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Financial Sector Reforms and Monetary Policy*

Prepared by Mohsin S. Khan and V. Sundararajan

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Abstract

In recent years a number of countries have undertaken far-reaching reforms of their financial sectors. Generally speaking, financial sector reforms aim at achieving greater flexibility of interest rates, an enhanced role for market forces in credit allocation, increased independence for the central bank, and a deepening of money and securities markets. Such reforms, and the developments that follow, have important implications for the design and conduct of monetary policy. This paper provides an overview of the linkages between financial sector reforms and the monetary policy framework, focusing in particular on the objectives, instruments, and operating procedures of monetary policy.

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I. Introduction

Financial sector reforms are basically policy measures designed to deregulate certain operations of the financial system and transform its structure, with the view to achieving a liberalized market-oriented system within an appropriate regulatory framework. The pace of financial sector reforms and innovations began to accelerate in the late seventies in many industrial countries and in the early eighties in a number of developing countries of the Pacific Basin and Latin America; currently, major financial reforms are underway in many African countries and in Eastern Europe. The initial situation in many developing countries and in the formerly centrally planned economies of Europe was characterized in the main by direct controls on interest rates and credit allocation, the absence of well-developed money and securities markets, and underdeveloped banking systems. With reforms of the financial sector, this situation is giving way to a greater flexibility in interest rates, an enhanced role for market forces in credit allocation, increased autonomy to commercial banks, and a gradual deepening of money and securities markets. In parallel with these developments, the framework of monetary policy is also undergoing major changes. Bank specific credit ceilings and selective credit allocations are being replaced by market-based instruments to implement monetary policy, and prudential supervision systems to foster sound credit decisions are being put into place.

In support of such a transition, financial sector reforms have, in varying degrees, involved measures to achieve the following objectives: providing greater independence to central banks in macroeconomic stabilization and adjustment efforts; fostering competition in the banking system; strengthening the balance sheets and portfolio quality of banks; developing an effective banking supervision system; promoting money and securities markets; and strengthening the clearing and settlement system for payments. The relative importance of these objectives and the specifics of supporting measures have varied from country to country, depending upon, inter alia, the prevailing initial conditions, the commitment to reform on the part of the authorities, and the speed of the reform process.

In all cases, however, such reforms have been motivated by the need to pursue stabilization and broader structural reform objectives in an efficient and effective manner. It is apparent that the linkages among financial sector reforms, the monetary policy framework, and stabilization and other structural reform policies are close and complex. Successful pursuit of stabilization policies is necessary for the effectiveness of broader structural reforms--price reforms, fiscal reforms, exchange and trade system reforms, and industrial restructuring policies--and supporting financial sector reforms. At the same time, it is clear that stabilization policies may not be sustainable unless they are supported by rapid structural changes in key areas. In particular, wide-ranging structural changes in the financial sector are often needed for the effective and efficient conduct of monetary policy, without which progress toward macroeconomic and financial stability would be difficult to achieve. Indeed, there is a growing literature which suggests that the structure

of the financial sector can have significant influence on macroeconomic performance. 1/

Furthermore, the appropriate sequencing of different types of structural reforms has been found important for overall stability. 2/ These complex interactions pose special challenges in the design of the specifics of reform measures in the financial sector, and in the sequencing of these measures in coordination with the stabilization and other structural policies.

Against this background, the purpose of this paper is to provide an overview of linkages between financial sector reforms and the monetary policy framework, in particular the objectives, instruments, and operating procedures of monetary policy, based on recent experiences of developing countries. The focus is primarily on how financial sector reforms impact on the design and conduct of monetary policy, rather than on financial sector reforms per se. 3/ Section II of this paper presents a conceptual framework which highlights the role of financial sector reforms in facilitating the transition of the monetary policy framework. Section III deals with the implications of financial sector reforms for the objectives and design of monetary policy, by considering the impact of reforms on money demand, the money supply process, and the transmission mechanism between monetary policy and the principal macroeconomic aggregates. Section IV presents some issues in the implementation of monetary policy in the context of financial sector reforms, with a particular focus on problems of transition. Section V contains some concluding remarks.

II. A Model of Financial Sector Reforms from the Monetary Policy Perspective

The transition from direct controls on interest rates and credit aggregates toward indirect management of these variables, using increasingly market-based instruments, can be seen as an interactive and evolutionary process, whereby certain financial sector reforms facilitate the transformation of monetary policy framework and vice versa. As illustrated in the stylized set up of Chart 1, this process can be divided conceptually--not necessarily chronologically--into several stages, distinguished by the degree of interest rate flexibility that obtains at each stage. The transition from one stage to the next typically involves parallel reforms in many central banking functions and in the broader financial sector.

