bank activities, with the creation of nine state-owned commercial banks in 1989. The NBP was also granted formal independence from the government through legislation enacted in December 1989, and a new NBP act and a new banking law were passed in January 1990 to accord greater autonomy to the NBP in formulating and implementing monetary policy.

In order to implement monetary policy using market-based instruments, the mix of monetary instruments, the institutional arrangements for money and interbank markets, the central and commercial bank accounting system, and the payments system needed to be strengthened. In addition, the structural dependence on refinance of many banks necessitated a reform of refinancing arrangements. Moreover, the NBP had to strengthen its research capability in order to support market-based monetary and exchange rate policies and enhance the quality of monetary policy decisions.

**Process of Reform**

Until 1989, credit policy in Poland was based on a plan drawn up annually by the NBP. The plan specified limits on total credit expansion based on macroeconomic considerations, and, once approved by Parliament, it was translated into informal credit
ceilings for state-owned banks. Similarly, banks relied heavily on central bank refinance—the allocation of which was based on specific agreements with each bank obtaining refinancing to meet the projected gap between deposits and credits. The NBP also prescribed the interest rates for various types of credit and deposits and defined priority sectors, which received finance at favorable rates. The authorities specified floors on deposit rates and a ceiling on general lending rates.

In practice, the credit ceilings were difficult to administer—since, legally, they could not be imposed on private banks—and distorted the financial system. They negatively affected deposit mobilization and limited interbank competition: they discouraged banks from mobilizing deposits that they could not lend. As well, detailed ceilings by economic activity and regions impeded the free flow of capital through the economy and thereby reduced efficiency. Moreover, interest rates played no allocative role, while preferential refinancing from the NBP transferred substantial subsidies to enterprises, outside the budget. Financial disintermediation took place in the form of flight to foreign currency.

These drawbacks underscored the need to change the conduct of monetary policy in Poland, placing greater emphasis on indirect instruments of monetary management. In February 1989, reserve requirements were introduced. Interest rates were liberalized in August 1989, and henceforth banks were allowed to set deposit and general lending rates freely, while some key interest rates—refinance and preferential loan rates—were specified by the central bank.

Beginning in January 1990, the basic refinance rate was adjusted monthly based on a set of indicators, which included current and projected inflation, developments in net domestic assets of the banking system, and growth in external reserves. The structure of penalty interest rates for overdrafts by banks on their current accounts with the NBP—so-called payment on current account credit—was streamlined. In July, about 60 percent of outstanding refinance was converted into a medium-term credit, and the remainder was flexibly provided at short term and carried market interest rates. All additional refinance needs were met either in the form of bill rediscouts or as refinance against the collateral of eligible bills (Lombard credit). In order to enable banks to cope with the large share of loans at fixed, below-market interest rates (particularly for housing and agriculture) and cushion the shock of higher interest rates on borrowers, part of the cost of interest rate increases was recapitalized and part was explicitly borne by the budget.

The NBP needed an instrument that it could use at its initiative in order to absorb (or inject) bank reserves in the short term, after interest rates were liberalized. In July 1990, the NBP issued central bank bills to absorb excess liquidity. In 1991, it replaced the original one-month bill with bills of three- and six-month maturities.

In May 1991, the Ministry of Finance began auctioning treasury bills of 1-month maturity, and later of maturities of 2, 6, and 12 months. Given the increasing emphasis on treasury bills for financing the budget deficit and the resulting sensitivity of debt service to changes in market-related interest rates, the NBP, at the behest of the Ministry of Finance, suspended issuance of NBP bills, which were in direct competition with treasury bills.

With auctions of treasury bills used mainly for treasury financing requirements, and given the suspension of NBP bills, the NBP introduced auctions of repurchase agreements for both NBP and treasury bills as an instrument to adjust bank liquidity in 1991. Concurrently, in support of these open market operations and the further development of the secondary market, the NBP introduced a specialized group of primary dealers, or market makers in government securities. In addition, it developed an operational framework for reserve forecasting to derive the quantities of repurchase agreement transactions to be auctioned. In early 1993, the NBP introduced reverse repurchase agreements, increasing the scope of the central bank to affect short-term liquidity conditions. As a consequence, it was able to remove its informal ceilings on the amount of credit that state-owned banks could extend. In summary, open market operations—in the form of repurchase and reverse repurchase agreements in treasury bills—have grown in size and importance and have become the main tool for achieving monetary objectives.