Country experiences clearly illustrate the need for parallel or prior reforms of the financial sector in the process of moving toward greater flexibility in interest rates and their eventual liberalization. In

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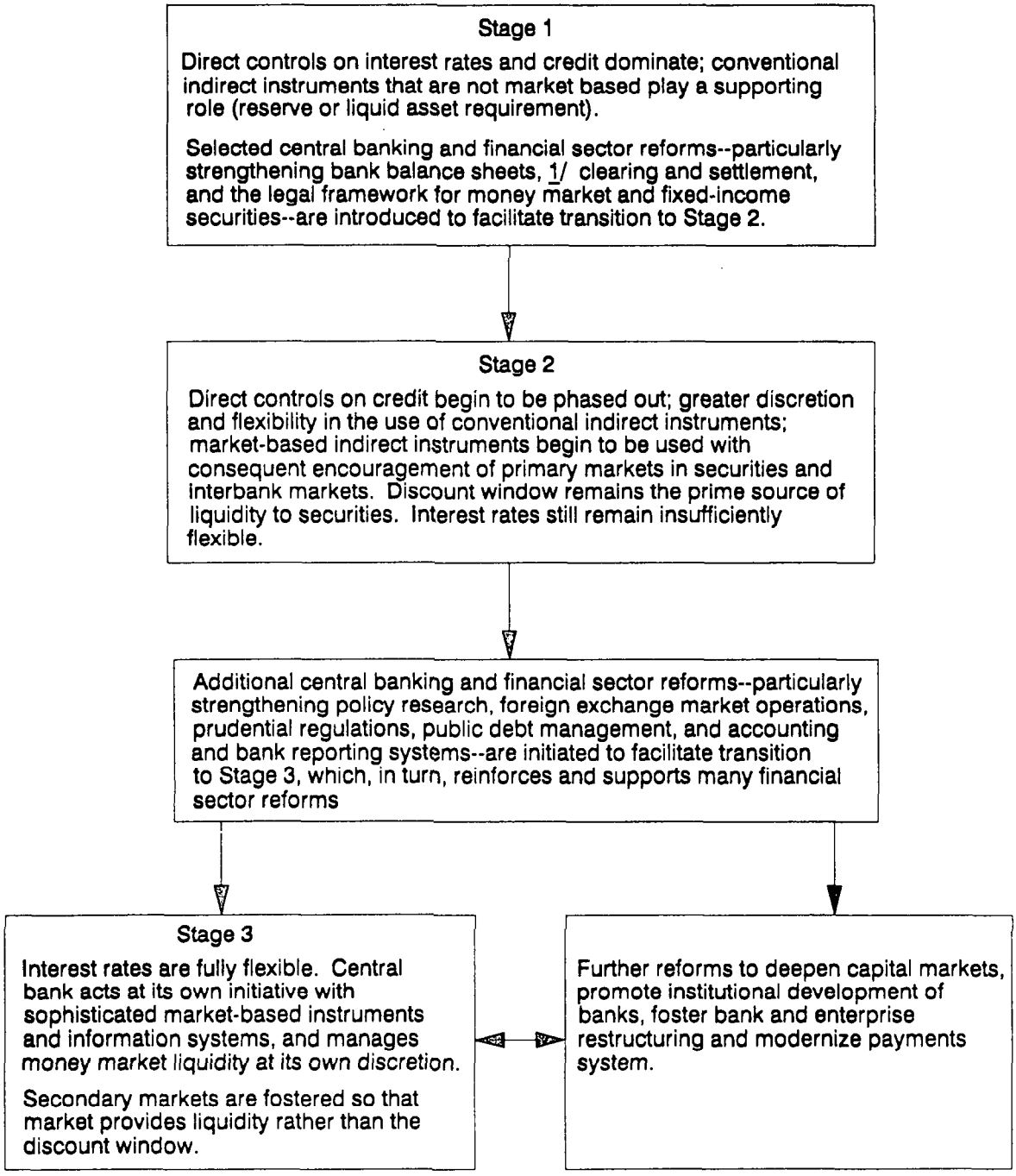
1/ See in particular Gertler (1988) for a survey of this literature.

2/ See, for example, Genberg (1991).

3/ For case studies and analysis of financial sector reforms, see World Bank (1989).

Chart 1
STYLIZED MODEL OF REFORMS OF THE FINANCIAL SECTOR AND MONETARY CONTROL
(Arrows indicate the direction of influence)



1/ Includes actions to deal with fixed-rate loans, nonperforming loans, capital adequacy, and subsidized selective credits, etc.

general, successful interest rate liberalization--that is, the successful management of interest rates through indirect instruments--is associated with: a relatively stable macroeconomic environment; an interest rate structure that is not in serious disequilibrium prior to liberalization; adequate competition in the banking sector; reasonable financial strength in the banking sector; an active and well-functioning money market; monetary policy instruments that are able to influence the marginal cost of funds to banks; and sufficiently strong bank supervision policies and instruments. 1/

Although theoretically it is possible to conceive of an optimal sequence of reforms, in a majority of developing countries reforms of monetary management and development of money markets have to be pursued simultaneously. This is because, in practice, there are strong policy and operational linkages between the development of interbank money markets and of markets in short-term instruments on the one hand, and the reforms of monetary management and development of market-based instruments of monetary policy on the other. Owing to these linkages, money market development has been emphasized early in the reform sequence in many countries, (e.g., Malaysia, India, Indonesia).