A number of other financial sector reforms also facilitated the implementation of monetary policy. During the early stages of reform, the smooth functioning of Poland’s banking system and the shift to indirect monetary instruments were impeded by a slow and unreliable paper-based payments system. Thus, the improvement of the clearing and settlement system became a priority and later permitted a reduction in the daily float. A better payments system, a more competitive banking system, and increased reliance on indirect instruments helped to develop a competitive market in interbank deposits.

By 1993, the Warsaw interbank offered rate was an established benchmark for the cost of short-term funds, and certain treasury bill rates were the benchmarks for longer-term funds. Thus, banks increas-

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14 Credit ceilings for state-owned banks were agreed to informally, and the NBP relied largely on moral suasion.
ingly moved away from the practice of tying the level and timing of changes in interest rates to the NBP refinance rate. Although the refinance rate still has an important signaling effect, it has little relevance for the pricing of deposits and loans. However, it still matters to banks that have large amounts of loans that are subsidized through the budget and for which the subsidy is linked to the refinance rate.

The NBP has made remarkable progress in introducing new instruments of monetary policy and in streamlining existing instruments, but some items remain on the agenda. In particular, some structural and institutional rigidities continue to hamper effective monetary management and the efficient functioning of the financial system.

Despite a large number of banks, market segmentation and specialization has led to limited competition. The spread between the deposit and lending rates remains very large, reflecting the poor state of loan portfolios of some banks and some remaining inefficiencies in the payments system. (At present, banks are not allowed to deduct provisions for bad loans for tax purposes.) Thus, the level of banking system intermediation remains relatively low.

An important objective of open market operations and debt-management operations is to develop government securities markets and market-based interest rate determination. In Poland, however, concerns over debt-service costs complicate debt management; as a result, the Ministry of Finance has tended to cap interest rates on treasury bill auctions below the level needed to fully meet the government's finance requirements on a regular basis. In 1993, this was largely due to the Polish Budgetary Law, which limits the annual total size of debt service.

Secondary-market trading in treasury bills is still limited, owing to this impediment and to the absence of a book-entry system for clearing and settlement of treasury bills. The legal and technical modalities for a book-entry system have been finalized, and its implementation is expected in July 1995. Also, this will facilitate outright transactions in treasury bills by the NBP, which are needed to enhance the NBP's capacity to sterilize liquidity efficiently.

The NBP has been improving its data collection and processing capabilities to serve as a basis for day-to-day operations. However, the ten-day information system—which still provides the most frequent data for a number of series—does not provide the daily information that would be more suitable. Moreover, the forecasting of the government daily cash flow needs to be improved.

Lessons

Poland's experience points to a large degree of interdependence of central banking reforms. In addition, successful modernization of the central banking functions relies to a large extent on parallel reforms in other areas of the financial system. Importantly, the use of indirect monetary instruments requires a high degree of coordination between the central bank and the Ministry of Finance in the use of monetary and debt-management instruments and a sharing of mutual objectives and strategies for the development of treasury bill and interbank markets. Such coordination should begin as early as possible.

Overall, financial sector liberalization and the attainment of the objectives for macro stabilization have been mutually reinforcing. The early development of indirect instruments by the NBP facilitated a transition from direct monetary controls to market-based instruments, thereby enhancing the price rationing mechanism for credit allocation and encouraging deposit mobilization and financial intermediation. The liberalization of interest rates, the development of market-based monetary and debt-management instruments, and improvements in the payments system have led to a rapid development of the money market and the establishment of benchmark market-based interest rates. In addition, auctions of government securities have contributed to the overall economic stabilization by developing budget financing alternatives to central bank credit.
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