The absence of well-developed money and securities markets implies that market-based instruments rely on operations in primary markets in securities--typically government securities--and in the unsecured interbank market. Recognition that such operations have to be carried out at market-related yields is a key step in stimulating interbank and money markets. Such markets, in turn, facilitate the efficient redistribution of surpluses and deficits of short-term funds which is necessary for the smooth operation of indirect instruments. These technical linkages have to be exploited early in the reform program to provide adequate structural and operational support for implementing efficient monetary policy. Early start on such an interactive reform process is required, also because such reforms can take some lead time to implement owing to the need to put in place simultaneously various complementary changes in forecasting and other information systems, and sometimes in the underlying accounting and interbank settlement systems themselves. Moreover, the reliance on primary markets in government securities as a means of implementing monetary policy generally calls for supporting changes in domestic public debt management policies and procedures. Thus, many parallel reforms in central banking functions, money market structures, and public debt management procedures are seen to be involved in the transition from direct to market-based monetary management (from Stage 1 to Stage 2 in Chart 1).

As money and securities markets continue to develop, the range of monetary policy instruments and operations could be further widened. This enables the central bank to act primarily at its own initiative, with more sophisticated instruments and information systems, and manage financial

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1/ See, for example, Leite and Sundararajan (1990).

market liquidity at its own discretion (Stage 3 in Chart 1). The range of indirect instruments would now extend to include, in addition to reserve requirements and conventional refinance facilities at preannounced interest rates, arrangements for greater discretion in the use of refinance, special refinance facilities at the initiative of the central bank (e.g., refinance auctions, refinance quotas), operations in the primary issue market (e.g., central bank or treasury bill auctions), operations in the unsecured interbank market (e.g., operations in government deposits, intervention in interbank market through a specific lead bank, special deposits with central banks, etc.), repurchase operations in specified securities (and in the foreign exchange market), and direct interventions in secondary markets. In general, the role of operations in the primary market to manage bank reserves would decline in relative importance, while that of other market-based instruments would rise. The level of reserve and liquid asset ratios would be reduced owing to the availability of market-based instruments. The importance of "defensive" monetary policy operations--operations to smooth out short-term fluctuations in bank liquidity and short-term interest rates--would also rise in order to prevent excessive interest rate volatility and to ensure that changes in trends are not obscured by day-to-day volatility. 1/ Such defensive monetary policy operations help to speed up the transmission of the effects of monetary policy and enable smooth functioning of the financial markets.

In moving toward full interest rate flexibility, parallel reforms of prudential regulations and supervision systems and financial restructuring policies to deal with problem loans and enterprises have been found particularly important. Sound prudential policies and their proper enforcement are critical for minimizing major disruptions to growth and stability. Inadequacies of prudential policies and enforcement procedures, and the failures to correct macroeconomic imbalances in a timely fashion in the course of financial reform, together contributed in some countries (e.g., Chile, Uruguay) to excessive increases in interest rates, in part reflecting excessive risk-taking by banks. To prevent such outcomes, in addition to setting up adequate banking supervision, appropriate measures to recapitalize banks and deal with problem loans may have to be initiated in order to ensure the effectiveness of adjustment policies and success of interest rate liberalization. In many countries, decisions on interest rates have been constrained by a large share of low-fixed rate loans as well as non-performing loans in bank portfolios. Some initial financial restructuring policies to deal with these problems would greatly facilitate more active interest rate policies, and more efficient credit allocation. 2/

1/ Although most central banks have historically sought to minimize interest rate volatility, analytical and empirical discussions of the impact of such volatility is scarce.

2/ See Sundararajan and Baliño (1991) for a discussion of macroeconomic implications of portfolio weaknesses of banks, and financial restructuring policies to address these weaknesses.

III. Implications of Financial Sector Reforms for the Conduct of Monetary Policy

The various financial sector reforms discussed in the previous section--in particular, removal of credit ceilings, liberalization of interest rates, strengthening of prudential regulations, and development of financial and securities markets--can have substantial and important effects on the demand for money, the money supply process, and the transmission mechanism between monetary policy and key macroeconomic aggregates, such as prices, output, and the balance of payments. This section examines the potential effects of financial sector reforms on the demand and supply of money, and then describes how the transmission mechanism is likely to change in the wake of financial liberalization.

1. Effects on money demand and supply

The quantitative formulation of monetary policy typically assumes the existence of a relatively stable money demand function. 1/ Financial reforms that affect the determinants of the demand for money--income, prices, interest rates, exchange rates--may lead to significant changes, and possibly instability, in the demand for money. Such changes in the demand for money, particularly if they are unpredictable in nature, would obviously make it more problematic to ascertain the liquidity needs of the economy, and thereby create greater uncertainty in the amount of credit and money to be supplied to achieve the policymaker's ultimate objectives. In many countries undertaking financial sector reforms, it has been observed that the ratios of money and credit to GDP have risen, while the ratio of currency to deposits has declined. 2/

The effects of financial liberalization on money demand may be divided into one-time shifts of monetary stocks, and changes in the elasticities of money demand with respect to its determinants. 3/ One-time shifts--changes in the stock of monetary aggregates--may result from portfolio reallocations arising from interest rates better reflecting the risk-return characteristics of financial assets, from the removal of certain quantitative restraints in the types of assets that can be held, and from the development of new assets that would compete with money. Structural changes in money demand--changes in the effects of the variables determining money holdings--may be brought about by some of the same factors and by the move toward indirect monetary control instruments, when administrative credit ceilings are replaced by voluntary portfolio behavior of agents in response to changes in income, wealth, and interest rates, and by policies to improve

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1/ This requirement is sometimes interpreted incorrectly as implying that income velocity be constant. What is required, however, is that the demand for money, or velocity, be a predictable function of a few variables.

2/ See Bisat, Johnston, and Sundararajan (1990).

3/ For details on the effects of financial liberalization on the demand for money, see Tseng and Corker (1991).

and deepen financial markets. The consequent competitive pressure and lower transaction costs in financial markets, and a reassessment of risks of financial assets are likely to lead to portfolio shifts and heightened sensitivity of money demand to changes in income, wealth, and interest rates.

Consider, for example the case of interest-rate effects on the demand for money. In many developing countries interest rates are seldom considered an important determinant of the demand for money for two main reasons. First, the lack of suitable alternative financial instruments tends to restrict agents to holding only monetary claims--principally currency and bank deposits. Second, interest rates are typically under official control and often are set below their equilibrium level. Since there are few interest-bearing financial assets and interest rates are infrequently changed, it is not altogether surprising that the effect of interest rates can be ignored or discounted. Financial reforms that result in an increase in the menu of financial assets bearing market interest rates are clearly likely to lead to an increased sensitivity of the demand for money to interest rates. Furthermore, as reform of the financial sector is a dynamic process, changes in the demand for money may occur continuously over time. Thus, shifts in the demand for money are not only likely in the short run, but are a possibility even in the long run.

Turning now to the money supply process, in the pre-liberalization period characterized by direct controls on credit, interest rates, exchange rates, and capital flows, the traditionally measured money supply can often be specified simply as a function of reserve money. 1/ This assumes no change in the behavior of the public or the banks; the money multiplier is assumed constant. In the post-liberalization period, both the public and

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1/ The money supply can be related to the money multiplier and reserve money as follows:

$$(1) \qquad M = mRM$$

where M is the stock of money, m is the money multiplier, and RM is the stock of reserve money. The money multiplier can be expressed as:

$$(2) \qquad m = (1 + C/TD)/(C/TD + RE/TD + RR/TD)$$

where C is the stock of currency, TD is total deposits, RE is excess reserves of banks, and RR is required reserves. Insofar as these ratios in (2) are constant owing to the fixity of their determinants in the pre-liberalization period, equation (1) is a useful representation. In practice, the combination of credit ceilings and unfettered growth in bank reserves (e.g., liberal provision of refinance to support selected priority sectors) could lead to large build-up or variations in excess reserves, causing the money multiplier (m) to vary, but possibly in a predictable way.

the banks are free to choose their asset-liability portfolios according to market-determined rates of return and relative risks. As such, the components of the money multiplier can no longer be considered constant, but rather as endogenous variables that respond to changes in income, wealth, and interest rates. Among these components--namely, the currency-deposit ratio, the excess reserve ratio, and the required reserve ratio--only the required reserve ratio is directly influenced by policy. The other two ratios are behavioral functions of income, wealth, and the various interest rates (reflecting opportunity costs) facing both the public and the banks. When interest rates are liberalized and portfolio restrictions lifted, these component ratios are expected to change and, by changing the money multiplier, have an impact on the money supply. For example, the elimination of credit and interest rate ceilings facilitates a decline in excess reserves, reinforced by higher lending rates, while an increase in deposit interest rates generally lead to higher demand for bank deposits. The reduction in reserve requirements raises the value of the money multiplier and, for a given level of reserve money, the money supply as well. The increase in the money multiplier is also supported by the fall in the currency-deposit ratio as the opportunity cost of currency holdings rises, 1/ and by a lower excess-reserves ratio prompted by higher bank lending rates and deepening of money markets. Thus, the interdependence of reserve money operations and the money multiplier, absent during the pre-reform period, is a major result of financial liberalization. The predictability of the money supply hinges not only on the actions of the monetary authorities via changes in reserve requirements and reserve money operations, but also on the predictability of the demands for currency, bank deposits, and excess reserves. Any variations in these demands translate into difficulties in forecasting the money supply following financial liberalization. Thus, it is readily apparent from a theoretical standpoint that financial liberalization--by altering the behavior of the public and banks--will change both the demand for money and the money supply process. By how much is an empirical question.

There have been several empirical studies of the effects of financial liberalization on the demand for money. For example, a recent study of nine Asian countries in different stages of financial sector reform reveals instability of the short-run demand for money in five of the nine cases and stability of the long-run demand for money in all cases. 2/ In addition to one-time shifts and changing income and interest-rate elasticities,

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1/ The currency-deposit ratio is also likely to fall for another reason: the process of reintermediation of financial flows back to the previously controlled banking system, and away from less regulated intermediaries and financing channels, which are unlikely to have been measured in monetary statistics previously.

2/ See Tseng and Corker (1991). The countries in the sample are: Indonesia, Korea, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, and Thailand. The sample period is from the early 1970s to 1989, and both narrow and broad money concepts are used.

instability is reflected in the significance of interest rate variables that were unimportant in the pre-reform period. Evidence on the effects of financial innovations--which are possible once financial sector reforms are undertaken--on the demand for money can also be brought to bear on this issue. For example, Arrau et al. (1991) show in a sample of ten developing countries that the role of financial innovation (modelled in alternative ways) was quantitatively important in determining money demand. 1/ This same paper goes on to argue that, while it may be difficult to measure and forecast financial innovations, it is necessary to take them into account. Failure to do so may lead to inaccuracies in the projection of the demand for money, and in problems in identifying the transmission mechanism for monetary policy.

In contrast to the availability of empirical studies of the effects of financial liberalization on the demand for money, empirical evidence on the effects on the money supply process is lacking. While there is evidence that the money multiplier and its component ratios do tend to change over time, 2/ demand equations for currency, bank deposits, excess and borrowed reserves (or free reserves) have yet to be estimated for periods that include pre- and post-financial liberalization. In theory, as mentioned above, in the absence of offsetting changes in reserve money, increases in real interest rates and reductions in reserve requirements following financial reforms would tend to raise the money supply through an increase in the money multiplier brought about by shifts out of currency and into bank deposits, by declines in excess and free reserves, and by lower required reserve ratios. Validation of the theory by empirical analysis needs to be undertaken, although it should be noted that this will prove more difficult than in the case of the demand for money, if only because a larger number of demand functions need to be estimated and tested for stability.

2. Effects on the monetary policy transmission mechanism

In industrial countries with highly developed financial markets, a broad consensus on the nature of the transmission mechanism has existed for some time. 3/ In brief, an expansionary monetary policy undertaken, for example, through an increase in bank reserves supplied by the central bank via an open market purchase, leaves the private sector with too much money in its portfolio relative to other assets. In re-establishing portfolio equilibrium, banks increase credit and agents bid up the price of securities and durable assets, thereby lowering their respective rates of return. Since the market price of securities rise, while that of durable assets, such as physical capital, increase relative to their replacement costs, agents attempt to increase their stocks of such assets by increasing their

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1/ The countries include: Argentina, Brazil, Chile, India, Israel, Korea, Malaysia, Mexico, Morocco, and Nigeria.

2/ See Bisat, et al. (1990).

3/ See, for example, Laidler (1978).

demands for newly-produced units of the latter. In this way, an open market purchase of securities results in an increase in aggregate demand. Essentially, interest rates represent the key link between monetary actions and macroeconomic variables. The central bank alters interest rates indirectly, which in turn affects the interest-sensitive components of aggregate demand--housing, consumer durables, and investment expenditures--and thus prices, output, and the balance of payments. With a floating exchange rate, the central bank's actions also affect the exchange rate, which then have further effects on the components of aggregate demand through changing wealth and relative prices.

In developing countries on the other hand, the picture is somewhat different. 1/ In the first place, the menu of assets available to private agents is very limited. Organized securities markets in which the central bank can conduct open market operations scarcely exist in many developing countries. By and large, individuals can hold currency and deposits issued by the banking system, and they can borrow from commercial banks, although informal markets often emerge, resulting in financial disintermediation through "curb" markets for deposits and loans. Durable goods, such as land and physical capital, can be held directly, but organized equity markets are small or nonexistent. Capital controls and prohibitions on the holding of foreign exchange limit the extent to which foreign assets may be acquired by domestic residents, although parallel markets for foreign currency surface in response to such regulations, thereby allowing agents to circumvent official controls, at least in part. Finally, even in the case of those assets and liabilities available to individuals, such as demand, time and savings deposits, and bank credit, official restrictions often determine the interest rates paid and charged by financial institutions, although a variety of methods of circumventing interest rate controls typically tend to emerge.

Monetary policy in such a controlled environment operates primarily through a credit-rationing channel, with the role of interest rates depending upon the extent of circumvention of direct controls through informal or less-regulated markets. Changes in the supply and allocation of credit--brought about typically through administrative means--have direct effects on aggregate demand. In simple terms, those agents who have credit made available to them are able to expand demand. Insofar as the effects of interest rates on the economy are concerned, there exist basically two schools of thought. Adherents of the McKinnon (1973) view maintain that raising controlled bank interest rates need not be contractionary, because in a rationed regime the induced increase in saving will result in an increased supply of credit which facilitates the financing of private investment and working capital. By contrast, the "neo-structuralist" view, as represented for example by van Wijnbergen (1983), emphasizes the importance of informal loan markets when bank interest rates are subject to

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1/ See Montiel (1991) for a detailed discussion of the transmission effects of monetary policy in developing countries.

legal ceilings. In this case it is argued that increases in bank interest rates will draw funds away from such markets, thereby increasing the marginal cost of funds and exerting contractionary effects on the economy from both the demand and supply sides. 1/ It can be noted that for the McKinnon school the primary channel of transmission is through the direct effect of the controlled bank-deposit interest rate on private saving, whereas the neo-structuralist school focuses on effects which are transmitted through the loan interest rates (both formal and informal) to interest-sensitive components of demand and supply--much as in the case of developed economies.

The removal of credit ceilings, liberalization of interest rates, and the supporting financial sector reforms change the transmission channel for monetary policy from predominantly direct credit rationing discussed above, to predominantly price rationing through market-determined interest rates. 2/ The transmission channel thus moves from the typical developing-country case to approximate the developed-country paradigm. In this regard, the key market is that for bank reserves, which the monetary authorities attempt to influence through control over the stock of reserve balances of banks. For example, a decrease in bank reserves brought about by open-market sales of securities would raise short-term interest rates, which, if perceived to be a lasting effect, would ripple along the yield curve to influence the medium- and long-term rates as well. In addition, in an open economy with liberalized capital accounts and different degrees of flexibility in exchange rates, capital flows and exchange rates provide additional transmission channels for monetary policy. In countries with relatively open foreign exchange markets, but fixed exchange rates, capital flows would prevent the domestic interest rate from deviating substantially, and for any length of time, from international rates. For instance, a decrease in bank reserves via open-market sales would raise the domestic interest rate. The resulting capital inflows would negate both the initial reduction in reserves and the initial increase in the domestic interest rates. In these circumstances, the monetary authorities do not fully control the supply of money, which is partly determined by balance of payments deficits or surpluses. Full control in this case requires sterilization of balance of payments imbalances. Absent adequate amounts of securities and foreign exchange, such sterilization would be difficult to sustain while maintaining the fixed exchange rate. On the other hand, where capital flows are free and exchange rates flexible, the capital flows induced by the increase in domestic interest rates tend to appreciate the domestic currency, which gives a measure of independence to short-run domestic interest rates, and reinforces the restrictive monetary policy

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1/ In the latter case, due to the need to finance working capital.

2/ It should be noted that even in liberalized markets, an important element of quantity rationing by banks is likely to remain optimal, for example, because of uncertainty and information costs involved in credit analysis. See Stiglitz and Weiss (1981).

by lowering demand for domestically produced tradable goods and reducing inflation.

In a liberalized financial environment, the term structure of interest rates is also an important aspect of the transmission process for monetary policy, since financial liberalization is likely to affect the yield curve. 1/ Whether the relationship between short-term rates and long-term rates is affected or not depends on two interdependent factors: the direct liquidity effect and the effect of the inflationary expectations-monetary policy credibility nexus. Under the first effect, short-term rates are negatively related to discretionary monetary operations. Insofar as the second effect is concerned, a credible restrictive monetary policy which is perceived to be anti-inflationary will likely reduce the inflation premium built into long-term rates. On the other hand, a contractionary monetary policy that lacks credibility will do relatively little in affecting long rates. Since, in a liberalized financial regime, the private sector has greater freedom to manage its portfolio, including its maturity structure, any policy-induced increase in short-term interest rates would be dampened by substitution away from long-term assets in the expectation of higher yields insofar as policy is seen to be credible. 2/ In response to changes in reserve money, the short-term rates and the relationship between short and long rates may also be affected by the endogenous behavior of the components of the money multiplier to initial changes in the short rates. The changes in interest rates on treasury bills and securities associated with open-market operations affect bank deposit and lending rates and, hence, the currency and excess reserve ratios. 3/ Changes in bank deposit and lending rates and in other interest rates would also influence private decisions to accumulate real and financial assets and to purchase goods and services via income and wealth effects.

1/ See OECD (1990).

2/ For example, if an increase in short-term interest rates is seen as a clear shift toward tightness and reduces expected inflation, then long-term rates would decline, and the substitution effect would dampen short-term rates. Therefore, for a temporary period, a credibly restrictive monetary policy could produce a negative yield curve. Similarly, if the authorities add to bank reserves and attempt to reduce short-term rates, and if this is seen as a weakening of the anti-inflationary stance, then long-term rates would tend to increase (reflecting higher inflationary expectations), which would pull shorter rates back up through substitution effects.

3/ The impact of short-term rates (that can be controlled by the central bank) on bank deposit and lending rates (that are based on banks' pricing and portfolio decisions) could be complex, and will depend upon the extent of competition in banking industry, the regulatory constraints and quality of bank assets that affect portfolio choice and marginal costs (e.g., capital adequacy and provisioning rules, reserve and liquid asset requirements, proportion of nonperforming loans, etc.), and the degree of openness of the economy to capital flows.

The relative importance of liquidity effect in financially liberalized industrial countries can be ascertained from the results of empirical tests of the relationship between long-term rates and both short-term and foreign interest rates (OECD, 1990). For most of the major OECD countries, the sensitivity of long rates to short rates is reduced during financial liberalization, while the responsiveness to foreign rates is increased. This suggests that financial reforms increase the relative importance of inflationary expectations and of foreign rates in interest rate determination, while the impact of domestic liquidity on the slope of the yield curve becomes weaker.

It should be noted that even in financially liberalized economies variations in the availability of credit have been considered an important transmission channel for the effects of monetary policy by various economists. This "credit school" has gathered strength in recent years owing to recent analytical and empirical developments in explaining credit rationing and examining credit market disturbances, and has proposed the view that changes in credit availability can have large effects on the real economy, both on the level of aggregate output and its sectoral distribution. This observation has implications for the choice of financial aggregates as targets of monetary policy, and calls for more explicit attention to bank regulations, bank behavior, and credit market conditions in formulating and analyzing monetary policy. 1/ Thus, the relative importance of credit rationing and price rationing as channels of monetary policy will be affected not only by the degree of progress toward interest rate liberalization, but also by the prevailing macroeconomic environment and financial structure that govern bank behavior toward credit allocation. 2/

The discussion above shows that both the relationship between financial aggregates and ultimate objectives, as well as the controllability of aggregates--that is, the relationship between instruments and operating targets of monetary policy on the one hand, and financial aggregates on the other--are likely to undergo changes in the process of financial liberalization. Therefore, the choice of financial aggregates that could serve as intermediate targets to guide monetary policy, as well as operating procedures to ensure monetary control, have undergone changes in most countries. First, the coverage of instruments that constitute different monetary aggregates, and the information content of various aggregates, have been reexamined in many industrial and developing countries. Second, central banks have placed increasing reliance on a basket of indicators, rather than a single intermediate target--such as a particular financial aggregate or interest rate--and pragmatically reset the chosen targets on the basis of latest available information developments. Third, as discussed

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1/ See Jaffe and Stiglitz (1990), and Modigiliani and Papademous (1980, 1987), for discussions of credit market behavior and their role in the transmission of effects of monetary policy.

2/ See, for example, Villanueva and Mirakhor (1990).

in the next section, the issue of appropriate choice between interest rate targets and financial aggregate targets has received increased attention. Finally, the instruments and operating procedures of monetary policy have undergone major changes in all countries that undertook financial liberalizations, in order to improve monetary control in the changing environment. Some institutional and policy factors that affect the choice of monetary policy instruments and implementation procedures are discussed next.

IV. Operational and Institutional Aspects of Monetary Policy During Financial Reform

In discussing monetary policy in a liberalized system, the previous section highlighted the key roles of bank reserves and short-term interest rates in market-based monetary management. The procedures and instruments by which the central bank tries to influence the level of bank reserves and short-term interest rates (and exchange rates) depends upon several institutional factors; among these, the stage of development of money markets, the nature of the clearing and settlement system (including the associated reserve accounting framework), and the type of domestic public debt management system are in general the most important. These factors influence the design of the monetary policy instruments, and the instrument mix. Hence, reforms of these factors are of first order of importance for monetary policy implementation. As already noted, the monetary policy framework, by itself, has an impact on the structure and depth of the money market. The nature of the clearing and settlement system is also another dominant force influencing the structure of the money market. The operational implications of the above-mentioned institutional factors are taken up in this section. 1/

The need initially to use primary markets--in part reflecting the lack of depth of secondary markets--in government securities for both monetary and debt management, raises a variety of operational and institutional questions relating to coordination of treasury and central bank policies. If the supply of government securities to the market based on debt management considerations proves insufficient or excessive and cannot be effectively coordinated with monetary goals, should the central bank operate with its own securities for managing bank liquidity? What are the relative roles of the treasury and the central bank in the primary issue, in managing the secondary market in government securities, in the clearing and settlement of transactions in government securities, and in short-term cash forecasting to facilitate debt and monetary management? If liquid asset ratios are used for monetary and debt management, what is the appropriate transition strategy to move toward voluntary debt issue and market-based

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1/ For further elaboration of monetary policy implementation procedures, see Freedman (1990), and Kneeshaw and Van den Bergh (1989) for the case of industrial countries, and Johnston and Brekk (1989) for the case of developing countries.

instruments? Such questions have been addressed in many countries in the course of monetary reforms (e.g., Poland, Nepal, New Zealand, and Malaysia).

Several aspects of the payments system play a crucial role in the implementation process. First, whether the clearing and settlement of money market transactions take place on the same day or with a lag (or whether there is a mixed system) affects the demand for excess reserves. The level and volatility of excess reserves depend upon not only the accounting rules governing clearing and settlement between the central bank and banks, but also those governing the bank and its customers. 1/ These rules, together with the level of communications technology, could cause large variations in the size and variability of interbank float and this has major implications for the design and effectiveness of indirect instruments. The lags and other features of the settlement system for payments, the terms and conditions of access to central bank credit (to settle payments), and the rate of remuneration on excess reserves, are some of the key elements that determine the demand for excess reserves and short-term money market conditions.

The structure of the reserve requirement system--particularly reserve averaging and the length of period over which averaging is done--also interacts with the clearing and settlement system and affects the extent of volatility of short-term interest rates, and the operating costs to banks. For example, reserve averaging reduces interest rate volatility caused by the uncertainties and lags in the settlement system. Lags in the reserve requirement, and coverage and uniformity of such requirements across institutions and instruments are, of course, important factors affecting monetary control. Reforms in reserve requirement systems have figured prominently in many financial reform episodes (e.g., Malaysia in 1989; USA in 1984); some countries have even instituted zero reserve requirements (New Zealand, Canada, United Kingdom, Mexico), supported by adaptations in their interbank settlement and refinance systems.

Refinance systems--the rules and procedures by which central bank provides credit to financial institutions--have also undergone major changes in the course of financial reforms. Refinancing and rediscounts provided at the initiative of the central bank have increased, while the amounts provided through conventional credit facilities at preannounced rates have declined. In particular, the use of sale and repurchase transactions in securities and bills, and of auctions of refinance, has increased as a means to supply reserves at the initiative of the central bank. Such changes in procedures have facilitated greater flexibility and control over short-term interest rates, and fostered greater activity in money markets.

The choice of operating system for monetary policy by itself influences the pace of structural reforms. First, active liquidity management by the

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1/ See Summers (1991) for a discussion of the role of central banks in payment system reforms.

central bank at its own initiative will induce banks to be active themselves, thereby contributing to the development of markets. Active liquidity management, however, requires strong policy research and information systems to anticipate developments in bank reserves. It is only the central bank that can operate to anticipate and avoid situations of protracted excess liquidity or shortage of reserves when most agents are on one side of the market--and thereby promote conditions conducive to market development. Second, the instrument mix of the central bank should also be consistent with market development goals in addition to achieving the goals of monetary policy. For example, a central bank could readily inject liquidity into the system by not replacing the securities being redeemed. However, in some circumstances, the central bank may choose to maintain the outstanding volume of securities in the market and inject additional needed liquidity through other means, so as to better sustain market development. Finally, the specific design of individual instruments could also contribute to structural development of the financial sector. The choice of securities that are eligible as collateral for refinance or repurchase operations, the specification of eligible liquid assets, and the structure of the reserve requirement system, are some of the factors that affect the demand and supply of securities and affect the interest rate structure and the depth of various segments of the market.

In practice, in addition to such structural considerations, the appropriate mix of instruments to absorb and supply reserves would depend upon the choice of operating targets (borrowed reserves versus unborrowed reserves targets, net domestic assets targets, etc.), and the projected path of autonomous factors affecting bank reserves. This projected path, in relation to the desired path of an operating target, would determine the mix between the instruments to absorb reserves and those that supply reserves, and the maturity of various monetary operations.

Moreover, the choice of operating targets (and intermediate targets) should in principle depend upon the nature of shocks affecting the monetary system. Conventional wisdom, based on extensions of analysis contained in Poole (1984), states that in times of major innovations and reforms in the financial sector resulting in significant shifts in behavior of various money and credit aggregates, it is preferable to target interest rates. In times of major shocks to real economy, it is appropriate to target money or credit aggregates. Similar considerations affect the detailed design of operating procedures. The choice between targeting some short-term interest rates (overnight interbank rates, auction rates for treasury bills, etc.) or various possible quantity targets (excess reserves, free reserves, borrowed reserves, various definitions of domestic credit) also depend on the relative size of disturbances affecting the financial system. 1/ In times of major macroeconomic adjustments and supporting financial sector reforms, it is hard to assess the relative magnitude of various shocks to the real

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1/ See Bryant (1983) for an analysis of the choice of operating targets under alternative sources of disturbances.

sector and the financial system. Therefore, as noted earlier, central banks have often tended to rely on a basket of indicators and pragmatically readjust the chosen target on the basis of latest available information. Nevertheless, at any one point in time, the choice between prices and quantities becomes subsidiary to setting the right target for the prices or quantities based on financial and nonfinancial indicators, and achieving the target through an efficient set of monetary policy instruments that support both stabilization and structural objectives.

V. Concluding Remarks

Financial sector and monetary policy reforms in both developed and developing countries during the past two decades have proved, on balance, to be highly beneficial. Reduced credit rationing and greater interest-rate flexibility have led to improved allocation of financial resources, while increased competition among banks and other financial institutions has lowered the cost of intermediation. At the macroeconomic level, there is growing evidence that countries with more liberalized financial systems have benefitted from increased savings, better and more efficient investment performance, and faster rates of economic growth.

Significant adaptations in the targets and operating procedures of monetary policy have been found necessary in the course of financial liberalization and innovations. These adaptations included pragmatic resetting of chosen targets--whether financial aggregates, interest rates, or exchange rates--based on up-to-date financial and nonfinancial indicators, and improved and flexible operating procedures both to influence the marginal cost of funds to banks and to foster active money markets.

Nevertheless, in a number of cases such reforms have created serious problems for the financial system. The failure to correct macroeconomic imbalances and implement an appropriate supervision framework in the course of financial reform have been the primary reasons for the failure of such reforms. The interaction between macroeconomic instability and inadequate bank supervision has encouraged banks to undertake risky lending in the presence of deposit insurance and loan guarantees, and often resulted in an immediate increase in real interest rates to very high levels, with adverse consequences for investment and growth.

To prevent such outcomes in financial reforms, economic stabilization and improved bank supervision should generally accompany a full liberalization of interest rates, as argued in the stylized framework presented in this paper. Indeed, the improvement of information flow, adequate disclosure, strong supervision of the banking system, and macroeconomic stability are key features of successful experiments in financial liberalization. Based on country experiences, a reassessment of deposit insurance and loan guarantee schemes is also necessary to sharpen the risk analysis performed by banks. Excessive short-term interest rate volatility could be minimized by appropriate designs of specific monetary policy instruments and

operating procedures. For example, reserve averaging, modifications to refinance policy, and improvements in clearing and settlement systems reduce interest rate volatility caused by the uncertainties and lags in the settlement system, and thus improve control over short-term interest rates. Most importantly, the elimination of fiscal imbalances, and timely actions to recapitalize banks and deal with problem loans and enterprises, would help relieve pressures on interest rates. In general, these measures would ensure success in both stabilization and financial liberalization, and thus lead to a more efficient functioning of the financial system.

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